

Multiple Documents

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UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

ASSOCIATION FOR ACCESSIBLE
MEDICINES,

Plaintiff

v.

Case No. 23-CV-02024 (PJS/JFD)

KEITH ELLISON
in his official capacity as
Attorney General
of the State of Minnesota,

**DECLARATION OF
NOAH LEWELLEN**

Defendant

I, NOAH LEWELLEN state as follows:

1. I am an Assistant Attorney General at the Office of the Minnesota Attorney General.
2. Attached as **Exhibit A** is a true and correct copy of: Andrew W. Mulcahey & Vishnupriya Kareddy, RAND Corp., *Prescription Drug Supply Chains: An Overview of Stakeholders and Relationships* (2021).
3. Attached as **Exhibit B** is a true and correct copy of: Kaiser Family Found., *Follow the Pill: Understanding the U.S. Commercial Pharmaceutical Supply Chain* (Mar. 2005).
4. Attached as **Exhibit C** is a true and correct copy of: U.S. DEP'T OF HEALTH & HUMAN SVCS., UNDERSTANDING RECENT TRENDS IN GENERIC DRUG PRICES, (Jan. 27, 2016).
5. Attached as **Exhibit D** is a true and correct copy of: U.S. GOV'T ACCOUNTABILITY OFFICE, GENERIC DRUGS UNDER MEDICARE (Aug. 2016).
6. Attached as **Exhibit E** is a true and correct copy of: SPECIAL COMM. ON AGING, U.S. SENATE, SUDDEN PRICE SPIKES IN OFF-PATENT PRESCRIPTION DRUGS: THE MONOPOLY BUSINESS MODEL THAT HARMS PATIENTS, TAXPAYERS, AND THE U.S. HEALTH CARE SYSTEM (Dec. 2016).
7. Attached as **Exhibit F** is a true and correct copy of: OFF. OF THE MINN. ATTY. GENERAL, REPORT OF THE MINNESOTA ATTORNEY GENERAL'S ADVISORY TASK FORCE ON LOWERING PHARMACEUTICAL DRUG PRICES (Feb. 2020).

8. Attached as **Exhibit G** is a true and correct copy of: MINN. DEP'T. OF HEALTH, MINNESOTA PRESCRIPTION DRUG PRICE TRANSPARENCY: REPORT TO THE MINNESOTA LEGISLATURE (Feb. 2023).

I DECLARE UNDER PENALTY OF PERJURY THAT EVERYTHING I HAVE STATED IN THIS DOCUMENT IS TRUE AND CORRECT.

s/ Noah Lewellen

NOAH LEWELLEN

Dated: July 31, 2023

County of Ramsey, State of Minnesota

Research Report

Prescription Drug Supply Chains

An Overview of Stakeholders and Relationships

Andrew W. Mulcahy and Vishnupriya Kareddy



For more information on this publication, visit www.rand.org/t/RR328-1.

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About This Report

Many stakeholders and steps are involved in the life cycle of a prescription drug as it moves from chemical synthesis and formulation through dispensing or administration to patients. The specific steps involved in prescription drug supply chains often differ depending on the type of drug, the channel of distribution, and the patient's source of prescription drug coverage. The authors describe the stakeholders involved in prescription drug supply chains and the flows of products, payments, and information between stakeholders. Although we present a typical supply chain for retail pharmacy drugs, we also highlight the important supply chain distinctions for specific distribution channels and for specific types of drugs. This report is intended to be a reference for those interested in the prescription drug industry and pharmaceutical policy and economics.

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Summary

Patients, policymakers, researchers, reporters, and others often refer to prescription drugs collectively. All prescription drugs dispensed in the United States are used to treat or prevent disease and are regulated by the U.S. Food and Drug Administration (FDA). Beyond these similarities, there are key differences in how specific drugs are manufactured, distributed, dispensed to patients, and paid for. Relatedly, different stakeholders and economic incentives come into play depending on the category of drug, the distribution channel, and the patient population in question.

Understanding differences in supply chains across types of drugs and distribution channels is increasingly important in ongoing policy discussion and debate around approaches to address high drug prices, ensure optimal investment in drug research and development, and secure supplies of drugs needed to address the coronavirus disease 2019 (COVID-19) pandemic and other public health emergencies. Policy solutions that recognize and address differences in supply chains between categories of drugs and distribution channels are more likely to achieve these goals than those that do not.

This report provides an overview of prescription drug supply chains, first describing typical stakeholders and flows of information, product, and payment between stakeholders, and then detailing deviations from the typical case for different categories of drugs and distribution channels. We intend for the report to be a reference for those interested in the prescription drug industry and pharmaceutical policy and economics.

Approach

We collected information via a literature review, a stakeholder-focused environmental scan, and eight phone conversations with stakeholders of different types. We conducted a total of eight phone conversations with representatives from groups representing drug manufacturers, distributors, group purchasing organizations (GPOs), hospitals, pharmacies, and pharmacy benefit managers (PBMs).

Findings

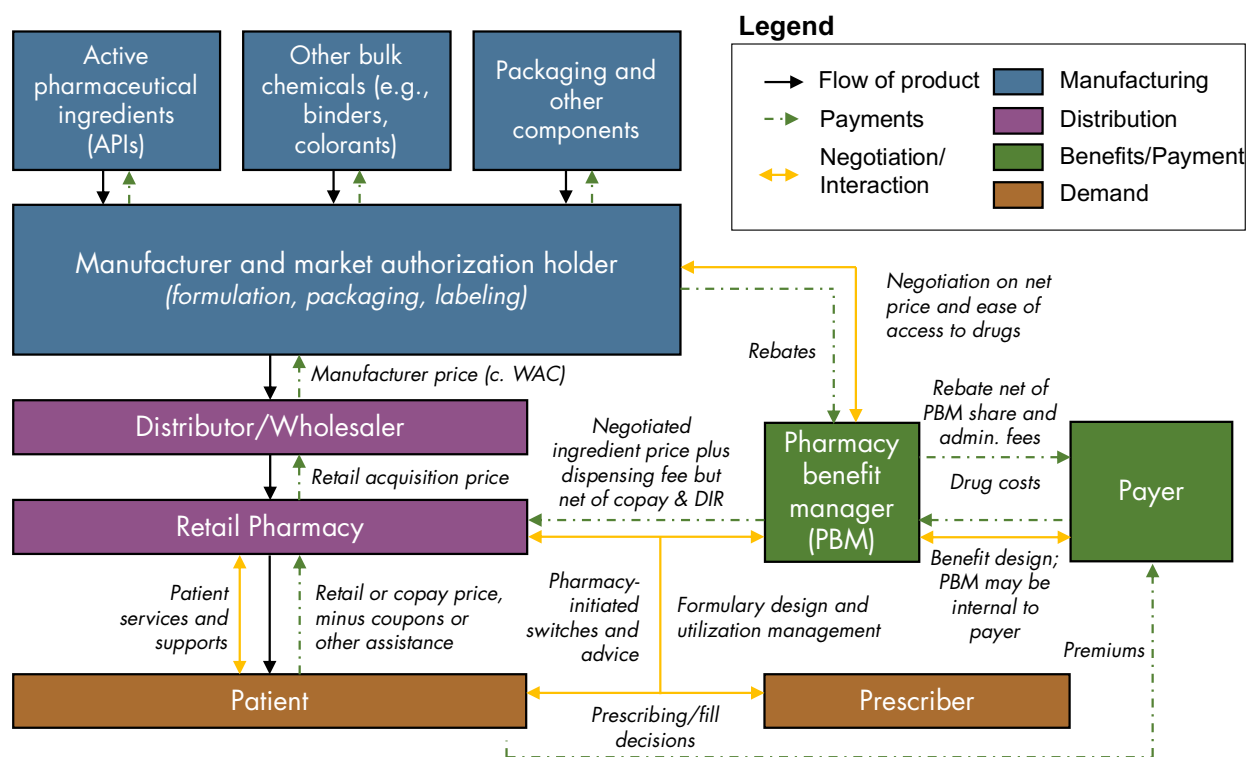
We found that the typical stakeholders, relationships, and financial incentives involved in prescription drug supply chains vary depending on the characteristics of a drug and how it reaches patients. Even within a specific type of drug and a particular distribution channel, differences in business practices complicate a universal description of drug supply chains. Despite this complexity and variation, we identified four common core components of drug

supply chains across all cases: manufacturing, distribution, coverage and payment, and prescribing and demand.¹

See Figure S.1 for an illustration of a typical supply chain for brand-name drugs dispensed via retail pharmacies. In brief, a market authorization holder has FDA approval to sell a given prescription drug. Key steps in manufacturing, including formulation, packaging, and labeling, can be either in house or under contract. These steps rely on many different inputs, including active pharmaceutical ingredients and glass vials, which are often sourced globally and sometimes have applications outside pharmaceutical manufacturing. Finished drug products often reach pharmacies and other points of dispensing via a handful of national distributors, but there are many other distribution models. In general, payers and their PBMs seek more direct control over the route drugs take to get to patients for more expensive drugs.

There are complex flows of information and payments between payers, pharmacy benefit managers, patients, drug manufacturers, and sometimes providers, all of which can vary considerably depending on the drug, patient, and distribution channel. Several large retail pharmacy chains and groups negotiating on behalf of independent pharmacies negotiate both with PBMs and with distributors. For drugs dispensed in hospitals and physician offices, GPOs negotiate prices and other contractual terms on behalf of providers.

¹ Although coverage and payment are not always included in descriptions of prescription drug supply chains, we considered stakeholders involved in coverage and payment to be in scope because of the important linkages between these and other stakeholders.

Figure S.1. Typical Supply Chain for Brand-Name Drugs Dispensed Through Retail Pharmacies

NOTES: c. = circa; DIR = direct and indirect remuneration; WAC = wholesale acquisition cost. Arrows denote relationships involving the flow of product (black arrows), information or negotiation (yellow arrows), and payments (green dashed arrows).

Discussion

Our analysis highlights the complexity of prescription drug supply chains and the important variation in stakeholders and relationships across different categories of drugs, distribution channels, and patient subgroups. As is often the case in U.S. health policy, discussion and proposals must recognize and address these differences rather than apply a one-size-fits-all approach; otherwise, the risk of unanticipated consequences is substantial.

Our analysis excluded supply chains for several categories of drugs, including vaccines, that warrant separate consideration and analysis. Our analysis also excluded narrow but important distribution channels, such as home health and long-term care facilities, that could also be the target of future study. Furthermore, we recommend further analysis on margins for different stakeholders (including study of variation in margins across products and firms), in-depth analysis of drug shortages related to supply chain issues, and the effects of horizontal and vertical integration on supply chains. Finally, given the pace of change in the prescription drug industry, including new arrangements and adaptations in response to the COVID-19 pandemic, we expect the need to revisit this overview of prescription drug supply chains in the future.

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Abbreviations

AMP	average manufacturer price
API	active pharmaceutical ingredient
ASP	average sales price
AWP	average wholesale price
BER	brand effective rate
CGMP	current good manufacturing practice
CMO	contract manufacturing organization
COVID-19	coronavirus disease 2019
CPO	contract packaging organization
CSC	consolidated service center
DIR	direct and indirect remuneration
DMF	drug master file
FDA	U.S. Food and Drug Administration
FSS	federal supply schedule
FUL	federal upper limit
GER	generic effective rate
GPO	group purchasing organization
MAC	maximum allowable cost
NADAC	National Average Drug Acquisition Cost
P&T	pharmacy and therapeutics
PBM	pharmacy benefit manager
PSAO	pharmacy services administrative organization
WAC	wholesale acquisition cost

1. Introduction and Approach

Prescription drugs are used to prevent and treat a wide range of health conditions and diseases. Patients require a prescription from an authorized practitioner to receive prescription drugs, and the manufacture and sale of all prescription drugs sold in the United States is regulated by the U.S. Food and Drug Administration (FDA). Beyond these commonalities, prescription drugs encompass a broad, heterogeneous set of products varying in their chemical composition and complexity, manufacturing processes, distribution channels to reach patients, and uses.

Although a precise accounting is difficult for reasons that will be discussed in this report, recent estimates of the total annual spending on prescription drugs in the United States range from \$450 billion to \$477 billion (Yu, Atteberry, and Bach, 2018; Keehan et al., 2020), or about 12 to 13 percent of total U.S. health care spending in 2018.²

Like other sectors in the U.S. health care system, prescription drugs involve multiple stakeholders and many financial and other relationships. An understanding of the stakeholders and relationships in prescription drug supply chains—which we define broadly to include not just the physical flow of drugs but also flows of information and payment—is an important foundation for both policymaking and analysis in this area.

As in other industries and parts of the U.S. health care system, it is likely that financial incentives drive both the structure of prescription drug supply chains and the behavior of stakeholders. As we will describe, some of these economic incentives likely evolved through business practices and policy changes over decades, while others are the result of more recent innovation on the part of certain participants in the supply chain. Regardless of their origin, the financial incentives in drug supply chains have important implications for the drugs patients receive and at what cost, the resiliency of the market to deal with disruptions in supply and demand, and investment in innovation for new drugs.

There is an important imbalance in the relative contributions of drugs marketed under a brand name versus unbranded generic drugs to total U.S. prescription drug spending and volume. Most brand-name drugs are protected by patents and other forms of market protections granted by the government and, as a result, face limited competition and have high prices.³ After these barriers to competition expire or are successfully challenged by potential competitors, therapeutically

² The percentages are the two estimates of drug spending relative to 2018 total health care spending from the National Health Expenditure data (Keehan et al., 2020).

³ Some companies market older drugs under brand names after patents and exclusivity expire.

equivalent generic versions of prescription drugs introduce competition and drive down prices.⁴ Approximately 80 percent of spending but only 10 percent of prescriptions are for brand-name drugs (Association for Accessible Medicines, 2019). The remaining 20 percent of spending and 90 percent of prescriptions are primarily from generic drugs, where price competition results in lower prices.

Although many stakeholders are involved in the manufacture of, distribution of, and payment for prescription drugs broadly, the relative margins (i.e., net profit) involved often differ across categories of drugs, leading to important differences in incentives. Supply chains, costs, and incentives are likely different for *biologics*, which have large, complex active ingredients manufactured in living systems, compared with small-molecule drugs, which are synthesized chemically (FDA, 2018a). *Biosimilars*, which are drugs that are highly similar to brand-name “reference” biologics, introduce competition like generic drugs but in many respects more closely resemble brand-name than generic drugs, as we will describe (FDA, 2017). Other important differences involve drugs dispensed via mail-order pharmacies rather than retail pharmacies, drugs administered in physician offices or hospitals rather than dispensed through pharmacies, and expensive “specialty” drugs, which are treated differently by both the distribution system and payers.

The aim of this report is to summarize the stakeholders and relationships involved in prescription drug supply chains, starting first with the most common and well-understood area of drugs (those dispensed through retail pharmacies) and then comparing how supply chains vary for drugs dispensed through other channels (outpatient facilities, physician offices, and inpatient hospitals). In each section, we highlight the financial incentives in play and describe common variants on the typical supply chain case. We intend for the report to be a reference for those interested in the prescription drug industry and pharmaceutical policy and economics. Disparate sources exist describing each of the components of the supply chain, but, to our knowledge, no single document has compiled them to facilitate understanding of their interdependence and complexity. Given rapid evolution in how drugs are manufactured, distributed, and paid for, our report is an important update to prior but now dated efforts to describe the prescription drug industry (e.g., Kaiser Family Foundation, 2005). Our report adds to prior surveys of drug supply chains by describing differences between pharmacy and other distribution channels.

Approach

We collected information via a literature review, a stakeholder-focused environmental scan, and stakeholder discussions. We discuss our approach for each below. Across all three avenues

⁴ In the United States, generic drugs are approved via an abbreviated and less-expensive regulatory pathway (compared with the regulatory approval pathway for new innovator drugs). Most generics approved in the United States are determined by FDA to be therapeutically equivalent, and therefore substitutable by pharmacists, relative to an innovator reference drug.

of data collection, we excluded certain types of drug products, including over-the-counter drug products, radiopharmaceuticals, unapproved drugs, vaccines, and compounded drug products, because the supply chains for these niche markets involve additional stakeholders and idiosyncrasies that we could not address given our project resources and timeline.

Literature Review

We reviewed the peer-reviewed and gray literatures to identify papers and other resources that describe prescription drug supply chains. Our initial search terms included (“prescription drug” OR “drug”) AND (“supply chain” OR “stakeholders” OR “margins”); we later used reference mining to identify additional articles for review.

Stakeholder-Focused Environmental Scan

We identified major stakeholder groups through an initial scan of resources identified through the literature review search (suppliers of bulk chemicals and ingredients used in drug manufacture, drug manufacturers, distributors, pharmacies, hospitals and delivery systems, and insurers and pharmacy benefit managers [PBMs]). We then searched for national groups representing these stakeholder groups and identified relevant white papers and reports posted on the websites of these organizations.

Stakeholder Discussions

Separately, we invited several individuals to discuss specific stakeholder groups and relationships with our project team to confirm our understanding of drug supply chains from the literature review. These individuals were often but not always from national associations representing the specific stakeholder categories listed above. We conducted a total of eight phone conversations with representatives from groups representing drug manufacturers, distributors, group purchasing organizations (GPOs), hospitals, pharmacies, and PBMs. A note-taker recorded key points from each phone conversation.

Report Overview

Chapter 2 introduces a typical supply chain for drugs dispensed through retail pharmacies and discusses variants on this initial case. Chapter 3 elaborates on differences between retail pharmacy supply chains and outpatient facility, physician office, and inpatient hospital supply chains. Chapter 4 is a brief discussion of our main findings and directions for future research.

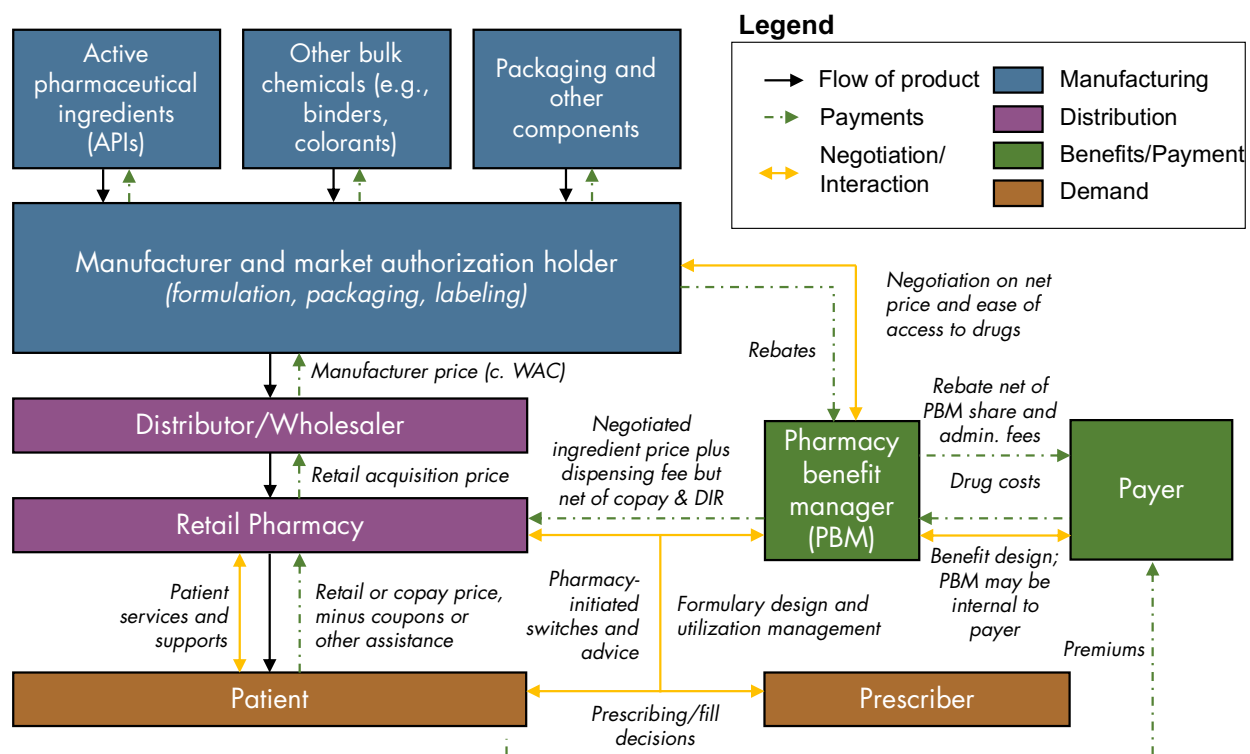
2. Retail Pharmacy Supply Chain Stakeholders and Relationships

This chapter introduces a schematic illustrating the stakeholders and relationships involved in a model supply chain for drugs dispensed through retail pharmacies. We describe how supply chain stakeholders and relationships can vary under different business practices, for different types of drugs, and for patients with different sources of coverage.

Model Retail Pharmacy Supply Chain

A typical supply chain for brand-name drugs dispensed through retail pharmacies (Figure 2.1) involves many stakeholders, which we represent as boxes in Figure 2.1, and many relationships between stakeholders, which we represent using arrows differentiating between relationships involving the flow of product (black arrows), information or negotiation (yellow arrows), and payments (green dashed arrows). The payments illustrated in Figure 2.1 can vary dramatically in terms of magnitude and whether margins for different stakeholders are included. The appendix includes a glossary of pricing terms, and many are discussed in detail later in the report.

Figure 2.1. Typical Supply Chain for Brand-Name Drugs Dispensed Through Retail Pharmacies



NOTES: c. = circa; DIR = direct and indirect remuneration; WAC = wholesale acquisition cost.

The colors of the stakeholder boxes in Figure 2.1 are organized by broad activity and are described in detail in the following sections: blue for manufacture, purple for distribution, green for benefits and payment, and brown for the stakeholders who ultimately prescribe or use drugs. The key stakeholders in each of the boxes in Figure 2.1 are defined briefly below; the following sections explore each of the stakeholders and relationships in more detail.

- A **market authorization holder** has approval from FDA to sell a prescription drug. In the simplest case, the market authorization holder is also the manufacturer, packager, and labeler of a finished drug product. The manufacturer sources **chemicals, including APIs, and other inputs** from other companies to produce finished drug products.
- Finished drug products are shipped to **distributors** that in turn ship drugs to points of dispensing, such as pharmacies and hospitals.
- **Pharmacies** purchase drugs from distributors and, when drugs are dispensed to patients with prescriptions, receive payments from payers or PBMs hired to administer prescription drug benefits.
- For patients with prescription drug coverage, **payers**, which can be health insurers, large employers, or government programs, weigh the generosity of the pharmacy benefit they want to offer (in terms of coverage, cost-sharing, etc.) against the cost.
- Based on payer specifications, **PBMs** design and maintain drug formularies to encourage patients and prescribers to use certain drugs in exchange for discounts from market authorization holders paid to PBMs via rebates, a share of which are passed back to payers, and which ultimately could result in lower premiums or other benefits for insured patients. Separately, PBMs maintain networks of pharmacies, including some preferred pharmacies where dispensing fees are lower.
- **Patients** and **prescribers** ideally make joint decisions on which drugs patients should be prescribed. For patients with prescription coverage, these decisions are influenced by the placement of different treatment options on formularies, with typically lower out-of-pocket costs and fewer utilization management requirements applied to alternatives that are more preferred by payers and PBMs. Patients pay some or all of the cost of the drug when filling prescriptions at pharmacies depending on whether they have coverage or other sources of support.

Manufacturing

Drug manufacturing involves a number of different types of operations, including

1. sourcing and/or synthesizing chemical ingredients
2. combining ingredients into finished dosage forms, such as capsules or pills
3. packaging and labeling finished drug products, such as bottles of pills for distribution.

The company holding the authorization from FDA to sell the drug product is the key coordinator of all these activities, even if they outsource some or even all of the individual steps to other firms. We refer to this company as the *market authorization holder*.⁵

In our model supply chain, the market authorization holder purchases ingredients necessary to manufacture the drug from other companies and then performs all other manufacturing steps internally. In this case, the market authorization holder could also be described as the manufacturer of the drug. In other cases, a company other than the market authorization holder actually manufactures the drug. We discuss several common manufacturing outsourcing scenarios below.

Inputs in Drug Manufacturing

APIs are parts of any drug that produce the intended effect. Prescription drugs are often referred to by their API (e.g., atorvastatin, penicillin, or ibuprofen) even though finished dosage forms, such as tablets and capsules, are composed primarily of other ingredients in terms of volume or weight. Finished dosage form manufacturers sometimes synthesize APIs from chemical precursors internally, particularly for the most important drugs in the manufacturer's portfolios. But they more often buy APIs from specialized chemical companies. Many of the APIs used in the manufacture of drug products sold in the United States come from countries outside the United States—and in particular from China and India.⁶ When a drug product or input is manufactured in a foreign country, an importer is responsible for meeting FDA requirements for entry into the country. An importer is registered and listed with each manufacturing facility that they import from, and multiple importers can be listed with one facility. Importers can be the input manufacturer, the market authorization holder, or a third party.

Other inactive bulk chemicals, including binders, coatings, flavorings, and colorants, are also needed to manufacture drug products. Both APIs and other bulk chemicals tend to be purchased by drug manufacturers in large batches that are then used over relatively long periods of time (e.g., six months or longer). Batches of bulk chemicals are typically shipped by sea or air and stored at the manufacturing site for the finished dosage form.

Manufacturers of APIs and other chemicals can submit a drug master file (DMF) to FDA describing the ingredients, manufacturing steps, stability, purity, and other characteristics of the

⁵ FDA grants marketing authorization after review of new drug applications for small-molecule drugs and some types of biologics under the Food, Drug, and Cosmetic Act (21 U.S.C. § 355) or biologic license applications for other types of biologics per the Public Health Service Act (Pub. L. 78–410).

⁶ Exact shares of the amount of API sourced by country are not available. FDA tracks the number of approved API manufacturing facilities but not the volume or sales from specific facilities. A recent FDA report details that 88 percent of API manufacturing sites are foreign (FDA, 2019). According to an older U.S. Government Accountability Office report, “FDA estimates that nearly 40 percent of finished drugs and approximately 80 percent of active pharmaceutical ingredients (API) are manufactured in registered establishments in more than 150 countries” (U.S. Government Accountability Office, 2016).

chemical (FDA, 2020; FDA, 1987).⁷ FDA reviews the submitted DMFs for completeness but never formally approves or disapproves them; it does, however, consider the content of DMFs when reviewing new drug applications.⁸ Drug manufacturers looking to source an API would know that FDA has a complete DMF on record for the API but could not review the DMF unless it was provided by the API manufacturer. Although DMFs are not required, having one can help manufacturers of inputs in drug manufacturing describe their products to potential buyers (such as drug manufacturers) and avoid litigation risk through disclosure of technical details.

All APIs and other chemical ingredients of drugs must be manufactured, processed, packed, and held in accordance with current good manufacturing practices (CGMPs).⁹ According to CGMPs, manufacturers of APIs and other bulk chemicals are required to test their products to ensure the identity, strength, quality, and purity of chemicals during production.¹⁰ Drug manufacturers must examine the ingredients they use for damage and contamination and ensure that they meet standards—for example, standards laid out in a DMF—for purity, strength, and quality, either through internal testing or, in cases when a supplier’s testing reliability is validated at appropriate intervals, by accepting the supplier’s own certificate of testing.¹¹

In general, the API and bulk chemical industry is highly competitive, with many competing manufacturers offering broad catalogues of products. Suppliers typically sell on a per-batch basis, and drug manufacturers routinely switch suppliers to secure lower input costs. There are some niche firms focusing on ingredients used in specialized formulations (e.g., certain extended-release formulations). In these cases, manufacturers and suppliers might have longer-term relationships because there are fewer competing suppliers.

Formulation

Manufacturers of finished dosage forms *formulate*—or combine—API and other chemical ingredients into a drug product, such as a pill or liquid. The processes, equipment, and manufacturing facilities necessary for formulation vary depending on the form of the drug (e.g., oral solid tablets or capsules versus liquids). Drug manufacturers often have facilities that specialize in the formulation and packaging of a single product category, such as sterile injectable drugs or tablets. The companies that actually formulate drugs—whether the market authorization holder or a contract manufacturer—vary widely in terms of product portfolio scope. Several large pharmaceutical companies (e.g., Pfizer) manufacture brand-name drugs of

⁷ *Stability* refers to how the chemical degrades over time. *Purity* refers to the concentration of the desired chemical relative to other chemicals or contaminants.

⁸ DMFs are also filed for packaging and finished dosage forms.

⁹ 21 CFR 210 and 211.

¹⁰ The *identity* of a chemical refers to its molecular structure. *Strength* refers to the concentration of a chemical per unit volume. *Quality* and *purity* refer to the extent to which other chemicals or contaminants are present in a product.

¹¹ 21 CFR 210 and 211.

many different forms and uses. Other companies specialize in manufacturing drugs of a specific type (e.g., sterile injectables or infused biologics) or drugs that treat a narrow set of conditions (e.g., oncology).

CGMPs similarly govern the manufacture, processing, packing, and holding of drug products and require a manufacturing system that ensures the identity, strength, quality, and purity of the drug product. Specifically, CGMPs set forth requirements for the facilities and equipment used, as well as for production, testing, packing, labeling, warehousing, and distribution procedures and conditions.¹²

Packaging and Labeling

Finished dosage forms, such as pills and liquids, must be packaged and then labeled before they can be distributed for sale as drug products. Packaging involves several steps, including primary packaging, when the dosage form is enclosed in a bottle, vial, or other container, and secondary packaging, which groups together primary-packaged products (e.g., packaging several vials in a box). Packaging involves a separate set of inputs, including glass vials, cardboard, syringes and injector parts, many of which are inputs into the manufacture of a wide range of products outside the pharmaceutical industry.

Regulatory bodies in different countries impose different requirements in terms of how these packaged drug products are labeled. In the United States, under the Drug Supply Chain Security Act, FDA requires serialization of labeling such that serial numbers on individual final drug products (e.g., vials) match serial numbers on cartons and boxes of the product for tracking purposes (FDA, 2018b). Packaged and labeled drug products are stored at market authorization holder or third-party storage and distribution centers until they are shipped to pharmacies, hospitals, or other purchasers.

Manufacturing Outsourcing Scenarios

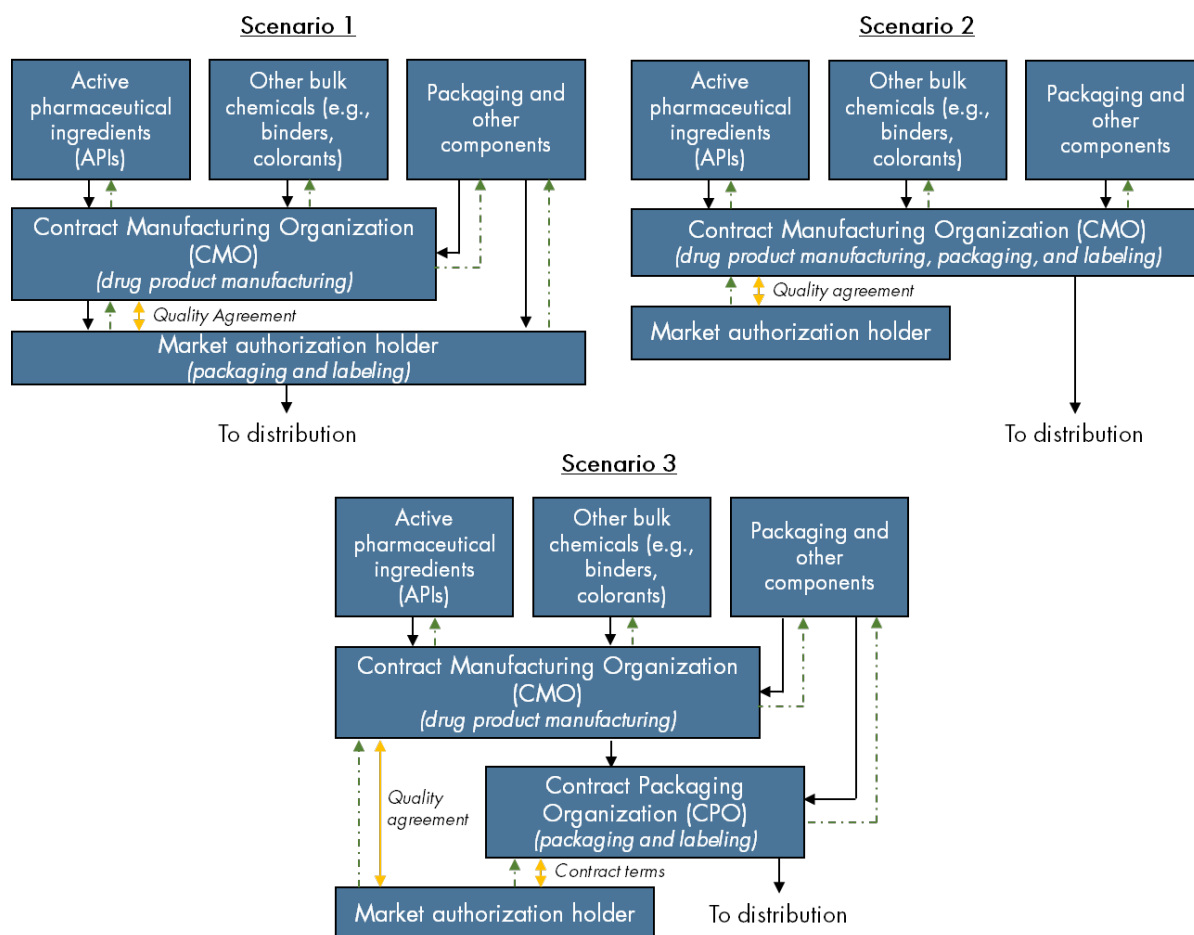
Market authorization holders outsource manufacturing to contract manufacturing organizations (CMOs) to varying extents. The extent of the CMO's role in the overall manufacturing process varies with CMO capabilities and the market authorization holder's needs. Start-up and other relatively small market authorization holders without adequate manufacturing facilities or capabilities might have no option other than outsourcing the entirety of their manufacturing processes. There are several reasons why larger pharmaceutical companies might also routinely use CMOs. For example, high fixed and opportunity costs could preclude larger companies from investing in certain technologies for a small number of products with specialized forms or manufacturing requirements, so they might engage CMOs to manufacture those drugs. In other cases, companies transfer the manufacturing of older products

¹² 21 CFR 210 and 211.

to CMOs to free up internal capacity for newer, higher-margin products. Additionally, sometimes, to divest manufacturing capabilities without laying off workers, companies might decide to transfer ownership of their facilities while continuing to source products from them.

The development and implementation of contract manufacturing relationships—from initial contact to the actual transfer of product manufacturing—usually takes up to two years and can take even longer. A significant share of this time is spent establishing processes to ensure manufacturing quality (e.g., testing the drug product for stability and producing commercial-scale batches called *validation batches* to validate manufacturing processes; Contract Pharma, 2012). Depending on the customer agreement, CMOs might be responsible for sourcing all of the necessary ingredients for manufacturing a finished drug product, including APIs, other bulk chemicals, and, if applicable, packaging. The different actors involved in contract manufacturing are subject to CGMPs by FDA. The buyer is required to approve the quality of drug products using written quality control procedures; buyers and contractors use FDA-recommended quality agreements specifying each party's responsibilities in complying with these requirements (FDA, 2016). See Figure 2.2 for an overview of some manufacturing outsourcing scenarios.

Figure 2.2. Manufacturing Outsourcing Scenarios



Given the long lead time in qualifying a CMO and developing quality agreements, market authorization holders tend to continue to work with CMOs that they have worked well with in the past, and, in some cases, market authorization holders can help finance a CMO's expansion into new manufacturing lines. However, market authorization holders and CMOs generally have transactional relationships as opposed to partnerships. Some interviewees noted that CMOs shoulder much of the risk in manufacturing for relatively slim profit margins compared with the margins accrued to market authorization holders. Although the CMO market is generally fragmented, with the largest five CMOs accounting for only 15 percent of the CMO market, there has been increasing merger and acquisition activity among CMOs in recent years (PricewaterhouseCoopers, 2019).

The role of CMOs in packaging and shipping finished drug products varies. In some cases, CMOs ship bulk-packaged finished drug product (e.g., containers of pills or liquids) back to the market authorization holder, which would then package and label the drug (Figure 2.2, Scenario 1). In other cases, the CMOs perform these roles themselves (Figure 2.2, Scenario 2) or ship finished drug product to another specialized contract packaging organization (CPO; Figure 2.2, Scenario 3).

Market authorization holders (and, if applicable, contract manufacturers) might outsource packaging and labeling to a specialized company, particularly if they are selling in a country where they themselves do not have a manufacturing presence to ensure compliance with regulations. If a CPO is used, the CPO typically performs all of the packaging and labeling steps (rather than just a subset of the steps) because of serialization requirements. When drugs are packaged and labeled by a CMO or CPO, the CMO or CPO ships the packaged and labeled product to market authorization holder distribution centers, to a third-party logistics company (such as UPS), or directly to distributors.

Distribution

Although distribution logistics can vary widely, most drugs are sold by drug manufacturers to distributors (sometimes referred to as *wholesalers*) that then sell and transport drugs to their final point of dispensing, such as retail pharmacies.

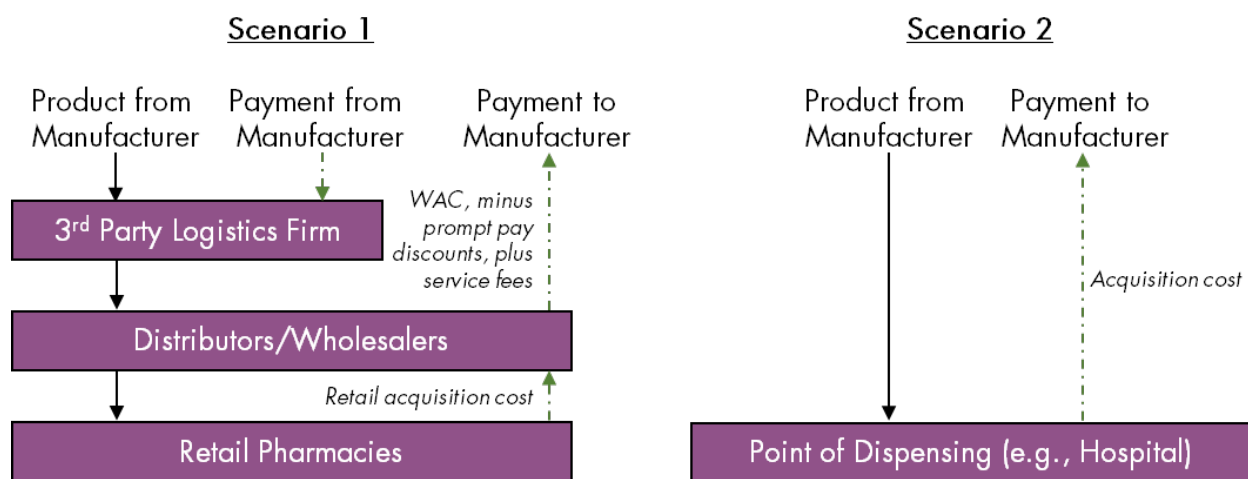
Distributors

The core functions of distributors are to manage inventory, to ship products to customers, and to manage financial risk. In the typical case, manufacturers hold inventory of drugs directly and sell product to a range of national and regional distributors. Manufacturers sometimes send inventory to third-party logistics companies that handle shipping to distributors and other customers (Figure 2.3, Scenario 1). Distributors take ownership of the drug and usually retain enough inventory to supply their customers for 30 days, which is sufficient stock to smooth over shocks in supply and demand. Distributors serve retail pharmacies primarily through a direct-to-

store model (Deloitte, 2019). Under this model, distributors send shipments direct to a pharmacy rather than to, for example, a separate distribution center operated by a chain pharmacy. There are important variations in this typical distribution model that apply to specific types of drugs and buyers. For example, specialty drugs, including biologics and other typically high-cost drugs, are sometimes distributed directly from manufacturers to the point of dispensing, which could be hospitals or specialty pharmacies (Figure 2.3, Scenario 2).¹³

There are three major health care distributors in the United States—AmerisourceBergen, Cardinal Health, and McKesson—that together account for 92 percent of the overall market (Deloitte, 2019). These large distributors all supply a full range of prescription drugs, over-the-counter products, medical devices, and other goods. There are smaller distributors serving regional markets, specific types of products (such as dermatological drugs), or specific categories of buyers (such as specialty pharmacies or physician offices). Individual customers, which could be a large pharmacy chain, independent pharmacy, physician office, or hospital system, often have a primary distributor covering all of their needs, while some have secondary distributors for certain types of products.

Figure 2.3. Additional Distribution Scenarios



Health care distribution is a high-revenue but low-margin industry. Distributors typically buy drugs from manufacturers at a price around a benchmark called wholesale acquisition cost (WAC), minus a small amount (e.g., 1 or 2 percent) for prompt payment and other discounts. For brand-name drugs, distributors then sell drugs to buyers (such as retail pharmacies) at around, and often just below, WAC, leaving only a small per-unit margin in percentage terms, although this amount can be substantial in dollar terms given the high cost of brand-name drugs. Although

¹³ Specialty pharmacies typically offer a wide range of prescription drugs, including specialty drug products, as well as additional services related to specialty drugs, such as patient counseling and adherence management programs.

distributor margins can be considerably higher on generic drugs in percentage terms, lower unit prices for generic drugs limit the magnitude of return from distributing these drugs. Distributors often purchase broad portfolios of many generic products from a single generic manufacturer, likely leading to lower acquisition prices compared with sourcing individual generic drugs from different manufacturers.

Separately, distributors realize revenue from service fees paid by their drug manufacturer suppliers in exchange for access to markets (i.e., stocking fees); from business intelligence data sold to manufacturers, pharmacies, and data aggregators; and from services (e.g., logistics management consulting) sold to their pharmacy customers and other customers.

Beyond managing the logistics of moving prescription drugs from manufacturers to points of dispensing, distributors must manage security (particularly for controlled substances with a risk of misuse and abuse, such as opioids); ensure that temperature and environmental requirements are maintained, which in some cases involves cold-chain management;¹⁴ and collect and supply data to manufacturers and retail pharmacies. Some distributors repackage and relabel drugs acquired from manufacturers—for example, repackaging pills sold in bulk thousand-pill bottles into blister packs—although this is more common for drugs dispensed in facility and institutional settings rather than through retail pharmacies. Repackaging and relabeling can also be done by specialized firms, either before or after drugs are shipped to distributors.

Pharmacies

Most drugs are dispensed to patients via retail pharmacies, including large national and regional pharmacy chains (e.g., CVS and Walgreens), pharmacies in grocery stores and “big box” stores (e.g., Target and Walmart), and independent pharmacies. Pharmacies have contractual relationships with typically one main distributor governing prices, payment terms, delivery logistics, and financial incentives tied to meeting thresholds of distribution through the distributor (e.g., 90 percent of generics dispensed must be purchased through the primary distributor). Although chain pharmacies negotiate prices with distributors directly, most independent pharmacies negotiate prices through buying groups that bid members’ distribution needs to distributors. Buying groups set prices with preferred distributors (usually one per buying group, although some buying groups have multiple preferred distributors; Fein, 2017). The relationships between manufacturers and distributors often contractually prohibit manufacturers from negotiating separately with buying groups. As is generally the case, buying groups have limited leverage when negotiating for brand-name drug products. In some cases, independent pharmacies source drug products outside of their buying group’s ties with distributors (Fein, 2017).

¹⁴ *Cold-chain management* refers to equipment and procedures to ensure that products remain within temperature thresholds through distribution.

In some cases, pharmacies play an important role in decisionmaking regarding which drug is dispensed to patients. For brand-name drugs, pharmacists interact with patients and prescribers when an initially prescribed drug is not on a preferred tier of a patient's formulary and therefore has high cost sharing (as discussed below). For most generic drugs, pharmacists are free to substitute any of a set of drugs considered by FDA to be therapeutically equivalent to a reference product.¹⁵ As a result, in cases where there are many generic manufacturers of a specific drug, pharmacies generally carry product from only one or a small number of generic manufacturers—and, more specifically, they carry the generic manufactured by the company offering the lowest price (and therefore highest margin) to the pharmacy's distributor.

Pharmacies generally carry a relatively short-term inventory of prescription drugs and receive frequent shipments from distributors.¹⁶ They ship unused product and overstock back to distributors when it can be resold if their contractual arrangements with distributors allow return privileges. As described above, pharmacies' contractual arrangements with distributors can also govern how information is shared and aggregated.

For brand-name drugs, pharmacies purchase drugs primarily from distributors at prices at or around WAC, given the small markups at the distributor level. For generic drugs, pharmacies acquire drugs from distributors with a larger distributor markup, albeit off of a typically smaller basis than for brand-name drugs (see the discussion on payments to pharmacies below; Association for Accessible Medicines, 2017).¹⁷ Pharmacies typically pay distributors one to two weeks after delivery.

Pharmacies dispense drugs to patients and receive payments from two main sources described in detail in the next section: patients and PBMs.¹⁸ Pharmacies have substantial leeway in setting retail prices, which are prices paid by patients without coverage and by patients with coverage buying a non-covered drug or choosing to pay cash for a covered drug.¹⁹ The revenue realized by pharmacies for drugs covered by insurance is determined by contracts between PBMs and retail pharmacies.

¹⁵ State laws governing substitution vary—for example, in the exact conditions under which pharmacists must dispense a brand-name version of a drug if noted by the physician on the prescription. The therapeutically equivalent versions of a reference drug (often a brand-name drug) are listed in FDA's Orange Book, which records listed patents and therapeutic equivalence codes for individual drug products regulated by FDA's Center for Drug Evaluation and Research (FDA, 2021).

¹⁶ Some independent pharmacies might carry more inventory and have slower turnover because of lower prescription volume and the absence of centralized control over distribution compared with chain pharmacies.

¹⁷ The final pharmacy acquisition cost for generic drugs reflects initial payments (which are on-contract negotiated prices for purchases from a primary distributor) and rebates paid by distributors to pharmacies.

¹⁸ Although we describe the role of PBMs separately, some large insurers perform the functions of a PBM internally.

¹⁹ Pharmacies might set retail prices lower than the copay amount for patients with insurance (particularly for generic drugs).

PBMs play an important role in determining which pharmacies patients can use, as well as the net revenue per prescription realized by pharmacies. The three largest PBMs—Express Scripts, CVS/Caremark, and OptumRx—cover 76 percent of national prescription claims (Fein, 2019).²⁰ PBMs assemble networks of pharmacies that agree to the PBM’s payment terms in exchange for an increase in prescription volume from the PBM’s patients. Pharmacy networks often include a mix of chain and independent pharmacies. The largest three distributors facilitate *banner pharmacies* (e.g., Good Neighbor Pharmacy and Health Mart) that can be included in pharmacy networks. Independent pharmacies can be included in pharmacy networks in some cases, individually or, more commonly, as a block through pharmacy services administrative organizations (PSAOs), which represent independent pharmacies in negotiations with PBMs.²¹ AmerisourceBergen, Cardinal, and McKesson, the three largest distributors, each operate PSAOs, and other PSAOs are independently operated. PSAOs might offer independent pharmacies efficiencies in collectively accepting contracts and streamlining administrative processes.

Pharmacies have a financial incentive to be part of multiple PBM networks because additional networks drive additional patients and prescription fills and, therefore, revenue. The other key issues in pharmacy negotiation with PBMs typically include dispensing fees, which are a flat amount paid per prescription filled; the prices paid per drug, which, in many cases, are a negotiated ceiling on how much the PBM will pay on a per-drug basis (see discussion below); and payment timing and terms. These terms often involve pharmacy price concession and performance-related bonus clauses that tie payment rates from PBMs to performance on prespecified metrics—for example, generic substitution rates measuring the share of prescriptions filled with generics (National Community Pharmacists Association, undated).²² If pharmacies fail to meet the specified performance target, they must return a portion of payments to the PBM, and if they exceed the target, they might receive a supplemental payment, although, at least in Medicare Part D, payments *from* pharmacies are much larger in aggregate than payments *to* pharmacies (Fein, 2020a). The following section discusses specific prices paid in more detail.

Pharmacies and pharmacists provide other important health care services beyond dispensing drugs. Pharmacists can educate and advise patients on their prescription drugs and increasingly play an important role in helping to manage drug treatment regimens, with a focus on increasing adherence (Okumura, Rotta, and Correr, 2014). Although not in the scope of this report, over-

²⁰ The estimate of 76 percent includes claims from network pharmacies, claims from the PBMs’ own pharmacies, and claims involving discount cards.

²¹ PSAOs are separate from buying groups and serve different functions. PSAOs represent independent pharmacies in negotiations with PBMs. Buying groups pool independent pharmacy negotiating leverage when purchasing drugs from distributors.

²² Generic substitution rates might not apply in cases in which the PBM pays a lower net price for brand-name drugs after rebates from manufacturers.

the-counter drugs, vaccines, and medical supplies dispensed or administered at pharmacies play an important role in treating many diseases. Additionally, pharmacies are increasingly co-located with clinics providing primary care and urgent care services that can serve as a driver of prescription volume.

Mail-Order Pharmacies

One strategy that PBMs use to manage pharmacy benefits is leveraging mail order pharmacy, and most PBMs operate their own mail-order pharmacies (Danzon, 2015). Mail-order pharmacy is often required or incentivized by prescription drug plan sponsors for refills of prescriptions used to treat chronic conditions, such as diabetes, chronic heart disease, and HIV/AIDS (Khandelwal et al., 2012). Mail-order pharmacies typically dispense 90-day quantities of drugs instead of 30-day quantities, and patient cost-sharing tends to be lower than through retail pharmacies (Khandelwal et al., 2012).

Prescription drug plan sponsors and payers generally prefer that their enrollees use mail-order rather than retail pharmacies, particularly for drugs used on an ongoing basis (for example, to treat chronic conditions), for three reasons. First, mail-order services can increase adherence,²³ which, in turn, can improve health outcomes and could reduce non-drug health spending (Devine, Vlahiotis, and Sundar, 2010). Second, mail-order pharmacies benefit from economies of scale, at least to a point.²⁴ Third, PBMs generally operate their own mail-order pharmacies, which can lower per-prescription costs relative to prescriptions filled via retail pharmacies, depending on the costs involved in running the mail-order pharmacy versus retail dispensing fees (Pharmaceutical Care Management Association, 2011; Visante, 2014). Despite these benefits, the use of mail-order pharmacies reduces face-to-face interaction between patients and pharmacists on side effects, adverse events, drug-drug interactions, and dosing (Khandelwal et al., 2011). This interaction might be less important when patients fill an initial prescription in a retail pharmacy and then receive refills via mail-order pharmacy.

Specialty Pharmacies

Manufacturers tend to restrict the number of distributors for specialty drugs (e.g., self-injected biologics) because of the importance of closely managing inventory for high-unit-cost drugs and the need to monitor cold chain and other specific distribution requirements (Fein, 2018; Drug Topics, 2017; American Pharmacy News, 2016; Hagerman, Freed, and Rice, 2013;

²³ Although several studies have found that mail order programs increase adherence (Zhang et al., 2011; Schmittiel et al., 2013; Valluri et al., 2007; Devine, Vlahiotis, and Sundar, 2010), others have not (Khandelwal et al., 2011; Fernandez, McDaniel, and Carroll, 2016).

²⁴ *Economies of scale* is the extent to which costs per unit of output decrease as volume increases, often because fixed costs are spread over the higher volume.

McCain, 2012). In some cases, manufacturers might sell specialty drugs to pharmacies and other dispensing points directly without using a distributor (Fein, 2018).

PBMs and health plans might also require that patients access specialty drugs through narrow distribution channels, such as a subset of network pharmacies or specialized specialty pharmacies, both of which are often owned by PBMs themselves (Fein, 2018).²⁵ Specialty pharmacies can help manage access to and the utilization of expensive specialty drugs by providing services to patients, such as medication therapy management, patient education and engagement, clinical support services, and other services to increase adherence. Specialty pharmacies can interact with the health care delivery system in ways that are atypical for other retail pharmacies. For example, some health plans and providers will encourage patients to use *white bagging* (a patient buys the drug from the specialty pharmacy and has it delivered directly to their provider for administration) and *brown bagging* (the patient buys and receives the drug from the specialty pharmacy and then takes it to their provider) strategies (McCain, 2012).²⁶

Benefits and Payment

Beyond building and maintaining pharmacy networks, as described in the prior sections, PBMs also play a critical role in advising plan sponsors and payers on the development of their pharmacy benefit, including their formularies, and the net prices paid for covered prescription drugs. Plan sponsors and payers, which we refer to as *payers* for brevity, are a diverse group of organizations and entities offering health and/or drug coverage to individual patients. Payers include, for example, large employers offering plans to their employees, commercial insurers selling health and prescription plans to individuals, and government programs. A payer might choose to offer both medical and pharmacy benefits through a combined health insurer/PBM (such as Aetna and CVS/Caremark) or through separate companies (e.g., with Aetna providing health coverage but Express Scripts, a separate company, managing pharmacy benefits).

The design of a pharmacy benefit by a payer or plan sponsor involves many components, including

- pharmacy networks (described above) which might include differential cost-sharing
- deductibles under which the patient is responsible for 100 percent of drug costs (or combined medical and drug costs)
- out-of-pocket caps and catastrophic spending thresholds to limit total patient liability
- determining whether some drugs will not be covered at all, subject to decisions by pharmacy and therapeutics (P&T) committees operating under regulatory oversight

²⁵ In 2019, 74 percent of prescriptions dispensed via specialty pharmacies were from four specialty pharmacies owned by PBMs (Fein, 2020b).

²⁶ Although these strategies are more common for specialty drugs dispensed through retail pharmacies, they can also apply to other physician-administered drugs.

- tiered formularies in which patients face lower cost-sharing for more-preferred drugs and higher cost-sharing for less-preferred drugs
- limits on quantity or prescription frequency for specific drugs
- utilization management strategies (such as prior authorization requirements) laying out steps to ensure coverage for typically less-preferred, very expensive, and/or potentially unsafe drugs
- special provisions for specialty drugs, including narrower distribution options and coinsurance (a cost-sharing mechanism in which the patient pays a share of a drug's cost rather than a fixed dollar amount)
- varying degrees of overlap with patients' medical benefits (e.g., for physician-administered drugs).

Patients, PBMs, pharmacies, and payers all play important roles related to payment for drugs. Payments for prescription fills covered by insurance involve four main components. First, patients typically pay some share of the cost of a drug at the point of dispensing. Second, the PBM pays the pharmacy the balance of the amount owed to the pharmacy as determined by the contract between the PBM and pharmacy. Third, discounts negotiated between the market authorization holder and PBMs are paid as rebates from the market authorization holder to PBMs. Finally, health care payers compensate PBMs (under various contractual arrangements), and, again depending on contractual arrangements, PBMs pass either most or all of the rebates to payers, resulting in net prices to the payers that are often lower than the amounts paid to pharmacies.

Out-of-Pocket Payments

The type and magnitude of out-of-pocket payments vary depending on benefit design. Many prescription drug plans include an initial annual deductible phase under which patients pay 100 percent of drug costs up to a certain dollar limit. After that, patients filling a prescription covered by their insurance typically pay a fixed amount (copay) or a fixed share (coinsurance) toward the total cost of the drug out of pocket. In the case of coinsurance, the fixed share is typically based on the amount charged at the pharmacy and therefore does not reflect rebates and other discounts that ultimately result in lower net prices.²⁷ Copays and coinsurance are typically lower for drugs with low net prices relative to health benefits; PBMs and payers place these drugs on preferred formulary tiers.²⁸ Similarly, copays and coinsurance are typically higher for drugs on non-preferred formulary tiers. Very expensive specialty drugs are often placed on separate tiers

²⁷ Many plans have catastrophic limits above which patients face lower or no cost-sharing.

²⁸ Cost-sharing is often lower for generic drugs than for brand-name drugs. However, brand-name drugs with large rebates can sometimes be more preferred by PBMs and therefore have lower cost-sharing than therapeutically equivalent generics.

paired with coinsurance. Patients typically pay high copays and coinsurance at specialty pharmacies (American Pharmacy News, 2016).

In general, high cost-sharing is an effective deterrent to patients filling prescriptions (Goldman, Joyce, and Zheng, 2007; Gibson, Ozminkowski, and Goetzel, 2005). Manufacturers might work to increase utilization of their drugs by offering copay coupons to cover part or all of the patient's out-of-pocket liability (Dafny, Ody, and Schmitt, 2016). Some states, including Massachusetts and California, and federal health care programs, including Medicare and Medicare Part D, ban manufacturer coupons. In the case of federal programs, manufacturer coupons are prohibited because the anti-kickback statute (42 U.S.C. § 1320a-7b[b]) prohibits payments or incentives to induce the purchase of drugs paid for by federal health care programs. Besides coupons, vouchers, and similar offers, patients with and without coverage might also have sources of other support, such as patient assistance programs, to cover part or all of the patient's out-of-pocket liability.²⁹

In response to manufacturer coupons and other forms of patient assistance, PBMs and payers are increasingly implementing *copay accumulator* programs, which estimate contributions from coupons and third-party sources and exclude these from contributing toward patients' deductibles or out-of-pocket caps, and *copay maximizer* programs which adjust cost-sharing (upward) to match available coupons and other sources of support from manufacturers. Some states and Medicare Part D prohibit copay accumulator programs because of concerns that they result in higher out-of-pocket spending (compared with alternative programs in which manufacturer contributions do contribute toward deductibles and out-of-pocket caps).³⁰

Cost-sharing is typically lower to steer patients to relatively higher-value (i.e., lower-cost and/or higher-benefit) treatment alternatives. Insurers and PBMs covering both pharmacy and medical benefits (such as Medicare Advantage plans) are increasingly using value-based insurance design in which the out-of-pocket costs for certain maintenance medications to treat chronic conditions—such as statins to treat high cholesterol or insulin for patients with diabetes—are eliminated in an effort to increase uptake and adherence and to lower downstream medical costs associated with untreated conditions (Agarwal, Gupta, and Fendrick, 2018).

Payments to Pharmacies

PBMs typically pay the balance of a negotiated amount owed to the pharmacy (net of patient cost-sharing contributions) within one month of the drug being dispensed. The contractual arrangements between PBMs and pharmacies specify dispensing fees and a cap on the price for the drug itself that pharmacies can charge the PBM. For single-source brand-name drugs, most

²⁹ Patient assistance programs are often financed by drug manufacturers to increase access to expensive specialty drugs.

³⁰ See 85 FR 29164 (Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services, 2020).

contracts between PBMs and pharmacies specify payment at or around WAC. For multisource drugs, many contracts use maximum allowable cost (MAC) schedules to set payment rates. MAC schedules list maximum prices for all therapeutically equivalent generics and multisource brands (Danzon, 2014; Danzon, 2015). Some contracts use generic effective rate (GER) and brand effective rate (BER) schedules instead of MAC schedules that list prices for drugs that are a fixed percentage of average wholesale price (AWP). For example, PBMs might pay at most 88 percent of AWP. Unlike the case with brand-name drugs, MACs or effective rates do not vary with the pharmacy's acquisition cost. Either of these approaches sets a ceiling for the maximum amount a pharmacy can charge a PBM and, for generic drugs in particular, incentivizes pharmacies to source the lowest-cost version of therapeutic substitutes.

Rebates

PBMs also negotiate on price with market authorization holders. This negotiation boils down to the extent to which PBMs work to shift volume to a specific drug versus potential alternatives in exchange for discounts paid to the PBM by the manufacturer as a rebate. PBMs can shift volume to a specific market authorization holder's drug using tools targeted to both patients and to prescribers. In terms of patients, PBMs use tiered formularies with lower patient cost-sharing for preferred drugs and higher cost-sharing for alternatives. In terms of prescribers, PBMs use a set of utilization management tools that require prescribers to invest time to secure coverage of non-preferred drugs for their patients. One common utilization management tool, prior authorization, requires prescribers to justify the medical necessity of a drug before the payer will cover it for the patient.³¹

The magnitude of discounts that a PBM can negotiate from market authorization holders hinges on both the PBM's ability to shift patients and prescribers to specific drugs and on the availability of close substitutes. If there are no close substitutes available—for example, when there is only one drug to treat a condition—then PBMs have little leverage to negotiate discounts. Discounts might be relatively large in relation to the price initially paid to pharmacies in cases in which there are multiple similar brand-name drugs to treat the same condition (Roehrig, 2018).³²

Payers cover PBMs' initial payments to pharmacies, either with a pass-through model or a spread model under which payments might exceed PBMs' actual costs. PBMs might receive additional fees for services. Depending on contractual provisions, PBMs pass some or all of the negotiated rebates on to payers, lowering payers' overall spending on health benefits, which could lead to lower premiums.

³¹ Prior authorization and other utilization management tools are also used to prevent unsafe or low-value utilization of even preferred drugs.

³² One recent study (Roehrig, 2018) estimated that rebates and coupons combined account for a 23-percent reduction from retail payments for drugs.

Payment in Medicaid

Payment for prescription drugs is different in the Medicaid program than under commercial insurance or Medicare Part D. State Medicaid programs pay pharmacies at rates equal to acquisition cost plus a dispensing fee. States then receive rebates from manufacturers covering the difference between these rates and either (1) the best price available to any other buyer (with a few exceptions) or 23.1 percent of the average price paid to manufacturers for most brand-name drugs or (2) 13 percent for generic drugs (42 U.S.C. § 1396r-8).³³ State Medicaid programs might negotiate supplemental rebates via PBMs in exchange for placement on preferred drug lists, although, in general, Medicaid programs are limited in their ability to apply tiered formularies and utilization management as commercial insurers do, and Medicaid beneficiaries usually face relatively low out-of-pocket cost.³⁴

Payment Without Insurance

PBMs are not involved at all when a patient does not have prescription drug coverage or when the patient has coverage but is buying a non-covered drug or chooses to pay cash for a covered drug (for example, when the cash price is less than the copay). Pharmacies can apply any markup to the drug, and the patient is responsible for paying the entire cost upon receipt. Pharmacy list prices for both brand and generic drugs vary widely. Some discount card programs—such as GoodRx—offer prices at participating pharmacies that can be significantly below the pharmacies' list prices, as well as price comparison tools to help patients find the lowest-cost pharmacy. Some pharmacies, including those in big box stores, offer low or no-cost cash prices for certain generic drugs, likely as a strategy to draw customers to their stores.³⁵

Patients and Prescribers

Patients can receive prescription drugs only with a prescription from an authorized practitioner, who is often a physician. One or more payments (typically two, one from the patient to the pharmacy and the other from the PBM to the pharmacy) are triggered when a patient actually fills a prescription or is administered a drug. As described above, patients' and prescribers' choices between therapeutic alternatives can be influenced by both pharmacies and PBMs. Pharmacies can switch patients to therapeutically equivalent generics on their own authority and can contact physicians to initiate switches from non-preferred to preferred brand

³³ There is a separate inflationary rebate component to cover price increases that exceed inflation. Manufacturer participation in the Medicaid Drug Rebate Program is optional. However, most manufacturers do participate because Medicaid programs are required to cover all drugs offered by participating manufacturers.

³⁴ Medicaid copays vary based on beneficiary income, with very modest copays for beneficiaries with incomes under 150 percent of the federal poverty level.

³⁵ See, e.g., Walmart, undated.

drugs in response to out-of-pocket cost, safety, or other concerns raised at the point of dispensing. PBMs use tiered formularies and cost sharing to influence patient decisionmaking and utilization management tools, such as prior authorization, to shift prescribing patterns toward preferred drugs.

Market authorization holders also influence prescribing decisionmaking with the hope of increasing demand for—and, therefore, revenue from—their products. They market directly to consumers via direct-to-consumer advertising, which can be targeted to specific drugs or to informational ads on specific diseases or conditions for which the company manufactures a drug. Drug companies send sales representatives to physician offices and hospitals to “detail” a company’s drugs and use other strategies, including sampling, to encourage prescribing of their products.

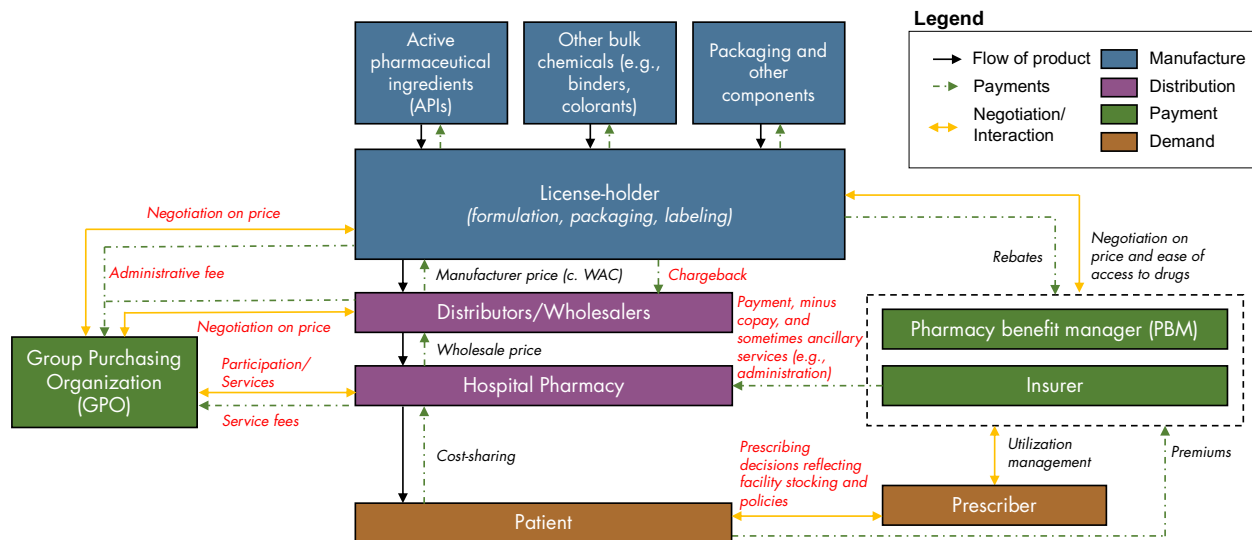
3. Outpatient Facility, Inpatient Hospital, and Physician Office Supply Chains

This chapter describes the differences in drug supply chains when distribution occurs through hospitals or physician offices rather than in retail pharmacies. Our description focuses on differences in supply chains when drugs are dispensed in these other channels relative to the model retail pharmacy supply chain illustrated in Figure 2.1. The figures in this chapter mirror Figure 2.1 with differences emphasized in red.

Drugs Administered in Outpatient Facility Settings

Some oncology, rheumatology, and other drugs are administered to patients by physicians or other practitioners in an outpatient facility setting like hospital outpatient departments (Figure 3.1). In Medicare, these drugs are covered by Medicare Part B rather than the Part D retail pharmacy benefit. In commercial insurance, physician-administered drugs are often covered under the medical benefit rather than the pharmacy benefit.

Figure 3.1. Typical Supply Chain for Drugs Dispensed in Outpatient Facility Settings



Some hospital and health system buyers of prescription drugs negotiate lower prices directly with manufacturers or via GPOs. GPOs combine the negotiating power of their member hospitals to secure favorable prices and terms for drugs from manufacturers (O'Brien, Leibowitz, and

Anello, 2017; Burns and Briggs, 2018).³⁶ There are several large, national GPOs (e.g., Catalent and Vizient) with membership that includes primarily hospital-based health care delivery systems and independent hospitals. Members sign agreements detailing access to negotiated prices and terms as well as additional services (such as supply chain support) that they will receive from the GPO. Although there typically is not a membership fee for access to negotiated prices per se, members often purchase at least some services from GPOs. Most hospitals belong to at least one GPO; some belong to several.

GPOs negotiate with both manufacturers and distributors to secure national contracts detailing prices and other terms. The collective negotiation on the part of many (potentially competing) hospitals is possible due to an anti-kickback “safe harbor” provision.³⁷ Although price negotiation is the major GPO function, negotiating standard terms is also important and can cut down on transaction costs and risk for members. Manufacturers compete with one another to secure contracts from large GPOs; for drugs with significant competition between close substitutes, negotiated discounts tend to be large; for drugs without close substitutes, negotiated discounts might be more modest. Specialty pharmaceuticals are less likely to be purchased via GPO channels because they are typically marketed by one market authorization holder who, therefore, is not incentivized to offer discounts (Burns and Briggs, 2018). Importantly, manufacturers pay an administrative fee to the GPO when they are selected for a national contract. Separately, GPOs form agreements with distributors to provide these negotiated prices to their members.

The members of a specific GPO might use a wide range of distributors. These distributors play an important role in implementing discounted prices for drugs bought by health systems. Buyers pay distributors the GPO-negotiated price even though the distributor paid manufacturers a flat WAC-based price. For example, the distributor might pay manufacturers \$100 per unit of a drug while a pharmacy buyer negotiates and pays distributors a lower price of \$80 (Figure 2.3, Scenario 3). In this case, the distributor bills the manufacturer for the difference (a “chargeback”; \$20 in this case). In contrast with rebates, which apply primarily for drugs dispensed through retail pharmacies (where distributors are not aware of the net price negotiated between manufacturers and PBMs), in the case of chargebacks, distributors are aware of the price

³⁶ GPOs play a similar role in negotiating prices and terms for the purchase of medical devices and other supplies and input used by hospitals.

³⁷ The Anti-Kickback statute (42 U.S.C. § 1320a-7b[b]) prohibits the purchase of goods or services in exchange for payment under a federal health care program. Under the Omnibus Budget Reconciliation Act of 1986, Congress amended the statute to add a “safe harbor” provision making an exemption for vendors’ payment to GPOs. In 1991, directed by the 1987 Medicare and Medicaid Patient Protection Action, the U.S. Department of Health and Human Services implemented a regulation specifying requirements for GPOs to qualify for safe harbor. In addition to other requirements under the regulation, a GPO must have a written agreement with its customers stating that the maximum contract administrative fees it can receive from vendors is 3 percent of the purchase or establishing a maximum payment amount for each vendor.

negotiated between manufacturers and the distributors' customers, which might limit manufacturer's willingness to offer large discounts via this mechanism.

Although hospitals generally have flexibility to purchase drugs through GPOs or other channels, some GPO membership agreements include financial incentives for hospitals to purchase an amount of product that is above a threshold through preferred manufacturers. Some large hospital or broader health care delivery systems might be able to negotiate prices directly from manufacturers that are even lower than GPO-negotiated prices. These larger systems might set up their own consolidated service centers (CSCs), which function as system-owned distributors, buying directly from manufacturers and storing and distributing products to hospitals and other components of the delivery system. Health care delivery systems operating CSCs often use the CSC to procure certain higher-priced or differentiated drugs, devices, and other supplies while working through distributors and GPO-negotiated prices for commodity inputs.

There are other important differences in outpatient hospital versus retail pharmacy supply chains for drugs. Hospitals develop and maintain their own formularies and policies to steer prescribers and patients receiving drugs at the hospital to therapeutic alternatives where they earn the largest margin or have the lowest cost. As a result, prescriber and patient decisionmaking is constrained by both hospital pharmacy policy and prescription drug benefit design considerations.

Hospital P&T committees determine policies regarding medication use, such as formularies of drugs approved for use in the hospital, based on clinical considerations as well as cost (Vogenberg and Gomes, 2014; Zellmer, 2017). A 2019 survey of hospital pharmacy directors found that hospitals are increasingly using relatively restricted formularies: Approximately 73 percent reported having "a limited, strict formulary with tight restrictions on nonformulary medication use" (Pedersen et al., 2020). Pharmacists are generally involved in managing medication therapies, which can include "writing medication orders, selecting doses, ordering appropriate laboratory tests, and monitoring patient response to therapy" (Pedersen et al., 2020). However, they are more likely to manage certain therapy types over others: For example, 97 percent of hospitals have pharmacists manage vancomycin therapy, and 77 percent of hospitals have them manage anticoagulation therapy, while 8.3 percent of hospitals make pharmacists responsible for pain and palliative care medication management. Most hospitals permit pharmacists to initiate or modify medication orders according to protocols (Pedersen et al., 2020).

Another important difference is that hospital outpatient departments, unlike pharmacies in most cases, can bill patients and their insurers for services in addition to the drug itself. For example, hospitals might, depending on the coverage policies of insurers, bill for services related to the administration of the drug. Insurer payment rates for drugs dispensed in outpatient facility

settings are often based on Medicare’s average sales price–based (ASP-based) payment rates.³⁸ Medicare pays ASP plus 4.3 percent (typically ASP plus 6 percent but adjusted downward for sequestration³⁹) for most Part B drugs. Payment for biosimilars is based on the ASP for individual biosimilar products plus the margin calculated on the reference biologic. ASP rates are lagged by two quarters but over time reflect the prices paid to manufacturers after rebates and chargebacks. In general, providers might have an incentive to choose more-expensive Part B drugs because the margin on a drug with a higher ASP is greater than the margin on a drug with a lower ASP. Payments for new drugs, blood products, and vaccines are based on WAC and AWP. Payment rates for other services are often based on Medicare’s physician fee schedule and outpatient hospital prospective payment system, although payment approaches vary widely.⁴⁰

The 340B Drug Pricing Program

The 340B Drug Pricing Program is intended to help safety net providers “stretch scarce federal resources as far as possible, reaching more eligible patients and providing more comprehensive services” (U.S. House of Representatives, Committee on Veterans Affairs, 1992). The program does so by providing covered entities with access to lower prices for outpatient drugs, in general without regard to whether the patients receiving the drugs do or do not have access to outpatient pharmacy coverage. Eligible hospitals and clinics (called *covered entities* for the purposes of the program) qualify either through their status under other programs and designations (e.g., federally qualified health centers and critical access hospitals) or, for hospitals, by meeting a threshold of care provided to Medicaid patients (called *disproportionate share hospitals*).

The 340B program sets ceiling prices that are approximately equal to Medicaid Prescription Drug Rebate Program prices. Participating covered entities can voluntarily purchase drugs through the 340B prime vendor, which can negotiate additional discounts. Drugs are dispensed either directly by the covered entity (typically a hospital or clinic) or, increasingly, through community pharmacies under contract with the covered entities. Contract pharmacies must maintain separate accounting for drugs dispensed to patients of 340B covered entities for accounting purposes. Participating covered entities and their contract pharmacies bill patients and, if applicable, their sources of pharmacy coverage for the outpatient drugs they receive.

Participation in the 340B program is voluntary, and not all eligible entities choose to participate. Participating covered entities in some categories—including disproportionate share

³⁸ Under Medicare’s Outpatient Prospective Payment System, certain drugs are bundled into the payment for broader outpatient hospital services.

³⁹ *Sequestration* refers to federal government spending cuts implemented in the Budget Control Act of 2011. These cuts apply to certain Medicare payments to providers.

⁴⁰ Some low-cost drugs are packaged into payments for outpatient hospital services under Medicare’s payment policies.

hospitals—are prohibited from purchasing covered outpatient drugs through GPOs if they participate in the 340B program. Providers that choose not to participate might be able to negotiate favorable prices through GPOs or, for the largest buyers, on their own.

The Physician Office Supply Chain

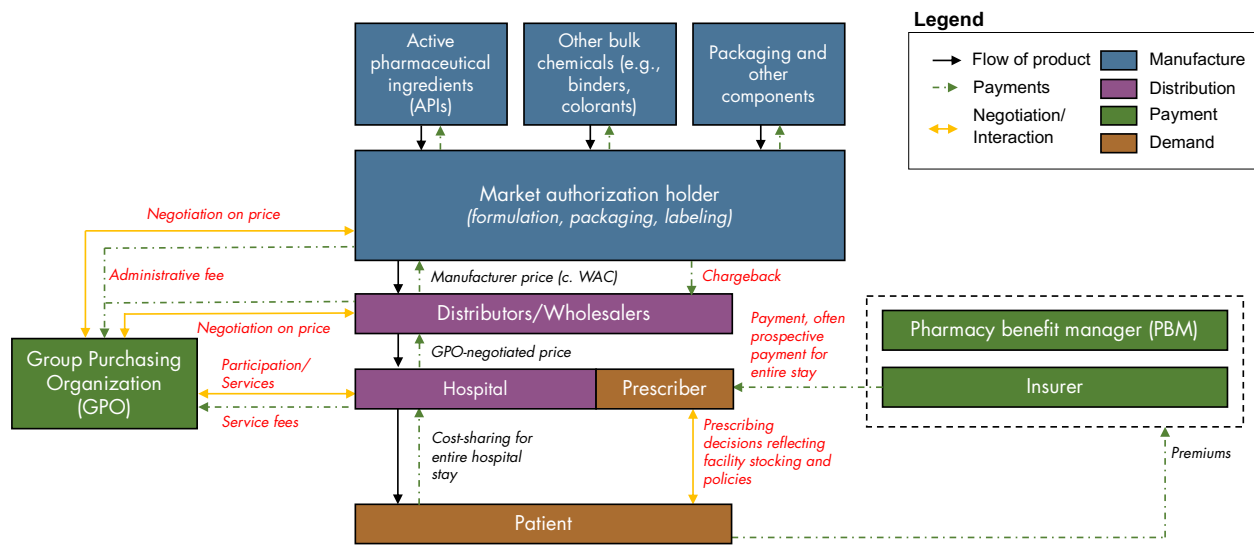
The stakeholders, relationships, and flows of money supporting drugs administered in physician offices are broadly similar to those discussed above for drugs administered in outpatient facility settings (Figure 3.1). The main “buy and bill” model applies to both physician office and outpatient facility settings.

There are, however, some differences in how physician offices not owned by hospital-based delivery systems acquire drugs. Like hospital-based delivery systems, physician practices are often members of GPOs and rely on GPOs to negotiate discounts off of wholesale prices. Several of the largest hospital delivery system–focused GPOs have smaller membership among physician practices. There are also more-specialized GPOs focusing on physician practice customers, and in some cases GPOs subspecialize in specific types of drugs administered in physician offices (such as dermatological drugs).

In terms of payment, the Medicare allowed amount for physician-administered drugs covered under Medicare Part B is ASP plus a margin (typically 6 percent, although now 4.3 percent due to sequestration) in most cases (with exceptions discussed above). Physicians are in some cases able to bill for a separate administration service, although not for drugs administered on the same day that the patient receives any other Medicare service (like an evaluation and management office visit). Rates from commercial insurers are typically ASP- or AWP-based and also include an administration fee (National Academies of Sciences, Engineering, and Medicine, 2018).

Inpatient Hospital

The boundaries between separate supply chains for inpatient hospitals and ambulatory care (such as in an outpatient hospital and physician office setting) are increasingly blurred as delivery shifts to more-integrated delivery systems. Still, there are some important differences in financial incentives for drugs administered in these settings driven primarily by payment considerations (Figure 3.2).

Figure 3.2. Typical Supply Chain for Drugs Dispensed During Inpatient Hospital Stays

Although much of the inpatient hospital pharmacy model is similar to that of the outpatient hospital pharmacy model, one main difference lies in insurer payments. Medicare pays a single amount for inpatient stays based on diagnoses, with only some allowances for high-cost outliers. These prospective payment rates include all care provided during the stay, including drugs administered during the stay.⁴¹ Many commercial and other payers adapt some version of Medicare’s inpatient payment approach and rates (NORC at the University of Chicago, 2016). The single bundled per-stay payment means that hospitals’ margins are dependent not only on the acquisition cost for drugs but also on which drugs are used and whether drugs are used at all. This is a key difference between drugs administered in ambulatory facility settings (such as hospital outpatient departments) where the typical “buy and bill” payment model might incentivize the use of drugs. Given the financial stake of the hospital, hospital pharmacies, formularies, and pharmacy and therapeutics committees might more actively manage prescription drug utilization for patients in the inpatient setting compared with the outpatient hospital setting.

⁴¹ There are some exceptions. Medicare and most other payers have special provisions for separate payment of extremely expensive and/or new drugs administered in inpatient settings—for example, with a temporary new technology add-on payment, hospitals receive approximately \$250,000 for chimeric antigen receptor T-cell therapy for blood cancers.

4. Discussion and Conclusion

Prescription drug supply chains are continually evolving in response to changes in the mix of drugs used by patients, use of new drug and insurance benefit design features, consolidation in health care delivery systems, and shifting negotiating leverage between key stakeholders. This report is intended as an update on prior efforts that are now dated (Kaiser Family Foundation, 2005), focusing on differences in stakeholders and incentives for different categories of drugs and in different distribution channels. Because of the pace of change in the pharmaceutical industry and in the U.S. health care system, we expect that an update to the current document will be necessary in another decade.

We found that the typical stakeholders, relationships, and financial incentives involved in prescription drug supply chains vary depending on the characteristics of a drug and how it reaches patients. For example, GPOs play a significant role in nonpharmacy distribution channels, and their role has evolved from providing price negotiation to include provision of other services, such as supply chain data analytics, to members. Even within a specific type of drug and a particular distribution channel, differences in business practices complicate a universal description of drug supply chains. Despite this complexity and variation, we identified four common core components of drug supply chains across all cases: manufacturing, distribution, coverage and payment, and prescribing and demand.

Separate analysis of relationships is needed for specific categories of drugs that we did not consider in our analysis and are often excluded in other research, including vaccines, radiopharmaceuticals, and compounded drugs. These product categories have additional steps and stakeholders involved. In addition, separate analysis of relationships is also needed for the specific distribution channels we did not consider in our analysis, such as home health care, long-term care facilities, nuclear medicine, and federal health systems.

More research is also needed to understand how the evolving industrial organization of stakeholders in prescription drug supply chains—particularly vertical and horizontal integration—affect margins, financial incentives, and, ultimately, patients. One prominent example of vertical integration is CVS's 2006 acquisition of Caremark, a major PBM, and its subsequent 2018 merger with the health insurer Aetna. Vertical integration could facilitate the sharing of information and elimination of some duplicative costs but at the potential cost of less choice for patients and more-concentrated market power. In terms of horizontal integration, there are now just three major national PBMs and three distributors. It is unclear whether the balance between cost-cutting and pricing power with three firms is optimal for these stakeholder groups.

Although prescription drugs are generally available to dispense when prescribed in the United States, there are important exceptions that warrant further investigation and scrutiny. Shortages of drugs—in particular, sterile injectable drugs—persist, even if they are not

widespread (FDA, 2019). The coronavirus disease 2019 (COVID-19) pandemic has increased attention on the extent to which inputs of raw materials and APIs used in the manufacture of prescription drugs are sourced from China and other countries. Although there were at least some disruptions in prescription drug supply attributed to the pandemic (Rowland and Slater, 2020), most of these appear to be due to buyers aggressively stocking drugs used to treat patients with COVID-19 rather than to disruptions in manufacturing or supply.

The ability of policymakers to identify, assess, and respond to shortages and other disruptions in supply chains, regardless of the cause, is hampered by incomplete data. FDA does maintain databases listing the facilities and companies registered to manufacture and import APIs and finished drug products. FDA does not, however, have the regulatory authority to collect data on the volume of drugs or their constituent ingredients manufactured at different sites or on the flow of products between stakeholders. At present, policymakers' ability to identify disruptions in drug supply chains is largely through self-report by industry stakeholders and from third-party crowdsourcing data collection efforts, such as the American Society of Health-System Pharmacists' Drug Shortages Database (American Society of Health-System Pharmacists, undated). Although mandating drug manufacturers to report additional data would impose additional burden, richer data would allow for a more accurate assessment of drug supply chains and analysis of potential and actual disruptions.

More broadly, recent policy proposals aim to tackle a range of perceived issues in prescription drug markets, including high prescription drug prices, safety and quality concerns (Byrd, Chertow, and Bhalla, 2019), and the need to ramp up the manufacture and distribution of potential new drugs to treat COVID-19. Assessing how policy proposals affect stakeholders and how they will likely respond is necessary to assess unanticipated consequences of these proposals. In particular, the need to test, manufacture, and distribute millions of doses of COVID-19-specific therapies and vaccines will be a major undertaking that will utilize the supply chain components described in this report but likely in new ways and configurations.

Appendix: Pricing Term Glossary

This appendix includes definitions of several pricing terms referenced throughout the report. The terms are listed in alphabetical order. An asterisk preceding the term indicates that the prices are publicly available, although in some cases a payment is required to access the data.

340B ceiling price: The 340B program determines a maximum (ceiling) price using reductions off of AMP, like the Medicaid drug rebate program. The 340B prime vendor can negotiate additional 340B discounts beneath this ceiling price.

The **average manufacturer price (AMP)** is the average price paid to the manufacturer by distributors for distribution to retail pharmacies and retail pharmacies purchasing from manufacturers directly after accounting for rebates and most other manufacturer price concessions. AMP is defined at 42 CFR § 447.504 and is used by Medicaid to calculate rebates under the Medicaid drug rebate program. Prices for sales to hospitals and delivery systems other than retail pharmacies, 340B prices, rebates under the Medicaid drug rebate program, and prices paid by various federal purchasers do not contribute to AMP. Medicare bases payment on AMP rather than ASP in the relatively rare case where AMP is lower (U.S. Department of Health and Human Services, Office of Inspector General, 2018).

* The **average sales price (ASP)** is the average net price paid across all purchasers (not just retail purchasers, as in AMP) after accounting for most discounts, rebates, and other price concessions. 340B prices and rebates under the Medicaid drug rebate program do not contribute to ASP. ASP is defined at 42 CFR § 414.904 and is used by Medicare as the basis of payment for most Medicare Part B drugs. Medicare payments for non-biosimilar Part B drugs are a fixed amount (typically 6 percent, now 4.3 percent due to sequestration) above ASP per billing unit of a drug. Payment for biosimilars is based on the biosimilar ASP plus the markup calculated using the reference biologic's ASP.

* The **average wholesale price (AWP)** is a price available from third-party data vendors estimating the average amount paid by distributors to purchase drugs from manufacturers. Some narrow categories of drugs (e.g., Part B drugs infused through durable medical equipment) are paid at 95 percent of AWP. AWP is by convention approximately 1.2 times WAC.

The **“Big 4” price** is a price set at the minimum of FSS prices or 76 percent of AMP available to the four largest federal purchasers of prescription drugs (the Coast Guard, the Department of Defense, the Department of Veterans Affairs, and the Public Health Service).

The **brand effective rate (BER)** is a rate describing the amount received by a pharmacy for a brand drug relative to a benchmark, such as AWP. BERs apply over a period of time. Differences between BER and actual rates might result in reconciliation between and pharmacies and PBMs.

The **cash price** is the price charged by pharmacies, for example, to those without prescription drug coverage.

* **Federal supply schedule (FSS) price:** The Department of Veterans Affairs, on behalf of the federal government, maintains a database of prices contractually negotiated between federal buyers and drug companies. These prices are generally available to all federal buyers of drugs.

The **federal upper limit (FUL)** is equal to 175 percent of AMP. State Medicaid plans pay at FUL-based rates for brand-name drugs with three or more generic competitors.

The **generic effective rate (GER)** is a rate describing the amount received by a pharmacy for a set of therapeutically equivalent generic drugs relative to a benchmark, such as AWP. GERs apply over a period of time. Differences between GER and actual rates can result in reconciliation between and pharmacies and PBMs.

The **maximum allowable cost (MAC)** is a single price set by payers that applies to all therapeutically equivalent versions of a drug—for example, to a brand-name drug and therapeutically equivalent generics.

The **Medicaid best price** is the lowest net price paid by any non-federal buyer or Medicare Part D plan sponsors for a drug (42 CFR § 447.505). State Medicaid programs are guaranteed access to this price if it is lower than the rebates that would otherwise apply under the Medicaid drug rebate program (42 CFR § 447.509).

* The **National Average Drug Acquisition Cost (NADAC)** is the average acquisition cost for a drug as determined by a nationally representative sample of pharmacies.

Net price (seller): The net price from the market authorization holder's ("seller's") perspective is the amount received after all rebates, discounts, and other price concessions are applied. Several of the other prices listed in this glossary are the net price from the seller's perspective (e.g., AMP and ASP) from certain buyers. The overall net price from the seller perspective is a volume-weighted average of these buyer-specific net prices.

The **net price (payer)** is the net price from the payer's perspective after all rebates and other price concessions are applied. The net price from the payer perspective includes margins retained by each stakeholder along the supply chain, including the manufacturer, market authorization holder (if different than the manufacturer), distributor, and pharmacy.

The **wholesale acquisition cost (WAC)** is a list price set by manufacturers. WAC does not include rebates or other discounts. New Part B drugs are paid on a WAC basis until ASP data are available.

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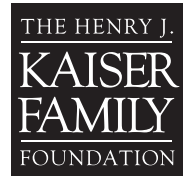
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Follow The Pill: Understanding the U.S. Commercial Pharmaceutical Supply Chain

Prepared for The Kaiser Family Foundation by:

The Health Strategies Consultancy LLC

March 2005

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I. Executive Summary

The pharmaceutical supply chain is the means through which prescription medicines are delivered to patients. Pharmaceuticals originate in manufacturing sites; are transferred to wholesale distributors; stocked at retail, mail-order, and other types of pharmacies; subject to price negotiations and processed through quality and utilization management screens by pharmacy benefit management companies (PBMs); dispensed by pharmacies; and ultimately delivered to and taken by patients. There are many variations on this basic structure, as the players in the supply chain are constantly evolving, and commercial relationships vary considerably by geography, type of medication, and other factors.

The intent of this paper is to demystify the U.S. pharmaceutical supply chain. The first section of the paper describes each of the key players (i.e., industry segments) involved in the process of supplying prescription drugs to consumers. The section begins with a discussion of what each player does and the role that it plays in the flow of pharmaceuticals from manufacturer to patient. The second section of the paper describes the financial relationships between each of these key players and how the dollars flow between and among the segments, including the consumer.

Highlights from this paper about the key players and their financial relationships include:

Pharmaceutical Manufacturers:

- A relatively few large, multinational firms comprise the bulk of the brand pharmaceutical manufacturing industry today – the 10 largest pharmaceutical corporations, as measured by U.S. sales, accounted for almost 60 percent of total U.S. sales in 2004.
- Pharmaceutical manufacturers have the most influence over pharmaceutical prices, assessing expected demand, future competition, and projected marketing costs to establish the wholesale acquisition cost (WAC), which is the baseline price at which wholesale distributors purchase drug products. Discounts and rebates may be applied, based on market share, volume, and prompt payment.

Wholesale Distributors:

- The wholesale distribution industry has consolidated in the last 30 years, with the number of wholesale distributors in the U.S. declining from approximately 200 in 1975 to fewer than 50 in 2000. The top 3 wholesale distributors account for almost 90 percent of the wholesale market.
- Wholesale distributors typically sell drugs to pharmacies at WAC plus some negotiated percentage. They may facilitate discounts negotiated between manufacturers and other customers.

Pharmacies:

- Although comprising a small overall percentage of total prescriptions filled (approximately 6.1 percent in 2004), mail-order pharmacy sales were the fastest-growing sector of the U.S. prescription drug retail market in 2004, increasing by 18 percent over the previous year.

- Pharmacies may negotiate with manufacturers or wholesalers for discounts and rebates based on volume sales or market share, and they may negotiate with PBMs for inclusion in their networks and for their reimbursement (drug cost plus dispensing fee).

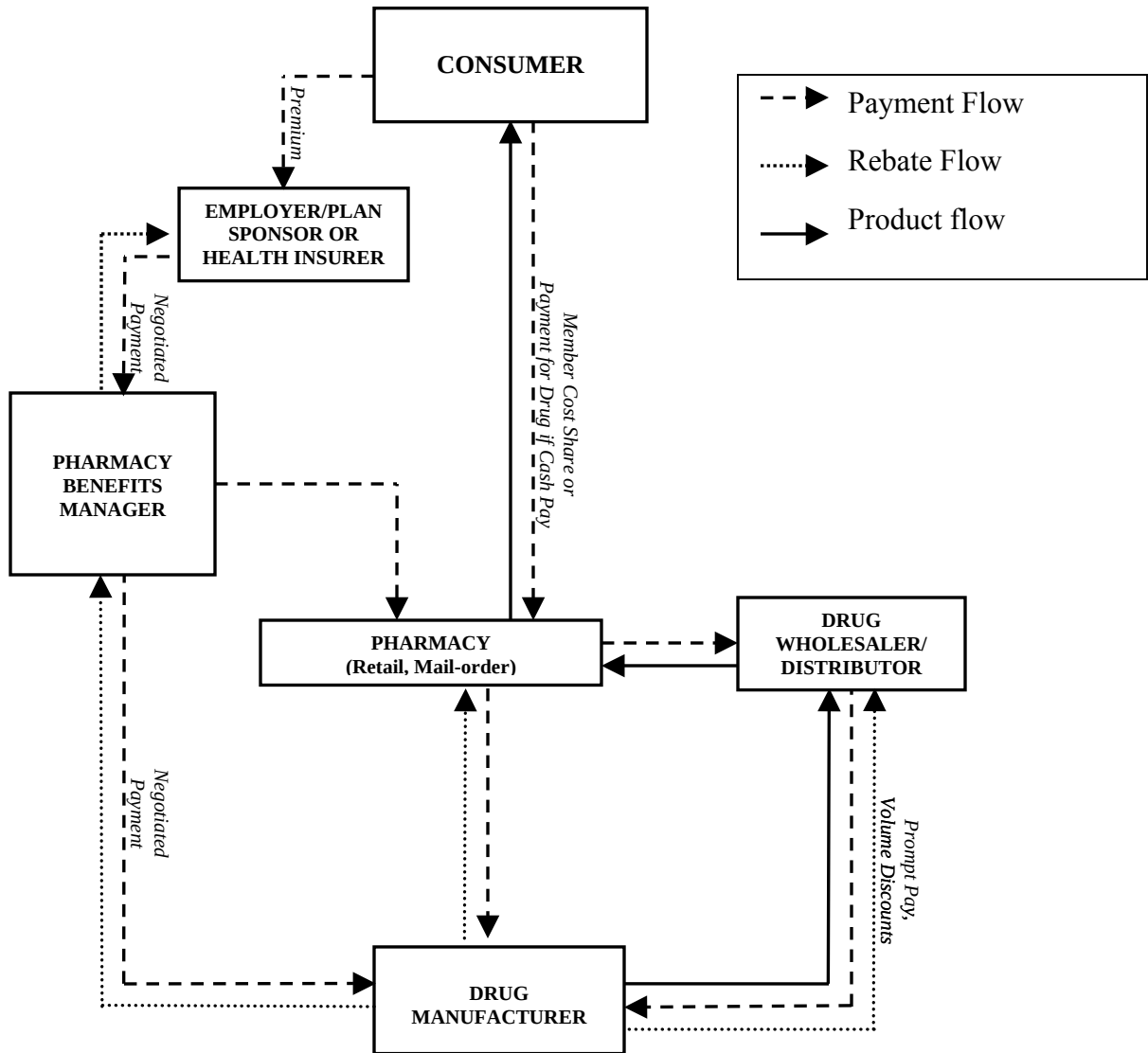
Pharmacy Benefit Managers (PBMs):

- Approximately two-thirds of all prescriptions written in the U.S. are processed by a PBM.
- PBMs may achieve savings for their customers by negotiating discounts and through cost containment programs, including use of formularies and cost sharing.

The Appendix briefly describes: (A) special pricing rules applicable to Medicaid and some other federal programs, and (B) the roles physicians, large employers, and health plans have in the pharmaceutical supply chain.

The pharmaceutical supply system is complex, and involves multiple organizations that play differing but sometimes overlapping roles in drug distribution and contracting. This complexity results in considerable price variability across different types of consumers, and the supply chain is not well understood by patients or policymakers. Increased understanding of these issues on the part of policymakers should assist in making rational policy decisions for the Medicare and Medicaid programs.

Exhibit 1. Flow of Goods and Financial Transactions Among Players in the U.S. Commercial Pharmaceutical Supply Chain



Source: The Health Strategies Consultancy LLC

II. The Flow of Goods from Manufacturers to Consumers in the U.S. Pharmaceutical Supply Chain

Pharmaceutical Manufacturers

Manufacturers are the source of the prescription drugs in the pharmaceutical supply chain. The pharmaceutical manufacturing industry is composed of two distinct business models: manufacturers of brand-name drugs (e.g., Pfizer, Merck, and Novartis) and manufacturers of generic drugs (e.g., Mylan, Roxane, and Barr). There are a few pharmaceutical companies that participate in both the branded and generic parts of the industry, and both models focus on the manufacturing and packaging of pharmaceutical products, but there are other important differences. Most brand manufacturers devote a portion of their expenses to the scientific research and development of new drug therapies. Generic drug manufacturers typically do not develop new drug therapies, but instead manufacture generic compounds that compete directly with the original branded version of a drug once the brand product's patent protection has expired.

Manufacturers manage the actual distribution of drugs from manufacturing facilities to drug wholesalers, and in some cases, directly to retail pharmacy chains, mail-order and specialty pharmacies, hospital chains, and some health plans. Manufacturers may also distribute products directly to government purchasers, such as the Veterans Administration, AIDS Drug Assistance Programs (ADAPs), and Vaccines for Children (VFC), which typically receive the largest price discounts. In a few rare cases, a manufacturer may distribute drugs directly to a self-insured employer with an on-site pharmacy, but the typical employer-sponsored plan does not follow this path. Wholesale distributors are the manufacturers' largest purchasers. Very few drugs are distributed directly to consumers.

At the most basic economic level, a pharmaceutical manufacturer supplies a quantity of its products that is equal to the demand for its products from consumers/patients (of course, consumer demand in this market is expressed through the medium of a prescribing physician or other licensed health care provider). Manufacturers also play roles in stimulating demand for drug products through underwriting clinical studies designed to demonstrate the value proposition of pharmaceutical treatments compared to one another or compared to no clinical treatment at all; by engaging in the promotion and marketing of products to health care providers (including health plans and PBMs) and direct-to-consumer advertising; and by administering patient assistance programs that provide the firm's products at nominal cost to low-income consumers.

Manufacturers also play an important role in ensuring the safety of the pharmaceutical supply chain by producing informational labeling for prescribers and consumers that is consistent with the terms and conditions of a drug's approval by the U.S. Food and Drug Administration (FDA), and by using electronic bar-coding technology on drug packaging that may be used to track individual production lots, and to prevent prescribing errors.

Overview of Pharmaceutical Manufacturing Industry

Pharmaceutical manufacturing is a large global industry. In 2003, worldwide pharmaceutical industry sales totaled \$491.8 billion, an increase in sales volume of 9 percent over the preceding year.¹ The U.S. represents the largest single national market for pharmaceuticals, accounting for 44 percent of global industry sales in 2003, or a total of \$216.4 billion, which was an increase of approximately 12 percent from the previous year's figure.²

After a decade of significant mergers and acquisitions by drug companies, a relatively few large, multinational firms comprise the bulk of the brand pharmaceutical manufacturing industry today. The ten largest pharmaceutical corporations, as measured by U.S. sales, accounted for almost 60 percent of total U.S. sales in 2004:

Exhibit 2. Top 10 Pharmaceutical Corporations by U.S. Sales, 2004

Rank	Corporation	U.S. Sales (\$ Billions)	% Growth Over Previous Year	% Market Share
1	Pfizer	\$30.7	5	13.1
2	GlaxoSmithKline	18.8	1	8.0
3	Johnson & Johnson	16.2	7	6.9
4	Merck & Co.	15.0	8	6.4
5	AstraZeneca	11.3	12	4.8
6	Novartis	10.2	7	4.3
7	Sanofi-Aventis	10.0	13	4.3
8	Amgen	9.5	23	4.1
9	Bristol-Myers Squibb	9.2	-4	3.9
10	Wyeth	8.2	11	3.5
	Total, Top 10	139.1	--	59.3

Source: IMS Health, IMS National Sales Perspectives,TM February 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695983_69891374,00.html

¹IMS Health, "Bruised But Triumphant," *Medical Marketing and Media*, May 2004, accessed at http://www.imshealth.com/vgn/images/portal/cit_40000873/23/12/55250930BruisedTriumphant081804.pdf

²IMS Health, "IMS Reports 11.5 Percent Dollar Growth in '03 U.S. Prescription Sales," February 17, 2004, accessed at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_3665_44771558,00.html. Prescription sales figures reported by IMS Health represent manufacturer prices.

When measured by prescription volume, the “top 10” list is similar but not identical, as a few generic drug manufacturers appear on the list:

Exhibit 3. Top 10 Pharmaceutical Corporations by Total U.S. Dispensed Prescriptions, 2004

Rank	Corporation	U.S. Prescriptions (Millions)	% Growth Over Previous Year	% Market Share
1	Pfizer	360.7	-4	10.2
2	Novartis	225.5	-2	6.4
3	Teva*	221.2	7	6.3
4	Mylan Labs*	215.2	4	6.1
5	Watson*	175.6	7	5.0
6	GlaxoSmithKline	138.8	-13	3.9
7	Merck & Co.	129.5	3	3.7
8	AstraZeneca	100.4	11	2.9
9	Johnson & Johnson	95.6	-9	2.7
10	Abbott	91.5	-4	2.6
	Total, Top 10	1754.0		49.8

* Generic drug manufacturers

Source: IMS Health, National Prescription Audit™ Plus, January 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68913574,00.html

Exhibit 4 provides a description of the generic pharmaceutical market:

Exhibit 4. Top 10 Generic Manufacturers by Total Global Sales, 2003

Rank	Corporation	Global Sales (\$ Millions)	% Growth Over Previous Year
1	Sandoz	\$4,004.0	
2	Teva Pharmaceutical Industries Limited	3,276.4	30.1
3	IVAX Corporation	1,420.3	18.6
4	Mylan Laboratories Inc.	1,269.2	15.0
5	Alpharma Inc.	1,297.3	4.8
6	Andrx Corporation	1,046.3	35.7
7	Barr Pharmaceuticals, Inc.	902.9	-24.1
8	Par Pharmaceutical Companies, Inc.	661.7	73.4
9	American Pharmaceutical Partners, Inc.	351.3	26.6
10	Eon Labs, Inc.	329.5	34.9

Source: Hoover's, Inc. Hoover's Online, accessed 1/03/2005.

To convey the size of the pharmaceutical manufacturing industry from the perspective of individual products, the following tables present data on the biggest selling pharmaceutical products in the United States in 2004, measured by prescriptions dispensed and by sales in dollars. Exhibits 5 and 6 are for individual drug products, while Exhibits 7 and 8 are for broader therapeutic classes of drugs.

Exhibit 5. Top 10 Products by Total U.S. Dispensed Prescriptions, 2004

Rank	Product	Manufacturer	Prescriptions (Millions)	% Growth Over Previous Year	% Market Share
1	Lipitor	Pfizer	74.8	9	2.1
2	HYCD/APAP	Mallinckrodt	49.5	12	1.4
3	Synthroid	Abbott	47.4	-5	1.3
4	Norvasc	Pfizer	38.3	5	1.1
5	Toprol-XL	AstraZeneca	35.0	18	1.0
6	Zoloft	Pfizer	33.1	1	0.9
7	Zocor	Merck	29.6	1	0.8
8	HYCD/APAP	Watson	29.0	-2	0.8
9	Albuterol	Warrick	26.8	0	0.8
10	Amoxicillin	Teva	26.2	-5	0.7

Source: IMS Health, National Prescription Audit™ Plus, January 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68913594,00.html

Exhibit 6. Top 10 Products by U.S. Sales, 2004

Rank	Product	Manufacturer	U.S. Sales (\$ Billions)	% Growth Over Previous Year	% Market Share
1	Lipitor	Pfizer	\$7.7	14	3.3
2	Zocor	Merck	4.6	4	1.9
3	Prevacid	TAP	3.8	-5	1.6
4	Nexium	AstraZeneca	3.8	23	1.6
5	Procrit	Ortho Biotech	3.2	-3	1.4
6	Zoloft	Pfizer	3.1	8	1.3
7	Epogen	Amgen	3.0	-4	1.3
8	Plavix	Sanofi-Synthelabo	3.0	33	1.3
9	Advair Diskus	GlaxoSmithKline	2.9	26	1.2
10	Zyprexa	Eli Lilly	2.8	-10	1.2

Source: IMS Health, IMS National Sales Perspectives,™ February 2005, accessed 2-28-05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695983_69890133,00.html

Exhibit 7. Top 10 Therapeutic Classes by Total U.S. Dispensed Prescriptions, 2004

Rank	Therapeutic Class	Total Prescriptions (Millions)	% Growth over Previous Year	% Market Share
1	Codeine	157.6	5	4.5
2	SSRIs/SNRIs	147.4	4	4.2
3	ACE Inhibitors	143.8	5	4.1
4	HMG-COA Reductase Inhibitors (Statins)	139.8	11	4.0
5	Beta Blockers	120.6	7	3.4
6	Proton Pump Inhibitors	93.1	-2	2.6
7	Thyroid Hormone, Synthetic	90.0	6	2.6
8	Calcium Blockers	88.4	0	2.5
9	Seizure Disorders	84.8	7	2.4
10	Oral Contraceptives	82.5	-3	2.3

Source: IMS Health, National Prescription Audit™ Plus, January 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68914714,00.html

Exhibit 8. Top 10 Therapeutic Classes by U.S. Sales, 2004

Rank	Therapeutic Class	U.S. Sales (\$ Billions)	% Growth Over Previous Year	% Market Share
1	HMG-COA Reductase Inhibitors (Statins)	\$15.5	12	6.6
2	Proton Pump Inhibitors	12.5	-3	5.3
3	SSRIs/SNRIs	11.0	1	4.7
4	Antipsychotics, Other	9.1	12	3.8
5	Seizure Disorders	8.2	19	3.5
6	Erythropoietins	8.0	8	3.4
7	Antiarthritics, COX-2 Inhibitors	5.3	0	2.3
8	Calcium Channel Blockers	4.4	1	1.9
9	Angiotensin II Antagonists	4.4	24	1.9
10	Ace Inhibitors	3.9	-5	1.7

Source: IMS Health, IMS National Sales Perspectives,TM February 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695983_69891394,00.html

Wholesale Distributors

Wholesale distributors purchase pharmaceutical products from manufacturers and distribute them to a variety of customers, including pharmacies (retail and mail-order), hospitals, and long-term care and other medical facilities (e.g., community clinics,

Exhibit 9. Wholesale Distribution Industry

In 2004, the wholesaler distributor industry is valued at approximately \$212 billion in annual U.S. sales. The following three wholesalers represent 88% of the market:

1) McKesson

- Merged with health-care software giant HBO & Co. in 1998
- Rolling 12-month sales as of September 2004: \$72.2 billion; Market Share: 34.1%

2) Cardinal Health

- From 1999 – 2002, Cardinal merged with many other wholesalers including Allegiance Corporation and Bindley Western Industries
- Rolling 12-month sales as of September 2004: \$63.3 billion; Market Share: 29.9%

3) AmerisourceBergen

- Began operations in August 2001 following merger of AmeriSource Health Corporation and Bergen Brunswig Corporation
- Rolling 12-month sales as of September 2004: \$52.4 billion; Market Share: 24.8%

Source: *GICS Sub-Industry Revenue Share (09/04/2004)*.
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physician offices and diagnostic labs). Some wholesalers sell to a broad range of potential clients while others specialize in sales of particular products (e.g., biologic products) or sales to particular types of customers (e.g., nursing homes).

In the past, wholesalers limited their operations to a traditional distribution function. They provided the link between manufacturers and pharmacies (and other entities, e.g., government sites and physicians) by warehousing products and managing inventory. While “traditional” distribution services remain the cornerstone of the business, the industry has developed a more comprehensive list of services in response to the evolving

marketplace. Today, wholesale distributors provide a number of specialized services, including specialty drug distribution, drug repackaging, electronic order services, reimbursement support, and drug buy-back programs.³

The wholesale distribution industry has gone through significant change and consolidation in the last 30 years, due in part to the increasing pressures to lower costs. Between 1975 and 2000, the number of wholesale distributors in the U.S. declined from approximately 200 to fewer than 50.⁴ The top three wholesale distributors, McKesson, Cardinal Health, and Amerisource-Bergen, account for almost 90 percent of the entire wholesale drug market.⁵

This consolidation has forced the industry to change its revenue model, evolving its core distribution business into a low-margin enterprise that makes money by maximizing economies of scale, creating physical efficiencies in the distribution system (such as “just-in-time” deliveries to customers), and realizing financial efficiencies (such as retaining discounts for prompt payment). The industry has also extended and augmented its business model by moving into specialty pharmacy and disease management services.

Pharmacies

Pharmacies are the final step on the pharmaceutical supply chain before drugs reach the consumer/patient. Pharmacies purchase drugs from wholesalers, and occasionally directly from manufacturers, and then take physical possession of the drug products. After purchasing pharmaceuticals, pharmacies assume responsibility for their safe storage and dispensing to consumers. Pharmacy operations include maintaining an adequate stock of drug products, providing information to consumers about the safe and effective use of prescription drugs, and facilitating billing and payment for consumers participating in group health benefit plans.

Pharmacies also serve as a vital information link between PBMs, drug manufacturers, and wholesale distributors. Unlike most other sectors of the health care delivery system in the U.S., the pharmaceutical supply chain is highly automated and virtually all claims transactions are handled electronically, rather than on paper. Since they are the final point of sale for pharmaceuticals and the interface between the supply chain and the consumer, pharmacies generate the prescription drug claims information that PBMs, as well as health plans, employers, governments, and other payers, rely upon to measure consumer activity. Other types of information, both quality-focused (e.g., drug-drug interaction warnings) and utilization management-based (e.g., formulary compliance

³ Drug buy-back programs are offered by manufacturers and are facilitated by wholesale distributors. Buy-back programs are intended to minimize the financial risk that pharmacies must assume in stocking products by allowing them to sell unused products or products with near-term expiration dates back to the manufacturer.

⁴ Goldman Sachs Industry Report: Health Care Technology & Distribution, February 27, 2003.

⁵ Standard & Poor's, *GICS Sub-Industry Revenue Share*, September 4, 2004.

messaging) can originate from other parts of the supply chain, in particular from PBMs, to the pharmacy as a prescription is being dispensed. As the final actor in the supply chain, it is up to the pharmacy to take action based on the information provided. For example, the pharmacy is expected to contact the prescribing physician if the drug prescribed is not on the patient's health plan's formulary or if a lower-cost therapeutic alternative is available.

There are several types of pharmacies, including independent pharmacies, chain drug stores, pharmacies in supermarkets and other large retail establishments, and mail-order pharmacies. Most pharmacies purchase their drug supply from a wholesale distributor, although in some cases, large institutional and retail chain pharmacies, specialty pharmacies, and mail-order pharmacies obtain drugs directly from a manufacturer. These organizations can deal directly with manufacturers because they already possess the operational infrastructure necessary to bypass wholesalers – warehousing facilities, distribution vehicles, and inventory control systems. Once a pharmacy takes possession of the drug products, it distributes the products to physicians or directly to consumers. In addition, there are specialty pharmacies, which specialize in the distribution of high-cost and more complex drug therapies (e.g., self-injectable drugs and biologics).

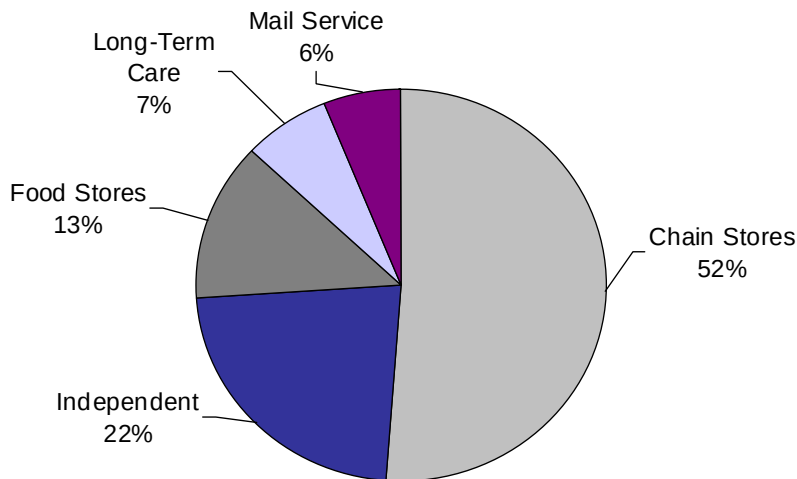
In 2003, there were 55,000 community retail pharmacies, including 19,000 independent drug stores, 21,000 chain drug stores, and 16,000 pharmacies in supermarkets and other retail merchants.⁶ In 2004, there were 3.5 billion prescriptions dispensed in the United States through community pharmacies, including about 1.8 billion filled at chain drug stores, 780 million filled at independent pharmacies, and 470 million filled in supermarkets. Another 214 million prescriptions were filled through the mail.⁷

⁶ National Association of Chain Drug Stores, http://www.nacds.org/user-assets/PDF_files/Retail_Outlets2003.pdf.

⁷ IMS Health, National Prescription Audit™ Plus, January 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68913551,00.html

Exhibits 10 and 11 depict the distribution of pharmaceuticals in the U.S. through the various types of “retail” pharmacy channels:

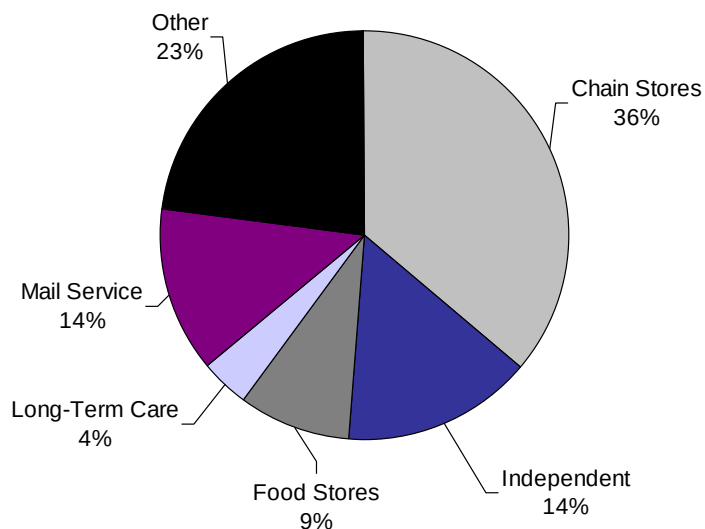
Exhibit 10. Number of Prescriptions by Pharmacy Distribution Channel, 2004



Note: Represents total dispensed prescriptions, including insulin dispensed through chain, food store, independent, long term care, and mail service pharmacies.

Source: IMS Health, National Prescription Audit™ Plus, January 2005, accessed 2/28/05 at www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68913551,00.html

Exhibit 11. Drug Sales by Pharmacy Distribution Channel, 2004



Note: Represents wholesale prices. Sales include prescription products only.

Source: IMS Health, IMS National Sales Perspectives,™ February 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695983_69891354,00.html

Like all other parts of the pharmaceutical supply chain, the pharmacy industry has gone through significant consolidation as well as diversification of its businesses over the past five to ten years. Several retail pharmacy chains have merged, primarily as a way to gain buying power for use in negotiations with drug manufacturers and wholesale distributors.

As shown in Exhibit 12, Walgreens, CVS, and Rite Aid were the top three retail pharmacy chains based on market capitalization:

Exhibit 12. Top 5 Retail Pharmacy Chains in the U.S., By Market Capitalization

Rank	Pharmacy Chain	2004 Market Cap
1	Walgreens Company	\$35.2 bil.
2	CVS Corporation	\$16.1 bil.
3	Rite Aid	\$2.6 bil.
4	Longs Drug Stores	\$0.7 bil.
5	Duane Reade	\$0.4 bil.
	Total for Industry	\$103.0 bil.

Source: Health Strategies Consultancy analysis of Pharmacy/Drug Store Industry based on market cap data obtained from Dow Jones (factiva.com)⁸

In addition to traditional retail pharmacy services, consumers have increasingly been using specialty and mail-order pharmacies over the past several years. Growth in the use of these types of pharmacies is expected to increase rapidly for the foreseeable future, as more payers adopt the view that these specialized retail distribution channels can be important components of their strategies to manage the rate of growth in their pharmacy benefit expenditures. Residents of long-term care facilities (LTC) rely almost exclusively on dedicated LTC pharmacies.

- **Specialty pharmacies** serve patients with chronic diseases by dispensing high-cost biotechnology drugs. Specialty pharmaceuticals typically are administered by injection or infusion (intravenously), and often, are administered by a clinical professional in a doctor's office. The diseases treated with specialty pharmaceuticals range from relatively common conditions, some of which are treated with multiple drug therapies, such as HIV/AIDS, multiple sclerosis, cancer, and rheumatoid arthritis, to rare diseases that are treated with a single drug therapy, such as hemophilia and growth hormone deficiency. The specialty pharmacy industry today is dynamic, with new companies entering continuously. Types of firms in the market range from publicly-traded stand-alone firms to subsidiaries of PBMs, retail pharmacies, and home health companies.^{9,10}

⁸ Market capitalization is the value of a company's outstanding shares of stock, which is measured by multiplying the number of shares outstanding by the current share price. Speaking very generally, the larger the market capitalization, the more financially stable the company.

⁹ Credit Suisse First Boston, "Pharmacy Benefit Managers and Specialty Pharmacies: Initiating Coverage," July 14, 2003, p. 22.

¹⁰ Raymond James & Associates, Inc., "Specialty Drug Distribution," July 16, 2002, p. 3.

- **Mail-order pharmacies** receive prescriptions by mail, fax, phone, or Internet at a central location; process the prescription in large, mostly automated centers; and mail the prescribed drugs back to the consumer. An aging population, convenience, and the recent upswing in pharmaceutical treatments for common chronic ailments, such as diabetes and depression, are some of the driving forces behind the rapid growth in the use of mail-order pharmacies.¹¹ While representing a small overall percentage of total prescriptions filled (approximately 6.1 percent in 2004¹²), mail-order pharmacy sales remained the fastest-growing sector of the U.S. prescription drug retail market in 2004, increasing by 18 percent over the previous year.¹³ The majority of mail-order facilities are owned and operated by PBMs, and a number of the large retail pharmacy chains also own mail-order pharmacies.¹⁴
- **Long-term care pharmacies**, sometimes called institutional pharmacies, are a third type of specialized retail pharmacy. Long-term care pharmacies address the special needs of nursing homes, providing packaging for controlled administration (called unit-dose supply or bubble packs), and special services that are more extensive than those provided by retail pharmacies. These special services include: quality assurance checks, emergency drug kits and medication carts, regular and emergency (24-hour-a-day) delivery services, and in-service training programs for nurse aides, nurses, and other professional nursing facility staff. Four national chains provide the bulk of institutional pharmacy services to nursing homes: Omnicare, PharMerica, NeighborCare, and Kindred Healthcare. In 2003, these four chains served over two-thirds of all nursing home beds and had collective revenues of more than \$6 billion.¹⁵ The two largest national long-term care pharmacies, Omnicare and PharMerica (which is a subsidiary of AmerisourceBergen, a wholesale distributor), provide drugs to over half of the nursing home beds in the United States. Omnicare is the largest provider with over \$3 billion in 2003 revenues.¹⁶

Pharmacy Benefit Managers (PBMs)

According to one leading report on the PBM industry, PBMs currently manage prescription drug benefits for as much as 57 percent of the U.S. population,¹⁷ and the

¹¹ National Health Policy Forum, *The ABCs of PBMs*, October 1999.

¹² IMS Health, National Prescription AuditTMPlus, January 2005, accessed 2/28/05 at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695974_68913551,00.html

¹³ IMS Health, IMS National Sales Perspectives,TM February 2005, accessed 2/28/05, at http://www.imshealth.com/ims/portal/front/articleC/0,2777,6599_49695983_69891354,00.html

¹⁴ California Health Care Foundation, *Navigating the Pharmacy Benefits Marketplace*, January 2003.

¹⁵ Long-Term Care Pharmacy Association, 2003.

¹⁶ Omnicare Annual Report, 2003.

¹⁷ Atlantic Information Services (AIS), Inc., *A Guide to Drug Cost Management Strategies (2nd Edition)*, 2004, p. 329. AIS states that its data are based on a quarterly survey that the firm has been using to track all publicly-traded and privately-held PBMs since 2000.

National Association of Chain Drug Stores estimates that approximately two-thirds of all prescriptions written in the U.S. are processed by a PBM.¹⁸ While not a direct link in the physical supply chain for pharmaceutical products (PBMs in most instances do not take possession or control of prescription drugs), PBMs have become an integral part of most consumer drug purchases. PBMs work with third party payers (private insurers, self-funded employers and public health programs) to manage consumer drug purchases by defining which drugs will be paid for and the amounts that the pharmacy will receive and the consumer must pay out-of-pocket when the prescription is filled.

PBMs have evolved over the last three decades from basic claims administrators to more complex organizations offering a wide range of prescription drug management tools. In addition to offering their basic services – claims processing, record keeping, and reporting programs – PBMs offer their customers a wide range of services including drug utilization review, disease management, and consultative services. PBMs also assist clients with establishing their benefit structure. Options for plan design include: developing and maintaining a prescription drug formulary; developing a network of pharmacy providers; and providing mail order fulfillment services. A PBM's core services and tools include:

- **Formularies:** PBMs use formularies to negotiate deeper price discounts with manufacturers, set cost-sharing levels to influence beneficiary utilization rates, and encourage beneficiaries to use a mix of preferred or lower-cost covered products.
- **Rebates:** PBMs negotiate with pharmaceutical manufacturers for rebates on products selected for the formulary. Rebate amounts are based on the contracts negotiated between the PBM and plan sponsors and the PBM and manufacturers. Typically, contracts are structured so that PBMs retain a portion of the rebate in exchange for developing the formulary and negotiating with manufacturers.
- **Pharmacy Networks:** Pharmacy networks consist of pharmacies that have agreed to dispense prescription drugs and provide pharmacy services to a health plan's enrollees under specified terms and conditions. Pharmacy networks can be broad or narrow. These networks allow PBMs to lower prescription drug prices by negotiating the reimbursement rate and dispensing fee with pharmacies.
- **Mail-Order Pharmacy Service:** Almost all PBMs offer mail-order pharmacy service, especially targeted toward individuals with chronic medical conditions who take maintenance medications. The medications are dispensed typically in 90-day amounts per prescription, as opposed to the usual 30-day supply per prescription dispensed by a retail pharmacy. PBMs are able to lower the cost of pharmaceuticals to consumers and payers by using mail-order services to more successfully drive market share for particular products, based on the terms of

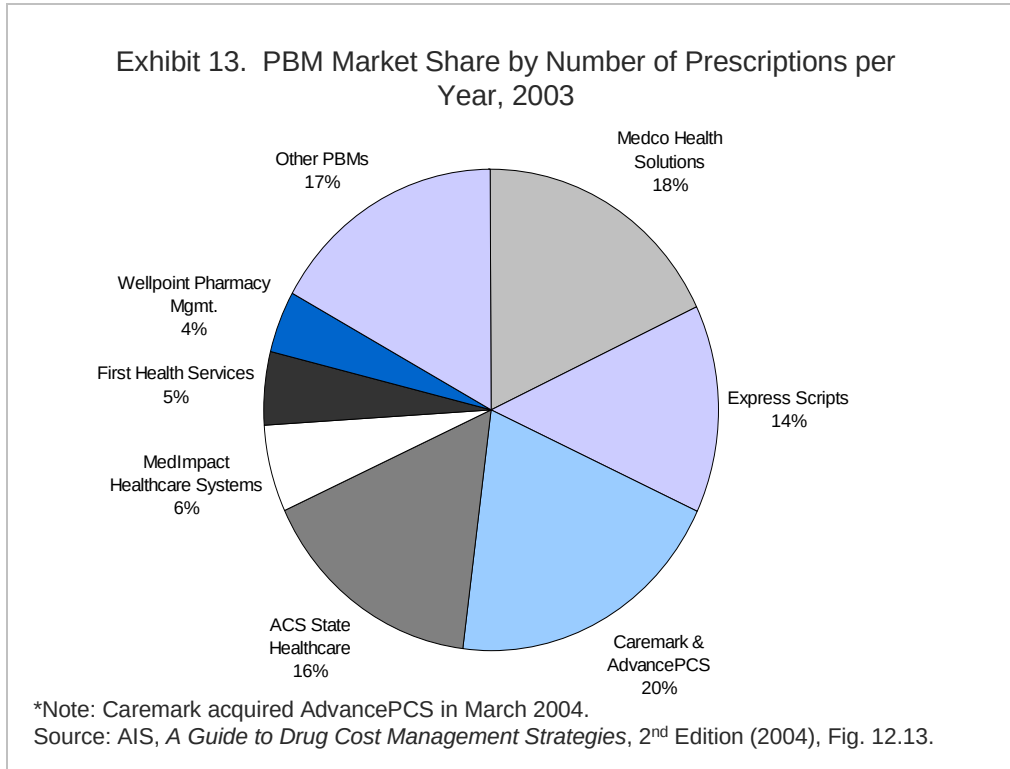
¹⁸ Ibid., p. 331.

contracts negotiated with pharmaceutical manufacturers (e.g., encouraging generic and branded therapeutic substitution and other forms of managing formulary compliance), and (relative to the typical retail pharmacy operation) by automating dispensing processes.

- ***Claims Adjudication:*** All PBMs use a real-time, point-of-sale system linked to retail and mail-order pharmacies and distribution centers. This process provides verification of coverage, formulary restrictions, drug interactions, and individual co-pay information. This process also provides prescription drug information back at the PBM data warehouse, where it can be used for customized reporting and quality-focused clinical and intervention programs.
- ***Generic and Therapeutic Substitution:*** Generic substitution promotes the shift from brand to chemically equivalent generic drugs as a cost savings device. Therapeutic interchange programs promote the use of preferred drugs (i.e., drugs on a plan's formulary) that are determined to be clinically similar.
- ***Quality-Focused Programs:*** PBMs develop programs that provide disease management, compliance strategies, and other clinical expertise promoting the safe, educated use of prescription drugs.

PBMs generally do not take physical possession of prescription drugs when performing their core pharmaceutical management functions. However, in their mail-order and specialty-pharmacy businesses, PBMs buy drugs from wholesalers or manufacturers and dispense them directly to patients in a manner similar to other pharmacies.

During the 1990s, there was a great deal of jockeying within the PBM market, a highly penetrated market compared to just a decade ago. In order to remain competitive, PBMs have merged and acquired new businesses. Most recently, in March 2004, Caremark acquired AdvancePCS; in 2001, Express Scripts acquired National Prescription Administrators; in 2000, Medco Health Solutions acquired Provantage; and in 1998, Express Scripts acquired Value Rx. As shown in Exhibit 13, the PBMs that controlled the most market share measured by prescriptions per year in 2003 were Medco Health Solutions, ACS State Healthcare, AdvancePCS/Caremark, and Express Scripts.¹⁹



¹⁹ Atlantic Information Services, Inc., *A Guide to Drug Cost Management Strategies*, 2nd Edition, 2004.

III. The Flow of Money and Key Financial Relationships in the U.S. Pharmaceutical Supply Chain

The flow of money between manufacturers and end-users is more complex than the physical distribution of drugs. The manufacturer typically interacts with three primary entities when dealing with price: wholesale distributors, retail pharmacies, and pharmacy benefit managers. Pharmaceutical manufacturers negotiate separate contracts with these entities and offer various discounts and rebates based largely on the entities' varying ability to influence the quantity of drugs that are sold. This section looks at these financial relationships and charts the flow of funds among the key players, starting with manufacturers, who play by far the most important role in establishing prices.

Pharmaceutical Manufacturers

Manufacturers have the most influence over pharmaceutical prices. They develop algorithms to account for expected demand for the product, future competition for the product, and projected marketing costs, and use those algorithms to establish the "wholesale acquisition cost" (WAC), which is the baseline price at which wholesale distributors purchase products. After the WAC is established, the average wholesale price (AWP), or the retail list price, is established either by the manufacturer or by one of the companies that publishes price compendia. The AWP, and sometimes the WAC, is listed in drug compendia published by a small number of private firms, such as the Red Book, published by Thomson Medical Economics, and First DataBank. The AWP has two purposes: (1) it is often used by public and private third-party payers as the basis for reimbursement, and (2) it often serves as the base price for negotiations between manufacturers and private sector purchasers of drugs (e.g., health plans, pharmacy benefit managers, self-insured employers, etc.).

The negotiation process and the price points on which negotiations are based are different for brand and generic manufacturers. Brand manufacturers typically offer discounts based on a percentage of AWP or WAC, depending upon the purchaser. End purchasers can typically acquire brand drug products for a price in a range of AWP minus 5 to 40 percent, depending upon their purchasing power or that of their designated agent, such as a PBM. Generic pharmaceutical manufacturers operate in a more aggressive and dynamic negotiation environment than brand manufacturers and thus the prices for generic drugs change much more frequently, sometimes daily, in response to market forces. The most common kinds of discounts and rebates include: retroactive rebates based on market share (i.e., rebates paid by the manufacturer to the pharmacy or PBM based on its ability to direct consumers to certain products); volume discounts (discounts that are triggered when predetermined sales volume targets are met); and "prompt pay" discounts (discounts that are triggered when the purchaser reimburses the manufacturer in an expedited fashion).

Pricing for prescription drugs purchased and dispensed by certain federal programs, including Medicaid and the Veterans Administration, are subject to special rules which

generally result in those programs getting lower prices than other purchasers. These rules are outlined in the Appendix.

PRICING TERMS DEFINED

- **Average Manufacturer Price (AMP):** The average price paid to a manufacturer by wholesalers for drugs distributed to retail pharmacies. AMP was a benchmark created by Congress in 1990 in calculating Medicaid rebates and is not publicly available. (See Appendix for additional discussion of pharmaceutical pricing in Medicaid).
- **Average Sales Price (ASP):** The weighted average of all non-Federal sales to wholesalers net of chargebacks, discounts, rebates, and other benefits tied to the purchase of the drug product, whether it is paid to the wholesaler or the retailer. The basis for reimbursement for products covered under Medicare Part B changed under the Medicare Modernization Act of 2003 from AWP to ASP.
- **Average Wholesale Price (AWP):** Although not defined in statute, AWP is recognized as retail list price (sometimes referred to as a “sticker” price) and is currently used by some public and private third-party payers as the basis for reimbursement (e.g., AWP minus 5 or 25 percent). AWP has been widely criticized as a price that is (1) not reflective of the true market price, and (2) easily manipulated. The basis for reimbursement for products covered under Medicare Part B changed under the Medicare Modernization Act of 2003 from AWP to average sales price (ASP).
- **Estimated Acquisition Cost (EAC):** EAC is a state Medicaid Agency’s best estimate of the price generally paid by pharmacies for a particular drug.
- **Maximum Allowable Cost (MAC):** MAC lists are designed to cap reimbursement for certain generic and multi-source brand products. States and private payers with MAC programs typically publish lists of selected generic and multi-source brand drugs along with the maximum price at which the program will reimburse for those drugs. In general, pharmacies will receive payment no higher than the MAC price when billing for drugs on a MAC list.
- **Wholesale Acquisition Cost (WAC):** The price paid by a wholesaler for drugs purchased from the wholesaler’s supplier, typically the manufacturer of the drug. Publicly disclosed or listed WAC amounts may not reflect all available discounts.

Wholesale Distributors

Wholesale distributors purchase drugs from manufacturers. For branded products, the purchase price is fairly uniform, with little negotiation on the part of the wholesale distributor. The distributor typically purchases branded products for a discounted rate off of WAC. Examples of discounts for branded products include volume discounts, prompt pay discounts, and discounts related to the sale of short-dated products (because the wholesaler is assuming a risk that the product will expire before it can be resold). The wholesale distributor then sells the product to its end consumer, typically a pharmacy, at WAC plus some negotiated percentage.

For generic products, the purchase price is highly variable, largely depending upon competition in the class and the ability of the wholesale distributor to drive market share or increase the volume sold. In this case, wholesale distributors play a larger role in the negotiation of the price of the product. The price to the end consumer also is highly elastic depending upon the negotiated contracts with the retail pharmacies.

In some cases, the wholesale distributor may facilitate discounts negotiated between manufacturers and other customers. For example, wholesaler A may distribute drugs to pharmacy B based on negotiations between pharmacy B and manufacturer C. Although wholesaler A directly distributes the drugs to pharmacy B, it plays a minimal part in pricing negotiations for these drugs. In this case, wholesalers use an important pricing mechanism, *chargeback*, which allows them to carry products destined for customers paying very different prices to manufacturers. The wholesaler keeps track of sales to various customers under prices negotiated between the manufacturer and the customer. The wholesaler then “charges back” the manufacturer for any difference between the negotiated prices paid by the customer and the wholesaler’s cost of goods (WAC).

Pharmacies

Payment for prescription drugs flow from the pharmacy to the manufacturer according to a negotiated contract involving manufacturers, PBMs, and pharmacies. Retail pharmacies negotiate with manufacturers for discounts and rebates based on the pharmacy’s ability to sell specific volumes of certain drugs or achieve a certain share of a specified market. As discussed in the wholesale distributor section, pharmacies may be able to negotiate discounts with manufacturers that are more substantial than the wholesale distributor’s cost. In these instances, the wholesale distributor facilitates the discount and “charges back” the manufacturer for any difference between the negotiated prices paid by the customer and the wholesaler’s cost of goods (WAC). Pharmacies also negotiate with PBMs for inclusion in a PBM’s pharmacy network and for reimbursement for the cost of the drug plus dispensing fees.

Manufacturers may offer volume discounts on selected drugs to pharmacies when they achieve predetermined market share targets. These discounts provide an incentive for pharmacists to work with patients and physicians to switch products from a prescribed non-preferred drug to a preferred drug.

Pharmacies contract with PBMs to join their pharmacy network. This structure provides pharmacies with guaranteed, stable reimbursement from private payers and access to a greater number of customers. The network consists of a group of retail and independent pharmacies and serves to offer plan members with lower prescription drug costs. As part of the pharmacy network contract, retail pharmacies must agree to a guaranteed reimbursement formula for prescription drugs. For brand-name medications, the reimbursement formula is usually determined by subtracting a negotiated percentage from the drug’s AWP and adding the dispensing fee. For generic drugs, reimbursement may be determined in the same way as for a brand drug (for less competitive generic drug classes), but more often is based on an amount specified referred to as the maximum allowable cost (MAC).

Smaller retail stores, such as independent pharmacies and smaller retail chains, either purchase directly from wholesalers – at a price significantly higher than retail pharmacies – or join group-purchasing organizations (GPOs). As members of a GPO, small

pharmacies receive the benefits of volume purchasing by leveraging their combined purchasing power to negotiate discount pricing from wholesalers or even in some cases from manufacturers. Some of these groups further reduce their costs through direct rebate deals offered by manufacturers.

Mail-order and specialty pharmacy services are increasingly becoming a more attractive and demanded option for health plan sponsors and other payers seeking to rein in pharmaceutical expenditures for their members. Mail-order and specialty pharmacies are able to generate increased savings by driving market share, streamlining the distribution chain, and automating drug dispensing processes.

- **Specialty Pharmacy:** Most specialty pharmacy providers manage the cost of specialty pharmaceuticals by negotiating directly with manufacturers and by running quality-focused programs intended to improve patient care and lower costs. Large PBMs or retail pharmacy chains own a number of the specialty pharmacies, and in some cases these entities are able to negotiate greater discounts with manufacturers.²⁰ Nearly all specialty pharmacies also administer programs designed to enforce patient compliance. Industry representatives claim that these programs save the patient and health plan money by averting acute incidences.
- **Mail-Order Pharmacy:** In 2000, the U.S. Department of Health and Human Services estimated that mail-order pharmacies were able to generate savings between two and 35 percent compared to retail pharmacies.²¹ Representatives from the mail-order industry attribute these savings to their ability to “manage” prescriptions because the majority of mail-order prescriptions are filled in 90-day units (the equivalent of three prescriptions).²² The considerable lead time associated with filling a 90-day prescription gives the pharmacists and other clinical staff at a mail-order pharmacy the time to analyze whether the prescribed drug is on the client’s (i.e., insurer’s or health plan’s) approved formulary, if there is a generic equivalent available, and if there are any potential interactions of the prescribed drug with other medications the member’s physician or physicians may have also prescribed.
- **Long-Term Care Pharmacy:** LTC pharmacies have long-term, almost exclusive contracts with nursing homes to provide medications and services for residents. LTC pharmacies capture a large volume of customers in this way. LTC pharmacy chains have developed formularies and use them in many states that do not have Medicaid preferred drug lists (PDLs) applicable in the nursing home setting. The large LTC pharmacy chains negotiate rebates with manufacturers in exchange for

²⁰ Berg, Kevin I. “Health Care Industry Report: The Down Low,” *First Albany Corporation* 6 (2003): 1-153.

²¹ Department of Health and Human Services, *Report to the President: Prescription Drug Coverage: Spending Utilization and Prices*, April 2000.

²² California HealthCare Foundation, *Navigating the Pharmacy Benefits Marketplace*, January 2003.

moving market share on their formularies. In addition to receiving rebates, many pharmacies are reimbursed at higher rates than acquisition costs, because they purchase drugs through wholesalers and group purchasing organizations.

Pharmacy Benefit Managers (PBMs)

Although PBMs are a relatively unknown entity to the end consumer, they play a fundamental role in negotiating the price that is ultimately paid for the product through their relationships with other entities in the supply chain.

PBMs contract with health plans to manage their prescription drug costs. Each contract is different between health plans and PBMs; however, there are generally three basic components of the payment negotiated between PBMs and their sponsors. First, PBMs receive payment for the services they provide. These services may include claims adjudication processing and disease management services. Second, PBMs typically assume some type of performance risk in the contracts they negotiate. Performance metrics can include: customer service (e.g., adequacy of pharmacy networks, timeliness of reporting), clinical quality measures (e.g., the number of people averted from taking inappropriate medications), and cost management techniques (e.g., the number of generic substitutions made in a given time period). Third, PBMs also retain a portion of rebates they secure from manufacturers.

PBMs do not typically assume full insurance risk for drugs. This type of risk is assumed when an insurer takes full or partial financial responsibility for claims incurred under a specified benefit. Insurance risk can further be segmented into three sub-categories: price, utilization, and selection risk. PBMs do not typically guarantee either the unit prices of drugs, the volume of drugs (utilization) or the kinds of patients that sign up for the drug plan (selection). Insurance risk for drugs is often assumed by self-insured entities in the context of a full medical benefit. For an entity to assume insurance risk, the entity must demonstrate that it has adequate financial reserves, be licensed and overseen by state insurance regulators, and be prepared for underwriting cycles.

While performance risk arrangements are very common for PBMs, insurance risk arrangements are not. During the mid-1990s, some PBMs experimented with risk contracts. ValueHealth, PCS, and Medco had contracts in which the PBM assumed full insurance risk. The contracts typically contained actuarial carve-outs for new biotechnology products and unexpected changes in demographics, but put the PBM at risk for other drug utilization and cost. Many of these contracts were with large manufacturing clients who were self-insured, concerned about drug spending, and bid out the pharmacy benefit competitively to multiple vendors. The experience was uniformly negative from the PBM perspective. The PBMs consistently lost money because they under-estimated the development and diffusion of new technology. Many were able to negotiate out of these contracts, but some contracts persisted until the late 1990s. Most, if not all, are now gone.

PBM relationships with manufacturers are governed under guidance from the Department of Health and Human Services (HHS) Office of the Inspector General, and subject to oversight by the Department of Justice for compliance with federal anti-kickback statutes. PBMs are further regulated in many states under consumer protection statutes. In recent years, some industry practices, for example switching of medications and associated pricing issues, have come under scrutiny by state Attorneys General and the Department of Justice. Allegations have also included accepting undisclosed incentives from pharmaceutical manufacturers, not passing manufacturer rebates through to plan sponsors, and driving beneficiaries unnecessarily to mail-order services for the benefit of the PBM. False Claim Act lawsuits also have been filed by the federal government and several states. Medco Health Solutions settled in April 2004 with twenty State Attorneys General on a case involving therapeutic interchange and price disclosure. While this legal scrutiny has focused on a few industry practices, the typical business practices of PBMs have also been heavily scrutinized by plan sponsors, such as health plans and self-insured employers. Further guidance from the HHS Office of the Inspector General on PBM operations and safe harbors under the anti-kickback statute is expected.²³

According to a January 2003 study conducted by the federal Government Accountability Office (GAO), PBMs achieved significant discounts for drugs purchased at retail pharmacies (in comparison to cash-paying customers) and offered even greater discounts for their mail-order services.²⁴ However, cost savings are largely driven by how restrictive or open the cost-containment programs are. This is a point usually negotiated between the health plans and PBMs. For example, open formularies (where consumers are free to access all prescription drugs) typically yield lower cost savings than closed formularies (where consumers are limited to certain drugs). Cost sharing differences by the type of formulary also increase members' sensitivity to prescription drug costs and provides an incentive to use lower-cost or preferred products on the formulary. Common private-sector, cost sharing tools include flat copayments, percent copayments with a minimum/maximum dollar amount, and front-end deductibles with a benefit maximum and/or stop loss.²⁵

- **Manufacturer-PBM Relationship:** As discussed above, the relationship between manufacturers and PBMs is centered around inclusion of a drug on a plan's formulary and the PBM's ability to increase a manufacturer's market share for certain drugs through inclusion or exclusion on a formulary. Manufacturers pay rebates to PBMs retroactively based on the PBM's ability to meet both of these goals. These rebates are passed in whole or in part back to the employer. According to the California HealthCare Foundation, PBMs are often able to secure rebates of 5-25 percent for branded drugs.²⁶

²³ For more information about the Medco settlement, see *The Pink Sheet*, May 3, 2004, pages 22-30.

²⁴ U.S. Government Accountability Office, "Federal Employees' Health Benefits: Effects of Using Pharmacy Benefit Managers on Health Plans, Enrollees, and Pharmacies," GAO-03-196, January 2003.

²⁵ Joanne Sica, "Managing prescription drug costs," *Employee Benefits Journal*, March 2001, pp. 35-40.

²⁶ California HealthCare Foundation, *Navigating the Pharmacy Benefits Marketplace*, January 2003.

- ***PBM-Pharmacy Relationship:*** As discussed above, PBMs negotiate with pharmacies for drug reimbursement and dispensing. The pharmacies negotiate for inclusion in a PBM's pharmacy network. There is often significant tension between the two entities because (1) in general, pharmacies are reimbursed by PBMs at levels below uninsured cash-paying customers and other government payers, like Medicaid, and (2) pharmacies are often required to perform more administrative tasks when filling a prescription for a PBM customer.

IV. Conclusion

Pharmaceuticals are a vital part of patient care, and their importance will only grow as the population ages and pharmaceutical innovation continues. Understanding current pharmaceutical issues (including the sources of prescription drugs, pricing and discounts, cost containment methods, and brand/generic questions) requires knowledge about the various actors in the supply chain. State and federal policymakers increasingly are looking to private sector financing strategies to shape the ways in which individuals with public coverage receive medications. Passage of the Medicare Modernization Act of 2003 (MMA) makes knowledge about the pharmaceutical chain even more important as the large public Medicare program and its beneficiaries begin to access the chain, and pharmaceutical chain entities make changes in response to the new coverage.

The pricing of prescription drugs and the flow of money among the various links in the pharmaceutical supply chain is more complex than the physical distribution of drugs through the chain. This complexity can result in substantial variations in what different purchasers pay for the same drugs. As we have shown, the price of prescription drugs paid by the consumer is determined by a constellation of negotiated contracts between manufacturers, PBMs, wholesale distributors, pharmacies, and plan sponsors. The price charged by each entity in the chain is largely driven by the ability of contracting entities to sell specific volumes of certain drugs or achieve a certain share of a specified market. It is also affected by the value each entity brings to the subsequent actors in the supply chain.

Rapid increases in spending on pharmaceuticals in recent years have led policymakers to more closely scrutinize drug pricing and the relationships among key actors in the marketplace, and the greatly enhanced federal role in the market brought about through the MMA will only intensify public interest in these areas. Experiences with the Medicare price comparison website for the drug discount card has increased consumer and government interest in internet-based price comparisons. The price differences highlighted by these and other analyses lead to questions about the basis for these pricing differentials. Medicare's activities to detect and remedy fraud and abuse will also require continued oversight and need for transparency and fiscal accountability. Public policy discussions regarding transparency and price disclosure are thus likely to continue to be active over the coming years.

V. Appendix

This Appendix briefly describes: (A) special pricing rules applicable to Medicaid and some other federal programs, and (B) the roles physicians, large employers, and health plans have in the pharmaceutical supply chain.

A. Special Pricing Rules Applicable to Federal Programs

Several federal programs that are significant purchasers of prescription drugs have special rules for pricing.

Medicaid

Federal rules require that states pay for brand name prescription drugs based on the lower of (1) the estimated acquisition cost (EAC) of a drug (the method most states use); or (2) the usual or customary charge to the public. Most Medicaid programs use a drug's AWP to calculate the EAC, generally AWP minus some percentage. An additional limit, known as the Federal Upper Limit (FUL), applies to the purchase of generic drugs. Manufacturers who want to have their drugs covered by Medicaid also must provide rebates to state Medicaid programs. For brand name drugs, the basic rebate is the larger of (1) 15.1% of the AMP (the average price paid to manufacturers by wholesalers for drugs distributed to retail pharmacies; the AMP is usually lower than the AWP); or (2) the difference between the AMP and the lowest price the manufacturer offers to most other purchasers. An additional rebate is required if the price of brand name drugs rises faster than the change in Consumer Price Index. Rebates for generic drugs are calculated by multiplying the AMP by 11%.

Department of Veterans Affairs, Department of Defense, Public Health Service, Coast Guard

The Department of Veterans Affairs (VA) administers a program known as the Federal Supply Schedule (FSS), through which the VA and certain other government agencies can purchase prescription drugs at prices that are equal to or lower than the prices that drug manufacturers charge their "most-favored" private customers. In addition, manufacturers must sell brand-name drugs to these agencies at a minimum of 24% off the AMP (known as the federal ceiling price).

Section 340B Drug Pricing Program

Section 340B of the Public Health Service Act requires drug manufacturers, as a condition of having their drugs covered by Medicaid, to provide prescription drugs to certain nonfederal entities (public and disproportionate share hospitals, community health centers, certain grantees of Federal agencies, and health centers that serve migrant, homeless, public housing, and Native American populations)

at prices that are equal to or below the AMP reduced by the applicable Medicaid rebate percentage.

B. The Role of Physicians, Employers and Health Plans in Supply Chain

Physicians

Physicians play an important role in the pharmaceutical supply chain. They are the first to interact with the consumer (i.e., patient), the end-user in the supply chain. Doctors typically diagnose a patient's illnesses and prescribe a medication. The physician is also responsible for ensuring the appropriate quantity and dosage of the prescribed medication. If the prescribed drug is not covered under the patient's health plan, the physician may have to submit additional information substantiating the necessity of the specific medication for the treatment of the injury or illness. This is called "prior authorization." Once a drug is prescribed, patients typically fill prescriptions at their local retail pharmacies. In some cases, the physician may administer the drug in their office (e.g., chemotherapy).

Historically, patient compliance with whatever treatment the doctor ordered was assumed as part of the physician-patient relationship; increasingly, however, patients are becoming more proactive in their interaction with physicians, particularly in the area of prescription drug treatment decisions. Greater access to health information (fueled, in part, by widespread use of the Internet), the loosening of "direct-to-consumer" (DTC) advertising restrictions on drug manufacturers, and a general increase in the public's awareness of health care issues have helped transform many once-passive patients into inquiring and demanding consumers.²⁷ This trend has affected physician choices of specific medications prescribed and the modes of delivery used, and it has increased the complexity of the information transmitted to physicians and consumers. Now more than ever, physicians and patients/consumers play a large role in driving the market demand for pharmaceuticals.

Large Employers

Large employers that self insure their employees for health benefits generally negotiate contracts with PBMs (and sometimes with specialty pharmacy companies as well) to provide pharmaceutical coverage to employees. Employers exercise control over the supply chain through the contracts they set with PBMs. The contracts govern the prices of pharmaceuticals paid by the employer, the cost sharing to the insured population, the type of formularies that will be applied, the network standard for pharmacies, and what types of drug utilization review will be applied. Employers pay PBMs either on an administrative services basis, or by

²⁷ *Health Affairs*, March/April 2000.

allowing the PBMs to retain a portion of manufacturer rebates. Employers retain audit rights to exercise oversight of PBM operations.

Health Plans

Health plans employ the use of a range of strategies to manage prescription drug benefits, most of which involve the use of a PBM or PBM-like strategies. There are a few remaining plans that compensate pharmacies on a fee-for-service basis, but plans are using this method less frequently, as it does not allow for use of cost-containment strategies to lower prescription drug costs. More commonly, plans do one of the following: (1) outsource management to an external PBM, (2) operate their own PBM, or (3) outsource claims administration only. Notable exceptions include certain group models, such as that of Kaiser Permanente, which has maintained control of pharmaceutical procurement. Kaiser streamlines the distribution process by purchasing pharmaceuticals from manufacturers and dispensing the medications to consumers at on-site pharmacies.

Regardless of the strategy used, health plans often influence the cost-containment strategies utilized by PBMs. For example, managed care organizations may negotiate a more restrictive formulary or more competitive pharmacy networks. Managed care companies a greater ability to enforce formulary compliance and to drive consumers to a smaller number of pharmacies.

VI. Key Acronyms and Glossary of Key Terms

AMP – Average Manufacturer Price

ASP – Average Sales Price

AWP – Average Wholesale Price

EAC – Estimated Acquisition Cost

MAC – Maximum Allowable Cost

PBM – Pharmacy Benefit Manager

WAC – Wholesaler Acquisition Cost

Average Manufacturer Price (AMP) – The average price paid to a manufacturer by wholesalers for drugs distributed to retail pharmacies. AMP was a benchmark created by Congress in 1990 in calculating Medicaid rebates and is not publicly available.

Average Sales Price (ASP) – The weighted average of all non-Federal sales to wholesalers net of chargebacks, discounts, rebates, and other benefits tied to the purchase of the drug product, whether it is paid to the wholesaler or the retailer. The basis for reimbursement for products covered under Medicare Part B changed under the Medicare Modernization Act of 2003 from AWP to ASP.

Average Wholesale Price (AWP) – A national average of list prices charged by wholesalers to pharmacies. AWP is sometimes referred to as a "sticker price" because it is not the actual price that larger purchasers normally pay.

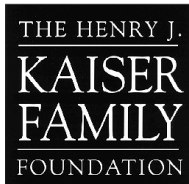
Estimated Acquisition Cost (EAC) – EAC is a state Medicaid Agency's best estimate of the price generally paid by pharmacies for a particular drug

Maximum Allowable Cost (MAC) – MAC is a cap set by payers on reimbursement for certain generic and multi-source brand products. States and private payers with MAC programs typically publish lists of selected generic and multi-source brand drugs along with the maximum price at which the program will reimburse for those drugs. In general, pharmacies will receive payment no higher than the MAC price when billing for drugs on a MAC list.

Medicaid Best Price – The lowest price paid to a manufacturer for a brand name drug, taking into account rebates, chargebacks, discounts, or other pricing adjustments, excluding nominal prices. Best price is a variable used in the Medicaid rebate statute to calculate manufacturer rebates owed to State Medicaid agencies. Prices charged to certain governmental purchasers are statutorily excluded from best price including prices charged to the Veterans Administration, Department of Defense, Indian tribes, the Federal Supply Schedule, State Pharmaceutical Assistance Programs, Medicaid, Public Health Service "340B" entities, and Medicare Part D prescription drug plans (starting in 2006). Best price data are reported by manufacturers to CMS, but are not publicly available.

Reference Pricing – System of fixed reimbursement for pharmaceuticals, in which the government or other third party payers establish a level at which they are willing to reimburse “interchangeable” products. Manufacturers may charge above the reference price, but patients must pay the excess cost.

Wholesale Acquisition Cost (WAC) – The price paid by a wholesaler for drugs purchased from the wholesaler's supplier, typically the manufacturer of the drug. Publicly disclosed or listed WAC amounts may not reflect all available discounts.



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ISSUE BRIEF

Understanding Recent Trends in Generic Drug Prices

January 27, 2016

Executive Summary

Generic drugs have for several decades offered relief from rising prescription drug costs. This occurs because there is robust competition among multiple interchangeable products that drive prices for generic drugs to be a fraction of that of the corresponding brand name drug. The result is that decreases in generic drug prices have partially offset large increases in prices for brand drugs. Reports of spikes in the prices of some generic drugs have raised concerns that generic drugs are contributing to increases in overall prescription drug spending. This has led policy makers to ask whether markets for generic drugs are operating efficiently. In this paper, we review existing evidence on generic drug prices and spending. Our review of evidence strongly supports the conclusion that generic drug prices are not an important part of the drug cost problem facing the nation. In fact, about two-thirds of generic products appear to have experienced price declines in 2014. Although the generic drug market as a whole is quite competitive, some segments of the market have experienced large price increases. These spikes are on one hand troubling in that they disadvantage particular patient groups but also sufficiently limited so they exert no sizable influence on overall drug spending. Some explanations for these occurrences include: small markets with limited entry; the impact of mergers, acquisitions, and market exits; the ability to obtain new market exclusivities; and distribution activities. These problems apply to relatively small segments of the market and, while they lead to increased costs in certain therapeutic areas, they have little influence on overall spending increases.

Background

The rising costs of prescription drugs are an important concern for ensuring patient access to prescription drugs, as well as for public and private budgets. For the past several decades, a source of relief from rising prescription drug costs has been the increased availability and utilization of lower cost generic versions of branded drugs (sometimes referred to as innovator drugs)¹. While branded drugs can frequently command high prices because patents or regulatory

¹ Branded drugs are approved or licensed by FDA through a New Drug Application (NDA) or Biologic Licensing Application (BLA). Generic drugs are approved through an abbreviated new drug application (ANDA).

exclusivities give them market power over prices, once these patents and regulatory exclusivities expire or are resolved by agreement, multiple generic versions of the branded drug can enter the market. The competition among multiple interchangeable products drives down prices, resulting in generic drugs typically being sold at much lower prices than their branded counterparts². Use of generic drug leads to substantial cost savings for patients and the health care system, reflected in the fact that 88 percent of dispensed prescriptions are for generic drugs, yet they account for only 28 percent of total drug spending³. However, reports of recent spikes in prices for some generic drugs have raised concerns about whether markets for generic drugs are operating efficiently such that generics will continue to offer a counterbalance to expensive branded drugs.

In this paper, we explore recent prescription drug pricing trends, the fundamentals of the generic drug market, and potential reasons for generic price increases in some segments on the market.

Trends in Prescription Drug Prices

Drug Price Indexes

Price indexes offer a convenient way to summarize the overall behavior of drug prices over time. Using different price indexes can provide some insight into drug price trends. The Bureau of Labor Statistics publishes a consumer price index (CPI) for prescription drugs. This index is constructed from transaction prices received by pharmacies and includes both branded and generic prescription drugs, but does not include drugs administered in a hospital setting, nor does it distinguish between branded and generic drugs. The sample includes about 350 to 400 distinct molecules⁴. From December 2009 to December 2013, the CPI for prescription drugs increased by about 11 percent compared to about 8 percent for the overall CPI during the same time period. In 2014, the CPI for prescription drugs increased by about 6 percent whereas the overall CPI increased less than 1 percent⁵. This shows that overall prices for prescription drugs appear to be increasing at a rate higher than general inflation.

Express Scripts, one of the largest pharmacy benefit managers in the U.S., creates its own prescription price indexes for branded and generic drugs⁶. Express Scripts' prescription price indexes measure inflation in prescription drug prices by monitoring changes in consumer prices for a fixed market basket of commonly used prescription drugs. They define separate market baskets for branded and generic drugs that are based on the top 80 percent of highest selling drugs. For 2014, they found that generic prescription drug prices decreased by 20 percent and branded prescription drug prices increased by 15.4 percent⁷. Relative to a base price of \$100 in

Additionally, there can be so-called branded generics that are approved through an ANDA, but are marketed under a brand name. For the purposes of this paper, branded generics are not considered branded drugs.

² Interestingly, prices for the branded drugs typically increase after generic entry. See Frank, Richard G. and David S. Salkever. 1997. "Generic Entry and the Pricing of Pharmaceuticals," *Journal of Economics and Management Strategy* 6(1):75-90.

³ GPHA. Generic Drug Savings in the U.S. Seventh Annual Edition: 2015

⁴ Bureau of Labor Statistics. 2011. The pharmaceutical industry: an overview of CPI, PPI, and IPP methodology.

⁵ <http://data.bls.gov/cgi-bin/survey/most>

⁶ The Express Scripts Lab. The Express Scripts 2014 Drug Trend Report. March 2015.

January 2008, prices for the studied branded drugs increased to \$227.39 (2008 dollars), while studied generic drugs fell to \$37.13 (2008 dollars). This suggests that overall prices for generic drugs are decreasing, while prices for branded drugs are increasing significantly. Nevertheless, branded price growth is often moderated by changes in off-invoice rebates and discounts. IMS estimates that for 2014 invoice prices for brand drugs increased by 13.5 percent, while net prices increased by 7-8 percent accounting for off-invoice discounts and rebates⁸.

Looking at overall price changes, the Kaiser Family Foundation reports that after declines in prescription drug growth rates from 2000 to 2013, spending increased by 11.4 percent in 2014 and is projected to have increased 9.6 percent in 2015⁹. Similarly, the IMS reports spending on prescription drugs increased 13.1 percent on a nominal basis in 2014. IMS suggests that the increased spending is due to the launch of new brand drugs, price increases for protected brands, and fewer branded drugs losing exclusivity protections than in past years¹⁰.

Breakdown of Generic Drug Price Changes by Different Cost Measures

Changes in Pharmacy Acquisition Costs

Express Scripts' data shows that overall generic drug prices are decreasing even if trends for specific generic drugs may differ. Indeed, analyses of trends in individual drugs indicate that prices are increasing for a notable proportion of generic drugs. The Centers for Medicare and Medicaid Services (CMS) analyzed generic drug prices for prescriptions reimbursed under Medicaid fee for service (FFS) between July 1, 2013 and June 30, 2014¹¹. They used data from the National Average Drug Acquisition Cost (NADAC) pricing files that measure drug acquisition costs for retail pharmacies and the CMS National Summary of State Utilization Data file.

CMS found that generic drugs represented approximately 81 percent of Medicaid prescriptions, but only 26 percent of expenditures during the study period. They also found that nearly 65 percent of Medicaid generic prescriptions were for generic drugs that experienced cost decreases. Generic drugs with very significant acquisition cost increases (more than 100 percent) accounted for approximately 2 percent of \$23.3 billion in total Medicaid expenditures on all prescription drugs (generic and branded) and approximately 9 percent of \$6.0 billion in total Medicaid expenditures on generic drugs over the study period. Expanding the definition of a significant increase in acquisition costs to include increases of more than 20 percent means that less than 4 percent of total Medicaid expenditures on all prescription drugs and less than 15 percent of Medicaid expenditures on generic drugs experienced a significant increase.

⁸ IMS Institute for Healthcare Informatics. Medicines Use and Spending Shifts. A Review of the Use of Medicines in the U.S. in 2014. April 2015.

⁹ <http://www.healthsystemtracker.org/chart-collection/what-are-the-recent-and-forecasted-trends-in-prescription-drug-spending/>

¹⁰ IMS Institute for Healthcare Informatics. Medicines Use and Spending Shifts. A Review of the Use of Medicines in the U.S. in 2014. April 2015.

¹¹ Internal CMS analysis.

Figure 1 provides a description of the shares of generic expenditures affected by different percentage changes in the generic drug acquisition cost. Table 1 provides this breakdown as a percent of generic and total pharmaceutical expenditures and as a percent of generic and total prescriptions.

Figure 1: Percent of Total Medicaid FFS Generic Prescription Expenditures, by Percent of Acquisition Cost Change between July 1, 2013 and June 30, 2014

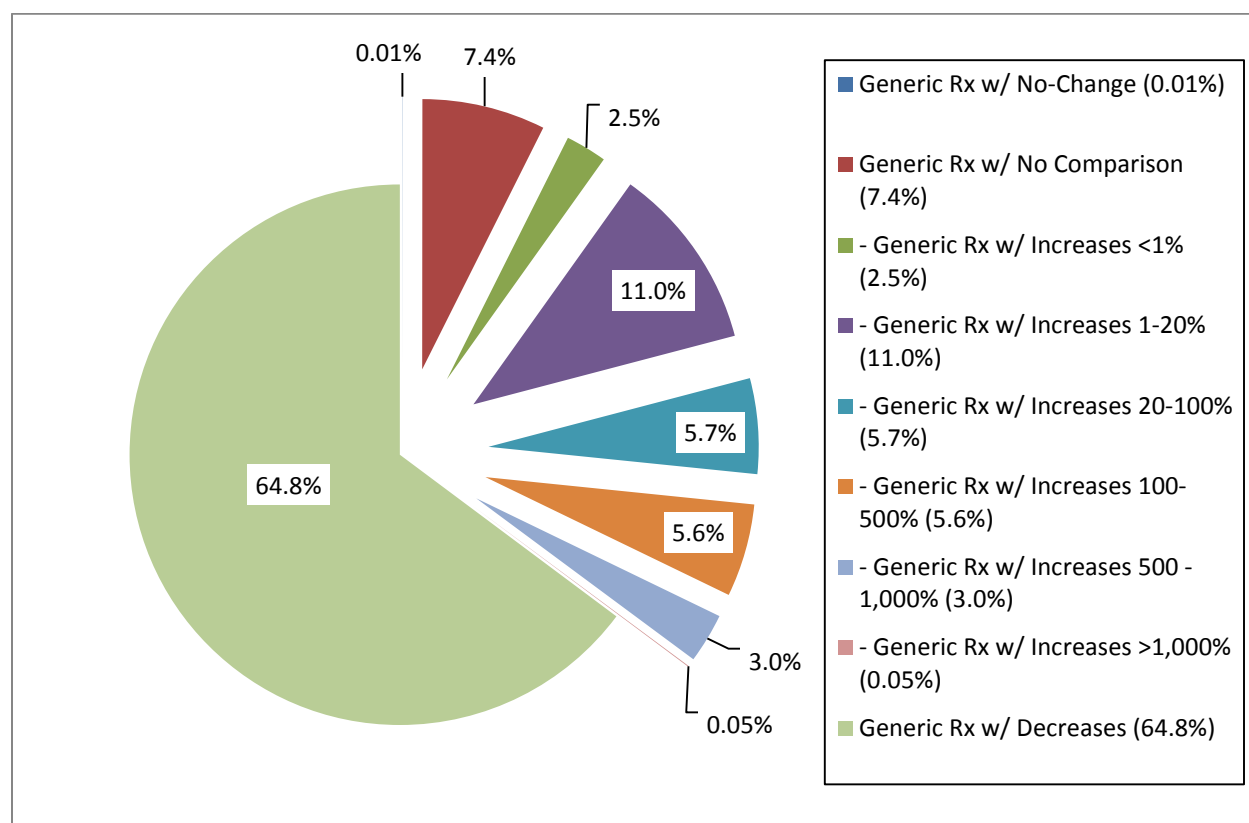


Table 1: Summary of Total Medicaid FFS Prescription Drug Groups

Generic Prescription Drug Acquisition Cost Changes in Millions (7/1/2013 - 6/30/2014)						
Acquisition Cost Change	Medicaid FFS Generic Rx Expenditures (millions)	Percent of Overall Generic Rx Expenditures	Percent of Overall Rx Expenditures	Number of Generic Rx Prescriptions (millions)	Percent of Overall Generic Prescriptions	Percent of Overall Prescriptions
Generic Rx w/ Increases	\$1,674.2	27.8%	7.2%	78.5	41.9%	33.9%
Generic Rx w/ <1% Increase	\$148.6	2.5%	0.6%	5.3	2.8%	2.3%
Generic Rx w/ 1%-20% Increase	\$665.2	11.0%	2.9%	39.3	21.0%	17.0%
Generic Rx w/ 20%-100% Increase	\$343.5	5.7%	1.5%	14.7	7.9%	6.3%
Generic Rx w/ 100%-500% Increase	\$334.8	5.6%	1.4%	15.3	8.2%	6.6%
Generic Rx w/ 500%-1,000% Increase	\$179.1	3.0%	0.8%	3.8	2.1%	1.6%
Generic Rx w/ >1,000% Increase	\$3.0	0.1%	0.01%	0.05	0.03%	0.02%
Generic Rx w/ Decreases	\$3,900.8	64.8%	16.7%	104.4	55.7%	45.1%
Generic Rx w/ No Change	\$0.7	0.01%	0.00%	0.04	0.02%	0.02%
Generic Rx without enough NADAC data	\$444.4	7.4%	1.9%	4.5	2.4%	1.9%
Overall Generic Rx	\$6,020.1	100.0%	25.8%	187.4	100.0%	80.9%

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Table 2 presents the change in acquisition costs for some of the generic drugs that have been the focus of media scrutiny. Although these drugs have had very large percentage increases in acquisition costs, the impact on overall Medicaid prescription drug expenditures is relatively small. For example, tetracycline had an increase in acquisition cost of more than 17,000 percent, but it represents only 0.001 percent of Medicaid prescription drug expenditures and 0.001 percent of overall Medicaid prescriptions dispensed.

Table 2: Examples of Generic Drug Groups with Significant Percentage Changes in Acquisition Costs between July 1, 2013 and June 30, 2014

Drug Name	NADAC as of 7/1/2013	NADAC as of 6/30/2014	Percent Change in NADAC	Medicaid FFS Generic Rx Expenditures	Percent of Overall Medicaid Rx Expenditures ^a	Medicaid FFS Generic Rxs	Percent of Overall Medicaid Rxs
Tetracycline 500mg Capsules	0.04823	8.59172	17,714%	\$0.2M	0.001%	1,757	0.001%
Captopril 50mg Tablets	0.03346	1.30700	3,806%	\$0.2M	0.0008%	10,109	0.004%
Clomipramine 75mg Capsules	0.42492	8.15163	1,818%	\$1.9M	0.008%	5,896	0.003%
Doxazosin Mesylate 1mg Tablets	0.04863	0.61716	1,169%	\$0.3M	0.001%	15,505	0.007%
Fluconazole 100mg Tablets	0.13704	1.50144	996%	\$1.5M	0.006%	93,136	0.040%
Digoxin 125mcg Tablets	0.10981	1.01854	828%	\$1.9M	0.008%	100,167	0.043%
Divalproex Sodium ER 500mg Tablets	0.26540	2.38072	797%	\$98.6M	0.423%	542,863	0.234%

Overall, it appears that generic drugs continue to account for the majority of Medicaid prescriptions, but a much smaller amount of Medicaid drug expenditures than branded drugs. Consistent with this, drug acquisition costs fell for the majority of generic Medicaid prescriptions measured by both volume and total generic expenditures. Among Medicaid generic prescription drugs that experienced an increase in acquisition cost, most were drugs with an increase of less than 20 percent. For the generic drugs that experienced an increase in acquisition costs, nearly a quarter more than doubled their acquisition cost. The generic therapeutic drug classes that did experience substantial increases in acquisition costs had relatively low Medicaid drug expenditures and number of prescriptions filled.

Changes in Average Manufacturer Price (AMP)

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The HHS Office of the Inspector General (OIG) undertook a separate analysis of AMP¹². The AMP is the price paid to manufacturers and reported to CMS for sales to retail organizations. The OIG analyzed changes in the actual AMP relative to an inflation-adjusted AMP from 2005 to 2014 for the top 200 Medicaid generic prescription drugs as ranked by Medicaid reimbursement each year during the time period. They found that on average 22 percent of generic prescription drugs had an actual quarterly AMP that exceeded the inflation-adjusted AMP over the study period, ranging from 18 percent in 2006 to 35 percent in 2014. For comparison, the OIG previously completed an analysis of actual quarterly AMP relative to inflation-adjusted AMP from 1991 to 2004 and found that on average 35 percent of generic drugs had an actual AMP that exceeded the inflation-adjusted AMP. This indicates that since 1991, a significant percentage of generic drugs have had AMP increases greater than the inflation-adjusted AMP.

Changes in Retail Prices

The AARP examined generic drug prices¹³ using the Truven Health MarketScan Commercial Database and Truven Health MarketScan Medicare Supplemental Commercial Database to analyze changes in retail prices¹⁴ for the 280 generic drugs most commonly used by older Americans from 2006 to 2013. The AARP found that from 2006 to 2013, prices for the generic drugs most commonly used by older Americans fell each year, with the largest annual generic drug price decrease of 14.5 percent occurring in 2012. They also found the smallest annual generic drug price decrease in 2013, 4 percent, with 73 percent of generic drugs experiencing a price decrease. Of the drugs with retail price increases in 2013, eleven of them (4 percent) had increases greater than 30 percent, and two of these exceeded 1,000 percent. Additionally, AARP found that large price increases appear to be associated with certain manufacturers. For the majority of generic manufacturers with at least two drugs in the study (22 out of 26 or 85 percent), the retail prices of their generic drugs decreased. Of the four with price increases, one drug manufacturer had a weighted average annual price increase of 827 percent for its four drugs, more than 60 times higher than any other drug manufacturer with an increase during the study period. The generic drug manufacturer with the next largest weighted average increased retail prices by 12.8 percent.

The AARP analysis also found that while generic drug prices have declined, branded drug prices have increased, resulting in a growing gap between generic and branded drug prices. In 2010, the average annual retail price of therapy for a generic drug was \$551; this fell to \$283 in 2013. Meanwhile, the average annual retail price of therapy for a branded drug rose from \$2,068 in 2010 to \$2,960 in 2013. This means the ratio between branded and generic prices has risen from 3.8:1 to 10.5:1 between 2010 and 2013.

Summary

¹² HHS OIG. 2015. Average Manufacturer Prices Increased Faster Than Inflation For Many Generic Drugs. A-06-15-00039.

¹³ AARP 2015 *Trends in Retail Prices of Generic Prescription Drugs Widely Used by Older Americans, 2006-2013*

¹⁴ The retail price is the total price billed to the insurer.

Analysis of various drug price data indicate that overall branded drug prices are increasing substantially, while overall generic drug prices are decreasing. The large percentage of prescription drugs dispensed as generics continues to hold down overall price inflation for prescription drugs. However, the data indicate that prices are increasing dramatically for some generic drugs, raising questions as to why this is occurring..

The Generic Drug Market

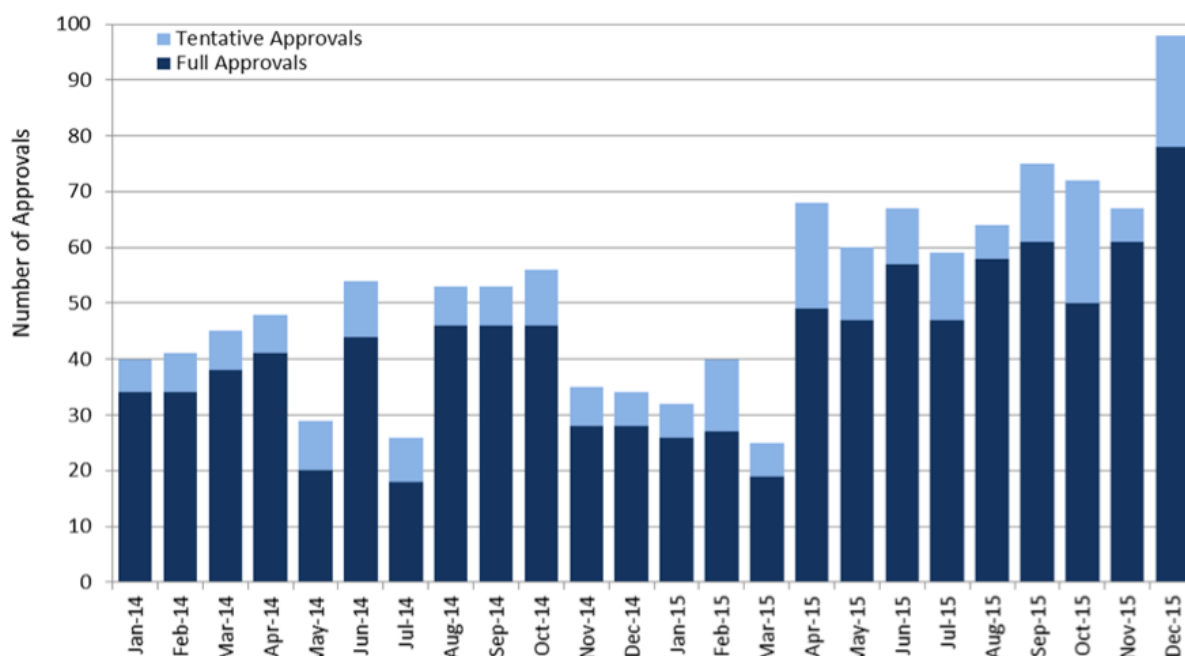
In order for new branded products to gain approval, drug manufacturers must submit a new drug application (NDA) to the Food and Drug Administration (FDA) that contains data demonstrating the new drug is safe and effective for its intended use. Generic drugs manufacturers are able to submit abbreviated new drug applications (ANDAs) to the FDA that rely on the safety and efficacy evidence previously submitted by the branded drug manufacturer. In order to gain approval, a generic drug has to have the same active ingredient, strength, dosage form, and route of administration as the branded drug, and generally must have the same labeling and indications for use as the branded drug. The generic drug manufacturer also must demonstrate that the generic drug is bioequivalent to the branded product, and must meet the same quality and manufacturing standards as branded products.

FDA Review Time for ANDAs

As part of the Food and Drug Safety and Innovation Act, Congress enacted the Generic Drug User Fee Amendments (GDUFA) of 2012, which provides additional funding for FDA's generic drug program, so that the Agency can expedite review of generic drug applications.

The cumulative result of FDA efforts since enactment of GDUFA is a significant increase in the productivity of the FDA generics program. As the chart below indicates, FDA ended last year at a new monthly high of 99 approvals and tentative approvals in December.

Figure 2. Approvals and Tentative Approvals



Under GDUFA, generic drug companies have paid user fees to FDA when they submit ANDAs. As part of the user fee agreement, FDA is phasing in performance goals for reviewing ANDAs. For FY2016, the goal is to review 75 percent of ANDAs within 15 months, and in FY2017, the FDA’s goal is to review 90 percent of ANDAs within 10 months.

Historically, it has taken several review cycles before an ANDA is approved often related to the completeness and quality of the application. As noted in the public minutes published as part of the GDUFA II negotiations now underway, FDA and industry are discussing a pre-ANDA process by which FDA and industry would address approval challenges for particular drugs prior to ANDA submissions, which could make a meaningful difference in the completeness and quality of applications. Drug companies may need to provide more information to the FDA than was included in their initial ANDA, or adjust the formulation of the drug to meet the FDA’s standards. In 2014, the median time from receipt of an ANDA to approval was 42 months. This median review time reflects in part factors outside the control of the FDA reviewers, including application quality issues, time spent with the sponsor responding to deficiencies, and patents that block approval of an ANDA. In addition, the 42 month timeframe reflects time that the backlog of pre-2012 ANDAs spent in the review queue before FDA received additional resources under GDUFA. At the end of FY2015, FDA had issued an approval, tentative approval, or a complete response letter for about 82 percent of the 4,739 backlogged applications and 88 percent of prior approval supplements.

FDA prioritizes the review of ANDAs for “first generics,” which are those products for which there is no generic competition and patent and exclusivity barriers to approval have been lifted or will be lifted soon. FDA also prioritizes ANDAs for which the product is in shortage, is subject to special review programs like the President’s Emergency Plan for AIDS Relief (PEPFAR), is

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related to public health emergencies and certain government purchasing programs, or is subject to statutory or other legal requirements.

It should also be noted that FDA is fulfilling, and in many cases substantially exceeding, its negotiated GDUFA commitments. FDA's productivity is consistent and it is currently sustaining record or near record levels of generic drug approvals.

Paragraph IV Drug Patent Challenges

Branded drug manufacturers are required to list patents claiming their drug or a use of their drug product. Generic drug companies may submit ANDAs with the intention of challenging the validity of the patents listed for the branded drug that their application references. The generic applicant must certify that the patent is invalid or that the generic drug will not infringe on the patent through the manufacture, use or sale of the generic product. It must also notify the NDA holder and if different, the patent holder of the reference drug listed in the submission of the ANDA. The first company (or companies) to submit an ANDA and successfully challenge the patent of the branded drug may be approved for marketing prior to patent expiration and may receive 180 days of marketing exclusivity. During this time the first generic drug (or drugs, if there was more than one "first" applicant) would compete only with the branded drug (and each other if there is more than one "first" applicant), and generally no other generic drugs may enter the market. Once this period of exclusivity has expired, other companies may market competing generic drugs, and prices typically decline further.

Competition in the Generic Drug Market

Traditionally, the generic drug market has been characterized by aggressive competition. After relevant patents and claims to exclusivities for a branded drug expire (and after any 180 day exclusivity for "first" generic applicant(s) has expired) many generic drugs may enter the market quickly and prices decline rapidly. One analysis examining data from 2005 to 2009, found that generic prices fell by half, on average, in the 12 months following generic entry and fell by 77 percent in the 24 months after entry. Frequently, there are more than 10 generic manufacturers competing for market share by 24 months after generic market entry¹⁵. The number of competitors is important, as larger numbers of competitors result in more competition and lower prices. One study estimated the price of generics to be 90 percent of the branded drug's price if there is one generic drug, 63 percent of the branded drug's price if there are five generic drugs, and 40 percent of the branded drug's price if there are ten generic drugs¹⁶.

Economic Explanations

¹⁵ Berndt and Aitken. October 2010. Brand loyalty, generic entry and price competition in pharmaceutical in the quarter century after the 1984 Waxman-Hatch legislation. NBER working paper 16431.

¹⁶ Grabowski, Ridley, and Schulman. 2007. Entry and competition in generic biologics. *Managerial and Decision Economics*. 28:439-451.

Although the overall the generic drug market remains very competitive with the typical branded drug having numerous generic competitors putting downward pressure on prices once exclusivities and patents have expired, some drugs are experiencing very large price increases. We consider some economic forces that may produce these results.¹⁷

As with new drug pricing, what a company can charge for an existing drug, whether an old generic or not, depends on the medical value of the drug as well as the competitive landscape for the drug. Demand for some drugs can be quite insensitive to price if users do not have very good alternatives from both clinical and economic perspectives. In such a situation, users will continue to purchase the drug even if firms dramatically increase the price. The relevant alternatives include not only generic versions of the drug, should they exist, but also other drug molecules that treat the same condition (so-called therapeutic substitutes).

In this section, we explore several dynamics that affect the competitive landscape for a given drug and therefore enable prices to rise.

Markets With Limited Entry

Smaller markets tend to attract fewer competitors. In the extreme, there may be no market entry at all. Of the 1,328 approved branded drugs, there is a sizable group, about 10 percent, whose exclusivities and patents have expired, but no drug companies have come forward to submit ANDAs.¹⁸

Grabowski, Ridley, and Schulman are the latest to show that the number of generic drug competitors increases with market size¹⁹. Drug markets with smaller revenues (well below the median for patent-protected drugs) may not attract as many entrants, and prices may persist at higher levels than would be the case in a larger market²⁰. A strong version of this point was made by Anderson who argued that regulatory burden cannot explain the rapid increases in generic drug prices while also noting that large generic manufacturers may be unwilling to enter markets with less than \$100 million in sales because of the administrative barriers to entry²¹.

When generic drugs have very small markets and are unable to support multiple competitors, there is an increased risk for extreme price increases. Analysis of Medicaid data showed that the generic drugs with the largest price increases had low levels of Medicaid spending. Small

¹⁷ It should be noted that following generic entry the market tends to segment with the vast majority of consumers shifting to the generic version of the drug. Those consumers that remain “loyal” to the branded product experience price increases since they are not very responsive to price changes leaving the branded manufacturer with a set of customers that are not sensitive to price. This enables the branded company to raise its prices with little fear of further loss of customers. See Frank RG and Salkever DS. “Generic Entry and the Pricing of Pharmaceuticals,” *Journal of Economics and Management Strategy*, 6(1):75-90, 1997 for a complete explanation and evidence.

¹⁸ Source: Food and Drug Administration (2016)

¹⁹ Grabowski, Ridley, and Schulman. 2007. Entry and competition in generic biologics. *Managerial and Decision Economics*. 28:439-451.

²⁰ *Generic Drug Industry Dynamics*. Reiffen, David and Ward, Michael R. 1, February 2005, The Review of Economics and Statistics, Vol. 87, pp. 37-49.

²¹ Anderson G. Sudden Price Spikes in Off-Patent Drugs: Perspectives from the Front Lines. Testimony for the U.S. Special Senate Subcommittee on Aging. December 9, 2015.

markets mean that the return on investment is low compared to the cost of establishing manufacturing and marketing arrangements for the drug.

Market Concentration

Mergers and acquisitions involving generic drug manufacturers means that there may be fewer competitors producing a given generic. Given the importance of the number of competitors in driving down generic drug prices, the Federal Trade Commission routinely scrutinizes pharmaceutical company mergers. Acquisitions, while not necessarily changing the number of firms in the market, may lead to a reassessment of the product portfolio. Firms may decide that the market can bear higher prices and reset prices accordingly.

For these reasons, the recent trend toward the consolidation among generic drug manufacturers is of concern. For example, in 2015, Teva purchased Allergan Plc's generic business in a \$40.5 billion deal,²² and Endo International agreed to buy Par Pharmaceutical Holdings, increasing the size of Endo's generics business.²³ Valeant, which has received scrutiny about its acquisition strategy, acquired about 100 companies since 2010²⁴ and reset prices for many drugs that came with these acquisitions.²⁵ Analysts expect to see a continuing increase in the number of mergers²⁶.

In addition, firms may decide to reassess pricing even in the absence of merger and acquisition activity. A sizable share of older generic drugs have only two or three competitors, particularly in the case of sterile injectable products, some because of exit and some because the market was not particularly attractive and therefore did not experience much entry. Other older generic drug markets may have many manufacturers, but for reasons of capacity constraints, there are one or two dominant players. Such concentrated markets can sustain prices that are above-competitive level even if products are essentially identical. This is an area well studied in other sectors of the economy such as airlines and wholesale energy markets. In generic drugs, digoxin tablets are a good example of such forces limiting competition to only two competitors in spite of price increases.²⁷

Temporary and Permanent Market Exit

As discussed earlier, concentrated markets create market power over prices. Just as entry and mergers can change market concentration, so can market exit, whether temporary or permanent.

²² <http://knowledge.wharton.upenn.edu/article/why-teva-paid-40-5-billion-for-allergans-generic-business/>

²³ Yu. May 18, 2015 Endo buys Par Pharma for \$8 billion to expand generics. USA Today.

²⁴ <http://www.theglobeandmail.com/report-on-business/valeant-faces-increasing-scrutiny-as-shares-plunge-by-20-per-cent/article27129779/>

²⁵ <http://www.nytimes.com/2015/10/05/business/valeants-drug-price-strategy-enriches-it-but-infuriates-patients-and-lawmakers.html>

²⁶ Koons, C. Teva's just the start as more generic drug makers poised to merge. www.bloomberg.com. August 5, 2015.

²⁷ <http://www.bloomberg.com/bw/articles/2013-12-12/generic-drug-prices-spike-in-pharmaceutical-market-surprise>

Because shortages are a result of one or more firms suspending their manufacturing operations,²⁸ some of the drugs affected by shortages experienced price increases.

In some cases, shortages result from industry decisions to abandon production of a drug in favor of higher value product lines, which in turn leads to higher market concentration and more pricing power on the part of the remaining competitors. Market exit can also be temporary as with temporary production shut downs to address serious manufacturing quality problems. Shortages in the sterile injectable products market have been caused by disruptions in manufacturing due to quality problems. Coupled with limited potential to increase production capacity²⁹, this dynamic can lead to increased prices.

Two drugs identified in our analysis with large price increases were also in shortage, doxycycline and tetracycline. Acquisition costs for tetracycline increased more than 17,700 percent in the CMS NADAC data and AARP reported that retail prices for doxycycline hyclate 100 mg capsules increased more than 1,900 percent. Tetracycline was available from multiple manufacturers before going into shortage in 2011. A sole manufacturer reintroduced the drug to the market in 2013 and the price was subsequently increased. Doxycycline continues to be available from multiple manufacturers. However, in early 2013 when there was supply disruption resulting from one manufacturer experiencing manufacturing problems, the pricing was increased. Further exploration is needed to determine how often manufacturers change pricing in response to supply disruption or shortages.

Patents, Approvals, and Exclusivity

Significant price increases have occurred after branded drug companies received new patents or market exclusivity associated with new approvals that aim to create incentives for innovation. For example, some asthma drugs, including inhalers containing albuterol, have largely been returned to patent protected status because of a ban on chlorofluorocarbons (CFCs) that took effect for inhalers in 2008³⁰. This meant that generic CFC propelled albuterol inhalers were removed from the market and were replaced by patented hydrofluoroalkane (HFA) propelled inhalers. This resulted in prices increasing from \$13 per inhaler to more than \$50³¹.

Colchicine for the treatment of gout is an example of the effect of new approvals and associated exclusivity. Prior to 2009, the FDA had never formally approved colchicine, as it had been marketed prior to the requirements for new drug approval. In 2009, the FDA approved NDAs for Colcrys (oral colchicine), and the product received marketing exclusivity under the law.

²⁸ GAO. 2014, Drug shortages: public health threat continues, despite efforts to health ensure product availability. GAO-14-194.

²⁹ HHS ASPE. October 2011. Economic analysis of the causes of drug shortages. ASPE Issue Brief.

³⁰ FDA. Transition from CFC Propelled Albuterol Inhalers to HFA Propelled Inhalers: Questions and Answers. Available at <http://www.fda.gov/Drugs/ResourcesForYou/Consumers/QuestionsAnswers/ucm077808.htm>.

³¹ Ross and Fedberg. On Chlorofluorocarbon bans and inhaled albuterol prices. JAMA Internal Medicine. 2015. 175(7):1179.

While the unapproved versions of the product had previously been available for 9 cents per pill, the sponsor of Colcrys priced the drug at \$4.85 per pill³².

Another example of the effects of approvals and exclusivity is hydroxyprogesterone caproate for injection. After an approved hydroxyprogesterone caproate for injection product was removed from the market by its sponsor for business reasons, compounders began to offer the product for about \$10 a dose. In 2011, FDA approved KV Pharmaceutical's NDA for Makena (hydroxyprogesterone caproate for injection) for a new use for a very limited patient population, which qualified for 7 years of orphan drug exclusivity. KV Pharmaceuticals priced Makena at \$1,500 per dose. The FDA has since approved an ANDA for a hydroxyprogesterone caproate for injection product for the original indications that do not have orphan exclusivity protections.

Distribution Activities

Along with taking advantage of opportunities to gain marketing exclusivities, manufacturers (including generic manufacturers) may raise prices due to the complex distribution systems and opaque pricing schemes. For example, Valeant Pharmaceuticals, which has aggressively raised prices for a number of its generic drugs, has been cited for using a strategy in which doctors submit prescriptions to a pharmacy affiliated with the drug manufacturer. The pharmacy insulates the doctor from reimbursement difficulties and mails the drug directly to the patient. The manufacturer absorbs the risk that the insurer will refuse to pay, but because prices are so high, even if some insurers do not pay, the manufacturer still comes out ahead. The pharmacy will also engage in aggressive tactics to obtain payment, such as resubmitting a prescription at different prices until the insurer agrees to pay³³.

Conclusions

Based on the analyses conducted to date, a vibrant generic market can exert downward pressure on overall drug prices. Generic drugs account for the majority of prescriptions filled in the US and represent much lower costs to the healthcare system. The review presented in this paper shows that, in fact, the market for generics continues to be competitive and to provide downward pressure on drug prices overall. There are, however, segments of the market that appear to be operating less efficiently. This means that it is important to ensure that we continue to promote a competitive generic drug industry.

Factors such as drug shortages, the ability to obtain new market exclusivities, the distribution system, small market size, and consolidation in the generic drug industry present potential barriers to ongoing competition in the generic drug market, and will be subject of continued study.

³² Kesselheim and Solomon. Incentives for Drug Development: The Curious Case of Colichicine. NEJM 2010 326(22):2045-2047.

³³ Whalen, J. Valeant Flap Puts Focus on Drug Maker's Ties to Pharmacies. www.wsj.com. October 30, 2015.

January 2016



Report to Congressional Requesters

August 2016

GENERIC DRUGS UNDER MEDICARE

Part D Generic Drug Prices Declined Overall, but Some Had Extraordinary Price Increases

Accessible Version

GAO Highlights

Highlights of [GAO-16-706](#), a report to congressional requesters

Why GAO Did This Study

Medicare is the largest public payer for prescription drugs, representing 29 percent of total retail prescription drug spending in 2014. Generic prescription drugs have been a source of cost savings for the U.S. health care system due to their lower costs relative to brand-name drugs. However, recent price increases of certain generics may limit cost savings.

GAO was asked to examine price trends for generic drugs and the factors that affect prices. This report describes 1) how generic drug prices under Medicare Part D have changed over time; 2) the extent to which generic drugs under Medicare Part D experienced extraordinary price increases, the persistence of any increases, and their effect on benefit design; and 3) the factors stakeholders identified as contributing to price changes.

GAO analyzed Medicare Part D claims data from the first quarter of 2010 through the second quarter of 2015, the most recent data available. Based on the data, GAO created price indexes to show price trends; determined the number of drugs that had an extraordinary price increase of 100 percent or more; and tracked whether the increased price remained at 100 percent or more for an additional year. GAO also interviewed drug manufacturers, Medicare Part D plan sponsors, pharmacy benefit managers, relevant trade associations, and economics experts to identify factors contributing to generic drug price changes.

HHS reviewed a draft of this report and provided technical comments, which were incorporated as appropriate.

View [GAO-16-706](#). For more information, contact John Dicken at (202) 512-7114 or dickenj@gao.gov.

August 2016

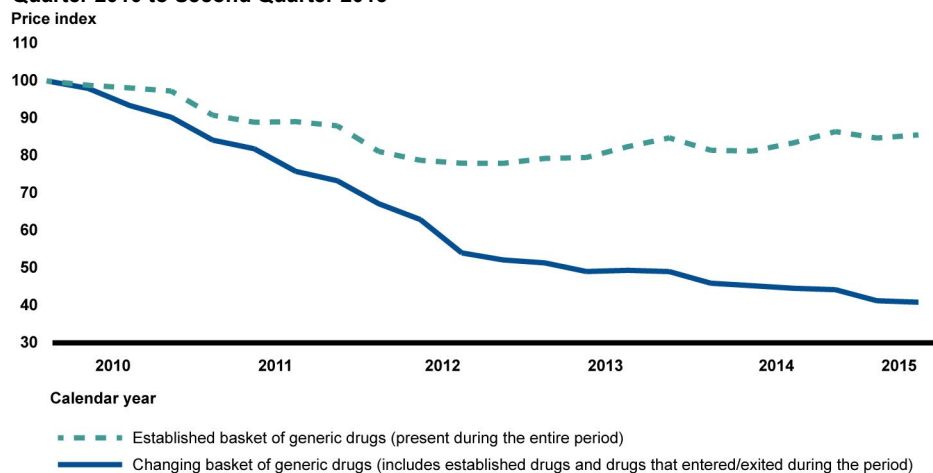
GENERIC DRUGS UNDER MEDICARE

Part D Generic Drug Prices Declined Overall, but Some Had Extraordinary Price Increases

What GAO Found

Generic drug prices declined overall under Medicare Part D—the voluntary outpatient prescription drug program administered by the Centers for Medicare & Medicaid Services within the Department of Health and Human Services (HHS)—since 2010. Specifically, generic drug prices fell 59 percent from the first quarter of 2010 through the second quarter of 2015. This decline reflects a changing basket of 2,378 unique generic drugs, including those that came into or exited the market during this period. GAO also analyzed an established basket of 1,441 generic drugs that were present during the entire period of analysis. Unlike the larger changing basket of drugs, prices of established generics decreased moderately and then increased slightly (see figure). The steeper price decrease for the changing basket of generic drugs is at least partially attributable to more rapid price declines among new generic drugs as they enter the market.

Medicare Part D Generic Drug Price Trends for All Generics and Established Generics, First Quarter 2010 to Second Quarter 2015



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

More than 300 of the 1,441 established generic drugs analyzed had at least one extraordinary price increase of 100 percent or more between first quarter 2010 and first quarter 2015. GAO found that drugs with extraordinary price increases moderated the overall decline in generic drug prices. Additionally, the extraordinary price increases generally persisted for at least 1 year and most had no downward movement after the extraordinary price increase. Given the low cost of generic drugs relative to their brand counterparts, stakeholders indicated limited changes to benefit design, including drug coverage.

Manufacturers reported that competition, determined by the price and availability of the same drug from other manufacturers, is the primary driver of generic drug prices, as less competition could drive prices higher. Stakeholders noted that the level of competition in the generic drug market is influenced by a variety of factors, including raw material shortages, production difficulties, consolidation among manufacturers, and a backlog of new generic drug applications awaiting federal review.

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Abbreviations

ANDA	abbreviated new drug application
API	active pharmaceutical ingredient
CMS	Centers for Medicare & Medicaid Services
FDA	Food and Drug Administration
FTC	Federal Trade Commission
GDUFA	Generic Drug User Fee Amendments of 2012
HHS	Department of Health and Human Services
PBM	pharmacy benefit manager
PDE	prescription drug event

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U.S. GOVERNMENT ACCOUNTABILITY OFFICE

441 G St. N.W.
Washington, DC 20548

August 12, 2016

Congressional Requesters

In 2014, the United States spent about \$297.7 billion on retail prescription drugs, which was approximately 12 percent of the estimated \$2.6 trillion spent on overall personal health care services.¹ The use of generic drugs—that, on average have retail prices that are 75 to 90 percent lower than the retail prices of brand-name drugs—can provide significant cost savings to the U.S. health care system.² Generic drugs not only lower costs for individuals in the form of lower copayments and other out-of-pocket costs, but they also lower costs for third-party payers—including private health insurance plans and public programs. Medicare, which provides health care coverage for the elderly, certain persons with disabilities, and individuals with end-stage renal disease and is administered by the Centers for Medicare & Medicaid Services (CMS) within the Department of Health and Human Services (HHS), is the largest public payer of prescription drugs, representing about 29 percent of total spending on retail prescription drugs in 2014. In that year, Medicare provided health coverage to nearly 54 million beneficiaries, of which more than 40 million were enrolled in Medicare’s voluntary, outpatient drug benefit, known as Medicare Part D. Generic drugs are an

¹Data are from the 2014 National Health Expenditure Accounts and provide estimates of total national spending on health care services by category. Retail prescription drug purchases include those that occur in pharmacies and drug stores (including both chain and independent), supermarkets and other grocery store pharmacies, mail-order and other direct-selling establishments, department stores, warehouse clubs and supercenters, and all other general mass-merchandising establishments. Personal health care services include spending for medical goods and services, including prescription drugs that are rendered to treat, or prevent, a specific disease or condition.

²A generic drug is chemically equivalent to its branded counterpart and is generally marketed by multiple manufacturers under a nonproprietary name; generic drugs can be introduced with the Food and Drug Administration’s (FDA) approval after the patent for the branded counterpart has expired. The lower prices of generic drugs have been analyzed for older Americans by the Congressional Budget Office and AARP. See Congressional Budget Office, *Effects of Using Generic Drugs on Medicare’s Prescription Drug Spending* (Washington, D.C.: September 2010) and Stephen W. Schondelmeyer and Leigh Purvis, *Rx Price Watch Report: Trends in Retail Prices of Prescription Drugs Widely Used by Older Americans, 2006 to 2013*, AARP Public Policy Institute (Washington, D.C.: February 2016).

important component of Medicare Part D, as 84 percent of the prescriptions dispensed under Medicare Part D in 2013 were for generic drugs.

Recent increases in the price of certain generic drugs may limit the cost savings for third-party payers, including Medicare Part D, and the availability of these drugs to consumers under their plan benefits. Members of Congress have raised questions about these recent increases, as significant price increases of generic drugs can impose additional costs on beneficiaries and drive up the costs incurred by the federal government under Medicare Part D and other federal health programs.

Given the widespread interest in generic drug prices, you asked us to look into generic drug price trends and the factors that affect the prices. This report examines

1. how generic drug prices have changed over time under Medicare Part D;
2. the extent to which generic drugs under Medicare Part D experienced extraordinary price increases, the persistence of any increases, characteristics of these drugs, and their effect on benefit design; and
3. the factors selected manufacturers and other stakeholders have identified as contributing to the change in generic drug prices.

To examine how generic drug prices have changed over time under Medicare Part D, we tracked generic drug prices using prescription drug event (PDE) data from CMS that contain pharmacy claims for all prescription drugs dispensed under Medicare Part D. We analyzed PDE data from the first quarter of 2010 through the second quarter of 2015, which was the most recent data available at the time we conducted our analysis.³ We grouped claims with the same active ingredient, strength, dosage form, and route of administration to represent a generic drug.⁴ For

³Due to data availability at the time we conducted our study, the second quarter of our 2015 Medicare Part D claims data is limited to data from April and May.

⁴The dosage form is the physical form in which a drug is produced and dispensed, such as a tablet or capsule; route of administration is the way of administering a drug to a site in a patient, such as taking a drug orally. To identify these characteristics, we used information from Red Book which is a compendium published by Truven Health Analytics.

each quarter, we calculated the price of each generic drug using the median per-unit ingredient cost—such as a dollar per tablet—among all claims for that drug.⁵ To track the change in prices for generic drugs for our period of analysis, we created two price indexes. One index tracks the prices of a changing basket of drugs, which includes established drugs—that is, drugs that were billed under Medicare Part D for each quarter of our study—and drugs that were only billed for part of our time period, such as new generic drugs that became available or drugs that exited the market in the middle of our study period. The other index tracks the prices of only established drugs.⁶ For a more detailed explanation of our methodology, see appendix I.

To determine the extent to which generic drugs under Medicare Part D experienced extraordinary price increases, we calculated the annual change in price for each established drug and identified the number of drugs that experienced an annual price change of 100 percent or more at any point during the period of our analysis.⁷ Our analysis of extraordinary price increases was limited to established drugs to avoid including drugs that may have experienced large price changes simply as a function of entering or exiting the market. We calculated the change in price for each drug between the first quarter of one year and the first quarter of the next year, for example the change between the first quarter of 2010 and the first quarter of 2011. To examine the persistence of any extraordinary price increases, we tracked whether the increased price remained at 100 percent or more above the original price for at least 1 additional year. We also examined characteristics of drugs that experienced an annual extraordinary price increase including route of administration, therapeutic

⁵The ingredient cost is the amount paid for the drug itself. This does not include other costs often associated with purchasing a drug, such as sales tax and a dispensing fee.

⁶To ensure drugs were not newly introduced immediately prior to when we begin tracking prices—in the first quarter of 2010—we required a drug to be billed in all four quarters of 2009 to be included in our basket of established drugs.

⁷Consistent with previous work, we defined an extraordinary price increase as an increase of 100 percent or more. See GAO, *Brand-Name Prescription Drug Pricing: Lack of Therapeutically Equivalent Drugs and Limited Competition May Contribute to Extraordinary Price Increases*, [GAO-10-201](#) (Washington, D.C.: Dec. 22, 2009).

class, and drug utilization.⁸ To understand the effect of generic drugs with extraordinary price increases on benefit design, such as changes to drug formularies, we interviewed Medicare Part D stakeholders, including six of the largest private insurers that sponsor Medicare Part D plans and the pharmacy benefit managers (PBM) that manage these plans' pharmacy benefits.⁹ We selected the plan sponsors based on Medicare Part D enrollment data as of December 2014. In total, these Medicare Part D plans represent about 65 percent of all Medicare Part D beneficiaries as of December 2014.¹⁰ We also conducted interviews with pharmacy trade associations and five academic economics experts to understand the impact of generic drug prices on benefit design and the economic factors influencing generic drug prices.

To examine the factors that contribute to changes in generic drug prices, we interviewed selected stakeholders involved in the manufacturing, distribution, and payment of generic drugs, including five generic drug manufacturers; various trade associations representing generic drug manufacturers, health insurance companies, PBMs, pharmacies, and drug wholesalers; and the Medicare Part D plan sponsors and PBMs we

⁸Therapeutic class represents groups of drugs that possess a similar chemical structure and similar therapeutic effects, such as ophthalmologic agents, and drug utilization represents the volume of Medicare Part D claims for that particular drug, such as low or high volume.

⁹A formulary is a list of the prescription drugs covered by an insurance plan.

¹⁰We interviewed representatives from UnitedHealth Group and its PBM, OptumRx, which also serves as a PBM for other health plans; Humana Inc., which operates its own PBM serving its own health plans; CVS Health Corporation, which operates a PBM for its health plans and other health plans; Express Scripts Holding Company, which operates a PBM for its health plans and others; WellCare Health Plans, Inc. which currently uses CVS Health Corporation as its PBM but previously used Optum; and Kaiser Foundation Health Plan, Inc. which operates its own pharmacies.

discuss above.¹¹ We also interviewed the five academic economics experts and reviewed relevant literature to inform our understanding of the generic drug industry.

Our findings on how generic drug prices have changed and those drugs that experienced an extraordinary price change are limited to Medicare Part D and not generalizable to all generic drugs. Additionally, our findings on the effects of generic drug price changes on benefit design and the factors contributing to generic prices are limited to the selected manufacturers and other stakeholders we interviewed. To ensure that the data used to produce this report were sufficiently reliable, we took several steps. Specifically, we interviewed CMS officials responsible for overseeing and collecting the Medicare PDE data about steps taken to assess reliability. For these data and the Medicare enrollment data used to select Medicare Part D plan sponsors to interview, we reviewed relevant documentation; examined the data for obvious errors, such as missing values and values outside of expected ranges; and compared the results to other published reports to ensure accuracy, when possible. We determined that all data sources were sufficiently reliable for the purposes of our reporting objectives.

We conducted this performance audit from June 2015 to August 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹¹We selected three of the manufacturers—Mylan, Sandoz, and Teva Pharmaceuticals—because they were among the manufacturers with the most claims and highest total ingredient costs in the Medicare Part D data in the first quarter of 2015. In order to obtain the opinion of smaller manufacturers, we selected two manufacturers—G&W Laboratories and Nephron Pharmaceuticals—that were not among those with the highest ingredient costs and claims, but had more than \$1 million in ingredient costs and had more than 100,000 claims. The trade associations we interviewed were Generic Pharmaceutical Association, which represents generic drug manufacturers; America's Health Insurance Plans, which represents health insurance companies; Pharmaceutical Care Management Association, which represents PBMs; National Association of Chain Drug Stores and National Community Pharmacists Association, which represent chain and independent pharmacies; and Healthcare Distribution Management Association, which represents drug wholesalers.

Background

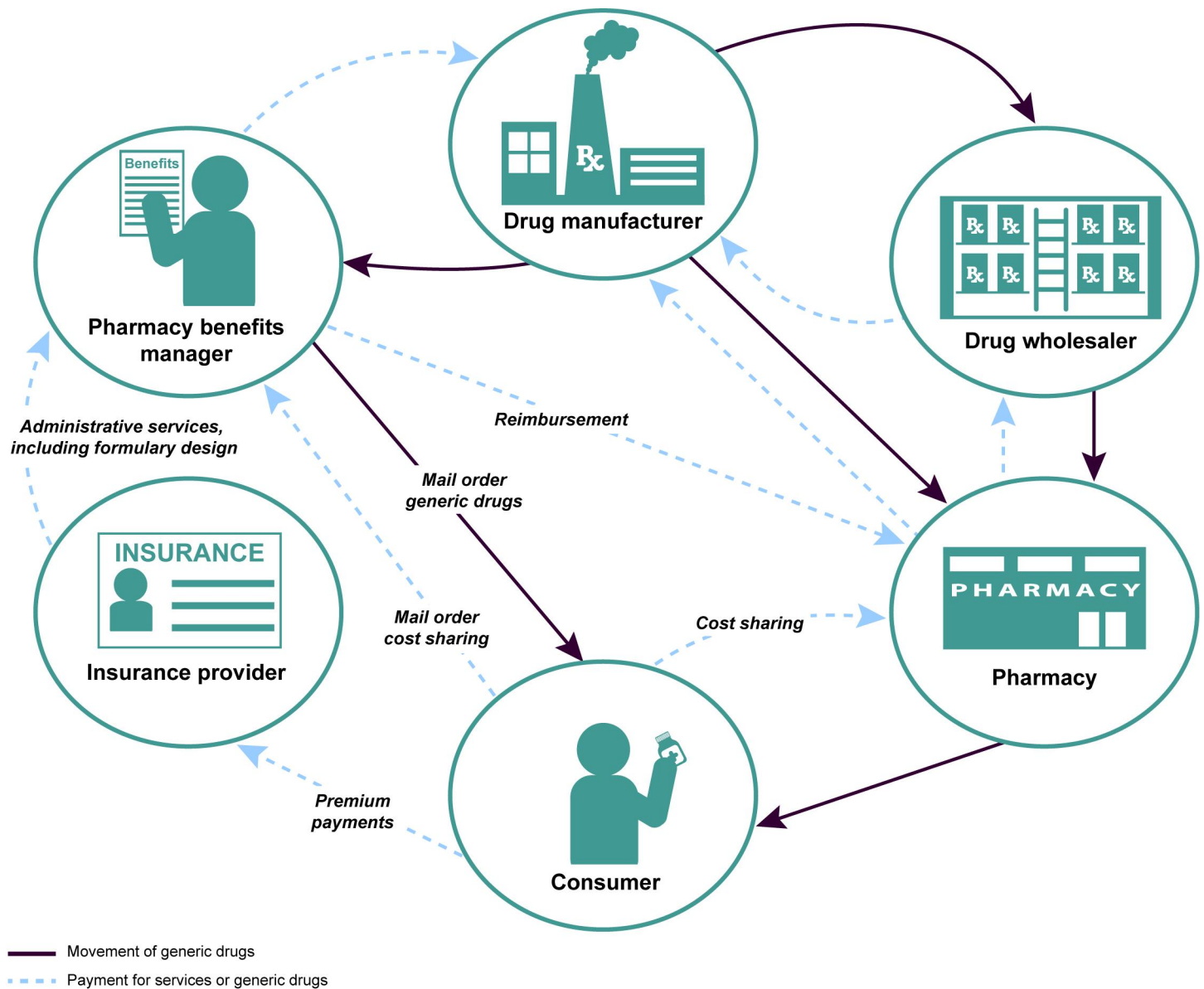
Distribution of and Payment for Generic Drugs

The distribution of and payment for prescription drugs dispensed by retail and mail order pharmacies, including generics, involves interactions among multiple commercial entities. These entities include drug manufacturers, wholesalers, retail pharmacies, and third-party payers that provide insurance coverage and their PBMs.

Drug manufacturers sell their drugs directly to pharmacies or to drug wholesalers, who in turn sell drugs to the pharmacies. Pharmacies dispense prescription drugs to consumers. Most consumers purchasing drugs pay a portion of the drug's price in the form of a copayment or coinsurance, with this cost sharing dictated by the consumers' insurance coverage. Consumers purchase insurance coverage from a third-party payer.

Third-party payers include private insurance plans, such as those offered by large corporations, and public health plans, such as those offered by the federal government through programs such as Medicare Part D. Third-party payers may use PBMs to help them manage their prescription drug benefits, including claims processing and assembling networks of retail pharmacies where the beneficiaries can fill prescriptions. PBMs may also operate mail-order pharmacies—highly automated facilities that fill prescriptions from a central location and deliver the prescription directly to the consumer. Contract terms and conditions between PBMs and pharmacies may include specifics about negotiated reimbursement rates (how much the pharmacy will be paid for dispensed drugs) and payment terms (e.g., the frequency with which the third-party payer or its PBM will reimburse the pharmacy for dispensed drugs), among other things. The reimbursement rate that third-party payers or their PBMs pay pharmacies affects pharmacy revenues. Retail pharmacies participating in a PBM's network are typically reimbursed for generic prescriptions according to the maximum allowable cost, which is set according to contract terms, and can vary between pharmacies. (See fig. 1, which shows the different entities involved in the distribution of and payment for generic drugs.)

Figure 1: Key Interactions and Stakeholders Involved in the Distribution of and Payment for Generic Drugs



Medicare Part D

Medicare Part D provides voluntary, outpatient prescription drug coverage for Medicare, the federally financed health insurance program for eligible individuals 65 years and older, certain individuals with disabilities, and individuals with end-stage renal disease and is administered by CMS.

Medicare Part D beneficiaries can enroll in stand-alone prescription drug plans, which add drug coverage to original fee-for-service Medicare and certain Medicare plans, or in Medicare Advantage prescription drug plans, which provide Medicare benefits and prescription drug coverage through a single privately managed plan. In 2014, federal spending on Medicare Part D totaled approximately \$78 billion, or about 13 percent of total Medicare expenditures.¹² Medicare beneficiaries can obtain coverage for outpatient prescription drugs by choosing from multiple competing plans offered by third-party payers, known as plan sponsors—primarily private health insurers—that contract with CMS to offer the prescription drug benefit. These drug plans may differ in the monthly premiums charged to beneficiaries; beneficiary cost sharing, such as coinsurance or copayments; pharmacies available in-network and out-of-network for beneficiaries to fill prescriptions; and the drug prices negotiated with pharmacies. Each plan also has a formulary (a list of the prescription drugs that it covers) and plan sponsors select the coinsurance or copayment amount that beneficiaries must pay for each listed drug.¹³ For drugs included on their formularies, plan sponsors may assign drugs to tiers that correspond to different levels of cost sharing. Plan sponsors submit formularies for their plans to CMS for review and approval on an annual basis. With certain exceptions, negative changes to a plan's formulary—such as a drug removal, which could restrict beneficiaries' access to drugs—require CMS's review and approval. Copayments for generic drugs under Medicare Part D ranged from \$0 to \$13 in 2016, depending on the plan and whether the generic drug is included as a preferred or nonpreferred generic on the plan sponsor's drug formulary.¹⁴

¹²Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, *2015 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (Washington, D.C.: July 22, 2015).

¹³Sponsors must adhere to a minimum set of formulary requirements. Sponsors generally must include at least two drugs within each therapeutic category and class of covered Medicare Part D drugs. Exceptions are allowed; for example, when there is only one drug in a particular category or class. In addition, CMS requires that formularies include "all or substantially all" drugs within six designated categories of clinical concern. See 42 U.S.C. § 1395w-104(b)(3)(C)(i); 42 C.F.R. § 423.120(b)(2)(2015); CMS, Medicare Prescription Drug Benefit Manual, Chapter 6, § 30.2.5 (2016).

¹⁴A preferred drug is a drug for which beneficiary cost-sharing is lower (i.e., the drug has a preferred position), compared to a nonpreferred drug for which beneficiary cost-sharing is higher. Medicare Payment Advisory Commission, "Chapter 13: Status Report on Part D," *Report to the Congress: Medicare Payment Policy* (Washington, D.C.: March 2016).

Plan sponsors also determine whether any utilization management practices apply for each listed drug, such as limits on the amount of drug that can be provided.¹⁵

Medicare Part D Generic Drug Prices Have Fallen Overall Since 2010 Due to the Modest Price Decline of Established Drugs and the Rapid Price Decline of New Generic Drugs

Prices under Medicare Part D fell rapidly from the first quarter of 2010 through the fourth quarter of 2012 and then declined moderately thereafter through the second quarter of 2015 for our changing basket of nearly 2,400 generic drugs—that is, drugs that were continuously billed under Medicare Part D and those that were only billed for part of our time period.¹⁶ Overall, prices declined by 59 percent, or 4.2 percent per quarter on average, from the first quarter of 2010 through the second quarter of 2015. While the price for our changing basket of drugs continued to fall throughout our time period, the declines were faster earlier in our study period compared to the later years. For example, the average quarterly decline from the first quarter of 2010 through the fourth quarter of 2012 was 5.7 percent, while the average quarterly decline from the fourth quarter of 2012 through the second quarter of 2015 was 2.4 percent.

In contrast, prices decreased moderately from 2010 through 2012 then plateaued or increased slightly through second quarter 2015 for our basket of 1,441 established generic drugs—that is, drugs that were continuously billed under Medicare Part D for each quarter during our study period.¹⁷ Overall, prices for this basket of drugs declined by 14 percent, or 0.7 percent per quarter on average, from the first quarter of 2010 through the second quarter of 2015, but trends varied over time.

¹⁵These utilization management practices can include (1) step therapy, which requires that a beneficiary try lower-cost drugs before a sponsor will cover a more costly drug; (2) prior authorization, which requires a beneficiary to obtain the sponsor's approval before a drug is covered for that individual; and (3) quantity limits, which restrict the dosage or number of units of a drug provided within a certain period of time. Utilization management practices are subject to CMS approval.

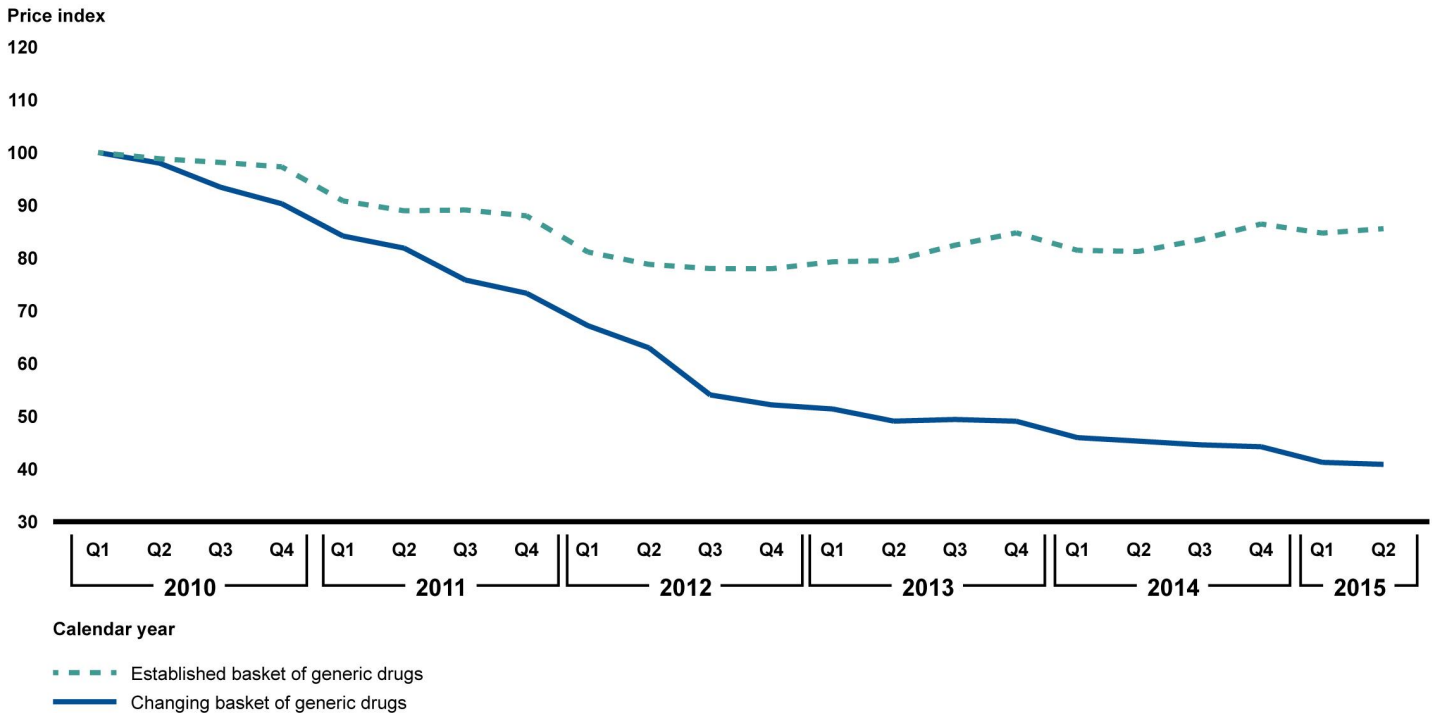
¹⁶For the changing basket of drugs, the number of drugs included in each period varies from 1,733 to 2,124. For example, the period from the first quarter of 2010 to the second quarter of 2010 has 1,733 drugs. A total of 2,378 unique drugs were included across our study period.

¹⁷The price trend among established generic drugs is driven by oral medications, such as tablets or capsules, because such drugs represent a large majority of the 1,441 established drugs in our analysis. However, we found different patterns for other types of drugs. For more information on these other patterns, see appendix II.

Specifically, we found that the price for this established basket of generic drugs decreased by 22 percent, or about 2.2 percent per quarter on average, from the first quarter of 2010 through the fourth quarter of 2012. From that point until the second quarter of 2015, however, the price of our established generic drug basket increased by 10 percent, or about 0.9 percent per quarter on average, which was four times the overall rate of general inflation of approximately 2.3 percent over the same time period.¹⁸ (See fig. 2 for the price trends for the changing and established baskets of drugs.)

¹⁸To calculate the overall rate of general inflation, we analyzed data from the Bureau of Labor Statistics' May 2016 detailed CPI report. Specifically, we analyzed data for the historical chained consumer price index for all goods for urban consumers. We calculated the total growth rate from October 2012 through May 2015 since our 2015 Medicare Part D data ended in May.

Figure 2: Price Trends under Medicare Part D for the Changing Basket and Established Basket of Generic Drugs, First Quarter 2010 through the Second Quarter 2015



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: For the changing basket of all generic drugs, the number of drugs included in each period varies from 1,733 to 2,124. For example, the period going from the first quarter of 2010 to the second quarter of 2010 has 1,733 drugs. A total of 2,378 unique drugs were included across our study period. To be considered an established drug, a drug had to be in the Medicare Part D claims data for each quarter from the first quarter of 2009 through the second quarter of 2015 and meet certain other data reliability standards. A total of 1,441 drugs met these criteria. Due to data availability at the time we conducted our study, the second quarter of our 2015 Medicare Part D claims data is limited to data from April and May.

The steeper price decrease experienced by our changing basket of generic drugs compared to our established basket is at least partially attributable to rapid price declines among new generic drugs, which are in our changing basket but not the established one. We found that prices declined much more rapidly for generic drugs newly billed under Medicare Part D relative to established generic drugs. For example, from the first quarter of 2010 through the first quarter of 2011, we found that the price

of our basket of newly billed generic drugs decreased by approximately 54 percent compared to a decline of less than 10 percent for established drugs.¹⁹

More Than 300 Established Generic Drugs under Medicare Part D Had an Extraordinary Price Increase, Most of Which Persisted, but Had a Limited Effect on Benefit Design

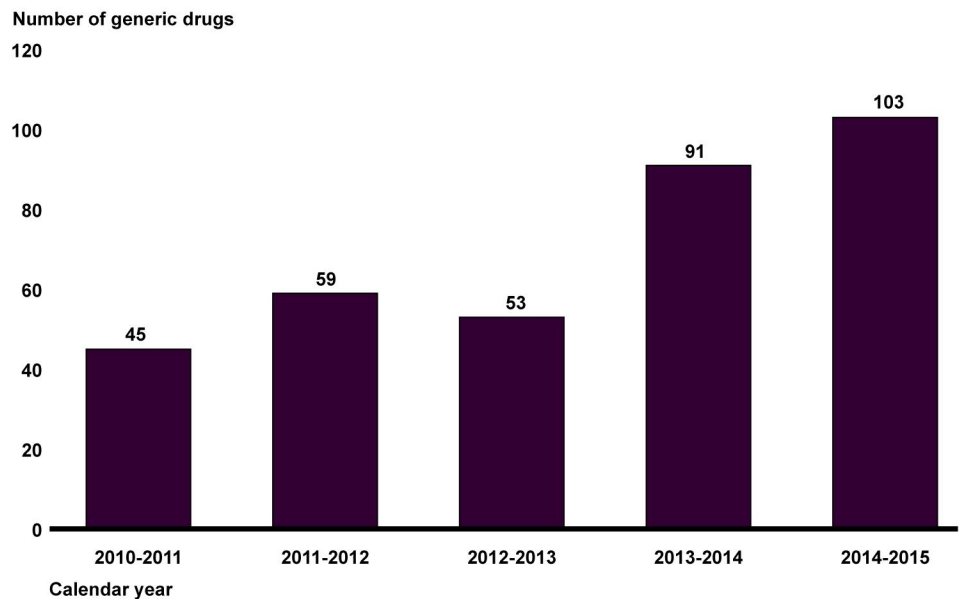
More Than 300 Established Generic Drugs Had an Extraordinary Price Increase from 2010 to 2015, and These Increases Have Moderated Generic Drug Price Declines

From first quarter 2010 to first quarter 2015, 315 of the 1,441 established drugs experienced an extraordinary price increase—a price increase of at least 100 percent—while many other generic drugs continued to decline in price. The number of established generic drugs that experienced an extraordinary price increase in a given year more than doubled over our study period from 45 drugs between the first quarter of 2010 to the first quarter of 2011 to 103 drugs between the first quarter of 2014 to the first quarter of 2015 (see fig. 3). In contrast, approximately 50 percent or more of all established generic drugs in each year (between 687 and 851)

¹⁹As a proxy to demonstrate the price effect of generic drugs that were introduced under Medicare Part D during the years of our analysis, we separately tracked these newly billed drugs and constructed a price index consisting only of those drugs. We then compared the price change for these drugs to the price change for established drugs.

experienced a price decrease from the previous year over our study period.²⁰

Figure 3: The Number of Established Drugs under Medicare Part D That Experienced an Extraordinary Price Increase, First Quarter 2010 to First Quarter 2015



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: A price increase of at least 100 percent from the first quarter of one year to the first quarter of the next is considered an extraordinary price increase. To be considered an established drug, a drug had to be in the Medicare Part D claims data for each quarter from the first quarter of 2009 through the second quarter of 2015 and meet certain other data reliability standards. A total of 1,441 drugs met these criteria.

Across our study period, the 315 established drugs experienced 351 extraordinary price increases.²¹ Because we calculated an extraordinary

²⁰In addition to those drugs that had an extraordinary price increase of 100 percent or more and those that declined in price, other drugs in our analysis remained flat or had an increase in price of less than 100 percent. Depending on the time period, the number of these drugs ranged from 499 to 701.

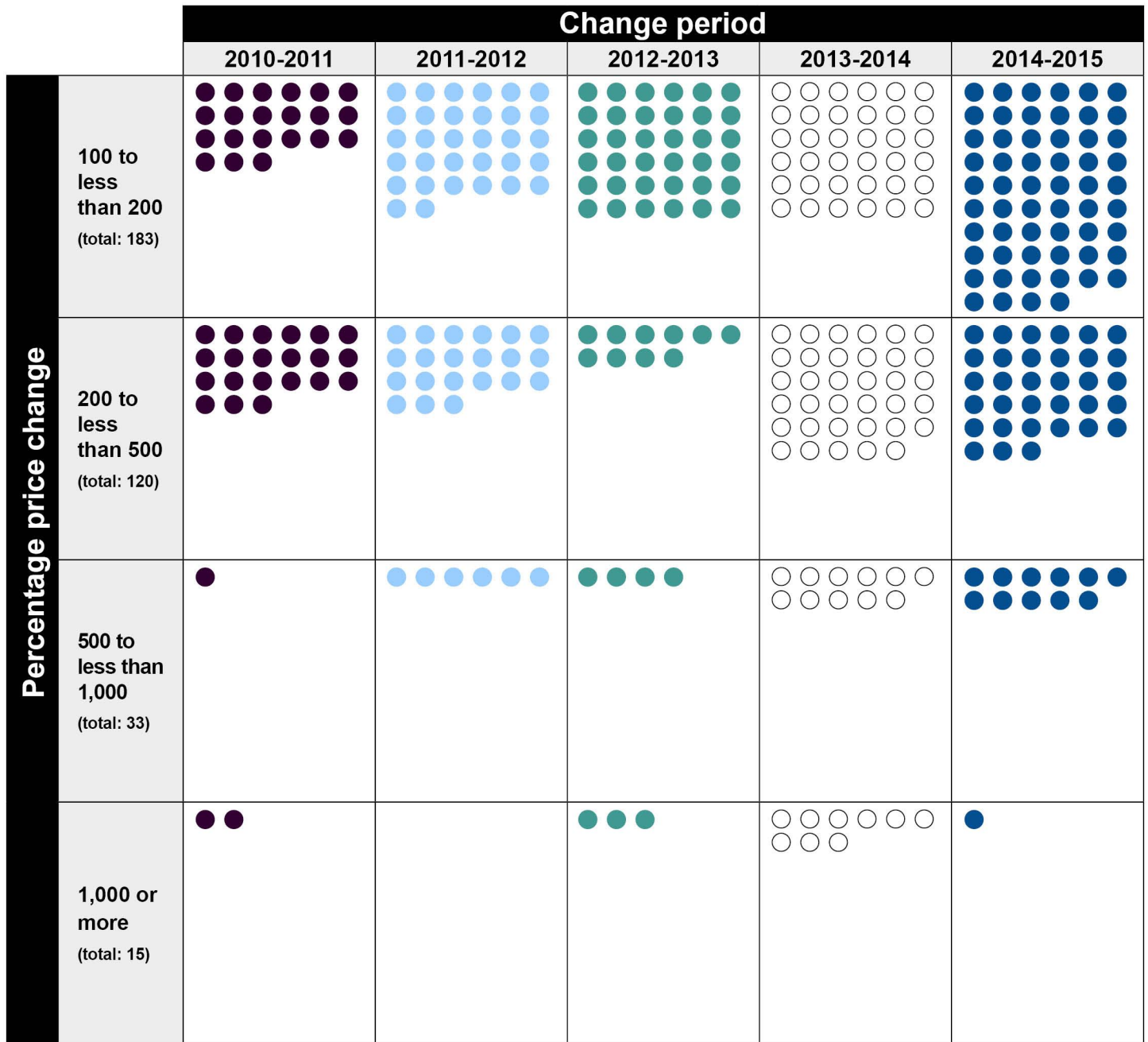
price increase as a 100 percent increase from the first quarter of one year to the next, a single drug could experience multiple price increases. (For a complete list of the drugs that experienced an extraordinary price increase and the year of the increases, see app. III.) From first quarter 2010 to first quarter 2015, 280 drugs experienced one extraordinary price increase, 34 drugs experienced two extraordinary price increases, and 1 drug experienced three extraordinary price increases. Specifically, the antibiotic drug, erythromycin/500mg/tablet/oral, had three separate price increases of at least 100 percent, with the price of the drug increasing from \$0.24 per tablet in the first quarter of 2010 to \$8.96 per tablet in the first quarter of 2015.²²

While most extraordinary price increases were between 100 and 200 percent, a small number of the increases were substantially higher (see fig. 4). Specifically, out of the 351 extraordinary price increases, 48 were 500 percent or higher and 15 were 1,000 percent or higher. For example, the drug clomipramine HCL/50mg/capsule/oral, an antidepressant used to treat symptoms of obsessive-compulsive disorder, increased over 2,000 percent in 1 year, going from \$0.34 per capsule in the first quarter of 2013 to \$8.43 per capsule in the first quarter of 2014. In contrast, 183 out of the 351 extraordinary price increases were less than 200 percent. For example, the drug hydrocortisone/20mg/tablet/oral, a steroid, increased approximately 160 percent in 1 year, from \$0.16 per tablet in the first quarter of 2012 to \$0.41 per tablet in the first quarter of 2013. As this last example demonstrates, some extraordinary price increases still may not result in a very high price because the beginning price was relatively low.

²¹Because we define a generic drug at the active ingredient/strength/dosage form/route of administration level, several extraordinary price increases can be associated with one active ingredient. For example, phenobarbital is available in both a 30 mg tablet and a 60 mg tablet, among other strengths. In our analysis, these different strengths would be considered different generic drugs, even though they have the same active ingredient, phenobarbital. Across all years of our study, the 351 extraordinary price increases were associated with 157 unique active ingredients.

²²The price of erythromycin/500mg/tablet/oral per tablet in the first quarter of each year was as follows: \$0.24 in 2010, \$0.89 in 2011, \$1.40 in 2012, \$3.00 in 2013, \$4.39 in 2014, and \$8.96 in 2015.

Figure 4: Distribution of Extraordinary Price Increases under Medicare Part D, by Year of Increases

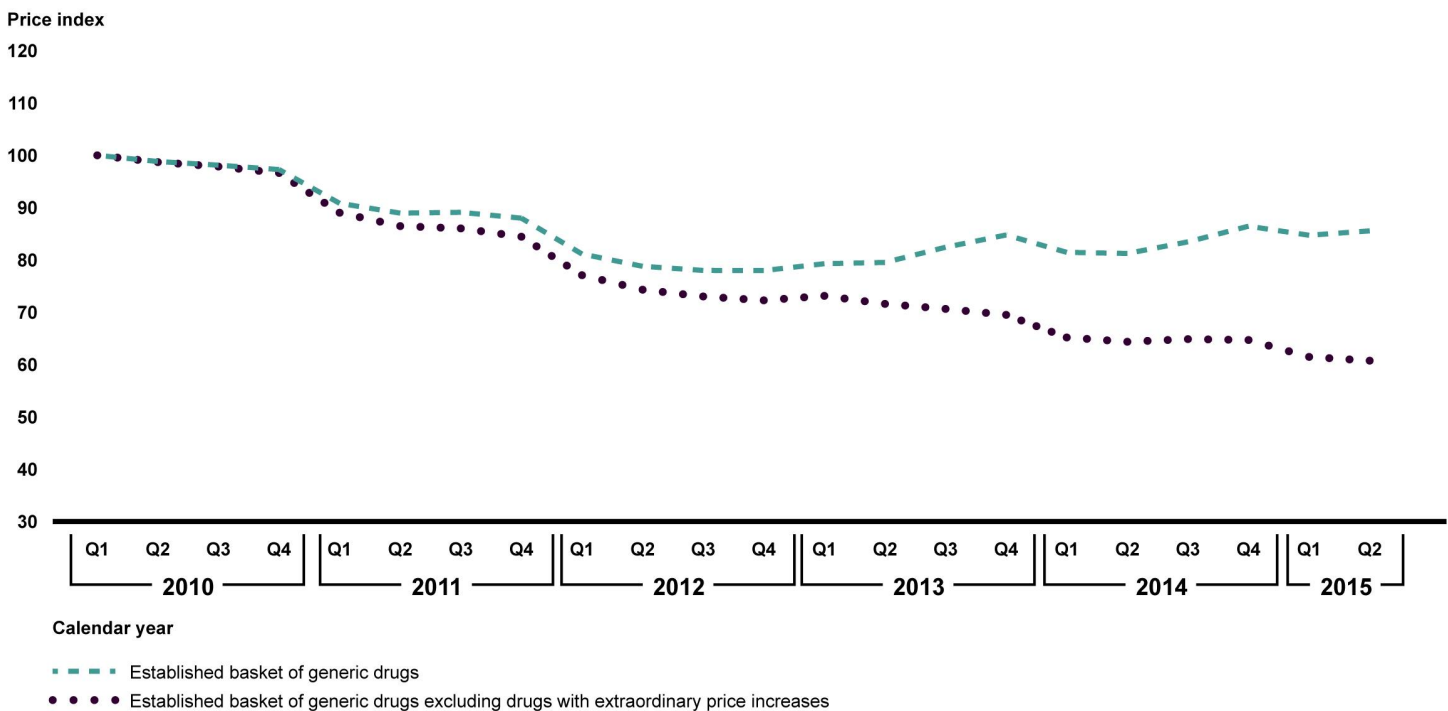


Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: A price increase of at least 100 percent from the first quarter of one year to the first quarter of the next is considered an extraordinary price increase.

The 315 drugs that experienced an extraordinary price increase during our study period have moderated the decline in generic drug prices for our basket of 1,441 established drugs, despite only representing slightly more than one in five established generic drugs. To isolate the effect that drugs with extraordinary price increases had on the average price of our basket of 1,441 established drugs, we recalculated our established drug index after excluding the 315 drugs that experienced an extraordinary price increase at any point in our study and compared that to our full basket of established drugs. We found that these 315 drugs increased the average price of our established drug basket by 25 percentage points by the end of our study period. Specifically, by the second quarter of 2015, the average price for our basket of established generic drugs that excluded these 315 drugs fell by about 39 percent, while the average price for all 1,441 established drugs fell by only 14 percent (see fig. 5). These results suggest that the change in price for the established drug basket in the latter half of our study period is likely driven, at least in part, by the share of drugs experiencing large price increases.

Figure 5: Price Trends under Medicare Part D for All Established Drugs and Established Drugs without an Extraordinary Price Increase, First Quarter 2010 through the Second Quarter 2015



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: To be considered an established drug, a drug had to be in the Medicare Part D claims data for each quarter from the first quarter of 2009 through the second quarter of 2015 and meet certain other data reliability standards. A total of 1,441 drugs met these criteria. A total of 1,126 drugs were included in the basket of drugs that did not experience an extraordinary price increase. Due to data availability at the time we conducted our study, the second quarter of our 2015 Medicare Part D claims data is limited to data from April and May.

Most Extraordinary Price Increases Persisted for at Least 1 Year, and Certain Drugs Were More Likely to Experience These Increases

Of the 351 annual extraordinary price increases that occurred from first quarter 2010 to first quarter 2015, we were able to track 248 of these annual increases for 1 or more additional years, and found that nearly all persisted at 100 percent or more above the original price for at least 1 year.²³ For example, tracking extraordinary price increases that occurred from the first quarter of 2010 to the first quarter of 2011, 44 of the 45 increases (98 percent) persisted at 100 percent or more above the original price as of the first quarter of 2012. In addition, for the 157 extraordinary price increases that we could track for longer periods of time, we found that these increases tended to persist at 100 percent or more above the original price longer than a year (see table 1). For example, the drug piroxicam/20mg/capsule/oral, a nonsteroidal anti-inflammatory drug that can be used to treat rheumatoid arthritis or osteoarthritis, increased by more than 2,000 percent, from \$0.09 per capsule in first quarter 2010 to \$1.94 per capsule in first quarter 2011. By first quarter 2015, the price of this drug had fallen to \$1.82 per capsule, but that price remained over 1,900 percent above the original price.

²³We were unable to track extraordinary price increases that occurred from the first quarter of 2014 to the first quarter of 2015 because data for the first quarter of 2016, 1 year after the price increase, were not available at the time we conducted our study.

Table 1: Number of Extraordinary Price Increases That Persisted at 100 Percent or More Above the Original Price for Generic Drugs under Medicare Part D, First Quarter 2010 to First Quarter 2015

Year of extraordinary price increase	Number of extraordinary price increases	Number of extraordinary price increases persisting after 1 year (percent)	Number of extraordinary price increases persisting after 2 years (percent)	Number of extraordinary price increases persisting after 3 years (percent)	Number of extraordinary price increases persisting after 4 years (percent)
2010-2011	45	44 (98%)	44 (98%)	44 (98%)	43 (96%)
2011-2012	59	59 (100%)	59 (100%)	58 (98%)	N/A
2012-2013	53	52 (98%)	50 (94%)	N/A	N/A
2013-2014	91	87 (96%)	N/A	N/A	N/A
2014-2015	103	N/A	N/A	N/A	N/A

Legend: N/A=not applicable

Source: GAO analysis of Medicare Part D prescription drug event data and Red Book. | GAO-16-706

Note: A price increase of at least 100 percent from the first quarter of one year to the first quarter of the next is considered an extraordinary price increase. Cells with "N/A" indicated that we were unable to track the prices of drugs beyond the period for which our data was available (that is, after the second quarter of 2015). For example, we were unable to track extraordinary price increases that occurred from the first quarter of 2014 to the first quarter of 2015 because data for the first quarter of 2016, one year after the price increase, were not available at the time we conducted our study.

Furthermore, we found that most extraordinary price increases had no downward movement in the subsequent years, with 184 of the 248 extraordinary price increases remaining at the same level or higher one year after the original increase. For example, one drug in our analysis used to treat glaucoma, methazolamide/50mg/tablet/oral, experienced a price increase of approximately 454 percent from about \$0.33 per tablet in first quarter 2010 to \$1.85 per tablet in first quarter 2011. By first quarter 2015, the drug's price had further increased and experienced an additional extraordinary price increase, ending at \$5.47 per tablet, about 1,538 percent above the original price.

While the price increases for some drugs were extraordinary and persistent, our analysis found that generic drugs with extraordinary price increases were often not among the top 100 most utilized established generic drugs under Medicare Part D.²⁴ With the exception of the drugs that experienced extraordinary price increases from first quarter 2013 to

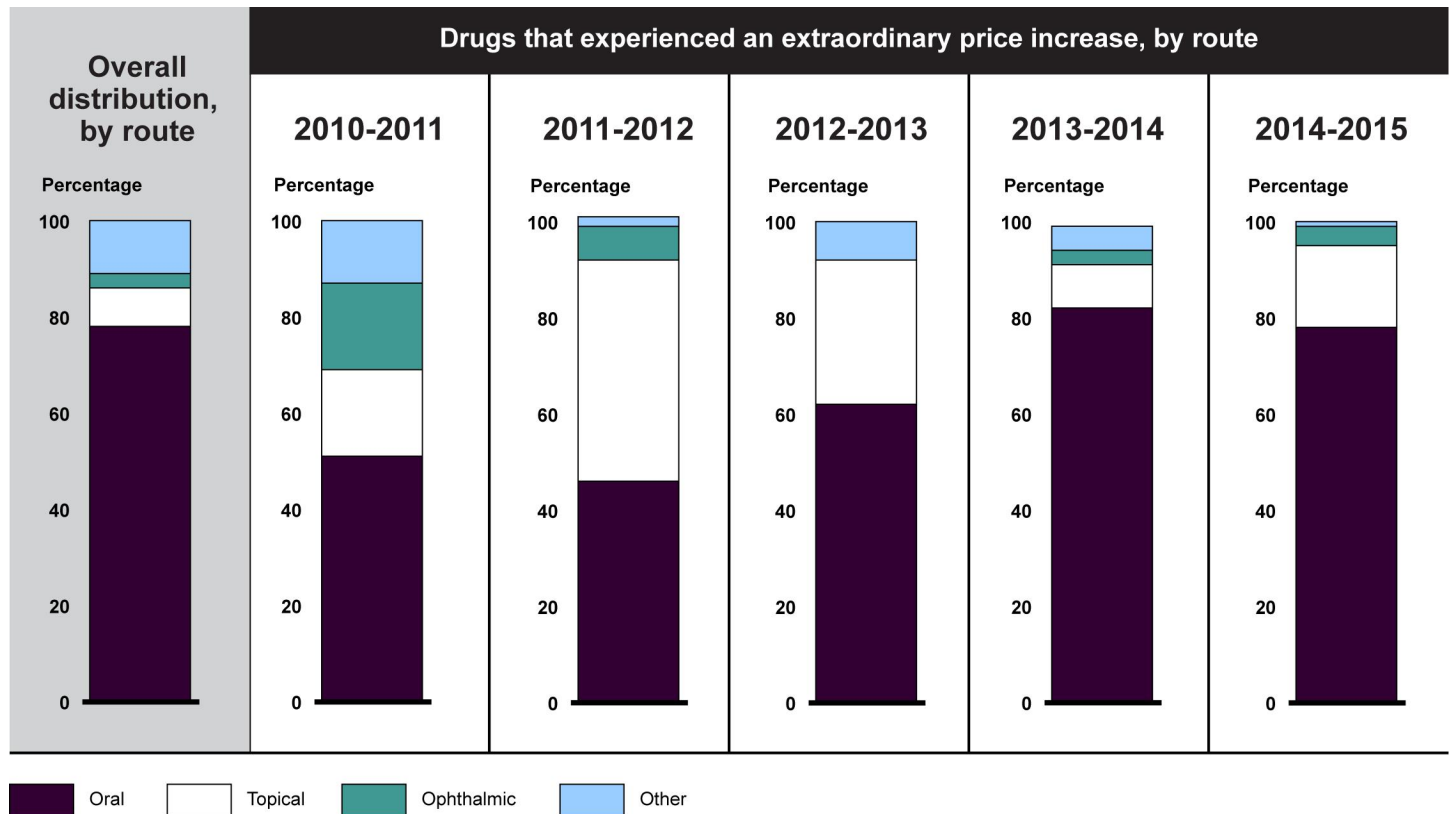
²⁴The top 100 most utilized established generic drugs in each year of our analysis accounted for more than 60 percent of all Part D claims for established generic drugs, and the top 50 most utilized established generic drugs accounted for more than 40 percent of all claims each year.

first quarter 2014, no more than one of the drugs that experienced an extraordinary price increase in the years of our study period was among the top 100 most utilized established generic drugs in Medicare Part D. From first quarter 2013 to first quarter 2014, 4 of the 91 price increases were for drugs that were among the 100 most utilized, with 1 of them being the 24th most utilized.

In addition to examining the utilization of the drugs that experienced an extraordinary price increase, we looked at the route of administration for these 315 drugs. We found that, in the early years of our analysis, drugs with certain routes of administration were disproportionately likely to experience an extraordinary price increase. For example, ophthalmic drugs, such as eye solutions, which account for about 3 percent of all established drugs, represented 18 percent of all extraordinary price increases between 2010 and 2011, and topical drugs, such as creams and ointments, which account for 8 percent of all established drugs, represented 46 percent of all extraordinary price increases between 2011 and 2012. In contrast, oral drugs, which account for 78 percent of all established drugs, represented 51 percent of all extraordinary price increases from 2010 to 2011 and 46 percent of all extraordinary price increases from 2011 to 2012. In later years, drugs taken orally accounted for a roughly equal share of all established drugs and drugs that experienced an extraordinary price increase (see fig. 6).²⁵

²⁵Over all the years of our analysis, approximately 19 percent of oral drugs, 57 percent of topical drugs, 40 percent of ophthalmic drugs, and 11 percent of all other drugs experienced an extraordinary price increase.

Figure 6: Percent of Established Drugs That Experienced Extraordinary Price Increases under Medicare Part D from First Quarter 2010 to First Quarter 2015, by Route of Administration



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: The overall distribution represents the distribution of the 1,441 established generic drugs across the years of our analysis. A price increase of at least 100 percent from the first quarter of one year to the first quarter of the next is considered an extraordinary price increase. Other routes of administration include categories such as intravenous, intramuscular, transdermal, otic, and nasal, among others.

With Generic Drugs Accounting for About 25 Percent of Part D Drug Costs, Stakeholders Reported That Increases in These Prices Have a Limited Effect on Drug Benefit Design

Despite some persistent and substantial price increases, stakeholders have reported limited impacts of these increases on drug benefit design. Some Medicare Part D plan sponsors and PBMs reported that generic drugs remain an important part of their prescription drug benefit given the low costs of generic drugs relative to their brand counterparts.²⁶ During the years of our analysis, the percent of generic drugs dispensed under Medicare Part D has increased from 71.9 percent in the first quarter of 2010 to 85.7 percent in the second quarter of 2015.²⁷ Despite the growth in the rate of generic drugs dispensed, the ingredient costs of generic drugs—that is, the amount paid for the drug itself—have remained relatively consistent, fluctuating between 22 and 28 percent of the total ingredient costs of all Medicare Part D drugs in a given quarter. Specifically, in the first quarter of 2010, generic drug ingredient costs were about 22 percent of the total of all ingredient costs paid for drugs dispensed under Medicare Part D, and, in the second quarter of 2015, they were 23 percent of all ingredient costs. Furthermore, ingredient costs of those generic drugs that experienced an extraordinary price increase have accounted for between 2 to 4 percent of the total ingredient costs paid under Medicare Part D during the years of our analysis.²⁸ Thus, generic drugs continue to bring value to Medicare Part D given their relatively high dispensing rate and low percentage of total drug ingredient costs.

However, plan sponsors and PBMs stated that generic drug price increases may be a factor when evaluating prescription drug benefit design changes for Medicare Part D plans and their other insurance offerings. Plan sponsors and their PBMs reported that, when possible, they may make some changes to their formulary design to minimize the effects of large increases in generic drug prices. Plan sponsors said they may increase beneficiary cost sharing for all insurance offerings by

²⁶The increasing use of generic drugs, among other things, has contributed to lower than expected federal spending on Medicare Part D overall between 2006 and 2013, according to the Congressional Budget Office. Congressional Budget Office, *Competition and the Cost of Medicare's Prescription Drug Program* (Washington, D.C.: July 2014).

²⁷This generic dispensing rate is consistent with other reported data. For example, see Medicare Payment Advisory Commission.

²⁸For example, in 2014, the Medicare Part D ingredient costs for drugs that experienced an extraordinary price increase was approximately \$4.5 billion, and the ingredient cost paid for all drugs was approximately \$119 billion.

including generic drugs on every formulary tier, including those tiers that would require the beneficiary to pay the highest copayments or highest coinsurance rates. Plan sponsors indicated that they may be more limited in their formulary designs for their Medicare Part D offerings, and many of the sponsors we interviewed noted that they have adopted a formulary structure with a “nonpreferred generic” drug tier. The nonpreferred generic tier usually has higher cost sharing than the preferred generic tier, but still less than other formulary tiers.²⁹ All of the plan sponsors we interviewed indicated that, subject to applicable requirements, some generic drugs whose prices have increased may be excluded from the formulary altogether, particularly if there is another less expensive, therapeutically equivalent generic drug available.

Five of the six plan sponsors we interviewed reported that generic drug prices may have a small effect on changes in beneficiary premiums, and two economists we interviewed noted that some cost increases may eventually be borne by the beneficiary in the form of higher premiums or by the government. However, in general, stakeholders we spoke with said that premium changes are influenced by overall health care costs. Three of the six plan sponsors we interviewed indicated that brand and specialty drug costs—which are typically more expensive than generics—have impacted premiums more than any increases in generic drugs.

Pharmacy associations we interviewed noted that when changes are made to benefit design, pharmacists may have some ability to help beneficiaries manage costs if they facilitate a switch from the high-cost generic to a lower cost, therapeutically equivalent drug when available. However, in some cases, this change must be approved by the prescriber. Pharmacy associations we interviewed reported that, when the price increases are significant and rapid, their members—individual and chain pharmacies—may fill prescriptions at a loss or have difficulty managing buying strategies, which could affect beneficiaries. For example, if generic drug reimbursements do not match the cost pharmacies must pay to acquire the drugs, pharmacy association officials told us that their member pharmacies may choose not to stock the drug,

²⁹ Medicare Payment Advisory Commission’s 2016 report on Medicare Part D reported that in 2015, about 80 percent of enrollees were in plans with five cost-sharing tiers: preferred generic and other generic tiers, preferred and nonpreferred brand-name drug tiers, and a specialty tier.

which would force beneficiaries to find another pharmacy that could fill the prescription.

Manufacturers and Other Stakeholders Reported That Market Competition, Influenced By Production Difficulties, Consolidation, and Other Factors, Drives Generic Drug Prices

The 5 manufacturers we interviewed reported that competition is the primary driver of generic drug prices, and 12 of the 13 remaining stakeholders we interviewed—including pharmacy associations, plan sponsors, and their PBMs—all indicated that competition influenced by various factors impacts the price of generic drugs. The manufacturers told us they set the price of their version of a multi-source generic drug—drugs with the same active ingredient, strength, dosage form, and route of administration for which there are multiple manufacturers—based on the price at which the generic drug is currently being sold in the market. The generic drug market operates like a commodities market, and manufacturers told us they are asked to submit a proposal offering their best possible price to their customers—for example, companies that operate pharmacies or wholesalers. If another manufacturer offers a lower price to a customer, manufacturers we interviewed indicated that they are usually asked to match it or risk losing market share to the other manufacturer. Additionally, manufacturers said that if a company is bringing a generic drug into an established drug market, it typically offers a price that is lower than the current market price in order to build its customer base. Manufacturers also said that as each new manufacturer enters an established generic drug market the price of that generic will fall, with one manufacturer noting that it is typically a 20 percent price decline per entrant. As long as manufacturers continue to enter the market, generic drug prices continue the general downward trend. According to manufacturers, prices remain low until firms begin to exit the market, which can happen if the drug becomes unprofitable, either due to production costs or low market share. As a result of these factors, manufacturers of generic drugs face a competitive threat that serves as an incentive to keep prices low.

Manufacturers and other stakeholders we interviewed provided various reasons for why generic drug prices change, all of which influence the level of competition in the market. These reasons include the following:

- **Access to active pharmaceutical ingredients (API):** Stakeholders indicated that reliable and affordable access to APIs—which are used to manufacture a drug—is critical to ensuring ongoing production of a drug. Any issues obtaining necessary APIs, which could affect multiple manufacturers, could impact the ability of these

manufacturers to produce the drug. If the manufacturers cannot produce the drug, demand is not being met, and prices can increase.

- **Volume of drug production:** According to stakeholders we interviewed, certain drugs, including narcotics and sterile products, are more difficult to manufacture. Because of the special requirements for these drugs, there may be fewer manufacturers for the product. As a result, should there be production difficulties, such as a plant closure or temporary shutdown to correct a manufacturing deficiency, there are fewer manufacturers to help offset the production difficulty, and prices may increase because less of the drug is being produced overall or one manufacturer is not producing at normal volume.
- **Supplier consolidation:** Stakeholders we interviewed indicated that manufacturer consolidation through acquisitions could affect the competitiveness of the generic drug market, as there may be fewer manufacturers producing any specific drug. Stakeholders also stated that manufacturers may exit the market because manufacturing the drug is no longer profitable. This could be due to a small demand for the drug or production costs that exceed the price at which the drug is being sold in the market.
- **Buyer consolidation:** Four of the five manufacturers noted that as buyers consolidate—for example, through mergers between wholesalers and retail pharmacies or through merging of retail pharmacies—there may be two effects on generic drug prices. In one case, the consolidated buying power of these organizations may force prices down further. On the other hand, having fewer buyers may make it harder for smaller manufacturers to gain market share and stay in business. If fewer firms manufacture the drug, prices may increase.
- **Incentive to enter the market:** If a generic drug serves a small population, some stakeholders indicated there may be little financial incentive for a new manufacturer to enter the market. With fewer manufacturers, the drug may not have the same downward pressure on price, making it more susceptible to price increases.³⁰

³⁰An issue brief from the Office of the Assistant Secretary of Planning and Evaluation at HHS noted that, in some cases, smaller markets may attract no or very little market entry, which can increase the risk for large price increases. See Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, *Understanding Recent Trends in Generic Drug Prices* (Washington, D.C.: Jan.27, 2016).

Economists we interviewed made comments consistent with those made by other stakeholders, and recent literature highlights the role of competition in exerting downward pressure on generic drug prices. According to economists we interviewed, there is no clear measure of competitiveness in the generic drug market but noted that prices are affected when suppliers produce less of a particular drug than anticipated. Additionally, according to reports from the Food and Drug Administration (FDA), economists from the Federal Trade Commission (FTC), and IMS Institute for Healthcare Informatics—an international company that supplies the pharmaceutical and health care industries with market information—the price of generic drugs falls as new manufacturers enter the market. Based on an analysis of data from 1999-2004, FDA found that the appearance of a second generic manufacturer reduced the average generic price to nearly half the brand name price and that the prices continue to fall as additional manufacturers enter.³¹ For products that attract a large number of generic manufacturers, the average generic price falls to 20 percent of the branded price and lower, according to FDA. Additional work from economists at FTC and IMS Institute for Healthcare Informatics published recently supports the FDA's findings. In 2013 and 2014, FTC economists showed that generic drug prices decline based on competition in the market, and a 2016 report from IMS Institute for Healthcare Informatics indicated that the immediate price reduction in the cost of medications following generic entry is substantial and is followed by continued savings in subsequent years.³² For example, generics that entered the market between 2002 and 2014 reduced the price of those medicines by 51 percent in the first year and 57 percent in the second year. IMS Institute for Healthcare Informatics noted that the price reductions are driven, in part, by the number of competitors in the market.

³¹FDA, "Generic Competition and Drug Prices," accessed May 20, 2015, <http://www.fda.gov/AboutFDA/CentersOffices/OfficeofMedicalProductsandTobacco/CDER/ucm129385.htm>.

³²See Steven Tenn and Brett W. Wendling, "Entry Threats and Pricing in the Generic Drug Industry," *The Review of Economics and Statistics*, May 2014, 96(2): 214–228. Tenn and Wendling were with FTC at the time of publication. See also Luke M. Olson and Brett W. Wendling, Bureau of Economics, Federal Trade Commission, *Working Paper No. 317: The Effect of Generic Drug Competition on Generic Drug Prices During the Hatch-Waxman 180-Day Exclusivity Period* (Washington, D.C.: April 2013) and IMS Institute for Healthcare Informatics, *Price Declines after Branded Medicines Lose Exclusivity in the U.S.* (Parsippany, N.J.: January 2016).

Stakeholders indicated competition could be increased if FDA would approve more abbreviated new drug applications (ANDA), which would allow generic drug manufacturers to market a drug, but there is a backlog at FDA. The Generic Drug User Fee Amendments of 2012 (GDUFA) authorized FDA to collect user fees from manufacturers of generic drugs, to be dedicated to reviewing ANDAs consistent with goals identified by the agency.³³ The agency set a goal for FDA to take “first action” on ANDA’s submitted beginning in fiscal year 2015 within 15 months.³⁴ According to FDA, approvals for ANDAs submitted prior to this goal taking effect in fiscal year 2015 can take 40 months or more.³⁵ Manufacturers stated that FDA’s review backlog may represent a barrier to market entry for new generic drug manufacturers. For example, one manufacturer told us that, while ANDAs are pending at FDA, manufacturers must keep facilities operational, which may be costly for smaller drug manufacturers with fewer plants and products.³⁶

Agency Comments

We provided a draft of this report to HHS for review and comment. The department provided technical comments, which we incorporated as appropriate.

³³See Pub. L. No. 112-144, tit. III, 126 Stat. 993, 1008 (codified in pertinent part at 21 U.S.C. §§ 379j-41 et seq.). The goals are set forth in letters from the Secretary of HHS to the Congress.

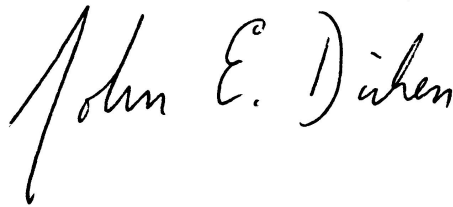
³⁴First action could include granting an approval, granting a tentative approval, identifying deficiencies through a response letter, or a refusal to receive the application. When deficiencies are identified, industry usually responds by correcting them and resubmitting the application.

³⁵FDA officials acknowledged that the current ANDA workload is larger than it would like as generic manufacturers have submitted more original ANDAs than anticipated at the time that GDUFA was enacted. According to FDA officials, many of the additional applications were submitted by new entrants to the generic drug arena, which requires more review time and review cycles prior to approval. Officials said that new facilities also require formal inspections, and, if these facilities are overseas, there are additional steps in the assessment process.

³⁶Evaluating the effect of GDUFA user fee authority on the generic drug approval process was out of the scope of this review.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the appropriate congressional committees and the Secretary of Health and Human Services. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-7114 or dickenj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in app. IV.

A handwritten signature in black ink that reads "John E. Dicken". The signature is written in a cursive style with a large, stylized "J" and "D".

John E. Dicken
Director, Health Care

List of Requesters

The Honorable Susan Collins
Chairman
The Honorable Claire McCaskill
Ranking Member
Special Committee on Aging
United States Senate

The Honorable Bill Nelson
Ranking Member
Committee on Commerce, Science and Transportation
United States Senate

The Honorable Mark Warner
United States Senate

Appendix I: Scope and Methodology for Price Index

To examine how generic drug prices have changed over time under Medicare Part D, we tracked generic drug prices using prescription drug event (PDE) data from the Centers for Medicare & Medicaid Services that contain pharmacy claims for all prescription drugs dispensed under Medicare Part D. Specifically, we analyzed PDE data from the first quarter of 2010 through the second quarter of 2015, which was the most recent data available at the time we conducted our analysis.¹ To identify claims associated with generic drugs, we merged national drug codes (NDC) billed in the PDE data with Red Book data, which contain drug characteristics such as whether a drug is a generic or brand drug.² After limiting our analysis to only generic drugs, we grouped claims with the same active ingredient, strength, dosage form, and route of administration to represent a generic drug. We excluded the following data from our analysis: all claims associated with over-the-counter drugs; claims with no active ingredient; certain types of claims, such as those associated with compounded drugs; and other claims for data reliability purposes, such as those with an ingredient cost of less than or equal to zero.³ These exclusions resulted in a small percentage of generic drug claims being dropped in any given quarter, ranging from 1.2 percent to 4.4 percent over the course of our study.

To calculate the price for each generic drug, we determined the claims-weighted median per-unit ingredient cost among all claims for that drug in each quarter from the first quarter of 2010 through the second quarter of 2015. To do so, we first calculated the per-unit cost for each claim by dividing the ingredient cost reported on the claim by the quantity

¹Due to data availability at the time we conducted our study, the second quarter of our 2015 Medicare Part D claims data is limited to data from April and May.

²NDCs are the universal product identifiers for drugs for human use. The Food and Drug Administration (FDA) assigns the first segment of the NDC, which identifies the firm that manufactures, repackages, or distributes a drug; the second segment identifies a specific strength, dosage form, and formulation for a particular drug; and the third segment identifies package size. Three-segment NDCs are denoted by 11 digits while two-segment NDCs are denoted by 9 digits, and do not account for package size. We used data as of June 2015 from Red Book, which is a compendium published by Truven Health Analytics.

³Some PDE claims contain only supplies, such as needles, and therefore contain no active ingredient. A drug is compounded through the process of mixing, combining, or altering ingredients, to create a customized drug tailored to the medical needs of an individual patient upon receipt of a prescription.

dispensed to the beneficiary.⁴ The ingredient cost is the negotiated amount plan sponsors pay to pharmacies for the drug itself.⁵ The quantity dispensed is the number of units, such as capsules or tablets, dispensed to the beneficiary. For example, a claim with 100 tablets and an ingredient cost of \$50 would have a per-unit cost of \$0.50.⁶ Once we determined the per-unit cost for all claims, we ranked the claims by their per-unit cost and took the per-unit cost from the median claim.⁷

To track the change in prices over time, we created chained Fisher price indexes using the claims-weighted median per-unit ingredient cost as our measure of price and the total quantity dispensed in each quarter as our measure of volume. A Fisher price index minimizes the problem of understating or overstating price changes by using the utilization from the first and last period of our analysis as weights. A chained index also allows for new products to be incorporated and allows for substitution between drugs over time. The first chained Fisher price index we created tracks the prices of a changing basket of drugs, which includes established drugs—that is, drugs that were billed under Medicare Part D for each quarter of our study—and drugs that were only billed for part of our time period but not others, such as new generic drugs that became available or drugs that exited the market in the middle of our study period.

⁴We did not adjust the per-unit cost for inflation during our study period. General inflation, as measured by the chained Consumer Price Index for All Urban Consumers (C-CPI-U), was very low over the course of our study and would not significantly affect our results. Specifically, the C-CPI-U increased by a total of approximately 9 percent over the course of our study.

⁵The ingredient cost does not include other costs often associated with purchasing a drug, such as sales tax and a dispensing fee. Also, the ingredient cost does not reflect rebates that may occur outside the point of sale.

⁶We also implemented edits to identify and fix potential errors in the quantity dispensed field. For example, for claims with per-unit costs that deviated substantially from the median per-unit cost for that drug, we examined and corrected the quantity dispensed field when obvious errors were present, such as implausibly high or low values.

⁷Alternatives to a claims-weighted median price include a unit-weighted median or a mean price that is weighted by claims or units. A unit-weighted measure assigns a greater weight to claims with a large number of units. For example, under a unit-weighted median, a claim with 100 units would receive more weight than a claim with 30 units; those two claims receive equal weight under a claims-weighted median price. We chose a claims-weighted median as our primary measure of price, for both our price index analyses and our analyses of individual drugs that experienced extraordinary price increases, because such a measure is less sensitive to extreme outliers.

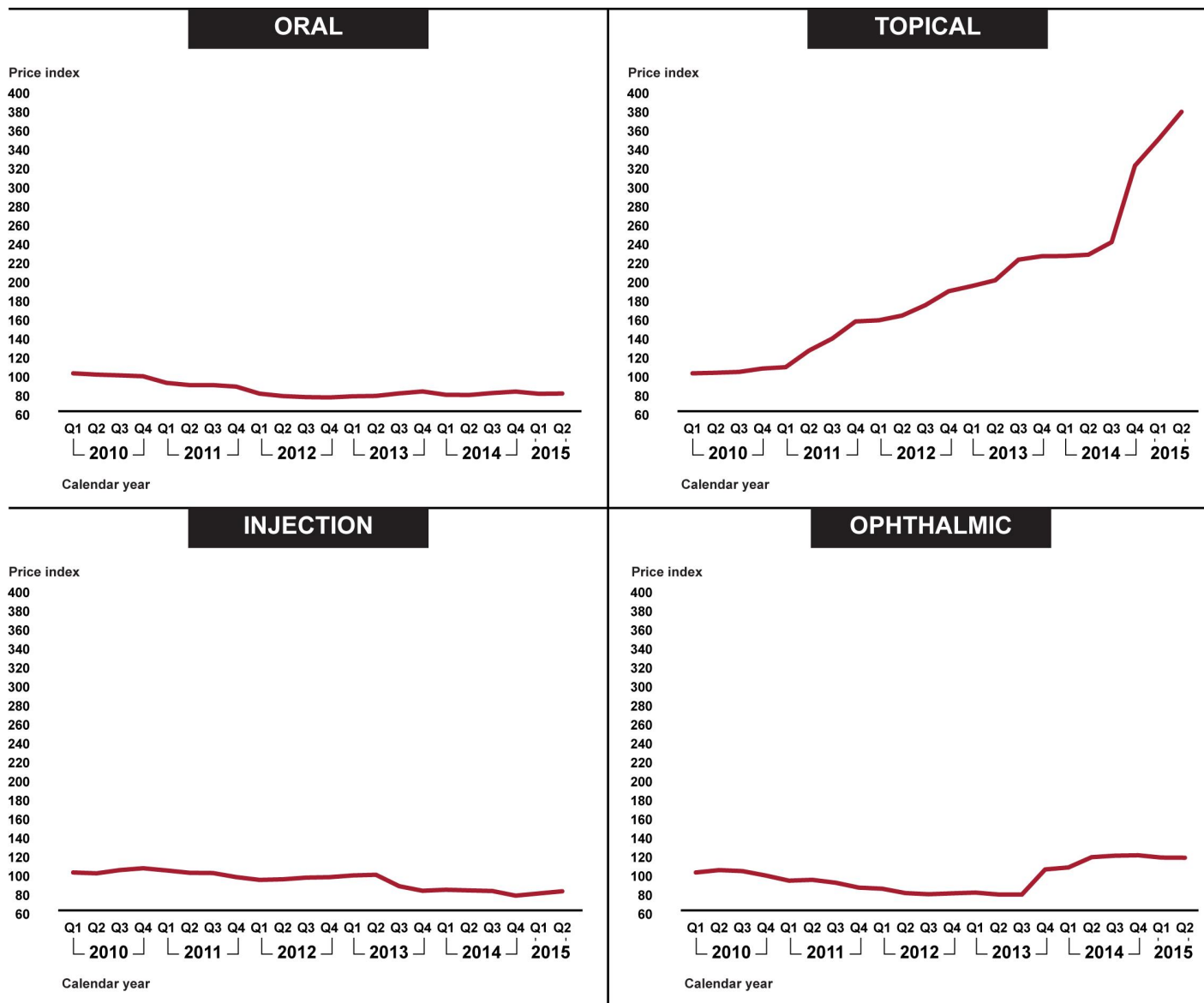
To be included in our indexes, drugs had to meet certain volume and data quality standards—for example, we required a drug to have at least 100 claims in each quarter.⁸ To calculate the chained Fisher price index, we 1) created a Laspeyres index, which calculates weights using the base period utilization, for each of our 21 time periods (for example, the first quarter of 2010 to the second quarter is one time period); 2) created a Paasche index, which calculates weights using last period utilization, for each of our 21 time periods; 3) took the geometric mean of the Laspeyres and Paasche indexes for each time period to create values for a Fisher price index; and 4) multiplied these values together for each of the 21 time periods to create a chained Fisher price index. To create our index of established drugs, we limited the population of drugs to only established drugs and then implemented the same steps as we did for our changing basket of drugs. We also created separate chained Fisher price indexes limited to other subgroups of drugs—new drugs, drugs with certain routes of administration, and established drugs that did not experience an extraordinary price increase of 100 percent or more from the first quarter of a year to the first quarter of the next.

⁸To ensure drugs were not newly introduced immediately prior to when we begin tracking prices—in the first quarter of 2010, we required a drug to be billed in all four quarters of 2009 to be included in our basket of established drugs. A total of 1,441 drugs met these criteria. Creating a volume threshold ensures we had sufficient data to determine the price of a drug and reduces the volatility of prices from quarter to quarter.

Appendix II: Price Trends by Route of Administration

The price trend for our basket of 1,441 established generic drugs is driven by oral medications, such as capsules and tablets, as they represent approximately three quarters of the established drugs in our analysis. The price for oral drugs in our established basket declined by 21 percent from 2010 through second quarter of 2015. However, other routes of administration for established drugs, all of which account for a relatively small number of drugs, experienced different patterns. For example, among the 117 topical generic drugs—drugs such as creams and ointments—in our established basket, the average price was 276 percent higher in the second quarter of 2015 compared to the first quarter of 2010 (see fig. 7).

Figure 7: Price Trends for Established Generic Drugs under Medicare Part D by Route of Administration, First Quarter 2010 through the Second Quarter of 2015



Source: GAO analysis of Medicare Part D prescription drug event data. | GAO-16-706

Note: To be considered an established drug, a drug had to be in the Medicare Part D claims data for each quarter from the first quarter of 2009 through the second quarter of 2015 and meet certain other data reliability standards. The oral, topical, injection, and ophthalmic drug indexes contain 1,127; 117; 51; and 45 drugs, respectively. Routes of administration with less than 30 drugs are not pictured. Due to data availability at the time we conducted our study, the second quarter of our 2015 Medicare Part D claims data is limited to data from April and May.

Appendix III: Established Generic Drugs under Medicare Part D That Experienced Extraordinary Price Increases and Years of Increase

Table 2: Established Generic Drugs under Medicare Part D That Experienced Extraordinary Price Increases and Years of Increase

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Acetaminophen Butalbital Caffeine	325mg-50mg-40mg	Tablet	Oral	No	No	No	No	Yes
Acetaminophen Butalbital Caffeine Codeine Phosphate	325mg-50mg-40mg-30mg	Capsule	Oral	No	No	No	No	Yes
Acetazolamide	125mg	Tablet	Oral	No	No	No	No	Yes
Acetazolamide	250mg	Tablet	Oral	No	No	No	No	Yes
Acyclovir	200mg/5ml	Suspension	Oral	No	No	No	No	Yes
Albuterol Sulfate	2mg	Tablet	Oral	No	No	No	Yes	No
Albuterol Sulfate	4mg	Tablet	Oral	No	No	No	Yes	No
Alclometasone Dipropionate	0.05%	Cream	Topical application	No	No	No	Yes	No
Allopurinol	300mg	Tablet	Oral	No	No	No	No	Yes
Amantadine Hydrochloride	100mg	Capsule	Oral	No	No	Yes	No	No
Amantadine Hydrochloride	100mg	Capsule, liquid filled	Oral	No	No	Yes	No	No
Amcinonide	0.1%	Cream	Topical application	No	No	Yes	No	No
Amiloride Hydrochloride Hydrochlorothiazide	5mg-50mg	Tablet	Oral	No	Yes	No	No	No
Aminocaproic Acid	500mg	Tablet	Oral	No	No	No	Yes	No
Amitriptyline Hydrochloride	100mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride	10mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride	150mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride	25mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride	50mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride	75mg	Tablet	Oral	No	No	No	No	Yes
Amitriptyline Hydrochloride Perphenazine	25mg-2mg	Tablet	Oral	No	Yes	No	No	No
Amphetamine Salt Combination	1.25mg-1.25mg-1.25mg-1.25mg	Tablet	Oral	No	Yes	No	No	No
Amphetamine Salt Combination	12.5mg	Tablet	Oral	No	Yes	No	No	No
Amphetamine Salt Combination	2.5mg-2.5mg-2.5mg-2.5mg	Tablet	Oral	No	Yes	No	No	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Amphetamine Salt Combination	5mg-5mg-5mg-5mg	Tablet	Oral	No	Yes	No	No	No
Amphetamine Salt Combination	7.5mg-7.5mg-7.5mg-7.5mg	Tablet	Oral	No	Yes	No	No	No
Anagrelide Hydrochloride	1mg	Capsule	Oral	No	No	No	No	Yes
Atenolol Chlorthalidone	100mg-25mg	Tablet	Oral	No	No	No	No	Yes
Atenolol Chlorthalidone	50mg-25mg	Tablet	Oral	No	No	No	No	Yes
Atropine Sulfate	1%	Solution	Ophthalmic	Yes	No	No	No	No
Atropine Sulfate Diphenoxylate Hydrochloride	0.025mg-2.5mg	Tablet	Oral	No	No	No	No	Yes
Baclofen	10mg	Tablet	Oral	No	No	No	No	Yes
Baclofen	20mg	Tablet	Oral	No	No	No	No	Yes
Benazepril Hydrochloride Hydrochlorothiazide	10mg-12.5mg	Tablet	Oral	No	No	No	Yes	No
Benazepril Hydrochloride Hydrochlorothiazide	20mg-12.5mg	Tablet	Oral	No	No	No	Yes	No
Benazepril Hydrochloride Hydrochlorothiazide	20mg-25mg	Tablet	Oral	No	No	No	Yes	No
Benazepril Hydrochloride Hydrochlorothiazide	5mg-6.25mg	Tablet	Oral	No	No	No	Yes	No
Benzonatate	100mg	Capsule, liquid filled	Oral	No	No	No	No	Yes
Betamethasone Dipropionate	0.05%	Cream	Topical application	No	Yes	No	No	No
Betamethasone Dipropionate	0.05%	Lotion	Topical application	No	Yes	No	No	No
Betamethasone Dipropionate	0.05%	Ointment	Topical application	Yes	Yes	No	No	No
Betamethasone Dipropionate Augmented	0.05%	Ointment	Topical application	Yes	No	No	No	No
Betamethasone Dipropionate Clotrimazole	1%-0.05%	Cream	Topical application	No	Yes	No	No	No
Betamethasone Dipropionate Clotrimazole	1%-0.5%	Lotion	Topical application	No	Yes	No	No	No
Betamethasone Valerate	0.1%	Cream	Topical application	No	Yes	No	No	No
Betamethasone Valerate	0.1%	Lotion	Topical application	No	Yes	Yes	No	No
Betamethasone Valerate	0.1%	Ointment	Topical application	No	Yes	No	No	No
Bumetanide	0.5mg	Tablet	Oral	No	No	No	No	Yes

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Bumetanide	1mg	Tablet	Oral	No	No	No	No	Yes
Bumetanide	2mg	Tablet	Oral	No	No	No	No	Yes
Butorphanol Tartrate	10mg/1ml	Spray	Nasal	No	No	No	No	Yes
Cal Chl KCl Na Chl Na Lactate	20mg/100ml-30mg/100ml-600mg/100ml-310mg/100ml	Solution	Intravenous	Yes	No	No	No	No
Captopril	100mg	Tablet	Oral	No	No	No	Yes	No
Captopril	12.5mg	Tablet	Oral	No	No	No	Yes	Yes
Captopril	25mg	Tablet	Oral	No	No	No	Yes	No
Captopril	50mg	Tablet	Oral	No	No	No	Yes	No
Captopril Hydrochlorothiazide	25mg-15mg	Tablet	Oral	No	No	No	No	Yes
Captopril Hydrochlorothiazide	25mg-25mg	Tablet	Oral	No	No	No	No	Yes
Captopril Hydrochlorothiazide	50mg-15mg	Tablet	Oral	No	No	No	No	Yes
Captopril Hydrochlorothiazide	50mg-25mg	Tablet	Oral	No	No	No	No	Yes
Carbamazepine	100mg	Tablet, chewable	Oral	No	No	No	No	Yes
Carbamazepine	200mg	Tablet	Oral	No	No	No	No	Yes
Carisoprodol	350mg	Tablet	Oral	No	No	No	Yes	No
Ceftazidime	6gm	Powder for solution	Intravenous	No	No	No	Yes	No
Cefuroxime Axetil	250mg	Tablet	Oral	No	No	No	No	Yes
Cefuroxime Axetil	500mg	Tablet	Oral	No	No	No	No	Yes
Cephalexin	125mg/5ml	Powder for suspension	Oral	No	No	No	No	Yes
Cephalexin	250mg/5ml	Powder for suspension	Oral	No	No	No	No	Yes
Chlorothiazide	250mg	Tablet	Oral	No	No	No	No	Yes
Chlorothiazide	500mg	Tablet	Oral	No	No	No	No	Yes
Chlorpromazine Hydrochloride	100mg	Tablet	Oral	No	Yes	No	No	Yes
Chlorpromazine Hydrochloride	10mg	Tablet	Oral	No	Yes	No	No	No
Chlorpromazine Hydrochloride	200mg	Tablet	Oral	No	Yes	No	No	Yes

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Chlorpromazine Hydrochloride	25mg	Tablet	Oral	No	Yes	No	No	No
Chlorpromazine Hydrochloride	25mg/1ml	Solution	Injection	No	No	Yes	No	No
Chlorpromazine Hydrochloride	50mg	Tablet	Oral	No	Yes	No	No	No
Chlorzoxazone	500mg	Tablet	Oral	No	No	No	Yes	No
Ciclopirox	8%	Solution	Topical application	No	No	No	Yes	No
Cimetidine	400mg	Tablet	Oral	No	No	No	Yes	No
Ciprofloxacin Hydrochloride	100mg	Tablet	Oral	No	No	No	No	Yes
Clarithromycin	250mg	Tablet	Oral	No	Yes	No	No	No
Clarithromycin	500mg	Tablet	Oral	No	Yes	No	No	No
Clindamycin Phosphate	1%	Gel/jelly	Topical application	No	No	Yes	No	No
Clindamycin Phosphate	1%	Lotion	Topical application	No	No	No	Yes	No
Clindamycin Phosphate	1%	Solution	Topical application	No	No	Yes	No	No
Clobetasol Propionate	0.05%	Cream	Topical application	No	No	No	No	Yes
Clobetasol Propionate	0.05%	Emollient cream	Topical application	No	No	No	No	Yes
Clobetasol Propionate	0.05%	Gel/jelly	Topical application	No	No	No	No	Yes
Clobetasol Propionate	0.05%	Ointment	Topical application	No	No	No	No	Yes
Clobetasol Propionate	0.05%	Solution	Topical application	No	No	No	No	Yes
Clomipramine Hydrochloride	25mg	Capsule	Oral	No	No	No	Yes	No
Clomipramine Hydrochloride	50mg	Capsule	Oral	No	No	No	Yes	No
Clomipramine Hydrochloride	75mg	Capsule	Oral	No	No	No	Yes	No
Clotrimazole	1%	Solution	Topical application	No	No	No	No	Yes
Cortisone Acetate	25mg	Tablet	Oral	No	No	Yes	No	Yes
Cyclopentolate Hydrochloride	1%	Solution	Ophthalmic	No	Yes	No	No	No
Cyclophosphamide	500mg	Powder for solution	Intravenous	Yes	No	No	No	No
Desonide	0.05%	Cream	Topical application	No	Yes	No	Yes	No
Desonide	0.05%	Lotion	Topical application	No	Yes	No	No	No
Desonide	0.05%	Ointment	Topical application	No	Yes	No	Yes	No
Dexamethasone Neomycin Sulfate Polymyxin B Sulfate	1mg-3.5mg-10000units/Gm	Ointment	Ophthalmic	Yes	No	No	No	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Dexamethasone Neomycin Sulfate Polymyxin B Sulfate	1mg/1ml-3.5mg/1ml-10000units/1ml	Suspension	Ophthalmic	Yes	No	No	No	No
Dextroamphetamine Sulfate	10mg	Tablet	Oral	No	No	Yes	No	No
Dextroamphetamine Sulfate	5mg	Tablet	Oral	No	No	Yes	No	No
Dicyclomine Hydrochloride	10mg/5ml	Syrup	Oral	No	No	No	Yes	No
Diflorasone Diacetate	0.05%	Cream	Topical application	No	Yes	No	No	No
Diflorasone Diacetate	0.05%	Ointment	Topical application	No	Yes	No	No	No
Digoxin	0.125mg	Tablet	Oral	No	No	No	Yes	No
Digoxin	0.25mg	Tablet	Oral	No	No	No	Yes	No
Diltiazem Hydrochloride	360mg	Capsule, extended release, 24 hr	Oral	No	No	No	No	Yes
Divalproex Sodium	250mg	Tablet, extended release	Oral	No	No	No	Yes	No
Divalproex Sodium	500mg	Tablet, extended release	Oral	No	No	No	Yes	No
Doxazosin Mesylate	1mg	Tablet	Oral	No	No	No	Yes	No
Doxazosin Mesylate	2mg	Tablet	Oral	No	No	No	Yes	No
Doxazosin Mesylate	4mg	Tablet	Oral	No	No	No	Yes	No
Doxazosin Mesylate	8mg	Tablet	Oral	No	No	No	Yes	No
Doxepin Hydrochloride	100mg	Capsule	Oral	No	Yes	No	No	No
Doxepin Hydrochloride	75mg	Capsule	Oral	No	Yes	No	No	Yes
Doxycycline Hyclate	100mg	Capsule	Oral	No	No	Yes	Yes	No
Doxycycline Hyclate	100mg	Tablet	Oral	No	No	No	Yes	No
Doxycycline Hyclate	50mg	Capsule	Oral	No	No	Yes	Yes	No
Econazole Nitrate	1%	Cream	Topical application	No	No	No	No	Yes
Enalapril Maleate	10mg	Tablet	Oral	No	No	No	No	Yes
Enalapril Maleate	2.5mg	Tablet	Oral	No	No	No	No	Yes
Enalapril Maleate	20mg	Tablet	Oral	No	No	No	No	Yes
Enalapril Maleate	5mg	Tablet	Oral	No	No	No	No	Yes
Erythromycin	2%	Solution	Topical application	No	No	Yes	No	No
Erythromycin	250mg	Capsule, delayed release	Oral	Yes	Yes	No	No	No
Erythromycin	250mg	Tablet	Oral	Yes	No	Yes	No	No
Erythromycin	500mg	Tablet	Oral	Yes	No	Yes	No	Yes

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Erythromycin Ethylsuccinate	400mg	Tablet	Oral	Yes	No	Yes	No	No
Estropipate	3mg	Tablet	Oral	No	No	No	No	Yes
Ethosuximide	250mg/5ml	Syrup	Oral	No	No	Yes	No	No
Etodolac	200mg	Capsule	Oral	No	Yes	No	No	No
Etodolac	300mg	Capsule	Oral	No	No	Yes	No	No
Etodolac	400mg	Tablet	Oral	No	No	No	Yes	No
Etodolac	400mg	Tablet, extended release	Oral	No	No	No	Yes	No
Etodolac	500mg	Tablet	Oral	No	No	No	Yes	No
Etodolac	500mg	Tablet, extended release	Oral	No	No	No	Yes	No
Fenoprofen Calcium	600mg	Tablet	Oral	No	Yes	No	No	No
Fentanyl Citrate	0.05mg/1ml	Solution	Injection	No	No	Yes	No	No
Fluconazole	100mg	Tablet	Oral	No	No	No	Yes	No
Fluconazole	150mg	Tablet	Oral	No	No	No	Yes	No
Fluconazole	200mg	Tablet	Oral	No	No	No	Yes	No
Fluconazole	50mg	Tablet	Oral	No	No	No	Yes	No
Fluocinolone Acetonide	0.01%	Solution	Topical application	No	Yes	Yes	No	No
Fluocinolone Acetonide	0.025%	Cream	Topical application	No	No	Yes	No	No
Fluocinolone Acetonide	0.025%	Ointment	Topical application	No	No	Yes	No	No
Fluocinonide	0.05%	Cream	Topical application	No	Yes	No	No	Yes
Fluocinonide	0.05%	Emollient cream	Topical application	No	No	No	No	Yes
Fluocinonide	0.05%	Gel/jelly	Topical application	No	No	No	No	Yes
Fluocinonide	0.05%	Ointment	Topical application	No	Yes	No	No	Yes
Fluocinonide	0.05%	Solution	Topical application	No	Yes	Yes	No	No
Fluorometholone	0.1%	Suspension	Ophthalmic	No	No	No	No	Yes
Fluoxetine Hydrochloride	20mg	Tablet	Oral	No	No	No	No	Yes
Furosemide	10mg/1ml	Solution	Injection	No	No	Yes	No	No
Gentamicin Sulfate	0.1%	Cream	Topical application	No	No	Yes	No	No
Gentamicin Sulfate	0.1%	Ointment	Topical application	No	No	Yes	No	No
Gentamicin Sulfate	3mg/1ml	Solution	Ophthalmic	Yes	No	No	No	No
Glycopyrrolate	0.2mg/1ml	Solution	Injection	No	No	No	Yes	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Gramicidin Neomycin Sulfate Polymyxin B Sulfate	0.025mg-1.75mg-10000units/MI	Solution	Ophthalmic	No	No	No	Yes	No
Halobetasol Propionate	0.05%	Cream	Topical application	No	No	No	Yes	No
Halobetasol Propionate	0.05%	Ointment	Topical application	No	No	No	Yes	No
Haloperidol	0.5mg	Tablet	Oral	No	No	No	Yes	No
Haloperidol	1mg	Tablet	Oral	No	No	No	Yes	No
Haloperidol	2mg	Tablet	Oral	No	No	No	Yes	No
Haloperidol	5mg	Tablet	Oral	No	No	No	Yes	No
Haloperidol Decanoate	100mg/1ml	Suspension	Intramuscular	Yes	No	No	No	No
Haloperidol Decanoate	50mg/1ml	Suspension	Intramuscular	Yes	No	No	No	No
Hydrochlorothiazide Propranolol Hydrochloride	25mg-40mg	Tablet	Oral	Yes	No	No	No	No
Hydrochlorothiazide Propranolol Hydrochloride	25mg-80mg	Tablet	Oral	Yes	No	No	No	No
Hydrochlorothiazide Spironolactone	25mg-25mg	Tablet	Oral	No	No	No	Yes	No
Hydrochlorothiazide Triamterene	50mg-75mg	Tablet	Oral	No	No	Yes	No	No
Heparin Sodium	1000units/1ml	Solution	Injection	Yes	No	No	No	No
Hydrocortisone	1%	Ointment	Topical application	No	Yes	No	No	No
Hydrocortisone	20mg	Tablet	Oral	No	No	Yes	No	No
Hydrocortisone Butyrate	0.1%	Solution	Topical application	No	No	No	No	Yes
Hydrocortisone Valerate	0.2%	Cream	Topical application	No	No	No	Yes	No
Hydrocortisone Valerate	0.2%	Ointment	Topical application	No	Yes	No	No	No
Hydromorphone Hydrochloride	2mg/1ml	Solution	Injection	Yes	No	No	No	No
Hydroxychloroquine Sulfate	200mg	Tablet	Oral	No	No	No	No	Yes
Hyoscyamine Sulfate	0.125mg/5ml	Elixir	Oral	No	No	Yes	No	Yes
Indapamide	1.25mg	Tablet	Oral	No	No	No	No	Yes
Indapamide	2.5mg	Tablet	Oral	No	No	No	No	Yes
Isosorbide Dinitrate	10mg	Tablet	Oral	No	No	Yes	No	No
Isosorbide Dinitrate	20mg	Tablet	Oral	No	No	Yes	No	No
Isosorbide Dinitrate	30mg	Tablet	Oral	No	No	No	Yes	No
Isosorbide Dinitrate	5mg	Tablet	Oral	No	No	Yes	No	No
Ketoconazole	2%	Cream	Topical application	No	No	No	No	Yes
Ketoconazole	200mg	Tablet	Oral	No	No	No	No	Yes
Labetalol Hydrochloride	100mg	Tablet	Oral	No	No	Yes	No	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Labetalol Hydrochloride	300mg	Tablet	Oral	No	No	Yes	No	No
Levobunolol Hydrochloride	0.5%	Solution	Ophthalmic	No	Yes	No	No	No
Lidocaine	5%	Ointment	Topical application	No	No	Yes	No	No
Lidocaine Hydrochloride	3%	Cream	Topical application	No	Yes	No	No	No
Meclofenamate Sodium	100mg	Capsule	Oral	No	Yes	No	No	No
Mercaptopurine	50mg	Tablet	Oral	No	No	No	No	Yes
Methadone Hydrochloride	5mg	Tablet	Oral	No	No	No	No	Yes
Methazolamide	25mg	Tablet	Oral	Yes	No	No	No	Yes
Methazolamide	50mg	Tablet	Oral	Yes	No	No	No	Yes
Methotrexate Sodium	2.5mg	Tablet	Oral	No	No	No	Yes	No
Methylphenidate Hydrochloride	10mg	Tablet	Oral	No	No	No	Yes	No
Methylphenidate Hydrochloride	10mg	Tablet, extended release	Oral	No	No	No	Yes	No
Methylphenidate Hydrochloride	20mg	Tablet	Oral	No	No	No	Yes	No
Methylphenidate Hydrochloride	5mg	Tablet	Oral	No	No	No	Yes	No
Methylprednisolone	4mg	Tablet	Oral	No	Yes	No	No	No
Metronidazole	0.75%	Cream	Topical application	No	Yes	No	No	No
Metronidazole	0.75%	Gel/jelly	Topical application	No	No	Yes	No	No
Metronidazole	0.75%	Lotion	Topical application	No	Yes	No	No	No
Metronidazole	250mg	Tablet	Oral	No	Yes	No	No	No
Metronidazole	500mg	Tablet	Oral	No	Yes	No	No	No
Mexiletine Hydrochloride	250mg	Capsule	Oral	No	No	No	No	Yes
Morphine Sulfate	100mg	Tablet, extended release	Oral	No	No	No	Yes	No
Morphine Sulfate	200mg	Tablet, extended release	Oral	No	No	No	Yes	No
Morphine Sulfate	30mg	Tablet, extended release	Oral	No	No	No	Yes	No
Morphine Sulfate	60mg	Tablet, extended release	Oral	No	No	No	Yes	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Multivitamin	100mg-0.15mg-5mg-0.006mg-1mg-20mg-10mg-1.7mg-1.5mg	Capsule, liquid filled	Oral	No	No	No	No	Yes
Nadolol	20mg	Tablet	Oral	No	No	Yes	Yes	No
Nadolol	40mg	Tablet	Oral	No	No	No	Yes	No
Nadolol	80mg	Tablet	Oral	No	No	No	Yes	No
Nefazodone Hydrochloride	250mg	Tablet	Oral	No	No	No	No	Yes
Nefazodone Hydrochloride	50mg	Tablet	Oral	No	No	No	No	Yes
Nicardipine Hydrochloride	20mg	Capsule	Oral	No	No	No	No	Yes
Nicardipine Hydrochloride	30mg	Capsule	Oral	No	No	No	No	Yes
Nitrofurantoin	100mg	Capsule	Oral	Yes	No	No	No	No
Nitrofurantoin Macrocrystals Nitrofurantoin Monohydrate	100mg	Capsule	Oral	Yes	No	No	No	No
Nystatin	100000units/1gm	Cream	Topical application	No	Yes	No	No	No
Nystatin	100000units/1gm	Ointment	Topical application	No	Yes	No	No	No
Nystatin	100000units/1gm	Powder	Topical application	No	No	Yes	No	No
Nystatin Triamcinolone Acetonide	100000units/1gm-0.1%	Cream	Topical application	No	Yes	Yes	No	No
Nystatin Triamcinolone Acetonide	100000units/1gm-0.1%	Ointment	Topical application	No	Yes	Yes	No	No
Ofloxacin	0.3%	Solution	Ophthalmic	No	No	No	No	Yes
Oxaprozin	600mg	Tablet	Oral	No	No	Yes	No	No
Oxybutynin Chloride	5mg	Tablet	Oral	No	No	No	Yes	No
Oxycodone Hydrochloride	20mg/1ml	Solution	Oral	Yes	No	Yes	No	No
Oxycodone Hydrochloride	5mg	Capsule	Oral	No	No	No	Yes	No
Oxycodone Hydrochloride	5mg/5ml	Solution	Oral	No	No	Yes	No	No
Permethrin	5%	Cream	Topical application	No	Yes	No	No	No
Phenazopyridine Hydrochloride	100mg	Tablet	Oral	No	No	No	No	Yes
Phenazopyridine Hydrochloride	200mg	Tablet	Oral	Yes	No	No	No	Yes
Phenobarbital	100mg	Tablet	Oral	No	No	Yes	No	No
Phenobarbital	15mg	Tablet	Oral	No	Yes	No	Yes	No
Phenobarbital	16.2mg	Tablet	Oral	No	No	Yes	No	No
Phenobarbital	30mg	Tablet	Oral	No	Yes	No	No	No
Phenobarbital	32.4mg	Tablet	Oral	No	Yes	Yes	No	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Phenobarbital	60mg	Tablet	Oral	No	Yes	No	No	No
Phenobarbital	64.8mg	Tablet	Oral	No	No	Yes	No	No
Phenobarbital	97.2mg	Tablet	Oral	No	No	Yes	No	No
Phenytoin Sodium Extended	100mg	Capsule, extended release	Oral	No	No	No	No	Yes
Pilocarpine Hydrochloride	1%	Solution	Ophthalmic	Yes	No	No	No	No
Pilocarpine Hydrochloride	2%	Solution	Ophthalmic	Yes	No	No	No	No
Pilocarpine Hydrochloride	4%	Solution	Ophthalmic	Yes	No	No	No	No
Pilocarpine Hydrochloride	5mg	Tablet	Oral		No	No	No	Yes
Pindolol	10mg	Tablet	Oral	Yes	No	No	No	No
Pindolol	5mg	Tablet	Oral	Yes	No	No	No	No
Piroxicam	10mg	Capsule	Oral	Yes	No	No	No	No
Piroxicam	20mg	Capsule	Oral	Yes	No	No	No	No
Potassium Chloride	10meq	Tablet, extended release	Oral	Yes	No	No	No	No
Potassium Chloride	20meq/15ml	Solution	Oral	No	No	No	Yes	Yes
Potassium Chloride	40meq/15ml	Solution	Oral	No	No	Yes	No	Yes
Potassium Chloride	8meq	Tablet, extended release	Oral	Yes	No	No	No	No
Potassium Citrate	10meq	Tablet, extended release	Oral	Yes	No	No	No	No
Potassium Citrate	5meq	Tablet, extended release	Oral	Yes	No	No	No	No
Pravastatin Sodium	10mg	Tablet	Oral	No	No	No	Yes	No
Pravastatin Sodium	40mg	Tablet	Oral	No	No	No	Yes	No
Prazosin Hydrochloride	1mg	Capsule	Oral	No	No	No	No	Yes
Prednisolone Acetate	1%	Suspension	Ophthalmic	No	No	No	Yes	No
Prednisolone Sodium Phosphate	5mg/5ml	Solution	Oral	No	No	No	Yes	No
Prednisone	10mg	Tablet	Oral	No	No	No	Yes	No
Prednisone	2.5mg	Tablet	Oral	No	No	No	Yes	No
Prednisone	20mg	Tablet	Oral	No	No	No	Yes	No
Prednisone	5mg	Tablet	Oral	No	No	No	Yes	No

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Prochlorperazine	25mg	Suppository	Rectal	No	No	No	Yes	No
Promethazine Hydrochloride	12.5mg	Suppository	Rectal	No	No	Yes	Yes	No
Promethazine Hydrochloride	25mg	Suppository	Rectal	No	No	No	Yes	No
Propylthiouracil	50mg	Tablet	Oral	No	No	Yes	No	No
Pyrazinamide	500mg	Tablet	Oral	No	No	No	Yes	No
Quinidine Gluconate	324mg	Tablet, extended release	Oral	No	No	No	Yes	No
Ranitidine Hydrochloride	300mg	Capsule	Oral	No	No	Yes	No	No
Ranitidine Hydrochloride	300mg	Capsule, liquid filled	Oral	No	No	Yes	No	No
Salsalate	500mg	Tablet	Oral	Yes	No	No	No	Yes
Salsalate	750mg	Tablet	Oral	Yes	No	No	No	Yes
Selegiline Hydrochloride	5mg	Tablet	Oral	Yes	No	No	No	No
Sodium Chloride	0.9%	Solution	Inhalation	No	Yes	No	No	No
Sulfacetamide Sodium	10%	Solution	Ophthalmic	Yes	No	No	Yes	No
Sulfamethoxazole Trimethoprim	200mg/5ml-40mg/5ml	Suspension	Oral	No	No	No	No	Yes
Terbutaline Sulfate	2.5mg	Tablet	Oral	No	No	No	No	Yes
Tetracycline Hydrochloride	250mg	Capsule	Oral	No	No	No	Yes	No
Tetracycline Hydrochloride	500mg	Capsule	Oral	No	No	No	Yes	No
Theophylline	100mg	Tablet, extended release, 12 hr	Oral	No	No	No	No	Yes
Thiothixene	10mg	Capsule	Oral	No	No	No	No	Yes
Thiothixene	1mg	Capsule	Oral	No	No	No	No	Yes
Thiothixene	2mg	Capsule	Oral	No	No	No	No	Yes
Thiothixene	5mg	Capsule	Oral	No	No	No	No	Yes
Timolol Maleate	0.25%	Gel-forming solution	Ophthalmic	No	No	No	No	Yes
Timolol Maleate	0.5%	Gel-forming solution	Ophthalmic	No	No	No	No	Yes
Tobramycin	0.3%	Solution	Ophthalmic	No	Yes	No	No	No
Tretinoin	0.01%	Gel/jelly	Topical application	No	No	No	No	Yes
Tretinoin	0.025%	Cream	Topical application	No	No	No	No	Yes
Tretinoin	0.025%	Gel/jelly	Topical application	No	No	No	No	Yes

Active ingredient	Strength	Dosage form	Route of administration	Experienced an extraordinary price increase				
				2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Tretinoin	0.05%	Cream	Topical application	No	No	No	No	Yes
Tretinoin	0.1%	Cream	Topical application	No	No	No	No	Yes
Triamcinolone Acetonide	0.025%	Cream	Topical application	Yes	No	No	No	No
Triamcinolone Acetonide	0.025%	Ointment	Topical application	Yes	No	No	No	No
Triamcinolone Acetonide	0.1%	Cream	Topical application	Yes	No	No	No	No
Triamcinolone Acetonide	0.1%	Ointment	Topical application	Yes	No	No	No	No
Triamcinolone Acetonide	0.5%	Cream	Topical application	Yes	No	No	No	No
Triamcinolone Acetonide	0.5%	Ointment	Topical application	Yes	No	No	No	No
Triazolam	0.125mg	Tablet	Oral	No	No	No	Yes	No
Triazolam	0.25mg	Tablet	Oral	No	No	No	Yes	No
Trifluoperazine Hydrochloride	10mg	Tablet	Oral	No	No	No	Yes	No
Trifluoperazine Hydrochloride	1mg	Tablet	Oral	No	No	No	Yes	No
Trifluoperazine Hydrochloride	5mg	Tablet	Oral	No	No	No	Yes	No
Tropicamide	1%	Solution	Ophthalmic	No	Yes	No	No	No
Ursodiol	300mg	Capsule	Oral	No	No	No	No	Yes

Legend: %=percent; mg=milligrams; ml=milliliters; meq=milliequivalents

Source: GAO analysis of Medicare Part D prescription drug event data and Red Book. | GAO-16-706

Note: A price increase of at least 100 percent from the first quarter of one year to the first quarter of the next is considered an extraordinary price increase. To be considered an established drug, a drug had to be in the Medicare Part D claims data for each quarter from the first quarter of 2009 through the second quarter of 2015 and meet certain other data reliability standards. A total of 1,441 drugs met these criteria. The information presented in this appendix was obtained from Medicare Part D prescription drug event data and Red Book. In general, we reprinted the abbreviations and acronyms as provided in the data.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Rashmi Agarwal, Assistant Director; Erin Henderson, Analyst-in-Charge; Zhi Boon; Caroline Hale; and Brian O'Donnell made key contributions to this report. Also contributing were George Bogart, Laurie Pachter, Vikki Porter, and Merrile Sing.

Appendix V: Accessible Data

Data Tables

Data Table for Highlights Figure and Figure 2: Price Trends under Medicare Part D for the Changing Basket and Established Basket of Generic Drugs, First Quarter 2010 through the Second Quarter 2015

Calendar year	Quarter	Established	Changing basket
2010	Q1	100	100
	Q2	98.82019	97.99743
	Q3	98.12013	93.41699
	Q4	97.28178	90.28761
2011	Q1	90.82593	84.17292
	Q2	88.95183	81.86641
	Q3	89.10648	75.82563
	Q4	87.99134	73.31926
2012	Q1	81.14046	67.18274
	Q2	78.78866	62.9619
	Q3	78.0028	54.04623
	Q4	77.97164	52.16049
2013	Q1	79.28337	51.38045
	Q2	79.52761	49.07505
	Q3	82.43068	49.38764
	Q4	84.77489	49.05739
2014	Q1	81.45781	45.94579
	Q2	81.24644	45.28111
	Q3	83.46347	44.58654
	Q4	86.45068	44.22034
2015	Q1	84.72309	41.26288
	Q2	85.56133	40.87342

Data Table for Figure 3: The Number of Established Drugs under Medicare Part D That Experienced an Extraordinary Price Increase, First Quarter 2010 to First Quarter 2015

Calendar year	Number of generic drugs
2010-2011	45
2011-2012	59
2012-2013	53
2013-2014	91
2014-2015	103

Data Table for Figure 4: Distribution of Extraordinary Price Increases under Medicare Part D, by Year of Increases

Change Period	% price change ≥100 and <200	% price change ≥200 and <500	% price change ≥500 and <1000	% price change ≥1000 or more
Total	183	120	33	15
2010-2011	21	21	1	2
2011-2012	32	21	6	0
2012-2013	36	10	4	3
2013-2014	36	35	11	9
2014-2015	58	33	11	1

Data Table for Figure 5: Price Trends under Medicare Part D for All Established Drugs and Established Drugs without an Extraordinary Price Increase, First Quarter 2010 through the Second Quarter 2015

Calendar year	Quarter	Established generic drugs	Established generic drugs excluding drugs with extraordinary price increases
2010	Q1	100	100
	Q2	98.820187	98.697644
	Q3	98.120126	97.850691
	Q4	97.281781	96.628338
2011	Q1	90.825928	89.026039
	Q2	88.951835	86.470381
	Q3	89.106482	86.028899
	Q4	87.991338	84.445628
2012	Q1	81.140459	77.085959
	Q2	78.788658	74.314651
	Q3	78.002799	73.024403
	Q4	77.971637	72.283034
2013	Q1	79.283369	73.139119
	Q2	79.527609	71.607055
	Q3	82.430676	70.6446
	Q4	84.774893	69.512423
2014	Q1	81.457808	65.185753
	Q2	81.246442	64.369571
	Q3	83.463475	64.872599
	Q4	86.450681	64.705894

Calendar year	Quarter	Established generic drugs	Established generic drugs excluding drugs with extraordinary price increases
2015	Q1	84.723089	61.475173
	Q2	85.561333	60.751521

Data Table for Figure 6: Percent of Established Drugs That Experienced Extraordinary Price Increases under Medicare Part D from First Quarter 2010 to First Quarter 2015, by Route of Administration

	Overall Distribution, by Route	Drugs that Experienced an Extraordinary Price Increase, by Route				
		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Oral	78%	51%	46%	62%	82%	78%
Topical	8%	18%	46%	30%	9%	17%
Ophthalmic	3%	18%	7%	0%	3%	4%
Other	11%	13%	2%	8%	5%	1%

Data Table for Figure 7: Price Trends for Established Generic Drugs under Medicare Part D by Route of Administration, First Quarter 2010 through the Second Quarter of 2015

Calendar year	Quarter	Oral	Topical	Injection	Ophthalmic
2010	Q1	100	100	100	100
	Q2	98.67817034	100.6107667	99.09223465	102.5170025
	Q3	97.85494111	101.4836276	102.5406626	101.458374
	Q4	96.90339822	105.0628942	104.4719181	96.78710881
2011	Q1	89.94694045	106.5119602	102.1699513	91.34472648
	Q2	87.53850146	124.009868	99.65856464	92.22975192
	Q3	87.56571777	136.7243252	99.39618303	89.18602061
	Q4	85.95671357	154.831232	95.12280637	84.00507294
2012	Q1	78.54745883	156.0538506	92.15825519	82.85792362
	Q2	75.94777569	161.0321034	92.78685229	78.21816383
	Q3	74.88526113	172.0432753	94.56016689	77.03691777
	Q4	74.53082657	186.7593664	95.0415459	77.94512411
2013	Q1	75.71473847	192.2530253	96.87107686	78.76004362
	Q2	76.10878142	198.3200104	97.57035968	76.72589356
	Q3	78.80567372	220.1050587	85.5039098	76.65871663

Calendar year	Quarter	Oral	Topical	Injection	Ophthalmic
2014	Q4	80.86891238	223.7760996	80.66473898	103.2139734
	Q1	77.33636695	223.9443263	81.7547818	105.3190939
	Q2	77.10119262	225.3406101	81.04592991	116.1938317
	Q3	79.19520897	238.637088	80.4395394	117.7349519
	Q4	80.7201512	319.425113	75.51161083	118.1553658
2015	Q1	78.37786569	347.0030865	77.8682708	115.7537351
	Q2	78.65517083	376.3391238	80.1356051	115.5752987

Related GAO Products

Prescription Drugs: Comparison of DOD, Medicaid, and Medicare Part D Retail Reimbursement Prices. [GAO-14-578](#). Washington: D.C: June 30, 2014.

Drug Pricing: Research on Savings from Generic Drug Use. [GAO-12-371R](#). Washington, D.C.: January 31, 2012.

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Sudden Price Spikes in Off-Patent Prescription Drugs: *The Monopoly Business Model that Harms Patients, Taxpayers, and the U.S. Health Care System*



Special Committee on Aging United States Senate

Senator Susan M. Collins (R-ME), Chairman
Senator Claire McCaskill (D-MO), Ranking Member

December 2016

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EXECUTIVE SUMMARY

In May 2015, when Isla Weston was just two months old, doctors diagnosed her with a life-threatening parasitic infection known as toxoplasmosis. Immediate treatment was needed to cure this infection; otherwise, the parasite would attack vital cells in the little girl's brain, potentially leaving her with lifelong deficits in cognition and function—or even causing her death.

Isla was prescribed Daraprim, the standard of care, which would cure the active infection in a year. To the shock and dismay of the infant's family, and other Americans who relied on this vital medicine, the price of the 63-year-old drug that this child desperately needed had just spiked from \$13.50 a tablet to \$750 a tablet, *an increase of more than 5,000 percent*, in just one day.

Testifying at a 2016 Senate Special Committee on Aging hearing, held just a few days after Isla's first birthday, her mother, Shannon Weston, described the impact of that staggering price tag: "I was hopeless and depressed at the thought of what would happen to my perfect little girl if I was not able to help her . . . I looked into any way I could think of to come up with the almost \$360,000 necessary to treat my daughter for a year with a drug that she needed, knowing that as long as she was treated before symptoms set in she would remain asymptomatic."¹

Isla's story is not unique. This family's struggle sadly represents the struggle of thousands of Americans in the face of soaring prescription drug costs. Nearly 60 percent of Americans, including roughly 90 percent of seniors, take prescription drugs to treat conditions ranging from cancer and diabetes to high blood pressure and depression. Staggering increases in the price of some prescription drugs threaten not only the economic stability of American households, but also the health of individuals who discover that drugs they need are unaffordable and difficult to access.

This year alone, Americans are expected to spend more than \$328 billion on prescription drugs. Of this amount, individuals will pay about \$50 billion out of pocket. The federal government will pick up another \$126 billion in payments through Medicare, Medicaid, the Department of Veterans Affairs, and other programs. These price increases affect all Americans, whether they take prescription drugs or not, as taxpayers shoulder a substantial portion of the cost of federal health care programs.

In November 2015, Chairman Susan Collins (R-Maine) and Ranking Member Claire McCaskill (D-Missouri) launched a bipartisan Senate Special Committee on Aging investigation of abrupt and dramatic price increases in prescription drugs whose patents had expired long ago. The Committee's investigation centered on Turing Pharmaceuticals, Retrophin, Inc., Valeant Pharmaceuticals International, Inc., and Rodelis Therapeutics—companies that acquired decades-old, off-patent affordable drugs and then raised the prices suddenly and astronomically.²

¹ *Sudden Price Spikes In Decades Old Rx Drugs: Inside the Monopoly Business Model: Hearing Before the S. Special Comm. on Aging*, 114th Cong., 2d Sess., at 2 (Mar. 17, 2016) (written testimony of Shannon Weston).

² Retrophin post-Mr. Shkreli appears to have repudiated Mr. Shkreli's business model, but has not lowered the price of Thiola.

The investigation uncovered a business model that these four companies used (with some variation) to exploit market failures at the expense of patients. The Committee held three hearings; interviewed scores of patients, doctors, hospital administrators, consumer advocates, health experts, and pharmaceutical industry executives and board members; reviewed more than one million pages of documents obtained from the four companies; and deposed or took transcribed interviews of numerous corporate witnesses.

The first hearing of the series, held on December 9, 2015, sought to identify and define the problems resulting from these price increases. The second hearing, held on March 17, 2016, at which Shannon Weston testified, took an in-depth look inside the monopoly business models of Turing and Retrophin, both formerly headed by Martin Shkreli, who was dubbed “pharma-bro” by the media. The third hearing, held on April 27, 2016, investigated Valeant’s business model, its investor relationships, and the harm caused to patients and the health care system by the enormous price increases Valeant imposed on certain drugs it acquired.

This Report closely examines the business model used by these companies; provides case studies of the four companies; explores the influence of investors; assesses the impacts of price hikes on patients, payers, providers, hospitals, and governments; and discusses potential policy responses.

The Business Model

The Committee discovered that each of the four companies followed a business model (with some variation) that enabled them to identify and acquire off-patent sole-source drugs over which they could exercise de facto monopoly pricing power, and then impose and protect astronomical price increases. The business model consists of five central elements:

Sole-Source. The company acquired a *sole-source drug*, for which there was only one manufacturer, and therefore faces no immediate competition, maintaining monopoly power over its pricing.

Gold Standard. The company ensured the drug was considered the *gold standard*—the best drug available for the condition it treats, ensuring that physicians would continue to prescribe the drug, even if the price increased.

Small Market. The company selected a drug that served a *small market*, which were not attractive to competitors and which had dependent patient populations that were too small to organize effective opposition, giving the companies more latitude on pricing.

Closed Distribution. The company controlled access to the drug through a *closed distribution system* or specialty pharmacy where a drug could not be obtained through normal channels, or the company used another means to make it difficult for competitors to enter the market.

Price Gouging. Lastly, the company engaged in *price gouging*, maximizing profits by jacking up prices as high as possible. All of the drugs investigated had been off-patent for decades, and none of the four companies had invested a penny in research and development to create or to significantly improve the drugs. Further, the Committee found that the companies faced no meaningful increases in production or distribution costs.

Case Studies of the Four Companies

Table 1 provides an overview of case studies from Turing, Retrophin, Rodelis, and Valeant. Each company selected a sole-sourced gold standard drug for which there is a small market, created a closed distribution system or other means to block competitors, and engaged in price gouging, exercising elements of the business model to make massive profits from decades-old life-saving therapies.

Turing raised the price of Daraprim, the gold standard for toxoplasmosis, from \$13.50 a pill to \$750 a pill, and put the drug in a closed distribution system to keep potential generic competitors from getting access to the drug to conduct required bioequivalence tests for developing generic alternatives. Retrophin raised the price of Thiola, the preferred therapy for cystinuria, a rare, chronic, genetic kidney disease, from \$1.50 a tablet to \$30 per tablet, and also instituted a closed distribution system. Rodelis raised the price of Seromycin, the gold standard for multi-drug resistant tuberculosis, from \$500 for 30 capsules to \$10,800 for 30 capsules.

Valeant, the largest of the companies investigated, presents the most complex case. This company spiked the price of not one off-patent gold standard drug, but four. Valeant raised the prices of Cuprimine and Syprine, two drugs that treat Wilson disease, the rare genetic inability to process copper, from about \$500 to about \$24,000³ for a 30-day supply. Both drugs became supported via an exclusive patient assistance program designed to attract and retain high-value patients (cash paying or private insurance). This program arguably left potential competitors with little prospect of making a profit if they entered. Valeant also raised the price of Nitropress and Isuprel, two hospital drugs that are life-saving in emergency cardiac cases, from approximately \$2,000 to \$8,800 and \$17,900, respectively.⁴

³ These figures are approximate. The exact prices of Cuprimine and Syprine are listed in Table 1.

⁴ These figures are approximate. The exact prices of Nitropress and Isuprel are listed in Table 1.

Table 1. Case Studies of the Four Companies

	Sole-Source	Gold Standard	Small Market	Closed Distribution	Price Gouge
Turing Pyrimethamine, the Active Pharmaceutical Ingredient (API) for Daraprim was developed in 1953.	Daraprim was a sole-source drug, and Turing attempted to lock up the supply of its API, pyrimethamine, to ensure it remained so.	Daraprim is the “gold standard” for treating toxoplasmosis.	Has small patient population (congenital or immune-suppressed adults).	Implemented closed distribution to keep generic companies from obtaining Daraprim necessary to develop generics.	Increased the price of Daraprim from \$13.50 to \$750 per pill— increase of more than 5,000%.
Retrophin Thiola went to market in 1988.	No known generic competitors to Thiola at time of acquisition.	Thiola was one of two drugs approved for cystinuria, but is considered the “preferred therapy.”	Cystinuria is a rare disease. Retrophin estimated only 300 to 400 patients were on Thiola.	Retrophin said “[c]losed distribution system prevents generics from accessing the product for bioequivalence studies.”	Increased the price of Thiola from \$1.50 to \$30 per tablet—an increase of nearly 2,000%.
Rodelis <i>(acquisition was reversed weeks after the price increase)</i> Seromycin was brought to market in 1964.	There were no generic competitors to Seromycin.	Treats multi-drug resistant tuberculosis—“the only drug approved for MDR that treats both pulmonary and extra-pulmonary TB.”	A very small number of cases of MDR TB per year in the U.S.—most experts estimate in the hundreds.	Intended to pursue “[s]everal defensive mechanisms and barriers to entry for generic competition.”	Increased the price of Seromycin from \$500 to \$10,800 for 30 capsules— 2,060% increase.
Valeant Cuprimine—1956, Food and Drug Administration (“FDA”) approved in 1965. Syprine—1969, FDA approved in 1985.	Syprine is the only trientine hydrochloride available for the treatment of Wilson disease.	Experts consider Syprine (and to a lesser extent, Cuprimine) to be the gold standard for treating Wilson disease.	Wilson disease is very rare—about 2,000—3,000 cases in the U.S.	Established patient assistance program to attract and retain high-value patients (cash paying / private insurance).	Increased price of Cuprimine from \$445 to \$26,189—5,785% increase; Syprine from \$652 to \$21,267—3,162% increase.
Valeant Isuprel—patented 1956. Nitropress—active ingredient isolated in 19th C.	Valeant viewed the drugs as effectively sole-source, <i>i.e.</i> , “the only options available,” and accordingly believed they had more pricing power.	Both drugs: “[c]onsidered standard of care,” and “must be available in limited situations where needed.”	Both are used in hospitals in emergency settings.	Valeant expected generics to enter, but calculated FDA processing delays would create de facto monopoly for years.	Increased the price of Isuprel from \$2,183.00 to \$17,901.12 for ten 5 mL vials— 720% increase; Nitropress from \$2,148.30 to \$8,808.80 for ten 2 mL vials— 310% increase.

Role of Investors

The business model employed by the four companies appears in some instances to have been actively supported and promoted by investors. Additionally, many of the companies were headed by senior management lacking in a pharmaceutical background and hailing from the hedge fund world. This may help explain why these companies may have been run more like hedge funds than pharmaceutical companies.

In the case of Retrophin, internal emails reveal how Dan Wichman, an investor from Broadfin Capital, outlined the business model to Mr. Shkreli, who at the time was Chief Executive Officer (“CEO”) of Retrophin: “Funny that these small companies still haven’t realized you can raise price aggressively and nobody gets too upset?”⁵

Mr. Shkreli’s next hedge fund pharmaceutical venture, Turing, was notable for being run by those who lacked pharmaceutical experience, but had ample experience investing and running hedge funds. Mr. Shkreli hailed from the world of hedge funds and lacked any pharmaceutical experience. So too did his handpicked successor, Ron Tilles, a broker by training whose main skillset was soliciting investors, and who, by his own admission, did not know the most basic of pharmaceutical concepts when deposed a week before the Committee’s March 2016 Hearing. In Rodelis, the boundaries between the company and its largest investor, Avego Healthcare Capital, were practically invisible—individuals holding senior offices in both companies took on interchangeable roles. These individuals actively drove Rodelis’ efforts to use the business model to create profits.

Patient and Family Impacts

Sudden price spikes in decades-old drugs have devastated patients and families across the nation. Dozens of Americans called the Committee to share their stories. Patients have been forced to go without vital medicine, resulting in potentially mortal peril. Patients reported having to skip doses or hoard pills. Poignantly, patients reported the anxiety they felt as they watched prices climb, knowing that they could lose access without warning. The drug could get dropped from an insurance plan formulary; an application for a patient assistance program (“PAP”) could get denied; a foundation grant could run dry—everyday, in the face of these price spikes, patients and their families live in fear of future untold shock.

When the patients themselves are too ill to clear the hurdles imposed by PAPs, family members champion their struggles. Several individuals likened the paperwork requirements for PAPs, which require continually reapplying and following up, to having a part-time job. Several also took on second jobs to help cover the increased cost of treatment, which often persists even when help arrives through PAPs or insurance coverage.

The Committee heard from Americans of all ages and all backgrounds, from young couples with infants struggling to make ends meet to grandparents with retirement on the horizon. Berna Heyman, a retiree who testified before the Committee, had been living with Wilson disease that she controlled with Syprine three times a day. One day in 2014, she realized

⁵ Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_037898, at SSICA_THIOL_037903 (Mar. 6, 2014).

that her projected co-pay would exceed \$10,000 per year—with her insurance paying more than \$260,000—and that such costs were untenable for her, despite having a good insurance plan. After a series of attempts to obtain patient assistance to no avail, Mrs. Heyman ultimately took a risk and switched to a zinc-based drug. She testified, “[m]y health was stable with Syprine and my doctor and I made the change only under duress.”⁶

Hospital and Community Impacts

Hospitals interviewed by the Committee have also been forced to make extensive changes, while simultaneously facing significant uncertainties and suffering enormous budget repercussions from the price spikes. Nitropress and Isuprel, two Valeant drugs, contributed greatly to the overall rising cost of drugs for hospitals. The Ascension Health System, for example, reported a \$12 million budgetary impact in 2015 from pharmaceutical price increases, with Nitropress and Isuprel ranking first and second among the hospital drugs that were contributing to its increased costs. The Johns Hopkins Health System reported it suffered a \$1 million hit in 2015 from price increases for Nitropress and Isuprel, and the Cleveland Clinic spent over \$5 million for the two drugs in 2015, compared to less than \$2 million the prior year.

In an effort to reduce costs, these hospitals have taken aggressive steps to reduce their usage of Nitropress and Isuprel: cutting back or eliminating the use of Isuprel on hospital emergency “crash carts”; substituting other drugs where possible; actively seeking alternative approaches; aggressively monitoring usage; and reducing inventories. Achieving these reductions is itself a costly process. The hospital representatives reported that making the change is not as simple as substituting a new drug in the pharmacy. Administrators had to develop new policies and protocols as well as train medical professionals in the proper use of the drug, many of whom had been using Nitropress and Isuprel for decades. The increased time that administrators, physicians, nurses, and others who treat patients spend developing policies and learning and implementing new protocols is time away from patient care.

Dr. Richard Fogel, Chief Clinical Officer of St. Vincent’s Hospital in Indiana, testified at the Committee’s April 2016 Hearing that increased hospital spending on Nitropress and Isuprel would cause the institution to cut back on providing health care services to the broader community. Dr. Fogel cited expansion of the hospital’s Rural and Urban Access to Health initiative, which connects low-income and vulnerable communities with health care services, food, transportation, and housing, as well as a number of initiatives to fight the opioid epidemic, as casualties of this price increase. The price spikes harm not only patients at the hospital, but also the entire community around the hospital. Dr. Fogel testified, “We have seen more of these hospitals close because the financing was simply unsustainable.” Hospital closings cause untold hardships for the communities they serve.

⁶ *Valeant Pharmaceutical’s Business Model: The Repercussions for Patients and the Health Care System: Hearing Before the S. Special Comm. on Aging*, 114th Cong., 2d Sess., at 2 (Apr. 27, 2016) (written testimony of Berna Heyman).

Policy Responses

The Committee's investigation focused on four pharmaceutical companies, and evidence gathered by the Committee suggests that additional companies have employed the business model uncovered in this report, forcing Americans to make difficult decisions about their health due to financial constraints. This troubling practice must be stopped to help rein in price spikes in off-patent, decades-old drugs purchased by companies that did not bear the research and development costs for these drugs. The Committee evaluated a number of potential policy solutions and considered the views of a wide-range of health policy experts and clinicians. With an issue as complex as drug pricing, members understandably have differing views on the merits of the various options available to policymakers, including the responses described in this report. While release of the report does not indicate unanimous support of each of these policy options, we hope that it will help contribute to the ongoing discussion:

Enact the Increasing Competition in Pharmaceuticals Act of 2016 to provide solutions to regulatory uncertainty, small market size, and other factors that serve as limitations to generic entry by incentivizing competition. Introduced by Chairman Collins and Ranking Member McCaskill, this bipartisan bill sets a clear timeframe of 150 days for the Food and Drug Administration (“FDA”) to expedite review of certain generic applications and provides an incentive in particular cases in order to keep the marketplace competitive, drug prices down, and improve access for patients. The introduction of the bill has already resulted in a success—after its introduction, the FDA announced that it would prioritize administratively the review of generic applications for certain off-patent prescription drugs for which there is only one manufacturer, a key provision of the bill.

Encourage generic competition by ensuring the right to obtain samples and simplifying Risk Evaluation and Mitigation Strategies (“REMS”). The *Creating and Restoring Equal Access to Equivalent Samples Act of 2016*, sponsored by Senate Judiciary Committee Ranking Member Patrick Leahy (D-Vermont) and Chairman Chuck Grassley (R-Iowa), and cosponsored by Senators Collins and McCaskill, would provide a mechanism by which a potential generic entrant could commence expedited litigation to obtain access to samples of the reference listed drug required for FDA approval for a potential generic competitor. Additionally, the Committee believes that the FDA should be allowed to exercise its discretion to allow potential generic entrants to create their own REMS system, instead of relying on the current single shared REMS system of the reference listed drug.

Allow highly targeted temporary drug importation to combat major price increases in off-patent drugs to provide prompt price relief. The Committee believes that temporary importation may be a viable short-term solution to combat sudden price spikes, but notes that while this approach is favored by a number of academic professionals, many caution that care must be taken in structuring such a regime to avoid unintended consequences.

Prevent the misuse of patient assistance programs and copay coupons. The Committee found that self-serving motives were often critical to understanding patient assistance programs and is concerned that patient assistance can be used to steer patients toward higher priced drugs, resulting in higher expenditures for beneficiaries, federal health care programs, and commercial providers. The Committee finds this issue warrants further study.

Reinvigorate the Federal Trade Commission (“FTC”) to enforce action when it comes to drug company mergers, operations, and drug market dynamics. The Committee encourages the FTC to explore greater use of its existing authority and to conduct studies of the marketplace; to consider partnerships with academia and other federal agencies; and to work with the U.S. Department of Health and Human Services, the Department of Justice, and the FDA to promote complementary work and harmonization between agencies. Based on the Committee’s review, the FTC needs more resources to allow it to more vigorously oversee the off-patent prescription drug market.

Improve transparency in the health care system. The lack of transparency in drug prices is omnipresent in the prescription drug industry. Releasing, for example, the true price of a drug, the Average Manufacturer Price, after a lag period could empower patients and doctors, prevent surprise costs at the pharmacy or on health bills, and provide Americans with a refreshing dose of reality.

Conclusion

For many decades, federal policy has sought to strike the right balance between maintaining the incentives needed to promote innovation and development of new drugs, and keeping medicines affordable for patients. This balance has been struck by allowing a period of patent protection for innovative drugs, and then opening the market to generic competition to help drive down prices. On average, generics cost 80 percent less than brand-name drugs. That balance never anticipated companies acquiring off-patent drugs, for which they contributed not a single research and development dollar, and then dramatically increasing their prices in the absence of generic competitors. This investigation has shed light on why such companies can impose egregious price increases on off-patent drugs they have acquired and what federal policies should be considered to counter this disturbing practice.

This investigation has brought to light the stories of infants like Isla and seniors like Mrs. Heyman. Isla ultimately received treatment, not through affordable access to Daraprim, but through the genius and goodwill of her health care team at the University of North Carolina. Mrs. Heyman ultimately found affordable treatment by switching to an alternate therapy, but in doing so, she endures lifestyle restrictions and uncertainties about future effectiveness of the drug. Americans are continuing to struggle with high drug costs.

During the course of the Committee's investigation, other companies raised their prices sharply. In April 2016, a study found that the mean price of insulin, a lifeline therapy for the 29 million Americans with diabetes, increased from \$4.34 per milliliter in 2002 to \$12.92 per milliliter in 2013, a 200 percent increase. In July 2016, a flurry of news stories reported another staggering price spike: the price of Naloxone, the antidote to prescription painkiller overdoses, increased by 1,000 percent, amid an opioid public health crisis. And in August 2016, news broke of a 500 percent price spike in the epinephrine auto-injector, EpiPen, which is used to save lives during allergy emergencies.

The cost of prescription medications continues to be of great concern to the American public. For every baby born tomorrow and every American who reaches retirement today, the Senate Special Committee on Aging is committed to improving access and affordability of prescription medications. The Committee strongly supports continued efforts to stop the bad actors who are acquiring drugs that have been off-patent for decades, and then driving up their prices, to paraphrase Mr. Shkreli, "because I can."

CHAPTER 1. BACKGROUND

I. Purpose and Scope of the Investigation

Nearly 60 percent of Americans take prescription drugs to treat conditions ranging from cancer and diabetes to high blood pressure and depression.⁷ These medications are vital to the health and well-being of Americans. This is especially true of our nation's seniors, approximately 90 percent of whom take at least one prescription drug in any given month.⁸ Soaring increases in the price of some prescription drugs threaten not only the economic stability of American households, but also the health of individuals who find that vital drugs are unaffordable and difficult for them to access. This year alone, Americans are expected to spend more than \$328 billion on prescription drugs.⁹ Of this amount, individuals will pay more than \$45 billion out-of-pocket.¹⁰ The federal government will pick up another \$126 billion in payments through Medicare, Medicaid, Department of Veterans Affairs, and other programs.¹¹ These price increases affect Americans, whether they take prescription drugs or not, as taxpayers shoulder a substantial portion of the cost of federal health care programs.

In November 2015, Chairman Susan Collins (R-Maine) and Ranking Member Claire McCaskill (D-Missouri), launched a bipartisan Senate Special Committee on Aging investigation focused on abrupt and dramatic price increases in decades-old prescription drugs that are no longer protected by patents or other legal exclusivity. In particular, the Committee's investigation centered on pharmaceutical companies that devised their business models to acquire a drug over which they could exercise de facto monopoly pricing power due to a market failure, and then impose and maintain astronomical price increases. The Committee also explored potential policy changes to respond to these market failures. The Committee held three hearings; interviewed patients, doctors, hospital administrators, consumer advocates, health experts, pharmaceutical industry executives and board members; reviewed more than one million pages of documents obtained from four companies—Turing Pharmaceuticals LLC ("Turing"), Retrophin, Inc. ("Retrophin"), Valeant Pharmaceuticals International, Inc. ("Valeant"), and Rodelis Therapeutics ("Rodelis"); and deposed or took transcribed interviews of ten corporate witnesses.

⁷ See Elizabeth M. Kantor, et al., *Trends in Prescription Drug Use Among Adults in the United States from 1999–2012*, 314 J. Am. Medical Assoc., 1818, 1818 (Nov. 3, 2015).

⁸ Linda Barret, *Prescription Drug Use Among Midlife and Older Americans* (Jan. 2005); Dima M. Qato, et al., *Changes in Prescription and Over-the-Counter Medication and Dietary Supplement Use Among Older Adults in the United States, 2005 vs 2011*, 176 J. Am. Medical Assoc. 473, 473 (Apr. 2016).

⁹ See U.S. Dep't of Health & Human Servs., Office of the Assistant Secretary for Planning and Evaluation, *Observations on Trends in Prescription Drug Spending*, at 1 (Mar. 8, 2016), *found at*, <https://aspe.hhs.gov/sites/default/files/pdf/187586/Drugspending.pdf> (last visited Dec. 9, 2016).

¹⁰ See U.S. Dep't of Health & Human Servs., Ctr. for Medicare & Medicaid Servs., *Prescription Drug Expenditures*, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2015, line 284, *found at*, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html> (last visited Dec. 12, 2016).

¹¹ *Id.* at lines 287, 289, 292, 294, 295, 299, 302, and 308, which totals to \$126.246 billion.

The first hearing of the series, held on December 9, 2015, sought to identify and define the problems resulting from these price increases.¹² The second hearing, held on March 17, 2016, took an in-depth look inside the monopoly business models of Turing and Retrophin, both formerly headed by executive Martin Shkreli.¹³ The third hearing, held on April 27, 2016, investigated Valeant's business model, its investor relationships, and the harm caused to patients and the health care system by the enormous price increases Valeant imposed on certain drugs it acquired.¹⁴

For many decades, federal policy has sought to strike the right balance between maintaining the incentives needed to promote the innovation and development of new drugs, and keeping medicines affordable for patients. That balance did not account for companies acquiring off-patent drugs, for which they played no role in the research and development, and then dramatically increasing their prices in the absence of generic competitors. A chief goal of the Committee's investigation has been to understand why such companies can impose egregious price increases on off-patent drugs they have acquired and what federal policies should be considered to counter this disturbing practice.

This Report closely examines the business model used by these companies; summarizes case studies from the four companies; assesses the impacts of price hikes on patients, payers, providers, hospitals, and governments; and discusses potential policy responses.

II. An Overview: Drug Pricing in the United States

Pharmaceutical companies take into account a number of factors when deciding what price to set for their drugs. These factors include the market for a particular type of drug, the cost of comparative treatments for a disease, the cost of supporting current and future research and development, the price of manufacturing and ingredients, and how to maximize profits. The market for a particular drug plays a crucial part in benchmarking where its price will be set. A manufacturer generally will not set the price beyond what the market will bear for its product at the risk of losing market share. This is particularly true in the case of off-patent drugs for which there are a number of competitors in the market. Regardless of how much a manufacturer may want to maximize profits in that instance, market competition will likely keep the price low.

Although many drugs have a well-defined market and clear competitors (*e.g.* statins, anti-histamines, pain killers, etc.), there are many other drugs that do not because they are the only drugs of their kind. These drugs run the gamut from the truly innovative drugs that are the first to cure a disease (*e.g.*, Sovaldi, which is used to treat hepatitis C virus infection) to older

¹² *Sudden Price Spikes in Off-Patent Drugs: Perspective from the Front Lines: Hearing Before the S. Special Comm. on Aging*, 114th Cong., 1st Sess. (Dec. 9, 2015) (hereinafter "December 2015 Hearing").

¹³ *Sudden Price Spikes In Decades Old Rx Drugs: Inside the Monopoly Business Model: Hearing Before the S. Special Comm. on Aging*, 114th Cong., 2d Sess. (Mar. 17, 2016) (hereinafter "March 2016 Hearing"). As discussed, *infra*, at 41–42, Retrophin post-Mr. Shkreli appears to have repudiated Mr. Shkreli's business model, but has not lowered the price of Thiola.

¹⁴ *Valeant Pharmaceutical's Business Model: The Repercussions for Patients and the Health Care System: Hearing Before the S. Special Comm. on Aging*, 114th Cong., 2d Sess. (Apr. 27, 2016) (hereinafter "April 2016 Hearing").

drugs that have been around for decades without any generic competition. For the innovative drugs, patent protection and the U.S. Food and Drug Administration (“FDA”) market exclusivity provide a timeframe within which a manufacturer can charge whatever it wishes for a drug. These innovative drugs rely mostly on their therapeutic value to gain market share once they enter the market. On the other hand an off-patent drug generally has no monopoly protection, and in the event it has generic drug competition, it is supposed to compete for market share based on price.¹⁵

There are a large number of drugs, however, that are off-patent and yet face no generic competition. In the case of these sole-source drugs, the manufacturer enjoys a de facto monopoly and there is no market force to prevent the manufacturer from charging whatever it wishes for the drug.

The prescription drug industry consists of an opaque and complex network of entities engaged in multiple distribution and payment structures for drugs. These entities include pharmaceutical companies, wholesalers, pharmacies, third-party payers that provide insurance coverage, pharmacy benefit managers, and consumers. Additionally, group purchasing organizations negotiate contracts with vendors on behalf of a large number of hospitals or other providers.

Pharmaceutical Companies. Pharmaceutical companies that own the rights to manufacture and market drugs are also known as “drug manufacturers,” even if they contract out the actual production of the prescription drugs.¹⁶ Rights can be original to the company that invested in the research and development of the drug, or they can be acquired at any stage during the development of the drug or after it has come on the market.¹⁷ Pharmaceutical companies typically own or contract with facilities that manufacture the drugs, and then sell their product to wholesalers.¹⁸

Wholesalers. After production, many manufacturers send their drugs to FDA-registered drug wholesalers for further distribution.¹⁹ Wholesalers act as distributors: purchasing, inventorying, and selling pharmaceutical products to a variety of providers, including retail pharmacy outlets, hospitals, and clinics.²⁰ States license or authorize wholesalers that sell and

¹⁵ In this report, an “off-patent drug” is a drug that is not currently under patent protection and a “generic drug” is one that is a biological equivalent to another drug (it is worth noting that as generic drugs do not have patent protection, they are also technically off-patent drugs). A manufacturer can make a generic drug copy of an off-patent drug, but not all off-patent drugs have a generic drug that is its copy.

¹⁶ See U.S. Dep’t of Commerce Int’l Trade Admin., *Pharmaceutical Industry Profile*, at 1 (July 2010), found at, <http://www.trade.gov/td/health/PharmaceuticalIndustryProfile2010.pdf> (last visited Dec. 9, 2016).

¹⁷ See Mark Kessel, *The Problems with Today’s Pharmaceutical Business—an Outsider’s Perspective*, 29 *Nature*, 27, 27, (Jan. 2011).

¹⁸ See, e.g., Ernst Berndt and Joseph Newhouse, *Pricing and Reimbursement in U.S. Pharmaceutical Markets*, Harvard Kennedy School, National Bureau of Economic Research, 8, (Sept. 2010).

¹⁹ *Id.*

²⁰ See FDA, *Guidance for Industry: Prescription Drug Marketing Act Requirements*, at 3 (Nov. 2006), found at, <http://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidances/ucm134399.pdf> (last visited Dec. 11, 2016).

distribute pharmaceuticals within their borders.²¹ The wholesaler market in the United States is dominated by three companies: AmerisourceBergen Corp., Cardinal Health Inc., and McKesson Corp.²²

Third-Party Payers. Third-party payers submit payments on behalf of insured individuals to health care providers for services rendered.²³ Third-party payers include self-insured businesses; insurance companies, such as insurers that participate in Medicaid and Medicare; and union-run health plans.²⁴ These health care payers span public and private insurance programs as well as managed care and preferred provider networks.²⁵

Pharmacy Benefit Managers. Pharmacy benefit managers (“PBMs”) act as intermediaries between manufacturers and health care payers.²⁶ PBMs handle a variety of services, including prescription billing, the negotiation of drug prices with drug companies, and the creation of retail pharmacy networks for insurers, including contracting with mail-order pharmacies and negotiating reimbursement rates with them.²⁷

PBMs also design their own formularies, which are lists of drugs covered by a PBM and its members.²⁸ In determining which drugs to cover, a PBM groups drugs it considers to be therapeutically similar.²⁹ For drugs with several close substitutes, a PBM negotiates with manufacturers for rebates in return for placing the manufacturers’ drugs on their formularies or giving the drugs preferential placement.³⁰ Preferential placement may entail charging a lower co-payment for the preferred drugs compared to other (non-preferred) drugs that are therapeutically similar.³¹ The PBMs can have a significant impact on the price of a drug, as well as the drug market as a whole, as they essentially control access to a drug for large portions of the health care market through their formularies and negotiated contracts. PBMs generate income through service fees from large customer contracts for processing prescriptions, operating mail-order pharmacies, and from spreads off of rebates negotiated with drug makers. Their contracts can include incentives for cutting costs.³² The largest PBMs include Express Scripts, CVS Health Corp, UnitedHealth Group, and Catamaran.³³

²¹ See FDA, Profile of the Prescription Drug Wholesaling Industry, at 3 (undated), *found at*, <http://www.fda.gov/ohrms/dockets/dockets/05n0403/05n-0403-bkg0001-04-02-1.pdf> (last visited Dec. 11, 2016).

²² See Susan Thaul, Cong. Research Serv., R43106, *Pharmaceutical Supply Chain Security*, at 4 (Oct. 31, 2013).

²³ See Thomas Bodenheimer, *High and Rising Health Care Costs. Part 1: Seeking an Explanation*, 142 Ann Intern Med. 847, 847 (May 17, 2005).

²⁴ *Id.*

²⁵ See Sherry Glied, *Chapter 13—Managed Care*, in *Handbook of Health Economics*, 708, 709 (Anthony J. Culver and Joseph P. Newhouse 1A. 2000).

²⁶ See Gryta Thomas, *What is a “Pharmacy Benefit Manager”*, The Wall St. J. (July 21, 2016).

²⁷ *Id.*

²⁸ See Robert F. Atlas, *The Role of PBMs in Implementing the Medicare Prescription Drug Benefit*, 23 Health Affairs, w4-504, w4-507 (July 2004).

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ See *Pharmacy-Benefit Managers*, The Wall St. J. (Mar. 30, 2015) *found at*, <http://blogs.wsj.com/briefly/2015/03/30/pharmacy-benefit-managers-the-short-answer/> (last visited Dec. 15, 2016).

Group Purchasing Organizations. Group purchasing organizations (“GPOs”) negotiate contracts with wholesalers or manufacturers on behalf of a large number of hospitals or other providers.³⁴ GPOs may be used by hospitals and other providers to purchase a range of goods and services, including drugs, hospital equipment, and high technology products.³⁵ As a result of their large member base, GPOs are able to negotiate much more favorable prices with wholesalers/manufacturers for a particular item or service than an individual hospital or provider could on its own.³⁶ A GPO’s main source of operating income comes from “contract administrative fees,” a fixed percentage paid by the supplier to the GPO as part of closing a specific sale between supplier and hospital.³⁷ These contract administrative fees are typically a percentage of the costs of the products that a GPO is purchasing from a wholesaler for its members through a GPO-negotiated contract.³⁸ Ninety percent of hospitals use national GPOs.³⁹ Many hospitals also use regional and local GPOs in addition to national GPOs.⁴⁰ Even if a hospital is a member of a GPO, it will typically self-negotiate for some products.⁴¹

Figure 1, which appears at the end of this section, illustrates some of the different entities and the common relationships among them. While payment varies from drug to drug, the basic payment structure follows this pattern: The patient pays the health insurer (via their health insurance premium), which pays the pharmacy, which pays the pharmaceutical drug company. Similarly, while distribution systems vary across drugs, the common structure involves dispensing drugs to patients via retail and mail order pharmacies as the figure illustrates.⁴²

Payment Structure. When a drug is dispensed to a patient, the insurer or health plan pays the pharmacy. The pharmacy obtains the drugs from wholesalers, which have purchased them directly from the manufacturers, the pharmaceutical companies.⁴³ Many of these transactions are opaque because the cost from one party to the next is not made known and there are overlapping factors that influence price.⁴⁴

³⁴ See Carl A. Johnston & Curtis D. Rooney, *GPOS and the Health Care Supply Chain: Market-Based Solutions and Real-World Recommendations to Reduce Pricing Secrecy and Benefit Health Care Providers*, 29 J. Contemp. Health L. & Pol’y 72, 75 (2012).

³⁵ *Id.* at 80.

³⁶ *Id.* at 79.

³⁷ *Id.* at 81.

³⁸ GPOs are allowed to collect such contract administrative fees as long as they meet the requirements of a safe harbor to the Anti-Kickback Act (“AKA”). See 42 U.S.C. § 1320a-7b(b) (2006). The AKA would otherwise prohibit such fees.

³⁹ See Lawton Robert Burns and Rada Yovovich, *Hospital Supply Chain Executives’ Perspectives on Group Purchasing: Results from a 2014 Survey*, at 6 (Sept. 2014).

⁴⁰ *Id.*

⁴¹ Committee Staff Interview with Erin Fox, Pharm. D. (University of Utah) (Nov. 5, 2015) (“Fox Interview”).

⁴² U.S. Gov’t Accountability Office, *Generic Drugs Under Medicare*, GAO-16-706, at 7 (Aug. 2016).

⁴³ See U.S. Dep’t of Health & Human Servs., *The Assistant Secretary for Planning and Evaluation, Prescription Drug Prices*, at 100 (Apr. 1, 2000), found at, <https://aspe.hhs.gov/sites/default/files/pdf/172171/c3.pdf> (last visited Dec. 11, 2016).

⁴⁴ See Uwe E. Reinhardt, *The Pricing of U.S. Hospital Services: Chaos Behind a Veil of Secrecy*, 25 Health Affairs 57, 58 (Jan. 2006).

When a manufacturer sets a price for its product, it is generally known as the wholesale acquisition cost (“WAC”).⁴⁵ This is the manufacturer’s list price for sale to wholesalers.⁴⁶ Depending on the volume being sold to the wholesaler, the manufacturer may provide some rebates or discounts to the wholesaler.⁴⁷ The wholesaler handles the sale and distribution of drugs to both retail and non-retail (hospitals, clinics, etc.) pharmacies.⁴⁸ Pharmacies may negotiate rebates or discounts with wholesalers or manufacturers if a manufacturer is selling directly to the pharmacy.⁴⁹ In order to maximize their purchasing power, non-retail pharmacies belonging to hospitals, nursing homes, and other health care systems will typically use GPOs to negotiate further discounts with the wholesaler.⁵⁰ This complex price system can lead to different entities paying different prices for the same drug.⁵¹

The discrepancy between the marketed price and the actual price of drugs is further obscured by confidential agreements between the drug company and the purchaser, which may include chargebacks, rebates, stocking allowances, and a number of other discounts.⁵² Since these agreements are confidential, the various parties involved in these transactions typically do not know what other parties paid or earned for their role in the flow of money.⁵³

From the lens of the individual consumer, the health payment system relies largely on cost-sharing.⁵⁴ Most consumers purchase insurance coverage from a third-party payer, including private health insurance plans, such as those offered by employers, or public plans, such as those offered by the federal government.⁵⁵ The consumer typically pays a fixed monthly amount to the health insurance plan, plus a co-payment for medical visits or medications, tiered based on an established contractual agreement.⁵⁶ The plan sponsors determine formulary coverage, copayment tiers utilization management, and pharmacy channel options.⁵⁷ Because most people

⁴⁵ See Medicaid and CHIP Payment Access Comm., *Medicaid Payment for Outpatient Prescription Drugs*, Issue Brief, at 2 (Sept. 2015).

⁴⁶ *Id.*

⁴⁷ See Richard G. Frank, *Prescription Drug Prices: Why Do Some Pay More Than Others Do?* 20 *Health Affairs*, 115, 124 (Mar. 2001).

⁴⁸ *Id.*

⁴⁹ *Id.* at 121.

⁵⁰ See Carl A. Johnston & Curtis D. Rooney, *GPOS and the Health Care Supply Chain: Market-Based Solutions and Real-World Recommendations to Reduce Pricing Secrecy and Benefit Health Care Providers*, 29 *J. Contemp. Health L. & Pol’y* 72, 79 (2012).

⁵¹ See Richard G. Frank, *Prescription Drug Prices: Why Do Some Pay More Than Others Do?* 20 *Health Affairs*, 115, 115 (Mar. 2001).

⁵² U.S. Dep’t of Health and Human Servs., The Assistant Secretary for Planning and Evaluation, *Prescription Drug Prices*, at 95 (Apr. 1, 2000), *found at*, <https://aspe.hhs.gov/sites/default/files/pdf/172171/c3.pdf> (last visited Dec. 11, 2016).

⁵³ *Id.*

⁵⁴ See Robert P. Navarro and Rusty Hailey, *Overview of Prescription Drug Benefits in Managed Care*, at 17, in, Robert Navarro, *Managed Care Pharmacy Practice* (2nd Ed. 2009).

⁵⁵ *Id.*

⁵⁶ See AHIP Foundation, *A Consumer’s Guide to Understanding Health Plan Networks*, at 20, *found at*, <http://www.ahipfoundation.org/Interactive-Consumer-Guide.pdf> (last visited Dec. 10, 2016).

⁵⁷ See Anna Cook, Julie Somers, and Julia Christensen, *Prescription Drug Pricing*, Congressional Budget Office, at 5, (Jan. 30, 2009), *found at*, http://www.nhpf.org/library/handouts/Cook.slides_01-30-09.pdf (last visited Dec. 11, 2016).

have health insurance, they are direct payers only for the deductible and co-pay portions of their health care expenses.⁵⁸ When a patient either picks up their prescription from a retail pharmacy or receives a prescription drug from a hospital procedure, the patient will typically pay a co-pay to the pharmacy, and the pharmacy receives the balance of the cost from the patient's insurance company (the payer).⁵⁹ This, however, doesn't reflect the true payment that the insurer has made on behalf of the patient, as the insurer has negotiated prices for these drugs and receives additional rebates from its PBM.⁶⁰ The PBMs provide the rebates to insurers because they have in turn negotiated prices and rebates from manufacturers on behalf of insurers (while taking a cut of the rebates).⁶¹

For drugs that are not covered by an individual's health insurance plan, the patient may seek alternate sources of financial support, including from patient assistance programs and patient access network grants.⁶² Patient assistance programs are often funded and run by pharmaceutical companies.⁶³ Patient assistance network grants are often run by independent non-profit foundations, which may receive financial support from pharmaceutical companies.⁶⁴ Both provide support directly to individuals.⁶⁵ These programs typically include eligibility and authorization criteria that are renewed on a monthly or annual basis, and specific parameters vary depending on the program and the drug.⁶⁶ Most programs include criteria regarding income to better serve lower-income individuals.⁶⁷ All of these programs by statute exclude individuals who are on federally funded health programs, such as Medicare or Medicaid.⁶⁸ Patient assistance programs serve as a way to bypass insurance or obtain drugs at a lower cost when insurance coverage is inadequate.⁶⁹ Additionally, individuals without insurance may pay the pharmacy the full price of the drug, as advertised by the pharmaceutical company.

On the surface, patient assistance programs would appear to be a mechanism through which drug companies, acting altruistically, can ensure that critical drugs are made available at affordable prices to patients who need them. Beneath the surface, however, the Committee

⁵⁸ See Stephanie Marken, *U.S. Uninsured Rate 11.9% in Fourth Quarter of 2015*, Gallup (Jan. 7, 2016), found at, <http://www.gallup.com/poll/188045/uninsured-rate-fourth-quarter-2015.aspx> (last visited Dec. 5, 2016).

⁵⁹ See Robert P. Navarro and Rusty Hailey, *Overview of Prescription Drug Benefits in Managed Care*, 19, in Robert Navarro, *Managed Care Pharmacy Practice* (2d Ed. 2009).

⁶⁰ See Congressional Budget Office, *Prescription Drug Pricing in the Private Sector*, at 12 (Jan. 1, 2007).

⁶¹ *Id.*

⁶² See Philip E. Johnson, *Patient Assistance Programs and Patient Advocacy Foundations: Alternatives for Obtaining Prescription Medications When Insurance Fails*, 64 Am. J. of Health-Sys. Pharmacy, S13, S13 (Nov. 1, 2006).

⁶³ See Marie A. Chisholm and Joseph T. DiPiro, *Pharmaceutical Manufacturer Assistance Programs*, 7 Arch Intern Med, 780, 780 (Apr. 8, 2002).

⁶⁴ See Benjamin Elgin and Robert Langreth, *How Big Pharma Uses Charity Programs to Cover for Drug Price Hikes*, Bloomberg Business Week (May 19, 2016), found at, <https://www.bloomberg.com/news/articles/2016-05-19/the-real-reason-big-pharma-wants-to-help-pay-for-your-prescription> (last visited Dec. 11, 2016).

⁶⁵ *Id.*

⁶⁶ See Marie A. Chisholm and Joseph T. DiPiro, *Pharmaceutical Manufacturer Assistance Programs*, 7 Arch Intern. Med., 780, 781 (Apr. 8, 2002).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ Philip E. Johnson, *Patient Assistance Programs and Patient Advocacy Foundations: Alternatives for Obtaining Prescription Medications When Insurance Fails*, 64 Am. J. of Health-Sys. Pharmacy, S13, S13 (Nov. 1, 2006).

found that self-serving motives are critical to understanding why some of the companies that were the subject of this investigation established these programs and structured them as they did. For example, as is described in greater detail below, internal documents show that Valeant viewed its patient assistance program—dubbed the “Valeant Coverage Plus Program” (“VCP”)—as a means to “maximize patient acquisition and retention,” and “enhance per patient value” for the company.⁷⁰ Valeant understood that the “Copay Cards” it made available through VCP to privately-insured individuals would reduce their incentive to complain to the press about Valeant’s outrageous price increases.⁷¹ Valeant even described its VCP as a “key marketing initiative.”⁷²

VCP demonstrates how a company can use a patient assistance program to erode competitive market pressure by subsidizing purchases of its own products. In the context of federal health insurance programs such as Medicare, Congress has prohibited such strategies through the federal Anti-Kickback Act, passed in 1972.⁷³ The Anti-Kickback Act bars individuals or entities from offering, paying, soliciting, or receiving remuneration in order to obtain any business that is reimbursed under the Medicare program, state health care programs, or other applicable federal programs. Many experts have praised the Act, noting that removing kickbacks promotes a more effective and better functioning market.⁷⁴

There are also a number of government programs that help keep the price of drugs low for certain entities. Many non-profit health care providers that serve safety-net populations also get government 340B program pricing that requires manufacturers to provide their drugs at a reduced price.⁷⁵ Medicare, Medicaid, and the Department of Defense and Department (“DOD”) of Veterans Affairs (“VA”) also pay reduced prices from the retail price for prescription drugs per statute.⁷⁶

⁷⁰ See, *infra*, at 58.

⁷¹ *Id.*

⁷² *Id.*

⁷³ See 42 U.S.C. 1320A-7B. Valeant does not offer copay assistance to individuals who are insured through Medicare. See Deposition of J. Michael Pearson, at 27:19–30:21 (Apr. 18, 2016) (“Pearson Deposition”).

⁷⁴ See, e.g., David H. Howard, *Drug Companies’ Patient-Assistance Programs—Helping Patients or Profits?* 371 *New England Journal of Medicine*, 97, 99 (July 10, 2014).

⁷⁵ The Health Resources and Services Administration calculates a 340B ceiling price for each covered outpatient drug. On average, hospitals in the 340B program receive a minimum discount of 22.5% of the average sales price for drugs. See MedPAC, *Overview of the 340B Drug Pricing Program*, vii (May 2015).

⁷⁶ Congress created the 340B program in November 1992. It is codified as Section 340B of the Public Health Service Act (created under the Veterans Health Care Act of 1992). The law gives certain clinics and hospitals access to reduced prices on drugs. Medicare pays 106% of the Average Sales Price for each drug, which is calculated by each manufacturer inclusive of rebates. For Medicaid, the rebate for drugs varies, but for most of them, manufacturers must provide at least a 13% rebate discount to Medicaid programs. DOD and VA have their own negotiated prices for drugs with at least a 24% discount from the non-Federal average manufacturer price. See Alison Mitchell, *Centers for Medicare & Medicaid Services: President’s FY2015 Budget*, Congressional Research Service, pages 17, 21 (May 15, 2014), *found at*, <https://fas.org/sgp/crs/misc/R43446.pdf> (last visited Dec. 11, 2016); U.S. Dep’t of Health & Human Servs., *Medicare Part B Reimbursement of Prescription Drugs*, (Jun. 2014), *found at*, <https://aspe.hhs.gov/report/medicare-part-b-reimbursement-prescription-drugs> (last visited Dec. 7, 2015); Center for Medicaid and CHIP Services, *Medicaid Drug Rebate Program*, *found at*, <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/benefits/prescription-drugs/medicaid-drug-rebate-program.html> (last visited

Distribution Structure. Most prescription drugs are distributed through retail or mail order pharmacies of a customer's choosing or as determined by a customer's insurance policy. For certain drugs, however, there is a separate distribution structure through specialty pharmacies.

Specialty pharmacies typically distribute specialty drugs and perform a number of other services, which may include helping to administer complex drugs that must be infused or that can have serious side effects, performing patient education, and monitoring patients' reactions to prescribed medications (*e.g.* chemotherapy drugs). In addition, specialty pharmacies may handle paperwork associated with insurer reimbursement, manufacturer data reporting, and FDA reporting requirements. There is currently no industry standard for what qualifies as a specialty drug.

In some cases, manufacturers sell drugs in exclusive or limited networks that only allow dispensing from one or more specialty pharmacies. Traditionally, this type of limited distribution network involves drugs that require specific and complex dosing or lab monitoring. Sometimes the FDA also predicates drug approval on specialty pharmacy distribution for these reasons. For example, the *Food and Drug Administration Amendments Act of 2007* reserved the right of the FDA to order Risk Evaluation and Mitigation Strategies ("REMS") for the approval of drugs with increased toxicity and risk factors.⁷⁷ These drugs are sold in specialty pharmacies where pharmacists are trained to follow special dosing and storage requirements, conduct continual lab monitoring, and maintain safety protocols. In this scenario, by restricting access to a drug, the FDA and a manufacturer can ensure that patients only receive the drug from specialty pharmacies that have been trained on the necessary monitoring to reduce risks.

Recently, however, some manufacturers have begun to use specialty pharmacies as a way to increase sales instead of for the traditional uses discussed above.

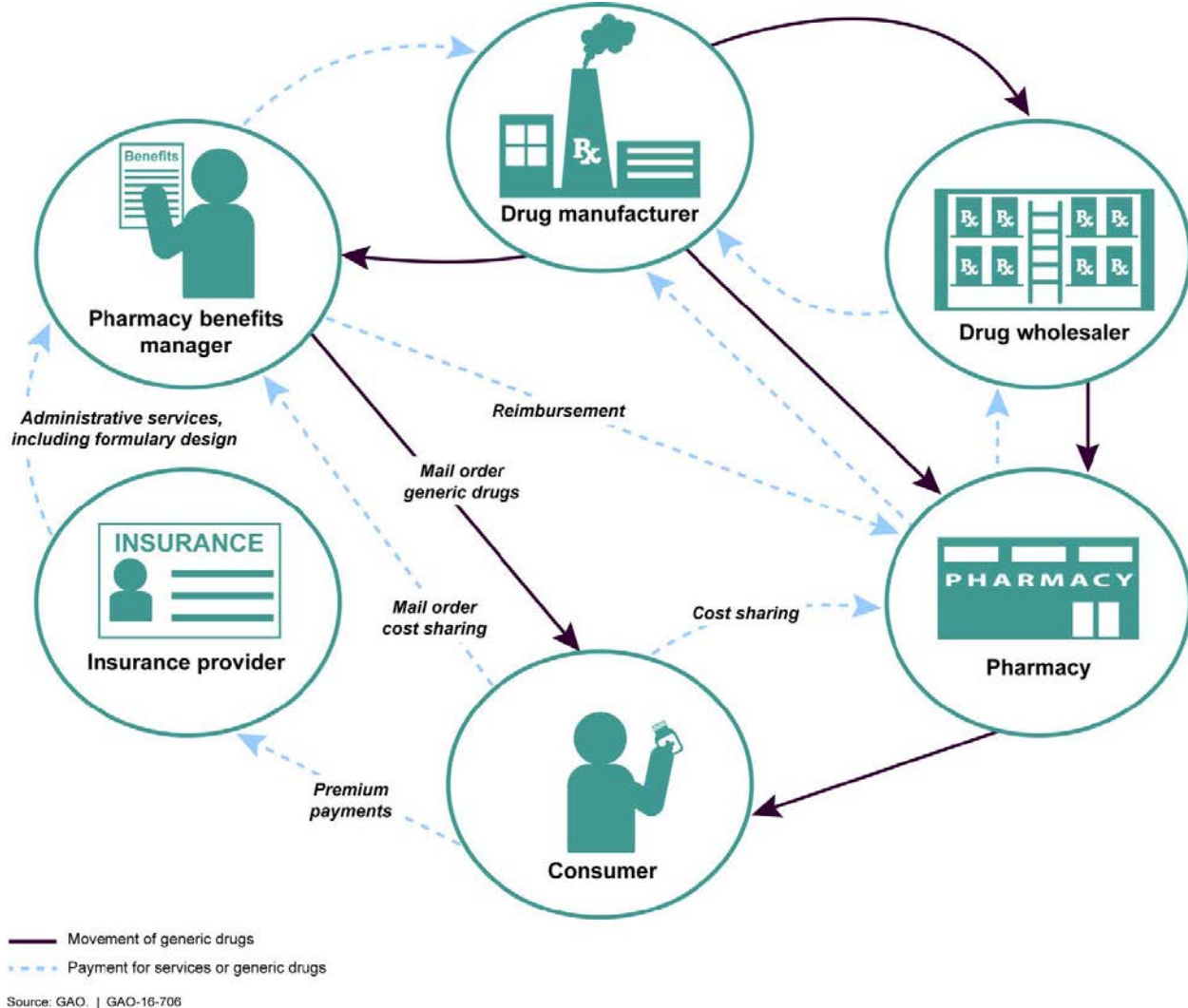
As a result, specialty pharmacies today sell a wide range of drugs often at steep prices, including drugs to treat conditions such as toenail fungus and acne that do not meet the traditional specialty drug criterion discussed above. In 2015, drugs sold in specialty pharmacies represented one to two percent of prescriptions yet these drugs accounted for more than 38 percent of drug spending.⁷⁸

Dec. 7, 2015); *Comparison of DOD and VA Direct Purchase Prices*, The Government Accountability Office, GAO-13-358, at 2 (Apr. 2013).

⁷⁷ 121 Stat. 823 (2007), *codified at*, 21 U.S.C. § 355-1.

⁷⁸ See The Pew Charitable Trusts, *Fact Sheet: Specialty Drugs and Health Care Costs* (Nov. 16, 2016), *found at*, <http://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2015/11/specialty-drugs-and-health-care-costs> (last visited Dec. 6, 2016).

Figure 1. Structure of Drug Industry. Note that insurance provider includes government payers, such as Medicare.



III. FDA Regulation of Pharmaceuticals

The FDA, within the Department of Health and Human Services (“HHS”), oversees the approval and regulation of drugs entering the U.S. market. The FDA’s regulatory responsibilities include the safety and effectiveness of potential entries into the market, both for new innovator products and for generic products—copies of approved drugs, which are formulations chemically and biologically equivalent to already approved drugs.⁷⁹ The agency also has post-approval regulatory responsibilities.

⁷⁹ The FDA defines a generic drug as one that is biologically equivalent to another drug product in dosage form, strength, route of administration, quality, and intended use. Committee Staff Briefing with the FDA (Nov. 20, 2015) (“November 2015 FDA Briefing”).

A. New Drug Applications

To obtain FDA approval for a new drug, a sponsor submits a New Drug Application (“NDA”) containing data on the safety and effectiveness of the drug as determined through clinical trials and other research for FDA review.⁸⁰ Compiling this evidence involves several discrete steps, from preclinical testing to small scale and then larger scale human testing.⁸¹ Following human clinical testing, some sponsors will formally file an NDA—which includes findings from all tests as well as data on how the product is manufactured—asking the FDA to approve the drug to be marketed in the United States.⁸² The FDA has 60 days from submission of an application to determine whether it can be filed for review and assigned to a review team.⁸³

B. Abbreviated New Drug Applications

The FDA process for approving generic drugs is more streamlined compared to the NDA process. Generic drugs are required to submit an Abbreviated New Drug Application (“ANDA”) to demonstrate equivalence to a product the FDA has already approved. This application allows a company to make use of the patented drug’s existing safety and efficacy data already on file with the FDA, and the generic drugs are generally not required to include animal and human testing data to establish safety and effectiveness. Instead, a generic applicant must scientifically demonstrate that its product is bioequivalent (*i.e.*, performs in the same manner as the innovator drug).⁸⁴ One way to demonstrate bioequivalence is to measure the rate of absorption of the generic drug, the time it takes to reach the bloodstream, in 24 to 36 healthy volunteers.⁸⁵ The generic version must have the same rate of absorption as the innovator drug, indicating that it delivers the same amount of active ingredients into a patient’s bloodstream in the same amount of time as the innovator drug.⁸⁶ In addition to determining bioequivalence of a proposed generic product, the FDA reviews manufacturing facilities and drug labeling information prior to granting approval.⁸⁷ Generally, ANDA reviews consist of data review, but the FDA has the discretion to (and sometimes does) run tests to confirm the accuracy of data in ANDAs.⁸⁸

As part of its oversight of drug manufacturing, the FDA also has requirements specific to the manufacturing of active pharmaceutical ingredients (“API”), which are in addition to its

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ See FDA, *Drug Approval Process* (undated), *found at*,

<http://www.fda.gov/downloads/drugs/resourcesforyou/consumers/ucm284393.pdf> (last visited Dec. 9, 2016).

⁸⁴ November 2015 FDA Briefing. Using bioequivalence as the basis for approving generic copies of drug products was established by the *Drug Price Competition and Patent Term Restoration Act of 1984*, also known as the Hatch-Waxman Act. 98 Stat. 1585 (1984), codified in provisions of 21 U.S.C. This Act, among other provisions, expedites the availability of less costly generic drugs by permitting FDA to approve applications to market generic versions of brand-name drugs without conducting costly and duplicative clinical trials. See generally, *id.*

⁸⁵ See U.S. FDA, *Abbreviated New Drug Application (ANDA): Generics* (Nov. 16, 2016), *found at*, <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/ApprovalApplications/AbbreviatedNewDrugApplicationANDAGenerics/> (last visited Dec. 13, 2016).

⁸⁶ *Id.*

⁸⁷ November 2015 FDA Briefing.

⁸⁸ *Id.*

guidance for the manufacture of finished drug products.⁸⁹ The requirements include quality review programs, personnel, manufacturing facilities, and distribution procedures, among others. The FDA maintains a list of facilities that meet the requirements.⁹⁰

C. Controls on Importation

All drugs imported into the United States require FDA approval, and that approval is granted only to U.S. pharmacists and wholesalers.⁹¹ In 1954, the FDA issued a personal use exemption that allows individuals to bring up to a 90-day supply of a drug in to the United States under certain conditions their personal use.⁹² The FDA has also used the personal use exemption to allow imports in other cases, including the importing of new AIDS drugs in 1988.⁹³ In addition, in 2003, Congress passed the *Medicare Prescription Drug, Improvement, and Modernization Act* (“MMA”).⁹⁴ This law, in addition to implementing Medicare Part D, permits limited importation of certain drugs from Canada, provided the Secretary of Health and Human Services first certifies that those drugs are safe and that the program would lower costs for U.S. consumers.⁹⁵ To the Committee’s knowledge, no HHS Secretary has ever taken this step. The FDA has identified concerns with drug safety as a primary reason for not exercising this authority.⁹⁶ Others have raised concerns that importation of foreign drugs could stifle U.S.

⁸⁹ November 2015 FDA Briefing. The FDA, in resources for industry, further defines an API as:

[A]ny substance that is represented for use in a drug and that, when used in the manufacturing, processing, or packaging of a drug, becomes an active ingredient or a finished dosage form of the drug. Such substances are intended to furnish pharmacological activity or other direct effect in the diagnosis, cure, mitigation, treatment or prevention of disease, or to affect the structure and function of the body of humans or other animals.

FDA, *For the Industry: What Must I do to Import a Human Drug Product That Has Been Approved by the FDA Into the United States* (undated), found at, <http://www.fda.gov/ForIndustry/FDABasicsforIndustry/ucm238032.htm> (last visited Dec. 10, 2016).

⁹⁰ November 2015 FDA Briefing. The list, which also includes some facilities that produce only Finished Dosage Forms (a different intermediate product) includes 2,515 facilities, of which about 70 percent are outside the United States. India is the largest producer outside the United States, followed by China, Italy, Germany, and Canada. See GMP News, *FDA Publishes List of GMP Facilities Producing for the US Market (Generic Drug APIs)* (Oct. 24, 2013), found at, http://www.gmp-compliance.org/enews_03940_FDA-publishes-List-of-GMP-facilities-producing-for-the-US-market--generic-drug-products-and-APIs-.html (last visited Dec. 10, 2016).

⁹¹ 21 U.S.C. §331 prohibits the importation of unapproved drugs.

⁹² See Peter S. Reichertz & Melinda S. Friend, *Hiding Behind Agency Discretion: The Food and Drug Administration’s Personal Use Drug Importation Policy*, 9 Cornell J.L. & Pub. Pol’y, 493, 513 (2000).

⁹³ *Id.* at 500.

⁹⁴ 117 Stat. 2066 (2003).

⁹⁵ *Id.* at 2464–69.

⁹⁶ See *Importation of Prescription Drugs: Hearing Before S. Comm. on Health, Educ., Labor, and Pensions*, 108th Cong., 2d Sess., S. Hrg. 108–470, at 11–12 (May 20, 2004) (testimony of John M. Taylor, FDA); Some States have attempted to allow importation of certain drugs from certain countries. For example, in 2013 Maine passed amendments to the Maine Pharmacy Act (32 M.R.S. §§ 13701–13847), which allowed its residents to import prescription drugs through a broker from licensed pharmacies in Australia, Canada, New Zealand and the United Kingdom. See 2013 Me. Legis. Serv. Ch. 373 (S.P. 60) (L.D. 171). In 2015, the U.S. District Court ruled that the law was invalid, because it was preempted by federal laws prohibiting such importation. See *Ouellette v. Mills*, 91 F. Supp. 3d. 1, 8–12 (D. Me. 2015).

innovation.⁹⁷ Some scholars maintain that several other countries have regulatory regimes similar to those of the United States, which ought to mitigate quality concerns.⁹⁸

Using the principle of “enforcement discretion,” however, the FDA in the past has approved the temporary importation of foreign drugs in cases when there is a shortage of an approved U.S. drug that is critical to patients, if the shortage cannot be resolved by manufacturers of the approved U.S. drug in the immediate future.⁹⁹ In these cases, FDA searches for similar products approved in foreign markets that may help meet critical patient needs in the United States.¹⁰⁰ The FDA identifies the product, evaluates it and its manufacturing chain for quality and safety, and ensures that the manufacturer is willing and able to import the drug.¹⁰¹ The FDA’s exercise of this enforcement discretion can provide a supply of foreign drugs to the United States during a critical medical shortage; however, this license is temporary, and is not equivalent to attaining FDA approval for marketing in the United States.¹⁰² According to FDA estimates, the agency uses such enforcement discretion extremely sparingly—deploying it in about five percent of drug shortage cases.¹⁰³ Notable instances include the 2012 importation of a substitute for Johnson & Johnson’s Doxil manufactured by an Indian generic company; the 2012 license to Hospira to import methotrexate from one of its Canadian facilities; and the 2013 importation of total parenteral nutrition drugs.¹⁰⁴

D. FDA Approval for Generics

1. Generic Approval Times

While FDA requirements for the approval of generic drugs is streamlined relative to the requirements for new drug entities, the process is still lengthy. Median times from ANDA application submission to approval was 36 months in 2013, rising to 43 months in 2014 and 48 months in 2015.¹⁰⁵ Currently, more than half of the applications for generic entrants take four years or more to attain approval. The FDA has attributed these long approval periods to

⁹⁷ Committee Staff interviews with compendium of experts from the following institutions: Duke University, Georgetown University, Harvard University (Aaron Kesselheim and others), Johns Hopkins University (Gerard Anderson, Joshua Sharfstein, and others), Massachusetts Institute of Technology, University of California—Berkeley, University of Chicago, University of Minnesota, July—December, 2016 (“Expert Compendium”) Expert Compendium.

⁹⁸ *Id.*

⁹⁹ See FDA, *Frequently Asked Questions: Temporary Importation of Lipodox*, at 1–2 (undated), found at, <http://www.fda.gov/downloads/Drugs/DrugSafety/DrugShortages/UCM295225.pdf> (last visited Dec. 6, 2016); Committee Staff Briefing with FDA (Dec. 17, 2015) (“December 2015 FDA Briefing”).

¹⁰⁰ December 2015 FDA Briefing.

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ FDA, *About FDA: Executive Summary: A Review of FDA’s Approach to Medical Product Shortages* (undated), found at, <http://www.fda.gov/AboutFDA/ReportsManualsForms/Reports/ucm277744.htm> (last visited Dec. 7, 2016).

¹⁰⁴ See Alexander Gaffney, *Regulatory Affairs Professional Society, Facing Dire Shortage of IV Saline, FDA Again Turns to Enforcement Discretion Approach* (Apr. 30, 2014), found at, <http://www.raps.org/focus-online/news/news-article-view/article/4933/> (last visited Dec. 6, 2016).

¹⁰⁵ See FDA, *Industry and FDA Overview on GDUFA: PDA/FDA Join Regulatory Conference*, at 16 (Sept. 29, 2015), found at, <http://www.fda.gov/downloads/ForIndustry/UserFees/GenericDrugUserFees/UCM470981.pdf> (last visited Dec. 6, 2016).

increases in annual ANDA submissions, including a growing number of foreign facilities making generic drugs, that has outpaced the increase in the FDA's resources for generic review and oversight, as well as the time it has taken to clear out a historical backlog of applications.¹⁰⁶

2. Application Fees for Generic Drugs

Generic applicants can face FDA fees well in excess of \$70,000. The phrase generic drug submission can refer to an ANDA, an amendment to an ANDA, or a prior approval supplement to an ANDA, and each process carries a separate fee. For Fiscal Year ("FY") 2017, the ANDA fee is \$70,480, and the prior approval supplement fee is \$35,240.¹⁰⁷ These fees are due on the date of submission of the application. Generic drug applicants also pay other fees ranging from \$44,234 to \$59,234 for the use of approved API facilities. Lastly, each API facility must pay an annual fee to the FDA to remain approved.¹⁰⁸ The cost of bringing new novel drugs to the market is, of course, substantially higher. A 2015 analysis estimated that after-tax costs for research and development plus pre-and post-approval expenditures (including FDA fees) averaged about \$1 billion for drugs introduced in the United States from 2005 through 2009.¹⁰⁹

Long approval times and lack of information on applications add uncertainty to the business calculation of whether to enter the market with a generic drug. While the FDA has taken steps to improve transparency related to certain aspects of its oversight process, information on ANDA applications submitted to the FDA and on the status of those applications is not publicly available due to potential trade secret and securities concerns.¹¹⁰ Thus, a potential generic drug applicant does not know whether other drug companies have filed applications or what the status of those applications may be. Some drug companies hire consultants to uncover any available information, without guarantees of reliability. Some stakeholders and experts have maintained that the lack of information on potential competitor entry makes it difficult for industry to predict FDA timing and to make informed decisions regarding their own entry. For example, knowing whether a company is likely to be the second generic entrant or the seventh could affect a company's entry decision.

The FDA has taken steps to improve transparency related to certain aspects of its oversight process, which improves its visibility into the drug supply chain and facilitates decision-making by generic entrants. For example, FDA databases now include more accurate information on facilities involved in the manufacture of drugs, with more than 3,900 facilities

¹⁰⁶ Committee Staff Briefing with FDA (Aug. 2, 2016) ("August 2016 FDA Briefing"). In 2012, the FDA received 1103 ANDA submissions; in 2000, it received 335. *Id.* See, *infra*, at 110 for information on legislation enacted to address this backlog.

¹⁰⁷ See FDA, *Abbreviated New Drug Application (ANDA) and Prior Approval Supplement (PAS) Fees*, (Aug. 1, 2016),

found at, <http://www.fda.gov/ForIndustry/UserFees/ucm319568.htm> (last visited Dec. 15, 2016).

¹⁰⁸ See FDA, *Generic Drug User Fee Amendments of 2012: Questions and Answers Related to User Fee Assessments*, at 3 (Nov. 2016), found at, <http://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidances/ucm316671.pdf> (last visited Dec. 15, 2016).

¹⁰⁹ See Ernst R. Berndt, et.al. *Decline in Economic Returns from New Drugs Raises Questions About Sustaining Innovations*, Health Affairs, at 249 (Feb. 2015).

¹¹⁰ November 2015 FDA Briefing.

that support generic drug applications self-identifying each year.¹¹¹ Nevertheless, since information on ANDA applications is not available, potential entrants do not have access to information regarding the number of parallel applicants or approval timelines, making it difficult for industry to predict the FDA's timing and subsequent competition to make informed decisions regarding entry.

3. Generic Application Backlogs

In 2012, Congress sought to speed the process for approving safe and effective generic drugs by authorizing a new user fee program for generic drugs under the *Food and Drug Administration Safety and Innovation Act* ("FDASIA").¹¹² The *Generic Drug User Fee Amendments* ("GDUFA"), which became effective October 1, 2012, and will sunset at the end of a five-year period, established a user fee program for generic drugs.¹¹³ Under GDUFA, the FDA collects fees from drug companies at certain stages of the generic drug application and approval process and can use the additional funds for activities such as reviewing submissions, issuing approvals, and monitoring and inspections, among other activities.¹¹⁴ The law defines the specific generic drug activities for which the FDA can use the funds, including review of submissions, issuance of approvals, inspections and monitoring, and other activities.¹¹⁵

GDUFA linked the continued fee increases to FDA performance requirements, set to commence in the later years of the program. One requirement concerned a backlog of applications received prior to October 2012, which included 2,866 ANDAs and 1,873 prior approval supplements. The FDA announced in July 2016 that it had acted on more than 90 percent of those backlogged submissions, ahead of the September 30, 2017, deadline set forth in the Act.¹¹⁶ ANDAs submitted in FY 2016 have a GDUFA first-action goal date of 15 months and those submitted in FY 2017 will receive a 10 month GDUFA goal date.¹¹⁷ Some GDUFA requirements are just beginning to come due at the printing of this Report, and the FDA has stated it has met performance goals for ANDAs submitted after the start of the GDUFA program. The agency expects to eliminate the backlog of ANDAs by the next re-authorization of GDUFA in 2017.¹¹⁸

¹¹¹ See FDA, *Industry and FDA Overview on GDUFA: PDA/FDA Join Regulatory Conference*, at 34 (Sept. 29, 2015), found at, <http://www.fda.gov/downloads/ForIndustry/UserFees/GenericDrugUserFees/UCM470981.pdf> (last visited Dec. 6, 2016).

¹¹² 126 Stat. 993 (2012).

¹¹³ 126 Stat. 993 (2012).

¹¹⁴ See generally, *id.*

¹¹⁵ See generally, 126 Stat. 993 (2012). The law also provides for streamlined hiring authority for FDA positions, and links the program to requirements for annual performance and spending reports by the FDA. *Id.* These provisions are authorized from October 1, 2012 and expire September 30, 2017 unless reauthorized. *Id.*

¹¹⁶ See *Prioritizing Public Health: The FDA's Role in the Generic Drug Marketplace: Hearing Before the Subcomm. on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies of the S. Appropriations Comm.*, at 5 (Sept. 21, 2016) (written testimony of Hon. Janet Woodcock M.D.).

¹¹⁷ *Id.* at 6.

¹¹⁸ See Zachary Brennan, *FDA's Woodcock: Generic Drug Application Will be Eliminated Before GDUFA II*, Regulatory Affairs Prof'l Soc'y, (Jan. 28, 2016), found at, <http://www.raps.org/Regulatory-Focus/News/2016/01/28/24195/FDA%E2%80%99s-Woodcock-Generic-Drug-Application-Backlog-Will-be-Eliminated-Before-GDUFA-II/> (last visited Dec. 6, 2016).

IV. Increasing Drug Prices

A. Prescription Drug Pricing Trends

After a period of relatively stable prices, spending on retail prescription drugs has been rising. In 2014, this spending rose in real terms by 12.2 percent, the largest increase since 2002.¹¹⁹ Broader measures that include hospital and other prescription drug spending increased by 11.5 percent.¹²⁰ In contrast, over the previous nine years, retail prescription drug spending growth had averaged 1.8 percent a year.¹²¹ The introduction of new high-priced brand name drugs, and price increases in existing branded drugs have contributed to this increase pattern. The Centers for Medicare and Medicaid (“CMS”) recently reported that the drugs on which Medicare Part D plans spent the most are (1) older drugs with the highest claims counts, such as Lisinopril, used to treat high blood pressure, and levothyroxine sodium, which treats hypothyroidism and (2) brand name high-profile drugs introduced more recently, such as the drug Sovaldi, used to treat hepatitis C, and Revlimid, a cancer drug.¹²²

B. Large Price Spikes for Off-Patent Drugs

Examples of sharp rises in the cost of off-patent drugs are being reported with increasing frequency. In addition to price hikes by the four companies that were the focus of the Committee’s investigation, other drugs have also garnered attention. In April 2016, a study found that the mean price of insulin, a lifeline therapy for the 29 million Americans with diabetes, increased from \$4.34 per milliliter in 2002 to \$12.92 per milliliter in 2013, a 200 percent increase.¹²³ In July 2016, a flurry of news outlets reported another staggering price spike: the price of Naloxone, the antidote to prescription painkiller overdoses, increased by 1,000 percent, amidst an opioid public health crisis.¹²⁴ In August 2016, Chairman Collins and Ranking Member McCaskill wrote to the CEO of Mylan requesting answers about the

¹¹⁹ See Lucy Lerner, *Health Affairs Web First: National Health Spending Growth Accelerates in 2014*, Health Affairs, (Dec. 2, 2015), found at, <http://healthaffairs.org/blog/2015/12/02/health-affairs-web-first-national-health-spending-growth-accelerates-in-2014/> (last visited Dec. 2016).

¹²⁰ [UNDER SEAL] (on file with Committee).

¹²¹ *Id.*

¹²² See CMS, *Updated Prescriber-Level Medicare Data*, (Aug. 18, 2016), found at, <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-08-18.html> (last visited Dec. 6, 2016). Abilify, Crestor, and Spivera are among the top 10 in Medicare Part D spending for 2014. *Id.*

¹²³ See Xinyang Hua, Natalie Carvalho, Michelle Tew, Elbert Huang, William Herman, Philip Clarke, *Expenditures and Prices of Antihyperglycemic Medications in the United States: 2002-2013*, 315 J. of the Am. Med. Assoc. 1400, 1401 (Apr. 5, 2016). Some insulin is on patent, but some is not.

¹²⁴ See Melody Petersen, *Narcan Prices Increase “By 1000 Percent or More”*, Los Angeles Times (July 20, 2016), found at, <http://www.ems1.com/health-and-wellness/articles/109046048-Narcan-prices-increase-by-1000-percent-or-more/> (last visited Dec. 6, 2016). Some Naloxone administration devices are on patent—naloxone is not. See Joshua Lloyd (FDA), *The Clinical Use of Naloxone*, FDA, at3, found at, <http://www.fda.gov/downloads/Drugs/NewsEvents/UCM454748.pdf> (last visited Dec. 12, 2016).

company's 500 percent price spike in its epinephrine auto-injector, EpiPen, used to save lives during an allergic emergency.¹²⁵

The detailed analysis in a recent U.S. Government Accountability Office ("GAO") study on generic drug price trends supports the perception of widespread price spikes.¹²⁶ More than 300 of the 1,441 established generic drugs that the GAO examined had one or more instances of "extraordinary price increases," defined as periods of prices at least doubling over the five-year study period.¹²⁷ In 2014 (and the first quarter of 2015), more than 100 generic drugs experienced these extraordinary increases in price.¹²⁸ For 48 of the drugs, the extraordinary price increases were 500 percent or higher.¹²⁹ Nearly all of the drugs with extraordinary price increases maintained those higher prices for at least the next year, and continued to persist for those drugs where the data allowed further tracking.¹³⁰

Although generic drugs continue to be a source of significant cost savings for the U.S. health care system overall, these savings are beginning to be eroded by the steep price spikes on this relatively small number of generic drugs.¹³¹

The GAO also found that competition "is the primary driver of generic drug prices," and "less competition could drive prices higher."¹³² While many factors can reduce competition in the generic drug market, the GAO noted that leading factors are consolidation among manufacturers or purchasers of a drug, lack of access to a drug's Active Pharmaceutical Ingredient ("API"), and the fact that a drug serves a small patient population.¹³³ The GAO also noted that competition could be increased by clearing out the backlog in the FDA generic approval process.¹³⁴

C. Generic Price Increases

For several decades, generic drugs provided relief from rising prescription drug prices with the increased availability and usage of lower-cost generic versions of branded drugs. According to the Generic Pharmaceutical Association, generic drugs now make up 89 percent of prescriptions dispensed in the United States.¹³⁵ Generic drugs saved Americans \$227 billion in

¹²⁵ See Letter from the Hon. Susan M. Collins & the Hon. Claire McCaskill to Heather Bresch, CEO Mylan, Inc. (Aug. 24, 2016). While EpiPen®'s delivery system is patented, epinephrine is not. See Andrew Pollack, *Mylan Raised EpiPen's Price Before the Expected Arrival of a Generic*, N.Y. Times (Aug. 24, 2016).

¹²⁶ See U.S. Gov't Accountability Office, *Generic Drugs Under Medicare*, GAO-16-706 (Aug. 2016).

¹²⁷ *Id.* at 3, 12.

¹²⁸ *Id.* at 12.

¹²⁹ *Id.* at 14.

¹³⁰ *Id.* at 17.

¹³¹ It is worth noting that few of the drugs identified by the GAO as experiencing extraordinary price increases were among the top 100 generic drugs used in the Medicare Part D program (*Id.* at 18).

¹³² *Id.* at Highlights.

¹³³ *Id.* at 23-24.

¹³⁴ *Id.* at 26.

¹³⁵ See Quintile IMS Health report, *2016 Generic Drug Savings and Access in the United States Report*, Generic Pharmaceutical Assoc. at 5, found at, <http://www.gphaonline.org/media/generic-drug-savings-2016/index.html> (last

2015.¹³⁶ With the introduction of a generic version of drugs as the patents of branded drugs expired, prices would fall and often continue to fall over time as additional generics entered.¹³⁷ These decreases have partly offset increases in the overall costs of prescription drugs.

Competition is the primary driver of drug prices.¹³⁸ Generic producers set prices of their multi-source products based on the price at which the drug is currently being sold in the market, with new entrants often setting a price somewhat lower. According to manufacturers, the market for generic drugs operates in a sense like a commodities market, with companies being asked to submit their best price to their customers—pharmacy organizations or wholesalers. The greater the number of manufacturers, the lower the price generally is. According to a 2016 IMS Institute for Healthcare Informatics report, the immediate price reduction in the cost of drugs following generic entry is substantial and is followed by continued savings in subsequent years.¹³⁹ Similarly, declines in the number of generic manufacturers for a drug often result in price increases.¹⁴⁰ According to industry stakeholders and several analyses, manufacturer consolidation through acquisition has contributed to higher prices.¹⁴¹

visited Dec. 16, 2016). The report notes that nearly 3.9 billion of the total 4.4 billion prescriptions dispensed in the U.S. in 2015 were filled using generic drugs.

¹³⁶ *Id.* at 4.

¹³⁷ *Id.* at 4.

¹³⁸ See U.S. Gov't Accountability Office, *Generic Drugs Under Medicare*, at 23, GAO-16-706 (Aug. 2016).

¹³⁹ See IMS Institute for Healthcare Informatics, *Price Declines after Branded Medicines Lose Exclusivity in the U.S.*, at 2 (Jan. 2016), found at, <https://www.imshealth.com/files/web/IMSH%20Institute/Healthcare%20Briefs/PhRMA%20Generic%20Price%20Brief%20January%202016.pdf> (last visited Dec. 6, 2016).

¹⁴⁰ *Id.*

¹⁴¹ See Trefis Team, *Why Are Generic Drug Prices Shooting Up?* Forbes (Feb. 27, 2015) found at <http://www.forbes.com/sites/greatspeculations/2015/02/27/why-are-generic-drug-prices-shooting-up/#3438fe3d377e> (last visited Dec. 7, 2016); RM Conti, MB Landrum, and M Jacobson, *The Impact of Provider Consolidation on Outpatient Prescription Drug-Based Cancer Care Spending*, at 1 The Health Cost Institute (undated).

CHAPTER 2. THE BUSINESS MODEL

The Committee found that each of the four companies that were the subjects of this investigation followed a business model that enabled them to identify and acquire off-patent drugs over which they could exercise de facto monopoly pricing power due to a market failure. The companies then imposed (and protected) astronomical price increases. Internal documents show that the companies paid careful attention to the business model and even presented analyses to potential investors describing how well the drugs they had targeted fit each aspect of the model. With some variation, the business model employed by the companies that were the subject of the Committee's investigation consists of the five central elements described below.

1. Sole-Source. The first element of the business model was to acquire a sole-source drug, for which there was only one manufacturer. By definition, a company that controlled access to a sole-source drug faced no immediate competition and could therefore price the drug aggressively. Once competitors enter the market, that pricing power declines rapidly. Studies show that generic competition greatly reduces the price of drugs, typically by about 50 percent in the first year generics entered the market.¹⁴² Drugs with competition from three or more generics often face generic competition priced at just 25 percent of the brand name drug price, or even lower.¹⁴³ The Committee found that the length of time a sole-source drug was expected to have the field to itself was an important consideration to the companies.

2. Gold Standard. The second element of the business model is to ensure the target drug was considered the “gold standard” treatment—*i.e.*, the best drug available for the condition it treated. The companies believed that “gold standard” drugs would be more valuable due to the high likelihood that physicians would continue to prescribe the drug and be reluctant to prescribe an alternative, even if the price of the drug increased significantly. The Committee found that the companies expected (correctly in most instances) that physicians would make special efforts to ensure their patients could access “gold standard” drugs regardless of price, such as completing prior authorization forms required to secure reimbursement from insurers or helping patients obtain financial support through other sources.¹⁴⁴

3. Small Market. The third element of the business model was to select a drug that served relatively few patients and that generated low revenues at its pre-increase price level. Such “small market” drugs often did not attract competitors and for that reason, some companies that controlled them have been able to exercise a de facto monopoly power.¹⁴⁵ As one expert witness noted, larger generic companies seem less likely to seek entry into markets where a brand drug had less than \$100 million in annual sales.¹⁴⁶

¹⁴² See IMS Institute for Healthcare Informatics, *Price Declines after Branded Medicines Lose Exclusivity in the U.S.*, at 4 (Jan. 2016).

¹⁴³ December 2015 Hearing, at 1 (written testimony of Gerard Anderson, Ph.D.).

¹⁴⁴ See Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00030993 (Nov. 13, 2015), and accompanying attachment, Assessing the Market Potential for Sulfadiazine and Pyrimethamine, TUR-SCA00030993, at TUR-SCA00031002 and TUR-SCA00031019 (June 10, 2015).

¹⁴⁵ See HHS, The Assistant Secretary for Planning and Evaluation, *ASPE Issue Brief, Understanding Recent Trends in Generic Drug Prices*, at 11 (Jan. 27, 2015).

¹⁴⁶ See December 2015 Hearing, at 3 (written testimony of Gerard Anderson, Ph.D.).

The Committee also found that the companies it investigated assumed that “small market” drugs provided another attractive advantage—the patient population dependent upon them would be too small to organize an effective opposition to the price increase.¹⁴⁷

4. Closed Distribution. The fourth element of the business model was to control access to the drug through a closed distribution system, specialty pharmacy, or some other means. Although the Committee found some variation in how the companies approached this element of the model, each company took steps to make it more difficult for competitors to enter the market. Turing, for example, used a closed distribution system to keep generic companies from getting the supply of Daraprim needed to conduct bioequivalence tests on generic alternatives, which is required to obtain FDA approval.¹⁴⁸

Valeant, on the other hand, may have used a subtler approach: It established a patient assistance program that may have been designed to attract and retain high-value patients (those who had private insurance or who could pay cash) while excluding low-value patients (*e.g.*, those without insurance). By doing so, Valeant could potentially draw the profits available in the market to itself, leaving potential competitors with a reduced prospect of making a profit if they attempted to offer a generic alternative.

5. Price Gouge. The final element of the business model was the ultimate goal—to maximize profits by increasing prices as much as possible. Each of the companies investigated by the Committee dramatically increased the price of the target drugs they controlled over a very short period. Turing, for example, increased the price of Daraprim from \$13.50 a pill to \$750 a pill—an increase of more than 5,000 percent—literally overnight.¹⁴⁹ It is worth noting that all of the drugs had been off-patent for decades, and none of the four companies had invested a penny in Research & Development to create the drugs or to significantly improve them.

The business model employed by the four companies was also actively supported and promoted by their investors.

¹⁴⁷ See Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00030993 (Nov. 13, 2015), and accompanying attachment, Assessing the Market Potential for Sulfadiazine and Pyrimethamine, TUR-SCA00030993, at TUR-SCA00031020 (Jun. 10, 2015).

¹⁴⁸ See Deposition of Edwin Urrutia, at 211:10–11 (Mar. 8, 2016) (“[H]aving closed distribution can increase a product life cycle by preventing generics from potentially getting your referenced product”) (“Urrutia Deposition”).

¹⁴⁹ See Andrew Pollack, *Drug Goes From \$13.50 a Tablet to \$750, Overnight*, N.Y. Times (Sept. 20, 2015).

CHAPTER 3. CASE STUDIES

I. Turing Pharmaceuticals, LLC

A. Company Background

Turing is a U.S. subsidiary of a Swiss company with most of its operations in New York. The company was founded on February 24, 2015, by Mr. Shkreli, its largest shareholder, who served as its CEO until he resigned on December 18, 2015, after his federal indictment on securities fraud charges.¹⁵⁰ Mr. Shkreli resigned as a Director of the Board on February 10, 2016.¹⁵¹

Mr. Shkreli had previously founded and served as CEO of Retrophin and left that company in October 2014.¹⁵² He brought with him Ron Tilles, who had been a consultant for Retrophin and later became Turing's Interim CEO and Chairman of the Board, Edwin Urrutia, who became Turing's Interim Chief Financial Officer ("CFO"), and Michael Smith, who became Turing's Senior Director of Business Development. Mr. Shkreli and his former-Retrophin colleagues brought with them the business model described in Chapter 3 which they had tested and refined at Retrophin.

Mr. Tilles, Mr. Urrutia, and Mr. Smith were deposed by Committee staff, and testified under oath at the Committee's hearing on March 17, 2016. Howard Dorfman, who served as Turing's General Counsel from December 2014 until he was fired in August 2015 for what may have been retaliation for his internal opposition to the price increase, also testified.¹⁵³ The Committee also deposed Turing's former Communications Director, Craig Rothenberg. Another important member of the Turing team was Nancy Retzlaff, Turing's Chief Commercial Officer.

After issuing subpoenas to Turing, the Committee obtained and reviewed almost 400,000 pages of Turing documents. Unfortunately, this total may not include all relevant documents. The Committee's investigation established that Mr. Shkreli often worked at his home apartment, and accordingly, the committee subpoenaed Mr. Shkreli personally to ensure that any Turing documents in his personal possession were produced. Mr. Shkreli, however, invoked the Fifth Amendment in response to this subpoena and did not produce any documents.

B. Daraprim Background

Daraprim is a 62-year-old brand name drug with the API pyrimethamine. It is considered

¹⁵⁰ See Letter from Martin Shkreli to Ron. Tilles, TUR-SCA00288756 (Dec. 18, 2015); Indictment in *United States v. Shkreli*, No. 1:15-cr-00637 (KAM) (E.D.N.Y.) (ECF NO. 1).

¹⁵¹ See Letter from Martin Shkreli to Turing Board of Directors, TUR-SCA00288755 (Feb. 10, 2016).

¹⁵² See, *infra*, at 41.

¹⁵³ March 2016 Hearing, Trans. at 31:10–16 (**Chairman Collins:** And, how soon after you expressed your opposition to this price increase were you fired? **Mr. Dorfman:** Umm, certainly less than a month. I would say approximately two—two to three weeks. **Chairman Collins:** Were you fired for cause? **Mr. Dorfman:** No. I was told I was not fired for cause).

the gold standard treatment for toxoplasmosis, a serious disease that, if not effectively treated, can lead to brain and organ damage, blindness, and death.¹⁵⁴ Toxoplasmosis is caused by a single-celled parasite called *Toxoplasma gondii*.¹⁵⁵ This parasite's only known host is cats, which then can infect intermediate hosts such as plants, soil, water, other animals, or people.¹⁵⁶ According to the U.S. Centers for Disease Control and Prevention ("CDC"), more than 60 million people in the United States may be infected with the parasite.¹⁵⁷ Pregnant women infected by the parasites can transmit congenital toxoplasmosis to their unborn children.¹⁵⁸ Few people who are infected will display symptoms because a healthy person's immune system can typically suppress the parasite, which survives in the body only as a cyst.¹⁵⁹ Individuals with compromised immune systems, however, are at risk of developing severe toxoplasmosis.¹⁶⁰ Infants and immune-suppressed patients with toxoplasmosis must be treated, often in a matter of days to prevent mortality and morbidity.¹⁶¹ Daraprim is an anti-parasitic compound administered orally in tablet format and is highly effective against *Toxoplasma gondii*.¹⁶²

C. The Acquisition of Daraprim

In March 2015, Turing entered into negotiations with Impax Pharmaceuticals ("Impax") to purchase the U.S. based licensing rights to Daraprim.¹⁶³ Turing bought Daraprim from Impax on August 7, 2015, for \$55 million.¹⁶⁴ Turing then increased Daraprim's price from \$13.50 a pill to \$750 a pill—*that same day*.¹⁶⁵ According to press accounts, at that time, Daraprim was only sold in 100-count bottles. Accordingly, a single bottle of Daraprim went from \$1,350 a bottle to \$75,000 a bottle. On November 24, 2015, Turing rolled out a "price cut" that Mr. Shkreli had promoted for months.¹⁶⁶ Under this price cut, the price was cut by 50 percent for inpatient

¹⁵⁴ See December 2015 Hearing, at 2–3 (Written Testimony of David Kimberlin, M.D.); March 2016 Hearing, at 2–3 (written testimony of Adaora Adimora, M.D., MPH).

¹⁵⁵ See Centers for Disease Control, Parasites—Toxoplasmosis (Toxoplasma infection) Toxoplasmosis Frequently Asked Questions, *found at*, http://www.cdc.gov/parasites/toxoplasmosis/gen_info/faqs.html. (last visited Nov. 21, 2016).

¹⁵⁶ See Centers for Disease Control, Parasites—Toxoplasmosis (Toxoplasma infection) Epidemiology & Risk Factors, *found at* <http://www.cdc.gov/parasites/toxoplasmosis/epi.html> (last visited Nov. 21, 2016); December 2015 Hearing, at 2 (written testimony of David Kimberlin, M.D.).

¹⁵⁷ See Centers for Disease Control, Parasites—Toxoplasmosis (Toxoplasma infection) Toxoplasmosis Frequently Asked Questions, *found at*, http://www.cdc.gov/parasites/toxoplasmosis/gen_info/faqs.html. (last visited Nov. 21, 2016).

¹⁵⁸ See Center for Disease Control, Parasites—Toxoplasmosis (Toxoplasma infection), Pregnant Women, *found at* http://www.cdc.gov/parasites/toxoplasmosis/gen_info/pregnant.html (last visited Nov. 21, 2016).

¹⁵⁹ See Centers for Disease Control, Parasites—Toxoplasmosis (Toxoplasma infection), Treatment, *found at*, <http://www.cdc.gov/parasites/toxoplasmosis/treatment.html> (last visited Nov. 21, 2016).

¹⁶⁰ *Id.*

¹⁶¹ December 2015 Hearing, Trans. at 37:3–14 (testimony of David Kimberlin, M.D.).

¹⁶² *Id.* at 3 (Dec. 9, 2015) (written testimony of David Kimberlin, M.D.)

¹⁶³ Deposition of Ron Tilles, at 77:16–22 (Mar. 9, 2016) ("Tilles Deposition").

¹⁶⁴ *Developments in the Prescription Drug Market: Oversight: Hearing Before H. Comm. on Oversight and Gov't Reform Hearing*, at 2 (Feb. 4, 2016) (written testimony of Nancy Retzlaff).

¹⁶⁵ See Andrew Pollack, *Drug Goes From \$13.50 a Tablet to \$750, Overnight*, N. Y. Times (Sept. 20, 2015)

¹⁶⁶ See Press Release, *Turing Reduces Cost of Daraprim* (Nov. 24, 2015), *found at*, <https://www.turingpharma.com/press-releases/15/turing-reduces-cost-of-daraprimreg-pyrimethamine/> (last visited Nov. 26, 2016).

hospitals only, but that still represented a price increase of over 2,600 percent from the price of the drug when it was purchased from Impax.¹⁶⁷ The price remained unchanged for all other users. Additionally, Turing started selling the product in a 30-count bottle.¹⁶⁸

1. Gold Standard

Turing's internal documents show that the company understood Daraprim's unique value as the "gold standard" for treating toxoplasmosis. A presentation Turing shared with its investors repeatedly referenced the fact that Daraprim (in combination with sulfonamide) is "the Gold Standard of care for toxoplasmosis."¹⁶⁹ Another internal Turing analysis stated that "physicians would prefer not to have to substitute another drug . . . [and] are at a loss to think of an appropriate alternative . . ."¹⁷⁰ Turing was confident that physicians would complete prior authorization forms required by insurers for reimbursement, and go out of their way to make sure their patients had access to the drug. Further, Turing predicted that some physicians would press their patients to accept the higher cost of Daraprim in the interest of receiving the best available treatment.¹⁷¹ Under questioning by the Committee, Mr. Urrutia admitted that a drug is more valuable when it is considered to be the "gold standard" for the condition it treats.¹⁷²

Daraprim's value as the "gold standard" was not diminished by the fact that Bactrim, a sulfa-based drug, was used by a "very small subset" of physicians to treat the disease.¹⁷³ Although Bactrim is commonly used as a "maintenance" drug for patients whose acute toxoplasmosis has been brought under control, it is considered a substandard alternative to Daraprim.¹⁷⁴

2. Sole-Source

Daraprim was a sole-source drug, and Turing attempted to lock up the supply of its API, pyrimethamine, to ensure it remained so. Mr. Urrutia admitted that one of the factors Turing analyzed in valuing the Daraprim transaction was that it was a "sole-source" drug.¹⁷⁵ He also

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ Email from Edwin Urrutia to Martin Shkreli, TUR-SCA00000620 (Jun. 17, 2015), and accompanying attachment, Project Dart, TUR-SCA00002406, at TUR-SCA00002407 (June 2015); see also, Email from Edwin Urrutia to Dan Wichman, TUR-SCA00105564 (Jun. 11, 2015), and accompanying attachment, Project Dart, TUR-SCA00105565 at TUR-SCA001105566 (Jun. 2015); Urrutia Deposition, at 156:11–157:15: (discussing sharing version of project Dart presentation with investors).

¹⁷⁰ Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00030992 (Nov. 13, 2015), and accompanying attachment, Assessing the Market Potential for Sulfadiazine and Pyrimethamine, TUR-SCA00030993, at TUR-SCA00031002 and TUR-SCA00031019 (Jun. 10, 2015).

¹⁷¹ *Id.* at TUR-SCA00031019.

¹⁷² Urrutia Deposition, at 144:10–17.

¹⁷³ Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00030992 (Nov. 13, 2015), and accompanying attachment, Assessing the Market Potential for Sulfadiazine and Pyrimethamine, TUR-SCA00030993, at TUR-SCA00031000 (Jun. 10, 2015).

¹⁷⁴ *Id.* at TUR-SCA00031000 and TUR-SCA00031013.

¹⁷⁵ Urrutia Deposition, at 202:14–20.

testified that he would have been concerned if he found out that there were multiple sources of the API available to the U.S. market.¹⁷⁶

Emails between Turing executives during the negotiations with Impax to acquire Daraprim underscore Turing's interest in acquiring sole-source drugs. In an email to Ms. Retzlaff and Ms. Tina Ghorban, dated April 29, 2015, Mr. Smith highlighted Daraprim and another drug as acquisition targets because they were "sole-source."¹⁷⁷ As Ms. Ghorban explained, she understood Mr. Smith's email to indicate that because Daraprim was both "sole-source" and the "gold standard" there was "potential for revenue" in the numbers projected.¹⁷⁸

In an email to a potential investor outlining the prospective acquisitions of Daraprim and another drug, Mr. Urrutia also stressed that both were "sole sourced and the standard of care" for the diseases they treated, and that Turing intended to place both in closed distribution.¹⁷⁹ Mr. Urrutia emphasized that Turing believed that the drugs could each generate 30 times their prior revenue and \$2 billion or more in value for the company. At the time, these two small market drugs were generating annual revenues of \$6 million and \$10 million.¹⁸⁰

At the time Turing acquired Daraprim, only two companies produced its API pyrimethamine for the U.S. market: Fukuzyu Pharmaceutical Co., Ltd., an API manufacturer located in Toyama, Japan, and IPCA Laboratories, located in India.¹⁸¹ Turing believed that an ANDA may have been filed in 2014 based on API produced by IPCA, but was confident that IPCA faced "substantial manufacturing issues that would significantly disrupt any filing" using its API.¹⁸² Turing also believed that Fukuzyu was under an exclusive supply agreement with Impax at that time.¹⁸³ In May 2015, Turing attempted to secure an exclusive deal to acquire the API from Fukuzyu for the U.S. market, but was unsuccessful.¹⁸⁴

Turing emphasized to potential investors that it expected Daraprim to remain a sole-source drug for at least a year, and possibly much longer.¹⁸⁵

¹⁷⁶ *Id.* at 203:19-23.

¹⁷⁷ Email from Michael Smith to Nancy Retzlaff and Tina Ghorban, TUR-SCA00030775 (Apr. 29, 2015).

¹⁷⁸ Transcribed Interview of Christina Ghorban, at 62:5-22 (Mar. 10, 2015) ("Ghorban Interview"). *See also id.* at 9:7-19 (Ms. Ghorban acknowledging the content of 18 U.S.C. §§ 1001 and 1505 and the fact that those statutes applied to transcribed interview).

¹⁷⁹ Email from Edwin Urrutia to Dan Wichman, TUR-SCA00007881 (May 20, 2015).

¹⁸⁰ *Id.*

¹⁸¹ *See* Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00031037, and accompany attachment, Project Dart, TUR-SCA00031038, at TUR-SCA00031043 (Jun. 2015).

¹⁸² *Id.*

¹⁸³ *Id.*

¹⁸⁴ *See generally*, Email from Michael Smith to Martin Shkreli, TUR-SCA00007901 (Jun. 1, 2015).

¹⁸⁵ *See* Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00031037, and accompany attachment, Project Dart, TUR-SCA00031038, at TUR-SCA00031046 (Jun. 2015).

3. Small Market

In the lead-up to the acquisition of Daraprim, Mr. Shkreli appears to have asked Mr. Smith to analyze the probability that a decades-old drug would face generic competition given the number of units sold and net revenues received annually.¹⁸⁶ After reviewing the competitive history of nearly 5,500 products, Mr. Smith reported back that “the most important takeaway” from his analysis was that just 10.8 percent of off-patent drugs with under \$10 million in annual sales faced generic competition within three years.¹⁸⁷ Furthermore, there was only a five percent probability that a generic competitor would enter a market where fewer than 20,000 units of a drug were sold each year.¹⁸⁸ Turing emphasized to investors that it was unlikely Daraprim would face a generic competitor soon—only 9,708 units (bottles) of Daraprim were sold in 2014 and net sales of the drug were under \$5 million.¹⁸⁹

Mr. Shkreli and Mr. Smith were not alone in their view that a small patient population was critical for remaining unchallenged after raising the price of Daraprim. Mr. Urrutia testified that Daraprim’s most attractive feature was the fact that it is served a small patient population.¹⁹⁰ He explained that small patient populations require a lot of effort and resources to serve, and this means that companies that own drugs that treat serious conditions for small populations have “pricing power.”¹⁹¹ Turing believed its planned price-hike would go unchallenged because so few people would be affected by it. As one internal document put it, “[t]he number of toxoplasmosis patients is too small to stimulate a significant lobbying effort were the cost of therapy to become an issue.”¹⁹²

4. Restricted Distribution

Daraprim is in “restricted distribution,” under which the drug cannot be obtained through normal pharmacy channels, but instead must be obtained from so-called “specialty” pharmacies. The restricted distribution arrangement was put in place previously by Impax, but used by Turing to tightly control the drug’s distribution to lock out potential competitors. As previously noted, some companies use restricted distribution due to a FDA required REMS protocol.¹⁹³ Daraprim is not subject to FDA mandated REMS.

¹⁸⁶ See Urrutia Deposition, at 153:18–155:7; Deposition of Michael Smith, at 131:14–132:5 (Apr. 3, 2016) (“Smith Deposition”).

¹⁸⁷ Email from Michael Smith to Martin Shkreli, TUR-SCA00007887, at TUR-SCA00007888 (May 23, 2015).

¹⁸⁸ *Id.*

¹⁸⁹ See Email from Edwin Urrutia to Martin Shkreli, TUR-SCA00000620 (Jun. 17, 2015), and accompanying attachment, Project Dart, TUR-SCA00002406, at TUR-SCA00002409 (June 2015).

¹⁹⁰ See Urrutia Deposition, at 204:23–205:5.

¹⁹¹ *Id.* at 85:13–20.

¹⁹² Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00030992 (Nov. 13, 2015), and accompanying attachment, Assessing the Market Potential for Sulfadiazine and Pyrimethamine, TUR-SCA00030993, at TUR-SCA00031020 (Jun. 10, 2015).

¹⁹³ See, *supra*, at 20.

Restricted distribution in this case was a deliberate part of Turing's plan to defend its shocking price increase and subsequent increased revenue against potential competition. As Mr. Dorfman explained, the closed distribution/specialty pharmacy arrangement:

[C]an reduce, if not eliminate, the opportunity for a second generic entrant to furnish sufficient quantities of the drug to patients in order to complete the necessary bioequivalence studies required for FDA approval. In the case of Daraprim, the retention of a new specialty pharmacy distributor to carry on a closed distribution system distribution system was considered an integral part of the company's desire to block a generic entrant for at least three years.¹⁹⁴

Internal Turing documents demonstrate the prevalence of this strategy at Turing. In a pre-transaction email in which Turing was exploring the acquisition of both Daraprim and Sulfadiazine, Mr. Smith wrote to Ms. Retzlaff and Ms. Ghorban, "[a]nother item to keep on your radar is Sulfadiazine. It is a sole-source (US only, generic ex-us) infectious disease product from Sandoz, indicated for toxoplasmosis. This would be the classic closed distribution play—we think it could do >250mm per annum."¹⁹⁵ Despite this email, Mr. Smith later maintained that he wasn't exactly sure what the term "classic closed distribution play" referred to and that such a "classic closed distribution play" could decrease the value of a drug to Turing.¹⁹⁶ This was directly contradicted not only by Mr. Dorfman's recollection, but by Ms. Ghorban who stated her view that "the business development team," which included "Michael Smith," believed that "classic closed distribution play" refer[ed] to the concept that you could use closed distribution to make it more difficult to get referenced listed drug for bioequivalence studies."¹⁹⁷

In another such email, Ms. Retzlaff instructed Ms. Ghorban that in anticipation of the Daraprim transaction closing in a matter of weeks: "As you're both aware, the priority work stream is to ensure the product is moved in a closed distribution as swiftly as possible in order to minimize exposure."¹⁹⁸ Ms. Ghorban indicated to the Committee that Ms. Retzlaff's email may have been referencing the strategy of using closed distribution to prevent generic entry because that was "what Martin [Shkreli] and the B[usiness] D[evelopment] team had been talking about" in June of 2015.¹⁹⁹

In addition, in July 2015, Mr. Shkreli texted Mr. Smith: "Interesting point from call with Kurt. Generics are required to keep samples on hand. So closed will prohibit new guys but any ANDA filer will keep samples and expiry won't matter cause they can retest them."²⁰⁰

¹⁹⁴ March 2016 Hearing, at 2–3 (Written Testimony of Howard Dorfman, Esq.).

¹⁹⁵ Email from Michael Smith to Nancy Retzlaff and Tina Ghorban, TUR-SCA00030775 (Apr. 29, 2015).

¹⁹⁶ Smith Deposition, at 93:3–100:12.

¹⁹⁷ Transcribed Interview of Christina Ghorban, at 47:8–11, 47:22, and 48:4–7 (Mar. 10, 2015) ("Ghorban Interview"). *See also id.* at 9:7–19 (Ms. Ghorban acknowledging the content of 18 U.S.C. §§ 1001 and 1505 and the fact that those statutes applied to transcribed interview).

¹⁹⁸ Email from Nancy Retzlaff to Tina Ghorban, TUR-SCA00282415, at TUR-SCA00282415 (June 10, 2015).

¹⁹⁹ Ghorban Interview, at 86:2–17.

²⁰⁰ Michael Smith Text Messages, TUR-SCA00289320, at TUR-SCA00289320 (July 11, 2015).

Mr. Shkreli and other senior Turing executives touted to potential investors the ability of closed distribution to block generic entry. As Mr. Urrutia explained, “investors get excited about a specialty distribution system because it does limit the generics that are able to access your product.”²⁰¹ He added when explaining a portion of a presentation that Turing prepared to highlight its business strategy, “closed distribution can increase a product life cycle by preventing generics from potentially getting your referenced product.”²⁰²

Mr. Smith maintained his denial that Turing actually pursued this strategy at the Committee’s March 2016 Hearing. There, he characterized Turing’s investor facing material as merely “suggesting” the use of a strategy to block generic entry through restricted distribution:²⁰³ “Turing supplies Daraprim in large volumes to some institutional purchasers. We don’t have the ability to control access to the product once it goes into those channels.” This claim—that Turing really didn’t mean to implement a restricted distribution strategy because it would not be effective in restricting institutional purchasers (such as 340B hospitals), and accordingly did not do so—is contradicted by the record.

To be sure, sales to 340B institutions were not strictly part of the restricted distribution system discussed above. But they were also tightly controlled to ensure that the drugs would not fall into the hands of potential generic entrants. Mr. Shkreli instructed Turing employees to ensure that Turing bought back all existing inventory in the distribution system to ensure (in part) that Turing had complete control over every bottle of Daraprim that left its hands.²⁰⁴ Further, Turing imposed a 5 bottle per transaction limit on sales to institutional purchasers, explaining that this rule “is to ensure that the account is legit and not a generics manufacturer.”²⁰⁵ Turing tightly monitored this channel, at times refusing to ship product until they confirmed it was going to actual 340B institutions to meet immediate patient need (as opposed to going to a generic manufacturer or being stockpiled by a 340B institution).²⁰⁶ In one instance, when Turing thought its logistics vendor had shipped Daraprim to a compounding pharmacy, its employees reacted angrily and swiftly, writing:

We do not sell Daraprim to compounding pharmacies. . . . This needs to be researched immediately and we need a detailed explanation and a rapid remedy (if the situation is as

²⁰¹ Urrutia Deposition, at 77:11–14.

²⁰² Urrutia Deposition, at 211:10–13; *see also, id.* at 206:3–22 (identifying document discussed in cited passage as Email from Edwin Urrutia to Ron Tilles, TUR-SCA00174150 (Nov. 13, 2015), and accompanying attachment, HC Fund, TUR-SCA00174151, at TUR-SCA00174152 (undated)); *id.* at 142:10–143:22 (similar discussion regarding closed distribution).

²⁰³ *See* March 2016 Hearing, at 2 (written testimony of Michael Smith); *id.* Trans, at 129:2–7 (testimony of Michael Smith).

²⁰⁴ *See* Email from Martin Shkreli to Michael Smith, TUR-SCA00006828, at TUR-SCA00006828–29 (Aug. 11, 2015).

²⁰⁵ Email from Jon Hass to Rick DeYoung, TUR-SCA00123435, at TUR-SCA0012345 (Oct. 2, 2015); *see also*, Email from Nila Desai to John Hass and Tom Evegan, TUR-SCA00197552, at TUR-SCA00197552 (implementing policy).

²⁰⁶ *See generally, e.g.*, Email from Tina Ghorban to Nancy Retzlaff, TUR-SCA00120149 (Oct. 30, 2015); Email from Ann Parkinson to Tom Evegan et al., TUR-SCA00054581 (Oct. 29, 2015).

I suspect it is) to get those bottles returned and destroyed at your expense. I need an immediate response and action.²⁰⁷

Ms. Retzlaff reiterated this directive emphatically, writing “[w]e need to get those bottles stat.”²⁰⁸ The record speaks for itself. Turing used restricted distribution—across all purchasing channels with the intent to block generic entry.

5. Price Gouging

Turing attempted to justify the outrageous price increase for Daraprim by arguing that it would use the resulting revenues to increase research and development for an improved toxoplasmosis treatment. Yet Mr. Dorfman testified that “the price increase, as contemplated and subsequently announced, was not justified by any such actual expenditure.”²⁰⁹ He explained:

[The] pharmaceutical industry has historically worked toward measuring price increases with the expenditures that were needed to establish clinical trial programs and to be able to fund a drug basically from the lab through FDA approval. These were not expenses or costs that Turing had incurred . . . and the rationale for that kind of price increase, or any major price increase, was lacking.²¹⁰

He considered the price increase “not justifiable” and “unethical.”²¹¹

At the Committee’s March 17, 2016, Hearing, Mr. Tilles claimed that “the revenues generated by Daraprim are primarily used to fund R&D.”²¹² But the extraordinary price hike Turing imposed on Daraprim had nothing to do with the R&D necessary to develop that drug. When questioned by Chairman Collins, Mr. Tilles admitted that the Daraprim pill Turing is selling today is essentially the same pill that has been on the market since the drug was approved in 1953, over a half-century before Turing was founded.²¹³ Turing made no changes to the pill except to raise its price from \$13.50 to \$750.00 per pill—more than 5,000 percent—overnight.

To put the price increase into perspective, before Turing bought the drug, a full year’s treatment would have cost \$6,500 and after Turing acquired it, the cost rose to \$361,000.²¹⁴

²⁰⁷ Email from Nancy Retzlaff to Jon Hass et al., TUR-SCA00196428, at TUR-SCA00196428 (Nov. 13, 2015).

²⁰⁸ Email from Nancy Retzlaff to Jon Hass et al., TUR-SCA00196428, at TUR-SCA00196428 (Nov. 13, 2015). This episode was resolved when it was determined that the Daraprim recipient was not a compounding pharmacy, but was in fact a 340B institution. Email from Rick DeYoung to Nancy Retzlaff, TUR-SCA00191764, at TUR-SCA00191764–65 (Nov. 13, 2015).

²⁰⁹ Senate Special Committee on Aging Hearing, *Sudden Price Spikes In Decades Old Rx Drugs: Inside the Monopoly Business Model*, at 3 (Mar. 17, 2016) (written testimony of Howard Dorfman, Esq.).

²¹⁰ March 2016 Hearing, Trans. at 49:5–15 (testimony of Howard L. Dorfman, Esq.).

²¹¹ Deposition of Howard L. Dorman, Esq., at 73: 16–17 and 74:18–19 (Feb. 2, 2016).

²¹² March 2016 Hearing, at 2 (written testimony of Ron Tilles).

²¹³ *Id.* Trans. at 74:7–18.

²¹⁴ The exact dosage and subsequent calculations depend on the age of the patient and the stage of the disease.

Mr. Tilles attempted to justify the price increase by arguing that some patients tolerate Daraprim poorly and that future improvements needed to be made to the drug.²¹⁵ But the overwhelming majority of physicians interviewed indicated that Daraprim is a highly effective treatment for toxoplasmosis and is well-tolerated, so this is not an area where a new drug is urgently needed.²¹⁶

Mr. Smith, another Turing executive who testified at the March 2016 Hearing, claimed to “care deeply” about patients who needed Daraprim. Copies of Skype chats obtained by the Committee between Mr. Smith and other Turing employees belie this sentiment. Chairman Collins confronted Mr. Smith with the chats:

. . . Mr. Smith, you made the most outrageous statement of anyone when you stated, quote, that you “care deeply about the patients who take Daraprim.” I would like to draw your attention to Exhibit 8 and Exhibit 9.

Now, clearly, you know that Daraprim went from being modestly priced to being prohibitively expensive. And when you started to hear of access problems, according to a Skype exchange that we have, which is shown in Exhibit 8, you say, “I think some of them are fake.”

You participated in a Skype chat with two of your colleagues in which you express shock that two patients had paid cash for Daraprim. Let me read from that chat, although it is difficult to do so because of the number of expletives in it in which you are making fun of patients that are paying the full amount. “Two patients have paid cash for Daraprim. Rich [expletive deleted]. Oh, my God. Wow.”

You went on to discuss concerns that you had with the 340B . . . program. . . . [Y]ou express concern that it was cutting into Turing’s profits. So, as we can see from the slides, your colleague, Mr. Crutcher, wrote, “Time to dip out of the 340B claims [expletive deleted]. F- these guys.” Your reply, “Laugh out loud. Yes. I told her to start disputing the 340B claims.”²¹⁷

A review of Turing internal documents shows the real reason for the price increase—the desire to maximize its profits. In an email to Mr. Jim Silverman, of Opaleye Management (a Boston-based hedge fund), Mr. Shkreli estimated that Turing’s \$55 million investment in Daraprim would yield annual revenues exceeding \$200 million.²¹⁸ Other documents shared with investors predicted “[p]otential revenues of over \$500 million, and 80% EBITDA.”²¹⁹ When asked by another apparent investors for the Daraprim “projections,” Mr. Shkreli wrote:

²¹⁵ See March 2016 Hearing, Trans. at 74:7–75:5.

²¹⁶ See, e.g., Committee Staff Interview with Dr. David Kimberlin (Nov. 20, 2015); Committee Staff Interview with Dr. Jose Montoya (Dec. 3, 2015). Some of the physicians the Committee spoke to did indicate that developing a drug to kill the cysts that remained latent in the body would be useful. *Id.*

²¹⁷ March 2016 Hearing, Trans. at 71:3–72:3.

²¹⁸ See Email Martin Shkreli to Jim Silverman, TUR-SCA00007941 (Aug. 8, 2015).

²¹⁹ Email from Edwin Urrutia to Martin Shkreli, TUR-SCA00000620 (Jun. 17, 2015), and accompanying attachment, Project Dart, TUR-SCA00002406, at TUR-SCA00002422 (June 2015).

I think it will be huge. We raised the price from \$1,700 per bottle to \$75,000. Previously impax sold 10,000 bottles per annum (50% is given away, however). So 5,000 paying bottles at the new price is \$375,000,000—almost all of it is profit and I think we will get 3 years of that or more. Should be a very handsome investment for all of us. Let's all cross our fingers that the estimates are accurate.²²⁰

And in perhaps his most infamous statement, when Mr. Tilles informed Mr. Shkreli that Mission was willing to entertain an offer to acquire the rights to Daraprim, Mr. Shkreli replied: "Very good. Nice work as usual. *\$1bn here we come.*"²²¹

II. Retrophin, Inc.

A. Company Background

Retrophin became publically traded on NASDAQ in December 2012.²²² Its founder was Mr. Shkreli.²²³ On May 29, 2014, Retrophin acquired the rights²²⁴ to the drug Thiola, a drug that first went on the market in 1988. Four months later, Retrophin raised the price of Thiola from \$1.50 per tablet to \$30.00 per tablet, an increase of 1,900 percent.²²⁵

On September 30, 2014, Retrophin's Board replaced Mr. Shkreli as CEO for a variety of alleged improprieties.²²⁶ Mr. Shkreli resigned his positions at Retrophin on October 13.²²⁷ Retrophin then sued Mr. Shkreli for some \$65 million dollars in damages and raised detailed accusations that Mr. Shkreli improperly raided corporate resources to enrich himself and to pay off investors in his prior hedge fund which had lost an enormous amount of money on a bad deal.²²⁸ Mr. Shkreli countersued, asserting claims under his employment agreement.²²⁹ There is a difference between the Retrophin run by Mr. Shkreli, and the Retrophin after the departure of

²²⁰ Email from Martin Shkreli to Greg Rea, TUR-SCA00008319 (Aug. 27, 2015).

²²¹ Email from Martin Shkreli to Ron Tilles, TUR-SCA00000503, at TUR-SCA-00000503 (May 27, 2015).

²²² See Retrophin, *Retrophin Complete Reverse Merger with Desert Gateway, Inc.* (Dec. 18, 2012), found at, http://files.shareholder.com/downloads/AMDA-1PLA2O/3336041822x0x670119/5221E841-2D8C-4C10-ADE3-3B68CB00B534/RTRX_News_2012_12_18_General_Releases.pdf (last visited Nov. 30, 2016).

²²³ *Id.*

²²⁴ See Retrophin, *Retrophin Enters into U.S. License Agreement for Thiola® (Tiopronin)* (May 29, 2014), found at, <http://ir.retrophin.com/releasedetail.cfm?ReleaseID=851378> (last visited Nov. 30, 2016); Email from Courtney Bond to Martin Shkreli, SSCA_THIOL_003113 (May 22, 2014), and accompanying attachment, Retrophin Investor Presentation, SSCA_THIOL_003114, at SSCA_THIOL_003117 (May 2015).

²²⁵ See Jeremy Stahl, *That Guy Who is Price-Gouging Aids Patients Also Did it to Kids with Kidney Disease*, Slate (Sept. 22, 2015).

²²⁶ See Retrophin, *Retrophin Announces Leadership Reorganization* (Sept. 30, 2014), found at, <http://ir.retrophin.com/releasedetail.cfm?ReleaseID=873875> (last visited Nov. 30, 2016).

²²⁷ See Complaint, at ¶ 3, *Retrophin, Inc. v. Shkreli*, No. 1:15-cv-06451 (NRB) (S.D.N.Y. Aug. 17, 2015) (ECF No. 1).

²²⁸ See generally, *id.*

²²⁹ See Letter Addressed to Judge Naomi Reice Buchwald from Celia G. Barenholtz, at 4, *Retrophin, Inc. v. Shkreli*, No. 1:15-cv-06451 (NRB) (S.D.N.Y. Sept. 18, 2015) (ECF No. 13) (discussing counterclaim by Mr. Shkreli in arbitration).

Mr. Shkreli. While the current company has not reversed the price increase on Thiola, it has made considerable investments in patient assistance for Thiola and appears to have renounced Mr. Shkreli's business model.²³⁰

As mentioned previously, several individuals who worked on Retrophin's acquisition of Thiola later followed Mr. Shkreli to Turing, including Mr. Urrutia, Mr. Crutcher, Mr. Smith, and Mr. Tilles, each of whom were examined on the record as part of the Committee's investigation.

B. Thiola Background

Thiola received FDA approval in 1988 and is used to treat cystinuria.²³¹ The drug prevents the buildup of kidney stones, which if untreated can be extremely painful and require surgery or lead to life threatening renal failure. While there are other drugs that treat cystinuria (such as Valeant's Cuprimine), Thiola is considered the standard of care²³² and is the only viable treatment for many patients. It is not widely prescribed, but some individuals are on the drug for long periods of time.²³³

In May of 2014, Retrophin acquired a license for the rights to Thiola from Mission Pharmaceuticals ("Mission"). Under the license agreement, Mission still owns and makes Thiola, but all marketing rights, including setting the price, were transferred to Retrophin. Mission receives a 20 percent royalty on Thiola sales. Mission previously licensed Thiola from UT Southwestern and was selling it for many years.²³⁴

In September 2014, Retrophin raised the price of the drug from \$1.50 to \$30.00 a tablet. According to Retrophin, Mr. Shkreli wanted to increase the price by a substantially greater amount, but was blocked from doing so by senior Retrophin officials.²³⁵

C. The Acquisition of Thiola

The business model later used by Turing to acquire and reprice Daraprim appeared to have first been tried by Retrophin on Thiola. A presentation made by Retrophin to its investors contemporaneous with the Thiola acquisition explained that a key reason for the company's interest in the drug was its "strong fit with Retrophin's focus on rare and catastrophic diseases." Retrophin viewed the drug as "significantly underpriced relative to the benefit it offers" to

²³⁰ Committee Staff Interview with Stephen Aselage (Nov. 14, 2016) ("Aselage Interview").

²³¹ See Retrophin Investor Presentation, SSCA_THIOL_003114, at SSCA_THIOL_003118 (May 2015).

²³² See Martin Shkreli, Transcript of licensing call regarding Thiola, SSCA_THIOL_003158 (May, 2014).

²³³ See Dr. Benjamin J. Davies, Associate Professor of Urology at the University of Pittsburgh School of Medicine, Retrophin Assailed for "Exorbitant" Price Hike (Sept. 10, 2014), *found at*, <https://www.thestreet.com/story/12873639/1/retrophin-assailed-for-exorbitant-drug-price-hike.html> (last visited Dec. 19, 2016).

²³⁴ See Email from Jim Self to Martin Shkreli, SSCA_THIOL_024838 (May 15, 2014), and accompanying attachment, Thiola Trademark License and Product Supply Agreement, SSCA_THIOL_024839. See also Email from Courtney Bond to Martin Shkreli, SSCA_THIOL_003113 (May 22, 2014), and accompanying attachment, Retrophin Investor Presentation, SSCA_THIOL_003114, at SSCA_THIOL_003117 (May 2014).

²³⁵ Aselage Interview.

patients, and the company believed it could “grow both volume and pricing” of the drug.²³⁶ The presentation went on to describe how Thiola met most of the key elements of the business model.

1. Gold Standard

The presentation explained that Thiola was one of only two drugs approved for the treatment of cystinuria, but was the “preferred therapy due to its reduced risk of adverse events.”²³⁷

2. Sole-Source

The presentation made clear that there were no known generic competitors to Thiola at the time of the acquisition.²³⁸

3. Small Market

Data in the investor presentation showed that Thiola’s annual revenues had been under \$2 million in each of the preceding five years.²³⁹ In an email exchange, Retrophin estimated that only 300 to 400 patients were on Thiola at the time.²⁴⁰ Internal Retrophin economic models showed a patient level of 394 in 2014, rising to 408 in 2015 and remaining steady thereafter.²⁴¹ Mr. Shkreli emphasized the importance of a small market to Retrophin’s ability to raise Thiola’s price without facing competition, assuring investors that few companies “will step up and care for just a handful of patients” because “low-revenue drugs are extremely low priorities for almost all drug companies.”²⁴²

4. Restricted Distribution

Retrophin also made clear that it would place the drug into closed distribution. Retrophin was upfront about its rationale, explaining that a “[c]losed distribution system prevents generics from accessing the product for bioequivalence studies.”²⁴³ In another email exchange, Mr. Shkreli speculated that denying access to the drug to potential competitors could prevent a generic entry for years, even if legislation were passed to require companies to share access:

²³⁶ Email from Courtney Bond to Martin Shkreli, SSCA_THIOL_003113 (May 22, 2014), and accompanying attachment, Retrophin Investor Presentation, SSCA_THIOL_003114, at SSCA_THIOL_003117 (May 2014).

²³⁷ *Id.* at SSCA_THIOL_003118.

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ See Email from Courtney Bond to Nikhil Goel, SSCA_THIOL_000638, at SSCA_THIOL_000638 (May 22, 2014).

²⁴¹ Email from Mark Panoff to Evan Greebel et al., SSCA_THIOL_038407, and accompanying attachment, Excel Spreadsheet, SSCA_THIOL_038408 (May 15, 2014).

²⁴² Email from Martin Shkreli to Courtney Bond et al, SSCA_THIOL_003157, and accompanying attachment, Thiola Licensing Call, May, 2014. SSCA_THIOL_003158, at SSCA_THIOL_003158–59 (May 2014).

²⁴³ Email from Courtney Bond to Martin Shkreli, SSCA_THIOL_003113 (May 22, 2014), and accompanying attachment, Retrophin Investor Presentation, SSCA_THIOL_003115 at SSCA_THIOL_003121 (May 2014).

It should take a long amount of time because the Sherman act clearly states companies like Retrophin and Celgene have “no duty to deal” and the Supreme Court ratified two challenges to this in the Pac Bell and Verizon cases. So if they can get some legislative momentum and get a law signed, there will still be a ‘test case’ which has to prove this law supersedes the Sherman Act, which you may know is one of the oldest American pieces of legislation. So I think worst case we have another 5 years because once we hand over samples to a generic, they will have to spend the next 3 years getting an ANDA approved.²⁴⁴

Outside analysts also noted Retrophin management’s commitment to a closed distribution system as a means of fending off generic competition “as no product may be available to conduct bioequivalent studies.”²⁴⁵

Mr. Shkreli also emphasized the importance of closed distribution to the business model in a call with investors:

[C]losed distribution [...] allows us to control the release of our product. *We do not sell Retrophin products to generic companies.* . . . The whole model that generics rely upon is turned upside down with specialty pharmacy distribution.”²⁴⁶

5. Price Gouging

Mr. Shkreli was remarkably candid regarding his drug-pricing philosophy in the context of Thiola. In an email to one investor, he put it this way:

The drug companies are afraid. Small ones, big ones, etc. Big price increases are horrifying because most executives overestimate changes in demand. It comes mostly from pharma’s history as quasi-consumer products. . . . The next generation of pharma guys (or the smart ones) understand the inelasticity of certain products. The insurers really don’t care. They just pass it through and focus on managing care for physician payments and blockbusters. They assume someone will genericize it if it is making too much money, and they’re right.

So I don’t really think of it the same way as others. I think this deal, if we pull it off, is worth \$100m-\$200m to our company. We’ll see!

I figure this dynamic may not last forever, you need to maximize opportunities while you can.

We’d pay \$1m to acquire a drug called Thiola, which is the only treatment for a rare

²⁴⁴ Email from Martin Shkreli to Dan Wichman, SSCA_THIOL_038413 (Sept. 22, 2014).

²⁴⁵ Email from Christopher Cline to Stephen Aselage et al., SSCA_THIOL_041104 (Apr. 2, 2015), and accompanying attachment, Leerlink RTRX Initiation, SSCA_THIOL_041106, at SSCA_THIOL-041118 (Apr. 2, 2015).

²⁴⁶ Email from Martin Shkreli to Courtney Bond et al., SSCA_THIOL_003157, and accompanying attachment, Thiola Licensing Call, May, 2014. SSCA_THIOL_003158, at SSCA_THIOL_003160 (emphasis added).

disease called cystinuria (contrast with RPTP cystinosis—totally different).

The drug does \$1.2m in sales. It is woefully underpriced and would not stop selling at orphan prices. With new pricing we estimate sales of \$20 to \$40 million. Almost 95% EBITDA margins at those prices. Would be an annuity for some time.

A \$100m present for you this morning.²⁴⁷

Even Mr. Shkreli's bold estimate of a "\$100 million present" to investors may have underestimated his view of Thiola's potential value. An economic model of the Thiola deal he created shows revenues for the drug exploding from just \$1.8 million in 2013—the last full year under Mission—\$13.1 million in 2014, \$41.5 million in 2015, and \$48.9 million in 2016. After subtracting the cost of goods sold, the royalty to Mission, operating expenses and taxes, Mr. Shkreli estimated that net income attributable to the drug would rise from \$867,000 in 2013 to \$5.3 million in 2014, \$20.5 million in 2015, and \$25.6 million in 2016, and would climb to as high as \$43.6 million in 2028. In net present value terms, the model shows that Mr. Shkreli estimated that Thiola would add \$291.7 million to Retrophin's valuation, equating to \$11.67 for each of the company's 25 million shares.²⁴⁸

Ultimately, the substantial price increase eventually taken on Thiola was not the price increase Mr. Shkreli wanted. He wanted to take a price increase of some four times that amount, but was stopped by others at Retrophin who considered such a large increase unwise or unconscionable.²⁴⁹

III. Valeant Pharmaceuticals International, Inc.

The Committee's investigation of Valeant covered four different drugs, two of which are consumer drugs, and two of which are used primarily in the hospital setting.²⁵⁰

A. Company Background

Headquartered in Canada, Valeant is the largest of the four companies investigated by the Committee. It markets brand name drugs, branded generics, over-the-counter products, and medical devices in more than 100 countries, including developed and emerging markets, with a focus on eye health, dermatology, and neurology therapeutic classes.²⁵¹ The company has

²⁴⁷ Email from Martin Shkreli to Dan Wichman, SSCA_THIOL_037832, at SSCA_THIOLA_037833 (May 3, 2014).

²⁴⁸ See Email from Mark Panoff to Evan Greebel et al., SSCA_THIOL_038407 (June 24, 2014), and accompanying attachment, Excel Spreadsheet, SSCA_THIOL_038408 (May 15, 2014).

²⁴⁹ Aselage Interview.

²⁵⁰ During the investigation, the then-CEO of Valeant, Mr. Pearson did not appear for a deposition, defying a Senate subpoena compelling him to appear (although he appeared at a later date). While Mr. Pearson was not cited for criminal contempt of Congress (he later purged his contempt), his conduct stands condemned.

²⁵¹ See *Impact on the U.S. Tax Code on the Market for Corporate Control and Jobs: Hearing Before the S. Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. & Gov't Affairs*, S. Hrg. 114–88, at 93 (July 30, 2015).

existed under its current name since 2003 and, in that time, it has expanded its operations to six continents and acquired multiple U.S. companies worth more than \$30 billion.²⁵² Valeant reported that it employed approximately 16,800 employees worldwide, and generated revenue of \$8.26 billion in 2014 with operating income of \$2.04 billion.²⁵³ Valeant's current CEO is Joseph Papa who succeeded Mr. Pearson, who served as CEO from 2008 to April 2016 and Chairman of the Board from March 2011 to January 2016.

Valeant was originally a U.S. corporation based in California. In 2010, it merged with Canada's largest publicly traded drug manufacturer, Biovail Corporation.²⁵⁴ Both companies were approximately the same size at the time.²⁵⁵ The new Valeant moved its corporate headquarters to Ontario, Canada, and then relocated to Quebec in 2012.²⁵⁶

At the time of merger, then-CEO Mr. Pearson touted the tax benefits of the deal, which was a classic corporate inversion.²⁵⁷ The Senate Permanent Subcommittee on Investigations has found that since the merger, Valeant has experienced a single-digit effective tax rate on its worldwide income.²⁵⁸

The Committee's investigation focused on four drugs marketed by Valeant where it is apparent that the company followed a more sophisticated version of the business model outlined earlier to generate enormous profits on decades old off-patent drugs.²⁵⁹ Indeed, Valeant appears to have been an early adopter of the basic structure of the business model after it discovered that two drugs it had acquired in 2010 from Aton Pharmaceuticals ("Aton"), Cuprimine and Syprine (among others), could generate substantial revenues for years before competitors could enter the market.

In addition to Mr. Pearson and Mr. Papa, key players at Valeant include Mr. Robert Rosiello, CFO from August 2015 to August 2016; Mr. Howard Bradley Schiller, Interim CEO from January 6, 2016, to February 28, 2016, CFO of Valeant from December 2011 through June 2015, and Board Director from September 2012 to June 2016; and Mr. Andrew Davis, Manager of Business Development from April 2012 to March 2013, Director of Business Development from March 2013 to September 2013, and Senior Vice President of Business Development since September 2013.

²⁵² *Id.* at 40.

²⁵³ *Valeant Pharmaceuticals, Inc., 10-K*, at 8 and 28 (Feb. 25, 2015).

²⁵⁴ *See Impact on the U.S. Tax Code on the Market for Corporate Control and Jobs: Hearing Before the S. Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. & Gov't Affairs*, S. Hrg. 114–88, at 94 (July 30, 2015).

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ *Id.* at 95.

²⁵⁹ Mr. Pearson was removed as CEO on April 21, 2016, and was formally replaced by Mr. Papa on May 3, 2016. Under Mr. Papa, Valeant states it has repudiated its strategy of acquiring decades old drugs with a business plan which called for massive price increases, but has not lowered the list price of the drugs on which it took enormous price increases. Committee Staff Interview with Joseph Papa (Aug. 30, 2016) ("Papa Interview").

B. Cuprimine and Syprine

1. Background

Cuprimine and Syprine are predominantly used to treat Wilson disease, a rare condition (about 30,000 cases worldwide) characterized by the body's inability to process copper.²⁶⁰

Dr. Frederick Askari, M.D., Director of the Wilson Disease Center of Excellence at the University of Michigan Health System, described the pathology of the disease and its grave consequences, as well as various treatment options, at the Committee's April 27, 2016, hearing. Copper (like other essential trace elements²⁶¹) is necessary in small amounts for human life, and is found in trace amounts in a variety of items humans consume.²⁶² Normally, copper levels are regulated through a natural process by which the liver removes excess copper from the body. In the case of an individual with Wilson disease, due to a genetic defect, the liver retains excess copper, and ultimately releases it into the bloodstream, where copper accumulates to potentially toxic levels.²⁶³ The consequences of the accumulation may be felt immediately or may be delayed as the body "fills up" relatively "safe" portions of the body with excess copper.²⁶⁴ Left untreated, Wilson disease can lead to liver failure, brain damage, and death.²⁶⁵ Dr. Askari testified that ceasing treatment can lead to severe consequences in a matter of weeks and that access to drugs to treat Wilson disease are truly a matter of life and death.²⁶⁶

According to Dr. Askari, treatment options for Wilson disease use "two types of action: (1) Chelating agents that prompt the organs to release copper into the bloodstream to be filtered by the kidneys and eliminated through urine; and (2) Zinc-based therapies which prevent the body from absorbing the copper."²⁶⁷ The standard of care is to use a chelating agent at least initially to remove excess copper, possibly switching to zinc after copper levels have stabilized.²⁶⁸ Two chelating agents are available:

- **Cuprimine (penicillamine)** has been used to treat Wilson disease since 1956 and was approved by the FDA in 1965.²⁶⁹ Cuprimine treats the disease by prompting "the organs to release copper into the bloodstream to be filtered by the kidneys and eliminated through the urine."²⁷⁰ Cuprimine was the medicine of choice for treating Wilson disease for much of

²⁶⁰ National Institutes of Health, National Human Genome Research Institute, *Learning About Wilson Disease*, (Dec. 8, 2010), *found at*, <https://www.genome.gov/27532725/learning-about-wilson-disease/> (last visited Dec. 8, 2016).

²⁶¹ See W. Mertz, The essential Trace Elements, *Science* (Sept. 18, 1981), [213(4514):1332-8].

²⁶² See April 2016 Hearing, Trans. at. 20:12–14 (testimony of Frederick K. Askari, M.D.).

²⁶³ *Id.* at. 20:15–18.

²⁶⁴ Committee Staff Interview with Dr. Frederick K. Askari (Apr. 26, 2016) ("Askari Interview").

²⁶⁵ See April 2016 Hearing, at 1 (written testimony of Frederick K. Askari, M.D.).

²⁶⁶ *Id.*

²⁶⁷ *Id.*

²⁶⁸ *Id.*

²⁶⁹ See April 2016 Hearing, at 1–2 (Apr. 27, 2016) (written testimony of Frederick K. Askari, M.D.); FDA File N019853.

²⁷⁰ April 2016 Hearing, at 1–2 (Apr. 27, 2016) (written testimony of Frederick K. Askari, M.D.).

the past fifty years and many patients with the disease take Cuprimine throughout their lives. While it continues to work for most patients, it is no longer the gold standard for every patient because approximately one third of patients experience adverse side effects.²⁷¹ Conversion to far less costly zinc treatment is a viable option for some patients.²⁷² That said, some physicians are reluctant to change patients who have been stable on Cuprimine for decades to another drug as every patient reacts differently to side effects.²⁷³ Cuprimine is also approved to treat cystinuria, and rheumatoid arthritis.²⁷⁴ Depen, sold by Meda Pharmaceuticals, is also a branded penicillamine, but it is not AB substitutable for Cuprimine, meaning that the two drugs interact differently with the body and accordingly a pharmacist cannot substitute Depen for Cuprimine.²⁷⁵ There are no generic versions of either drug.

- **Syprine (trientine)** was developed in 1969 as an alternative to Cuprimine for Wilson disease and received FDA approval in 1985. Syprine is now generally considered the gold standard for treating Wilson's disease and physicians are increasingly starting therapy with Syprine since it generally has fewer side effects.²⁷⁶ There is no other version of trientine sold in the United States.²⁷⁷

2. The Acquisition of Cuprimine and Syprine

In May 2010, Valeant acquired both Cuprimine and Syprine as part of its acquisition of Aton for \$318 million with the intention to generate high-margin revenue streams. According to a presentation made to the Valeant Board, Aton was "a specialty pharmaceutical company with a focus on ophthalmology and orphan indications."²⁷⁸ A slide in that presentation, labeled "Strategic Rationale for Transactions," states as to Cuprimine and Syprine: "Orphan designated drugs provide stable revenues from niche indications with limited competitors."²⁷⁹ The presentation also states "[a]ggressive price increases have driven growth despite flat to shrinking

²⁷¹ *Id.*

²⁷² See Michael J. Schilsky et al., *Costly Choices for Treating Wilson's Disease*, *Hepatology* Vol. 61, No. 4, at 1107 (2015).

²⁷³ Askari Interview.

²⁷⁴ Cuprimine Label (Rev. 8/2012).

²⁷⁵ See Valeant Responses to Senate Special Committee on Aging (Sept. 13, 2016).

²⁷⁶ See April 2016 Hearing, at 2 (Apr. 27, 2016) (written testimony of Frederick K. Askari, M.D.).

²⁷⁷ In addition, Wilson disease patients whose copper levels have been successfully reduced can sometimes be moved to a zinc-based drug for maintenance therapy and monitored for copper buildup. See April 2016 Hearing, at 1 (written testimony of Frederick K. Askari, M.D.).

²⁷⁸ Electronic Meeting Invitation from J. Michael Pearson to Valeant Board of Directors, VRX_SCA_00284882 (Apr. 15, 2010), and accompanying attachment, Project Atom, Presentation to Board of Directors, VRX_SCA_00284883, at VRX_SCA_00284884 (Apr. 15, 2010). Mr. Pearson, testified that he was ultimately responsible for the content of any PowerPoint Presentation placed before the Board of Directors. See Pearson Deposition, at 27:19–30:21. Pearson also indicated that "in general" "he reviewed documents that went to the Board," and would edit those documents if he deemed it necessary. *Id.* at 27:7–18.

²⁷⁹ Electronic Meeting Invitation from J. Michael Pearson to Valeant Board of Directors, VRX_SCA_00284882 (Apr. 15, 2010), and accompanying attachment, Project Atom, Presentation to Board of Directors, VRX_SCA_00284883, at VRX_SCA_00284891 (Apr. 15, 2010). Pearson testified that although he focused on other benefits of the transaction, that this bullet point did represent a key strategic rationale for the transaction. See Pearson Deposition, at 47:13–48:14.

TRxs.”²⁸⁰ Later, the presentation highlighted another reason *why* these two drugs had such powerful pricing potential—neither faced generic competition and API sourcing was a barrier for a potential generic competitor.²⁸¹

Another Board presentation indicated that the “[a]quisition would be strategic for the US business . . . —[p]rovide stable revenues from orphan products.”²⁸² A detailed accompanying analysis indicated that Valeant expected high gross margins on Cuprimine and Syprine.²⁸³

3. Sale of Cuprimine and Syprine to Retrophin Contemplated

In August 2012, Valeant received an unsolicited offer from Retrophin for the sale of Cuprimine and Syprine.²⁸⁴ Mr. Davis recalled that he personally dealt with Mr. Shkreli and his attorneys in processing this offer.²⁸⁵ No witness or document revealed the specifics of the offer, but Mr. Davis testified that it was formulated with an upfront payment and then payments over time.²⁸⁶

Apparently in response to this offer, Valeant prepared an analysis of Cuprimine and Syprine that was sent to Mr. Pearson, Mr. Schiller and other senior company officials.²⁸⁷ The analysis considered the drugs’ impact on total revenue where revenue from Cuprimine was stabilized through price increases to offset a decline in sales, while revenues from Syprine rose due to price increases on sales volume that remained flat.²⁸⁸

Mr. Davis testified that he was instructed to pursue the transaction by management because they felt it made sense economically.²⁸⁹ In his deposition, Mr. Davis testified that the transaction was signed, but then fell through when Retrophin failed to make the required initial immediate payment.²⁹⁰

²⁸⁰ Electronic Meeting Invitation from J. Michael Pearson to Valeant Board of Directors, VRX_SCA_00284882 (Apr. 15, 2010), *and accompanying attachment*, Project Atom, Presentation to Board of Directors, VRX_SCA_00284883, at VRX_SCA_00284889, (Apr. 15, 2010). It also cautioned: “Pricing backlash—recent price increases could impact volume sales or increase potential for generics.” *Id.* VRX_SCA_00284900

²⁸¹ *Id.* at VRX_SCA_00284887, VRX_SCA_00284908 (Apr. 15, 2010).

²⁸² See Email from Warren Lei to J. Michael Pearson, et al., VRX_SCA_00289745, *and accompanying attachment*, Project Atom Update, VRX_SCA_00289830, at VRX_SCA_00289831 (Apr. 27, 2010).

²⁸³ See Email from Warren Lei to J. Michael Pearson, et al., VRX_SCA_00289745, *and accompanying attachment*, Aton Acquisition Model, VRX_SCA_00289746 (Apr. 27, 2010). Prior to the close of the acquisition in May 2010, Valeant undertook an analysis of substantial price increases (Cuprimine 72 percent and Syprine 105 percent). See Email from Ryan Weldon to J. Michael Pearson, VRX_SCA_00045813 (May 3, 2010). To be sure, Valeant did not implement an immediate increase at this time. It did, however, take a meaningful price increase in June. See, *infra*, at 52.

²⁸⁴ See Deposition of Andrew Davis, at 33:14–34:2, 35:9–14 (Apr. 11, 2016) (“Davis Deposition”).

²⁸⁵ *Id.* at 34:12–22.

²⁸⁶ *Id.* at 35:9–12.

²⁸⁷ See Email from Ryan Weldon to J. Michael Pearson, et al., VRX_SCA_00076615 (Aug. 17, 2012) *and accompanying attachment*, Cuprimine and Syprine, VRX_SCA_00076616 (undated).

²⁸⁸ See Email from Andrew Davis to Ryan Weldon, VRX_SCA_00076589, at VRX_SCA_00076589 (Aug. 17, 2012).

²⁸⁹ See Davis Deposition, at 35:15–22.

²⁹⁰ *Id.* at 35:23–37:2.

4. “Orphan Drug Strategy”

The Committee uncovered that, beginning in late 2012, Valeant faced a situation in which its Neurology and Others business unit was failing to meet some of its budgetary targets (despite steady price increases in Cuprimine and Syprine).²⁹¹ In addition to potentially having impacted the Company’s publicly reported finances, this had the potential to result in a substantial reduction in compensation for unit executives, as the company closely tied compensation to unit performance.²⁹² Valeant’s solution was to adopt the Orphan Drug Pricing Strategy in order to meet aggressive performance goals and generate extraordinary public numbers to trumpet to Wall Street.

A five-year strategic plan reviewed by Valeant’s Board on August 31, 2012, projected that the base business of the Neurology and Other unit would erode over the planning horizon, from \$717 million to \$570 million annually—a compound rate of decline of 4.5 percent per

²⁹¹ Valeant divided its operations into a number of business units. All four drugs investigated by the Committee (Cuprimine, Syprine, Isuprel, and Nitropress) were located in the “Neurology and Other” business unit. The Neurology and Other unit was formed to hold a “hodgepodge” of products that did not fall within the other Valeant business units, such as “ophthalmology” or “dermatology.” See Pearson Deposition, at 80:12–82:19. Neurology and Others, as well as most Valeant units, reported to the Executive Vice President for the Company Group during the time relevant to the investigation.

²⁹² Mr. Pearson, in response to Committee questioning, testified that executive compensation within a Valeant business unit was linked to its performance relative to a “budget” which was established and approved by the Board prior to each fiscal year. See Pearson Deposition, at 128:3–14, 130:17–20.

Q: Okay. And to be clear, when you said you paid—get paid off the budget, I take that to mean that your bonus is linked to how your unit performs relative to your budget, in broad terms?

A: A piece of your bonus.

Q: Okay. How much?

A: So our bonus is—for the—for the business unit managers, about 75 percent is—65 to 75 percent is based on financial performance of that unit, approximately 65 percent; 10 percent is on the entire company; and 25 percent is on strategic initiatives.

Q: Okay. And what’s the order of magnitude of bonuses versus salary?

A: Twenty-five to, for the very large units, 50 percent . . . of your salary would be your target bonus.

Id. at 132:17–133:13.

This bonus regime applied across all levels of management, from the managers of individual business units to Mr. Pearson. See Deposition of Howard Bradley Schiller, at 45:8–51:3 (Apr. 6, 2016) (explaining intricacies of Valeant’s bonus scheme) (“Schiller Deposition”). Given that compensation of Valeant executives ranged from a six figure salary to a seven figure salary a year, the bonuses implicated by this regime were substantial. See Letter from Robert K. Kelner, Esq. to Samuel E. Dewey, Esq. (Apr. 26, 2016) and accompanying chart [UNDER SEAL]. See also, VRX_SCA_00595719–VRX_SCA_00595757 for detailed compensation analytics (undated) [UNDER SEAL]. And this regime may have been strictly enforced. The Controller, Tanya Carro, drafted a suggested cover email for transmitting 2015 Budget targets to corporate sectors which read. “We would hope that you would exceed your targets, but it is imperative that we not fall short.” Email from Tanya Carro to J. Michael Pearson and Howard Schiller, VRX_SCA_00389324, at VRX_SCA_00389324 (Aug. 15, 2014). *But see*, Pearson Deposition at, 216:16–217:22 (stating language in the foregoing email was not typical in his view, and noting he would not have “typically” used such language).

year.²⁹³ Even so, the plan targeted total revenues for the business unit to *grow* to \$1 billion as it sought out “life cycle management opportunities for older products,” and pursued “M&A opportunities to add new mature products to manage for cash.”²⁹⁴

Leadership in this business unit was extremely concerned about a variety of obstacles to meeting this ambitious goal for growth.²⁹⁵ Three factors appear to have led to the Valeant Orphan Drug Strategy: First, there was “[n]othing more to scrub in P&L,” *i.e.*, growth via cost savings was untenable²⁹⁶; second, “[p]ricing upsides near exhaustion;”²⁹⁷ and third, was “[v]ictims of past success’—Investor/analyst expectations exceed our guidance.”²⁹⁸

Later that year, Board members, including Mr. Schiller and Mr. Pearson, reviewed the 2013 Budget which would establish compensation metrics for the entire company.²⁹⁹ This budget projected Neurology and Other as Valeant’s most profitable U.S. unit by net revenue, and noted further price increases as a major opportunity for growth.³⁰⁰

Faced with the need to drive profits both company wide and specifically within Neurology and Other, Valeant worked quickly to develop the Orphan Drug Pricing Plan.³⁰¹ On

²⁹³ See Email from Laura Gaibor to Valeant Board, VRX_SCA_00292711 (Aug. 31, 2012), *and accompanying attachments*, Meeting Objectives and Agenda Review, Strategic Planning Offsite VRX_SCA_00292712, and US Neurology / Other Strategic Plan 2012-2017, VRX_SCA_00292739, at VRX_SCA_00292740 (June 18–20, 2012).; Pearson Deposition, at 89:16–23.

²⁹⁴ Email from Laura Gaibor to Valeant Board, VRX_SCA_00292711 (Aug. 31, 2012), *and accompanying attachments*, Meeting Objectives and Agenda Review, Strategic Planning Offsite, VRX_SCA_00292712, at VRX_SCA_00292725 (June 18–20, 2012), Neurology and Other Strategic Plan 2012–2017, Strategic Planning Offsite, VRX_SCA_00292739, at VRX_SCA_00292741, VRX_SCA_00292740, and VRX_SCA_00292751 (June 18–20); *see also*, Pearson Deposition, 91:10–19. Pearson testified that Valeant’s internal documents tend to use “revenue” as shorthand for “net revenue.” Pearson Deposition, at 79:16–80:7.

²⁹⁵ See Email from Laura Gaibor to Valeant Board, VRX_SCA_00292711 (Aug. 31, 2012), *and accompanying attachments*, Meeting Objectives and Agenda Review, Strategic Planning Offsite VRX_SCA_00292712, and US Neurology / Other Strategic Plan 2012-2017, VRX_SCA_00292739, at VRX_SCA_00292751 (June 18–20, 2012).

²⁹⁶ *Id.*

²⁹⁷ *Id.*

²⁹⁸ *Id.*

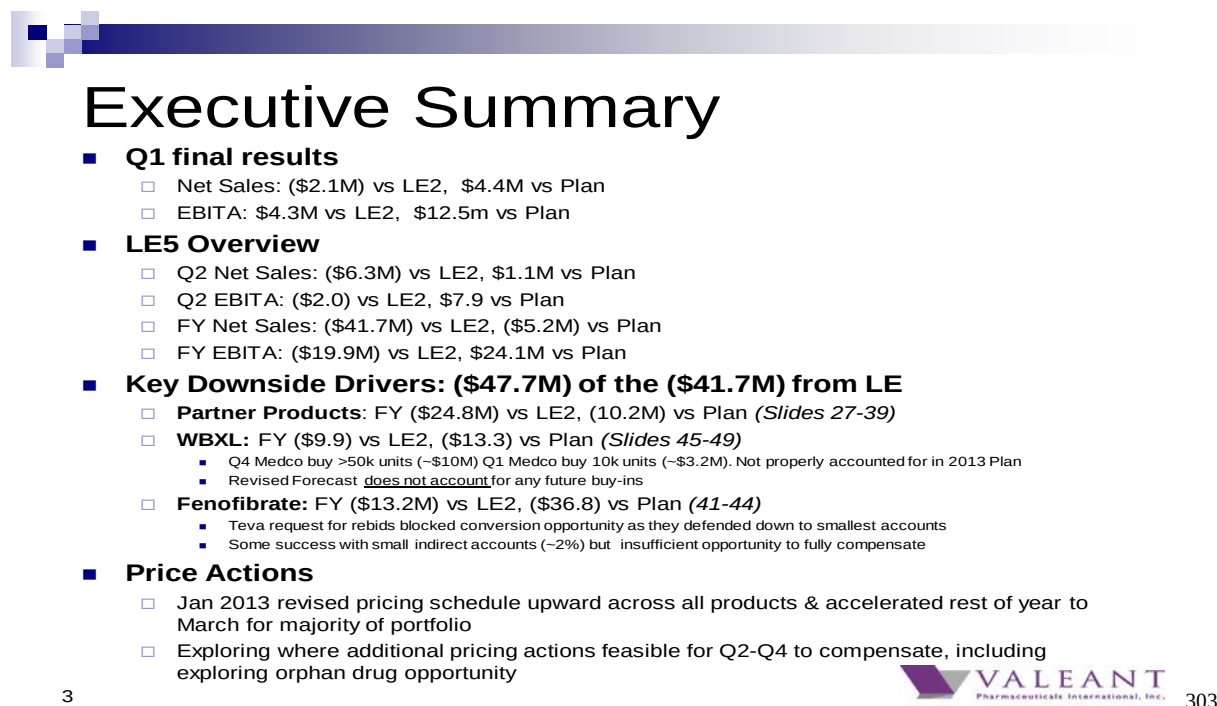
²⁹⁹ See Email from Craig Olson to J. Michael Pearson, Howard Schiller et al., VRX_SCA_00293063 (Nov. 11, 2012), *accompanying attachment*, 2013 Budget: Board of Directors Discussion, VRX_SCA_00293064 (Nov. 13, 2012).

³⁰⁰ See Email from Craig Olson to J. Michael Pearson, Howard Schiller et al., VRX_SCA_00293063 (Nov. 11, 2012), *accompanying attachment*, 2013 Budget: Board of Directors Discussion, VRX_SCA_00293064, at VRX_SCA_00293070, VRX_SCA_00293077. (Nov. 13, 2012).

³⁰¹ On January 15, 2013, Davis emailed Mr. Lei Warren (Valeant Business Development), and Mr. Jeff Strauss (Valeant Business Development) with the subject “Orphan Pricing” and asked “[w]anted to check if you have anything showing orphan drug price comps (for when making price increase argument).” Email from Warren Lei to Jeff Strauss and Andrew Davis, VRX_SCA_00076625, at VRX_SCA_00076625 (Jan. 25, 2013). In response, Mr. Lei circulated a 2011 spreadsheet that detailed how Valeant’s orphan drugs were priced much lower than other orphan drugs (without distinction as to innovator status). Excel Spreadsheet, VRX_SCA_00076627 (undated). Mr. Strauss noted: “we appear to be one of the lower cost orphan options. The conclusion could be that we could increase price significantly and still be under the radar of high cost orphan drugs.” Mr. Lei then wrote: “[m]any of the more expensive orphans are biologics. Since we’re small molecule—we have less of an argument on cost than others. Also—since we’ve taken price on others, didn’t want to take it all at once in a single year and get any potential backlash.” Email from Jeff Strauss to Lei Warren and Andrew Davis, VRX_SCA_00076712, at

April 20, 2013, Mr. Hemanth J. Varghese (“Mr. Varghese”), the then-head of Neurology and Other unit, presented the May 2013 Forecast to Mr. Pearson and Mr. Schiller.³⁰² The Executive Summary is shown in **Figure 2**.

Figure 2. Valeant’s Executive Summary



As Mr. Pearson admitted when deposed, this slide captures the unit’s plan of making up for declining revenue by implementing major price increases.³⁰⁴ The detailed portion of the slides revealed that a 400 percent pricing increase was contemplated for Syprine, with a 100 percent increase for Cuprimine.³⁰⁵ Together with “patient advocacy/support investment,” and

VRX_SCA_00076712 (Jan. 28, 2013). Mr. Davis testified he did not recall these exchanges. Davis Deposition at 38:9–10.

³⁰² See Email from Hemanth Varghese to J. Michael Pearson and Howard Schiller, VRX_SCA_00039561 (Apr. 20, 2013), and accompanying attachment, Neurology/Other Forecast Five, VRX_SCA_00039562 (Apr. 22, 2013).

³⁰³ See Email from Hemanth Varghese to J. Michael Pearson and Howard Schiller, VRX_SCA_00039561 (Apr. 20, 2013), and accompanying attachment, Neurology/Other Forecast Five, VRX_SCA_00039562, at VRX_SCA_00039564 (Apr. 22, 2013). The “plan” referred to in this presentation is the all-important budget number. Pearson Deposition at 127:20–128:14. The forecasts are mid-year updated performance projections. *Id.* The numbers in parenthesis are negative.

³⁰⁴ See Pearson Deposition, at 130:12–17. Pearson testified that although Neurology and Other was rarely behind budget, they did at times use price increases in order to meet their budgets. *Id.* at 131:22–132:16.

³⁰⁵ See Email from Hemanth Varghese to J. Michael Pearson and Howard Schiller, VRX_SCA_00039561 (Apr. 20, 2013), and accompanying attachment, Neurology/Other Forecast Five, VRX_SCA_00039562, at VRX_SCA_00039584 (Apr. 22, 2013).

price hikes for Demser (another drug it controlled), Valeant projected incremental revenue increases of \$43.6 million.³⁰⁶

Five days later, Mr. Laizer Kornwasser, the then-head of the Company Group, reviewed an orphan pricing model designed to “get to the projected number this year that Mike [Pearson] had in his head.”³⁰⁷ This model proposed targeting a series of price hikes cumulating to 500 percent increase for Syprine and 100 percent for Cuprimine in the second half of 2013.³⁰⁸ Similar models were circulated to the most senior levels of the company in the ensuing days.³⁰⁹

In June, senior Valeant Executives reviewed drafts of a “program summary” for the “Orphan Disease Product Launch Plan.”³¹⁰ The plan was designed to implement huge price increases to drive profitability.³¹¹

In the ensuing months Valeant implemented price increases on both drugs that were *greater* than the substantial increase contemplated by the pricing model and strategy document. Mr. Pearson testified that he was generally aware of these price increases and felt they were justified because Cuprimine and Syprine were “mispriced” when compared to “what orphan products are selling for.”³¹² The price history of Syprine and Valeant are reflected in **Table 2**.

Table 2. Pricing Histories of Cuprimine and Syprine

³⁰⁶ *Id.* at VRX_SCA_00039586.

³⁰⁷ Email from Jeff Strauss to Laizer Kornwasser VRX_SCA_00077863 (Apr. 25, 2013), *and accompanying attachment*, Excel Spreadsheet, VRX_SCA_00077864 (undated).

³⁰⁸ See Email from Jeff Strauss to Laizer Kornwasser VRX_SCA_00077863 (Apr. 25, 2013), *and accompanying attachment*, Excel Spreadsheet, VRX_SCA_00077864 (undated).

³⁰⁹ See, e.g., Email from Jeff Strauss to Howard Schiller et al., VRX_SCA_00077285 (Apr. 29, 2013), accompanying attachment, Excel Spreadsheet, VRX_SCA_00077286 (undated); Email from Jonathan Ercole to Andrew Davis, VRX_SCA_00015895, accompanying attachments, Excel Spreadsheet, VRX_SCA_00015896 (undated), Excel Spreadsheet, VRX_SCA_00015992 (undated).

³¹⁰ Email from Hemant Varghese to Laizer Kornwasser, VRX_SCA_00038777 (June 27, 2013), *and accompanying attachment*, Orphan Disease Product Launch Plan, VRX_SCA_0038778 (undated); Orphan Disease Produce Launch Plan, VRX_SCA_00055326 (undated).

³¹¹ *Id.* at VRX_SCA_00055342, VRX_SCA_00055349–50. Mr. Pearson had no recollection of this document which was found on his computer hard drive. The Committee has no reason to doubt the veracity of Mr. Pearson’s representation. See Pearson Deposition at 139:18–142:5. See, e.g., Email from Howard Schiller to Amy Hancock, VRX_SCA_00105123 (Dec. 4, 2014), *and accompanying attachment*, Neuro Pricing, VRX_SCA_00105124, at VRX_SCA_00105125 (Dec. 2, 2014) (noting historical pricing variation due to “Orphan strategy launched mid 2013”).

³¹² Pearson Deposition, at 185:10–186:4.

Cuprimine					Syprine				
Date	Old Price	New Price	% Increase	Cummulative % Increase	Date	Old Price	New Price	% Increase	Cummulative % Increase
5/26/2010	\$ 444.89	\$ 444.89	0.0%		6/3/2010	\$ 652.05	\$ 782.46	20.0%	
6/3/2010	\$ 444.89	\$ 507.17	14.0%	14.0%	6/4/2010	\$ 652.05	\$ 782.46	20.0%	20.0%
6/4/2010	\$ 444.89	\$ 507.17	14.0%	14.0%	10/7/2010	\$ 782.46	\$ 821.58	5.0%	26.0%
8/2/2010	\$ 507.17	\$ 542.67	7.0%	22.0%	3/12/2011	\$ 821.58	\$ 985.90	20.0%	51.2%
3/12/2011	\$ 542.67	\$ 596.94	10.0%	34.2%	8/27/2011	\$ 985.90	\$ 1,035.20	5.0%	58.8%
8/27/2011	\$ 596.94	\$ 614.85	3.0%	38.2%	2/8/2012	\$ 1,035.20	\$ 1,128.37	9.0%	73.0%
2/29/2012	\$ 614.85	\$ 670.19	9.0%	50.6%	8/1/2012	\$ 1,128.37	\$ 1,229.92	9.0%	88.6%
8/23/2012	\$ 670.19	\$ 730.51	9.0%	64.2%	10/25/2012	\$ 1,229.92	\$ 1,291.42	5.0%	98.1%
2/1/2013	\$ 730.51	\$ 887.57	21.5%	99.5%	2/1/2013	\$ 1,291.42	\$ 1,394.73	8.0%	113.9%
4/1/2013	\$ 887.57	\$ 985.20	11.0%	121.4%	4/1/2013	\$ 1,394.73	\$ 1,548.15	11.0%	137.4%
7/12/2013	\$ 985.20	\$ 1,231.50	25.0%	176.8%	7/12/2013	\$ 1,548.15	\$ 3,049.86	97.0%	367.7%
8/9/2013	\$1,231.50	\$ 1,970.40	60.0%	342.9%	8/2/2013	\$ 3,049.86	\$ 5,703.23	87.0%	774.7%
11/1/2013	\$1,970.40	\$ 2,364.48	20.0%	431.5%	8/30/2013	\$ 5,703.23	\$10,550.97	85.0%	1518.1%
2/28/2014	\$2,364.48	\$ 2,955.60	25.0%	564.3%	2/28/2014	\$10,550.97	\$13,188.71	25.0%	1922.7%
5/30/2014	\$2,955.60	\$ 3,694.50	25.0%	730.4%	7/18/2014	\$13,188.71	\$19,783.07	50.0%	2934.0%
7/18/2014	\$3,694.50	\$ 5,541.75	50.0%	1145.6%	2/12/2015	\$19,783.07	\$19,783.07	0.0%	2934.0%
11/21/2014	\$5,541.75	\$ 6,090.38	9.9%	1269.0%	7/2/2015	\$19,783.07	\$21,266.80	7.5%	3161.5%
7/2/2015	\$6,090.38	\$ 6,547.16	7.5%	1371.6%					
7/31/2015	\$6,547.16	\$26,188.64	300.0%	5786.5%					

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Subsequent to the more than 200 percent cumulative increase (FY) on Cuprimine in July and August 2013 and the more than 800 percent cumulative increase (FY) on Syprine in the same time period, the Neurology and Other unit presented forecasts to Mr. Pearson, Mr. Schiller, Mr. Kornwasser and other senior management indicating that they were now on track to surpass their budget projection³¹⁴ (and presumably earn the attendant bonuses for doing so).³¹⁵ This success was due in no small part to the incredible profits flowing from Cuprimine and Syprine.³¹⁶ Further price increases were planned for both drugs later in the year.³¹⁷

The 2014 budget³¹⁸ highlights that it was expected that Neurology and Other revenue and profit growth would be driven in part by “orphan products.”³¹⁹ Mr. Pearson personally expected this growth.³²⁰ These expectations led to price increases early in 2014 on both drugs. The updated 2014 business plan for the unit implementing this mandate—as presented to Mr.

³¹³ Letter from Robert K. Kelner, Esq. to Samuel E. Dewey, Esq., at 4–5 (Mar. 22, 2016).

³¹⁴ See Email from Steven Sembler to J. Michael Pearson et al., VRX_SCA_00038631 (Sept. 11, 2013), and accompanying attachment, Neurology/Other Forecast 8 Update, VRX_SCA_00038645, at VRX_SCA_00038647 (Sept. 12, 2013); Pearson Deposition, at 181:17–22.

³¹⁵ See, *supra*, notes 291–92 and accompanying text (discussing Valeant’s robust bonus scheme).

³¹⁶ See, e.g., Neurology/Other Forecast 8 Update, VRX_SCA_00038645, at VRX_SCA_00038648 (Sept. 12, 2013); Pearson Deposition, at 182:22–183:9; First Set of Interrogatories to Robert Rosiello, at ¶ 8 and attached charts (Mar. 27, 2016, amended Aug. 12, 2016) (“Rosiello Interrogatories”).

³¹⁷ See Neurology/Other Forecast 8 Update, VRX_SCA_00038645, at VRX_SCA_00038648 (Sept. 12, 2013).

³¹⁸ See Email from Howard Schiller to Laura Gaibor and J. Michael Pearson, VRX_SCA_00459645 (Dec. 12, 2013), and accompanying attachment, 2014 Budget: Board of Directors Discussion, VRX_SCA_00459646 (Dec. 12, 2013).

³¹⁹ *Id.* at VRX_SCA_00459655.

³²⁰ See Pearson Deposition at 203:15–204:2.

Pearson, Mr. Schiller, and others—showed the extraordinary profitability generated by these price hikes.³²¹ In particular, the “Executive Summary” highlighted “Changes from 1st Submission in October,” including, “[m]ore aggressive pricing actions on Orphan products (Syprine and Cuprimine),” and a *reduction* in Valeant donations to the foundation providing patient assistance for these drugs.³²²

Turning to the latter part of 2014, the strategy of driving impressive performance relative to the budget (and reaping the resultant bonuses) continued.³²³ Prices also continued to increase.³²⁴

Into 2015, Neurology and Other’s November tracking plan indicated that the unit would reach a billion dollars in revenue in December 2014—three years ahead of schedule.³²⁵ This same plan called for massive growth in revenue, again fueled by substantial price increases.³²⁶ The update from the unit for the 2015 Board Budget review boasted:

- “Neuro Business Unit Striving to be 1st Valeant unit to achieve \$1B in annual revenue and will achieve double digit growth for revenue and EBITA for 2014.”³²⁷
- “Neuro Business Unit will continue to produce double digit growth for revenue and EBITA in 2015.”³²⁸

Valeant again took substantial price increases on Syprine and Cuprimine in 2015, presumably to meet these targets.³²⁹

³²¹ See Email from Steven Sembler to J. Michael Pearson, et al., VRX_SCA_00458596 (Nov. 11, 2013), and accompanying attachment, Neurology/Other 2014 Plan, VRX_SCA_00458610, at VRX_SCA_00458611 and VRX_SCA_00458614 (Nov. 12, 2013).

³²² *Id.* at VRX_SCA_00458611 (Nov. 12, 2013).

³²³ See Email from Steven Sembler to J. Michael Pearson et al., VRX_SCA_00336101 (July 2, 2014), and accompanying attachment, Neuro Q3 Projections & Outlook, VRX_SCA_00336102, at VRX_SCA_00336113–18 (July 7, 2014); Email from Steven Sembler to J. Michael Pearson et al., VRX_SCA_00151663 (Apr. 7, 2014), and accompanying attachment, Neuro Update 2014 Q1 FY14 and Full Year, VRX_SCA_00151664, at VRX_SCA_00151664–70 (Apr. 8, 2014).

³²⁴ See, *supra*, at 54.

³²⁵ See Email from Laura Gaibor to J. Michael Pearson, VRX_SCA_00056530 (Oct. 24, 2014), and accompanying attachment, Neuro Q 2014 Outlook & 2015 Plan, VRX_SCA_00056531, at VRX_SCA_00056533 (Nov. 10, 2014); see also, *supra*, at 51 (discussing the Unit’s 5 year business plan).

³²⁶ See Email from Laura Gaibor to J. Michael Pearson, VRX_SCA_00056530 (Oct. 24, 2014), and accompanying attachment, Neuro Q 2014 Outlook & 2015 Plan, VRX_SCA_00056531, at VRX_SCA_00056533, VRX_SCA_00056543 (Nov. 10, 2014).

³²⁷ Email from Laura Gaibor to J. Michael Pearson, VRX_SCA_00499052 (Nov. 12, 2014), and accompanying attachment, Neurology/Other Business 6Update, VRX_SCA_00499518, at VRX_SCA_00499536 (Nov. 20, 2014).

³²⁸ *Id.*

³²⁹ See, *supra*, at 54.

5. Aggressive Price Increases

Valeant knew that Wilson disease is a deadly disease. This stark reality, coupled with its control over the drugs that were essential for the well-being of most victims of the disease, gave Valeant monopoly “pricing power” over Cuprimine and Syprine. Valeant exploited this, as Mr. Pearson admitted in response to questioning at the April Committee hearing:

Senator Kaine: In your thinking about this free market system you are describing, is it a factor . . . [that] . . . the absence of Syprine could lead to liver failure or a liver transplant or even death? Is that a factor?

Mr. Pearson: It is ³³⁰

a. Gold Standard

Health care professionals consider Syprine (and in the eye of a minority of providers, Cuprimine) to be the gold standard for treating Wilson disease.³³¹ Valeant knew that Syprine had largely displaced Cuprimine as the gold standard for Wilson disease treatment. As one executive put it in an email to Mr. Pearson “Cuprimine is considered an inferior product to Syprine so any loss is likely to Syprine which is ahead of QTD and YTD plan and is a higher priced product.”³³² As the Director of Business Development explained, when asked about a presentation Valeant prepared to share product opportunities with potential international partners, being the gold standard sells more drugs:

Q: “Strength: Market leader in the treatment of Wilson’s disease, chronic therapy with no generic forms on the market.” Why would you understand that to be a strength?

A: My understanding would be if you’re a market leader, that’s certainly good and usually means it’s preferred therapy that people want to use. Chronic therapy means that people need to continue to use it. And not having a generic would mean that there’s not competition.³³³

³³⁰ April 2016 Hearing, Trans. at. 97:17–23.

³³¹ See, *supra*, at 47–48.

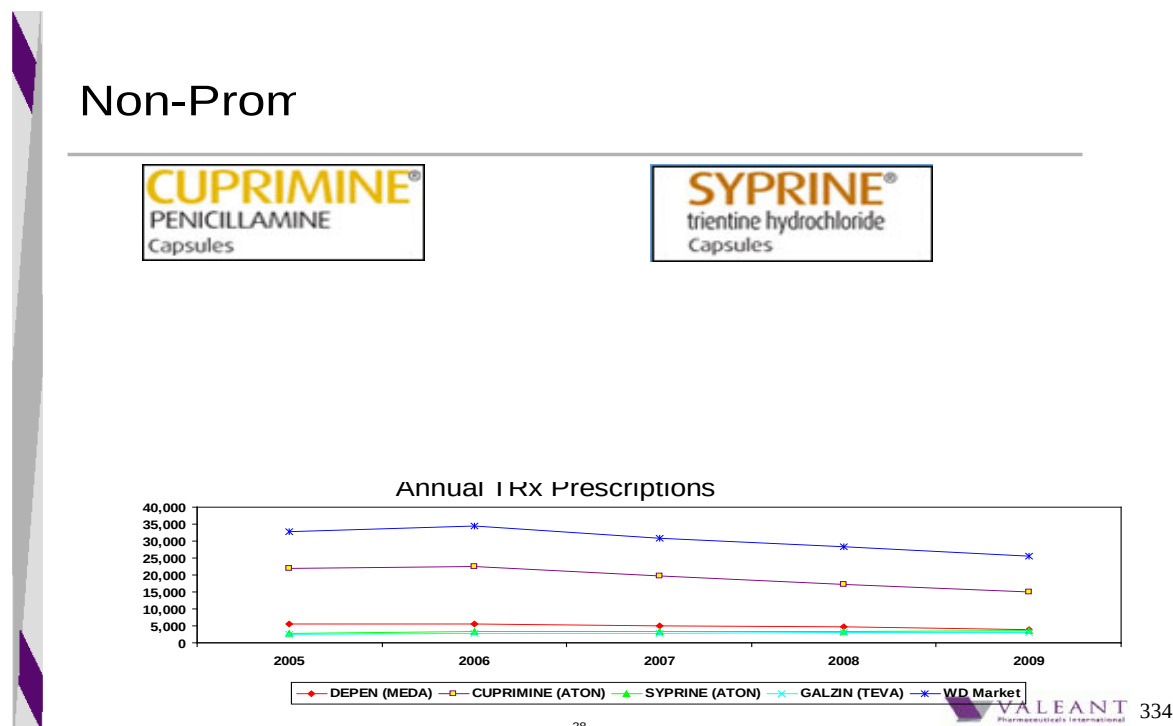
³³² Email from J. Michael Pearson to Rajiv DeSilva, VRX_SCA_00371892, at VRX_SCA_00371893 (June 13, 2011).

³³³ Davis Deposition, at 47:15–48:3 (quoting Email from Jeff Straus to Jonathan Ercole, VRX_SCA_00253149 (May 7, 2013), and accompanying attachment, BD Summit Orphan Products, VRX_SCA_00253150, at VRX_SCA_00253152 (undated)); see also, Davis Deposition, at 46:15–47:10 (discussing provenance of the BD Summit Orphan Products document).

b. Limited Substitutability

Even prior to acquiring Syprine and Cuprimine, Valeant focused on the fact that the drugs had limited substitutes and were effectively sole-source, as shown in **Figure 3**, a slide prepared for the acquisition.

Figure 3. Valeant Cuprimine and Syprine Acquisition Slide



The theme of exclusivity continued in subsequent presentations shared by Valeant executives, which noted that “Syprine is the only trientine hydrochloride available for the treatment of Wilson’s disease,”³³⁵ and that the company’s Orphan Drug Strategy was successful in part because Cuprimine and Syprine were “[o]rphan niche assets with few alternative therapies.”³³⁶

³³⁴ Electronic Meeting Invitation from J. Michael Pearson to Valeant Board of Directors, VRX_SCA_00284882 (Apr. 15, 2010), and accompanying attachment, Project Atom, Presentation to Board of Directors, VRX_SCA_00284883, at VRX_SCA_00284887, VRX_SCA_00284910 (Apr. 15, 2010).

³³⁵ Orphan Disease Produce Launch Plan, VRX_SCA_00055326, at VRX_SCA_00055342 (undated).

³³⁶ See, e.g., Email Steven Sembler to J. Michael Pearson et al., VRX_SCA_00038631 (Sept. 11, 2013), and accompanying attachment, Neurology/Other Forecast 8 Update, VRX_SCA_00038645, at VRX_SCA_00038654 (Sept. 12, 2013); Email from Steven Sembler to Scott Barry, VRX_SCA_00059485 (Oct. 7, 2013), and accompanying attachment, Neurology/Other 2014 Plan, VRX_SCA_00059486, at VRX_SCA_00059509 (Oct. 10, 2013).

c. Small Market

From the earliest exploration of the inherent “value” of Syprine and Cuprimine to Valeant, senior Valeant executives recognized that these small market drugs, serving a limited patient population, would provide Valeant with more pricing power.³³⁷ Mr. Pearson himself acknowledged this point at the Committee’s April hearing:

Senator Kaine. Do you understand—you know, we are using [the] phrase “orphan drugs.” Do you understand when we talk about this as basically a “patient as hostage” model, do you understand why we have come to look at it that way?

Mr. Pearson. I certainly have learned more today, and I do understand the description that you are giving now.³³⁸

Valeant also noted that price increases on orphan drugs had a “relatively small” overall impact on health budgets and was “largely tolerated by the medical community” for that reason.³³⁹

6. Patient Assistance Program Furthered Monopoly Profits

Valeant repeatedly touted its PAP, the VCPP, in response to criticisms of its Cuprimine and Syprine price increases. But based on internal Valeant documents, the Committee believes that these programs were driven not by altruism, but by Valeant’s desire to extract monopoly profits and then conceal that fact from the public.³⁴⁰

a. The Valeant Coverage Plus Program Was Designed to Increase Revenue

On a basic level, revenue in pharmaceuticals is determined by the variables of price (how much is charged for a drug), and volume (how many pills are sold). Co-pay assistance is often one way to increase revenue. For example, take a drug that costs \$100,000 for a pill. Suppose its net costs to the company that makes it (including SG&A and other allocated corporate overhead) is \$10,000.³⁴¹ Now suppose that insurance covers \$80,000 of the cost, but leaves a patient with a \$20,000 co-pay. In theory that copay would cause the patient to be sensitive to the cost of the drug and push back on price changes and high drug costs by changing their level of consumption, if possible. This pushback could lead to reduced volume, negating an increase in company profits from price increases. But when companies offer co-pay assistance so that the

³³⁷ See, e.g., Electronic Meeting Invitation from J. Michael Pearson to Valeant Board of Directors, VRX_SCA_00284882 (Apr. 15, 2010), and accompanying attachment, Project Atom, Presentation to Board of Directors, VRX_SCA_00284883, at VRX_SCA_00284884 (Apr. 15, 2010); see also Pearson Deposition, at 32:10–19 (noting that although Pearson was attracted to the transaction because of Aton’s ophthalmology assets, “[a] significance piece of Aton, in terms of revenue, was orphan”).

³³⁸ Senate Aging Committee Hearing, *Valeant Pharmaceutical’s Business Model: The Repercussions for Patients and the Health Care System*, Trans. at. 98:6–11 (Apr. 27, 2016).

³³⁹ Orphan Disease Product Launch Plan, VRX_SCA_00055326, at VRX_SCA_00055360 (undated).

³⁴⁰ To be sure, when pressed on these points, Mr. Pearson testified at the Committee’s hearing that “for patient assistance programs, we do not look at it as an investment with a return.” April 2016 Hearing, Trans. at. 116:15–17.

³⁴¹ See Appendix for an explanation of the terms of art used in drug pricing.

patient pays almost nothing, companies eliminate that vector for downward pressure on pricing. And the drug company still profits from the sale of drugs. Even if the drug company “pays” the entire copay (which is just an internal credit), it will still net a \$70,000 profit (the \$80,000 payment by insurance minus the \$10,000 cost of production).

As Senator Warren explained at the Committee’s April 2016 hearing, these economics suggest that patient assistance programs may be more about profit than charity:

Well, so because what is interesting to me about this is it means, if I am following the math right on this, you double the price even if you manage to give a waiver to the customer, you are still making a lot more money on this. And part of the way I figured this out is there is a Bloomberg report out that says that the pharmaceutical industry spent about \$7 billion on copay assistance in 2015, and that was up from \$1 billion in 2010. That all sounds pretty good until you get to the rest of the math.

According to multiple analyses, these programs actually benefit drug companies when alternatives may be available and shifting the costs of expensive drugs to consumers and to the insurance companies, so we all pay higher premiums in order to cover if the insurance company is still paying for it, and the drug companies are still picking up the money and putting it in their pockets.³⁴²

From the outset, the Valeant Coverage Plus Program was a poster child for the economic point raised by Senator Warren. It was about delivering co-pay assistance to the large percentage of Wilson disease patients on commercial insurance in order to increase volume and resulting profits.³⁴³ The “Orphan Disease Product Launch Plan” made clear that the program offered an “[o]pportunity to expand patient access and utilization with maximizing value. . . .”³⁴⁴ That presentation went on to state as benefits to Valeant:

- “Maximizes patient acquisition and retention by removing financial barriers.”³⁴⁵
- “Enhances per patient value through compliance and persistency.”³⁴⁶
- Allows for direct control of cost management programs.”³⁴⁷

Indeed, in 2014, an internal Valeant presentation listed a “Copay Card” not as a patient assistance initiative, but in a chart entitled “Summary *Marketing* Grid Supporting 2014/2015

³⁴² April 2016 Hearing, Trans. at 115:19–116:10.

³⁴³ See Email from Hemanth Varghese to J. Michael Pearson and Howard Schiller, VRX_SCA_00039561 (Apr. 20, 2013), and accompanying attachments, Neurology/Other Forecast Five, VRX_SCA_00039562 (Apr. 22, 2013) and Neurology/Other Forecast Five-Backup, VRX_SCA_00039587 at VRX_SCA_00039629, VRX_SCA_00039635 (Apr. 22, 2013) (Noting commercial Cuprimine sales of 64.7 percent and Syprine sales of 69.30 percent).

³⁴⁴ Orphan Disease Product Launch Plan, VRX_SCA_00055326, at VRX_SCA_00055328 (undated).

³⁴⁵ *Id.* at VRX_SCA_00055332.

³⁴⁶ *Id.*

³⁴⁷ *Id.*

Strategies.”³⁴⁸ That presentation went on to list under “key *Marketing* Initiatives—Summary,” “Orphan Strategy,” “[i]ncrease Valeant Coverage Plus Program visibility through Wilsons Disease Association and direct mail campaigns to HCPs.”³⁴⁹ And the Neurology and Other 2015 Plan list a priority for VCPP:

- “Increase awareness and improve patient access to VCPP.”³⁵⁰
- “Maximize reimbursement while minimizing patient out of pocket expense on Orphan assets.”³⁵¹

Furthermore, an email from Mr. Kornwasser—one of the most senior of Valeant executives who was personally trusted by Mr. Pearson³⁵²—clearly demonstrates Valeant’s motive with the VCPP:

[May 19, 2014, 10:22 a.m. Clarissa Alvarado, Valeant Customer Services Lead (“Alvarado”) to Kornwasser]: Good morning Laizer: Cheryl asked me to send you the information we provide to callers who complain about the price of Syprine, Cuprimine or Targretin. We have a program for Syprine and Cuprimine called Valeant Coverage Plus. Targretin is part of the Valeant Patient Assistance Program, which is managed by Inventiv Health.

[10:41 a.m., Kornwasser to Alvarado]: Do we have the names of people that have called in regarding Cuprimine/Syprine/Targretin over the last 2 months?

[10:43 a.m., Alvarado to Kornwasser]: Unfortunately, we don’t have a way to store or track that information.

[10:45 a.m., Kornwasser to Alvarado]: For these 3 drugs we need to find a way asap.

[10:54 a.m., Alvarado to Kornwasser]: I believe that B&L Consumer Affairs uses Salesforce.com to track these types of complaints, but our team does not have access or training on this system.

[11:04 a.m., Kornwasser to Alvarado]: What do we need to do to be able to do this?

[11:13 a.m. Alvarado to Kornwasser]: Janice Glerum manages the group that has access. I will reach out to her to see if she can offer guidance on how our team can get access.

[11:15 a.m. Kornwasser to Alvarado]: *Thx. These patients are too valuable to lose.*³⁵³

³⁴⁸ Email from Laura Gaibor to J. Michael Pearson, VRX_SCA_00499052 (Nov. 12, 2014), *accompanying attachment*, Neurology/Other Business Update, VRX_SCA_00499518, at VRX_SCA_00499526 (Nov. 20, 2014) (emphasis added).

³⁴⁹ *Id.* at VRX_SCA_00499527.

³⁵⁰ Email from Sandeep Lalit to Steven Sembler, et al., VRX_SCA_00483659 (Sept. 4, 2014), *and accompanying attachment*, Neurology/Other 2015 Plan, VRX_SCA_00483660, at VRX_SCA_00483669 (Sept. 4, 2014).

³⁵¹ *Id.*

³⁵² Pearson Deposition, at Written Response 1.

³⁵³ Email from to Laizer Kornwasser to Clarissa Alvarado, VRX_SCA_00061484, at VRX_SCA_00061484–5 (May 20, 2014) (emphasis added).

b. Valeant's Coverage Plus Program Was Designed to Mute Criticism from Patients and the Press

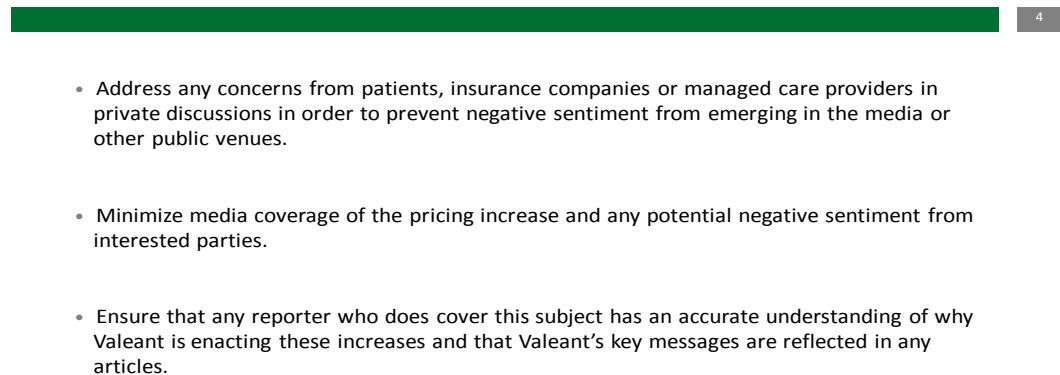
Valeant was acutely aware from the beginning that “[s]ubstantial price actions could attract undue negative publicity from patients, HCP’s, payers, and/or government agencies.”³⁵⁴ Accordingly, the VCPP was designed with the following objectives:

- “Privately address concerns from patients, insurance companies or managed care providers to prevent public displays of negative sentiment.”³⁵⁵
- “Minimize media coverage of the pricing increase.”³⁵⁶
- “Ensure understanding of why Valeant is enacting these increases and that Valeant’s key messages are reflected in any publications.”³⁵⁷

Another portion of the presentation, shown in **Figures 4–5**, echoed these points.

Figure 4. Valeant's Coverage Plus Program Objectives

Strategic Objectives

- 
- Address any concerns from patients, insurance companies or managed care providers in private discussions in order to prevent negative sentiment from emerging in the media or other public venues.
 - Minimize media coverage of the pricing increase and any potential negative sentiment from interested parties.
 - Ensure that any reporter who does cover this subject has an accurate understanding of why Valeant is enacting these increases and that Valeant’s key messages are reflected in any articles.



³⁵⁴ Orphan Disease Product Launch Plan, VRX_SCA_00055326, at VRX_SCA_00055344 (undated).

³⁵⁵ *Id.* at VRX_SCA_00055346.

³⁵⁶ *Id.*

³⁵⁷ *Id.*

Figure 5. Valeant's Recommended Approach to Pricing Concerns**Recommended Approach**

5

- We recommend a reactive communications strategy designed to prevent Valeant from doing or saying anything that draws unwanted attention to the Wilson's disease drug rate increases.
- Valeant should use the following communications materials as a framework to respond reactively to concerns from patients and insurance companies/managed care providers, or inquiries from the media.
- Before the rate increases are enacted Valeant should develop a way to internally monitor, flag and escalate any patient, insurer, or managed care provider concerns that arise.
- Jeff Strauss or a member of his team should notify Laurie Little and the Sard Verbinen team of any media inquiries that are received on this subject.
- If concerns gain traction in the medical community or media, we would recommend hosting a working group conference call to discuss if the communications approach needs to be altered in any way to address specific issues.



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This bent—use free drugs and generous patient assistance to minimize criticism—continued in internal documents circulated among senior Valeant executives. Shortly after release, Valeant's Coverage Plus Program was touted to senior executives for its role in ensuring that "[p]ositive patient experience increases persistency & minimizes pricing concerns."³⁵⁹ In addition, part of the Neurology and Others Unit's 2015 budget planning was to "[c]ontinue to monitor social media outlets for patient feedback (blogs) related to product cost and access in order to mitigate potential for negative PR."³⁶⁰

c. Price Gouging

Profit motive drove the pricing strategy for Cuprimine and Syprine, and Valeant made extraordinary profits. Sworn interrogatory responses from Valeant's then-CFO Mr. Rosiello indicate that since the implementation of the price increases, Valeant made massive profits, these profits drove corporate profitability, Valeant paid almost nothing in cost of goods or otherwise to make the drugs, and Valeant did not invest a cent in research and development on those drugs.³⁶¹

³⁵⁸ *Id.* at VRX_SCA_00055361–62.

³⁵⁹ Email from Steven Sembler to J. Michael Pearson, et al., VRX_SCA_00038631 (Sept. 11, 2013), and accompanying attachment, Neurology/Other Forecast 8 Update, VRX_SCA_00038645, at VRX_SCA_00038655 (Sept. 12, 2013).

³⁶⁰ Email from Laura Gaibor to J. Michael Pearson, VRX_SCA_00056530 (Oct. 23, 2014) Neuro Q 2014 Outlook & 2015 Plan, VRX_SCA_00056531, at VRX_SCA_00056560 (Nov. 10, 2014).

³⁶¹ See Rosiello Interrogatories, at ¶ 8 and attached charts, ¶ 5 (noting that Valeant did not record any Research and Development expenses for Syprine or Cuprimine), and ¶¶ 6 and 7 (detailing the methodology by which certain numbers were calculated)

	2013				2014				2015				2016	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
I. Cuprimine														
Gross Product Sales, in U.S. Dollars*	\$2.33	\$3.18	\$6.03	\$7.69	\$9.72	\$10.11	\$16.30	\$20.05	\$14.58	\$9.86	\$50.79	\$52.14	\$55.68	\$50.62
Net Product Sales, in U.S. Dollars*	\$1.92	\$2.41	\$6.00	\$5.87	\$7.69	\$7.27	\$10.98	\$10.85	\$8.34	\$8.00	\$27.06	\$26.71	\$27.20	\$25.43
Cost of Goods Sold, in U.S. Dollars*	\$0.14	-\$0.03	\$0.04	-\$0.15	\$0.07	\$0.24	\$0.24	\$0.21	\$0.14	\$0.10	\$0.28	\$0.18	\$0.08	\$0.21
Net Income Attributable to Cuprimine in U.S. Dollars*	\$1.41	\$2.07	\$5.59	\$5.65	\$6.92	\$6.33	\$10.03	\$9.93	\$6.74	\$6.43	\$25.31	\$25.06	\$24.90	\$22.99
The Ratio of Cuprimine Net Sales to Net Product Sales of Valeant*	0.18%	0.22%	0.39%	0.28%	0.41%	0.36%	0.54%	0.49%	0.38%	0.29%	0.97%	0.97%	1.15%	1.05%
The Ratio of Cuprimine Net Income to the Net Income of Valeant*	0.33%	0.47%	32.71%	1.04%	1.15%	0.87%	0.99%	0.81%	0.80%	0.69%	2.32%	2.63%	3.30%	2.33%
2. Syprine														
Gross Product Sales, in U.S. Dollars*	\$3.32	\$3.94	\$7.67	\$28.68	\$24.81	\$25.55	\$29.36	\$48.61	\$29.83	\$35.01	\$32.35	\$40.28	\$44.45	\$36.30
Net Product Sales, in U.S. Dollars*	\$2.66	\$3.02	\$10.59	\$20.65	\$18.52	\$18.33	\$20.32	\$30.65	\$18.31	\$28.35	\$19.00	\$23.15	\$23.05	\$19.51
Cost of Goods Sold, in U.S. Dollars*	\$0.45	\$0.26	\$0.59	\$0.42	\$0.38	\$0.41	\$0.10	\$0.38	\$0.03	\$0.22	\$0.34	\$0.30	\$0.13	\$0.79
Net Income Attributable to Cuprimine in U.S. Dollars*	\$1.37	\$1.91	\$9.16	\$19.39	\$16.46	\$16.24	\$18.54	\$28.59	\$16.42	\$26.27	\$16.81	\$20.99	\$21.13	\$16.92
The Ratio of Cuprimine Net Sales to Net Product Sales of Valeant*	0.25%	0.28%	0.69%	1.00%	0.98%	0.90%	0.99%	1.37%	0.84%	1.04%	0.68%	0.84%	0.97%	0.81%
The Ratio of Cuprimine Net Income to the Net Income of Valeant*	0.32%	0.44%	53.60%	3.55%	2.72%	2.22%	1.83%	2.33%	1.94%	2.82%	1.54%	2.20%	2.80%	1.72%

*Dollars in Millions

Table 3. Valeant's Cuprimine and Syprine Profits

C. Isuprel and Nitropress

1. Background

Isuprel and Nitropress are both drugs that are designed to serve life-critical cardiac functions in hospital settings and have been on the market for decades:

- **Isuprel (isoproterenol)** (patented in 1956) is an injectable drug that relaxes blood vessels and helps the heart pump blood more efficiently. It is used in cases of cardiac arrest and can be life-saving during emergencies for patients with very slow heart rates. Isuprel is the standard of care in certain cardiac situations.³⁶²
- **Nitropress (nitroprusside)** (the active ingredient in this drug was first isolated in the 19th Century)³⁶³ is an injectable drug that reduces blood pressure in cases of cardiac emergencies.³⁶⁴ Nitropress is also a life-saving standard of care, although hospitals are now developing alternatives that may work in some cases.³⁶⁵

2. Acquisition

Valeant acquired Isuprel and Nitropress, and other drugs, from Marathon Pharmaceuticals (“Marathon”) in February 2015, for \$350 million, plus an estimated \$3.3 million in acquisition expenses and related costs.³⁶⁶ The same day it acquired these drugs, Valeant raised the price of Isuprel by 500 percent, from \$2,183.00 to \$13,097.10 for ten 5 milliliter vials and the price of Nitropress by 200 percent, from \$2,148.30 to \$6,444.90 for ten 2 milliliter vials.³⁶⁷

Valeant has since raised the price of Isuprel to \$17,901.12 for ten 5 milliliter vials, representing a 720 percent cumulative increase. It also raised the price of Nitropress to \$8,808.80 for ten 2 milliliter vials, representing a 310 percent cumulative increase.³⁶⁸

³⁶² See April 2016 Hearing, at 3–4 (written testimony of Richard Fogel, M.D.).

³⁶³ See *Developments in the Prescription Drug Market: Oversight: Hearing Before H. Comm. on Oversight and Gov’t Reform*, at 4 (Feb. 4, 2016) (written testimony of Howard B. Schiller).

³⁶⁴ See April 2016 Hearing, at 3 (written testimony of Richard Fogel, M.D.).

³⁶⁵ See April 2016 Hearing, at 3–4 (written testimony of Richard Fogel, M.D.). The FDA approved a generic version of Nitropress on December 9, 2016. FDA, *Drugs@FDA: FDA Approved Products*, found at, <http://www.accessdata.fda.gov/scripts/cder/daf/index.cfm?event=overview.process&ApplNo=207426> (last visited Dec. 12, 2016).

³⁶⁶ See Letter from Robert K. Kelner, Esq. to Samuel Everett Dewey, Esq., at 4 (Dec. 2, 2015).

³⁶⁷ See Letter from Robert K. Kelner, Esq. to Samuel Everett Dewey, Esq., at 4–5 (Mar. 22, 2016); Brady Dennis, *Rattled by Drug Price Increases, Hospitals Seek Ways to Stay on Guard*, The Washington Post (Mar. 13, 2016) found at, https://www.washingtonpost.com/national/health-science/rattled-by-drug-price-increases-hospitals-seek-ways-to-stay-on-guard/2016/03/13/1c593dea-c8f3-11e5-88ff-e2d1b4289c2f_story.html?utm_term=.436a50994307 (last visited Dec. 15, 2016). Isuprel is sold in packages of ten and Nitropress is sold in packages of one.

³⁶⁸ *Id.*

3. Monopoly Profits

The entire business case for the acquisition of Isuprel and Nitropress rested on acquiring a “mispriced” drug to raise its price dramatically.

Valeant began to explore acquiring a suite of drugs from Marathon late in 2014 after Marathon reached out to Mr. Schiller.³⁶⁹ The driving factor behind the transaction was the ability to take price increases on Isuprel and Nitropress, which represented the bulk of the transaction. A senior Valeant executive stated at the outset of evaluating the transaction, “this would also have to be a *price play* (if we determine there is upside to take price) as we don’t have a sales team calling on hospitals (ie no direct promotion).”³⁷⁰ Internal Valeant documents reflect a focus on price increases. As the Company’s consultant McKinsey & Co. (“McKinsey”) put it, “[a]ttached please find the findings on hospital pricing. In a nutshell, most of the products reviewed (Marathon, [REDACTED], and VRX) . . . have *material pricing potential*.”³⁷¹

Valeant made an initial offer to Marathon on December 19, 2014,³⁷² which was countered by Marathon at a higher purchase price.³⁷³ Marathon justified the higher purchase price by indicating that there was room for further price increases (Marathon had already taken a substantial price increase earlier in the year). Mr. Pearson testified that, “as part of Marathon’s pitch to us, they said that they still felt that there was a lot of—the products were still mispriced.”³⁷⁴ Mr. Davis further explained to Mr. Pearson, Mr. Schiller, and others, that Marathon provided Valeant with a pricing analysis commissioned by Marathon to demonstrate that Valeant had room to take more substantial price increases.³⁷⁵

After the transaction closed, Mr. Davis worked with Valeant’s auditors at Deloitte to put together an accounting for the deal, and answered questions posed by the auditors.³⁷⁶ Deloitte asked “[w]hat was the motivation for the transaction (ability to take price, low promotion

³⁶⁹ See Schiller Deposition, at 194:10–195:6.

³⁷⁰ Email from Andrew Davis to Steven Sembler et al., VRX_SCA_00001104, at VRX_SCA_00001104 (Dec. 3, 2014) (emphasis added).

³⁷¹ Email from Andrew Davis to Steven Sembler et al., VRX_SCA_00001012 (Dec. 29, 2014) (emphasis added).

³⁷² See Non-Binding Letter of Intent Between Valeant Pharmaceuticals Int. Inc. and Marathon Pharmaceuticals, LLC, VRX_SCA_000786 (Dec. 19, 2014); Email from Andrew Davis to Barbar Ghias (Marathon), VRX_SCA_00016485, at VRX_SCA_00016485 (Dec. 12, 2014).

³⁷³ See Email from Babar Ghias to Andrew Davis and Alex Matheson, VRX_SCA_00014125, at VRX_SCA_00014125 (Dec. 31, 2014).

³⁷⁴ Pearson Deposition, at 244:13–16.

³⁷⁵ See Email from Andrew Davis, to J. Michael Pearson, et al., VRX_SCA_00593925, at VRX_SCA_00593925 (Dec. 30, 2014) (“Fyi, attached is the pricing report Marathon had done ahead of the acquisition. They have also said that the same folks did an informal review this year . . . that said there was a further pricing upside.”). See also, Email from Andrew Davis to Laurie Little and Tanya Carro, VRX_SCA_00230933, at VRX_SCA_00230933 (Mar. 23, 2015) (“the seller hired a pricing consultant ahead of their sale to be able to provide some of the detail on the product price potential”). The mere fact that Marathon forwarded the report to Valeant is significant. Marathon refused to produce the unredacted report to the Committee on the grounds that it was business sensitive and refused to consent to Pennside discussing the report with the Committee.

³⁷⁶ See Davis Deposition, at 122:16–123:3.

cost)?”³⁷⁷ Mr. Davis answered, “[t]ail end products where there was opportunity to promote and price efficiently” (with “price efficiently” meaning take price increases).³⁷⁸ Valeant’s July 2015 price increases on Isuprel appear to have been motivated by a desire meet Pearson’s apparent desire to improve projected numbers.³⁷⁹

Confronted with evidence during the Committee’s hearing, Mr. Pearson backed down from Valeant’s prior external statements³⁸⁰ and confessed: “In hindsight, I regret pursuing transactions where *the central premise was based on an increase in price*, for example, our acquisition of Nitropress and Isuprel from Marathon.”³⁸¹

a. Sole-Source & Gold Standard

From the beginning, Valeant planned to take aggressive price increases on Isuprel and Nitropress because the products were sole-source, the gold standard, and had limited substitutability. In evaluating the transaction, Valeant commissioned a study from McKinsey on Isuprel and Nitropress,³⁸² which, among other things, reported on the “pricing potential” of these drugs.³⁸³ McKinsey determined Isuprel had a high level of “pricing potential” because it was “[c]onsidered the standard of care” and “must be available in limited situations where needed.”³⁸⁴ McKinsey elaborated that there was “[n]o therapeutically equivalent generic version of Isuprel available in the United States.”³⁸⁵ McKinsey assigned even higher pricing potential to Nitropress, as it was “[c]onsidered the clear differentiation from alternatives (e.g., fastest acting half-life),” and the “product must be available in limited situations where needed.”³⁸⁶ In supporting materials, McKinsey noted that “Both [drugs] are standard of care drugs which must be available for a small proportion of cases when required by physician.”³⁸⁷

³⁷⁷ Email from Andrew Davis to George Gadkowski, VRX_SCA_00002081 (Mar. 19, 2015), and accompanying attachment, Word Document, VRX_SCA_00002082 (Mar. 19, 2015).

³⁷⁸ See Davis Deposition, at 123:14–124:2.

³⁷⁹ Email from Brian Stolz to J. Michael Pearson and Tanya Carro, VRX_SCA_00101078 (July 21, 2015); see also, Email from Crag K. Olson, to J. Michael Pearson et al., VRX_SCA_00425447, and accompanying attachment, Neuro Q3 Discussion, VRX_SCA_00425448 (July 29, 2015).

³⁸⁰ See, *infra*, at 73–74.

³⁸¹ April 2016 Hearing, Trans. at 49:3–6 (emphasis added).

³⁸² Email from Andrew Davis to Steven Sembler, et al., VRX_SCA_00001012 (Dec. 29, 2014), and accompanying attachment, Hospital Product Pricing Insights, VRX_SCA_00001013 (Dec. 29, 2014).

³⁸³ Email from Andrew Davis to Steven Sembler, et al., VRX_SCA_00001012 (Dec. 29, 2014), and accompanying attachment, Hospital Product Pricing Insights, VRX_SCA_00001013, at VRX_SCA_00001017 (Dec. 29, 2014). McKinsey told the Committee that the presentation was more in the nature of market research versus a complete pricing analysis. Committee Staff Interview of Aamir Malik (McKinsey & Co.) (Apr. 19, 2016). This is a distinction without a difference. While the Committee does not doubt McKinsey could have conducted a more complete pricing analysis, the analysis they did conduct relates to, and was used by, Valeant for pricing.

³⁸⁴ Email from Andrew Davis to Steven Sembler, et al., VRX_SCA_00001012 (Dec. 29, 2014), and accompanying attachment, Hospital Product Pricing Insights, VRX_SCA_00001013, at VRX_SCA_00001017 (Dec. 29, 2014).

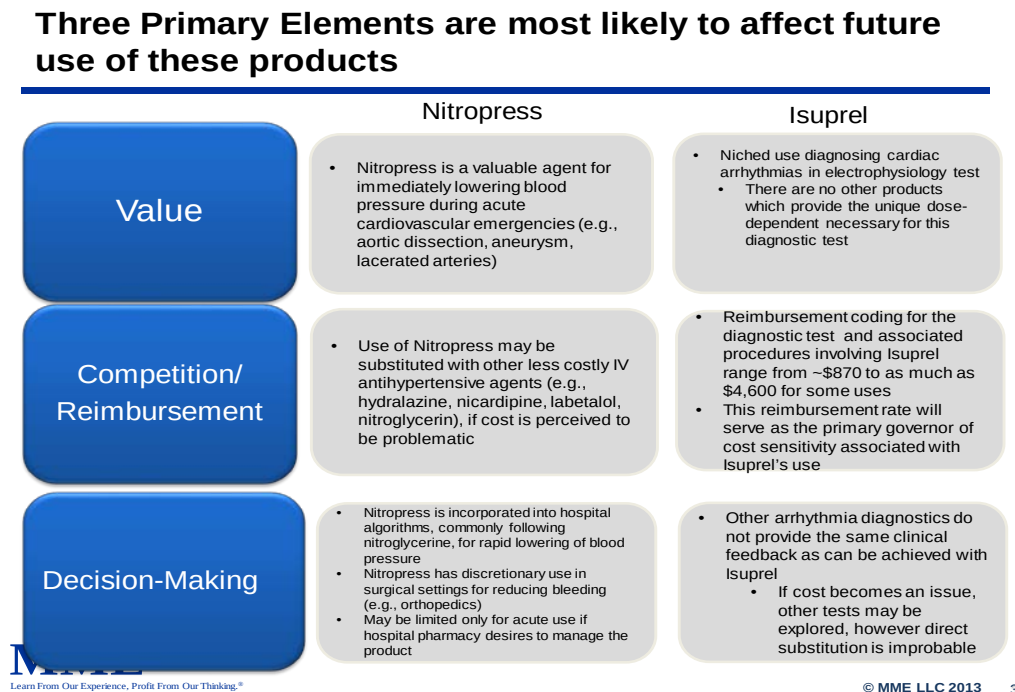
³⁸⁵ *Id.* at VRX_SCA_00001018.

³⁸⁶ *Id.* at VRX_SCA_00001017; see also *id.* at VRX_SCA_00001018.

³⁸⁷ *Id.* at VRX_SCA_00001019. McKinsey noted that in some circumstances, hydralazine was preferred over Isuprel, but McKinsey did not consider this significant because hydralazine was in shortage. *Id.* at VRX_SCA_00001037.

Valeant also relied upon a pricing analysis commissioned from MME (the company that had conducted the previous Marathon pricing report).³⁸⁸ This report echoed the conclusions of the McKinsey study, as shown in **Figure 6**.

Figure 6. MME Pricing Analysis of Nitropress and Isuprel³⁸⁹



Valeant admitted that the nature of Isuprel and Nitropress as sole-source, gold standard drugs drove the transactions. When Deloitte asked Mr. Davis “[w]hat are the competitive advantages for Nitropress and Isuprel,” he replied “[s]ole source products that have specific use in treatment paradigm.”³⁹⁰ Mr. Davis testified:

“By ‘sole source,’ I meant that there are no generics, they’re the only options available. And by ‘that have specific use in the treatment paradigm,’ from the research we had done or had done for us, we saw that they had—that they were specifically used in certain treatment—you know, in certain parts of the treatment paradigm where they had a specific role to play.”³⁹¹

³⁸⁸ The report’s “Objective[s]” were to “[r]eview the potential upward pricing flexibility for Nitropress . . . and Isuprel . . .” as well as to “[a]dvise on available pricing flexibility for both products.” Email from Steven Sembler to Laizer Kornwasser, VRX_SCA_0012784 (Jan. 20, 2015), and accompanying attachment, *Nitropress and Isuprel Pricing Flexibility Review Presented to Valeant*, VRX_SCA_00012785, at VRX_SCA_00012787 (Dec. 24, 2015).

³⁸⁹ *Id.* at VRX_SCA_00012788.

³⁹⁰ Email from Andrew Davis to George Gadkowski, VRX_SCA_00002081 (Mar. 19, 2015), and accompanying attachment, Word Document, VRX_SCA_00002082 (undated).

³⁹¹ Davis Deposition, at 124:9–17.

b. Small Market

Pre-transaction diligence makes clear that Valeant saw pricing potential in part due to the fact that Isuprel and Nitropress have small markets. Both are used in hospitals in emergency settings, limiting the extent to which price increases would attract attention and pushback from patients and insurance companies. McKinsey analyzed the extent to which a price increase would draw the attention of the hospital committees that control hospital drug purchases (often called a “P&T committee”). McKinsey concluded that hospitals would pay little attention to price increases on Isuprel or Nitropress, noting that “P&T committees have not focused on the product[s] . . . therapeutics class,”³⁹² that “[t]ypically, P&T committees focus on high cost/new therapies which could be misused,”³⁹³ “[p]roducts have been in the system for so long that reviews are practically rubber stamped,”³⁹⁴ “[r]eview processes for these products is to conduct a class review; answer is always to keep on formulary unless new clinical data,” “[r]ecent price increases have been relatively unnoticed, although few responded mentioned usage change,”³⁹⁵ and “11/12 respondents did not discuss recent price increases despite being provided context.”³⁹⁶

c. Slow Generic Approval

The Committee’s investigation also revealed that Valeant’s price-gouging strategy was directly tied to how difficult it would be for a generic competitor to enter the market. Isuprel and Nitropress were unique among the drugs that the Committee studied in that from the very beginning, Valeant knew ANDAs had been filed for both drugs and expected that at some point those ANDAs would be approved.³⁹⁷ This expectation did not deter Valeant because the Company calculated that FDA processing delays would still yield several years of de facto monopoly—more than enough time to generate massive profits.

Prior to the transaction, Valeant commissioned Pennside Partners, Ltd. (“Pennside”) to conduct a study of when generic entry could be expected.³⁹⁸ Pennside reported that ANDAs had been filed, and predicted delayed entry due to FDA backlogs:

³⁹² Email from Andrew Davis to Steven Sembler, et al., VRX_SCA_00001012 (Dec. 29, 2014), *and accompanying attachment*, Hospital Product Pricing Insights, VRX_SCA_00001013, at VRX_SCA_00001017 (Dec. 29, 2014).

³⁹³ *Id.* at VRX_SCA_00001019.

³⁹⁴ *Id.*

³⁹⁵ *Id.*

³⁹⁶ *Id.*

³⁹⁷ See Email from Andrew Davis to Steve Sembler et al., VRX_SCA_00001104, at VRX_SCA_00001104 (Dec. 4, 2014). Cf. Email from Andrew Davis to Babar Ghias, VRX_SCA_00016485, at VRX_SCA_00016485 (Dec. 12, 2014).

³⁹⁸ See Davis Deposition, at 67:20–68:2.

Figure 7. Valeant's Consultant Presentation on Generic Entry Potential

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Executive Summary

- X-Gen Pharma has filed ANDAs for both ISUPREL ampoules and NITROPRESS vials in June of 2014 and is expecting approval for both in the 2015-2016 time period under GDUFA II regulations
 - Pennside believes approval in late 2016 or 1H 2017 is more realistic
- Par Pharma Sterile Products filed an ANDA for NITROPRESS vials in June of 2014 and expects and also approval in the 2015-2016 time period under GDUFA II regulations, and it filed ISUPREL ampoules in Q1 2015 and is expecting approval under GDUFA III regulation in 2016
 - Pennside believes approval in late 2016 or 1H 2017 is more realistic for NITROPRESS
 - If Par does complete its filing in for ISUPREL in Q1 2015, an approval in 1H 2016 is highly possible (see Regulatory discussion on Page 8)
- Sandoz and Sagent have both also filed ANDAs in June of 2014 for NITROPRESS vials and both expect approval in the 2015-2016 time period under GDUFA II rules
 - Again, Pennside believes approval in late 2016 or 1H 2017 is more realistic

OraPharma/Valeant should assume there will be two (2) generic sources for ISUPREL and four (4) for NITROPRESS by mid-2017, with more to follow

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Pennside reported further details of FDA approval times on ANDA submissions and noted that “FDA Average Review Time for ANDA’s is 36–48 Months.”⁴⁰⁰

Mr. Sembler forwarded this presentation to Mr. Davis with the following instructions: “From this research, it looks like there could be more than one generic entry in the 2016/2017 timeframe. I believe this event would occur sooner than business model assumptions. We should take this risk into consideration with our offer.”⁴⁰¹

Valeant subsequently adjusted its early internal modeling, which had been predicated on generic entry in 2018.⁴⁰² Valeant did not pull out of the transaction, but swiftly calculated whether the few years of monopoly power under Pennside’s predictions were sufficient to generate immense returns.⁴⁰³ These revised calculations showed that the size of a potential price increase would not affect the date of generic entry (generally a higher price point makes a market

³⁹⁹ Email from Steven Sembler to Andrew Davis, VRX_SCA_00012705, and accompanying attachment, Pennside Partners, Ltd., *Isuprel & Nitropress Generic Threats in the U.S.*, VRX_SCA_00012706, at VRX_SCA_00012708 (Dec. 26, 2014).

⁴⁰⁰ *Id.* at VRX_SCA_00012713.

⁴⁰¹ Email from Steven Sembler to Andrew Davis, VRX_SCA_00012705, and accompanying attachment, Pennside Partners, Ltd., *Isuprel & Nitropress Generic Threats in the U.S.*, VRX_SCA_00012706, at VRX_SCA_00012708 (Dec. 26, 2014).

⁴⁰² See Email from Andrew Davis to Steven Sember, et al., VRX_SCA_00396915 (Dec. 29, 2014).

⁴⁰³ See, e.g., Pearson Deposition, at 222:7–14 (“**Q:** Here it says, Either way, the outside firm is expecting approvals in late 2016 through 2017. If approvals had been expected months after the transaction, would you have gone ahead with the transaction? **A:** Again, it would all depend, at that point in time, on the economics. . .”).

more attractive for a generic manufacturer to seek to enter the market) because ANDAs had already been filed for both products and the delay was entirely “a function of the backlog at the FDA.”⁴⁰⁴

Valeant executives were presented with a modeling metric with two variables, the length of the FDA delay in approving generic entrants and the amount of Valeant’s initial price increase, showing that Valeant had multiple paths to a viable transaction, shown in **Figure 8**.⁴⁰⁵

Figure 8. Valeant’s Modeling Matrix

	IRR/Payback	Day 1 increase				
		20%	30%	40%	50%	60%
Gx entry Nitropress and Isuprel	2015	15% IRR 9.1 Years	16% IRR 8.6 Years	17% IRR 8.1 Years	18% IRR 7.7 Years	20% IRR 7.3 Years
	2016	16% IRR 8.1 Years	18% IRR 7.5 Years	19% IRR 6.9 Years	21% IRR 6.4 Years	23% IRR 5.9 Years
	2017	18% IRR 6.7 Years	20% IRR 5.9 Years	22% IRR 5.2 Years	24% IRR 4.5 Years	26% IRR 3.9 Years
	2018	20% IRR 4.7 Years	22% IRR 3.8 Years	24% IRR 3.3 Years	27% IRR 2.9 Years	29% IRR 2.8 Years
	2019	21% IRR 3.7 Years	24% IRR 3.4 Years	26% IRR 3.2 Years	29% IRR 2.9 Years	31% IRR 2.8 Years
	2020	23% IRR 3.7 Years	25% IRR 3.4 Years	28% IRR 3.2 Years	31% IRR 2.9 Years	33% IRR 2.8 Years

Davis and others performed analyses to determine how to profit from the FDA’s delays in processing generic applications, including discussing with Pennside “the realities of the agency speeding up approval for Generic drugs (which they have committed to do, but which hasn’t actually occurred yet).”⁴⁰⁷

1. Price Gouging

As with Syprine and Cuprimine, Valeant’s profits from raising prices for Isuprel and Nitropress were extraordinary. Post-transaction, Deloitte asked Mr. Davis if he was “ok” with certain financial assumptions, noting those assumptions “are leading to high gross margins (more than 99%).”⁴⁰⁸ Mr. Davis responded, “Standard cost looks right, and I’m not surprised they are

⁴⁰⁴ Schiller Deposition, at 209:14–22.

⁴⁰⁵ Valeant evaluated its transactions by two metrics, IRR and the time to payback. See Pearson Deposition, at 223:21–224:5. The first metric reflects the projected positive return on the investment adjusted for present day values. See Davis Deposition, at 64:6–14, 65:8–9. The second reflects when the cost of the purchase has been recouped assuming free cost of money. See Pearson Deposition, at 224:3–5. As a general proposition, Valeant would only engage in transactions with an IIR of at least 20 percent and a payback period of six years or less, with the criteria adjusted somewhat for risk. *Id.* at 224:7–15.

⁴⁰⁶ Email from Andrew Davis to J. Michael Pearson and Howard B. Schiller, VRX_SCA_00593866, at VRX-SCA_00593866 (Dec. 26, 2014).

⁴⁰⁷ *Id.*

⁴⁰⁸ Email from Andrew Davis to George Gadkowski, VRX_SCA_00016376 (Mar. 2015).

extremely profitable.”⁴⁰⁹ In interrogatory responses provided to the Committee, Valeant admitted that it spent nothing on Research and Development for Isuprel and Nitropress since acquisition. Valeant also admitted that its net income from the four drugs dwarfs the manufacturing cost. The margins were extraordinary, as exhibited in **Table 4**.⁴¹⁰

Table 4. Valeant’s Profit from Isuprel and Nitropress

	2015				2016	
	Q1	Q2	Q3	Q4	Q1	Q2
1. Isuprel						
Gross Product Sales, in U.S. Dollars*	\$107.44	\$46.50	\$63.86	\$89.52	\$117.98	\$82.12
Net Product Sales, in U.S. Dollars*	\$72.22	\$48.90	\$49.78	\$53.40	\$65.93	\$39.67
Cost of Goods Sold, in U.S. Dollars*	\$0.07	\$0.08	\$0.03	\$0.20	\$0.09	\$0.10
Net Income Attributable to Isuprel in U.S. Dollars*	\$69.22	\$43.54	\$44.47	\$47.92	\$61.38	\$35.10
The Ratio of Isuprel Net Sales to Net Product Sales of Valeant*	3.33%	1.79%	1.79%	1.94%	2.78%	1.64%
The Ratio of Isuprel Net Income to the Net Income of Valeant*	8.19%	4.67%	4.07%	5.03%	8.13%	3.56%
2. Nitropress						
Gross Product Sales, in U.S. Dollars*	\$76.18	\$56.51	\$39.34	\$68.11	\$71.18	\$52.01
Net Product Sales, in U.S. Dollars*	\$61.58	\$64.23	\$35.25	\$57.69	\$58.02	\$34.39
Cost of Goods Sold, in U.S. Dollars*	\$0.18	\$0.28	\$0.09	\$0.80	\$0.61	\$0.54
Net Income Attributable to Nitropress in U.S. Dollars*	\$58.54	\$58.81	\$30.01	\$51.74	\$53.50	\$29.94
The Ratio of Nitropress Net Sales to Net Product Sales of Valeant*	2.84%	2.35%	1.26%	2.09%	2.45%	1.42%
The Ratio of Nitropress Net Income to the Net Income of Valeant*	6.92%	6.31%	2.75%	5.43%	7.09%	3.04%

*Dollars in millions; Data prior to Q1 of 2015 is not applicable.

Even more revealing is that these massive price increases were not necessary to provide substantial profits. A far lower price increase would have provided a desirable return. Mr. Schiller confirmed this during the Committee’s April 2016 Hearing:

⁴⁰⁹ Email from Andrew Davis to George Gadkowski, VRX_SCA_00016376 (Mar. 2015).

Id. Mr. Davis explained that his use of “extremely” was based on the fact that the transaction was already profitable and the accounting treatment Deloitte accorded to the transaction made it “extremely profitable.” Davis Deposition, at 137:10–138:9.

⁴¹⁰ Rosiello Interrogatories and responses, at ¶ 8 and attached charts, and ¶ 5 (noting that Valeant did not record any Research and Development expenses for Isuprel and Nitropress), and ¶¶ 6 and 7 (detailing the methodology by which certain numbers were calculated).

Chairman Collins: I want to better understand why your company felt it was necessary to take such substantial price increases on Isuprel and Nitropress. Valeant built a model—and I have seen the model—to project whether the acquisition would meet certain metrics of profitability, and then that model is used as a major tool in determining whether or not to complete the transaction, in this case to buy the two drugs.

Mr. Schiller, it is my understanding that the model found that the transaction would be viable financially for Valeant at a 60-percent increase. That is what was reflected in the deal model. Is that correct?

Mr. Schiller: I do not recall the specifics in the matrix that I was shown in my deposition, but it was certainly lower than the ultimate price increase that was taken.

Chairman Collins: Well, that is according to the deposition from Mr. Andrew Davis, and would you have any reason to doubt his sworn testimony?

Mr. Schiller. I would not.

Chairman Collins: So Valeant could have been profitable with acquiring these two drugs and raising the price by 60 percent. That is still a substantial price increase, but it is far different from the price increase that ultimately was taken. Could you explain why the price was so much higher than the 60 percent that was recommended in the model? Yes, Mr. Schiller.

Mr. Schiller: There was a meeting that a number of us attended—Mr. Pearson, myself, Andrew Davis you mentioned in the business unit. They reviewed the findings of the consulting firm. They made a recommendation which was lower than that price, and Mr. Pearson made a decision to go with the higher price increase.⁴¹¹

D. Company-Wide Monopoly Strategy

Under oath, Mr. Pearson and other Valeant Executives repeatedly claimed the Neurology and Others Unit was the only unit employing an aggressive strategy of price increases and that Neurology and Others represented a small portion of Valeant's overall business. The Committee found otherwise on both claims.

As Senator McCaskill illustrated during the Committee's hearing, the strategy of price increases took place company-wide:

- **Sen. McCaskill:** According to your SEC filings, Mr. Pearson, beginning in the first quarter of 2013 through the third quarter of 2015, you state in your filings that your revenue—changes in revenue have been driven primarily by price, not by growth. In fact, in only one quarter between 2013 and 2015 did you report that growth was driven by volume. So price increases has, in fact, been the entree for your business, correct?

Mr. Pearson: Yes, pricing has driven more growth than volume, although that is changing over time.⁴¹²

⁴¹¹ April 2016 Hearing, Trans. at. 120:21–122:4.

⁴¹² *Id.* at. 66:24–67:8.

- **Senator McCaskill:** Can you find me one drug that Valeant did not raise the price on?
Mr. Ackman. I do not know offhand the price—I do not have the price list.
Senator McCaskill: Mr. Pearson, one drug that you did not raise the price on after you acquired it?
Mr. Pearson: Not in the United States.
Senator McCaskill: Mr. Schiller, are you aware of any drug that you bought or acquired that you did not raise the price on?
Mr. Schiller: My recollection is when we bought Salix, we did not raise the price on Xifaxan.⁴¹³

Additionally, Valeant's repeated assertions that the Neurology and Other unit represented a small part of Valeant's total business are also contradicted by the company's financial data and internal documents. In an email from Mr. Schiller to Mr. Pearson, he notes that "[l]ast night, one of the investors asked about price vs. volume for Q1. Excluding marathon, price represents about 60% of our growth. If you include marathon, price represents about 80."⁴¹⁴ Additionally, Valeant's then CFO's responses to sworn interrogatories made clear that a sizable portion of the company's profitability was driven by price increases on Cuprimine, Syprine, Isuprel, and Nitropress—alone. In the first Quarter of 2016, the ratio of Valeant's net income from these 4 drugs to total net income was 21.32 percent.⁴¹⁵ Indeed, Mr. Pearson himself was forced to admit this central point at the hearing:

Sen. Tillis: What would you estimate, since the price increase, your profits have been derived, the profits that have been derived from the drugs that we are talking about today, the profit?

Mr. Pearson: I do not have precise numbers, but I would estimate, you know, 10 to 15 percent.⁴¹⁶

E. Indefensible Conduct

Valeant made huge profits by extracting monopoly prices from decades old off-patent drugs. The company's conduct was so egregious that its executives didn't even defend Valeant's actions before the Committee.

Mr. Pearson expressly repudiated the monopoly business model that he helped develop:

[W]e have also made mistakes, including those that bring me here today. In particular, Valeant was too aggressive and I as its leader was also too aggressive in increasing the prices of some of our drugs in our large portfolio of products. In hindsight, I regret

⁴¹³ *Id.* at 73:9–20.

⁴¹⁴ Email from Howard Schiller to J. Michael Pearson, VRX_SCA_00101154 (May 21, 2015).

⁴¹⁵ See Rosiello Interrogatories, at ¶ 8 and attached charts.

⁴¹⁶ April 2016 Hearing, Trans. at. 74:23–75:3 (Apr. 27, 2016).

pursuing transactions where the central premise was based on an increase in price ⁴¹⁷

Under questioning from the Committee, Mr. Pearson repeatedly admitted that he had erred in the extreme by pursuing a monopoly pricing strategy:

- “Yes we have been too aggressive on price increases”⁴¹⁸
- “I agree that the price increases were too aggressive. . . .”⁴¹⁹
- **“Sen. Kaine:** . . . Financial Times, October 8, 2015, “Valeant’s business model faces tough questions.” You are quoted. “In an interview with the Financial Times on Tuesday, Mr. Pearson conceded that Valeant’s business model was not fully understood by all investors but insisted the company had ‘nothing to be ashamed of.’” Would that still be your testimony today?
Mr. Pearson: No. In my written testimony and in my oral comments, I think we have been too aggressive—too aggressive on pricing.”⁴²⁰
- “I agree that the price increases were too aggressive. I regret that we took those price increases.”⁴²¹

Valeant’s second largest shareholder at the time of the hearing, William B. Ackman, condemned the behavior even more bluntly at the hearing. Speaking to Syprine and Cuprime price hikes, Mr. Ackman said: “*Yeah, it is horrible. It is wrong.*”⁴²² In his written testimony, Mr. Ackman said: “Valeant has been appropriately criticized for substantially raising the prices of certain off-patent prescription drugs suddenly and without apparent justification. These issues are worthy of inquiry.”⁴²³

IV. Rodelis Therapeutics

A. Company Background

Rodelis Therapeutics (“Rodelis”) was established in November 2014 and is composed of three different companies: A parent company in Bermuda formed to house intellectual property, an Irish company designed to help with product development, and the U.S.-based Rodelis

⁴¹⁷ *Id.* Trans. at. 48:24–49:6 (testimony of J. Michael Pearson); *see also, id.* at 1 (written testimony of J. Michael Pearson).

⁴¹⁸ *Id.* Trans. at. 61:21–24 (Apr. 27, 2016).
(testimony of J. Michael Pearson)

⁴¹⁹ *Id.* Trans. at. 65:16–17 (Apr. 27, 2016) (testimony of J. Michael Pearson).

⁴²⁰ *Id.* Trans. at. 99:5–15 (Apr. 27, 2016).

⁴²¹ *Id.* Trans. at. 119:23–24 (Apr. 27, 2016) (testimony of J. Michael Pearson).

⁴²² *Id.* Trans. at. 70:13 (Apr. 27, 2016) (testimony of William B. Ackman, Director Valeant) (emphasis added).

⁴²³ *Id.* at 4 (Apr. 27, 2016) (written testimony of William B. Ackman).

Therapeutics.⁴²⁴ Unlike the other three companies investigated by the Committee, Rodelis owned the drug Seromycin on which it took a dramatic price increase for a very short period of time, as it reversed its acquisition within weeks of the price hike.⁴²⁵

B. Seromycin Background

Seromycin (active ingredient: Cycloserine) is used to treat multi-drug resistant tuberculosis (“MDR TB”).⁴²⁶ There are a very small number of cases of MDR TB per year in the U.S.—most experts estimate in the hundreds.⁴²⁷ MDR TB poses a severe public health hazard. It is highly contagious, difficult to treat, life-threatening if left untreated, and preventing its spread is a priority.⁴²⁸ As a result, the CDC is involved in every case diagnosed in the United States.⁴²⁹ The CDC helps coordinate patient care, ensuring that the proper medication is received and that the disease is contained.⁴³⁰ Unlike a typical antibiotic, Seromycin is taken for many months.⁴³¹ While Seromycin is generally tolerated by patients, its use must be closely monitored and other drugs may be needed to blunt side effects.⁴³² Seromycin crosses the blood-brain barrier and in high concentration can have neuropsychiatric effects, which is often addressed through prophylactic administration of Vitamin B6, as well as frequent post-prescription medical monitoring and care.⁴³³

Seromycin is an old drug—Eli Lilly, Co. (“Lilly”), brought it to market in 1964⁴³⁴, and the Committee has not identified any material changes in its composition since that time.

C. The Acquisition of Seromycin

The rights to produce Seromycin were transferred by Lilly in 2007 to the Chao Center (“Chao”), which operates under Purdue University.⁴³⁵ Chao was designed as a small drug manufacturing center that would also be used to educate pharmacy students.⁴³⁶ The only drug

⁴²⁴ Committee Staff Briefing with Counsel for Rodelis (Dec. 1, 2015) (“Rodelis Briefing”).

⁴²⁵ The company has represented that no patient paid this price.

⁴²⁶ Seromycin also can be used to treat urinary tract infections, and has shown some experimental benefit in treating psychiatric conditions. *See, infra*, at note 430.

⁴²⁷ Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000333 (Aug. 2015).

⁴²⁸ *Id.* at RTI-USSSCA-00000334.

⁴²⁹ *See generally*, The White House, *National Action Plan for Combating Multidrug-Resistant Tuberculosis* (Dec. 2015).

⁴³⁰ *Id.*

⁴³¹ *See* Email from Srihari Vedartham to Joseph Stowell, RTI-USSSCA-00002496, at RTI-USSSCA-00002496 (Apr. 21, 2015) (dosing of 18–24 months for MDR TB, 5–10 days for urinary tract infections).

⁴³² Rodelis Briefing; *see also*, Seromycin FDA Label (13845-1200-3)..

⁴³³ *Id.*

⁴³⁴ *See* Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RT-USSSCA-00000333 (Aug. 2015).

⁴³⁵ Under the terms of the transfer, Lilly retained the IP but granted a perpetual license to the Chao Center for the U.S. and Canada. *See* Letter from Andrew Dahlman (Eli Lilly & Co.) to Brian Edelman, RTI-USSSCA-00000216 (Aug. 17, 2015).

⁴³⁶ Committee Staff Interview with Daniel J. Hesler, CEO Perdue Foundation (Nov. 18, 2015) (“November Hesler Interview”).

produced at Chao is Seromycin, and production runs occur once a year and take about one to two weeks.⁴³⁷ The facility is required to comply with all applicable FDA regulations.⁴³⁸

Due to high sunk manufacturing costs and the small market size of Seromycin, Chao suffered a series of losses, which it estimated to be \$10 million, prior to the sale of Seromycin to Rodelis on August 19, 2015.⁴³⁹ At that time, the drug was priced at about \$500 for 30 capsules, generating about \$1 million a year in revenue for Chao, against \$2 million in annual expenses.⁴⁴⁰

In the period leading up the Rodelis transaction, Chao's board determined that while it could not cease making Seromycin due to the acute medical need it served, management should seek to divest the asset while ensuring its continued availability.⁴⁴¹ While Chao did not issue a request for proposal, it made it known in pharmaceutical circles that it was looking to divest Seromycin.⁴⁴²

Rodelis contacted Chao on April 3, 2015, to initiate a conversation about purchasing Seromycin.⁴⁴³ Negotiations took place over the next five months and involved discussions of the potential for price increases, securing the entire supply of the API, and ways to limit exposure to government payers.⁴⁴⁴ Rodelis and Chao completed the sale of Seromycin on August 19, 2015.⁴⁴⁵

The Rodelis principals who primarily handled contact negotiations were Mr. Michael Goldstein ("Goldstein") a partner at Avego, Mr. Bala Venkatarmamn ("Venkatarmamn"), another partner at Avego, and Mr. Srihari Vedartham ("Vedartham"), Rodelis' VP of Business Development. Negotiations for Chao were handled primarily by its CFO, Mr. Brian Edelman ("Edelman"). Under the terms of the deal, Chao transferred its license for Seromycin in the U.S. and Canada to Rodelis.⁴⁴⁶ In return, Rodelis made a cash payment of \$4.125 million, acquired all existing product and API for another \$1.1 million, and entered into a long term supply

⁴³⁷ The Center's manufacturing capabilities are dormant for most of the year. Despite this, the Center incurs substantial costs throughout the year. It must pay the salary of three fulltime employees, pay full GUDFA fees of approximately \$250,000 a year, rent space, and service the infrastructure required to comply with FDA manufacturing regulations. Hesler Interview. The Chao Center pays the same FDA fees as much larger facilities. Requests for a discount to reflect (at least in part) the Chao Center's educational mission were denied). *Id.*

⁴³⁸ *Id.*

⁴³⁹ *Id.*

⁴⁴⁰ Committee Staff Interview with Daniel J. Hesler (Jan. 15, 2016) ("January Hesler Interview"); November Hesler Interview.

⁴⁴¹ January Hesler Interview; November Hesler Interview.

⁴⁴² November Hesler Interview.

⁴⁴³ See Email from Srihari Vedartham to Joseph Stowell, RTI-USSSCA-00002461 (Apr. 3, 2015).

⁴⁴⁴ See, e.g., generally, Email from Brian Edelman (Chao Center), RTI-USSSCA-00001210 (May 15, 2015); Email from Joseph Stowell to Srihari Vedartham, RTI-USSSCA-00002575 (July 20, 2015); Email from Brian Jennette to Michael Goldstein, RTI-USSSCA-00007974 (July 27, 2015); Email from Joanna Young to Michael Goldstein, RTI-USSSCA-00007244 (July 17, 2015).

⁴⁴⁵ See Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000338 (Aug. 2015).

⁴⁴⁶ See Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000338 (Aug. 2015).

contract (with minimum supply provisions at fixed pricing).⁴⁴⁷ That *same day* Rodelis raised the price of Seromycin 2,060 percent, from \$500 for 30 capsules to \$10,800 for 30 capsules.⁴⁴⁸

1. Monopoly Pricing Power and Substantial Profits

Rodelis' internal documents reveal that the company viewed this transaction as a way to generate substantial profits by taking a massive price increase. The first financial model Rodelis (dated June 22, 2015) created after signing the operative Indication of Interest⁴⁴⁹ provided for a more than tenfold price increase, and after being validated for "OPEX and GTN," led to a truly incredible projected IRR of over 270 percent on the transaction over the model horizon.⁴⁵⁰ A more-refined internal model, created on July 14, 2015, assumes almost the exact price increase eventually taken—\$350 a capsule, a 21 fold price increase (the actual increase was \$360⁴⁵¹).⁴⁵² This spreadsheet projects that the price increase will lead to a profitable transaction—a 2.67 fold return on the initial investment.⁴⁵³ A presentation dated August 26, 2015 (seven days after the transaction closed), and apparently intended for investors, projected similarly massive profits driven by an impressive gross margin, as shown in Figure 9.

⁴⁴⁷ See generally, Purchase and Sale Agreement, RTI-USSSCA-00000075 (Aug 19, 2015).

⁴⁴⁸ See Rodelis Therapeutics Notice of Price Increase, AVEGO-000001177, at AVEGO-000001177 (Aug. 19, 2015).

⁴⁴⁹ The operative Indication of Interest was dated June 3, 2015. See Indication of Interest, RTI-USSSCA-000000001 (Jun. 3, 2015).

⁴⁵⁰ See Email from Srihari Vedartham to Bala Venkataraman, et al., AVEGO-00000345 (June 22, 2015), and accompanying attachment, Excel Spreadsheet, AVEGO-00000346 (undated).

⁴⁵¹ See Rodelis Notification of Price Increase, AVEGO-00001177 (Aug. 19, 2015).

⁴⁵² See Excel Spreadsheet, RTI-USSSCA-00000262 (July 14, 2015).

⁴⁵³ *Id.*

Figure 9. Rodelis Projected Financial Metrics.⁴⁵⁴

(\$ in 000's)

Rodelis Therapeutics						
Seromycin Acquisition	Stub* 4 Mos. 2015P	2016P	2017P	2018P	2019P	2020P
U.S. Capsules Shipped	20,088	51,322	38,492	28,869	21,652	16,239
% Change	NA	NA	-25%	-25%	-25%	-25%
Net Sales	\$1,369	\$12,781	\$10,739	\$8,376	\$6,533	\$5,096
COGS	213	933	933	376	282	290
Gross Profit	\$1,156	\$11,848	\$9,805	\$8,001	\$6,252	\$4,806
% Margin	84%	93%	91%	96%	96%	94%
SG&A	1,605	2,997	2,903	2,847	2,540	2,528
EBITDA	(\$449)	\$8,851	\$6,902	\$5,154	\$3,712	\$2,278
Less: Cash Taxes	(13)	266	207	155	111	68
Cash Net Income	(\$436)	\$8,585	\$6,695	\$4,999	\$3,600	\$2,210

* Assumes Seromycin acquisition closes 8/31/15.
Note: Forecast assumes no contribution from ex-U.S. sales.

Communications between the parties prior to closing indicate that both parties viewed the ability to substantially raise prices on Seromycin as a key transaction selling point. For example, after Chao rejected a term sheet, and Rodelis counteroffered, Chao's CFO sent a further counterproposal and noted "with the significant value that exists in the one simple, powerful lever of pricing for Seromycin, we believe ours is a fair, final proposal. We have not experienced any market responses from our past price increases and are currently preparing to implement a series of price increases."⁴⁵⁵

Rodelis' internal documents from before and after the transaction show how the company implemented many aspects of the business model identified by the Committee in order to generate extreme profits. Rodelis emphasized that its approach was to implement "[o]rphan drug strategies "(i.e., acquire small market drugs that are the only treatment for serious illness and then raise prices).⁴⁵⁶

⁴⁵⁴ Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000340 (Aug. 2015). Goldstein told the Committee that he did not recall the presentation's audience, but it was possible that the audience was both investors and other financial institutions. Committee Staff Interview with Michael Goldstein (Nov. 16, 2016). Goldstein did state that this slide presented key numbers that would be of importance to investors. *Id.*

⁴⁵⁵ Email from Brian Edelman to Srihari Verdartham, RTI-USSSCA-00001210, at RTI-USSSCA-00001210 (May 15, 2015).

⁴⁵⁶ Rodelis Therapeutics, Company Overview, AVEGO-00000244, at AVEGO-00000253 (Apr. 2015). Of course, treating orphan diseases is a commendable endeavor. But the Committee's investigation revealed that the phrase "orphan drug strategy" is code for a strategy of using a de facto monopoly to extract massive profits.

2. Sole-Source & Gold Standard

Internal Rodelis documents recognized that Seromycin was valuable and ripe for a monopoly pricing strategy because it provided a unique option for treating a potentially deadly condition. In July 2015, Rodelis employees researching the business case for the acquisition of Seromycin highlighted that: “Seromycin is the *only* product that has the ability to treat both pulmonary and extra pulmonary infection.”⁴⁵⁷ Similarly, when looking at an alternate use of Seromycin—treating antibiotic resistant urinary tract infections—Mr. Vedartham highlighted the fact that: “We looked at some of the published lit around the UTI, especially drug being used in infections resistant to trimethoprim and third generation cephalosporins. *This would make it last line therapy to certain extent.*”⁴⁵⁸

A post-transaction presentation, which appears to have been designed at least in part for investors, continues the theme. It begins by highlighting the seriousness of MDR TB and noting that “Seromycin® is one of the last-line MDR therapies.”⁴⁵⁹ It then goes on to devote an entire page to “Multiple-Drug Resistant TB (MDR)” which highlights the “severe” nature of TB and specifically notes that “Seromycin® is the only drug approved for MDR that treats both pulmonary and extrapulmonary TB.”⁴⁶⁰ The presentation concludes with the following bullet points:

- “Treats a medically necessary condition, multiple-drug resistant TB.”⁴⁶¹
- “Last line treatment when first line medications have failed.”⁴⁶²

3. Small Market

Rodelis’ external materials repeatedly stressed that Rodelis was focused on small market (*i.e.*, orphan drugs) and that Seromycin was such an orphan drug. In a presentation dated April 2015 that appears to have been sent to investors, Rodelis explained that the name Rodelis was an acronym for “The Rodelis Values,” the first of which was “r” reflecting “rare disease” as Rodelis’ “focus,” and the last of which was “s” reflecting Rodelis’ focus on drugs treating “Small patient populations. . . .”⁴⁶³ This theme was echoed in Rodelis’ post-transaction

⁴⁵⁷ Email from Bala Venkataraman to Srihari Vedartham, AVEGO-00000773 (July 16, 2015) (emphasis added).

⁴⁵⁸ Email from Srihari Vedartham to Joanna Young, RTI-USSSCA-00007891, at RTI-USSSCA-00007891 (July 23, 2015) (emphasis added).

⁴⁵⁹ See Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000333 (Aug. 2015); *supra*, note 78.

⁴⁶⁰ *Id.* at RTI-USSSCA-00000334.

⁴⁶¹ *Id.* at RTI-USSSCA-00000341.

⁴⁶² *Id.* Rodelis also contemplated acquiring another drug, at this time and in the same presentation touted that the drug was “last-line,” “life changing” therapy for an extraordinarily severe neurological condition. *Id.* at RTI-USSSCA-00000343 and RTI-USSSCA-00000352.

⁴⁶³ Rodelis Therapeutics, Company Overview, AVEGO-00000244, at AVEGO-00000247 (Apr. 2015). The Committee credits Rodelis’ intent to provide the capital that was necessary to ensure the continued production of an essential drug. See, *infra*, at 83–84. But that cannot wipe out the fact that when that intent is intertwined with an intent to use a *de facto* monopoly to price gouge, the end result is fundamentally wrong.

presentation (which appears to have been presented to investors) which stated that “Rodelis Therapeutics is a rapidly growing specialty pharmaceutical company focused on orphan diseases and conditions with high unmet medical need.”⁴⁶⁴ This presentation also touted the fact that Seromycin was a “[s]mall volume, ultra-orphan product treating <200 patients annually.”⁴⁶⁵

4. Delaying Generic Entry

Rodelis expected no generic entry, despite the sizable price increase it had taken on Seromycin.⁴⁶⁶ Documents reviewed by the Committee show that Rodelis intended to take a variety of steps to deter generic entry. In one example, Rodelis actively sought to enter into an exclusivity deal with the only known supplier of Cyclosporine, the API in Seromycin.⁴⁶⁷ Rodelis’ presentations, both leading up to the deal and after, repeatedly emphasized Rodelis’ expertise in this regard:

- “Key Product Characteristics. . . . Strong IP, market exclusivities and/or manufacturing barriers.”⁴⁶⁸
- “Multiple regulatory strategies.”⁴⁶⁹
- “Seromycin® Investment Summary. . . . Several defensive mechanisms and barriers of entry for generic competition.”⁴⁷⁰

5. Price Gouging

Setting aside the sheer magnitude of the price increase, which is itself suggestive of price gouging, Rodelis’ actions surrounding the price increase reveal a motive to reap monopoly profit. Rodelis asserted to investors, the media, and in its presentation to the Committee, that the price increase would be mitigated by robust patient assistance programs and improved access programs.⁴⁷¹ But internal Rodelis documents and Rodelis’ actions paint a different picture. Rodelis took its price increase the same day it acquired the drug, but delayed implementation of its promised patient assistance and access programs. Rodelis publicly acknowledged that price

⁴⁶⁴ Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000324 (Aug. 2015).

⁴⁶⁵ *Id.* at RTI-USSSCA-00000341. In another transaction contemplated by Rodelis, they highlighted that the drug was for “[u]ltra-orphan use.” *Id.* at RIT-USSSCA-00000343.

⁴⁶⁶ See Email from Srihari Vedartham to Bala Venkataraman, et al., AVEGO-00000345 (June 22, 2015), and accompanying attachment, Excel Spreadsheet, AVEGO-00000346 (undated).

⁴⁶⁷ See Email from Bala Venkataraman to Srihari Vendartham, AVEGO-00000881 (July 30, 2015). See also, Email from Srihari Vendartham to Bala Venkataraman, AVEGO-00000805, at AVEGO-00000805–AVEGO-00000806 (July 22, 2015) (discussing that there was only one known supplier of Seromycin API).

⁴⁶⁸ Rodelis Therapeutics, Company Overview, AVEGO-00000244, at AVEGO-00000250 (Apr. 2015).

⁴⁶⁹ *Id.* at AVEGO-00000253.

⁴⁷⁰ Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000341 (Aug. 2015). In another potential transaction discussed in the presentation, Rodelis intended to deter generic competition with a decades old drug by joining with the manufacturer of the pump that administers the drug to “not allow access to any analytical data or [REDACTED] pumps to allow for potential future competitors.” *Id.* at RTI-USSSCA-00000346; see also *id.* at RTI-USSSCA-00000352 (“Exclusive arrangement with [REDACTED] whereby they will not supply the pump or analytical data to third parties, limiting generic risk.”).

⁴⁷¹ Committee Staff Interview with Counsel for Rodelis (Dec. 1, 2015).

increases could hurt patients, and touted that it would implement programs to address this concern but failed to put such programs in place.

The 340B program provides low cost drugs to the most vulnerable in our population, and numerous pharmaceutical companies willingly participate in this program.⁴⁷² But Rodelis appears to have made efforts to limit its participation in the 340B program. In July, Avego commissioned a well-known consulting firm, Avalere, to among other things, “[a]nalyze 340B chargeback and wholesaler sales data . . . to assess the 340B exposure, and assess the implications of switching the drug distribution to specialty pharmacy providers (SPPs): requirements, feasibility, 340B impact, patient access, and PR considerations.”⁴⁷³ This work seems to have been done to explore limiting the amount of Seromycin prescriptions filled under the 340B program in favor of more profitable channels. The presentation spoke of implementing restricted distribution because it had: “[p]otentially less 340B exposure (though more and more SPPs are becoming 340B contract pharmacies).”⁴⁷⁴ It then makes the following points about “limiting 340B exposure”:⁴⁷⁵

- “SPP distribution network might have a variable impact on 340B discounts depending on the entity-specific characteristics.”⁴⁷⁶
- “SPPs might place additional administrative burden for 340B entities which may discourage them from purchasing the product.”⁴⁷⁷
- “Limiting distribution to select SPPs also limits point so negotiation for sub-ceiling pricing by 340B entities (*e.g.*, the Prime Vendor Program.)”⁴⁷⁸

Shortly after receiving this presentation, a Rodelis employee wrote in apparent answer to a question from Mr. Goldstein:

We cannot close off direct sales to 340b institutions. If a 340b institution wants to buy the drug (via an SP channel or not), we have to let them and give them PHS pricing. Also, most SP’s are now selling 340b direct because the gov’t is pushing them to do so.⁴⁷⁹

⁴⁷² See, *infra*, at 130.

⁴⁷³ Email from Joanna Young (Avalere) to Srihari Vedartham and Michael Goldstein, RTI-USSSCA-00007891, at RTI-USSSCA-00007893 (July 24, 2015).

⁴⁷⁴ Email from Joanna Young to Srihari Vedartham & Michael Goldstein, RTI-USSSCA-00007891 (July 24, 2015), and accompanying attachment, Avalere, Considerations Around Changes to the Drug Distribution Strategy, RTI-USSSCA-00007895, at RTI-USSSCA-00007899 (July, 2015).

⁴⁷⁵ *Id.* at RTI-USSSCA-00007902.

⁴⁷⁶ *Id.*

⁴⁷⁷ *Id.*

⁴⁷⁸ *Id.*

⁴⁷⁹ Email from Michael Goldstein to Srihari Vedartham, RTI-USSSCA-00007974 (July 27, 2015). Mr. Goldstein told the Committee that this email merely represented an attempt to derive all sales through specialty pharmacies—not to block all 340B sales. While we have no reasons to question the veracity of this statement, it seems a distinction without a difference. The previous documents evidence an intent to switch to specialty distribution to, at a minimum, drive down 340B. While the product was never placed into restricted distribution, there were active post-acquisition discussions with vendors to do so. See, *e.g.*, Email from Brian Jennette to Melinda Koehler, RTI-USSSCA-00007998 (Aug. 20, 2015).

Rodelis repeatedly emphasized in its internal presentations that it intended to provide patient assistance to “ensure all patients will have access to critical therapies.”⁴⁸⁰ This included assistance via a “[r]eimbursement hub with un-capped copay assistance,”⁴⁸¹ and an “[o]pportunity to provide high-touch service to patients and improve access through Patient Assistance Program (PAP) and copay assistance.”⁴⁸² In one example, Rodelis’ outside media consultant advised responding to criticism of Rodelis’ Seromycin price increase by pushing the message that Rodelis “is committed to ensuring the reliable availability” of Seromycin.⁴⁸³ In draft messaging documents, the same consultant advised stating that “Rodelis is committed to ensuring reliable availability of this important medicine for the treatment of patients with MDR-TB. This company will continue to work with all relevant parties, (payers, hospital, health departments, physicians and patients) to ensure the availability of cycloserine.”⁴⁸⁴ And on September 15, Mr. Spencer told *The New York Times* that Rodelis “was committed to ensuring access to treatment and as such Rodelis is . . . supporting a patient assistance program whereby uninsured patients can apply to access the medication for free.”⁴⁸⁵ *The New York Times* wrote, Mr. Spencer said Rodelis “provided the drug free to certain needy patients.”⁴⁸⁶

Rodelis implemented the price increase so quickly that the drug’s wholesaler, ICS, was unable to replace Chao’s contact information with Rodelis’ in time to field inquiries about the price increase. As Chao explained it contemporaneously, “[u]nfortunately they didn’t wait until they had ICS IT create an email address for themselves, [to raise the price] so [Chao] is still loosely associated with the price increase. Also, I’ve asked Brian J to give me the phone number to which they want us to forward calls because I know calls will be coming in sooner than later.”⁴⁸⁷

Additionally, even though Rodelis attempted to justify the price increase by saying that it would invest profits in programs designed to assist patients taking Seromycin, it implemented the price increase despite the fact that Rodelis was still in the nascent stages of planning for these enhanced patient programs. The company had not yet even met with its preferred potential provider to start the process of ironing out program details.⁴⁸⁸ Despite Rodelis’ repeated public

⁴⁸⁰ Email from Virinder Nohria to Bala Vekataraman AVEGO-00000243 (Jun. 3, 2015), and accompanying attachment, Rodelis Therapeutics, Company Overview, AVEGO-00000244, at AVEGO-00000247 (Apr. 2015).

⁴⁸¹ See, e.g., Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000328 (Aug. 2015); Rodelis Therapeutics, Company Overview, AVEGO-00000244, at AVEGO-00000250 (Apr. 2015).

⁴⁸² Rodelis Therapeutics, Company Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000341 (Aug. 2015);

⁴⁸³ Centrion, Medial Training Session, Rodelis Therapeutics, AVEGO-00002672, at AVEGO-00002683 (Aug. 21, 2015)

⁴⁸⁴ Email from Melinda Koehler to Verender Nohria, VN-00000012, (Sept. 4, 2015), and accompanying attachment, DRAFT Seromycin® (Cycloserine) Q&A, VN-00000016, at VN-00000018 (Aug. 21, 2015).

⁴⁸⁵ Email from Scott Spencer to Andrew Pollack, RTI-USSSCA-00005071, at RTI-USSSCA_00005072 (Sept. 15, 2015).

⁴⁸⁶ Andrew Pollack, *Drug Goes From \$13.50 a Tablet to \$750, Overnight*, New York Times (Sept. 20, 2015).

⁴⁸⁷ Email from Srihari Vendartham to Melinda Koehler and Brian Jennette, AVEGO-00001176, at AVEGO-00001176 (Aug. 21, 2015).

⁴⁸⁸ See Email from Brian Jennette to Melinda Koehler, RTI-USSSCA-00007998, at RTI-USSSCA-00007998 (Aug. 20, 2015). To be sure, Rodelis was displeased that the meeting did not occur sooner. *Id.* But they did not delay the price increase.

claim that no one would go without the drug, the first documented efforts to set up a patient assistance program appear to have occurred in September—weeks *after* the price increase was put in place.⁴⁸⁹ Indeed, as late as September 14, Mr. Goldstein was emailing bankers stating “[w]e *plan* to implement a PAP Free drug program for cycloserine.”⁴⁹⁰ And even the planned PAP program only applied to patients without insurance—those with insurance would apparently have to wait for weeks after the price increase for planning on co-pay assistance to begin.⁴⁹¹ Rodelis, on the other hand, had time not only to increase the price of Seromycin, but also to receive a comprehensive media training presentation on August 21, 2015, focused on defending the price increase by touting the very PAPs that do not appear to have even existed at that time.⁴⁹²

6. Rodelis Reacts to Intense Public Pressure

Subsequent to the price increase taking effect, Rodelis faced fire from virtually every corner.⁴⁹³ On September 18, 2015, in the face of mounting pressure, Chao requested that Rodelis reverse the transaction.⁴⁹⁴ Rodelis agreed to do so within about 72 hours⁴⁹⁵ and the transaction was officially reversed on September 21. The terms of the reversal restored both parties to the pre-transaction status quo.⁴⁹⁶

It bears noting that while Rodelis engaged in price gouging, Chao could not continue to make Seromycin at its pre-transaction price point due to the economics of production, and some sort of price increase was necessary to support the ongoing production of this vital drug.⁴⁹⁷ Post transaction, Chao doubled the price of Seromycin to \$1,050 for 30 capsules (110 percent above the pre-transaction price).⁴⁹⁸ At this price, Chao informed the Committee that it will just break

⁴⁸⁹ See Email from Melissa Koehler to Autumn (NeedyMeds), RTI-USSSCA-00006920 (Sept. 5, 2015). To be sure, there were earlier theoretical discussions in this vein. See Letter from Michael D. Bopp, Esq. to the Hon. Susan M. Collins & the Hon. Claire McCaskill, Attachment, at 2 (Dec. 7, 2015), SAOL-00000307 at SAOL-00000308.

⁴⁹⁰ Email Michael Goldstein to James Jonathan, RTI-USSSCA-00007201, at RTI-USSSCA-00007201 (Sept. 14, 2015) (emphasis added).

⁴⁹¹ See Email from Richard Sagall to Melinda Koehler and Attachment, (Sept. 15, 2015). RTI-USSSCA-00007097, *and accompanying attachment*, Rodelis Therapeutics Patient Assistance Program for Seromycin® (Cycloserine), RTI-USSSCA-00007102, at RTI-USSSCA-00007103 (Sept. 15, 2015). To be sure, Rodelis did attempt to provide a stop-gap “Compassionate Use” program. But this stop-gap program was not deployed until September 9, 2015. See Email from Zachariah Humleker, Esq. to Samuel Everett Dewey, Esq. (Nov. 29, 2016). And this occurred only after Rodelis received inquiries as to when their putative patient assistance program would be operation. See Email from Michael D. Bopp to Samuel Everett Dewey, Esq. (Nov. 25, 2016). Rodelis was unable to produce any documents describing the details of the program which appears to have only provided 30 days of free medication. See Email from Michael D. Bopp to Samuel Everett Dewey, Esq. (Nov. 25, 2016).

⁴⁹² See Email from Melinda Koehler to Shamm Astute, AVEGO-00002670, at AVEGO-00002670 (Sept. 3, 2015).

⁴⁹³ See, e.g., Andrew Pollack, *Drug Goes From \$13.50 a Tablet to \$750, Overnight*, N.Y. Times (Sept. 20, 2015).

⁴⁹⁴ November Hesler Interview; Email from Daniel J. Hesler to Brian Edelman, AVEGO-00001141 (Sept. 18, 2015).

⁴⁹⁵ November Hesler Interview (Nov. 18, 2015)

⁴⁹⁶ See Addendum to Purchase and Sale Agreement, RTI-USSSCA-00000223, at RTI-USSSCA-00000223 (Sept. 21, 2015).

⁴⁹⁷ January Hasler Interview (Jan. 15, 2016); November Hasler Interview (Nov. 18, 2015).

⁴⁹⁸ *Id.*

even⁴⁹⁹ and will not be able to retire its \$10 million in outstanding debt, or underwrite needed patient support.⁵⁰⁰ Given the economics of this small market drug, Chao is uncertain about its continued ability to produce Seromycin, and is concerned that the drug will eventually cease being made in the United States.⁵⁰¹

⁴⁹⁹ *Id.*

⁵⁰⁰ *Id.*

⁵⁰¹ January Hasler Interview.

CHAPTER 4. ROLE OF INVESTORS

This section examines how each of the four companies in this investigation had activist investors pushing them to adopt the strategies embodied in the business model as well as the investor-like approach of senior management at these companies.

Investors play an important role in the modern company, not only in providing financing, but in functioning as a check on corporate Boards and the management of a company. Activist investors, in fact, can be a source of good and help to prevent or deter corporate excesses. This dynamic, however, appears to have been turned on its head in the case of the companies investigated by the Committee. Evidence suggests that in these cases activist investors were part and parcel of the problem, pressing the companies to adopt and implement the business model identified by the Committee. Activist investors in these cases may have worsened and verified decisions made by executives.

The companies investigated by the Committee were also often headed by senior management who lacked pharmaceutical backgrounds and hailed from hedge funds. This is relatively unusual in the realm of traditional pharmaceutical companies and helps explain why the companies investigated by the Committee may have at times acted more like hedge funds than traditional pharmaceutical companies.

I. Retrophin, Inc.

Retrophin, Inc. was founded in February 2011 by Mr. Shkreli, who subsequently founded Turing after he was ousted from Retrophin. As discussed in Chapter 3, internal Retrophin documents suggest a returns-driven strategy motivating Retrophin's acquisitions and price increases on drugs such as Thiola. Emails between Dan Wichman of Broadfin Capital and Mr. Shkreli show that Mr. Wichman was intimately involved in advising on the company's strategy, down to cautioning Mr. Shkreli about his social media presence and advising him against tweeting about the FDA.⁵⁰²

In one example of investor involvement, Mr. Shkreli and Mr. Wichman discuss Retrophin's price-gouging strategy and shift from waxing philosophical about the blindness of traditional pharmaceutical companies to price-gouging opportunities to discussing specific goals

⁵⁰² See, e.g., Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_037842, at SSICA_THIOL_037842 (May 5, 2014); Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_037848, at SSICA_THIOL_037848 (May 5, 2014); Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_037863, at SSICA_THIOL_037863 (May 5, 2014); and Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_037871, at SSICA_THIOL_037871 (May 5, 2014).

for the Thiola deal to blithely acknowledging that they should not be in such frequent contact about the company's plans:⁵⁰³

[5/1/2014 2:41 p.m. Shkreli to Wichman] "*We are doing the entire deal at \$190m. You twisted my arm!*"

[5/1/2014 2:45 p.m. Wichman to Shkreli] "They've agreed to this? All parties? If so, that is great news, and we'd be very excited. *Happy to pick up \$10mln in pre-paid royalties to make those clowns happy. The npv is a no-brainer.*"

[5/1/2014 2:57 p.m. Shkreli to Wichman] "Yes. It should be a done deal. Never say never though."

[5/2/2014 5:41 p.m. Wichman to Shkreli] "Any word on the r+d guy yet?"

[5/3/2014 7:57 p.m. Shkreli to Wichman] "*I have to be careful with giving you minute by minute updates on the company ☺*"

[5/3/2014 8:13 a.m. Wichman to Shkreli] "*Yes fair enough—once this deal closes I'll go back to being less of a pain in the a\$\$. . . Assuming this looks like a done deal this week (knock on wood), I'd love to discuss a little of how you'll convey it to the Street—I'm sure you've spent many hours thinking about that. . . . Then I'll go back to leaving you alone and not harassing you semi-hourly—let you do the hard work in creating value.*"

[5/3/2014 8:14 a.m. Shkreli to Wichman, referring to Thiola for the first time] "What if I told you we might announce two deals at once?"

[5/3/2014 8:19 a.m. Wichman to Shkreli] "I'd say, I'll be happy with the one I know about, but I'm always open to more as long as you guys have the personnel and time and expertise to handle it all."

[5/3/2014 8:23 a.m. Shkreli to Wichman] "*We'd pay \$1m to acquire a drug called Thiola, which is the only treatment for a rare disease called cystinuria The drug does \$1.2m in sales. It is woefully underpriced and would not stop selling at orphan prices. With new pricing we estimate sales of \$20 to \$40 million. Almost 95% EBITDA margins at those prices. Would be an annuity for some time.*"

[5/3/2014 8:41 a.m. Wichman to Shkreli] "Interesting—sounds like a no-lose, to put it mildly. Don't have to run a model on that one this weekend to give you my opinion.

Funny that these small companies still haven't realized you can raise price aggressively and nobody gets too upset? Obviously depends on the product—but I figure this dynamic may not last forever, you need to maximize opportunities while you can. . . . It's not like people are giving companies gold stars for charging slightly lower prices ("thanks guys for charging 500 an rx not 800")—in that land the generics aren't your competition and don't even try. . . .

Anyway, it's different in orphan land, and probably more sustainable, but *seems like at this point these little guys would get the idea that they could push things a*

⁵⁰³ Email from Dan Wichman to Martin Shkreli, SSCA_THIOL_037832, at SSCA_THIOL_037832 - SSCA_THIOL_037836 (May 3, 2014) (emphases added). This email discusses not only the Thiola transaction, but other potential transactions as well. Mr. Wichman indicated in his hearing testimony that at this time, he was primarily focused on another transaction that was for a large volume drug for which Broadfin was providing financing. Mr. Wichman stated that Broadfin's investment thesis for Retrophin was not related to the business model and the sentiments expressed in these emails.

bit. How can they ever make money with that model? Bottom line is I won't get too excited but it sounds very intriguing."

[5/3/2014 8:47 a.m. Shkreli to Wichman] *"The drug companies are afraid. Small ones, big ones, etc. Big price increases are horrifying because most executives overestimate changes in demand. It comes mostly from pharma's history as quasi-consumer products. The next generation of pharma guys (or the smart ones) understand the inelasticity of certain products. The insurers really don't care. They just pass it through and focus on managing care for physician payments and blockbusters."*

[5/3/2014 1:04 p.m. Wichman to Shkreli] *"I hear you on the pharma mentality—it's ironic how it took two companies—jazz and hzn—on the brink of insolvency to decide they should aggressively play the price card. . . . And qcor is obviously a poster-child—for the heat and bad PR they took, didn't work out so badly in the end, did it? Not every deal and every product will work out like these, but for smart managements, that are resourceful and opportunistic, these are exciting times."*

In another email chain, referenced earlier, Mr. Wichman discusses with Mr. Shkreli the possibility of Congress acting to prevent closed-distribution schemes from keeping generics out of the market, as well as the implications of such an action for their business model.⁵⁰⁴

These emails illustrate how much influence activist investors may have in pharmaceutical companies that are acting more like hedge funds. The emails also revealed an instance in which Mr. Shkreli states that Retrophin's biggest shareholder was dictating the timing of a press release regarding a deal and that he had to defer to that shareholder's timing preference because "their wish is my command."⁵⁰⁵

Investors such as Mr. Wichman claim that they are not activist investors because they are not buying shares in order to take control of the company.⁵⁰⁶ This, however, misses the point. If these investors have influence in the functioning of the company and if, along with the senior management of these pharmaceutical companies, they are actively involved in pushing the business model identified by the Committee, at the expense of patients and the health care system, then there is little practical difference.

II. Turing Pharmaceuticals, LLC

Mr. Shkreli founded Turing Pharmaceuticals, LLC after he was ousted from Retrophin. Turing's largest shareholder and former CEO is Mr. Shkreli. The company launched on February 24, 2015, and stated that its focus was "address unmet medical needs."⁵⁰⁷ The

⁵⁰⁴ See Email from Dan Wichman to Martin Shkreli, SSICA_THIOL_038413, at SSICA_THIOL_038413-14.

⁵⁰⁵ Email from Martin Shkreli to Jim Self, SSICA_THIOL_007874, at SSICA_THIOL_007874 (May 30, 2014) (stating "Monday is the Jefferies conference—so we ordinarily would never front-run something like this, but we simply couldn't put this news out on Monday according to our biggest shareholder (their wish is my command)").

⁵⁰⁶ See March 2016 Hearing, at 2 (written testimony of Dan Wichman).

⁵⁰⁷ Turing Pharmaceuticals Press Release (Feb. 24, 2015), *found at*, <http://www.turingpharma.com/media/press-release?headline=launch-of-turing-pharmaceuticals-announced-%25e2%2580%2593-new-drug-company-to-focus-on-treating-unmet-medical-needs-across-broad-therapeutic-areas> (last visited Dec. 7, 2015).

company purchased several drug products in various stages of regulatory approval from Retrophin. (These drugs are still in the approval phase.)⁵⁰⁸

Internal investor presentations indicate that Mr. Shkreli planned to execute an investor-driven strategy at Turing, similar to what he did at Retrophin. These presentations highlighted that Daraprim fit the business model identified by the Committee and that a huge price increase would lead to massive returns.⁵⁰⁹ Although Mr. Wichman considered investing in Turing and emails show that significant and sensitive information was provided to Mr. Wichman about the Daraprim acquisition (prior to its closing) to encourage him to invest, he ultimately decided not to do so, citing concerns about Mr. Shkreli's personality and viability as a successful CEO.⁵¹⁰

Shortly after founding Turing, Mr. Shkreli made its first large acquisition—Daraprim. Daraprim had precisely the characteristics that Mr. Shkreli and Mr. Wichman discussed in detail over email at Retrophin.⁵¹¹

In founding Turing, Mr. Shkreli brought over his inner circle from Retrophin, including Mr. Tilles, Mr. Urrutia, Mr. Crutcher, and Mr. Smith, who all focused on courting investors. Despite Mr. Shkreli's resignation from the company, these members of his inner circle remained in positions of control at Turing. Most notably, Mr. Tilles was installed as the Chairman of the Board and Interim CEO with surprisingly no responsibilities related to "oversight of drug pricing, marketing, sales, or distribution," and minimal knowledge of the company.⁵¹²

Mr. Tilles first met Mr. Shkreli when Mr. Shkreli was running a hedge fund.⁵¹³ Around October 2011, Mr. Tilles began to "consult" for Mr. Shkreli's fund MSMB.⁵¹⁴ In December 2011 or January 2012, Mr. Tilles went to Retrophin.⁵¹⁵ At Retrophin, Mr. Tilles was again a consultant working with potential investors.

Mr. Tilles' consulting role at Retrophin appeared to consist of raising capital for Retrophin and serving as a "matchmaker" in potential business deals. He was paid a substantial salary in this role. To this day, Mr. Tilles' home address is in Jensen Beach, Florida, despite the fact that Turing's headquarters is in New York, New York.⁵¹⁶ Although Mr. Tilles would appear on emails with Mr. Urrutia and others on business deals, he had virtually no recollection of those

⁵⁰⁸ *Id.*

⁵⁰⁹ *See, supra*, at 42–45.

⁵¹⁰ *See* Email from Edwin Urrutia to Dan Wichman, TUR-SCA00007881, at TUR-SCA00007881 (May 20, 2015); Email from Edwin Urrutia to Dan Wichman, TUR-SCA00105564, at TUR-SCA00105564 (Jun. 11, 2015); Email from Edwin Urrutia to Dan Wichman, TUR-SCA00105584, at TUR-SCA00105584 (Jun. 11, 2015); Committee Staff Interview with Dan Wichman (Mar. 4, 2016). In the course of the Committee's investigation, and following the intense media scrutiny over the Daraprim price increase, Mr. Wichman also represented to Committee Staff that he declined to invest over concerns that the massive increase Mr. Shkreli contemplated taking on Daraprim would result in harm to patients. Committee Staff Interview with Dan Wichman (Mar. 4, 2016).

⁵¹¹ *See, supra*, at 33–39.

⁵¹² March 2016 Hearing, at 1–2 (written testimony of Ron Tilles).

⁵¹³ *See* Tilles Deposition, at 24:13–20.

⁵¹⁴ *Id.* at 26:5–27:11.

⁵¹⁵ *Id.* at 28:6–13.

⁵¹⁶ *See* Tilles Deposition, at 12:4–8.

deals—his role seemed to be to make introductions to high net worth individuals and push them to invest in Mr. Shkreli’s companies based on material provided by the companies’ business development team. During his deposition, Mr. Tilles admitted that he had no part in any analysis of any deals at either Retrophin or Turing and was merely there to help schedule meetings with investors and function as the conduit between Mr. Shkreli and the investors.⁵¹⁷

Mr. Tilles’ consulting contract with Retrophin was terminated when Mr. Shkreli was ousted at Retrophin. The current CEO of Retrophin, Mr. Aselage, told Committee staff that he viewed Mr. Tilles as an overpaid individual adding no value to the company who viewed it as his right to take extensive trips and bill them to his expense account. Mr. Aselage also stated that Mr. Tilles did not appear to have any knowledge of the pharmaceutical industry, and he thought Mr. Tilles lacked the ability to run a pharmaceutical company.⁵¹⁸

Mr. Tilles followed Mr. Shkreli to Turing and joined its Board. Mr. Tilles recalled at his deposition that Mr. Shkreli simply placed him on Turing’s Board and couldn’t say why he was selected.⁵¹⁹ Subsequent to joining the Board, Mr. Tilles became its Chairman; again, he stated at his deposition that he did not know at first why he was selected for the role.⁵²⁰ While at Turing, Mr. Tilles continued to play the role of investor liaison. Although he appears on most of the emails with Impax during the negotiation of the Daraprim deal, he testified that he merely served as the face of the transaction with Impax and passed information provided by other employees from one company to the other. He never contributed any substantive information about the deal.⁵²¹

Mr. Tilles recalls attending Board meetings but is barely able to relate the substance of Board discussions.⁵²² He stated at his deposition that his role at Board meetings is chiefly that of a figurehead—to call the meetings to order and to vote, although he did not actually come up with ideas for the meetings.⁵²³ When Mr. Shkreli resigned on December 18, 2015, Mr. Tilles was made interim-CEO. It appears to be widely acknowledged, including by Mr. Tilles himself, that he has no pharmaceutical experience other than his time at Retrophin and Turing. At his deposition, he stated that he did not have “a pharma[ceutical] background.”⁵²⁴ Turing’s Board did not ratify the decision to make Mr. Tilles interim-CEO until January 20, 2016 (when Mr. Tilles voted to confirm his own appointment). As CEO, Mr. Tilles appears aloof from the actual running of the company and unaware of key issues faced by pharmaceutical manufacturers.⁵²⁵

The unusual circumstances surrounding Mr. Tilles’ tenure raise the question as to why he was selected to run the company and whether, as Turing’s largest shareholder, Mr. Shkreli installed Mr. Tilles as the interim CEO and Chairman of the Board so that Mr. Shkreli could

⁵¹⁷ *Id.* at 65:13–68:19, 329:4–331:12.

⁵¹⁸ Committee Staff Interview with Steven Aselage (Mar. 10, 2016).

⁵¹⁹ *See* Tilles Deposition, at 65:13–66:15.

⁵²⁰ *Id.* at 175:11–177:15.

⁵²¹ *Id.* at 83:8–85:14, 103:22–114:3, 190:5–202:18.

⁵²² *Id.* at 134:22–140:23.

⁵²³ Tilles Deposition, at 169:14–173:12.

⁵²⁴ Tilles Deposition, at 334:12–14.

⁵²⁵ *See* Tilles Deposition, at 47:2–48:11.

continue running the company as an activist investor after his resignation as CEO. Turing and Mr. Shkreli have denied this.⁵²⁶

III. Valeant Pharmaceuticals International, Inc.

Valeant Pharmaceuticals International, Inc. is at the center of some of the most visible relationships between a pharmaceutical company and hedge funds. For many of its investors, the company was a Wall Street dream come true. Like the chief executive, Mr. Pearson, many of the top executives hailed from McKinsey, while Mr. Schiller, spent 25 years as an investment banker at Goldman Sachs. Two of the best known names in activist investing—Jeffrey Ubben’s ValueAct and Bill Ackman’s Pershing Square—were some of its largest shareholders.⁵²⁷

Valeant changed from being a typical pharmaceutical company to the form it took with Mr. Pearson at the helm under the guidance of ValueAct, which began investing in Valeant in 2006. ValueAct has held at least one seat on the company’s board since 2007, and more recently held two seats. According to press accounts, ValueAct invested in Valeant because they saw an opportunity to turn the company into a profitable investment through aggressive acquisitions, cutting R&D, and increasing drug prices. These press accounts suggest that ValueAct played a large role in selecting Mr. Pearson as the CEO to oversee these goals and also in designing his compensation package that was based primarily on stock options rather than a base salary as an incentive for Mr. Pearson to push for aggressive returns on investment.⁵²⁸ This may also have incentivized Mr. Pearson to use aggressive accounting practices to reduce Valeant’s effective tax rate to 3.1 percent.⁵²⁹ “As Valeant grew larger, its ties to Wall Street became stronger. From 2013, it generated \$400 million in fees for investment bankers, whose analyst colleagues pumped out research advising investors to snap up the shares.”⁵³⁰

When Valeant began its most aggressive period of acquiring other large companies and drugs, Valeant’s closest investor partner in carrying out that strategy was Mr. Ackman, the Chief Executive Officer and Portfolio Manager of Pershing Square. Without Mr. Ackman, Mr. Pearson would not have had the shareholder support to mount the attempted hostile takeover of Allergan that he did, and its ultimate failure tied Valeant and Pershing Square together for the long-haul.⁵³¹

A. Pershing Square

⁵²⁶ See Katie Thomas and Andrew Pollack, *Turing Pharmaceuticals Accused of Retaliating for Sex Assault Complaint*, N.Y. Times (Aug. 23, 2016); Tilles Deposition, at 271:7-17 and 283:4-12.

⁵²⁷ See David Crow, *Valeant—The Harder They Fall*, Financial Times (Mar. 28, 2016).

⁵²⁸ See Andrew Ross Sorkin, *ValueAct Pays a Price for Its Supporting Role at Valeant*, N.Y. Times (Mar. 28, 2016); Maureen Farrell, *ValueAct’s Not-So-Invisible Role in Valeant’s Business and Pay Model*, Wall St. J. (Mar. 21, 2016).

⁵²⁹ See Andrew Ross Sorkin, *Do Drug Companies Make Drugs, or Money?*, N.Y. Times (June 2, 2014).

⁵³⁰ David Crow, *Valeant—the Harder They Fall*, Financial Times (Mar. 28, 2016).

⁵³¹ See David Gelles, *Valeant and Ackman Departing from Usual Playbook in Pursuit of Allergan*, N.Y. Times (June 2, 2014); David Gelles, *No Allergan Deal, but a \$2.6 Billion Profit for Ackman*, N.Y. Times (Nov. 17, 2014).

Pershing Square's relationship with Valeant began in early February 2014, when Mr. Bill Doyle, a member of Pershing Square's Investment team and a former colleague of Mr. Pearson's at McKinsey, introduced Mr. Ackman and Mr. Pearson.⁵³² Shortly thereafter, Mr. Ackman and Mr. Pearson agreed to form a partnership between Pershing Square and Valeant to launch an offer for Allergan, a large pharmaceutical company and manufacturer of Botox.⁵³³ Such an alliance between an activist investor like Pershing Square and a corporate acquirer like Valeant was unusual.⁵³⁴

As a result of the attempted Allergan offer, a process which spanned from February 2014 through November 2014, Pershing Square acquired an in-depth knowledge of Valeant's operations.⁵³⁵ Prior to Pershing Square and Valeant's agreement regarding the Allergan offer, Pershing Square conducted due diligence on Valeant but did not flag Valeant's drug pricing strategy as an area of concern.⁵³⁶ During the course of the Allergan offer, Mr. Ackman and Mr. Pearson frequently spoke daily.⁵³⁷

1. Pershing Square Becomes a Top Valeant Shareholder

Following the failed Allergan offer, Pershing Square became a direct investor in Valeant.⁵³⁸ For much of 2015, Mr. Ackman stated that he considered Pershing Square to be a "passive investor" in Valeant.⁵³⁹ During this period, however, Mr. Ackman and Mr. Pearson still spoke "frequently," according to Pearson.⁵⁴⁰ The frequent communications between the two is also reflected in documents produced to the Committee, in which Mr. Ackman frequently discusses his attempts to prop up Valeant in the media as well as with other investors, such as Berkshire Hathaway.⁵⁴¹

For example, on March 4, 2015, Mr. Ackman personally contacted Mr. Schiller to inform him that Pershing Square had become "a top 5 shareholder" in Valeant.⁵⁴² At this time, Mr. Ackman requested a meeting with Mr. Schiller and Mr. Pearson, in which Mr. Ackman later proposed that Pershing Square and Valeant create "a stake building fund."⁵⁴³ According to Mr. Pearson, the stake building fund was intended to be a second investment vehicle by which the

⁵³² Committee Staff Interview with William B. Ackman (Apr. 7, 2016) ("Ackman Interview").

⁵³³ See Michele Celarier, *Bill Ackman and Michael Pearson: The Inside Story*, Fortune (Mar. 27, 2016).

⁵³⁴ See David Benoit, Dana Mattidi, & Jonathan D. Rackoff, *Ackman, Valeant Team Up to Pursue Takeover of Allergan*, Wall St. J. (April 21, 2014).

⁵³⁵ Ackman Interview.

⁵³⁶ *Id.*

⁵³⁷ See Pearson Deposition, at 308:16–22.

⁵³⁸ *Id.* at 311:7–16.

⁵³⁹ Ackman Interview.

⁵⁴⁰ Pearson Deposition, at 308:23–309:3.

⁵⁴¹ Email from William A. Ackman to J. Michael Pearson and Howard Schiller, VRX_SCA_A_00003377, at VRX_SCA_A_00003377–78 (Apr. 10, 2015); Email from William A. Ackman to J. Michael Pearson and Howard Schiller, VRX_SCA_A_00003381, at VRX_SCA_A_00003381–82 (Apr. 11, 2015); Email from William A. Ackman to Charlie Munger, VRX_SCA_A_00003385 (Apr. 11, 2015).

⁵⁴² Email from Howard Schiller to J. Michael Pearson, VRX_SCA_A_00022687 (Mar. 4, 2015).

⁵⁴³ Email from William A. Ackman to J. Michael Pearson, VRX_SCA_A_00003388 (Apr. 19, 2015); Pearson Deposition, at 313:8–314:14 and 317:14–318:2.

two companies could make additional hostile takeover attempts.⁵⁴⁴ Mr. Pearson ultimately brought Mr. Ackman's idea regarding the stake building fund to Valeant's Board, but the Board chose not to pursue it.⁵⁴⁵ On March 25, 2015, Pershing Square filed a Schedule 13D with the SEC, stating that it had acquired a 5.7 percent interest in Valeant.⁵⁴⁶

Before Pershing Square gained a seat on Valeant's Board, Mr. Ackman testified that Valeant's price increases on individual drugs were not transparent to him as only a shareholder.⁵⁴⁷ Nevertheless, on July 23, 2015, nearly seven months before Pershing Square gained a seat on Valeant's Board, Mr. Ackman emailed Mr. Pearson following a 2015 second quarter call Valeant held that day to tell him that he sounded "a little defensive" on "the price increase question" and could have "answered that a little differently."⁵⁴⁸ In the same email, Mr. Ackman also wrote:

I can't think of a business over the course of my career that has delivered such strong operating performance, BD performance, and participates in such a large market where the competitors in most cases don't compare. That combined with transparency, accountability, and shareholder orientation is unique, particularly at the current scale of VRX.

Mr. Ackman closed the email by saying, "Thank you for delivering on our behalf."⁵⁴⁹ This is one of many such emails between Mr. Ackman and Mr. Pearson.

2. Pershing Square Response to Philidor Allegations

Until January 2016, Valeant maintained an opaque relationship with Philidor, a mail-order pharmacy, for which it is now under investigation. Valeant claims that its relationship with Philidor helped it to retain patients.⁵⁵⁰ Philidor claims that Valeant merely used it to operate Valeant's PAP.⁵⁵¹ On November 17, 2016, Gary Tanner, a former executive at Valeant, and

⁵⁴⁴ Pearson Deposition, at 313:8–314:14 and 317:14–318:2.

⁵⁴⁵ *Id.* at 313:8–318:2.

⁵⁴⁶ See Pershing Square, Schedule 13D (Mar. 25, 2015), *found at*, <http://www.sec.gov/Archives/edgar/data/885590/000119312515104528/d892712dsc13d.htm> (last visited Dec. 16, 2016). Schedule 13D is commonly referred to as a "beneficial ownership report." When a person or group of persons acquires beneficial ownership of more than 5% of a voting class of a company's equity securities, they are required to file a Schedule 13D with the SEC.

⁵⁴⁷ April 2016 Hearing, Trans. at 69:17–71:4.

⁵⁴⁸ Email from William A. Ackman to J. Michael Pearson, VRX_SCA_A_00000029 (July 23, 2015)

⁵⁴⁹ *Id.*

⁵⁵⁰ See Pearson Deposition, at 146:19–147:3.

⁵⁵¹ See Senate Special Committee on Aging, Philidor Interrogatories (April 25, 2016);

Andrew Davenport, the former CEO of Philidor, were indicted for allegedly illegally using Philidor in a kickback scheme to convert Valeant shareholder money into personal profit.⁵⁵²

Allegations were reported in the media that Valeant used Philidor to artificially boost its sales numbers, and that Philidor changed doctor's prescriptions to Valeant's brand-name drugs.⁵⁵³ Valeant denied these allegations but admitted that it purchased an option to buy Philidor for \$100 million two years ago and also included Philidor's accounting in Valeant's books even though it had not exercised the option to purchase Philidor.⁵⁵⁴ Valeant severed its ties with the now-defunct Philidor in October of last year.⁵⁵⁵ The failure to disclose its relationship with Philidor is being investigated by the U.S. Attorney for the Southern District of New York.⁵⁵⁶ Valeant is also being investigated by the U.S. Securities and Exchange Commission, and the U.S. Attorney for the District of Massachusetts, among others.⁵⁵⁷ In answers to written deposition questions provided to the Committee, Mr. Schiller said that Mr. Pearson did not reveal the relationship in part because he believed it gave Valeant an advantage over its competitors.⁵⁵⁸

After much media scrutiny, Valeant cut ties with Philidor. The Valeant Board of Directors formed a special committee to investigate whether there were any improprieties with the relationship.⁵⁵⁹ At the end of the investigation, the Committee determined that Valeant will restate \$58 million in financial earnings from late 2014 into 2015.

Pershing Square's response to the public scrutiny of Philidor illustrates Mr. Ackman's active involvement in Valeant. Following the revelations about Valeant's relationship with Philidor, Mr. Ackman and Pershing Square attempted "to salvage his huge bet on Valeant" by playing their "traditional" activist investor role with respect to the company.⁵⁶⁰ In doing so, Pershing Square sent Valeant their opinion on what should be included in Valeant investor calls as well as questions that Valeant should be prepared to answer, and asked to review press

⁵⁵² See Department of Justice, *Former Valeant Executive and Former Philidor CEO Charged in Manhattan Federal Court for Illegal Fraud and Kickback Scheme*, at _ (Nov. 17, 2016), found at, <https://www.justice.gov/usao-sdny/pr/former-valeant-executive-and-former-philidor-ceo-charged-manhattan-federal-court> (last visited Dec. 16, 2016).

⁵⁵³ See Caroline Chen and Ben Elgin, *Philidor Said to Modify Prescriptions to Boost Valeant Sales*, Bloomberg (Oct. 29, 2015, updated Oct. 30, 2015), found at, <https://www.bloomberg.com/news/articles/2015-10-29/philidor-said-to-modify-prescriptions-to-boost-valeant-sales> (last visited Dec. 16, 2016).

⁵⁵⁴ *Id.*

⁵⁵⁵ See Caroline Chen, *Valeant Falls on Report of Criminal Probe Into Philidor Ties*, Bloomberg (Aug. 10, 2016), found at, <https://www.bloomberg.com/news/articles/2016-08-10/valeant-said-to-be-under-criminal-investigation-wsj-reports-irpjbydi> (last visited Dec. 16, 2016).

⁵⁵⁶ *Id.*

⁵⁵⁷ *Id.*

⁵⁵⁸ See Deposition of Mr. Howard Schiller, Answer to Written Question Number 9 (Apr. 11, 2016). Mr. Schiller also noted that this decision was reported to the Valeant Audit Committee.

⁵⁵⁹ See Valeant, *Valeant Ad Hoc Committee Has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters*, Valeant (February 22, 2016).

⁵⁶⁰ Monica Langley, *Activist Investor Bill Ackman Plays Defense*, The Wall Street Journal (Nov. 4, 2015) found at <http://www.wsj.com/articles/activist-investor-bill-ackman-plays-defense-1446689963> (last visited Dec. 16, 2016).

releases before Valeant put them out.⁵⁶¹ Pershing Square also undertook their own survey of dermatologists to collect their views on Valeant products and the company's use of Philidor.⁵⁶²

Further, Mr. Ackman began speaking regularly with the press about the Philidor scandal and making public his recommendations to Valeant. The night before the *Wall Street Journal* published a page-one story, Mr. Ackman emailed Mr. Pearson to say that he had "done [his] best to make it a good story and for you and the company to look as good as possible. Fingers crossed."⁵⁶³ Despite Mr. Ackman's efforts, the story did not portray Valeant positively and Mr. Ackman emailed Mr. Pearson and others at Valeant the next night, stating, "It is always a debate as to whether to work with the press or not, but I chose to do so with the Journal. I did my best to get the article to a good place. Clearly, this was not my best work. My apologies."⁵⁶⁴ According to Mr. Pearson and Mr. Schiller, Mr. Ackman's public relations strategy conflicted with Valeant's, straining the relationship between Pershing Square and Valeant.⁵⁶⁵

Even as Mr. Ackman escalated his public criticism of Valeant, he continued to be privately and publicly supportive of Mr. Pearson as CEO. In a private email to Mr. Pearson on October 29, 2015, Mr. Ackman stated, "I just want you to know that I am totally supportive of you as CEO of Valeant I just want to make sure you don't confuse my disagreement with you about a conference call with my confidence in you as CEO."⁵⁶⁶ In an email sent to Mr. Pearson on November 5, 2015, Mr. Ackman stated:

While I have strong views on Valeant's communication strategy and would have taken a different approach, you and the board should not interpret this as a negative reflection on my view of you as the CEO of the company You are one of the most shareholder-oriented CEOs I know. You have assured me that you and the rest of the board are considering any and all alternatives that would benefit shareholders and other stakeholders. That is very comforting to us.⁵⁶⁷

Publicly, on November 9, 2015, during a Pershing Square quarterly investor call, Mr. Ackman stated, "[t]he biggest regret I have with Valeant is that we're not in a position to buy more."⁵⁶⁸ On November 23, 2015, Pershing disclosed that it had nearly doubled its interest in Valeant—increasing its ownership of the company from 5.7 percent of the company to 9.9 percent.⁵⁶⁹

⁵⁶¹ See Email from Jordan Rubin to Mike Pearson, VRX_SCA_A_00005820 (Oct. 17, 2015), Email from William A. Ackman to Howard Schiller and Mike Pearson, VRX_SCA_A_00005936 (Oct. 22, 2015), Email from William A. Ackman to Mike Pearson, Laurie Little, and Robert Chai-Onn, VRX_SCA_A_00005829 (Oct. 25, 2015), Email from William A. Ackman to Mike Pearson, and Howard Schiller, VRX_SCA_A_00005848 (Oct. 22, 2015).

⁵⁶² See Email from Jordan Rubin to Mike Pearson and Andrew Davis (Nov. 9, 2015), VRX_SCA_A_00005999-6000.

⁵⁶³ Email from William A. Ackman to Mike Pearson (Nov. 4, 2015), VRX_SCA_A_00005994.

⁵⁶⁴ Email from Mike Pearson to William Ackman (Nov. 6, 2015), VRX_SCA_A_00005997.

⁵⁶⁵ See Schiller Deposition, at 125:9-130:7; Pearson Deposition, at 272:18-273:17.

⁵⁶⁶ Email from William A. Ackman to Mike Pearson (Oct. 29, 2015), VRX_SCA_A_00005983.

⁵⁶⁷ Email from William A. Ackman to Mike Pearson (Nov. 5, 2015), VRX_SCA_A_00005995.

⁵⁶⁸ Mittelman, Melissa. *Ackman's Biggest Valeant Regret Is Being Unable to Buy More*, Bloomberg (November 9, 2015).

⁵⁶⁹ See Pollock, Lauren. *Ackman's Pershing Square Boosts Stake in Valeant to 9.9%*, Wall St. J. (Nov. 23, 2015).

Then on December 31, 2015, Mr. Ackman sold about five million shares in Valeant in order to generate a tax loss as investors in Pershing faced the biggest loss in the company's history. At the end of 2015, Pershing Square shares in Valeant were down to 8.5 percent of the company.⁵⁷⁰

3. Pershing Square Gains Two Valeant Board Seats

On February 29, 2016, the day after Valeant announced Mr. Pearson would return from medical leave, Mr. Ackman visited Mr. Pearson at Valeant to request that Stephen Fraidin, Vice Chairman of Pershing Square, be made a member of Valeant's Board of Directors.⁵⁷¹ Mr. Pearson instructed Mr. Ackman to bring his request to Robert Ingram (then Chairman of the Board) for the Board to consider.⁵⁷² In an email sent by Mr. Ackman to Mr. Pearson following his February 29 visit to Valeant, Mr. Ackman stated, "[w]e greatly appreciate the work you are doing on behalf of us and the other shareholders . . . You come across very well and I think will be very comforting for analysts."⁵⁷³

On March 8, 2016, the Board voted to make Mr. Fraidin a Valeant Director.⁵⁷⁴ The same day, Mr. Ackman emailed Mr. Pearson, stating, "[t]here isn't enough time for your team to review our agreement requests prior to Steve joining the board so we are going to drop the requests and we can deal with them later."⁵⁷⁵ According to Mr. Pearson, Mr. Ackman's requests were "largely legalese" and "were around trading," primarily "when someone could trade and not trade."⁵⁷⁶

On March 16, 2016, Mr. Ackman contacted Mr. Pearson and asked him if he could speak to Valeant's Board for three to four hours during the upcoming Valeant Board meeting, which commenced the following day.⁵⁷⁷ Mr. Pearson relayed this request to the Board and the next day, Mr. Ackman joined the Board meeting as an observer through the weekend.⁵⁷⁸ On March 18, 2016, Mr. Ackman requested that the Board make him a Director.⁵⁷⁹ According to Mr. Pearson, when Mr. Ackman made the request, he stated that he "had 100 percent confidence" in Mr. Pearson as CEO.⁵⁸⁰ However, on March 20, 2016, Mr. Ackman called Mr. Pearson to inform him that the Board will vote on replacing him as CEO.⁵⁸¹ On March 21, 2016, it was

⁵⁷⁰ See Herbst-Bayliss, Svea, *Ackman's Fund Sells 5 Million Valeant Shares to Generate Tax Loss*, Reuters (Dec. 31, 2015).

⁵⁷¹ See Pearson Deposition, at 332:18–333:22.

⁵⁷² See Pearson Deposition, at 333:17–334:8.

⁵⁷³ Email from William A. Ackman to Mike Pearson, VRX_SCA_A_00012758. (Feb. 29, 2016).

⁵⁷⁴ Valeant, *Valeant Pharmaceuticals Announces The Addition Of Three New Independent Directors To Its Board* (Mar. 9, 2016), found at, <http://ir.valeant.com/news-releases/2016/03-09-2016-130553844> (last visited Dec. 16, 2016).

⁵⁷⁵ Email from William A. Ackman to Mike Pearson, VRX_SCA_A_00022207 (Mar. 8, 2016),

⁵⁷⁶ Pearson Deposition, at 336:9–17.

⁵⁷⁷ See Pearson Deposition, at 338:12–17.

⁵⁷⁸ *Id.* at 338:12–339:13; see also, Committee Staff Interview with Bill Ackman (Apr. 7, 2016)

⁵⁷⁹ *Id.*

⁵⁸⁰ Pearson Deposition, at 344:8–17.

⁵⁸¹ See Pearson Deposition at 339:23–345:4.

reported that Valeant's Board voted to add Mr. Ackman as a Director and to dismiss Mr. Pearson as CEO.⁵⁸²

When asked when Mr. Ackman lost confidence in him as CEO, Mr. Pearson replied during his deposition, "[s]ometime between Friday and Sunday of that weekend."⁵⁸³ As to why Mr. Ackman asked Mr. Pearson to step down as CEO, Mr. Pearson opined, "I think it had to do primarily with the share-price performance and that he was probably feeling a lot of heat from his investors and, therefore, if you're an activist, you make changes. And a change to the CEO is probably the easiest change to make."⁵⁸⁴ During the Committee's call with Mr. Ackman, he would not comment on the Board discussions around the decision to ask Mr. Pearson to step down as CEO. He acknowledged, however, that he is very involved in the company's direction moving forward.⁵⁸⁵

IV. Rodelis Therapeutics

Of the four companies that were the subject of the Committee's investigation, Rodelis Therapeutics exhibited the least separation between the company and its investors. During its existence as Rodelis, the company maintained no discernable separation from its largest investor, Avego Healthcare Capital. In fact, the two companies even shared a mailing address at one point.⁵⁸⁶

The core Rodelis team included Mr. Venkataraman, the founder of Avego Healthcare Capital, and Mr. Goldstein, a partner at Avego.⁵⁸⁷ It is apparent from internal Rodelis documents that virtually no effort was made either to separate Rodelis from Avego, or to separate the roles of individuals holding senior office in both companies.

Both Mr. Venkataraman and Mr. Goldstein were involved in detailed analyses regarding Rodelis' acquisition of cycloserine/Seromycin.⁵⁸⁸ Although Scott Spencer was the General Manager of Rodelis, he was brought on only in late 2015 and his role appeared to be relegated to dealing with the outward facing backlash that occurred after the price increase, and he was absent from key decision-making emails.⁵⁸⁹ Mr. Goldstein was an active driver in the decisions involving Rodelis and Seromycin throughout 2015, maintaining and using both an Avego and a Rodelis email throughout the transaction for Seromycin.⁵⁹⁰

⁵⁸² Committee Staff Interview with Bill Ackman (Apr. 7, 2016).

⁵⁸³ Pearson Deposition, at 344:8–17.

⁵⁸⁴ Pearson Deposition, at 344:18–345:4.

⁵⁸⁵ Steele, et al, *Valeant Names Joseph Papa as New CEO*, Wall Street Journal (Apr. 25, 2016).

⁵⁸⁶ See Email from Srihari Vedartham to Dr. Stowell, RTI-USSSCA-00002461 (Apr. 3, 2015); Email from Michael Goldstein to Jacinta McCabe, Ciaran Lyng, Sarah Cleary, Jim Clery, and Brian Kelly, RTI-USSSCA-00000277 at RTI-USSSCA-00000279-81 (Aug. 7, 2015).

⁵⁸⁷ See Rodelis Therapeutics Overview, RTI-USSSCA-00000321, at RTI-USSSCA-00000325

⁵⁸⁸ See Email from Virinder Nohria to Bala Venkataraman and John Devane, RTI-USSSCA-00000423 (June 15, 2015).

⁵⁸⁹ See Email from Srihari Vedartham to Michael Goldstein, RTI-USSSCA-00007233 (July 14, 2015); Email from Scott Spencer to Andrew Pollack, RTI-USSSCA-00005071 (Sept. 15, 2015).

⁵⁹⁰ See Email from Brian Jenette to Michael Goldstein, RTI-USSSCA-00007974 (July 27, 2015); Email from John Devane to Michael Goldstein, RTI-USSSCA-00000276 (July 28, 2015).

In several instances, Mr. Goldstein, using his Avego email address, was directly involved in directing regulatory, payments, and pricing analysis on Seromycin prior to the purchase.⁵⁹¹

Even after Rodelis closed on the Seromycin deal, Mr. Goldstein continued to direct ongoing pricing analysis into the product, giving no indication that his involvement in the Seromycin project while being a partner at Avego was going to wane in the future.⁵⁹² Avego also ordered, under its own name and not that of Rodelis, pricing and payer research on a number of drugs, including Seromycin.⁵⁹³

As seen in the above discussion of the other three companies, activist investors maintained close relationships with the executives of the companies they invested in, particularly those which have the largest share of a company as Avego did with Rodelis. However, even the most active investors in the other examples maintained a veneer of detachment in that, no matter how hard they may have pushed and pressured the executives of the companies they invested in to take the companies in a direction that was best for the activist investors, ultimately, the executives of the companies had final say in management decisions. In the case of Avego, investors made no attempt to hide the fact that they were running Rodelis. This is a prime example of the control exercised by some investors in healthcare at the cost of patients.

⁵⁹¹ See Email from Michael Goldstein to Kevin Rohrbach (Aug. 26, 2015), RTI-USSSCA-00008039; Email from Srihari Vedartham to Michael Goldstein, RTI-USSSCA-00007233 (July 14, 2015); Email from Kevin Rohrbach to Michael Goldstein, RTI-USSSCA-00007980 (August 20, 2015); Email from Colin Shannon to Michael Goldstein and Srihari Vedartham, RTI-USSSCA-00007871 (July 22, 2015); Email from Michael Goldstein to Bala Venkataraman and Srihari Vedartham, AVEGO-00000883 (July 30, 2015); Email from Brian Jennette to Michael Goldstein, AVEGO-00000965 (August 6, 2015).

⁵⁹² See Email from Michael Goldstein to Kevin Rohrbach (Aug. 26, 2015), RTI-USSSCA-00008039.

⁵⁹³ See Avego Healthcare [redacted] and Cycloserine Research (August 2015), RTI-USSSCA-00001248-58; Cycloserine Research (August 2015), RTI-USSSCA-00001259-1264.

CHAPTER 5. HOSPITAL, PATIENT, AND COMMUNITY IMPACTS

I. Harm to Patients and Their Families

Based on its extensive study, the Committee believes that sudden drug price increases have imposed substantial burdens on patients and their families. Dramatic price hikes are affecting their health, time, emotional well-being, and pocketbooks. According to the many patient accounts obtained by the Committee, these impacts are often interlinked.⁵⁹⁴ In some cases, patients are forced to go without vital medicine, and experience dangerous and sometimes life-threatening symptoms as a result. In others, patients—and often their families and physicians—reported having to skip doses or hoard pills out of fear that their next refill would not be available or would be unaffordable.⁵⁹⁵ Physicians bemoaned the effects that poor adherence to prescribed dosing has had on their patients' health.⁵⁹⁶ Even patients who obtained medication through PAPs or who still had insurance coverage for their medication reported watching anxiously as prices climbed, knowing that they could lose access without warning if the drug were dropped from their insurance plan's formulary at any time throughout the year, or if their application for patient assistance were denied at any point.⁵⁹⁷

The Committee's interviews reveal that families, seeing their loved ones declining and scared, often feel powerless in the face of drug price increases, but also become advocates, making calls or scouring the Internet in search of alternative or lower cost therapies.⁵⁹⁸ Family budgets are stressed even when patients get help from a PAP or have what they consider to be good insurance coverage.⁵⁹⁹ Some family members reported taking a second job on top of taking on increased caretaking responsibilities at home.⁶⁰⁰ Others navigated through vague information on websites and applied to multiple PAPs or grants in search of one that would cover their needs. Several individuals likened the paperwork requirements—that require continually reapplying and following up—to having a part-time job.⁶⁰¹

⁵⁹⁴ Committee Staff Interview with Patient A (PII [UNDER SEAL]) (Mar. 24, 2016) (“Patient A Interview”); Committee Staff Interview with Susan Mannes (wife of patient Bruce Mannes) (Mar. 24, 2016) (“Mannes Interview”); Committee Staff Interview with Patient B (PII [UNDER SEAL]) (Apr. 4, 2016) (“Patient B Interview”). Committee Staff interviewed a number of patients and family members affected by the price increases in the seven drugs subject to the Committee's investigation. Some of these individuals (understandably) requested anonymity regarding *public* attribution of their statements. The names of these individuals have been anonymized. The Committee is not relying on anonymous reports, as all anonymized names are known to the Committee, and Committee Staff interviews with those individuals were subject to 18 U.S.C. §§ 1001 and 1505. Full notes of these interviews are contained in the Committee's sealed files.

⁵⁹⁵ Committee Staff Interview with Dr. Michael Schilsky (Mar. 23, 2016) (“Schilsky Interview”).

⁵⁹⁶ *Id.*

⁵⁹⁷ Patient A Interview, Patient B Interview; Mannes Interview; Committee Staff Interview with Trisha Marzolo (mother of patient Patrick Melvin) (Mar. 28, 2016) (“Marzolo Interview”).

⁵⁹⁸ *Id.*

⁵⁹⁹ Mannes Interview.

⁶⁰⁰ *Id.*

⁶⁰¹ *Id.*

II. Drug-Specific Patient Impacts

A. Wilson Disease Drugs: Cuprimine and Syprine

Valeant's sudden price increases for Cuprimine and Syprine have hit patients particularly hard due to the nature of treating Wilson disease, which results in the inability to process copper and requires treatment for the rest of a person's life.⁶⁰² For decades, individuals with Wilson disease have relied on Cuprimine and Syprine to lead otherwise ordinary lives. Failure to treat Wilson disease is not an option. Dr. Askari, director of the Wilson Disease Center of Excellence at the University of Michigan Health System, who has overseen the care of hundreds of patients, testified before the Committee on April 27 that:

Wilson disease is completely manageable with proper treatment; however, it is a uniformly fatal disease if left untreated. It can be a crippling disease if copper levels are not well controlled or if the diagnosis is not made early enough Risks of not treating Wilson disease or gaps in treatment include liver failure, brain damage, and death.⁶⁰³

The price increases for Cuprimine and Syprine resulted in interruptions in treatment, difficulty accessing medication, and the return of painful symptoms for patients. Writing in the journal *Hepatology* in April 2015, prominent Wilson disease specialists reported that price increases were beginning to create financial crises for many patients and that further serious personal health crises were looming.⁶⁰⁴

Dozens of Americans affected by Wilson disease contacted the Committee over the course of the investigation to share their stories and struggles. Patients ranged from newly diagnosed young adults scrambling to make ends meet, to seniors facing retirement. The older adults had typically been successfully managing their disease with Cuprimine or Syprine for most of their lives, and the sudden price hikes presented an acute risk to their life, health, and wellbeing. Even those who received foundation grants for co-pays or enrolled in a PAP still faced burdensome out-of-pocket costs.⁶⁰⁵ While some patients were able to eventually get assistance in obtaining the medication they needed at an affordable price, many went without medication for a period of time, thus jeopardizing the management of their condition.⁶⁰⁶ Other patients decided to switch to zinc acetate, a treatment that poses risks for some patients.⁶⁰⁷

All of the Wilson disease sufferers that the Committee interviewed, including those eventually able to obtain financial assistance for the drugs, were deeply anxious about long-term

⁶⁰² Wilson disease is also referred to by some in the medical community as Wilson's disease.

⁶⁰³ April 2016 Hearing, at 1 (written testimony of Dr. Frederick Askari, M.D.).

⁶⁰⁴ See Michael J. Schilsky et al., *Costly Choices for Treating Wilson's Disease*, *Hepatology* Vol. 61, No. 4, at 1107 (2015).

⁶⁰⁵ Patient A Interview; Patient B Interview; Email with Patient B (PII [UNDER SEAL]) (Apr. 11, 2016).

⁶⁰⁶ Marzolo Interview; Patient B Interview; Email with Patient B (PII [UNDER SEAL]) (Apr. 11, 2016).

⁶⁰⁷ See, *supra*, at 8.

affordability and access.⁶⁰⁸ Physicians emphasized that emotional effects can exacerbate a patient's physical symptoms.⁶⁰⁹ Some even expressed concern that speaking publicly would lead Valeant to stop manufacturing the drugs altogether, while others were angry over what they viewed as Valeant's ability to "hold them hostage."⁶¹⁰ Some patients were disturbed that Valeant was profiting from the price increases while claiming publicly to be helping people through its PAP.⁶¹¹ Some patients were only offered assistance from Valeant after speaking about their challenges to the press.⁶¹²

Below are the stories of three Wilson disease patients who testified before or were interviewed by the Committee.

- In the Committee's April 27, 2016, hearing, Berna Heyman, retired Associate Dean of Libraries at the College of William and Mary, shared her experience struggling to treat her Wilson disease. Prior to the price hikes, Mrs. Heyman took Syprine three times a day. In 2014, she determined that her projected co-pay would exceed \$10,000 per year—with her insurance paying over \$260,000—and realized that such costs were untenable for her (despite having an objectively "good" insurance plan).⁶¹³ Mrs. Heyman explained the trials that followed: she applied for Valeant's PAP, and was denied assistance; she wrote to the then-Valeant CEO, Michael Pearson, who responded that the price increases were necessary to support Valeant's overall activities; she applied to the Patient Access Network Foundation, and was told that her income precluded her from obtaining support.⁶¹⁴ Ultimately, Mrs. Heyman switched to a zinc-based drug, but in doing so, she endures lifestyle restrictions and uncertainties about future effectiveness.⁶¹⁵ She testified, "[m]y health was stable with Syprine and my doctor and I made the change only under duress."⁶¹⁶

Mrs. Heyman also testified and told Committee staff that a year after she had stopped taking Syprine, reporters from major newspapers contacted her, and then talked to Valeant about her case.⁶¹⁷ Following these interviews, Mrs. Heyman was contacted by a Valeant representative offering to enroll her in a PAP as an exception to the program's requirements.⁶¹⁸ Mrs. Heyman refused Valeant's offer, maintaining that the drug should be offered to all patients at an affordable cost.⁶¹⁹ Mrs. Heyman later testified that after this offer, Valeant sent flowers with a note saying it was a

⁶⁰⁸ Patient A Interview; Manness Interview; Marzolo Interview; Heyman Interview.

⁶⁰⁹ Committee Staff Interview with Dr. Frederick Askari (Mar. 28, 2016).

⁶¹⁰ Patient A Interview; Patient B Interview.

⁶¹¹ Patient A Interview.

⁶¹² *See, infra*, at 100.

⁶¹³ April 2016 Hearing, at 1–2 (written testimony of Berna Heyman).

⁶¹⁴ *Id.* at 2.

⁶¹⁵ *Id.*

⁶¹⁶ *Id.*

⁶¹⁷ *Id.*

⁶¹⁸ *Id.*

⁶¹⁹ *Id.* at 3.

pleasure to talk to her. Mrs. Heyman testified, “I refused the flowers and asked that the sender be informed of my refusal.”⁶²⁰

- A retired carpenter from Michigan, Bruce Mannes, shared his story in the *New York Times* and later his wife spoke with the Committee.⁶²¹ Mr. Mannes had been managing his Wilson disease well for 55 years with Cuprimine, until the summer of 2015, when his monthly co-pay rocketed from about \$366 to \$1,800.⁶²² The price hike caused the Mannes family substantial stress, and Mr. Mannes’s wife took on a second part-time job to help cover the added expenses, stating unequivocally, “my husband will die without the medicine.”⁶²³ Following the *New York Times* story, Valeant contacted the couple and made an exception to its PAP requirements, providing the drug directly to Mr. Mannes at no cost.⁶²⁴
- The Committee also heard the story of Patrick Melvin, a young father. Mr. Melvin was diagnosed with Wilson disease in July 2014 and was able to continue leading a normal life with the disease controlled by Syprine. When his insurance company reduced the amount it would cover, leaving him a co-pay of \$20,000 for a month’s supply, he went without the drug for several weeks and his symptoms escalated to where he began to have increased tremors and hallucinations, and to slur words, drool, and lose his memory. His mother’s efforts to find assistance were eventually successful, but Mr. Melvin’s health had declined and was forced to apply for disability assistance. With changing employment and income status due to his declining health, his eligibility for assistance programs also changed, which required his mother to continue navigating these programs on his behalf. Although Mr. Melvin improved with continuing medical treatment and was rebuilding his skills, including caring for his young daughter, he died tragically after suffering a massive stroke in September 2015. He was 35 years old.⁶²⁵

In meeting with Committee staff on August 30, 2016, current Valeant CEO Joseph Papa told Committee staff that Valeant had not reduced the prices of Cuprimine and Syprine or provided rebates, and did not have plans to do so. According to Mr. Papa, the company was instead focusing on ensuring that patients can obtain these drugs by making changes to its PAPs. Specifically, Mr. Papa said that Valeant had expanded the coverage of its PAP to ensure that no patient with insurance has a co-pay of more than \$25, and that a patient without insurance with a household income of less than 500 percent of the federal poverty level would receive free medication.⁶²⁶

⁶²⁰ *Id.*

⁶²¹ Andrew Pollack & Sabrina Tavernise, *Valeant’s Drug Price Strategy Enriches it, But Infuriates Patients and Lawmakers*, N.Y. Times (Oct. 4, 2015).

⁶²² *Id.*

⁶²³ *Id.*

⁶²⁴ Mannes Interview.

⁶²⁵ Marzolo Interview; Committee Staff Interview with Dr. Laurice Yang (doctor treating Patrick Melvin) (Apr. 21, 2016); Committee Staff Interview with Joey Gee (doctor treating Patrick Melvin) (Apr. 1, 2016); Committee Staff Interview with Dr. Jeff Bronstein (doctor treating Patrick Melvin) (Mar. 31, 2016) (“Bronstein Interview”).

⁶²⁶ Papa Interview; Valeant, Responses to Senate Special Committee on Aging, at 2 (Sept. 13, 2016).

B. Toxoplasmosis Drug: Daraprim

As discussed previously, toxoplasmosis is a parasitic infection mainly affecting patients with compromised immune systems.⁶²⁷ Infants are at risk because their immune systems are not sufficiently developed to combat the infection.⁶²⁸ Most people with healthy immune systems who contract toxoplasmosis feel mildly ill, if they feel ill at all.⁶²⁹ For those at risk, however, toxoplasmosis can cause brain and organ damage and result in blindness or death if not properly treated.⁶³⁰

Many Americans with toxoplasmosis are among the most vulnerable of patients, with limited financial resources and limited support systems.⁶³¹ Patients in the advanced stages of AIDS are among those at high risk to develop toxoplasmosis.⁶³² Patients who seek treatment typically present with a brain abscess causing seizures and rapidly declining function, which can subsequently quickly deteriorate to death.⁶³³ They are stabilized in the hospital and discharged with a prescription to continue taking Daraprim at home.⁶³⁴

For toxoplasmosis patients, the turmoil created by Turing's purchase of Daraprim in August 2015 and its immediate price hike from \$1,350 to \$75,000 for a bottle of 100 pills was especially threatening to their health. Dr. Adaora Adimora, a physician and professor at the University of North Carolina, testified before the Committee in March 2016 that as a result of Turing's price hikes, patients had experienced treatment interruptions or delays, and some had gone without treatment entirely.⁶³⁵ Following the price hikes, some insurance companies made it much more difficult for their beneficiaries to access Daraprim.⁶³⁶ In interviews with the Committee, health care providers noted that PAPs and non-profit grants often fail to provide benefits for these patients, are difficult to navigate, and are not well advertised.⁶³⁷

Dr. Adimora reported further that patients and providers were battling insurance companies, searching for financial help, and in some cases turning to drug compounding or alternative therapies.⁶³⁸ She and a number of other physicians, hospital administrators, and

⁶²⁷ See, *supra*, at 33.

⁶²⁸ See March 2016 Hearing, at 2 (written testimony of Adaora Adimora, M.D.).

⁶²⁹ See Centers for Disease Control, *Parasites—Toxoplasmosis (Toxoplasma infection) Toxoplasmosis Frequently Asked Questions*, found at, http://www.cdc.gov/parasites/toxoplasmosis/gen_info/faqs.html. (last visited Nov. 21, 2016).

⁶³⁰ See March 2015 Hearing, at 2–3 (written testimony of Adaora Adimora, M.D.).

⁶³¹ See Jeffrey L. Jones, et al, *Neglected Parasitic Infections in the United States: Toxoplasmosis*, 90 Am. J. Trop. Med. Hyg. 794, 795 (2014).

⁶³² *Id.* at 794.

⁶³³ *Id.*

⁶³⁴ March 2016 Hearing, at 3 (written testimony of Adaora Adimora, M.D.).

⁶³⁵ *Id.* at 3–4.

⁶³⁶ *Id.* at 2 (written testimony of Shannon Weston).

⁶³⁷ See April 2016 Hearing, at 4 (written testimony of Adaora Adimora, M.D.); April 2016 Hearing, at 2 (written testimony of Frederick Askari, M.D.); Schilsky Interview.

⁶³⁸ See March 2015 Hearing, at 4–5 (written testimony of Adaora Adimora, M.D.).

patient advocates expressed outrage that obtaining a critical 60-year-old drug had become such a nightmare.⁶³⁹

The Committee heard about the cases of two infants who were successfully treated for toxoplasmosis only because of the heroic efforts of their physicians.

- At the Committee’s December 2015 hearing, Dr. David Kimberlin, an infectious disease physician at the University of Alabama at Birmingham, told the story of an infant he treated for toxoplasmosis. After Turing acquired Daraprim, the hospital pharmacy could not obtain the drug through Turing’s new limited distribution system, and consequently it was unable to compound it into the liquid formulation infants need.⁶⁴⁰ Further, the 12 months of treatment that infants with toxoplasmosis require, meant that the cost of Daraprim would be prohibitive.⁶⁴¹ While hospital staff were working around-the-clock to find an affordable source of the drug, a small supply purchased before the increase was located on the outpatient community pharmacy shelves, and the infant’s treatment began.⁶⁴² (In general, existing inventory of Daraprim was limited as soon as Turing acquired the drug and sharply raised its price. Internal Turing documents reflect a clear plan to buy up all existing inventory.)⁶⁴³
- In the Committee’s March 2016 hearing, Shannon Weston, the mother of an infant born with congenital toxoplasmosis, shared her family’s story. Her daughter, Isla Weston, born on March 14, 2015, was diagnosed with toxoplasmosis at two months old.⁶⁴⁴ After lab tests confirmed this diagnosis, the infant was prescribed Daraprim, which would need to be taken for about a year.⁶⁴⁵ On the morning treatment was to begin for the infant, Mrs. Weston learned coverage for the medication had been denied by the insurance company.⁶⁴⁶ After a series of re-submissions and appeals, Mrs. Weston was unsuccessful in obtaining coverage. Mrs. Weston described combing websites and exploring all options: “I was hopeless and depressed at the thought of what would happen to my perfect little girl if I was not able to help her. . . . I looked into any way I could think of to come up with the almost \$360,000 necessary to treat my daughter for a year with a drug that she needed, knowing that as long as she was treated before symptoms set in she would remain asymptomatic.”⁶⁴⁷ Finally, help arrived through an unexpected route. The University of North Carolina pharmacy found a source for the active ingredients in

⁶³⁹ See March 2016 Hearing, at 5 (written testimony of Adaora Adimora, M.D.).

⁶⁴⁰ See December 2015 Hearing, at 3 (written testimony of David Kimberlin, M.D.). The infant required a liquid formulation of Daraprim. Ordinarily, to get the liquid formulation, the hospital would acquire the tablet drug, and compound it into a liquid in the hospital pharmacy. *Id.*

⁶⁴¹ *Id.* at 4.

⁶⁴² *Id.* at 4.

⁶⁴³ See *supra*, at 38.

⁶⁴⁴ See March 2016 Hearing, at 1 (written testimony of Shannon Weston).

⁶⁴⁵ *Id.* at 2.

⁶⁴⁶ *Id.* at 2 Mrs. Weston reports in the written testimony, “The morning we were to go for her treatment Dr. Belhorn called to say our insurance company denied covering the medication.” *Id.*

⁶⁴⁷ *Id.* at 2.

Daraprim and was able to compound it onsite, enabling the infant to receive treatment at an affordable cost.⁶⁴⁸

C. Kidney Disease Drug: Thiola

Cystinuria, as mentioned previously, is a rare genetic disease that affects one out of every 10,000 Americans.⁶⁴⁹ Characterized by high concentrations of the amino acid cysteine in the urine, cystinuria leads to persistent kidney stones, the buildup of which is prevented by Thiola.⁶⁵⁰ Without proper treatment, cystinuria causes symptoms such as chronic pain, nausea, and vomiting, and leads to serious damage to the kidneys and surrounding organs. Cystinuria is a chronic disease and treatment lasts a lifetime.⁶⁵¹ While dosage depends on the case and phase of treatment, even maintenance cases typically require taking several pills daily.⁶⁵²

When Retrophin raised the price of Thiola from \$1.50 to \$30.00 per tablet in September 2014, patients and doctors reported difficulty obtaining the drug.⁶⁵³ Concurrent with its price increase, Retrophin moved Thiola to a limited distribution system; a mail order hub controlled by the company.⁶⁵⁴ When this system was first set up, patients reported difficulty accessing and affording the medication, and doctors reported difficulty in completing the additional paperwork to ensure that their patients could obtain the drug.⁶⁵⁵ Dr. Timothy Averch, Director of the University of Pittsburgh School of Medicine Kidney Stone Center, shared that a number of providers got calls from patients who went for routine refills, and were surprised by the significant price increase.⁶⁵⁶ Providers told the Committee that following the initial set-up, they were ultimately able to access the medication for their patients although the process is more arduous due to the additional paperwork.⁶⁵⁷

D. Hospital Administered Cardiac Drugs: Nitropress and Isuprel

Nitropress and Isuprel are cardiac injectable drugs usually administered in hospital settings—often in emergency situations.⁶⁵⁸ Numerous physicians and hospital administrators told the Committee that any patient in their hospitals who truly needs Nitropress or Isuprel

⁶⁴⁸ March 2016 Hearing, at 3 (written testimony of Shannon Weston).

⁶⁴⁹ National Institutes of Health, *Genetics Home Reference* (undated) found at, <https://ghr.nlm.nih.gov/condition/cystinuria> (last visited Dec. 13, 2016).

⁶⁵⁰ See generally, Nicola Sumorok & David S. Goldfarb, *Update on Cystinuria*, 22 Curr Opin Nephrol Hypertens 427 (2013).

⁶⁵¹ See Kamran Ahmed et al., *Cystine Calculi: Challenging Group of Stones*, 82 Postgrad Med. J. 799, 799 (2006).

⁶⁵² See Thiola Prescribing Information (undated), found at, <http://www.thiola.com/assets/pdf/ThiolaPrescribingInformation.pdf> (last visited Dec. 13, 2016).

⁶⁵³ Committee Staff Interview with Dr. Tim Averch (Mar. 2, 2016).

⁶⁵⁴ See, *supra*, at 43.

⁶⁵⁵ *Id.*

⁶⁵⁶ *Id.*

⁶⁵⁷ *Id.*

⁶⁵⁸ *Id.*

receives it. Many stressed, however, that the price increases imposed by Valeant on these two drugs have placed substantial financial and other burdens on physicians and their institutions.

These price increases affect patients and their families in two ways. First, in an attempt to lower costs, the effort to decrease the use of these drugs to the extent possible required physicians to comb through procedures, identify substitutes, and develop new treatment protocols and associated training.⁶⁵⁹ Physicians reported this led to less time with patients, which affected the care patients receive and added to the inefficiency and cost of the health care system.⁶⁶⁰ Another way many hospitals are rationing their use of these two life-saving cardiac drugs is by not stocking them on every crash cart in the hospital.⁶⁶¹ This cost-saving measure can increase the time it takes a patient to receive these drugs in an emergency, which could have potential adverse clinical repercussions.

Second, because Nitropress and Isuprel remain critical in certain cases, hospitals buying the drugs at exorbitant prices have taken substantial economic hits and had to divert resources from other areas. Dr. Richard Fogel, Chief Clinical Officer of St. Vincent's Hospital in Indiana, testified at the Committee's April 2016 hearing that increased hospital spending on Nitropress and Isuprel would cause the institution to cut back on providing health care services to the broader community served by St. Vincent's. Dr. Fogel cited expansion of the hospital's Rural and Urban Access to Health initiative, which connects low-income and vulnerable communities with health care services, food, transportation, and housing, as well as a number of initiatives to fight the opioid epidemic as casualties of this price increase. The price spikes harm not only patients at the hospital, but also the entire community around the hospital. Dr. Fogel also forecast that continuing increases in the prices of hospital drugs would force some community hospitals to close, causing hardships for the many people they serve.⁶⁶²

1. Burden on Physicians to Find Affordable Drugs or Assistance for Some Patients

In the course of this investigation, the Committee encountered a number of situations where physicians were also affected by the price spikes. For example, physicians told the Committee they have been:

⁶⁵⁹ See April 2016 Hearing, at 4 (written testimony of Richard Fogel M.D.).

⁶⁶⁰ Staff Interview with Bob Rothstein (Johns Hopkins University) (Mar. 24, 2016) ("Rothstein Interview"); Staff Interview with Dr. Richard Fogel (Mar. 24, 2016) ("Fogel Interview").

⁶⁶¹ See December 2015 Hearing, at 3.

⁶⁶² See April 2016 Hearing, at 5–6 (written testimony of Richard Fogel M.D.).

- Required to spend substantial amounts of their time searching for a supply of Daraprim to treat a sick infant;⁶⁶³
- Required to devote time and resources to counsel seniors who are scared they can't afford a life-saving medicine they have been taking for decades;⁶⁶⁴
- Forced to hire extra staff to handle the new burdens of applying and reapplying for insurance coverage that is suddenly denied following a price hike, or to help patients navigate the opaque and byzantine requirements of PAPs;⁶⁶⁵ and
- Forced to design and implement new protocols for conditions calling for hospital drugs that hospitals can no longer afford.⁶⁶⁶

Providers observed that their burden is particularly great when patients are more vulnerable. They help seniors, for example, who face challenges navigating administrative barriers on their own. Some seniors face an additional challenge because they generally do not qualify for co-pay assistance programs, which are prohibited by Medicare. Dr. Michael Schilsky ("Dr. Schilsky"), of the Yale School of Medicine, who treats hundreds of Wilson patients, told Committee staff that 100 percent of his senior patients were having difficulty obtaining their medication.⁶⁶⁷ He described patients hoarding pills, cutting back on doses, and continually facing supply gaps since their coverage generally provided for one month's supply at a time.⁶⁶⁸ Dr. Schilsky said that one result of this unsettling situation is that he spends many hours dealing with insurance companies and PAPs to help his patients get the medications they need.⁶⁶⁹ Similarly, Dr. Jeff Bronstein, a UCLA neurologist, described the requirements of getting needed medicine for many of his patients as a "jungle" to be managed.⁶⁷⁰

2. Burden on Hospitals

Hospital administrators and physicians told the Committee that the dramatic jumps in the prices of Nitropress and Isuprel contributed greatly to the overall rising cost of drugs they were facing. The Ascension Health System, for example, reported a \$12 million budgetary impact in 2015 from these increases, with Nitropress and Isuprel ranking first and second among the hospital drugs that were contributing to its increased costs. The Johns Hopkins Health System reported it suffered a \$1 million hit in 2015 from price increases for Nitropress and Isuprel, and the Cleveland Clinic spent over \$5 million for the two drugs in 2015.⁶⁷¹ The Cleveland Clinic

⁶⁶³ See December 2015 Hearing, at 3 (written testimony of David Kimberlin M.D.).

⁶⁶⁴ See April 2016 Hearing, at 2 (written testimony of Frederick Askari M.D.).

⁶⁶⁵ *Id.*

⁶⁶⁶ See April 2016 Hearing, at 4 (written testimony of Richard Fogel, M.D.); April 2016 Hearing, at 4 (written testimony of Richard Fogel, M.D.); December 2015 Hearing, at 4 (written testimony of Erin Fox, Ph.D.).

⁶⁶⁷ Schilsky Interview.

⁶⁶⁸ *Id.*

⁶⁶⁹ *Id.*

⁶⁷⁰ Bronstein Interview.

⁶⁷¹ See Letter from Scott Knoer to the Hon. Susan M. Collins & the Hon. Claire McCaskill, at 1 (Apr 25, 2016) ("Cleveland Clinic Letter"); Letter from Ronald R. Peterson (Johns Hopkins Health System) to the Hon. Susan M. Collins & the Hon. Claire McCaskill, at 2 (Apr. 25, 2016) ("JHU Letter").

reports that it continues to be adversely affected by the high prices of Nitropress and Isuprel in 2016, despite adopting measures to reduce usage.⁶⁷²

These increased costs put hospital budgets under significant strain. Hospitals generally bill patients for in-patient drugs based on the historical cost of treatment for the hospital's diagnosis-related group ("DRG") rather than billing separately for the drug.⁶⁷³ Updating DRG costs to reflect the increased cost of one component of the treatment would pass the increased cost onto patients and their insurers, but DRG costs are often not updated for a year or more so they don't reflect real-time increases.⁶⁷⁴ Several hospital representatives told the Committee that these price increases have put them in "the red" with respect to coverage for the applicable DRG payments.⁶⁷⁵ This strain on pharmacy budgets can reverberate through a hospital system. Non-profit hospitals, in particular, reported that the price increases led to cuts in different departments, and impinged on programs that help the low-income and vulnerable.⁶⁷⁶ At the April 27th Committee hearing, Dr. Fogel discussed plans that St. Vincent hospital had to create new programs to fight the opioid epidemic, also referenced above, and how the sudden drug price spikes diverted resources from the creation of these new programs.⁶⁷⁷

In the wake of the price increases, hospitals have taken aggressive steps to reduce their usage of Nitropress and Isuprel. For example, Johns Hopkins, the University of Utah, the Cleveland Clinic, and Ascension Health reported taking some or all of these steps:

- Cutting back or eliminating the use of Isuprel on hospital emergency "crash carts."⁶⁷⁸ These are mobile units containing critical supplies that are stationed at various points throughout the hospital for use in emergency situations, such as when a patient suffers a heart attack.
- Physicians told the Committee they have been unable to discharge an HIV patient from the hospital because a supply of the drug could not be obtained to continue the patient's treatment at home, increasing healthcare costs for everyone involved;⁶⁷⁹
- Substituting other drugs where possible. For example, hospitals have been using nicardipine to replace Nitropress in some cardiac procedures and emergencies.⁶⁸⁰

⁶⁷² Katie Thomas, *Valeant Promised Price Breaks on Drugs. Heart Hospitals are Still Waiting*, N.Y. Times, (May 11, 2016).

⁶⁷³ See generally, CMS, *Medicare Claims Processing Manual, Chapter 3—Inpatient Hospital Billing*, Rev. 3504 (Apr. 28, 2016), found at, <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/clm104c03.pdf> (last visited Dec. 14, 2016).

⁶⁷⁴ See generally, HHS Office of the Inspector General, *Medicare Hospital Prospective Payment System: How DRG Rates are Calculated and Updated*, OEI-09-00-00200 (Aug. 2001).

⁶⁷⁵ Fox Interview; Committee Staff Interview with Cleveland Clinic Pharmacy Department (Apr. 22, 2016); Committee Staff Interview with Lisa Harvey McPherson and James Cattin (Eastern Maine Health System) (Nov. 23, 2015); Committee Staff Interview with Katie Fulham Harris (MaineHealth) (Nov. 23, 2015); Committee Staff Interview with Scott Knoer (Nov. 6, 2015).

⁶⁷⁶ See April 2016 Hearing, at 5 (written testimony of Richard Fogel M.D.).

⁶⁷⁷ *Id.*

⁶⁷⁸ December 2015 Hearing, at 3 (written testimony of Erin Fox, Ph.D.).

⁶⁷⁹ See March 2016 Hearing, at 4 (written testimony of Adaora Adimora, M.D.).

⁶⁸⁰ Rothstein Interview. Nicardipine had been considered expensive relative to Nitropress before the Nitropress price increases, and thus not used in those situations where it might have been.

- Actively looking for alternative approaches.⁶⁸¹
- Aggressively monitoring usage.⁶⁸²
- Reducing inventories.⁶⁸³

Achieving these reductions is itself a costly process for hospitals and staff. A number of physicians and hospital representatives told Committee staff that making the changes is not as simple as substituting a new drug for Nitropress in the hospital pharmacy or issuing new policies.⁶⁸⁴ Administrators must develop new policies and protocols as well as train the medical professionals who treat patients in using them. Many doctors who have used Nitropress and Isuprel for decades must learn new protocols designed to reduce the drugs' use.⁶⁸⁵ Physicians emphasized to the Committee that patients in their hospitals who need one of these cardiac drugs will get them, but they also stressed that transitions are costly. One physician discussed the trial and error factor that implementing new protocols entails, and emphasized that there are no one size fits all replacements for Nitropress and Isuprel.⁶⁸⁶ The increased time that administrators, physicians, nurses, and others who treat patients spend developing policies and learning and implementing new protocols is time away from patient care.

Valeant announced in numerous settings, including in April 2016 testimony before the Aging Committee and in an October 2015 letter to the Committee's Ranking Member, that hospitals across the United States were receiving significant discounts in their purchases of Nitropress and Isuprel.⁶⁸⁷ Valeant officials stated that it was providing volume-based discounts in response to complaints from hospitals and lawmakers to reduce the stress of the sharp price increases on those drugs. According to interviews the Committee conducted with dozens of hospital officials and purchasing organizations, that was not the case.⁶⁸⁸ A number of these hospitals and organizations provided formal submissions for the record prior to the April 2016 Hearing confirming that they had not received—and in many cases had repeatedly sought—such discounts from Valeant.⁶⁸⁹ Only two of the seven GPOs that Committee staff contacted at that time reported having contracts with Valeant that provided for volume discounts. In one case, the predominant discount was one cent off of the WAC—essentially no discount at all.⁶⁹⁰

- Ascension Health, the largest non-profit health care system in the United States, testified in April 2016 that Valeant would not provide any discounts to Ascension, and had denied all requests to contract with the institution.⁶⁹¹

⁶⁸¹ See April 2016 Hearing, at 4 (written testimony of Richard Fogel, M.D.).

⁶⁸² Rothstein Interview; Fogel Interview.

⁶⁸³ *Id.*

⁶⁸⁴ See, e.g., April 2016 Hearing, at 4 (written testimony of Richard Fogel, M.D.).

⁶⁸⁵ Fogel Interview.

⁶⁸⁶ *Id.*

⁶⁸⁷ April 2016 Hearing, at 1–2 (written testimony of J Michael Pearson).

⁶⁸⁸ See, e.g., Cleveland Clinic Letter; JHU Letter; Letter from Erin Fox, Pharm.D. to the Hon. Susan M. Collins & the Hon. Claire McCaskill (Apr 26, 2016) (“Utah Letter”); Submission from Ascension Health (April 2016 Hearing) (Ascension Submission”); JHU Letter.

⁶⁸⁹ *Id.*

⁶⁹⁰ [SEALED] Interviews.

⁶⁹¹ See Ascension Submission, at 1.

- The Johns Hopkins Health System stated that it had neither received discounts nor the offer of discounts from Valeant for in-patient use of Nitropress or Isuprel, and that both drugs remained at their peak price.⁶⁹²
- The Cleveland Clinic reported that it was continuing to pay Valeant's "exorbitant" prices for the drugs.⁶⁹³
- The University of Utah Health Care system reached out to Valeant in October 2015, and also in March 2016, in an effort to obtain better prices for the two products. Valeant suggested that Utah discuss the prices with its wholesaler, which stated it offered no discounts.⁶⁹⁴
- Aging Committee members shared results of further outreach at the April 2016 Hearing, including Chairman Collins' statement that a cross-section of Maine hospitals surveyed did not report receiving discounts for Nitropress and Isuprel, and Ranking Member McCaskill's statement that she had checked hospitals large and small, urban and rural, and the number that reported receiving discounts was zero.⁶⁹⁵

In September 2016, Valeant briefed Committee staff on the status of the company's commitment, made at the April 2016 hearing, to form a committee to examine options for reducing prices on the four drugs discussed at the hearing: Isuprel, Nitropress, Cuprimine, and Syprine. Valeant officials further briefed Committee staff in September 2016 about the results of that effort.

According to information Valeant provided Committee staff in September briefings, it reached agreements with GPOs under which the bulk of Isuprel and Nitropress would be sold to hospitals at a cost 10 to 15 percent lower than the full prices of \$17,901 per unit for Isuprel and \$881 per unit for Nitropress. Valeant informed staff that it had entered into contracts which included volume discounts with almost all relevant GPOs, with a minimum discount of 10 percent. The information Valeant provided indicated that the vast majority of users would qualify for only a 10 percent discount for Nitropress, and a 10 or 15 percent discount for Isuprel, with a small number receiving larger discounts. Even with these discounts, these drugs remain significantly higher than they were before Valeant began hiking the price of these drugs. At the 10 and 15 percent rebate tiers, Nitropress remains 269 percent higher and 248 percent higher than the original price on the day that Valeant purchased the rights to the drug. At the 10 and 15 percent rebate tiers, Isuprel remains 638 percent higher and 597 percent higher than the original price. Valeant indicated that as of mid-September 2016, there is still one major hospital organization that has not reached a contract agreement with Valeant for these drugs.⁶⁹⁶

⁶⁹² See JHU Letter, at 2.

⁶⁹³ See Cleveland Clinic Letter, at 1–2.

⁶⁹⁴ See Utah Letter, at 1.

⁶⁹⁵ April 2016 Hearing, Trans. at 34:3–35:2, 62:22–63:10.

⁶⁹⁶ See Valeant Responses to Senate Special Committee on Aging (Sept. 13, 2016); Committee Staff Interview with Joseph Papa (Sept 19, 2016).

III. Burden on Government Costs and Insurance Premiums

Rising prescription drug prices affect government budgets as well as private insurers and their individual subscribers. HHS estimated in a March 2016 issue brief that prescription drug spending had risen to \$457 billion in 2015—its highest level.⁶⁹⁷ Expenditures on prescription drugs are projected to continue to rise faster than overall health care spending. Americans cover these expenditures through taxes that fund government programs or directly through commercial insurance plans.

The federal government spends \$126 billion annually on prescription drugs through Medicare, Medicaid, Veterans Affairs, the Children’s Health Insurance Program, and other programs.⁶⁹⁸ Price spikes are contributing to increases in federal government spending. In August 2016, the Centers for Medicare & Medicaid Services released data demonstrating that spending on Medicare Part D drugs increased 17 percent from 2013 to 2014, despite the fact that claims had increased by only three percent.⁶⁹⁹

Insurance companies have also been burdened by sudden price spikes and have sought ways to protect themselves from high prices while providing coverage. In response, they have raised deductibles, increased monthly premiums, transferred high-cost drugs to more expensive tiers, and imposed or increased co-pays. Matt Eyles, executive vice president of policy and regulatory affairs at America’s Health Insurance Plans, a trade organization, is quoted in a *Consumer Reports* article as saying that “the dramatic increase in prescription drug costs is definitely contributing to a move” to increase insurance deductibles and consumer cost share requirements.⁷⁰⁰

⁶⁹⁷ See HHS Office of the Assistant Secretary for Planning and Evaluation, *Issue Brief*, (Mar. 8, 2016), *found at*, <https://aspe.hhs.gov/sites/default/files/pdf/187586/Drugspending.pdf> (last visited Dec. 14, 2016).

⁶⁹⁸ See CMS, *Prescription Drug Expenditures*, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2015, at lines 287, 289, 292, 294, 295, 299, 302, and 308, which totals to \$126.246 billion, *found at*, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html> (last visited Dec. 12, 2016).

⁶⁹⁹ See CMS, *Updated Prescriber-Level Medicare Data*, (Aug. 18, 2016), *found at*, <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-08-18.html> (last visited Dec. 6, 2016).

⁷⁰⁰ See Consumer Reports, *Is There a Cure for High Drug Prices?* (July. 29, 2016), *found at*, <http://www.consumerreports.org/drugs/cure-for-high-drug-prices/> (last visited Dec. 14, 2016).

CHAPTER 6. POLICY RESPONSES

The Committee hopes that the sunlight shone on the four companies throughout the investigation will help to deter companies from employing a similar business model and exploiting market failures at the expense of patients. Nevertheless, this troubling practice must be stopped to help rein in price spikes in off-patent, decades-old drugs purchased by companies that did not bear the drugs' research and development costs.

Health economists, physicians, think tanks, and consumer groups have advocated for a wide range of policy solutions from price transparency and controls to compounding and importation.⁷⁰¹ Some experts, however, have cautioned against certain proposals or argued they warrant further study to prevent unintended consequences. The Committee's evaluation of possible policy responses included review of qualitative and quantitative data and current law and practices, consultations with federal agencies, and conversations with numerous experts and stakeholders from all sides of the issues.

The Committee believes there are sound, bipartisan policy solutions that would address the core issues identified by the investigation—market failures that reduce or altogether eliminate competition in decades old, off-patent drugs. With an issue as complex as drug pricing, members understandably have differing views on the merits of the various options available to policymakers, including the responses described in this report. While release of this report does not indicate unanimous support of each of these policy options, we hope that it will contribute to the ongoing discussion.

I. The Increasing Competition in Pharmaceuticals Act

The Committee's investigation has found that older drugs with only one manufacturer and no generic competitor, are more vulnerable to dramatic and sudden price increases.⁷⁰² As a general proposition, generic entry lowers drug prices, with the entry of the second generic having the most downward pressure on pricing.⁷⁰³ It is estimated that on average, generic drugs cost some 80 percent less than brand name drugs.⁷⁰⁴

In March 2016, Chairman Collins and Ranking Member McCaskill introduced *The Increasing Competition in Pharmaceuticals Act* (S. 2615).⁷⁰⁵ This legislation would take steps to incentivize competition and provide solutions to regulatory uncertainty, small market size, and other factors that serve as inherent limitations to generic entry.

⁷⁰¹ See, e.g., Ari B. Friedman, M.D. Ph.D. & Janet Weiner, Ph.D. MPH, *What's the Story with Drug Prices?* Health Policy Sense (May 30, 2016), found at, <http://ldi.upenn.edu/healthpolicysense/what%E2%80%99s-story-drug-prices> (last visited Nov. 29, 2016).

⁷⁰² See, *supra*, at 6.

⁷⁰³ See, e.g., FDA, *About FDA, Generic Competition and Drug Prices*, found at, <http://www.fda.gov/AboutFDA/CentersOffices/OfficeofMedicalProductsandTobacco/CDER/ucm129385.htm> (last visited Dec. 14, 2016).

⁷⁰⁴ See, e.g., FDA, *Facts About Generic Drugs* (June 28, 2016), found at, <http://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/UnderstandingGenericDrugs/ucm167991.htm> (last visited Dec. 14, 2016).

⁷⁰⁵ *The Increasing Competition in Pharmaceuticals Act*, S. 2615, 114th Cong. (2016).

To keep the marketplace competitive, which will help keep drug prices down and improve access for patients, the bill proposes setting a clear timeframe for the FDA to expedite the review of certain generic drug applications to help ensure access to affordable drugs for patients. The bill would also codify the prioritization of first generic products and submissions related to drug shortages (similar to what is referenced in the FDA’s administrative Manual of Policies and Procedures), as well as generic applications for certain older prescription drugs for which patents have expired and for which there is only one manufacturer. These medicines often serve smaller patient populations. This is a critical area that the FDA was failing to prioritize administratively until questioned by Chairman Collins and other Members and following the introduction of S. 2615.⁷⁰⁶ The bill would require the FDA to act to approve or not approve such applications within 150 days. Key provisions of S. 2615 include:

Improving generic access through priority review and timelines. Under the bill, generic applications would be prioritized for review within 150 days for: (1) a drug that has been introduced into interstate commerce by not more than one manufacturer in the last three months and for which there are two or fewer tentative approvals of ANDAs; or (2) a drug that is on the drug shortage list. The GDUFA fees would be waived for most sole-source and drug shortage applications.⁷⁰⁷ Once a drug is off the drug shortage list or there are two manufacturers or more that have introduced the generic in interstate commerce, then any applications submitted do not get priority review or the fee waiver. Under the bill, the Secretary could also expedite the inspection of a manufacturing facility.

Incentivizing companies to enter these important markets by offering a “generic priority review voucher.” The bill would create a new “generic priority review voucher” that would be awarded to the sponsor of a successful application for a medical shortage or sole-source drug subject to priority review under the Act. The FDA would be required to review and act on any ANDA application to which a priority review voucher is applied within 150 days. A voucher would only be awarded to sponsors of approved medical shortage or sole-source drug applications, *not* for those approvals that are already given 180 days of exclusivity as so called “first generics” under existing provisions of Hatch-Waxman. Generic priority review vouchers would be transferable for other generics only. Under the bill, the Secretary could revoke the generic priority review voucher if the generic drug subject to priority review under the bill is not brought to market in 365 days, ensuring that approved applications that receive priority review under the bill are actually marketed. Finally, the voucher program would sunset on October 1, 2022, providing Congress the opportunity to revisit this incentive.

Improve transparency in FDA reporting about generic applications and the backlog. The bill would require the FDA to report to Congress quarterly on the number of ANDA applications filed prior to October 1, 2015, that are still pending; the average and median time such applications have been pending; the number of applications that contain a “paragraph iv”

⁷⁰⁶ See, e.g., *Generic Drug User Fee Amendments: Accelerating Patient Access to Generic Drugs: Hearing Before S. Comm. on Health, Education, Labor and Pensions*, 114th Cong., 2d Sess., Trans. at 28:12–23 (Jan. 28, 2016) (testimony of Janet Woodcock, M.D.) (“January 2016 HELP Hearing”).

⁷⁰⁷ The bill does not waive fees for applications with a “paragraph iv” certification that any patent covering the drug or drug use contained in the ANDA is either invalid or will not be infringed.

certification; and the number that are subject to priority review. This would provide lawmakers with more visibility into the current backlog and help ensure that Congress can perform more oversight of the generic drug review program.

Closing a loophole in the existing priority review voucher program for neglected tropical diseases that Mr. Shkreli tried to exploit. The bill seeks to ensure that a voucher is only granted to a company that did substantial new research, not for research that was done decades ago by another company. While not directly tied to the Committee's investigation of Turing and Retrophin, Mr. Shkreli tried to exploit such a loophole when he purchased KaloBios Pharmaceuticals, and then quickly attempted to acquire benznidazole, which is used to treat the potentially fatal tropical Chagas disease, from another drug company for \$2 million.⁷⁰⁸ Mr. Shkreli apparently intended to obtain a priority review voucher by filing a topical disease application based almost entirely on decades-old research.⁷⁰⁹

Reporting on the ability of patients, providers, and generic drug companies to access drugs subject to a REMS. Congress authorized the REMS program in 2007 to ensure that sufficient post-market controls could be put in place for the riskiest of drugs to ensure the benefits outweigh the risks of the drug.⁷¹⁰ Since then, concerns have been raised about burdens on providers, pharmacists, and the companies which have to comply with REMS, and concerns that REMS are being used as a barrier to prevent generic access to samples to conduct studies.⁷¹¹ The bill would require, by June 2017, that GAO report to Congress on the REMS program so that Congress has the data and analysis necessary to make decisions about if, or what, changes would be necessary to the program to mitigate any unintended consequences while maintaining the goal of safe and effective drugs.

By authorizing a priority review timeline for generic applications and providing an incentive in certain circumstances, Congress would improve certainty for generic drug companies, help prevent future shortages, increase competition to lower prices and avoid monopolies, and deter practices that can lead to exorbitant price hikes on drugs that were previously affordable for decades.

II. Preventing Generic Entry from Being Blocked

A. Restricted Distribution

Restricted distribution systems are commonplace in the United States; however, changes to the legal regimes governing them are required to ensure that restricted distribution serves its intended purpose. These systems can serve many appropriate ends such as protecting the safety of patients, caregivers, and their families, ensuring patient compliance, and providing

⁷⁰⁸ See Andrew Pollack, *Martin Shkreli's Latest Plan to Sharply Raise Drug Price Prompts Outcry*, N.Y. Times (Dec. 11, 2015).

⁷⁰⁹ *Id.*

⁷¹⁰ *Food and Drug Administration Amendments Act of 2007*, 121 Stat. 823 (2007).

⁷¹¹ See, *infra*, at 114.

personalized service.⁷¹² As revealed by the Committee’s investigation, these systems can also be abused to delay generic entry in the marketplace. These abuses are serious—by one estimate in 2014, such abuses resulted in an increased cost to consumers of \$5.4 billion per year.⁷¹³

Both Turing and Retrophin (while Mr. Shkreli was CEO) used restricted distribution to try to delay generic entry by preventing potential generic entrants from obtaining the samples of the Reference Listed Drug (“RLD”) needed to complete the bioequivalence testing that is required for FDA approval.⁷¹⁴ Additionally, companies whose drugs are subject to FDA-ordered REMS often use those REMS to defeat or delay generic entry.⁷¹⁵ Two mechanisms can be used to achieve this goal: (1) the restricted distribution component that is common to REMS allows the brand name to block potential generic entrants from obtaining the RLD, and (2) the brand name drug owner can refuse to allow a generic entrant to share the REMS system set up by the brand name for the drug. This blocks generic entry since the REMS regulatory regime requires generics to use the same REMS system as the brand name drug. The FDA has little discretion to waive this requirement, and to date, no brand name company has agreed to terms admitting a generic company into its REMS system.⁷¹⁶

B. Voluntary Restricted Distribution

There are no regulations (outside of REMS) that substantially limit how a company distributes its drugs. Companies are generally free to choose from the varied distribution channels offered by the market, and may voluntarily opt for restricted distribution. In the cases of Turing and Retrophin, placing the drug into restricted distribution was a way for the companies to control who could buy their drugs. Mr. Shkreli blocked any purchase that looked like an attempt by a potential generic entrant to obtain the RLD.⁷¹⁷ To the extent that drugs travelled through less-typical channels (such as 340B institutional distribution), the same rules applied—sales via that channel were carefully regulated and quantity limited to ensure that drugs were not sold to a potential generic entrant.⁷¹⁸

An additional approach is to simply drag out negotiations regarding the sale of the RLD to a potential generic entrant, indefinitely if possible. These extended negotiations often revolve around issues such as non-disclosure agreements, provision of information by the generic entrant to demonstrate that it can conduct safe and effective bioequivalence trials, and allocation of liability regarding use of the RLD by the potential generic entrant in bioequivalence trials.⁷¹⁹

⁷¹² See generally, Lena Y. Choe, Pharm. D., FDA Office of Communication, *Risk Evaluation and Mitigation Strategies (REMS)* (Mar. 25, 2008).

⁷¹³ See *The Creates Act: Ending Regulatory Abuse, Protecting Consumers, and Ensuring Drug Price Competition*: Hearing Before the Subcomm. on Antitrust, Competition Policy, and Consumer Rights, Trans at 19:10–11 (June 21, 2016) (testimony of Ms. Beth Zelnick Kaufman (Amneal Pharmaceuticals)) (“June 2016 Judiciary Hearing”).

⁷¹⁴ See, *supra*, at 36–39, 43–44.

⁷¹⁵ See, e.g., Oral Opinion, at 4–9, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014) (recounting alleged delay tactics by Celgene).

⁷¹⁶ August FDA Briefing.

⁷¹⁷ See, *supra*, at 38–39.

⁷¹⁸ See, *supra*, at 38.

⁷¹⁹ See, e.g., Oral Opinion, at 4–9, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014) (recounting alleged delay tactics by Celgene as to drugs on REMS).

Although there is a lack of data in this area, Dr. Woodcock has testified that so called “voluntary REMS” are a major problem:

“[T]he companies on their own behalf have restricted programs that we do not really understand, but they are not related to REMS. We have had over 100 inquiries from generic companies who cannot get a hold of the innovator drug to compare their drug to. We have done everything we can to—we have written a letter saying, you know, that REMS does not require this, you can give it out for this purpose, and so forth, and we also refer these to [the Federal Trade Commission], okay? But we still continue to get complaints from generic companies that they cannot get a hold of the drug to make the comparison they need to do.”⁷²⁰

C. FDA’s Views on REMS

Dr. Woodcock explained, when REMS include elements to ensure safe use, the “REMS program may restrict who gets the drug, right, and that has been used as an excuse or whatever to not give the drug to the generics so they can compare it to their drug.”⁷²¹ This causes “barriers and delays in getting generics on the market.”⁷²² In the typical case, REMS are used in a nuanced manner: the brand manufacturer will not provide the drug because it cannot be sure that a potential generic competitor will handle the drug in accordance with existing REMS and is concerned about attendant liability. The brand company need not refuse to deal with a generic competitor, it may simply engage in never-ending negotiations that have the effect of delaying entry of the generic into the marketplace.⁷²³ The FDA has attempted to stymie this obstruction by providing letters to potential generic entrants indicating that they have reviewed their study protocols and see no safety risk. The FDA’s actions have been largely ineffective to date.⁷²⁴

The second practice centers around the requirement that—ordinarily—a generic competitor share the brand company’s REMS to ensure safe use of the drug. As Dr. Woodcock testified:

“[W]e approve drugs with REMS if they are particularly risky. When they go generic, the generics also need to have this risk system around them. And Congress, in order to decrease the burden on health care, said that if at all possible there be a single shared REMS amongst the innovator and the competitors. Well, this has proven—to get competitors to work together so that the competitors can get a market share from the innovator has proven very challenging for the FDA to get that done, and that has delayed access.”⁷²⁵

⁷²⁰ January 2016 HELP Hearing, Trans. at 51:4–14 (testimony of Dr. Janet Woodcock).

⁷²¹ *Id.* at 50:24–51:2.

⁷²² *Id.* at 51:2–3.

⁷²³ See, e.g., Oral Opinion, at 4–9, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014) (recounting alleged delay tactics by Celgene).

⁷²⁴ August FDA Briefing.

⁷²⁵ January 2016 HELP Hearing, Trans. 50:13–23 (testimony of Dr. Janet Woodcock).

Typical mechanisms companies use to block access include arguments over indemnity, insurance, non-disclosures, provision of diligence information, and dilatory assertions that portions of the REMS are protected by intellectual property (“IP”) rights or constitute trade secrets.⁷²⁶ In all 13 cases in which the FDA mediated a dispute between generics and brand companies over single shared systems, the FDA ended up authorizing the generic to create a separate REMS.⁷²⁷ The FDA has concluded (setting aside cases of IP or trade secrets) that it only has the power to authorize separate REMS systems if the delay in generic entry has led to a situation where the cost of the drug has affected patient access.⁷²⁸ Accordingly, the FDA will only act after substantial delay. As Dr. Woodcock stated: “Well, the part of the REMS provision that requires a single shared system, as a practical matter, we have to try and try and try and try, and then finally, we declare defeat and we go ahead and let the generics have their own system that is separate but equal.”⁷²⁹

D. Antitrust Law Does Not Provide an Adequate Remedy

Some have suggested that abuses of restricted distribution and REMS appear anticompetitive and therefor violate antitrust laws.⁷³⁰ Further analysis, however, suggests that such abuses do not clearly violate antitrust law and that relying on litigation would not remedy the situation. Legislation and other remedies are needed.

The law is far from clear on whether it is an antitrust violation to refuse to deal with potential generic entrants seeking reference listed drugs.⁷³¹ The conduct of Turing and others, no

⁷²⁶ See, e.g., Oral Opinion, at 4–9, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014) (recounting alleged delay tactics by Celgene).

⁷²⁷ Committee Staff Briefing with FDA (Aug. 2, 2016).

⁷²⁸ *Id.*

⁷²⁹ Senate HELP Hearing, *Generic Drug User Fee Amendments: Accelerating Patient Access to Generic Drugs*, at 52:2–5 (Jan. 28, 2016) (Testimony of Dr. Janet Woodcock).

⁷³⁰ Antitrust laws include The Sherman Act, 26 Stat. 209 (1890), codified at 15 U.S.C. § 1–7, The Clayton Act, 38 Stat. 730 (1914), codified at 15 U.S.C. §§ 12–27, 29 U.S.C. §§ 52–53, and The Federal Trade Commission Act, 15 U.S.C. §§ 41–58 (as amended.)

⁷³¹ As the U.S. Supreme Court has explained, under antitrust law it is only illegal to willfully acquire or maintain monopoly power via anticompetitive means. By contrast, a monopoly acquired or maintained by virtue of the growth or development of a superior product, business acumen, or even historic accident is not unlawful—nor is charging a monopoly price—so long as it is not accompanied by anticompetitive behavior. The ability to charge short term monopoly prices due to a successful business strategy is important to free markets, and preserves the incentive to innovate. *Verizon Comm’s Inc. v. Trinko*, 540 U.S. 398, 407–08 (2004). Mandating that a business actor share an advantage can lead to anticompetitive results. *Id.* at 408 (noting that “compelling negotiation between competitors may facilitate the supreme evil of antitrust: collusion.”). Accordingly, antitrust law has long held that as a general proposition a business need not agree to deal with its competitors. See, e.g., *Aspen Skiing Co. v. Aspen Highlands Skiing Co.*, 472 U.S. 585, 600–01 (1985). The Supreme Court has been less than clear on when the exception to this rule (*i.e.*, where a refusal to deal is clearly anticompetitive and thus condemned) applies. See generally, *Trinko*, *Aspen Skiing*. Some courts have held that antitrust laws do not require a company to deal unless “a monopolist seeks to terminate a prior (voluntary) course of dealing with a competitor.” *In re Elevator Antitrust Litig.*, 502 F.3d 47, 53 (2d Cir. 2007). Conversely, some courts have held an antitrust action will lie for withholding bioequivalence samples. They reason that, under the controlling Supreme Court authority, refusals to deal are illegal where the defendant has anticompetitive intent evidenced by an election “to forgo . . . short run benefits because it was more interested in reducing competition over the long term.” Oral Opinion, at 11–12, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014) (internal citation and quotation

matter how disturbing, may be legal.⁷³² Mr. Shkreli and other unscrupulous drug CEOs know this and may have pursued this aspect of the business model precisely because they have precedent supporting the legality of what appears, on the surface, to be anticompetitive conduct. Similarly, brand name manufactures have a strong case that it is legal for them to refuse to admit a potential generic entrant into their single shared REMS system.⁷³³

Additionally, regardless of how the legal question is ultimately decided, it may be a question for the Supreme Court and will take years to resolve. In the Committee's view, patients cannot wait years while companies like Turing drive up prices of decades old, off-patent, and sole-source drugs, by thousands of percentages. Rather, a targeted statutory approach to prevent abuses could be pursued now.

E. Preventing Abuses of Restricted Distribution

Voluntary Restricted Distribution. Non-REMS restricted distribution has led to abuse and there is widespread consensus in the expert community on the solution: create a simple and expedient means for generics to obtain RLDs through a simple and expedited judicial proceeding. The CREATES Act, sponsored by Senate Judiciary Committee Ranking Member Leahy, Chairman Grassley, and Senators Klobuchar and Lee, and cosponsored by Aging Chairman Collins and Ranking Member McCaskill, accomplishes this goal.⁷³⁴ A key provision of the bill would provide a mechanism by which a potential generic entrant can commence expedited litigation to obtain access to samples of the drug needed for bioequivalence studies.⁷³⁵

omitted); see also Oral Opinion, at 114–17, *Actelion Pharma v. Apotex, Inc.*, No. 12-cv-05743 (NLH) (ECF No. 96) (D.N.J. Oct. 17, 2013). Under the view advanced by these cases, termination of a prior course of dealing is powerful evidence of this anticompetitive bent, but is not required. See Memorandum Opinion, at 12–13, *Mylan Pharma v. Celgene Corp.*, No. 2:14-cv-02094 (ES)(MAH) (ECF No. 56) (D.N.J. Dec. 23, 2014); Oral Opinion, at 114–17, *Actelion Pharma v. Apotex, Inc.*, No. 12-cv-05743 (NLH) (ECF No. 96) (D.N.J. Oct. 17, 2013); *Christy Sports LLC v. Deer Valley Resort Co. Ltd.*, 555 F.3d 1188, 1196 (10th Cir. 2009) (voluntary termination of prior course of dealing not required to establish duty to deal).

⁷³² See, e.g., Email from Martin Shkreli to Broadfin Capital, SSCA_THIOL_037833 (Sept. 23, 2014). Because Mr. Shkreli undertook his actions with regards to restricted distribution in New York—within the Second Circuit—*In re Elevator Antitrust Litigation* makes it difficult to bring a successful case against Turing or Mr. Shkreli for failing to deal.

⁷³³ As an initial matter, the very fact that the REMS statute affirmatively proscribes using REMS to block potential generic entrants cuts against an antitrust remedy on the principle that specific statutory provisions take precedence over the general common law of antitrust. *In re Suboxone (Buprenorphine Hydrochloride and Naloxone) Antitrust Litig.*, 64 F. Supp. 2d 665, 688 (E.D. Pa., 2014). The antidiscrimination provision of the REMS statutory scheme has no enforcement mechanism. It plainly lacks rights creating language and certainly does not create an implied right of action. See generally, *Alexander v. Sandoval*, 532 U.S. 275 (2001) (setting forth test for creation of a private right of action). The statute may provide the basis for the FDA to take action against the brand name company, but the lack of a remedial scheme leaves much to debate about the FDA's authority to enforce and consequently little incentive for the FDA to do so. One court held that although a refusal to provide samples for bioequivalency may constitute an antitrust violation because it blocks a generic entrant, failure to allow a competitor to participate in a single shared system of REMs is not an antitrust violation because it does not bar—only delays—FDA approval. *In re Suboxone*, 64 F. Supp. 2d at 688.

⁷³⁴ The CREATES Act, S.3056, 114th Cong. (2016).

⁷³⁵ *Id.*

It would also address some of the concerns raised by brand companies by shielding them from lawsuits predicated on conduct by a potential generic entrant.⁷³⁶

FDA Required REMS. As noted above, the FDA has expressed concern that the current REMS statutory framework is being abused to deter generic entry. Dr. Woodcock of the FDA discussed this problem and a potential solution with Congress:

“Well, the part of the REMS provision that requires a single shared system . . . [i]f that provision were removed from a statute, then potentially, you know, we could just go to that and it would not have a delay involved.”⁷³⁷

The Committee believes that this reform makes sense. The FDA is well-equipped to exercise discretion to allow a potential generic entrant to create its own REMS system while ensuring all applicable safety considerations are met.

III. Reinvigorating the Federal Trade Commission to Enforce Action

Many commentators, experts, and government officials consulted by the Committee maintain that dramatic price increases in off-patent drugs are the result of unlawful anticompetitive conduct.⁷³⁸ A common theme is that the Federal Trade Commission (“FTC”) needs to exercise more scrutiny in reviewing drug company mergers, operations, and drug market dynamics,⁷³⁹ and that the FTC should be provided with the additional resources and authority it needs to accomplish this goal.

Although antitrust enforcement may seem to be an appropriate tool to combat massive price increases on drugs, it is unclear whether the actions of the four companies examined by the Committee violated current antitrust laws.⁷⁴⁰ The evidence is mixed. It is possible that the business model pursued by the Valeants and Turings of the world was attractive in part because it was legal.

FTC staff has repeatedly suggested that the agency has had to make difficult choices in directing resources, both in merger review and in market oversight.⁷⁴¹ Based on the Committee’s review, the FTC needs more resources to allow it to more vigorously oversee the prescription drug market and carry out its important functions.

⁷³⁶ *Id.*

⁷³⁷ January 2016 HELP Hearing, Trans. at 52:1–8 (testimony of Dr. Janet Woodcock).

⁷³⁸ See Timothy J. Muris, *Everything Old is New Again: Health Care and Competition in the 21st Century*, FTC, 7th Annual Competition in Health Care Forum, at 3, (Nov. 7, 2002) found at, https://www.ftc.gov/sites/default/files/documents/public_statements/everything-old-new-again-health-care-and-competition-21st-century/murishealthcarespeech0211.pdf; Expert Compendium (last visited Dec. 16, 2016).

⁷³⁹ Both the FTC and the Department of Justice have civil jurisdiction to enforce most of the countries antitrust laws. By agreement between the two entities, known colloquially as the “pre-clearance process,” subject matter areas are divided up between the two agencies. Generally speaking, the FTC has jurisdiction of health-care related matters.

⁷⁴⁰ See, *supra*, at 116–17.

⁷⁴¹ Committee Staff Briefing with FTC (Aug. 24, 2016) (“August FTC Briefing”).

The Committee also feels that the FTC should employ additional resources in an effort to better understand the attributes of the drug market. The Committee's findings make clear that the market for prescription drugs is opaque to virtually everyone involved.⁷⁴² In speaking with experts, clarity to regulators would be beneficial.⁷⁴³ Because the FTC was originally enacted not just as an enforcement agency but also as a consumer watchdog, the FTC has broad authority to conduct studies of the marketplace.⁷⁴⁴ The FTC also has power to use compulsory process to this end.⁷⁴⁵ The Committee encourages the FTC to explore a greater use of these powers in the area of off-patent prescription drug pricing.

The Committee also urges the FTC to consider partnerships with academia and other federal agencies. Partnerships with academia present an opportunity for a beneficial symbiosis between the FTC and outside experts that would help provide clarity into drug pricing policies, and whether the market forces that are customarily relied upon to keep prices under control are being thwarted by anticompetitive behavior. This partnership would fill a gap between government agencies and academia, make use of unexploited opportunities, and serve as a model for other agencies.

In health care and drug pricing, the Committee believes there are opportunities for the FTC to work with HHS, DOJ, and the FDA to promote complementary work and harmonization between agencies that will lead to better outcomes for the American people.

Experts also suggested that granting the FTC increased enforcement authority merits further consideration.⁷⁴⁶ While beyond the purview of this report, the Committee agrees.

IV. Temporary Importation During Sudden Price Spikes

One way to combat massive price increases on off-patent drugs would be to allow temporary importation of that drug from countries which follow drug safety standards comparable to those in the U.S. This is a short-term solution favored in some form by a broad spectrum of academics.⁷⁴⁷

The Committee believes that allowing highly-targeted temporary importation to combat major price increases in off-patent drugs could provide prompt price relief. Even so, many experts caution that care must be taken in structuring a temporary importation regime to avoid unintended negative consequences.⁷⁴⁸ The Committee believes that a policy to allow for temporary importation should reflect the following principles:

⁷⁴² Expert Compendium.

⁷⁴³ *Id.*

⁷⁴⁴ Section 6 of the FTC Act, 15 U.S.C. § 46.

⁷⁴⁵ *Id.*

⁷⁴⁶ Expert Compendium.

⁷⁴⁷ See Jeremy A. Greene, M.D., Gerard Anderson, Ph.D., Joshua M. Sharfstein, M.D., *Role of the FDA in Affordability of Off-Patent Pharmaceuticals*, 315 J. of the Am. Medical Assoc. 461, 462 (Jan. 4, 2016); Expert Compendium.

⁷⁴⁸ Expert Compendium.

FDA Authority. The FDA would need to be given additional, express statutory authority to allow temporary importation. The FDA’s existing exercise of regulatory discretion to allow temporary importation (currently only applied in the drug shortages context) has been called into question.⁷⁴⁹ As the D.C. Circuit has explained:

Section 381(a) provides the FDA “shall furnish” to Customs a list of registered establishments and “shall request” from Customs samples of drugs offered for import that are “manufactured, [etc.,] in an establishment not so registered.” Customs, in turn, “shall deliver” to the FDA the requested samples. “If it appears from the examination of such samples or otherwise” that a drug violates a substantive prohibition of the FDCA, then the drug “shall be refused admission.”⁷⁵⁰

Accordingly, the D.C. Circuit held that this language was mandatory and rejected the FDA’s argument that it had discretion to permit importation.⁷⁵¹

Given the D.C. Circuit’s holding in *Cook v. FDA*, the Committee is concerned that any company intent on extracting monopoly rents would seriously consider suing to block temporary importation of drugs⁷⁵² on the grounds that the FDA’s current temporary importation policy is inconsistent with the statute governing importation.⁷⁵³ Accordingly, any policy solution allowing temporary importation should provide the FDA with clear statutory authority in this area.

Limited to Off-Patent Drugs. Importation related to high drug cost (as opposed to shortages) should be limited to off-patent drugs. To allow importation in the case of massive price spikes on drugs subject to patent or statutory exclusivity would undermine the patent and exclusivity system.⁷⁵⁴

Temporary Scope. Any importation would have to be temporary and expire, at the latest, after the anticompetitive practices that led to a functional monopoly in the U.S. had abated. The U.S. drug market is fundamentally different than those abroad. If importation is allowed (even on a narrow list of drugs) without a tightly defined time limit, foreign markets could undercut U.S. markets and likely result in less innovation.⁷⁵⁵ Accordingly, many experts stated the

⁷⁴⁹ To be sure, the text of most statutes imbue agencies with considerable discretion in enforcement (for good reason—they are the experts in highly fact bound areas). See *Chevron USA, Inc. v. Natural Resources Defense Council*, 467 U.S. 837 (1984). It is for this reason that the FDA has discretion not to enforce the general States in the FDA Act governing the use of misbranded or approved drugs. See *Heckler v. Chaney*, 470 U.S. 821, 835 (1985) (refusing to read statute “stat[ing] baldly that any person who violates the Act’s substantive prohibitions ‘shall be imprisoned . . . or fined’” as mandating “criminal prosecution of every violator” of the FDC Act (quoting 21 U.S.C § 333)). But the statute governing importation is different.

⁷⁵⁰ *Cook v. FDA*, 733 F.3d 1, 7 (D.C. Cir. 2013) (citations, quotations, and alternations in original).

⁷⁵¹ *Id.* at 7–12.

⁷⁵² *Cf. id.* at 3–4 (prisoners on death row suing to block importation of sodium thiopental, a drug used in lethal injection protocols, that was made in Austria in a non-FDA approved facility).

⁷⁵³ *Id.* at 9–10.

⁷⁵⁴ Expert Compendium.

⁷⁵⁵ Expert Compendium.

temporary nature of importation should be tightly linked to the market failure that led to monopoly price points.⁷⁵⁶

One potential mechanism would be to only allow importation until an ANDA has been approved. This would temporarily introduce competition into the marketplace while assuring that as soon as there is no longer a monopoly, normal order would be restored. In the view of many experts consulted by the Committee, the importation must be temporary so that it does not discourage entrants from submitting ANDA applications.⁷⁵⁷ If ANDA applicants here or abroad see a faster path to the profits that come to a first generic via importation, they would pursue that course instead.

Preserve Quality Controls. Any approved importation would have to preserve quality controls. While some countries' pharmaceutical manufacturing standards are lax, others, particularly in Canada and the European Union, are stringent and comparable to U.S. standards.⁷⁵⁸ In the context of drug shortages, the FDA allows importation only from those few countries which maintain rigorous regulatory regimes.⁷⁵⁹

Careful Design. Any "trigger" allowing temporary importation must be carefully designed.

Since the FDA's mission is safety and efficacy—not market regulation—any trigger focused on market regulation cannot rest with the agency. The HHS Office of the Assistant Secretary for Planning and Evaluation department of economic analysis, or some other unit suited to analyze market forces at work, would be more appropriate.⁷⁶⁰

The rationale to allow importation must be to remedy a market failure, not to impose price controls.⁷⁶¹ One mechanism to address this would be to link the trigger not to the magnitude of the price, but to the economic impact of the price. Here, the Committee suggests consideration of the so-called "SNIPP" test, a concept drawn from the field of antitrust law. Under this test, the question of whether a company is exercising monopoly power is usually tested by asking whether the hypothetical monopolist could sustain a "small but not insignificant price increase" ("SNIPP") without losing profits. A similar approach could be used here.

V. Copay Coupons and Patient Assistance Programs

Properly structured patient assistance programs can help beneficiaries obtain drugs they might not otherwise be able to afford. Federal regulations allow pharmaceutical companies to contribute funds to third-party PAPs that, in turn, provide copayment assistance to beneficiaries,

⁷⁵⁶ *Id.*

⁷⁵⁷ *Id.*

⁷⁵⁸ FDA, *Global Engagement* (Apr. 30, 2013), *found at*, <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UCM298578.pdf> (last visited Dec. 6, 2016).

⁷⁵⁹ December 2015 FDA Briefing.

⁷⁶⁰ Expert Compendium.

⁷⁶¹ *Id.*

but only if those third parties operate as independent, *bona fide* charitable entities.⁷⁶² The Committee believes that such programs must not be so narrowly focused that they operate simply as a means by which pharmaceutical companies can subsidize the purchase of their own products.

As previously described, the Committee's investigation found that self-serving motives were often critical to understanding many patient assistance programs. A key part of Valeant's strategy was to use "copay cards" to shield privately-insured individuals from the impact of its price increases, enabling the company to sustain its price increases unchallenged (so it assumed).⁷⁶³ Thus, what would seem to be a means to assist patients who are most in need was transformed instead into a mechanism to segment the market to allow the company to maximize its profits from other payers.

The federal Anti-Kick Back Act bars copay coupons in the context of Medicare and other federal health care programs.⁷⁶⁴ Where that prohibition does not apply, however, there is reason to be concerned that companies may use copay assistance to steer patients toward higher priced drugs, resulting in higher expenditures for federal health care programs and commercial providers.⁷⁶⁵

Proponents counter that copay coupons can hold down health care costs by improving patient adherence to treatment regimens, thereby helping to avoid expenses that might otherwise occur, such as hospitalizations.⁷⁶⁶ Some experts recently suggested that prohibiting coupons for cases in which there is a bioequivalent therapy available would provide significant savings.⁷⁶⁷

When there are brand and generic options available for a particular drug, coupons shift spending towards the higher-priced brand drugs, resulting in higher pharmaceutical spending.⁷⁶⁸ Estimates suggest that each copayment coupon increases national spending by \$30 million to \$120 million on average over the five-year period following generic entry.⁷⁶⁹

Additionally, the evidence the Committee obtained suggests that the use of copay coupons have hidden effects on the costs to Medicare beneficiaries and federal taxpayers. For example, while Valeant's net income attributable to sales of Cuprimine rose from \$14.72 million in 2013 to \$63.52 million in 2015—an increase of 331 percent—the share attributable to sales of the drug to Medicare patients rose at nearly twice that rate, from \$3.38 million in 2013 to \$24.14

⁷⁶² See generally, Supplemental Bulletin updating the OIG Special Advisory Bulletin on Patient Assistance Programs for Medicare Part D Enrollees published in the Federal Register on November 22, 2005 (70 FR 70623), 79 Fed. Reg. 104 (May 30, 2014).

⁷⁶³ See, *supra*, at 19.

⁷⁶⁴ 42 U.S.C. § 1320a-7b(b)

⁷⁶⁵ Congressional Research Service, *Prescription Drug Discount Coupons: Implications for Public and Commercial Health Care Plans*, R44264, at 17 (Nov. 5, 2015).

⁷⁶⁶ *Id.*

⁷⁶⁷ See Leemore S. Dafny, Christopher J. Ody, Matthew A. Schmitt, *Undermining Value-Based Purchasing Lessons from the Pharmaceutical Industry*, 375 The New England J. of Medicine, 2013, 2014 (Oct. 2016).

⁷⁶⁸ *Id.* at 2014.

⁷⁶⁹ *Id.* at 2014.

million in 2015. Over the same two years, net revenues attributable to Cuprimine sales to Medicare patients rose from 23 percent to 38 percent of total Cuprimine net revenues, even while units of Cuprimine sold to Medicare patients held steady at between 22 and 25 percent. This increase was nearly pure profit. While copay coupons appear to help some patients, taxpayers and Medicare beneficiaries are absorbing the increasing costs of exorbitantly priced pharmaceuticals.⁷⁷⁰

VI. Transparency in the Health Care System

While the Committee's investigation was focused on price spikes on specific off-patent drugs, it encountered a phenomenon that is omnipresent in the prescription drug industry—prices are not transparent.⁷⁷¹ Prices are negotiated in closed-door confidential agreements.⁷⁷² Neighboring hospitals may not know what the other is paying. Within the federal government, each agency pays a separate price.⁷⁷³ In the outpatient setting, patients often learn their price by surprise when they visit a pharmacy or receive a bill.⁷⁷⁴ Even researchers shared that the simple question of, “What is the price of a drug?” can be impossible to answer.⁷⁷⁵ Available datasets are imperfect and expensive.⁷⁷⁶

Moreover, the supply chain is not transparent.⁷⁷⁷ The manufacturer is not necessarily the same as the pharmaceutical company with rights over a drug, and neither entity necessarily is the distributor.⁷⁷⁸ On top of these layers of concealed identities, the distribution mechanism is not transparent.⁷⁷⁹ The Committee's investigation uncovered closed distribution systems that further concealed how a drug gets to patients and erected barriers to competitor entry.⁷⁸⁰

The obfuscation continues in that the role of various players along the supply chain is not transparent.⁷⁸¹ PBMs, for example, are tasked with negotiating back and forth between hospitals, employers, and pharmaceutical companies, to reportedly get the best deal.⁷⁸² But it is unclear who the parties are that are getting the best deal as well as how much PBMs charge for

⁷⁷⁰ Figures derived from Email from Brian D. Smith, Esq. to Mark Brian LeDuc, Esq. (Oct. 28, 2016) and Rosiello Interrogatories, at ¶ 8 and attached charts.

⁷⁷¹ Expert Compendium.

⁷⁷² *Id.*

⁷⁷³ CBO Paper, *Prices for Brand-Name Drugs Under Selected Federal Programs*, Congressional Budget Office 4-5 (June 2005).

⁷⁷⁴ Marzolo Interview.

⁷⁷⁵ Expert Compendium.

⁷⁷⁶ IMS dataset costs varied depending on the product and the scope. Costs can vary from thousands to millions of dollars.

⁷⁷⁷ Henry Eichelberg, The American Health Policy Institute, *The Prescription Drug Supply Chain “Black Box”*, at 8 (2015).

⁷⁷⁸ Perry Fry, Health Care Supply Chain Research, *Understanding the Pharmaceutical Supply Chain*, at 5 (July 22, 2015).

⁷⁷⁹ Expert Compendium..

⁷⁸⁰ *See, supra*, at 36–39, 43–44.

⁷⁸¹ *See* Cynthia Challener, *Need for Supply Chain Transparency is Acute*, (Sept. 1, 2014), *found at*, <http://www.pharmtech.com/need-supply-chain-transparency-acute> (last visited Dec. 15, 2016).

⁷⁸² *See* Thomas Gryta, *What is a “Pharmacy Benefit Manager?”*, *The Wall St. J.* (July 21, 2011).

these negotiations. There is good reason to suspect that the patient may not be getting the best deal.⁷⁸³

The funding for health care also lacks transparency.⁷⁸⁴ Chapter Five detailed the role of investors in running pharmaceutical companies' schemes. Companies also fund patient assistance programs to maximize market share.⁷⁸⁵ The source, trajectory, and reach of millions of dollars can get swept under the rug.

This lack of transparency is a serious problem. Markets function best with a robust flow of information, and good policy cannot be implemented without a fulsome record.⁷⁸⁶ The Committee analyzed a range of transparency proposals that would shine light on the health care system. Some experts called for a balanced solution to improving drug pricing transparency in order to avoid unintended consequences.

Reporting AMP After Lag. Transparency in prices would improve transparency in the health care system. Since WAC and AWP prices are not what payers actually pay, many experts have suggested that it would make more sense to report the Average Manufacturer Price ("AMP"), which is based on the price calculated after all sales and rebates are taken into account.⁷⁸⁷ AMP prices are calculated retrospectively; therefore policy proposals to require reporting should factor in a lag period to ensure accuracy of the figure and minimize the potential for that figure to contribute to any market collusion. AMP is the net revenue divided by the number of prescriptions, and is statutorily defined as "the average price paid by wholesalers for drugs distributed to the retail class of trade, net of customary prompt pay discounts."⁷⁸⁸ AMP is well-defined and has been used since 1991. Its calculation is also based on actual sales.⁷⁸⁹

Companies are required to report AMPs for Medicaid; therefore, companies are already calculating these figures.⁷⁹⁰ As discussed above, AMP is a transaction-based price, and it takes several months to calculate AMP because it incorporates sales, discounts, rebates, and relevant pricing information.⁷⁹¹ Releasing AMP data to the public after a lag of 8–12 months would provide the American public with information about how much the drug actually costs payers. This information would empower patients and doctors to make more-informed choices, especially when alternative therapies are available. This proposed disclosure does not claim to solve the problem of price increases, but it would improve transparency in health care and serve as a launching pad for evidence-based negotiation. For example, the AMP figure would serve as

⁷⁸³ Committee Staff Interview with Mark Riley (Nov. 3, 2016).

⁷⁸⁴ See *The Healthcare Imperative: Lowering Costs and Improving Outcomes: Workshop Series Summary*, The Institute of Medicine Roundtable on Evidence-Based Medicine, Washington DC, National Academies Press (2010).

⁷⁸⁵ See, *supra*, at 58.

⁷⁸⁶ See PL Yong, RS Saunders, LA Olsen, *The Healthcare Imperative: Lowering Costs and Improving Outcomes: Workshop Series Summary*, The Institute of Medicine Roundtable on Evidence-Based Medicine, Washington DC, National Academies Press (2010).

⁷⁸⁷ Daniel R. Levinson, *Medicaid Drug Price Comparisons: Average Manufacturer Price to Published Prices*, HHS OIG Report OEI-05-05-00240, 4 (June 2005) (discussing method of AMP calculation); Expert Compendium.

⁷⁸⁸ Daniel R. Levinson, *Medicaid Drug Price Comparisons: Average Manufacturer Price to Published Prices*, HHS OIG Report, OEI-05-05-00240, 4 (June 2005).

⁷⁸⁹ *Id.*

⁷⁹⁰ *Id.*

⁷⁹¹ Expert Compendium.

a reference point for contracts. Hospitals and employers would still negotiate prices; however, unlike the secret negotiations that take place today, AMP disclosure would provide an accurate benchmark. This data would empower payers to negotiate more effectively, and the lag in disclosing it would assuage concerns about anticompetitive behaviors. This data would also be useful to academics who could use it to uncover trends and identify further solutions.

Releasing AMP data after a lag would empower patients and doctors, and prevent surprise costs at the pharmacy or on health bills.

VII. Additional Considerations

In the wake of this investigation, the cost of prescription medications continues to be of great concern to the American public. This investigation touched on but one small segment of the problem: off-patent, sole-sourced prescription drugs. The problem is larger. The news of sudden prices spikes, whether it is EpiPen or insulin or Narcan, is constant. While these problems extend beyond the purview of this investigation and report, the Committee considers further exploration into whether or not the patent system is being abused and the role that supply chain actors may be playing as two areas worthy of further consideration.

Many experts suggested that while the patent system is vitally important to encourage innovations, there are aspects of the system that are being abused.⁷⁹² One area that was frequently mentioned was the use of so called “blocking patents”, which are patents that claim only a minor therapeutic improvement and are more about preventing competitive entry and less about truly advancing the art in question.⁷⁹³

Another area worthy of further study is the role of PBMs. While some experts claim that PBMs function to keep down the price of drugs, other have suggested that PBMs may be contributing to part of the drug pricing problem.⁷⁹⁴ The Committee does not have visibility into this area from its investigation due to the fact that PBMs played a limited role in the drugs investigated by the Committee.

⁷⁹² *Id.*

⁷⁹³ *Id.*

⁷⁹⁴ Committee Staff Interview with Mark Riley (Nov. 3, 2016).

CONCLUSION

The Committee's investigation uncovered disturbing practices in pharmaceutical drug pricing and made substantial progress towards a shared goal of making life-saving medicines affordable and accessible for all Americans. The Committee strongly supports continued efforts to stop bad actors in the pharmaceutical space. Legislative and regulatory changes are required to combat the unwarranted and excessive price hikes that the Committee investigated and that have been so detrimental to patients, providers, hospitals, and taxpayers. Federal policy should strike the right balance between maintaining the incentives needed to promote innovation and the development of new drugs, and keep medicines affordable for patients to support a healthy American public.

GLOSSARY

Term	Definition
Abbreviated New Drug Application (ANDA)	Submitted by the sponsor to market a generic of a drug product in the United States. It contains data to show that a generic drug product is bioequivalent to the reference listed drug and comparable in dosage form, strength, route of administration, quality, performance characteristics, and intended use.
Actual Acquisition Cost (AAC)	Final cost of drugs to pharmacy after all discounts, rebates, and price concessions (not defined in statute or regulations).
Average Manufacturer Price (AMP)	AMP for a covered outpatient drug for a rebate period is the average price paid to the manufacturer for the drug in the United States by (i) wholesalers for drugs distributed to Retail Community Pharmacies (RCPs); and (ii) RCPs that purchase drugs directly from drug manufacturers (SSA §1927(k)(1)).
Average Selling Price (ASP)	The average price at which the drug is sold across channels or markets.
Active Pharmaceutical Ingredient (API)	The ingredient in the pharmaceutical product which is biologically active.
Authorized Generic	A brand-name prescription drug that is sold, marketed, and distributed as a generic under a private label company.
Average Wholesale Price (AWP)	Commercially published reference price but not an average price paid by purchasers or charged by wholesalers. AWP is considered a manufacturer's suggested wholesale price to the retailer as listed in published drug industry compendia (not defined in statute or regulations). The AWP is set by manufacturers and used by Medicare to set reimbursement rates.
Bioequivalent	The biological equivalence of two proprietary preparations of a drug including its use, efficacy, safety, dosage form, route of administration, strength, and active substances. Drugs that are bioequivalent are expected to perform in the same manner within a comparable biological systems.
Brand Name Drug	Brand name drugs are those drugs sold under an applicable brand name (<i>e.g.</i> , Daraprim). It is possible to have both innovator Source Drugs that are branded, and generics that are branded (known as authorized generics).
Best Price	Best price for single source and innovator multiple source drugs is the lowest price available from a manufacturer during the rebate period to any U.S. entity in any pricing structure (including capitated payments) for the same quarter as the AMP is reported (42 CFR §447.505).
Compounding	The process in which a pharmacist combines, mixes, or alters various ingredients to create a medication that is "tailored to the needs" of an

	individual patient. Compounding is generally used to prepare medications that are not commercially available, such as a drug in a lower dosage for a child, or a drug without a dye or a preservative in response to a patient allergy.
Consumer Price Index—Urban (CPI-U)	CPI-U is the index of consumer prices developed and updated by the U.S. Department of Labor. It is the CPI for all urban consumers (U.S. average) for the month before the beginning of the calendar quarter for which the rebate is paid (42 CFR §407.502).
Estimated Acquisition Cost (EAC)	EAC is a Medicaid agency's best estimate of the price generally and currently paid by providers for a drug marketed or sold by a particular manufacturer or labeler in the package size of drug most frequently purchased by providers (42 CFR §407.502).
Generic Drug	Non-innovator drugs that are bioequivalent to respective brand name drugs. The term generic drug is not defined in statute (OIG).
Generic Drug User Fee Act (GDUFA)	The Generic Drug User Fee Amendments (GDUFA) established a user fee program for generic drugs (effective October 1, 2012, - October 1, 2017). The purpose is to maintain U.S. quality standards for generic entrants while increasing the likelihood of timely approvals.
Gold Standard Drug	The gold standard drug is considered by experts in the field to be the best drug available for the condition it treats.
Group Purchasing Organization (GPOs)	Group purchasing organizations negotiate contracts with wholesalers or manufacturers on behalf of a number of hospitals or other providers.
Hatch-Waxman Act	Drug Price Competition and Patent Term Restoration Act of 1984 (P.L. 98-417), commonly known as the Hatch-Waxman Act, made significant changes to the patent laws as they apply to pharmaceutical products in an attempt to balance the need for innovative new drugs and the availability of less expensive generic products. The act created practices intended to facilitate the marketing of generic drugs while permitting brand name companies to recover a portion of their intellectual property rights lost during the pharmaceutical approval process.
Innovator Multiple Source Drug	A drug that was originally marketed under an original NDA approved by the Food and Drug Administration ("FDA"), including an authorized generic drug. It includes a drug product marketed by any cross-licensed producers, labelers, or distributors operating under the NDA and a covered outpatient drug approved under a product license approval (PLA), establishment license approval (ELA), or antibiotic drug approval (ADA) (42 CFR §407.502).
Monopoly Rent	An economic term meaning profits above those that would be available in a competitive market, received by a supplier in a market where supply is artificially restricted.
Multiple Source Brand Name Drugs	Drugs that are available from a brand name manufacturer and also have generic equivalents.

National Drug Acquisition Cost (NADAC)	The national price benchmark of the costs that pharmacies pay to acquire prescription and OTC drugs, based on invoice cost data collected from pharmacies that reflect actual drug purchases (CMS, Draft Methodology for Calculating the National Average Drug Acquisition Cost, Part II, May 2012).
National Drug Codes (NDCs)	Unique codes consisting of 10-digits broken up into three segments to identify each drug by the marketing pharmaceutical company, drug strength, and package size. Medicaid uses NDCs identify unique formulations of each drug(OIG).
New Drug Application (NDA)	The process through which drug sponsors propose that the FDA approve a new pharmaceutical for sale and marketing in the U.S.
Non-innovator Multiple Source Drug	Also known as generic drugs and are defined as (1) a multiple source drug that is not an innovator multiple source drug or a single source drug, (2) a multiple source drug that is marketed under an abbreviated NDA or an abbreviated antibiotic drug application, or (3) a drug that entered the market before 1962 that was not initially marketed under an original NDA (42 CFR §407.502).
Off-Patent Drug	Any drug that is not the subject of an unexpired patent or exclusivity period.
Orange Book	The publication Approved Drug Products with Therapeutic Equivalence Evaluations identifies drug products approved on the basis of safety and effectiveness by the FDA under the Federal Food, Drug, and Cosmetic Act. Patent listings can be found in this online book, which is updated daily.
Red Book	The Red Book lists drugs and their prices. In general, the Red Book lists the average wholesale price (AWP) of drugs. The price list is updated quarterly.
Reference Listed Drug (RLD)	A reference listed drug is an approved drug to which new generic versions are compared to demonstrate bioequivalence.
Retail Community Pharmacy (RCP)	Retail community pharmacies are state-licensed independent pharmacies, chain pharmacies, supermarket pharmacies, or mass merchandiser pharmacies that dispense medications to the general public at retail prices. RCPs do not include pharmacies that dispense prescription medications to patients primarily through the mail-order, nursing home pharmacies, long-term care facility pharmacies, hospital pharmacies, clinics, charitable or not-for-profit pharmacies, government pharmacies, or PBMs (SSA §1927(k)(10)).
Risk Evaluation and Mitigation Strategies (REMS)	Risk Evaluation and Mitigation Strategies (REMS) were authorized by The FDA Amendments of 2007 to ensure that the benefits of a drug or biological product outweigh its risks. The FDA can require a REMS before or after a drug is approved. Each REMS has specific safety measures unique to the safety risks associated with the particular drug.
Patient Assistance Programs (PAPs)	Offered by pharmaceutical manufacturers to help indigent, uninsured, or underinsured patients obtain the prescription drugs they need. By statute, individuals covered by government insurance are not eligible for PAPs.

Pharmacy Benefit Managers (PBMs)	Pharmacy benefit managers (PBMs) act as intermediaries between health care payers and other players including drug manufacturers, pharmacies, and employers.
Sole-Source Drug	A sole-source drug is a covered outpatient drug produced or distributed under an original NDA approved by the FDA, including a drug product marketed by any cross-licensed producers or distributors operating under the NDA. It also includes a covered outpatient drug approved under a biological license application, PLA, ELA, or ADA (42 CFR §407.502).
Sherman Act	The Sherman Anti-Trust Act (26 Stat. 209, UF U.S.C. §§ 1-7) approved on July 2, 1890, prohibits business practices that federal government regulators deem to be anticompetitive, and requires the federal government to investigate trusts.
Wholesale Acquisition Cost (WAC)	The manufacturer's list price for the drug or biological to wholesalers or direct purchasers in the United States, not including prompt pay or other discounts, rebates or reductions in price, for the most recent month for which the information is available, as reported in wholesale price guides or other publications of drug or biological pricing data (SSA §1847A(c)(6)).
Wholesaler	A drug wholesaler is engaged in wholesale distribution of prescription drugs to retail community pharmacies, including manufacturers, re-packagers, distributors, own-label distributors, private-label distributors, jobbers, brokers, warehouses (including manufacturer's and distributor's warehouses, chain drug warehouses, and wholesale drug warehouses), independent wholesale drug traders, and retail community pharmacies that conduct wholesale distributions (SSA §1927(k)(11)).
340B	The 340B Drug Discount Program is a U.S. federal government program created in 1992, in section 340B of the Public Health Service Act, requiring drug manufacturers to provide outpatient drugs to eligible health care centers, clinics, and hospitals (termed "covered entities") at reduced costs.

Report of the Minnesota Attorney General's Advisory Task Force on Lowering Pharmaceutical Drug Prices

February 2020



The Office of
Minnesota Attorney General Keith Ellison
helping people afford their lives and live with dignity, safety, and respect • www.ag.state.mn.us

Foreword

From Attorney General Keith Ellison

My job as Attorney General is to help Minnesotans afford their lives and live with dignity and respect. But the cost of prescription drugs is so high that far too many Minnesotans are having to choose between affording their lives and staying alive.

Take insulin, a life-saving drug for people with diabetes. The researchers who discovered it almost 100 years ago sold the patent for it for \$1, because they wanted it to save lives. So why has the price of insulin gone up more than 1,100% in the last 20 years? Why does the same drug cost 90% less in Canada?

Take Tysabri, a drug that Rep. Rod Hamilton, who served on the Task Force, takes to control his muscular sclerosis. The price has doubled and now costs \$15,000 a month. Why? Who sets that price, anyway, and how?

And why do Minnesota families *with* health insurance pay on average \$5,000 in out-of-pocket costs each year?

These are the kind of questions Minnesotans want answered and the kind of problems Minnesotans want solutions to. They affect every single one of us, because every single one of us has taken or will take a prescription drug. And none of us can wait any longer for answers and solutions.

This is why I created a Task Force to gather in the best thinking in order to understand why the costs of prescription drugs are so high — in some cases, unconscionably so — and come up with legislative, legal, regulatory, and community-based strategies to bring them down. Task Force members heard hundreds of hours of testimony, read thousands of pages of studies and reports, and spent many more hours debating and coming up with recommendations. The 15 people who served on the Task Force have brought a great diversity

of experience, knowledge, and perspective. I thank each one of them, especially co-chairs Nicole Smith-Holt and Senator Scott Jensen.

This thorough, eye-opening report first answers the overall question of why the pharmaceutical-drug market doesn't work for people and drives prices so high. Then it proposes 14 recommendations that will put less-expensive drugs in people's hands and give us stronger tools for bringing more transparency and public accountability to the industry.

This isn't the end of the Task Force's work — it's the beginning of the work that all of us now have to do to implement these recommendations and bring drug prices down so that Minnesotans can not only afford their lives, but can afford to live with dignity and respect.

Keith Ellison



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Executive Summary

The market for prescription drugs in Minnesota and the United States is exceedingly complex, opaque, rife with anticompetitive and other problematic business practices, and the laws governing the industry are often misused and abused. In short, the market for prescription drugs is dysfunctional and the prices of them are far too high. Significant reforms to how such drugs are regulated, distributed, and paid for are necessary to rein in the skyrocketing cost of these often life-saving medications. The goal of this report is to propose solutions that if properly implemented, will lower the cost of prescription drugs for the many Minnesotans who struggle to pay for the medications they desperately need.

The Impact of High Drug Prices

Everyone will take a prescription drug at one point in their lives. Currently, 58% of non-senior adults and 86% of seniors were prescribed a medication in the last year. Minnesotans, like Americans everywhere, spend a lot of money on them: in 2017, Minnesota spent nearly \$5.2 billion on retail prescription drugs. If prescriptions administered in medical settings (e.g., a hospital) are taken into account, this number approaches \$8.7 billion. And the cost is rising far more quickly than the rate of general inflation: according to data compiled by the Minnesota Department of Health, prescription drug spending in Minnesota rose by 28.6% between 2013 and 2017.

But the market for prescription drugs does not function like markets for other goods and services for many reasons that are unique to the pharmaceutical industry. (See Section 2.1.1.) The prescription drug market is also fragmented between different types of drugs that are subject to different regulatory requirements, and involves scores of entities in an exceedingly complex distribution chain that are all fixated on maximizing their own profits through the sale or administration of the drug at issue. (See Sections 2.1.2-.3.) These circumstances have led to prices and price increases for drugs that are staggering, with the cost of some of the more expensive prescription drugs now exceeding \$60,000 per month. (See Sections 2.1.5-.6.)

The high cost of many pharmaceutical drugs has forced some people to spend less on groceries, postpone paying bills, get a second job, or even declare bankruptcy. Indeed, some Americans—8% in one recent survey—have resorted to crossing the border into Canada or Mexico to purchase drugs at a small fraction of the price that they cost in the United States. (See Section 2.1.7.) Further, the high cost of prescription drugs has created significant



barriers to patients' adherence to their prescribed medication regimes: almost one in ten Minnesotans, more than half a million people have not filled a prescription in the last year due to its prohibitive cost. (See Section 2.1.8.)

The price of insulin illustrates how increases in the price even of old drugs whose original patents expired long ago can cause financial strains on Minnesota families. Insulin was first discovered in 1922. About 330,000 people, or nearly 8% of Minnesota residents, have diabetes today. But the price for some insulin products has increased more than 1,100% over the last two decades. Diabetics' insulin costs doubled between 2012 and 2016 alone and now average about \$5,705 a year. As a result, the Minnesota Attorney General's Office has a pending lawsuit against the three major manufacturers of insulin over pricing practices it alleges are deceptive, fraudulent, and unlawful. (See Section 2.4.)

Causes and Contributors to High Drug Prices

Section 3 of this report details numerous causes and contributors to the high drug prices that Minnesotans are forced to pay. These causes and contributors include:

1

First, the misuse and abuse of federal patent and exclusivity laws by drug manufacturers has led to high-cost branded drugs being insulated from generic competition for years—if not decades—beyond the initial patent and exclusivity periods. For example, AbbVie created a “patent thicket” for Humira, which is used to treat arthritis and is the top-selling drug in the world, by securing 132 patents for the drug, which resulted in 39 years of patent protection. (See Section 3.1.)

2

Second, partly as a result of misuse and abuse of patent and exclusivity laws, the U.S. now spends more money per capita on prescription drugs than any other high-income country and this gap is continuing to grow. For example, Crestor, a medication used to lower high cholesterol, costs between 169% to 336% more in the United States than it does in Canada, France, or Japan. Minnesotans' inability to safely access and import drugs at the often dramatically cheaper prices found in other countries is another impediment to lower drugs costs. (See Section 3.2.)

3

Third, various anticompetitive practices are also pervasive in the drug industry. One such practice is called “product hopping,” where a branded drug manufacturer makes minor changes to some aspect of a drug besides its active ingredient. After doing so, the manufacturer secures additional patent or exclusivity rights to the “new” version of the drug, and stops selling the prior version, extending its monopoly power.

Another anticompetitive practice is “pay for delay” arrangements where a branded drug manufacturer pays a generic competitor to delay the launch of its rival generic drug, ostensibly to settle patent litigation.





4

Fourth, certain industry marketing practices drive up demand for expensive, branded pharmaceuticals. “Direct-to-consumer” advertising of drugs—which has increased dramatically since it was largely deregulated in the 1990s and which is permitted in only one other country in the world—significantly contributes to high drug costs. The same is true regarding the “off-label” marketing of drugs for conditions they are not approved to treat. (See Sections 3.3-4.)

5

Fifth, the business practices of pharmacy benefit managers (“PBMs”), which are middle men in the drug sales chain further drive up the cost of prescription drugs in various manners. Chief among them are PBMs’ rebate practices, which incentivize drug manufacturers to increase the price of their drugs so these manufacturers can offer PBMs larger rebates—which is an important source of revenue for PBMs—without affecting manufacturers’ bottom line. These same rebate practices also incentivize PBMs to sell more expensive branded medicine through their pharmacy networks, as opposed to cheaper generics, because the rebates offered on branded drugs are generally larger than those offered on generic ones. PBMs lack of transparency into their business practices and how they are reimbursed for drugs further obscures critical data that could be used to lower drug costs. (See Section 3.5.)

6

Finally, perverse economic incentives that drug manufacturers offer patients can result in a patient choosing a more expensive branded drug even when a cheaper generic is available. Things such as “patient discount coupons” or “patient assistance programs” may lower a patient’s upfront copay or other costs somewhat, but they incentivize a patient to use a more expensive branded drug instead of an equivalent generic one, which their health plan must ultimately pay for, thereby driving up patients’ monthly insurance premium. (See Section 3.6.)



The Task Force's 14 Recommendations

Over the course of 2019, the Task Force conducted a thorough review of materials and information presented to it by numerous speakers, consulted with various experts and other people knowledgeable about the drug industry, and engaged in extensive discussion and debate about the best manner to address high drug prices. This resulted in the Task Force formulating 14 policy proposals that, if satisfactorily adopted and implemented, it believes will lower the cost of prescription drugs for all Minnesotans.

The Task Force's 14 Recommendations

1

Create a Prescription Drug Accountability Commission to address drug pricing and related practices in Minnesota. This commission would have the power to investigate, review, and publish information on prescription drug prices. It would also have power to take action to hold drug companies accountable for unreasonable or unlawful pricing practices, including by “capping” or setting maximum reimbursement prices for drugs under certain circumstances or referring the matter to the Minnesota Attorney General’s Office for potential enforcement actions.

2

Import, through a prime vendor, four critical access drugs—insulin, EpiPen, Truvada, and naloxone. This would be done on a trial basis initially, with the potential for expansion of the program if it is successful. These four drugs should be imported for use in Minnesota at affordable prices consistent with global market rates for the products.

3

Enact drug price-gouging legislation that prohibits drug manufacturers from charging or causing to be charged an unconscionable price—that is, a price that cannot be reasonably justified—for essential prescription drugs that are sold in Minnesota.

4

Strengthen Minnesota’s consumer fraud laws as they relate to deceptive and misleading marketing, as well as other problematic business practices utilized in the drug industry.

5

Enact a state anti-kickback law that applies to both government programs and the private sector, including prohibiting copay coupons or equivalent programs when a generic version of the branded drug at issue is available.

6

Strengthen Minnesota’s antitrust laws to prohibit specific, anticompetitive practices present in the drug industry, such as product hopping and pay-for-delay settlements.



7

Strongly advocate for reform of federal patent and drug exclusivity laws that are being misused and abused to block competition from cheaper generic drugs.

8

Optimize and expand Minnesota's use of the federal 340B Drug Pricing Program, which allows health-care providers to purchase drugs at dramatically reduced prices under certain circumstances, and then make the pricing discounts received through this program available to more Minnesota patients.

9

Quantify how much all Minnesota government entities spend on prescription drugs, to enable these entities to better pool and utilize their bulk-purchasing power to obtain additional pricing concessions from drug manufacturers when buying drugs.

10

Optimize and better utilize Minnesota's bulk purchasing power through MMCAP INFUSE, including by expanding the pricing discounts this buying program receives to everyday Minnesotans, or create a parallel program that would do so.

11

Robustly regulate PBMs and their business practices, building on the PBM legislation enacted in 2019, and further increase transparency into the rebates they receive.

12

Enact additional measures to increase transparency into how drugs are priced and reimbursed throughout the drug sales chain.

13

Ensure patient access to pharmacists for effective medication use.

14

Support additional research into prescription drug pricing and drug benefits.

Next Steps

The Task Force views this report as only the end of the beginning. It will be up to lawmakers, agencies with rulemaking authority, advocates, and other policymakers, including not least the Minnesota Attorney General's Office, to continue to advocate for and lend their expertise to turning the Task Force's recommendations into action. Only if all stakeholders act with the urgency that this issue requires will the spotlight remain appropriately focused on the life-or-death issue of lowering the skyrocketing cost of prescription drugs for Minnesotans.



1. Introductions and Overview of the Advisory Task Force on Lowering Pharmaceutical Drug Prices

1.1 Structure and Membership of the Task Force.

The Advisory Task Force on Lowering Pharmaceutical Drug Prices (hereinafter “Task Force”) was established in February 2019 by the Office of the Minnesota Attorney General, Keith Ellison. The Task Force consists of 15 members. Its members include experts on pharmaceutical drug prices, patients and their family members, medical practitioners, a representative of the Minnesota Board of Pharmacy, and Minnesota legislators.¹ The full Task Force first met on April 23, 2019, and seven more times thereafter, with the final meeting taking place on February 19, 2020. The Task Force also formed three working groups that met numerous additional times.

The Task Force was comprised of the following members:



In support of the Task Force, three working groups were established: Working Group #1 was tasked with determining the role of federal and state legislative and regulatory actions in lowering drug prices; Working Group #2 focused on identifying root causes and contributing factors to the increase in pharmaceutical drug prices; and Working Group #3 conducted a comprehensive analysis of various strategies that have been, and could be, undertaken to lower drug prices. The working groups met numerous times throughout the spring, summer, and early fall of 2019.

Advisory Task Force Working Groups		
Working Group #1 Legislative Regulatory Action Task: Determine the role of the federal and state legislative and regulatory actions in lowering drug prices Members: Sen. Matt Little Rep. Rod Hamilton Cody Wiberg Shirlynn LaChapelle Nicole Smith-Holt	Working Group #2 Causes & Contributors Task: Identify the root causes and contributing factors to the increase in pharmaceutical drug prices Members: Dr. Stephen Schondelmeyer Dr. Leonard Snellman Rose Roach Rep. John Lesch Christy Kuehn	Working Group #3 Past, Current, and Future Strategies Task: Conduct a comprehensive analysis of various strategies that have been, and could be, undertaken to lower drug prices Members: Phu Huynh Nazie Eftekhari Jessica Braun Elo Alston Sen. Scott Jensen

Bylaws governed the operations of the Task Force.² Public participation was also welcomed at every stage of the Task Force process. All meetings were open to the public, with dates, times, and locations of meetings posted online in advance.³ Time was also allocated for public testimonials at all full Task Force meetings.⁴ Both the full Task Force and working groups brought in numerous experts, advocates, industry members, and state officials to provide them information and advice on addressing high drug prices.⁵ Listening sessions attended by various members of the Task Force and Attorney General Ellison were further held throughout the state.

1.2 The Scope of This Report and Its Intended Audience.

It was not the Task Force's goal to write a report simply cataloging the problem of high drug prices. To comprehensively summarize the legions of issues discussed by or presented to the Task Force and its working groups would require a report so voluminous that it would be of limited use to all but drug-industry experts. The Task Force's purpose was instead to write a report easily understood by non-experts that can and will help everyday Minnesotans afford their lives and live with dignity and respect by allowing themselves, policy makers, and others to effectively advocate for measures to rein in the high cost of prescription drugs. The primary audience for this report was, correspondingly, those who must turn the Task Force's recommendations into action, not drug-industry experts.



This report focuses on this audience in several ways. First, Section 2 provides a solid underpinning of information and examples to assist in understanding the many entities involved in the complex drug sales and distribution chain, the often-perverse economic and other incentives found throughout this chain, and how these dynamics result in ever-increasing drug prices. Section 3 builds on this foundation by specifically discussing and analyzing some of the major causes that drive drug prices higher, without attempting to list every possible contributor. Section 4 highlights selected past and current legislative and regulatory efforts to address high drug prices, so advocates and policymakers are aware of some of the initiatives to address drug prices that have been tried previously. Finally, Section 5 lays out a series of clear and understandable recommendations the Task Force believes will help address the problem of high drug prices. By structuring its report in this manner, the Task Force believes it can be an effective tool for Minnesotans and policymakers to use to understand the problem of high drug prices and be more effective advocates for change.



2. Understanding the Drug Industry, How it Works, and How Its Structure and Dynamics Permit and Incentivize High Drug Prices.

2.1 Understanding and Quantifying the Problem.

The Task Force's first step in coming up with recommendations to lower the high and continually increasing cost of prescription drugs, was examining a number of underlying factual circumstances that affect the cost and pricing of pharmaceuticals.

2.1.1 Traditional Economic Principles Are Often Distorted or Do Not Apply to the Prescription Drug Market⁶

In a number of ways, traditional economic principles break down in the pharmaceutical market. Unlike in a typical consumer market, the individual end-user of prescription drugs—the patient—has a limited ability to choose when, where, and what to purchase. This, in turn, distorts the interaction between buyers and sellers in the market that would ordinarily determine prices. In addition, competition in the pharmaceutical market is limited, both legally and artificially, which constrains the market forces that would otherwise drive down prices.

First, health care is different than other consumer goods because patients do not initiate the purchase or engage in the market directly. In a prescription drug purchase, “the patient is not a consumer in the traditional sense,” but typically learns of the need, evaluates options, and is directed to purchase a particular medicine by a third-party, such as a doctor.⁷ Patients often lack sufficient information or expertise to make fully-informed choices themselves about the drugs they use. Even basic information on drug pricing may be unavailable to allow patients to make fully-informed choices.

Patient also typically need a “permission slip”—in this case, a prescription—to purchase a drug. Unlike most markets, patients are legally barred from making their own choices even if they desired to do so. In other words, the health professional acts a “gatekeeper to the pharmaceutical market.”⁸ This health professional may also not know or even care about the price,⁹ as their primary objective is the health of the patient. In addition, the health professional may be subject to sales pressure from people marketing brand-name drugs.¹⁰ Patients may also be unaware that in some instances—for example, in arrangements where doctors are compensated based on a percentage of the drug's cost such as Medicare Part B's 6% flat reimbursement rate—the doctor's incentive to prescribe a more expensive drug may be in direct conflict with the patients' economic best interests. There is little room in this dynamic for the patient's independent choice and power in making decisions about which drugs to use.

Pharmaceutical purchases are also unique because they are about health. Patients have a limited ability to make rational choices in the face of illness or life-or-death situations, where one's health compels the patient to make the purchase in a way that defies traditional ideas of choice. Additionally, the value of a drug to a patient—its health benefits—may not be felt until some unknown point in the future or the benefit will be in avoiding some future illness. In this way, drugs operate as a form of investment in one's future health, making it difficult for a patient to assess the value at the time of purchase. In short, when it comes to health, individuals' choices are influenced by motivations that upend the typical framework of rational economic choices by consumers that explain behavior in other markets.



Second, there is a lack of competition in the pharmaceutical market not found in other, more traditional markets. As discussed further below,¹¹ laws establish extensive periods of market protection through patents, exclusivities, and other methods. These protections grant substantial market and pricing power to manufacturers, who are then able to utilize their power to command higher prices. Compounding these effects, manufacturers sometimes abuse these protections to further extend their pricing power beyond the initial, intended period, through such tactics as product-hopping, ever-greening, and patent-thickets.

Indeed, some drug manufacturers take advantage of, or create, natural or artificial monopolies. Natural monopolies occur when high costs keep new entrants from the market, as well as in small markets where there is little incentive for competitors to enter, both of which allow a drug manufacturer to drive up prices. Companies can also create monopolies, and benefit from their resulting pricing power, by acquiring competitors or gaining control over the sources of a drug. Pharmaceutical companies may extend these advantages through further anticompetitive behavior, such as price collusion, shadow pricing, pay-for-delay arrangements, authorized generics, and sham petitions. Ultimately, drug companies are able to operate in an environment with limited competition and command higher prices. Compounded by the limited power of patients to shop for different drugs based on price, the pharmaceutical market exhibits a wide variety of market failures that defy traditional economic principles.

2.1.2 Not All Pharmaceuticals Are the Same—Branded Drugs, Generic Drugs, and Specialty Drugs.

Patients often view concerns over the pricing and cost of drugs as uniform across the entire spectrum of all pharmaceuticals. And from one perspective, they are correct. It does not matter to many patients why a drug costs so much, just that it does. But in order to take effective action to reduce the high cost of drugs, it is important to understand the basic differences between brand name drugs, generic drugs, and so-called “specialty” drugs.

Brand name drugs are prescription medications sold under a specific trade name. For example, “Zoloft” is the brand name of the generic name “sertraline”. Brand-name drugs are usually protected by a patent. During the time a branded drug is protected by a patent it is free from competition. Once the patent runs out on a brand-name drug, the United States Food and Drug Administration (“FDA”) can approve the sale of generic versions. For a new drug to come to the market, the FDA requires that a drug manufacturer demonstrate safety and effectiveness with laboratory, animal, and human testing of the drug. Oftentimes, drug manufacturers attempt to justify the high prices of their brand-name medications by arguing that they need to cover costs incurred during the research and development phase of bringing new drugs to the market.

Generic drugs are equivalent to their brand-name versions in active ingredients, dosage, safety, strength, route of administration, and quality. For a generic drug to come to market, the FDA requires that the manufacturer demonstrate that the generic alternative can be safely and properly substituted for the branded version of the drug. According to the FDA, about 88% of prescriptions in the United States are filled with generic medications.

What drugs fall within the term “**specialty**” drugs is not always clear. This is because there is no specific definition or classification for specialty drugs; instead, they are generally considered to be drugs with a high cost for a course of treatment. Specialty drugs are also often novel, treat rare conditions, or require distinctive handling or administration. Many, but not all, so-called specialty drugs are a type of drug known as “biologics,” which are drugs derived from living organisms or parts of living organisms.¹² Often times, specialty drugs treat complex or chronic conditions, such as cancer, multiple sclerosis, or rheumatoid arthritis.¹³ Specialty drugs are frequently the most expensive drugs on the market, with the price-tag charged to patients for a regular course of treatment totaling in the tens to hundreds of thousands of dollars per year.¹⁴ The annual increases in prices for specialty drugs has also traditionally significantly outpaced the rate of inflation.¹⁵



2.1.3 Self-Administered Drugs Versus Physician-Administered Drugs.

Self-administered drugs—also sometimes referred to as out-patient prescription drugs—are generally those that a patient purchases at a pharmacy using a prescription and then takes as a health professional has instructed. Most research on drug prices has focused on self-administered drugs (“SADs”) when evaluating the causes of and solutions to the rising cost of drugs.¹⁶ These studies have found that SADs account for approximately 10% of all health-care spending, both in Minnesota and nationally.¹⁷ In reality, however, this figure is artificially low and provides an incomplete picture of spending on drugs because it fails to measure the growing amount spent on what are known as physician-administered drugs (“PADs”).¹⁸

PADs and their costs are a far less studied and understood use of pharmaceuticals. PADs are drugs that are administered to patients—often in a single dose injection or infusion—by medical professionals in hospitals, clinics, and other health-care facilities.¹⁹ Unlike SADs, whose spending can be tracked by reviewing pharmacy claims data,²⁰ the cost of PADs is often captured only in a larger “bundle” of medical claims data that also includes expenses for other health-care services provided around the same time.²¹ This means that researchers—as well as employers and other entities that pay these claims—have no insight into what PADs (or their associated costs) are included in the medical claims that they are paying.²² When spending on PADs is included, the true total amount of drug spending increases to at least 20% of all health-care spending in Minnesota. That figure is twice the amount typically cited.²³

The use and costs of PADs has skyrocketed in recent years, and is a major contributor to the rise in overall health-care spending.²⁴ For example, more than one-half (55%) of the increased spending on drugs in Minnesota from 2009 to 2013 was caused by the increased use of PADs, even though such claims only accounted for one-fifth (19%) of all drug claims.²⁵ During this same time period, the spending on PADs increased nearly three times as much as spending on SADs.²⁶ This is because PADs are usually for newer and higher-cost brand name drugs that do not have generic equivalents available.²⁷ As a result, PADs in Minnesota cost approximately \$180 per day, while SADs cost approximately \$2 per day.²⁸

2.1.4 The Prevalence of Prescription Drug Use Nationally and in Minnesota.

A significant number of Americans are prescribed one or more prescription drugs on a regular basis. The Centers for Disease Control and Prevention (“CDC”) estimated that, in 2017, 58% of adults age 18-64 years old were prescribed medications in the past year. The percentage jumps to 86% for those age 65 and older. In both age groups, women were prescribed medications at a slightly higher rate than men.²⁹

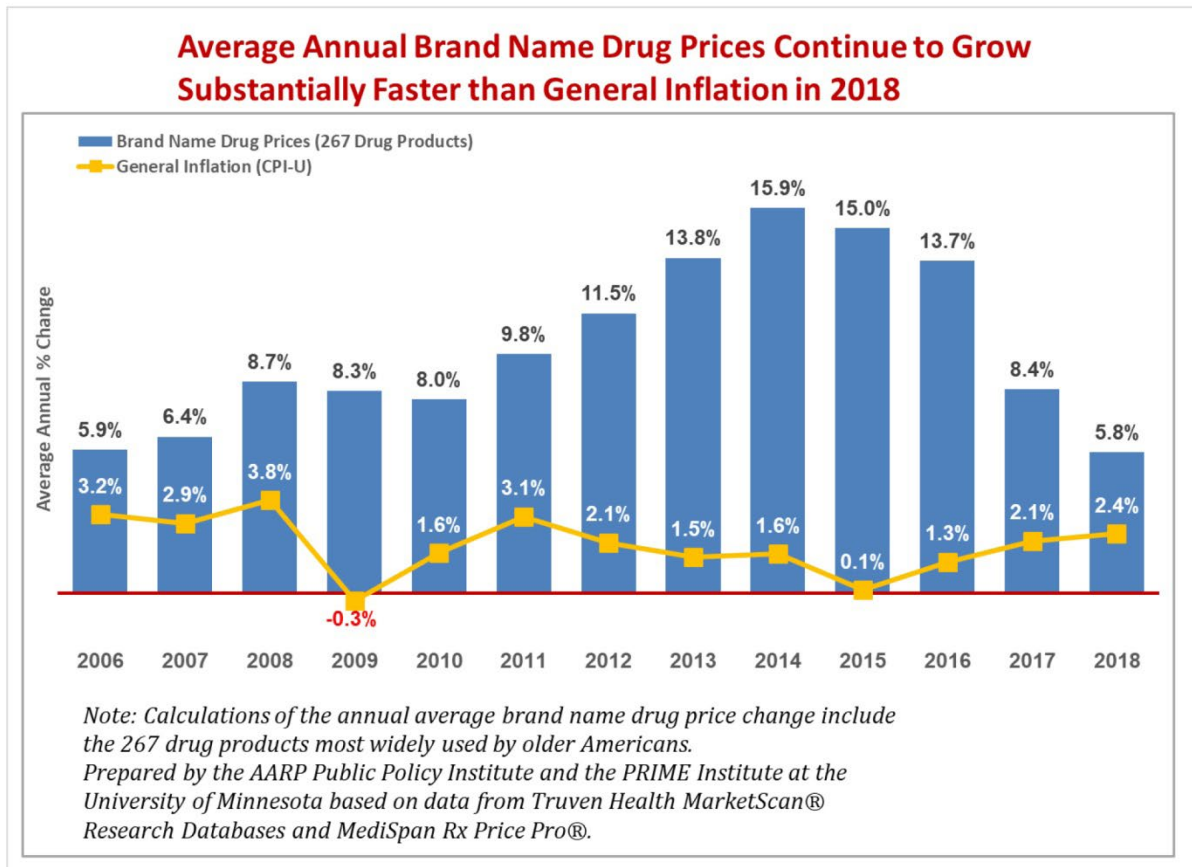
The CDC has also noted an increase in the number of prescription medications used per person over time. Between 1988 and 2014, the percentage of the population who took at least one prescription drug within the previous 30 days rose from 38% to 49%. In the same time period, the percentage of persons who took five or more prescription drugs within the previous 30 days rose from 4% to 12%.³⁰

It is also important to consider the prevalence of prescription drug use among Minnesotans. The Minnesota Department of Health determined in a recent study that, as of 2013, 68% of insured Minnesotans filled at least one prescription at a pharmacy, and that number does not include Minnesotans who receive prescription drugs in a medical setting.³¹ The department also found that, between 2009 and 2013, Minnesotans averaged 12 prescription fills per year.³² Among Minnesotans who filled at least one prescription, those individuals averaged 17 fills at the pharmacy in 2013.³³ When looking at prescription use by age, 88% of Minnesotans age 65 and older filled a prescription in 2013.³⁴



2.1.5 Drug Price Increases Have Significantly Outpaced Overall Inflation.

One reason patients notice the rise of prescription drug prices is because it often significantly outpaces general inflation as measured by the Consumer Price Index (“CPI”). For example, AARP’s Rx Price Watch Report provides pricing trend data for prescriptions widely used by older Americans. The report found that the “annual percent change in retail prices for brand name prescription drugs has consistently increased substantially faster than general inflation” at a “8.4% compared with 2.1%” rate.”³⁵ The increase in the cost of prescription drugs when compared to the general inflation rate is stark:



Stephen W. Schondelmeyer and Leigh Purvis, Brand Name Drug Prices Increase More than Twice as Fast as Inflation in 2018, Rx Price Watch, AARP Public Policy Institute, November 2019;

<https://doi.org/10.26419/ppi.00087.001>

AARP’s report also noted that the cost of an elderly American using 4.5 prescription drugs a month—the average for seniors—would be approximately \$30,000 annually, which exceeds the median annual income of Medicare beneficiaries of \$26,200.³⁶



2.1.6 Selected Examples of High Cost Prescription Drugs.

While troubling instances of high-priced generic drugs exist, generally the most egregious examples are found in the branded and specialty drug markets. As of May 2019, the world's most expensive drug was a newly approved gene therapy called Zolgensma, costing \$2.1 million, which treats spinal muscular atrophy in young children. Other examples of astronomically priced prescription drugs include: Myalept, which treats complications caused by leptin deficiency and costs about \$65,000 per month; Actimmune, which is approved for the treatment of chronic granulomatous disease and is priced at approximately \$48,000 per month; and Daraprim, which treats toxoplasmosis and is used for the prevention of other infectious diseases in AIDS and transplant patients is priced at approximately \$45,000 per month.

As detailed earlier in the report, some medications are administered to patients by medical professionals in a hospital or other infusion setting. Many examples of these high-cost infusion medications include those to treat cancer or autoimmune disorders. For instance, Herceptin, a common drug used to treat breast cancer, costs more than \$76,000 for a yearlong course of treatment. For those suffering from rheumatoid arthritis, the annual cost for Orencia infusions costs \$46,000: another popular infusion option, Remicade, costs \$37,000 annually. Yet other examples of drugs with high or significant price increases, which are discussed in depth below as case studies in the phenomenon, are EpiPen, insulin, lorazepam, clorazepate, and the business model of Valeant Pharmaceuticals (now known as Bausch Health Companies).

The high cost of prescription drugs affects all Minnesotans: it is likely that you or someone you know must take a prescription drug that is exceedingly expensive. Indeed, for example, Task Force member Representative Hamilton reported that one of the prescription drugs required to treat his multiple sclerosis—Tysabri—cost him about \$15,000 per month in 2018.

2.1.7 The Impact of High Drug Prices on Patients and Their Families.

A significant share of Americans' household income is being spent on prescription drug therapy. One recent study revealed, for example, that the average annual cost of drug therapy for the most widely used prescription drugs was nearly \$20,000 per year, or about one-third of the median U.S. household income in 2017 of \$60,336.³⁷ The share of household income spent on prescription drugs was even higher for those Americans who used a specialty prescription drug. In 2017, the average annual retail cost for drug therapy with specialty prescription drugs was nearly \$79,000 per year, almost \$20,000 more than the median U.S. household income.³⁸

Due to the high and rising costs of prescription drugs, many Americans have been forced to choose between paying for basic needs and paying for their medications. For example, 32% of Americans whose prescription drugs increased in price within the past year reported spending less on groceries so they could afford their medications. Of these people, 32% also reported spending less on their family, 21% postponing the payment of other bills, 12% reported postponing retirement, and 8% reported getting a second job, all just to pay for their medications.³⁹ Another recent poll found that 18% of Americans borrowed money from friends or family, took out a loan, or even declared bankruptcy to pay for their prescriptions.⁴⁰

Increasing drug costs have also created a barrier to Americans' adherence to their prescribed drugs. Medication "adherence" is a term that describes the degree to which a patient takes their medications at the doses and times that their doctor has directed.⁴¹ A 2019 survey found that 29% of Americans reported that they did not take their medication at some point in the past year due to cost: this included 19% who did not fill a prescription, 18% who took an over-the-counter drug instead of their prescribed drug, and 12% who cut pills in half or skipped doses. Of those



who reported not taking a drug due to cost, 27% reported that their medical condition worsened as a result.⁴² The consequences of a patient failing to adhere to their medication regimen range from disease progression, reduced functional abilities, increased hospital visits, and even death.

Americans have thus taken drastic measures just to afford their prescription drugs. Indeed, some Americans—8% in one recent survey—have resorted to crossing the border into Canada or Mexico to purchase drugs at a fraction of the price that they cost in the United States.⁴³ For example, while one person was in California to run the Los Angeles Marathon, she crossed the border into Mexico to purchase a supply of insulin for her son for \$600, which would have cost her \$3,700 in the U.S.⁴⁴ Similarly, a group of Minnesotans recently drove across the border to Canada to buy insulin for their families, where they paid \$1,200 for a supply of insulin that would have cost ten times as much in the United States.⁴⁵

2.1.8 The Burden that High Cost Prescription Drugs Impose on Minnesota.⁴⁶

The national trend of rising prescription drug costs affects Minnesota. According to data compiled by the Minnesota Department of Health, prescription drug spending in Minnesota rose by 28.6% between 2013 and 2017. In 2017, Minnesota spent nearly \$5.2 billion on retail prescription drugs. If prescriptions administered in medical settings (e.g., hospitals, doctors' offices, nursing homes, etc.) are taken into account, this number is even higher, approaching \$8.7 billion. Together, this volume of drug spending accounted for 17% of health-care spending in Minnesota that year.

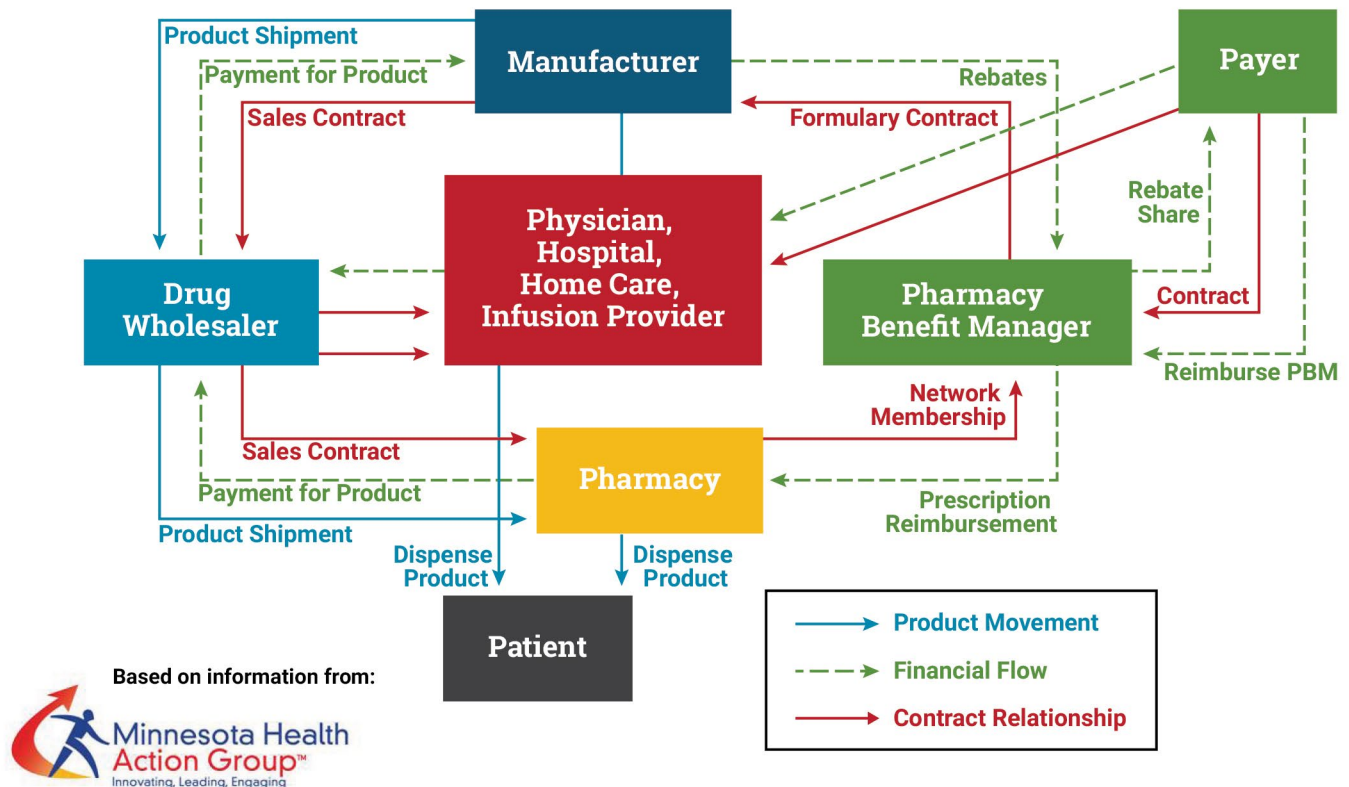
The high cost of prescription drugs has created significant barriers to Minnesotans' adherence to their prescribed medication regimes, as an estimated 9% of Minnesotans—or more than half a million people—had not filled a prescription due to cost in the preceding 12 months, according to the 2017 Minnesota Health Access Survey. For Minnesotans with one or more chronic conditions, this estimate was even higher at 16%.

Notwithstanding these troubling facts, Minnesota also still lacks satisfactory data into the details of the Minnesota patients who struggle to afford their prescription medications: where they live, which medications are not being adhered to, and what time of year they have the most difficulty taking their medication as prescribed. The wide-ranging opacity in the pricing of prescription drugs, which limits insight in Minnesota about how to reduce the cost of drugs, also extends to certain claims involving physician-administered drugs in hospital or other medical settings. The costs of such drugs are often “bundled” into a larger claim, making it difficult to assess spending trends and evaluate the effectiveness of prescribing patterns. Overall spending for these bundled medical claims rose 52% between 2009 and 2013. As a result, Minnesota is still ill-equipped to deal with the effects of expensive prescription drugs on patients in the demographic groups and in the geographic locations that need it and to support them in emergencies.



2.2 The Entities Involved In the Distribution and Pricing of Pharmaceuticals.

The sales and distribution chain for prescription drugs is maddeningly complex, with different companies involved in different aspects of the process, as this diagram shows:



Accordingly, attempting to divide the drug sales chain into discrete segments is an inexact science because some companies or persons simultaneously occupy multiple roles in the chain.⁴⁷ Generally speaking, however, there are 10 major participants in the drug sales chain, which are discussed below in the approximate order they appear within the chain.

2.2.1 Active Pharmaceutical Ingredient Suppliers.

Among their many ingredients, all drugs contain at least one active ingredient. For over-the-counter drugs, for example, the active ingredient is generally listed on the drug's packaging. Active pharmaceutical ingredient ("API") suppliers make the active ingredients contained in drugs from raw materials, using both physical and chemical processes. APIs may be manufactured in a different location from where the pill, liquid, or other final form of the drug is manufactured.⁴⁸ APIs are generally manufactured in bulk, and then sold to one or more drug manufacturers who use this active ingredient to make the final form of the drug. API suppliers' primary regulator in the United States is the FDA.



2.2.2 Drug Manufacturers.⁴⁹

Drug manufacturers make the drugs that are ultimately purchased by patients, health plans, and other third-party payers. As with API suppliers, drug manufacturers' primary regulator is the FDA, with which each must register.⁵⁰ In Minnesota, drug manufacturers must also be licensed by the Minnesota Board of Pharmacy.⁵¹

Some drug manufacturers physically manufacture the drugs themselves at their own facilities using ingredients purchased from API suppliers. Others do not engage in the actual physical manufacturing of drugs. Instead, such drug manufacturers sub-contract with other companies, called "contract manufacturing organizations," which do the physical manufacturing of the drug on their behalf. Yet other drug manufacturers, called "repackagers," simply repackage or relabel a drug that is physically manufactured by someone else and sell it as their own.

Importantly from a pricing standpoint, manufacturers set the initial sales price of their drugs. This initial price is often referred to as the manufacturer's "list price."⁵² Equally important is that a manufacturer's list price is often the starting point—that is the benchmark for the price that others downstream in the sales chain charge when reselling the drug. Thus, if a manufacturer increases its list price, this will have ripple effects by increasing the price that wholesale distributors charge pharmacies and pharmacies charge patients, as well as the amount that health plans will reimburse when a plan member is prescribed the drug. Manufacturers also pay rebates and administrative fees to pharmacy benefit managers, which are middlemen that drive demand for their drugs, as discussed further below.

2.2.3 Wholesale Drug Distributors.⁵³

Wholesale drug distributors, often simply called "wholesalers," are the next step in the sales chain after drug manufacturers. They buy and physically receive drugs from drug manufacturers. Wholesalers then sell these drugs to retail pharmacies and health-care facilities, which then in turn sell to patients. Some wholesalers also offer services such as drug repackaging and reimbursement support. Wholesale drug distributors who do business in Minnesota are required by state law to be licensed by the Minnesota Board of Pharmacy.⁵⁴

2.2.4 Pharmacy Benefit Managers.⁵⁵

Pharmacy benefit managers, or "PBMs," as they are more commonly known, are middlemen in the drug sales chain. PBMs typically never take physical possession of any drugs; instead, they only negotiate reimbursement, rebate, and distribution terms with others involved in the drug sales chain. PBMs first became a significant force in the health-care industry in the late 1980s.

As further reflected in the above diagram, PBMs have relationships with three important entities in the sales chain: health plans, drug manufacturers, and retail pharmacies. PBMs are hired by health plans (e.g., Blue Cross Blue Shield, HealthPartners, Medica, etc.) to manage the drug benefit that is provided to plan members on the plan's behalf. PBMs do this, in part, by creating and managing what is known as a "formulary." Formularies are simply a list of drugs for which reimbursement will be paid by the health plan when the drug is prescribed to a health plan member. If a drug is not included on the formulary, a patient, even if insured, must generally pay for it out of pocket.⁵⁶

As part of overseeing health plan members' drug benefit, PBMs act on behalf of health plans in two important ways. First, PBMs contractually stitch together networks of retail pharmacies where a health plan's members can get the drugs they need. In building these pharmacy networks, PBMs negotiate with each participating pharmacy the amount that the health plan will reimburse the pharmacy for drugs prescribed to the health plan members.



Second, PBMs negotiate discounts with drug manufacturers off of manufacturers' list prices for drugs, which take the form of rebates paid from the manufacturer to a PBM.⁵⁷ A PBM may pass some or all the rebates it receives from a drug manufacturer on to its health plan clients. PBMs claim that, as a result, the rebates they secure reduce the cost of drugs for health plans. Often, however, a PBM keeps the entirety of the rebates it receives for itself, and does not pass any of the amount along to its health plan clients. Rebates from drug manufacturers have become a critical source of revenue for PBMs.⁵⁸

In 2019, the Minnesota Legislature and Governor enacted a bill that requires PBMs to be licensed by the Minnesota Department of Commerce. Among many other things, this new licensure law requires PBMs to act in good faith on behalf of their health plan clients and to disclose conflicts of interest, and it contains numerous transparency-promoting mandates.⁵⁹

2.2.5 Pharmacies and Pharmacists.

Pharmacies are entities that prepare, dispense, and sell medications. They are generally licensed and regulated by state pharmacy boards in their respective states. In Minnesota, the Minnesota Board of Pharmacy regulates pharmacies, though it does not regulate the prices pharmacies charge or the reimbursement rates they are paid by health plans or health plans' PBMs.⁶⁰

For most prescription drugs, patients pay either: (1) a copay or coinsurance, as determined by their health plan coverage; or (2) the pharmacy's usual and customary price, also sometimes known as its "cash price," if the patient has no insurance coverage. The cash price of a prescription drug is typically calculated by the pharmacy as the cost of the drug to the pharmacy, plus a small markup, plus a dispensing fee. One recent survey indicated that, at independent retail pharmacies, 91% of prescriptions are submitted to third-party payers for reimbursement, including Medicare, Medicaid, and private health plans. The remaining 9% of prescriptions are sold directly to patients at the pharmacy's cash price, and are not covered by insurance.⁶¹

2.2.6 Authorized Prescribers.

Authorized prescribers⁶² are licensed health-care professionals who determine which medications are appropriate for a patient. Prescribers may have a variety of competing drugs to choose from to treat a particular patient's condition. At other times, they may have only a single available drug to do so. Determining which drug to prescribe is a clinical decision in which the prescriber must take into account a variety of factors, including the anticipated benefit to the patient, side effect profile of the drug, and availability in the market.

Prescribers do not have up-front visibility into a patient's health plan coverage for a given drug at the time the prescription is written. When a patient's medication is not covered by their insurance, sometimes the pharmacy will work with the prescriber to find an alternate medication, or try to obtain a "prior authorization" from the patient's health plan. Obtaining a prior authorization from the prescriber can delay the filling of the patient's prescription, as it generally requires that a prescriber submit clinical data to the health plan, or the health plan's PBM, to justify the need for a prescription drug that is not on the plan's formulary.

One factor that may influence physician prescribing practices is the physician's involvement with, or compensation from, drug manufacturers or distributors. A 2016 study that examined physician prescribing patterns found a "significant association between attending a single meal promoting a specific drug...and the prescribing of the promoted drug over therapeutic alternatives."⁶³ For this and other reasons, Minnesota law prohibits any manufacturer or wholesale drug distributor from providing health-care practitioners with gifts valued at more than



\$50 in any calendar year.⁶⁴ But even under this law, manufacturers or distributors can pay for educational expenses and provide payments to physicians for “reasonable” expenses.⁶⁵ Accordingly, some have argued for stricter laws in an attempt to further decouple physician prescribing patterns from financial reimbursement or other similar incentives.

2.2.7 Health Plans, Insurers, and Managed Care Firms.

Generally, health plans, insurers, and other managed care firms (collectively “health plans”) are third parties that pay for patients’ care, including for prescription drugs. The money used to cover these costs, however, ultimately comes from the pooled resources of the patients themselves. As referenced above, health plans often outsource the work of managing the prescription drug benefit they provide to plan members to the PBM that the health plan has hired. Health plans’ members incur more or fewer out-of-pocket expenses for the drug they are prescribed—in the form of a deductible, copayment, or coinsurance payment—based on how the drug is classified on the formulary of the health plan or its PBM. Uninsured patients are left to pay the pharmacy’s cash price entirely out of pocket for the drugs they need.

2.2.8 Employers.

More than half of non-senior Americans—approximately 152 million people in total—receive health insurance through private health plans that are selected and offered to them by either their employer or a close family member’s employer.⁶⁶ Employees typically pay a contribution toward their individual or family coverage that is deducted through the payroll process, and their employers pay the remainder of the insurance premium as a form of compensation to the employee.⁶⁷ More than 99% of people with employer-provided health insurance can also receive prescription drug coverage as a part of their offered health plans.⁶⁸ Most commonly, the drug coverage offered contains cost sharing tiers, whereby patients pay different amounts out of pocket depending on the characteristics of the prescribed drug, including whether it is a generic, brand name, or specialty drug.

Both federal and state governments regulate employer-provided health insurance. Workers and their families enjoy important rights and protections under a variety of laws, including the federal Consolidated Omnibus Budget Reconciliation Act of 1985 (“COBRA”), Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), and the Affordable Care Act (“ACA”) of 2010.

2.2.9 Government.

State and federal government play a number of important roles in the pharmaceutical industry supply chain. First, both the federal and state government are providers of prescription drugs benefits. Through Medicare, for example, the federal government provides insurance for all Americans 65 and older, as well as some younger Americans with disabilities. In addition, federal and state governments jointly fund Medicaid, which is called “Medical Assistance” in Minnesota. Medical Assistance provides low-cost prescription drug benefits to approximately 1.1 million lower-income Minnesotans. The Minnesota Department of Human Services also administers MinnesotaCare, which, in addition to covering doctor visits and hospital stays, provides prescription drug benefits for eligible residents whose income falls below certain specified limits. As employers, federal, state, and local governments may also offer health plan and prescription drug benefit options to their employees.

Second, the government is a direct purchaser of prescription drugs. For example, MMCAP INFUSE⁶⁹ is a multistate buying group that is open to governmental entities (in Minnesota and other states) that provide health-care services, such as certain state agencies, school districts, and correctional facilities. MMCAP INFUSE is administered by the



Minnesota Department of Administration. It allows participating governmental entities to utilize their volume buying power to negotiate lower prices for the drugs they purchase. Government entities that wish to participate in the MMCAP INFUSE program must satisfy certain statutory and other criteria to do so.⁷⁰ The federal government is also a major purchaser of prescription drugs, which it purchases on behalf of entities such as the Department of Veterans Affairs and the Department of Defense.

Third, the government is a provider of prescription drugs. For example, the Minnesota Department of Corrections administers prescribed drugs to adult and juvenile persons in the care of the department. The federal government also provides prescribed drugs to many people, including eligible veterans.

Finally, the government regulates both brand-name and generic prescription drugs. As explained in greater detail elsewhere in this report, the FDA regulates prescription drugs to ensure their safety and efficacy. The Minnesota Board of Pharmacy likewise regulates, among other things, pharmacists and pharmacies to ensure that prescription drugs are safely distributed to Minnesotans.

2.2.10 Patients.

Patients, of course, are the last link in the sales and distribution chain. Typically, patients either purchase drugs from retail pharmacies that were prescribed to them by an authorized prescriber, or are administered drugs by a health professional at a hospital, clinic, or other medical setting. Patients or their employers pay for all or a portion of the drugs they use through copays or coinsurance, deductibles, and premiums (for insured patients) or out of pocket (for uninsured patients). We are all patients because everyone at some point in their lives will need and use prescription drugs.

Although patients are the intended beneficiaries of the drug sales chain, all too often they are its victims. Most patients do not understand the opaque nature of or the many parties involved in the drug sales chain. Nor do most realize how the conduct of some of these parties, alone or in conjunction with others, result in ever-increasing drug prices that patients are ultimately forced to bear.

2.3 The Current Federal and State Legal Landscape Regarding Prescription Drugs.

While there are many federal and Minnesota laws that address prescription drugs in one manner or another, those that are particularly relevant to the Task Force's recommendations are (1) federal laws governing the process by which the FDA approves and regulates prescription drugs, (2) federal patent laws, as well as federal exclusivity laws that apply to prescription drugs that are distinct from patent laws, (3) the federal 340B drug pricing program, which results in perhaps the lowest prices for drugs sold in the United States, and finally (4) certain Minnesota laws regulating prescription drugs.

2.3.1 The FDA's Approval and Regulation of Prescription Drugs Generally.

a. Overview of the FDA's Regulatory Role.

Since the passage of the Food and Drugs Act in 1906, the FDA has been the primary regulator of prescription drugs in the United States. Under the original 1906 law, the FDA's authority was limited largely to ensuring that drugs had not been adulterated or misbranded. In 1938, the FDA's authority was significantly expanded with the passage of the Food, Drug, and Cosmetic Act. This law mandated pre-market approval for all new drugs, requiring



the manufacturer to prove the safety of the drug to the FDA before it could be legally sold in the United States. The law also required that drugs have labels with adequate directions and disclosures to ensure their safe use. In 1962, the Food, Drug, and Cosmetic Act was amended to require drug companies to also prove the efficacy (i.e., effectiveness) of new drugs, before they could be legally sold in the U.S.

In addition to its regulating of so-called “small-molecule drugs”—which is what many people traditionally think of when colloquially referring to prescription drugs—the FDA is also the primary regulator of biological products, or “biologics,” in the United States.⁷¹ Currently, the FDA has approved more than 20,000 drugs for marketing and sale in the United States.

b. FDA Approval Process for New Drugs.

Before a new small-molecule drug may be legally sold in the United States, the drug manufacturer must submit a New Drug Application (“NDA”) that provides the FDA with certain, specified information, including clinical testing results, to determine whether the drug is safe and effective, whether the benefits of the drug outweigh its risks, whether the drug’s proposed labeling is appropriate, and whether the methods and controls used to manufacture the drug are sufficient to preserve the drug’s strength, quality, and purity.⁷²

Biologics undergo a similar approval process before they may be sold in the United States. To obtain FDA approval, a biologic manufacturer must file a biologic license application demonstrating through laboratory and clinical studies that, among other things, the product satisfies safety, purity, and potency requirements.⁷³ While the federal Public Health Services Act generally governs the approval process for biologics, they are also subject to regulation as “drugs” under the Food, Drug, and Cosmetic Act.⁷⁴

c. FDA Approval Process for Small-Molecule Generic Drugs.

The FDA similarly approves and regulates generic small-molecule drugs, but generic drug manufacturers need only submit an abbreviated new drug application (“ANDA”).⁷⁵ With an ANDA, the generic drug manufacturer relies upon the FDA’s finding of safety and effectiveness for the original, brand name drug to essentially “fast track” the approval process for the generic drug.⁷⁶ To obtain FDA approval, a generic drug manufacturer must generally show that the drug contains the same active ingredients, dosage, and dosage delivery, and is bioequivalent to the original, brand-name drug.⁷⁷ In addition, the generic drug manufacturer must certify either (1) that the brand name drug’s patent has expired or is invalid, or (2) that the generic manufacturer’s sale of the drug will not infringe on any of the brand name drug’s patents.⁷⁸

d. FDA Approval Process for Generic “Biosimilar” and “Interchangeable” Biologics.

Due to the complexities inherent in a drug derived from living organisms, generic versions of biologic drugs are not approved in the same manner as generic small-molecule drugs. Because of complex issues surrounding approval of generic biologics, in 2009, Congress passed the Biologics Price Competition and Innovation Act to allow for the licensure of “biosimilar” drugs.

Biosimilar drugs are biologic products that are similar to a previously-licensed, branded biologic drug. The FDA allows for abbreviated licensure and approval of a biosimilar biologic product if the manufacturer can show, among other things, that the biosimilar drug is highly similar to the original biologic.⁷⁹ In addition, the biosimilar manufacturer must demonstrate that the manner of administration, dosage form, and the strength of the biosimilar is the same as those of the original biologic drug.⁸⁰



“Interchangeable” biologic drugs are biosimilar drugs that, in addition to satisfying the just-discussed requirements, have also demonstrated that among other things, they can be expected to produce the same clinical results as the original biologic in any given patient.⁸¹ As of July 2019, the FDA had not approved an interchangeable biological product.⁸²

2.3.2 Federal Patent and Drug Exclusivity Laws.

a. Federal Patent Laws As Applied to Prescription Drugs.

It is important to note that drug manufacturers can obtain patents on many aspects of a drug, not just the creation of its molecular structure that makes it a “drug” in the first place. Pharmaceutical companies can obtain a patent for a drug’s substance/active ingredient/molecule, its use, its dosage or delivery system, manufacturing process, and for a combination product (i.e., combining two previously known drugs), among other things.⁸³ For example, a company may receive a patent on a newly-discovered drug molecule to treat a particular disease, and then, years later, obtain a new patent related to the same molecule, but in an “extended release” form of the drug. Or the manufacturer may receive a patent for a drug in pill form, then years later, patent a new system whereby the drug can be delivered by placing a dissolving strip on the patient’s tongue. A particular drug may thus be covered by scores of patents, many of which are unrelated to the drug’s active ingredient.

Patent laws allow drug manufacturers to largely control the market for their drugs. A patent is a property right that grants the holder 20 years to exclusively use, enjoy, and profit from their patented invention.⁸⁴ The Patent and Trademark Office is the federal agency that reviews patent applications and grants (or rejects) applications for a particular patent. The applicant for the patent must establish that the invention is novel, useful, and non-obvious.⁸⁵ Patent rights are privately enforced, meaning that a holder of a patent right must sue to stop any alleged infringement, and if they prevail, may seek any damages, including any lost profits. Congress also enacted specialized patent rules for pharmaceuticals in 1984. This law, commonly known as the “Hatch-Waxman Act,”⁸⁶ provides an extension of up to five years, in addition to the original patent term.⁸⁷ The act also provides for patent dispute procedures that apply only to pharmaceuticals.

The FDA publishes all approved brand name drugs in a publication known as the “Orange Book,” which includes a list of all of the patents that a drug manufacturer claims covers a particular drug.⁸⁸ A company seeking FDA approval for a generic drug must, as described above, file an Abbreviated New Drug Application in which the generic manufacturer certifies its drug does not infringe on any patents protecting the branded drug.⁸⁹ If the manufacturer of the branded drug disputes the “no infringement” certification, it has 45 days to file a patent-infringement lawsuit against the generic manufacturer. If a lawsuit is filed, the FDA generally cannot approve the application from the generic manufacturer for 30 months, so as to give the two drug manufacturers time to litigate the patent dispute.⁹⁰

Special patent procedures also govern biologics and biosimilars. Biologic manufacturers do not have to provide patent information in their licensure applications to the FDA. Federal law does, however, provide a process through which the biologic drug manufacturer exchanges information (including applicable patent information) with the applicant for the biosimilar drug about their respective products,⁹¹ which is sometimes known as the “patent dance.” The exchange of information triggers deadlines for the parties to initiate any patent infringement litigation. Similar to the process for small-molecule drugs under the Hatch-Waxman Act, this information exchange process is designed to provide the parties with an opportunity to resolve patent disputes prior to the marketing of the biosimilar.⁹²



b. Federal Exclusivity Law as Applied to Prescription Drugs.

Wholly distinct from the patent rights discussed above, the FDA further grants periods of “exclusivity” in which drug manufacturers are protected from any competition, including generic or biosimilar/interchangeable competition, for a given time period. There are multiple types of exclusivity periods that can apply to prescription drugs, the most significant of which are:

“First Generic” Exclusivity. A particularly important exclusivity for pricing purposes is the FDA’s grant of 180 days of exclusivity to the “first applicant” seeking approval to market generic versions of small-molecule drugs,⁹³ and one year of exclusivity for the manufacturer of the first interchangeable version of a biological product.⁹⁴

“Orphan Drug” Exclusivity. If a small-molecule drug or biologic is designated and approved to treat diseases or conditions affecting fewer than 200,000 people in the United States, or the drug can treat more than 200,000 people but the manufacturer has no hope of recovering its costs, the FDA will not approve another application for the same drug for the same orphan disease or condition for seven years from the time of approval of the original drug.⁹⁵

“New Chemical” Exclusivity. Generally speaking, if a drug contains a new chemical,⁹⁶ the FDA will not approve for five years another drug that contains the same active molecule as in the new chemical entity.⁹⁷

In addition to these exclusivities, the FDA grants several other drug exclusivities, all of which may affect the price of prescription drugs.⁹⁸

2.3.3 The Federal 340B Drug Pricing Program.

The federal 340B Drug Pricing Discount Program (“340B Program”) was established in 1992 after the enactment of the Medicaid drug rebate program. The Health Resources and Services Administration (“HRSA”), an agency within the U.S. Department of Health and Human Services, administers the 340B Program. The purpose of the 340B Program is to enable “covered entities to stretch scarce federal resources as far as possible” to reach “more eligible patients and provid[e] more comprehensive services.”⁹⁹ The 340B Program requires participating drug manufacturers to sell outpatient drugs to eligible facilities and programs, referred to as “covered entities,” at significantly reduced prices in order to have their drugs covered by Medicaid.¹⁰⁰

Covered entities include sixteen eligible purchasing groups, such as qualifying hospitals, specialized clinics, federally qualified health centers (“FQHCs”), and entities referred to as “FQHC Look-Alikes.”¹⁰¹ In Minnesota, there are more than 2,000 covered entities participating in the 340B Program, with over half being “disproportionate share hospitals” who receive payments from the Centers for Medicaid and Medicare Services to cover the costs of providing care to uninsured patients.¹⁰² Hospitals such as Hennepin County Medical Center, part of Hennepin Healthcare, and Abbott Northwestern Hospital, part of Allina Health, participate under this covered entity type.¹⁰³ Examples within other types of covered entities in Minnesota include Mayo Clinic’s Hemophilia Treatment Centers in Rochester, and Min No Aya Win Human Services on the Fond du Lac Reservation in Cloquet.¹⁰⁴ These covered entities can dispense 340B drugs to eligible patients in a variety of ways, including in-office administration, dispensing through an in-house pharmacy, or by contracting with a retail pharmacy to dispense 340B drugs to the patients.



Covered entities may only administer and dispense the 340B drugs to eligible patients, who are defined as individuals who have an established relationship with the covered entity and receive health-care services from a practitioner employed or contracted with the covered entity. An individual is not an eligible patient if the only service received from the covered entity is the dispensing or administration of a drug.¹⁰⁵

The discount on drugs through the 340B Program is significant because the program requires that manufacturers sell drugs at a price no higher than the net price paid by Medicaid. Further, drug manufacturers may offer even lower prices without triggering a new Medicaid “best price.”

Some covered entities pass the lower prices they receive through the 340B Program along to eligible patients. In a 2018 study published by the U.S. Government Accountability Office, 30 of the 55 covered entities surveyed reported providing low-income, uninsured patients discounts on 340B drugs, with 23 covered entities reportedly passing on the full 340B discount on to these low-income patients.¹⁰⁶

Covered entities that do not pass along direct cost savings on 340B drugs to low-income patients may still provide benefits to them through other mechanisms. There are no regulations, however, that require covered entities to pass the savings they receive on the drugs they purchase through the 340B Program on to patients in any particular manner. Accordingly, this has led some to question whether covered entities use the 340B Program as merely another revenue stream, particularly if a health-care provider participating in the 340B Program provides little uncompensated care.

Participation in the 340B Program is voluntary for covered entities. In Minnesota, not all eligible entities have enrolled in the program. Entities may not be aware they are eligible, for example, as FQHC Look-Alikes. In the absence of clear policies and rules for the 340B Program, the requirement to keep auditable records, and the risk of HRSA and manufacturer audits, some eligible entities may choose not to enroll in the 340B Program rather than risk operating in a non-compliant manner. This means some eligible Minnesota entities, and potentially their eligible Minnesota patients, are missing out on significant drug savings by failing to participate in the 340B Program.

2.3.4 Selected Minnesota Laws Regarding Prescription Drugs.

The FDA is the primary regulator of most aspects of drug manufacturing, distribution, and sales practices in the United States. While far less extensive than the federal regulatory framework, Minnesota law also addresses the distribution, sale, and use of prescription drugs in certain instances. For example, the Minnesota Board of Pharmacy regulates, among other things, pharmacies and pharmacists in Minnesota.¹⁰⁷ In addition, the Board of Pharmacy helps ensure the quality of all drugs sold in the state¹⁰⁸ and licenses drug manufacturers operating in Minnesota.¹⁰⁹ Moreover, state law prohibits the manufacture, sale, or delivery of adulterated or misbranded drugs.¹¹⁰

Minnesota has also enacted legislation that helps lower prescription drug costs by encouraging the use of generic drugs. Under Minnesota law, pharmacists may generally substitute generic versions of small-molecule drugs without the doctor’s intervention.¹¹¹ Similarly, pharmacists in Minnesota may substitute any interchangeable biologic for the original branded biologic without the prescribing doctor’s intervention.¹¹² Moreover, in the last legislative session, the Legislature enacted legislation regulating the conduct of PBMs in Minnesota, which will be administered by the Minnesota Department of Commerce.¹¹³



2.4 Examples of Problematic Drug Pricing Practices.

Examples of exorbitant prices being charged for drugs—or significant price increases on new drugs and even drugs long off patent—are troublingly common. Below are four selected case studies that illustrate the problems the recommendations in this report are intended to address.

Case Study #1—EpiPen

Epinephrine, or adrenaline, is used to treat severe allergic reactions known as anaphylaxis. Synthetic epinephrine was first manufactured in 1909. In the 1980s, auto-injector technology was paired with epinephrine, and became available to civilians as the EpiPen. The FDA describes epinephrine auto-injectors as “combination products” because they include both a drug, epinephrine, and the administration device, the auto-injector. The development of generic alternatives for combination products includes recreating both the device and the drug, which is more challenging than developing a generic alternative for a drug alone. As such, EpiPen dominated the market for epinephrine auto-injectors as of 2014, with over 90% market share.¹¹⁴

In 2007, Mylan Laboratories (“Mylan”) bought the rights to sell EpiPen, although it had not developed either the auto-injector or the drug it contains. At the time, each pen cost patients about \$57. In 2011, Mylan announced that it would begin selling EpiPen products exclusively in packs of two. By 2016, after repeated price increases, Mylan was selling EpiPen 2-packs for over \$700, a price increase of more than 500%. Mylan’s profits jumped from \$874 million in 2007—before it acquired EpiPen—to almost \$4.8 billion in 2017. During this period, the pay of Mylan’s CEO rose from nearly \$2.5 million in 2007 to \$97 million in 2016, an increase of more than 3,800%.

At the same time it was raising the price for a drug it neither developed nor manufactured, Mylan repeatedly misclassified the drug as generic, thereby allowing it to pay smaller rebates to the federal government for EpiPen’s use in programs such as Medicaid. In 2017, Mylan paid \$465 million in a settlement with the U.S. Department of Justice over its misclassification of the product as a generic drug.¹¹⁵ This amount represented less than half of its revenue from its sales of EpiPen for just the year of 2015.

Mylan garnered national attention in 2016 for its large price increases on EpiPen. It drew bi-partisan criticism from Congress, as well as from parents who relied on the everyday presence of an EpiPen to keep their children safe. Many patients reacted to the price hike by holding on to their expired EpiPens, attempting to measure out a correct dose of epinephrine in a syringe themselves, or simply living without the security the EpiPen offered until they could afford a new one. Other patients, including parents whose children required EpiPen availability at both school and at home, admitted to splitting their EpiPen 2-pack to save money, despite knowing that two doses may be needed in an emergency situation.

Mylan responded to this criticism by introducing a generic version of the EpiPen in December 2016, which it sold for roughly \$300 for the 2-pack, or roughly triple what its own name-brand pens were selling for in 2007. By comparison, EpiPen 2-packs were available to consumers in Canada for less than \$200, and in the United Kingdom for less than \$80.

Despite the public outrage, Mylan did not significantly reduce EpiPen’s prices. When interviewed about its reluctance to change, former executives commented that the company’s lack of action was in line with Mylan’s history of learning to thrive by absorbing and then ignoring public dismay.¹¹⁶ Mylan and its EpiPen product have thus become “a case study in the limits of what consumer and employee activism, as well as government oversight” in the current regulatory climate can achieve.¹¹⁷



Case Study #2—Lorazepam and Clorazepate¹¹⁸

Lorazepam is a benzodiazepine commonly used as a sedative and to treat anxiety, tension, and insomnia. It was first marketed for sale in the United States in 1977. Clorazepate is also a benzodiazepine and is used to treat anxiety, hypertension and in adjunct therapy for opiate and other types of withdrawal. It was first marketed for sale in the United States in 1972.

As discussed above, drug manufacturers purchase the active ingredients found in the finished-form of their drugs from API suppliers. Often there are only a handful of API suppliers that make a particular active ingredient needed to manufacture a drug. This limited competition among API suppliers is referred to as an “oligopoly” in antitrust jargon. As of the mid-1990s, there were only two API suppliers for the active ingredients needed to make lorazepam and clorazepate.

In 1998, the Minnesota Attorney General’s Office and dozens of other state attorneys general, in conjunction with the Federal Trade Commission, sued Mylan Laboratories—which, in addition to EpiPens, manufactures generic lorazepam and clorazepate—for successfully seeking to monopolize the APIs needed to make these two drugs. Mylan did so, the lawsuit alleged, by negotiating the exclusive rights to purchase the relevant active pharmaceutical ingredients for these drugs from the only two API suppliers of the ingredients. These exclusive contracts were to last for ten years, thereby denying Mylan’s rivals’ access to the APIs required to manufacture competing versions of generic lorazepam and clorazepate.

Following these negotiations, Mylan increased the price it charged for lorazepam by amounts ranging from 1,900% to 2,600% (for example, it increased the price for a 500 count bottle of lorazepam from \$7.30 to \$191.00). It similarly increased the price of clorazepate by amounts ranging from 1,900% to 3,200% (for example, it increased the price for a 500 count bottle of clorazepate from \$11.36 to \$377.00).

Case Study #3—Insulin

About 330,000 people, or nearly 8% of Minnesota residents, have diabetes.¹¹⁹ Diabetes and pre-diabetes related costs in Minnesota total about \$4.4 billion per year.¹²⁰ Insulin was first discovered in 1922. To ensure it would be available to the public, the scientists who created the original method for insulin treatments sold the patent for \$1 to the University of Toronto. Despite the original patent expiring long ago, the price of insulin has skyrocketed since the 1990s. The price for some insulin products has increased more than 1,100% over the last two decades,¹²¹ and diabetics’ insulin costs doubled between 2012 and 2016 alone, now averaging about \$5,705 a year.¹²² This has led to some diabetics rationing their insulin because they cannot afford the medication, sometimes with tragic results.¹²³

A large driver of these price increases is the prevailing rebate practices between insulin manufacturers and PBMs. Manufacturers raise their insulin prices so they can offer PBMs larger rebates off of these prices. In return, PBMs provide more favorable payment terms to a particular manufacturer’s insulin—instead of a competitor’s insulin—when it is later dispensed to a diabetic at a pharmacy. Put more simply, manufacturer-PBM rebate practices are driving up insulin prices because manufacturers now compete to offer the largest rebates, not the lowest priced insulin. Manufacturers increasing their prices, in turn, allows them to offer larger rebates to PBMs while still holding their post-rebate, net price—and hence their profits—steady.¹²⁴



Case Study #4—Valeant Pharmaceuticals, now known as Bausch Health Companies.

Valeant Pharmaceuticals International (“Valeant”) is a multinational health-care company based in Canada that sells, among other things, brand name, branded generic, and generic prescription drugs. In 2008, under the leadership of a new CEO, J. Michael Pearson, Valeant began rapidly and aggressively acquiring existing drug manufacturers. After doing so, it typically slashed these companies’ research activities and fired much of their staff. Through this business strategy, Valeant acquired decades-old, off-patent drugs, many of which had little, if any, competition. After acquiring the drugs, Valeant sharply increased their prices, and hence its profits.

In 2010, for example, Valeant acquired the drugs Cuprimine and Syprine as part of its acquisition of the specialty drug company, Aton Pharma. For decades, Cuprimine and Syprine had been used to treat Wilson’s disease, a potentially deadly disease characterized by the body’s inability to process copper. From the time Valeant purchased these drugs to the summer of 2015, it cumulatively increased the price of Cuprimine by 5,786% and Syprine by 3,161%.¹²⁵

Similarly, in 2015 Valeant acquired Salix Pharmaceuticals and increased the price of its diabetes medication, Glumetza, by 800%.¹²⁶ That same year, Valeant purchased the rights to two life-critical cardiac drugs, Isuprel and Nitropress, and increased their prices overnight by 525% and 212%, respectively.¹²⁷ During a 2015 investigation of Valeant by the House Committee on Oversight and Government Reform,¹²⁸ the Committee obtained documents indicating that Valeant purchased Isuprel and Nitropress for the sole purpose of later increasing these drugs’ prices and thus Valeant’s revenues. These documents also demonstrated that Valeant “identified goals for revenues first, and then set drug prices to reach those goals.”¹²⁹ All told, Valeant raised the price of more than 20 of its other drugs by at least 200% between 2014 and 2015.¹³⁰

In the fall of 2015, Valeant’s business practices began to receive significant congressional and regulatory scrutiny, causing its stock price to plunge. In the summer of 2018, Valeant changed its name to Bausch Health Companies in an attempt to distance itself from the controversies resulting from its dramatic drug price increases and the ensuing investigations of its business practices.

2.5 How High Drug Prices and Price Increases Affect Minnesotans.

High pharmaceutical drug prices affect different groups of Minnesota patients and entities in different manners, sometimes due to differing insurance coverage and sometimes for other reasons.

2.5.1 Impact on Insured & Underinsured Minnesotans.

Approximately 152 million Americans receive health insurance coverage through their employers,¹³¹ including many Minnesotans. But even among people who have employer-sponsored insurance, many are considered “underinsured” because they still incur significant out-of-pocket costs to pay for prescription drugs and other medical care not paid for by their health plan.¹³² As of 2018, about a quarter of all persons with health insurance were considered “underinsured.”¹³³ High and increasing drug prices impact insured and/or underinsured persons in a number of ways.



First, as health plans' spending on drug costs increases, it—in combination with the increased cost of other medical care—puts upward pressure on premiums. Employers, in turn, are asking their employees to shoulder an ever larger share of health plan premiums. As of 2017, Minnesota families with health insurance paid on average \$4,998 per year in out-of-pocket costs towards their health insurance premiums.¹³⁴

Second, employers and individuals are increasingly turning to high-deductible health plans as a way to reduce the premiums they must pay for the plan. Those covered by high deductible health plans have to pay the cost of the drugs they need out of pocket until their deductible is met each year. IRS regulations define a high deductible health plan as any plan with a deductible of at least \$1,350 for an individual or \$2,700 for a family.¹³⁵ In practice, however, such deductibles can be far higher for individuals or families. For example, one Minnesota employer offers plans with deductibles of up to \$3,150 for single coverage and \$6,300 for family coverage.¹³⁶ As of 2018, almost 46% of Americans are covered by a high deductible health plan.¹³⁷ This results in insurance coverage paying less and less of the cost of the medications these patients need because they never reach their deductible.

Third, some health plans require members to make a “co-insurance” payment when purchasing a drug that the plan covers. Co-insurance payments are typically a percentage of the price of the drug being purchased (e.g., 20%), as opposed to a “copayment,” which is typically a flat fee regardless of the cost of the drug (e.g., \$50). As the price of drugs increase, the burden of Minnesotans' covered by health plans that impose co-insurance payments likewise increases.

Fourth, health plans are sometimes limiting or even excluding certain drugs from being covered by insurance at all. This often is done through periodic adjustments to the list of drugs included on a health plan's formulary, or through pre-certification practices like prior authorization or step therapy. If a medication is not covered by the health plan, generally patients must pay the entire cost out of pocket, notwithstanding that they are insured.

2.5.2 Impact on Uninsured Minnesotans.

In 2018, 13.3% of non-elderly Americans did not have health insurance.¹³⁸ The impact that high and increasing drug prices have on those without insurance is not a mystery—they are often crippling because such persons pay for the entirety of the drugs that they buy. As a result, more than half of people who were uninsured at some point in 2018 were forced to forgo medical care despite a need for it, such as not filling prescriptions, skipping recommended testing or treatment, not seeing a doctor despite experiencing a health issue, or not receiving needed specialist care.¹³⁹

2.5.3 Impact on Minnesota Seniors.

High drug prices are especially problematic for seniors, who tend to use a higher amount of prescription medications than non-seniors and who may live on a fixed or modest annual income, such as Social Security or a pension. According to a recent Kaiser Family Foundation (“KFF”) poll, 89% of seniors report taking at least one prescription medication, and more than half take four or more drugs.¹⁴⁰ The median yearly income of seniors on Medicare is just \$26,000, with a quarter of beneficiaries reporting incomes of less than \$15,000.¹⁴¹ Not surprisingly, 76% of seniors think the cost of prescription drugs is unreasonable, and nearly a quarter who take at least one drug report difficulty affording their medications.¹⁴²

In this same poll, nearly three quarters of seniors reported that they receive prescription drug coverage through Medicare Part D.¹⁴³ Medicare Part D can be expensive for those who find themselves in a coverage gap called the “donut hole,” which, for 2019, is triggered when an enrollee incurs \$3,820 in drug expenses. Once in the donut hole, enrollees pay up to 25% of the costs for brand-name drugs and 37% of the costs for generics.¹⁴⁴ Once the enrollee



has paid \$5,100 in drug costs out of pocket, he or she then qualifies for what is called “catastrophic coverage,” bringing their expense down to no more than 5% of the cost of each drug.¹⁴⁵

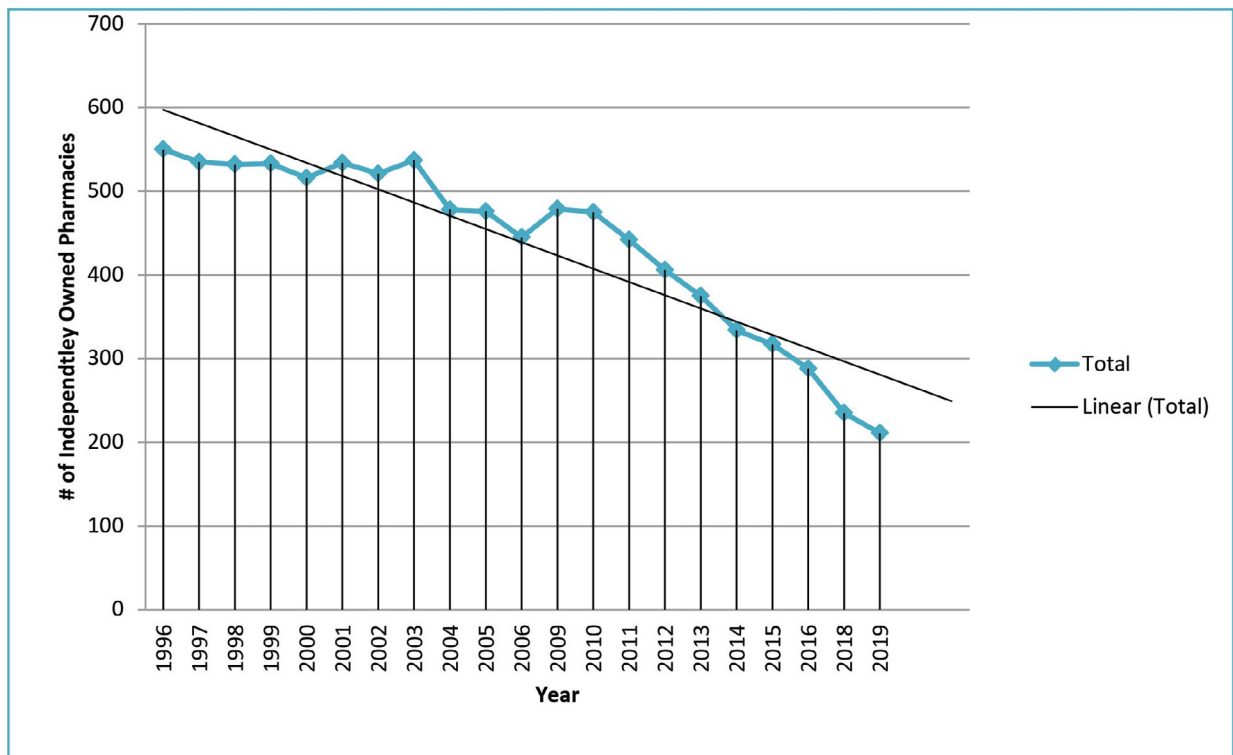
Seniors in the donut hole tend to pay far more for prescription medications. For example, in 2016, seniors with drug spending below the donut hole had an average out-of-pocket expense of \$268. Seniors with drug spending significant enough to enter the donut hole had an average out-of-pocket expense of \$1,175, while seniors with drug spending in the catastrophic range averaged \$3,196. These statistics did not include seniors that received low-income subsidies.¹⁴⁶

The KFF poll indicated that despite the fact that nearly all respondents had some form of drug coverage, as many as 21% of the seniors reported not taking medications as prescribed due to high drug costs.¹⁴⁷ These seniors reported not filling a prescription, taking over the counter medicines instead of those prescribed by their doctors, and cutting pills in half or skipping doses.¹⁴⁸ Compounding the problem, more than half failed to report this behavior to their doctors.¹⁴⁹ The troubling result is that 22% of the seniors who failed to take medication as prescribed reported that their health worsened as a result.¹⁵⁰

2.5.4 Impact on Independent Minnesota Pharmacies.

Independent pharmacies in Minnesota and elsewhere are a vital source of care for patients. The number of independent pharmacies in the United States continues to decline each year. In 2011, there were approximately 23,100 independent pharmacies; by 2017, that number dipped to less than 22,000. The number of independent pharmacies in Minnesota has experienced an even steeper decline, from about 550 in 1996 to just over 200 today:¹⁵¹

Independently-Owned Pharmacies in Minnesota, 1996 – 2019



Approximately 75% of independent pharmacies serve populations areas of 50,000 or fewer. It is thus critically important to take into account the impact of high drug prices on such pharmacies when attempting to address the issue, and to ensure that residents who live in greater Minnesota continue to have access to the prescription drugs they need.

Independent pharmacies face several difficulties that large pharmacy chains do not. One of them is often onerous and opaque “direct and indirect remuneration” (“DIR”) fees.¹⁵² Some PBMs charge independent pharmacies—who often accept a significant number of Medicare and Medicaid patients and have small profit margins—DIR fees months after a drug has been dispensed to a patient. By levying DIR fees on pharmacies PBMs effectively reduce the amount the PBM pays a pharmacy for the drugs it dispenses to patients, saving the PBM money and also obscuring the true amount a pharmacy is paid by a PBM.

Another challenge for independent pharmacies is that PBMs sometimes direct or “steer” patients to brick-and-mortar or mail-order pharmacies that they own.¹⁵³ They do this through pharmacy network restrictions, offering lower out-of-pocket costs to patients who patronize their own pharmacy, or limiting other pharmacies’ ability to dispense 90-day supplies of prescription medications, which are often preferable to patients. For example, CVS operates as both a network of pharmacies and also as a PBM (CVS Caremark and SilverScript). In doing so, CVS’s PBM steers patients to its own pharmacy managed networks, thereby reducing the number of pharmacies available to CVS patients in exchange for supposed pharmacy savings.

In short, as a former president of the National Community Pharmacists Association explained, “When prices go up, payers—be they health plans or employers or PBMs on behalf of their clients—want a cut and where do they turn to cut first? The easiest target is our [pharmacy] reimbursement.”¹⁵⁴

2.5.5 Impact on Minnesotans of Color.

High prescription drug costs present unique challenges for people of color. One such hurdle is the higher un-insurance rates among people of color. According to a 2017 Kaiser Family Foundation survey, while 4% of Minnesota’s nonelderly white population lacks insurance coverage, 7% of African Americans, 18% of Hispanics, and 22% of Native Americans lack insurance coverage.¹⁵⁵

In addition, some providers believe in and act on some racist myths that can lead to limited access to and affordability of prescription medications for people of color. For example, a 2016 survey of white medical students revealed that half of them held at least one false belief about physiological differences between black patients and white ones, such as the idea that black people have less sensitive nerve endings or thicker skin than white people.¹⁵⁶ Not surprisingly, African Americans and Hispanics are more likely than whites to receive lower doses of pain medication or none at all, despite higher pain scores.¹⁵⁷ This disparate treatment of pain persists even in hospice settings.¹⁵⁸ Some providers’ hesitation or refusal to prescribe pain-reducing medications for people of color despite the fact that white people are more likely than African Americans and Latino/as to misuse these types of drugs.¹⁵⁹

Misuse of race in pharmacogenomics—a field of research that studies how a person’s genes affect how he or she responds to medications—can also lead to increased medication costs for people of color.¹⁶⁰ The history and development of a drug called “BiDil” illustrates this point.¹⁶¹ BiDil is a combination of two preexisting generic drugs that have long been used to treat heart failure, regardless of the race of the patient. Despite a lack of scientific evidence that race has any relationship to BiDil’s effectiveness, a company called NitroMed was able to obtain race-specific FDA approval for the drug. NitroMed relied on a trial that enrolled only African Americans and then



used the results to argue the drug provided specific benefits to them. By marketing BiDil as a race-specific drug, NitroMed was able to extend its patent on BiDil, and thus its control over the profits by 13 years. The ability to obtain race-specific patents exists despite the lack of evidence that race is a relevant biological variable in assessing the safety or efficacy of drugs. As one author put it, “[p]ooling people in race silos is akin to zoologists grouping raccoons, tigers and okapis on the basis that they are all stripey.”¹⁶²



3. Significant Causes And Contributors Resulting In High Prescription Drug Prices.

There are legions of causes, perverse economic incentives, and other factors that contribute to the high and ever-increasing cost of prescription drugs in the United States. Discussion of every such factor is beyond the scope of the Task Force's report, so the discussion in this section focuses on seven of the most significant causes of high drug prices:

- 3.1 misuse and abuse of federal patent and drug exclusivity laws;
- 3.2 patients' inability to access more affordable sources of medications through safe, vetted importation channels;
- 3.3 anticompetitive conduct that occurs in the drug industry;
- 3.4 deceptive and other unlawful marketing practices used in the drug industry;
- 3.5 the opacity of, and conflicts of interest present in, PBMs' business models;
- 3.6 perverse economic incentives that result in more expensive branded drugs being used even when generics are available; and
- 3.7 the lack of transparency into pricing and other practices in the pharmaceutical industry.

3.1 The Misuse and Abuse of Patent, Exclusivity, and Related Laws to Insulate Drug Manufacturers From Competition Significantly Contributes to High Prescription Drug Costs.

3.1.1 Misuse and Abuse of Patent Laws.

As discussed above, a single drug may be covered by dozens of patents. This is sometimes called a "patent thicket." Relatedly, some drug makers will file successive patents on a drug with the same active chemical ingredient, a practice sometimes referred to as "evergreening" or "patent layering."¹⁶³ For example, AbbVie filed 247 patent applications for Humira, which is used to treat arthritis and is the top-selling drug in the world. A total of 132 of those patents were issued, resulting in 39 years of patent protection.

Often, the patents making up a patent thicket or the successive patents that constitute evergreening cover only minor innovations or improvements, and may offer little to no therapeutic benefit to patients taking that particular drug. Still, such abuse of patent laws allows a manufacturer of a brand name drug to effectively extend the artificial monopoly provided by patent protections on the branded drug, thereby delaying entry into the market of a competing generic version of the same drug. The price on the brand-name drug protected by a patent thicket or evergreening



stays high because there is no competition. This hurts patients and others who pay for the drug because the first generic on the market can lead to a price drop of 20%. When multiple generics are competing, prices can go down by 80% to 85%.¹⁶⁴

3.1.2 Misuse and Abuse of Drug Exclusivity Laws.

Proponents of FDA exclusivities argue that they provide incentives for drug manufacturers to create new drugs. As with patents, however, these exclusivities can be manipulated to artificially protect drug manufactures from competition, leading to significantly higher drug prices.

Perhaps the most widely abused FDA exclusivity is the “orphan drug” exclusivity. In 1983, Congress passed the Orphan Drug Act with the goal of encouraging drug manufacturers to develop drugs to treat rare diseases and conditions, such as ALS and Huntington’s disease.¹⁶⁵ The act as originally designed allowed drug manufactures to have seven years of exclusivity—in addition to tax credits and FDA fee reductions—to recoup investments on research and development for new drugs likely to have reduced sales due to small patient populations. This granting of an artificial monopoly, however, has given drug makers a virtually unfettered ability to raise drug prices during the exclusivity period. By 2014, the average annual price for an orphan drug was \$111,820, versus \$23,331 for a mainstream, non-orphan drug.¹⁶⁶ By 2017, the world’s 10 most expensive drugs were all orphan drugs.

The orphan drug exclusivity grant has also morphed into a vehicle for drug manufacturers to insulate themselves from competition for even well-established drugs that treat large patient populations. By 2015, seven of the top ten best-selling drugs in the United States had also won designation as orphan drugs. Drug companies can achieve this designation for even widely used drugs by the so-called “salami slicing” of a drug’s approved treatment indication into ever narrower indications for disease subtypes until they can qualify for orphan drug status.¹⁶⁷ For example, Humira, the best-selling drug in the world—with \$19.9 billion in worldwide sales in 2018 alone—was originally approved by the FDA in 2002 to treat rheumatoid arthritis.¹⁶⁸ Three years after the drug’s initial approval the manufacturer of Humira, AbbVie, sought orphan drug status for the drug to treat juvenile rheumatoid arthritis. The FDA approved this use in 2008. Since that approval, AbbVie has obtained approval for Humira to treat four more rare diseases, and one approved use of Humira for an eye disease extends the drug’s exclusivity for that disease until 2023. While orphan disease uses of Humira likely constitute less than 25% of the drug’s total sales,¹⁶⁹ even just 10% of total sales amounts to more than \$1 billion in sales per year.¹⁷⁰

Brand name drug makers also abuse orphan drug exclusivity in other ways. For example, in the late 1990’s, Roche’s brand-name drug Rituxan was initially approved to treat only a rare type of non-Hodgkin’s lymphoma that affected approximately 14,000 patients per year.¹⁷¹ After receiving orphan drug exclusivity, however, Roche obtained approval to use Rituxan to treat a variety of much more common conditions, including rheumatoid arthritis. By 2017, Rituxan had \$7.9 billion in worldwide sales. Such tactics can allow brand name drug companies to claim seven years of FDA marketing exclusivity, reduced FDA application fees, and tax subsidies intended to foster the creation of true orphan drugs, all while reaping the benefits of sales to much larger patient populations than Congress intended when it established orphan-drug exclusivity.

Neither is the abuse of exclusivity laws confined to orphan drug exclusivity. For example, in order to sell a prescription drug “over the counter” or in a different dosage form, the drug manufacturer must file a supplemental NDA seeking FDA approval.¹⁷² However, because FDA approval of a supplemental NDA grants three years of additional exclusivity for the new indication, drug manufacturers often delay filing a supplemental NDA until existing patent and exclusivity protections have almost expired, thus insulating the drug from generic competition



on the new approved indication.¹⁷³ Moreover, because the FDA grants three years of exclusivity for certain clinical investigations deemed “essential” to the approval of an NDA or supplemental NDA of a drug,¹⁷⁴ to obtain additional exclusivity drug manufacturers will often delay studies or conduct internal clinical investigations near the end of existing exclusivities, thus delaying drug innovation and increasing drug prices.

Additionally, when generic competition becomes inevitable, brand name drug manufacturers may release their own “authorized generic” version as the first generic version of the brand name drug. This allows the brand name drug manufacturer to obtain 180 days of exclusivity protection from true generic drug competition, thus further delaying the price reductions that generic drug competition brings.¹⁷⁵ For example, when PDL Biopharma discovered that a competitor was planning to develop a generic version of Tekturna, a blood pressure medication, PDL developed its own authorized generic version of the drug. PDL’s CEO admitted that the authorized generic version of Tekturna “was timed to secure us the benefit of being first to market” for a generic version of the drug.¹⁷⁶

3.1.3 Misuse and Abuse of Citizen Petitions and REMS Protocols.

Citizen Petitions. Under federal law, any “interested person” may file a petition with the FDA requesting that the FDA take action, including on a pending application for approval of a generic or biosimilar drug.¹⁷⁷ These are commonly referred to as “citizen petitions.” While citizen petitions provide an important conduit for the exercise of the First Amendment right to petition the government, they can be subject to abuse in the form of branded drug manufacturers frivolously questioning the safety and efficacy of proposed generic drugs.¹⁷⁸ The former Chief Counsel for the FDA has stated that these meritless citizen petitions “appear designed not to raise timely concerns with respect to the legality or scientific soundness of approving a drug application, but rather to delay approval by compelling the [FDA]” to review late-presented arguments.¹⁷⁹ By doing so, citizen petitions can delay the entry of generic drugs into the market, allowing branded drug manufacturers to enjoy monopolistic pricing power for longer than they would otherwise be entitled.

REMS Protocols. To obtain FDA approval for a generic drug, the generic manufacturer will have to conduct certain dissolution and bioequivalence tests on the branded drug (known as the “Reference List Drug” or “RLD”) with which it will compete. To do that, the generic manufacturer must obtain thousands of samples of the drug. For most drugs, the generic manufacturer can simply buy the drug from a wholesaler. Some drugs, however, are subject to a Risk Evaluation and Mitigation Strategy (“REMS”) protocol. A REMS protocol often consists of a series of requirements and processes imposed by the FDA to ensure the safety of the drug at issue, such as certification of prescribers or pre-prescription liver testing of patients, and can even include restrictions on distribution of the drug. If a generic manufacturer wants to compete with a branded drug that is subject to a REMS protocol, the generic manufacturer must establish an identical program.¹⁸⁰

Some branded manufacturers will misuse REMS protocol to deny a generic manufacturer access to the drug. To prevent this anticompetitive practice, the FDA has developed a program by which a generic manufacturer can obtain a letter from the FDA stating that the FDA will not consider providing access to the drug a violation of the REMS protocol. But this, in turn, has resulted in some branded drug manufacturers actually patenting the REMS protocol itself, which may subject the generic manufacturer to a patent infringement lawsuit when it attempts to implement its own, equivalent REMS protocol regarding its competing generic drug.¹⁸¹



3.2 Patients' Inability to Access More Affordable Sources of Medications Through Safe, Vetted Importation Programs Contributes to High Prescription Drug Costs.

Although the opaque nature of the United States' health-care system makes it difficult to compare prescription drug prices in the United States with those of other countries, it is clear that the United States spends far more money per capita on prescription drugs than any other high-income country and this gap in spending is continuing to grow. One analysis found, for example, that Crestor, a medication used to lower high cholesterol and triglyceride levels, costs \$86.40 per month in the United States and only after discounts are applied. Compare that to Canada, where Crestor costs \$32.10 per month; Japan, where it costs \$28.80 per month; and France, where it costs \$19.80 per month.¹⁸² Similarly, Humira, a biologic drug used to treat rheumatoid arthritis, costs \$2,504.50 per month after discounts in the United States, compared to \$1,164.32 in Canada, \$980.34 in Japan, and \$981.79 in France.¹⁸³ The disparity in drug prices between the United States and other countries is not unique to these two medications: it exists across a wide variety of brand-name, generic, and biologic prescription drugs.

In light of the disparities in drug prices between the United States, Canada, and other developed countries, many have proposed importing lower-priced drugs from elsewhere, with Canada being the most discussed option. The majority of Americans support importation as a potential solution to access cheaper prescription drugs. A 2019 survey found that 80% of Americans support allowing the purchase of prescription drugs imported from Canada.¹⁸⁴

Federal law, however, generally prohibits the importation of non-FDA-approved medications into the U.S., including FDA-approved drugs produced outside the U.S. that have not been evaluated through the FDA process.¹⁸⁵ The federal Food, Drug, and Cosmetic Act ("FDCA") establishes two exceptions to this rule. First, one part of the law gives the Secretary of the Department of Health and Human Services ("HHS") authority to promulgate regulations to establish an importation program from Canada if the Secretary finds the program would pose no additional risk to the public and would significantly reduce the cost of drugs to U.S. patients. Second, the FDA may allow temporary importation when a drug is in shortage. Additionally, the FDA has allowed individuals to bring into the U.S. a small amount of an unapproved drug for personal use "where effective treatment is not available in the United States, it is for the treatment of a serious medical condition, and there is no commercialization of the drug to U.S. residents."¹⁸⁶

Several states, including Vermont, Colorado, and Florida, recently passed drug importation legislation that authorizes them to seek federal approval to import prescription drugs from Canada. To date, no state has sought and gained federal approval. Previous attempts by states to allow the importation of prescription drugs from foreign countries have failed because HHS opposed them due to safety concerns.

On July 31, 2019, the HHS and the FDA announced the "Safe Importation Action Plan," which describes two potential pathways for establishing an importation program. The first would involve establishing new regulations that would allow "States, wholesalers, or pharmacists [to] submit plans for demonstration projects for HHS to review outlining how they would import Health-Canada approved drugs."¹⁸⁷ The second pathway would allow manufacturers of FDA-approved drugs to import to the U.S. the versions of the drugs that they sell in foreign countries and then re-sell these imported drugs at lower prices here, if they establish that the foreign version is the same as the U.S. version.

While all of these importation plans are in the early stages, those focused on importing drugs from Canada have raised concerns over the possible effect on Canada's pharmaceutical drug supply and potential price increases on pharmaceutical drugs for Canadians. Canada has only approximately 38 million residents compared to the 330 million people that live in the United States. This raises questions about Canada's ability to be an adequate source



of supply for any drugs sought to be imported on a nationwide basis. Thus, any large-scale importation plan could face roadblocks in Canada, and suggests that any importation of lower-priced drugs will have to be sourced from other nations in addition to Canada.

3.3 Anticompetitive Conduct in the Drug Industry Significantly Contributes to High Prescription Drug Costs.

Anticompetitive conduct is pervasive in the drug industry. Some types of anticompetitive conduct that have been particularly prominent in the industry over the last two decades and that have contributed to high drug prices are: (1) drug “product hopping,” which effectively coerces patients to use high-priced, brand-name drugs subject to patent protection, (2) “pay for delay” arrangements that drug manufacturers use to delay competition from cheaper, generic drugs, (3) per se anticompetitive conduct by drug manufacturers that continues despite it being clearly unlawful, and (4) significant industry consolidation among drug manufacturers.

3.3.1 Drug “Product Hopping” Prevents Patients’ from Switching to Cheaper Generic Drugs, Resulting in Their Continued Use of Higher-Priced Branded Drugs.

As discussed above, when a manufacturer creates a new drug they are granted artificial monopoly power over the drug for a period of time through federal patent or drug exclusivity laws (or both). Because of this grant of a monopoly, it is more profitable to sell the drug during the time period the manufacturer’s patent or exclusivity rights protect it from competition. When the monopoly period ends and generic versions of the drug can more easily enter the market, prices—and profits—often fall significantly. This provides a strong incentive for branded drug manufacturers to try to extend the period the drug is covered by patent or exclusivity rights. One method of doing so is called drug “product hopping.”

In a product hop, a branded drug manufacturer, typically shortly before its patent or exclusivity rights expire, makes minor changes to some aspect of a drug besides its substance/active ingredient/molecule. After doing so, the manufacturer secures additional patent or exclusivity rights to the “new” version of the drug, and ceases selling the prior version. Generally, the minor alterations made to the drug are not intended to change its effects, but to maintain the manufacturer’s monopoly pricing power.

Accordingly, in a product hop case, a manufacturer is not making a new or superior product; the manufacturer is instead exploiting patent or exclusivity laws to extend its monopoly power and keep other, cheaper generic equivalent drugs from entering the market. While product hopping has been held to likely violate antitrust laws,¹⁸⁸ it is still a common practice in the drug industry.

One recent example of this practice regards the drug Suboxone, made by Indivior, Inc. Suboxone is a very profitable drug used to treat opioid withdrawal. More than 40 state attorneys general, including Minnesota, filed a lawsuit against Indivior in 2016 alleging unlawful product hopping.¹⁸⁹ The lawsuit claims that, as Indivior’s period of exclusivity on the tablet-form Suboxone was coming to an end, it created a therapeutically identical film-strip version of Suboxone, which it patented. Indivior then shifted the market to the newly patented, film-strip version of the product by falsely claiming that it was safer than the tablet form, delaying the entry of generic versions of Suboxone tablets to market.¹⁹⁰



3.3.2 Drug Manufacturers Routinely Enter Into “Pay for Delay” Arrangements that Delay the Introduction of Cheaper, Generic Drugs.

Similar to product-hopping, “pay for delay” arrangements between drug manufacturers are a way to delay competition from lower-priced generic drugs. Pay for delay agreements begin when a generic manufacturer files an Abbreviated New Drug Application with the FDA to manufacture a generic version of a branded drug. Once this occurs, the branded manufacturer has 45 days to dispute, by filing a lawsuit, the generic manufacturer’s certification to the FDA that producing the generic version of the drug will not infringe on the branded manufacturer’s patent rights.

In litigation, a defendant typically pays a plaintiff to settle a lawsuit. In a patent case, this means that a generic manufacturer (i.e., the defendant) would pay the branded manufacturer (i.e., the plaintiff) to settle the lawsuit. But in a pay for delay arrangement, the exact opposite occurs—the branded manufacturer, whose patents are allegedly being infringed, actually pays the generic manufacturer, who is allegedly doing the infringing. In exchange for this payment, the generic drug manufacturer agrees to delay introducing its generic version of the drug into the market until a certain amount of time has passed. These counterintuitive payment arrangements are also sometimes called “reverse payment settlements.”

Regardless of what they are called, the essence of these arrangements is that a branded drug manufacturer pays a rival generic manufacturer not to compete with it by delaying introduction of the rival’s generic drug into the U.S. market, leaving the branded drug as the only one available. In some cases, while generic drugs have competed with branded drugs in other countries around the world, pay-for-delay arrangements have resulted in the absence of such competition—and the reduced prices it would bring—in the United States.¹⁹¹

3.3.3 Even Per Se Unlawfully Anticompetitive Practices, Such as Price Fixing, Remain a Problem in the Drug Industry.

Due to a variety of factors, conduct that is patently unlawful is still troublingly common in the drug industry. Price fixing is just one example of such conduct. It has long been “per se” unlawful for two rivals to fix the price of the competing products that they each sell.¹⁹² Nevertheless, drug manufacturers have been repeatedly accused¹⁹³ of fixing drug prices, including in an ongoing price-fixing lawsuit brought by Minnesota and 48 other state attorneys general in federal court in Pennsylvania.¹⁹⁴ The lawsuit alleges that for many years, generic manufacturers have participated in a per se anticompetitive scheme whereby each one agreed that it would only sell to certain customers and avoid price competition to maintain what they believed was their “fair share” of the market for the drugs at issue. Later, these manufacturers altered their alleged scheme to implement simultaneous price increases for their competing generic drugs, with some of these increases exceeding 1,000%. Typically, “[f]or drugs that attract a large number of generic manufacturers, the average generic price falls to 20% or less of the price of the branded drug.”¹⁹⁵ Because of the alleged price-fixing agreement among competing generic manufacturers, however, the normal effects of competition did not occur. As a result, these generic manufacturers significantly increased their profits at the expense of patients being able to buy cheaper prescription drugs.

3.3.4 Consolidation has Significantly Reduced the Number of Competitors in the Drug Industry.

Finally, as in many industries, mergers and acquisitions between pharmaceutical companies can affect the price and quality of their products. Large mergers have been the norm in the drug industry over the last twenty years, with one of the more recent being a \$74 billion deal between Bristol-Myers Squibb and Celgene, two of the largest American drug companies. Other significant mergers and acquisitions among drug manufacturers since the 1990s include the following:



- Amgen's acquisition of Otezla in 2019 (\$13.4 billion);
- Takeda Pharmaceutical's acquisition of Shire in 2018 (\$62 billion);
- Johnson & Johnson's acquisition of Actelion in 2017 (\$30 billion);
- Abbott Laboratories' acquisition of St. Jude Medical in 2016 (\$25 billion);
- Shire's acquisition of Baxalta in 2016 (\$32 billion);
- Bayer's acquisition of Monsanto in 2016 (\$66 billion);
- Actavis' acquisition of Allergan in 2014 (\$66 billion);
- Glaxo Wellcome's merger with SmithKline Beecham in 2000 (\$64.3 billion);
- Pharmacia & Upjohn's merger with Monsanto in 1999 (\$26.5 billion); and
- Pfizer's acquisition of Warner-Lambert in 1999 (\$90.27 billion).

As the pharmaceutical industry grows more and more consolidated, these mergers cause increasing concern. Consolidation among drug manufacturers presents several problems from a competition standpoint. Fewer major players means less competition and potentially higher prices. It can also discourage research and development for new drugs, as large companies may find it more profitable to simply buy companies that own new drugs, instead of investing in developing new drugs.

Mergers in other parts of the drug industry, such as the recent merger between CVS (representing America's largest retail pharmacy chain, plus a PBM) and Aetna (the third-largest health insurer in the United States), can also cause prices to rise by constraining competition. Because of the complex supply chains and payment schemes for prescription drugs, as discussed above, antitrust enforcers must monitor excessive consolidation in many different parts of the industry.

3.4 Deceptive and Other Unlawful Marketing Practices in the Drug Industry Significantly Contribute to High Prescription Drug Costs.

Drug manufacturers for decades primarily marketed their pharmaceuticals directly to health-care providers. But "direct-to-consumer" advertising of prescription drugs by manufacturers—that is, marketing a drug directly to patients, such as in an advertisement on TV—exploded after the FDA loosened restrictions on this practice in 1997. From 1997 through 2016, direct-to-consumer advertising has been the fastest growing form of marketing for prescription drugs, with spending on these type of ads increasing "from \$1.3 billion (79,000 ads) in 1997 to \$6 billion (4.6 million ads, including 663,000 TV commercials)" in 2016.¹⁹⁶ The United States is one of only two countries in the world—the other being New Zealand, which has a population of only four million people—that permits direct-to-consumer advertising of prescription drugs.¹⁹⁷

Studies have found that direct-to-consumer advertising leads to increased patient requests for high-cost, brand-name drugs—despite the availability of cheaper generic substitutes—as well as greater costs resulting from increased visits with health-care providers. For example, the House Commerce Committee found in 2008 that "[e]very \$1 spent on direct-to-consumer advertising results in up to a \$6 increase in sales. One study demonstrated that every \$1,000 spent on direct-to-consumer advertisements resulted in 24 new prescriptions."¹⁹⁸

This has led to concerns that direct-to-consumer advertising may be placing added pressure on physicians to prescribe expensive, branded drugs that are heavily advertised to, and subsequently requested by, patients. As a result, the American Medical Association in 2015 called for a ban on direct-to-consumer advertising, explaining that "a growing proliferation of ads is driving demand for expensive treatments despite the clinical effectiveness of less costly alternatives," and continuing that "direct-to-consumer advertising also inflates demand for new and more expensive drugs, even when these drugs may not be appropriate."¹⁹⁹



Such advertisements further frequently tout the discount coupons and patient assistance programs that can help a patient afford the advertised drugs.²⁰⁰ As discussed further below,²⁰¹ “these strategies have been criticized for encouraging use of expensive drugs despite lower-cost options, undermining insurance design, diminishing competitive pressure to lower prices, and ultimately shifting higher costs back to payers.”²⁰²

Despite the significant increase in direct-to-consumer advertising, the FDA has issued a decreasing number of violation letters to manufacturers since 1997 (156 violation letters) through 2016 (11 violation letters).²⁰³ This may be due to the FDA being “overwhelmed by the massive increase in promotional submissions” by manufacturers.²⁰⁴ It seems unlikely that the FDA’s absence of regulatory action is attributable to a lack of problematic advertising practices by manufacturers. Indeed, since 2007, the U.S. Department of Justice and state attorneys general entered into approximately 103 settlements with manufacturers over their allegedly unlawful marketing practices, resulting in more than \$10.5 billion in financial penalties being imposed.²⁰⁵ Most commonly, these unlawful practices included manufacturers advertising their prescription drugs for off-label purposes.²⁰⁶ The Minnesota Attorney General’s Office itself has sued and obtained millions of dollars from drug manufacturers for engaging in allegedly unlawful advertising practices.²⁰⁷

In May 2019, the Centers for Medicare and Medicaid Services (“CMS”) published a final rule requiring direct-to-consumer advertisements of any prescription drugs available through Medicare or Medicaid to include the list price of that drug in the ad.²⁰⁸ The purpose of the rule was to ensure patients understood the cost of advertised drugs. In June 2019, however, three drug manufacturers (Merck, Eli Lilly, and Amgen) sued CMS over the proposed rule, arguing that it did not have the authority to issue it and that the rule violated their First Amendment rights.²⁰⁹ Hours before it was to take effect, a federal judge blocked the implementation of the rule in response to this lawsuit. CMS’s appeal of this ruling is still pending.

3.5 The Opacity of, and Conflicts of Interest Present in, PBMs’ Business Models Significantly Contributes to High Prescription Drug Costs.

As explained above, pharmacy benefit managers occupy a critical position in the drug sales chain.²¹⁰ Multiple practices of PBMs are problematic because they either directly cause drug prices to increase, prohibit other people from taking action to reduce the cost of drugs, or obscure critical information that would allow others to take such action.

PBM Rebate Practices.²¹¹ A significant source of revenue for PBMs is rebates that drug manufacturers pay to PBMs for each unit of a drug sold through the pharmacy networks that PBMs create and maintain for their health plan clients. The prevailing PBM rebate practices incentivize higher drug prices in a number of ways.

Because rebates that manufacturers pay PBMs are taken off of the manufacturer’s list price of a drug, a manufacturer can offer larger rebates to PBMs—while still holding its post-rebate, net price steady—by increasing a drug’s list price. This practice is akin to a department store increasing the price of a clothing line so it can offer shoppers “bigger” discounts as part of a sale. This prevailing PBM rebate structure incentivizes manufacturers to increase the price of the drugs they sell so PBMs can more easily demand, and manufacturers can more easily pay, larger rebates without affecting manufacturers’ bottom line.

These same rebate practices also incentivize PBMs to sell more expensive medicine through their pharmacy networks, as opposed to switching to cheaper generics. An example illustrates this issue best: A drug manufacturer makes branded “Drug X,” which has a list price of \$50 and for which the manufacturer pays a rebate of \$20 to a PBM for each unit of the drug that is sold. A different drug manufacturer makes a generic version of Drug X. The



list price of this generic is \$30, but a PBM will only receive a \$10 rebate for each unit that is sold. Because the PBM receives a larger rebate for continuing to sell the branded version of Drug X (\$20) than it would by selling the competing generic drug (\$10), the PBM continues to keep branded Drug X on its formulary despite the price being significantly more than that of the generic version of the drug. This decision by the PBM drives up the cost of Drug X for both patients and health plans.

PBMs Lack of Transparency.²¹² PBMs also impede the transparency that those who pay for drugs—typically health plans and patients—have into how those drugs are priced, distributed, and utilized. This makes it difficult for health plans and patients to attempt to control how much they spend on drugs or engage in efforts to hold down drug costs. The lack of transparency results largely from the contracts that PBMs enter into with retail pharmacies and health plans, which act as a “chokepoint” by restricting information these parties are entitled to learn about how the PBM does business. PBM contracts tend to be very one sided and frequently include, among many other problematic provisions:

- Substantial restrictions on health plans accessing data, including even claims data regarding reimbursement rates and any difference between what a PBM reimburses a pharmacy and what the health plan pays the PBM;
- Limiting audit rights and approval of audit firms;
- A lack of transparency into the contractual relationship between PBMs and the retail pharmacies;
- Failure to disclose the financial incentives that drug manufacturers provide to PBMs to drive demand for the manufacturer’s drugs; and
- Purposefully vague or nonexistent definitional terms governing, for example, classification and reimbursement for branded versus generic drugs.

These and many other practices by PBMs that reduce transparency make it difficult for others in the drug supply chain to take concrete steps to reduce the costs of drugs and the amount of money they spend on drugs.

PBM Conflicts of Interest. Some PBMs also operate their own “specialty” and/or mail order pharmacies that directly compete with the retail and other pharmacies with which the PBM also does business. These circumstances present obvious conflict-of-interest concerns: for example, a PBM could engage in business practices that steer purchasers and payers to buy a drug from a pharmacy the PBM owns, even if the price of the drug is cheaper at a competing pharmacy.

3.6 Perverse Economic Incentives that Result in High-Cost Drugs Being Used Even When Generic Alternatives Are Available Significantly Contribute to High Prescription Drug Costs.

Financial inducements offered by drug manufacturers and others to prescribers and patients alike often result in the use of high-cost branded drugs, even though cheaper generic versions of the same drug are available. Such perverse economic incentives are sometimes attractive to patients because they reduce their direct out-of-pocket costs but their decision to use a higher priced, branded drug drives insurance premiums higher because health plans must pay for the remainder. Three particular types of drug industry practices that create perverse economic incentives and contribute to higher drug prices are (1) patient discount coupons, (2) patient assistance programs, and (3) prescriber financial payments.



3.6.1 Drug Manufacturers' "Patient Discount Coupons."

Many health plans use "tiered pricing" for prescription drugs, which charge plan members smaller copays for generic drugs and higher copays for branded drugs.²¹³ This tiered pricing is meant to incentivize patients to use cheaper generic medications. To nullify this financial incentive to use generic drugs, branded drug manufacturers now offer copay or other drug discount "coupons" to patients through advertisements, physicians, online, or as debit-type cards.²¹⁴

The coupons are generally redeemed when the patient purchases the branded drug at the pharmacy, and reduce or eliminate patients' out-of-pocket copay costs. Typically, to assess their eligibility for the coupon, patients are required to provide their personal information to the manufacturer, including their contact information, age, income, and insurance status. These coupons are also usually time-limited, meaning that patients with chronic conditions who use branded drugs will eventually be required to pay full price for the drug once their coupon discount period expires. In 2010, drug discount coupons were used for approximately 100 million dispensed prescriptions.²¹⁵ Since then their prevalence has only grown. A more recent study has found that patients with insurance used drug discount coupons for one out of every five branded drug prescriptions they filled in 2016.²¹⁶ For some branded drugs, coupon use was as high as two-thirds of all filled prescriptions.²¹⁷

Drug manufacturers argue that such coupons defray the out-of-pocket costs patients pay for branded prescription drugs. In reality, however, discount coupons are used by branded drug manufacturers to bolster the sales of their more expensive drugs; dissuade patients from using more cost-effective generic drugs, as a strategy to avoid reducing the high prices they charge for these drugs; and to build patient loyalty to the branded version of the drug.

For example, manufacturers build the cost of discount coupons into their budget and pricing strategies and use analytics—including leveraging the personally identifying data they gather from patients who apply for their coupons—to target their coupon offers to maximize brand loyalty and bolster the market for the branded prescription drug being discounted.²¹⁸ One study estimated that manufacturers receive returns on investment in such coupon programs of approximately 4 to 1, and as much as 6 to 1, in the form of increased use of the branded prescription drug by patients.²¹⁹

By increasing the sales of their higher priced branded drugs through these coupon campaigns, manufacturers also prevent patients from switching to cheaper, generic versions of the drug. For example, a 2013 study found that 62% of all manufacturer coupons were for brand-name prescription drugs competing against a cheaper generic.²²⁰ Another study found discount coupons "increase branded sales by 60+ percent, entirely by reducing the sales of bioequivalent generics."²²¹

Manufacturers further use discount coupons "as part of a marketing strategy to keep prices for brand-name drugs higher than they otherwise would be after a lower-cost generic substitute comes to market."²²² Accordingly, California²²³ and Massachusetts²²⁴ have banned the use of drug discount coupons for branded drugs where a generic version of the drug is available. Moreover, Medicare, Medicaid, and military and veterans federal health plans prohibit the use of discount coupons because they have been deemed unlawful inducements under the federal anti-kickback statute.²²⁵

In sum, the result of drug manufacturers' discount coupon programs is to raise overall health-care costs by steering patients away from cheaper generic medications and inducing them to buy higher cost branded drugs. While a discount coupon may reduce the amount a patient pays out of pocket for a branded drug in the near term, the coupon does not reduce the price a health plan is charged for that branded drug. Patients often do not realize that third-party payers are still charged the higher price for the branded drug even when a generic version of the drug



is available, thereby increasing costs and driving up premiums that the very same patient who used the discount coupon must pay in the long term.²²⁶ In this way, manufacturer “coupons” raise health-care costs overall. Indeed, one study estimated that discount coupons for just 23 branded drugs (that competed against a generic substitute drug) resulted in an extra \$700 million to \$2.7 billion in drug spending over five years for these 23 drugs alone.²²⁷ Patients often don’t realize that this is the overall impact of using copay coupons.

3.6.2 Drug Manufacturer “Patient Assistance Programs.”

Similar to drug discount coupons, drug manufacturers have also created “Patient Assistance Programs” for income-eligible patients to acquire drugs at no or reduced costs. These programs usually either directly distribute branded drugs to patients at reduced cost, or defray copays, deductible expenses, or other out-of-pocket expenses associated with using a branded drug. Like drug discount coupons, these programs are also controversial.

First, many Patient Assistance Programs (“PAPs”) are funded by branded drug manufacturers. Some manufacturers have attempted to conceal their relationship to the PAP, however, by discreetly establishing or supporting a nonprofit, tax-exempt charity to ostensibly run the program. For example, a number of drug manufacturers have been investigated by the Department of Justice regarding their relationship with PAPs run by purportedly independent, charitable organizations.²²⁸

Second, manufacturer-sponsored PAPs “are almost always restricted to expensive, patented, brand-name products.”²²⁹ Just like drug discount coupons, this results in PAPs incentivizing patients to use expensive branded drugs and steers them away from using cheaper, generic versions of the same medications.²³⁰ Indeed, some health-care consultants have touted PAPs as “improving consumer loyalty to brand-name drugs, and increasing [branded] drug utilization and sales.”²³¹ For example, one firm has called manufacturer-backed PAPs a “key strategy for improving patient uptake” of branded drugs.²³² Thus, PAPs, just like discount coupons, contribute to increased health-care costs for all patients “in the form of higher insurance premiums, deductibles and copayments.”²³³

3.6.3 Prescriber Financial Inducements for Prescribing Particular Drugs.

Manufacturers spend billions each year to market their pharmaceuticals directly to medical providers.²³⁴ Based on one study, their return-on-investment for such marketing is “2 to 1 overall and 10 to 1 for new branded drugs.”²³⁵ Researchers have found that in 2016, manufacturers “paid physicians and teaching hospitals \$978.96 million for non-research activities, including \$381.13 million to serve as faculty or speakers presenting [manufacturer]-developed materials during lunch or dinner talks. Other payments were for consulting (\$210.05 million), food and beverages (\$164.21 million), travel and lodging (\$96.9 million), and honoraria (\$14.64 million).”²³⁶

Manufacturers often provide such payments to opinion leaders who serve as consultants and speakers that champion the manufacturer’s expensive branded drug to other prescribers. Studies have found that these types of payments and gifts to physicians “appear to stimulate physicians to prescribe the promoted drug; even small gifts promote increased prescribing, although larger gifts are associated with larger effects.”²³⁷ For this reason, Minnesota bans manufacturers from providing gifts to health-care practitioners, though this prohibition still allows manufacturers to pay practitioners certain education-related expenses for speaking at a conference, for example, as well as for certain consulting expenses.²³⁸



Notwithstanding such laws, some manufacturers still attempt to increase demand for their branded drugs by making improper payments to prescribers. For example, in May 2018 the Minnesota Attorney General's Office and the Minnesota Board of Pharmacy²³⁹ jointly sued opioid manufacturer Insys Therapeutics, Inc., for engaging in an illegal marketing scheme designed to induce Minnesota health-care providers to prescribe their branded opioid products.²⁴⁰ As one part of its scheme, Insys created a sham speaker program to justify its payments to opioid prescribers.²⁴¹ Insys made payments to high-volume prescribers disguised as bona fide honoraria for participation in "educational events."²⁴² Instead, the events were shams that often did not even occur and the payments were bribes—i.e., illegal kickbacks—intended to induce prescribers to write prescriptions for Insys's branded opioid product, or reward them for already doing so.²⁴³ Insys paid more than \$43,000 in such sham "speaker fees" to two physicians in Minnesota.²⁴⁴ In exchange, these two Minnesota physicians wrote more than 90% of the prescriptions in the state for Insys's opioid product, Subsyst, generating sales in excess of \$4 million.²⁴⁵ Numerous Insys employees, including high-level executives and health-care providers, have been criminally charged and convicted for their participation in the company's illegal scheme.²⁴⁶ A bankruptcy court recently confirmed the liquidation of Insys, resolving the enforcement actions brought by the Minnesota Attorney General's Office and the Minnesota Board of Pharmacy.²⁴⁷

3.7 The Lack of Transparency Regarding How Drugs Are Priced and Paid For Significantly Contributes to High Prescription Drug Costs.

The prescription drug market is uniquely opaque at virtually all levels. As reflected in the diagram in Section 2.2, the sales chain is complex and involves many different companies that manufacture, distribute, or pay for drugs in some manner. Information gaps exist at each level of the sales chain. As a result of the different negotiations between different parties in the sales chain, there is generally not a "single" price for a drug. Instead, the manufacturer's list price²⁴⁸ serves as a starting point or "benchmark" for different prices paid by different payers. Health plans, patients, and other payers do not have access to information reflecting what each entity pays in relation to this list price, rendering it exceedingly difficult to understand the prices paid for prescription drugs at all level of the sales chain.

Manufacturers set list prices for drugs sold. How a manufacturer determines the list price is not transparent. In practice, list prices are sometimes inflated in anticipation of negotiations over rebates paid to PBMs, as discussed previously, and other pricing concessions, such as discounts and coupons, as also discussed above. Manufacturer rebates paid to PBMs generally vary by drug and PBM. There is no transparency into the size of the rebates manufacturers pay to PBMs, as this information is labeled proprietary. This obscures the true price manufacturers receive for the drugs they sell. The share of the rebates that a PBM passes on to its health plan client, if any, is also often unknown, exacerbating the lack of transparency at this separate level of the sales chain.

A lack of transparency in pricing also exists for the other entities involved in the prescription drug distribution system. The drug manufacturer typically sells drug products to a wholesaler, at a price often referred to as the average manufacturer's price or wholesale acquisition cost. Wholesalers then distribute drugs to pharmacies and providers. Wholesalers generally charge pharmacies a percentage off of a reference price or list price. From the pharmacy, medication goes to a consumer. A consumer with insurance pays an amount determined by the insurer. Pharmacies are often reimbursed by insurers and PBMs based on a percentage off of the reference or list price. Thus, cost sharing with consumers is often a function of the list price. Consumers without insurance are charged a cash price. In each of these transactions, the purchaser often has little or no information about the actual prices others in the distribution chain are paying, obscuring visibility into the entire process.



Regarding reimbursements and pharmacies, little is publicly known about how health plans or PBMs reimburse pharmacies for drugs dispensed to a health plan's patients. The PBM or health plan generally determines both what a patient's copay will be and the reimbursement paid to the pharmacy for dispensing a drug. For generic drugs, the reimbursement is referred to as the maximum allowable cost ("MAC"), a proprietary formula determined by the PBM.

This lack of transparency at all levels of the distribution chain hinders the prescription drug market from functioning according to normal market principles, as buyers need sufficient information about prices to foster competition among rival sellers. But, in the market for prescription drugs, for the reasons described above, patients, health plans, and other payers often lack even basic pricing information necessary to make informed choices about their health care.²⁴⁹

Transparency could benefit multiple entities in the drug sales chain, in addition to patients, by making it difficult for manufacturers or others to charge higher prices to some purchasers versus others, or provide different discounts or rebates.²⁵⁰ For example, one study considered whether knowledge of prices affected business-to-business markets in the hospital supply purchasing context.²⁵¹ The study noted that there was variation across hospitals paying for the same brand of medical devices. The study determined that when hospitals gained access to information on peer hospitals' purchasing, they saw savings on the same brands.

Increasing transparency could result in more accountability for manufacturers and allow regulators and the public to more readily recognize abusive or unconscionable practices such as price-gouging. While the lack of transparency allows manufacturers more opportunities to overprice drugs, transparency may disincentivize such practices. More information about the gap between a list price and net price could inform future policy to curb drug spending. Accordingly, transparency is needed to begin to address drug-pricing practices.



4. Selected Past and Current Legislative, Regulatory, and Law Enforcement Strategies That Have Attempted to Address High Prescription Drug Prices.

Numerous strategies have been contemplated, attempted, or implemented over the years that have sought to combat high drugs prices, at both the state and federal level. Given the current cost of many prescription drugs and how quickly they continue to increase in price, it is clear these efforts have yet to accomplish their intended goal. Yet it is still important to be aware of and understand the major legislative, regulatory, and law enforcement strategies that have been tried previously, to learn from them, and to consider whether drug prices would be even higher had they never been attempted or implemented in the first place.

4.1 Selected Past and Current Federal and State Legislative and Regulatory Strategies to Address High Drug Prices.

Past federal and state efforts to curb excessive drug prices have long sought to identify targets for regulation, with varying success. Through August 2019, state legislatures have introduced 880 bills addressing laws regarding drugs, of which 130 were signed into law.²⁵² Legislatures and regulators, in particular, have focused on attempting to increase transparency in drug pricing, build economies of scale, create punitive disincentives for abusive practices, and directly legislate pricing and rebates.

4.1.1 Pricing Transparency Strategies.

Because the various actors in the drug industry—from manufacturers to PBMs to retail pharmacies—all affect drug pricing through opaque mechanisms, states have struggled to effectively monitor abusive pricing practices. Transparency-focused strategies take aim at this secrecy with the twin goals of (a) allowing governments to better regulate pharmaceuticals, and (b) allowing patients to make more informed decisions about their drug purchases based on price, thereby enhancing price competition among therapeutically equivalent drugs.

In June 2016, Vermont became the first state in the nation to require that the manufacturers of 15 costly state-purchased drugs justify price hikes, or be subject to a civil penalty of up to \$10,000 per violation.²⁵³ Numerous other states have since followed suit.²⁵⁴ Most of these laws, such as Oregon's, require manufacturers to provide the state with specified information designed to allow regulators to determine the reasonableness of a price increase, including the total sales revenue for the drug for the previous calendar year and the ten highest prices paid for the drug in any country outside the United States.²⁵⁵ Fewer state laws require public disclosure of specific drug pricing, though some do. For example, Florida has passed a law requiring that retail prices for certain frequently-prescribed medications be published monthly on a public website,²⁵⁶ and Nevada has passed a statute requiring manufacturers to publicly disclose price increases for certain drugs.²⁵⁷

The drug industry has vigorously opposed states' efforts to require additional transparency. As an example, while Vermont's state senate has 30 members, the pharmaceutical industry has had at least 35 registered lobbyists in Vermont.²⁵⁸ Transparency legislation has been introduced, but defeated, in states across the country, including Minnesota,²⁵⁹ New Jersey,²⁶⁰ North Carolina,²⁶¹ and Virginia.²⁶² Even after enactment, transparency legislation has been challenged through litigation brought by the drug industry.²⁶³ As of yet, however, the transparency aspects of states' legislative efforts have largely been upheld in court.



The federal government has also made efforts to introduce price transparency into the prescription drug market. In May 2018, for example, the United States Department of Health and Human Services (“HHS”) introduced the “American Patients First” blueprint to bring down drug prices.²⁶⁴ As a first step in that blueprint, HHS required drug companies to disclose the list price for prescription drugs in TV ads,²⁶⁵ but, following a legal challenge by three drug manufacturers, a federal district court ruled that HHS had exceeded its statutory authority in adopting this requirement.²⁶⁶ Other federal agencies have attempted to combat drug transparency problems. On May 16, 2019, for example, the Centers for Medicare and Medicaid Services announced changes to Medicare Part D and Medicare Advantage that would facilitate physicians in those programs discussing with their patients the out-of-pocket cost of drugs any time a prescription is written.²⁶⁷

The effect of transparency efforts on drug prices has yet to be determined. For example, Vermont’s 2016 initiative resulted in a 2017 report²⁶⁸ that generated criticism about the lack of specificity available to the public in the report and a lack of understanding as to how the report would translate into lower drug prices. Responding to this criticism, the Vermont legislature passed a second, broader bill in 2018.²⁶⁹

4.1.2 Strategies to Increase Purchasing Power.

Cooperative purchasing, or the pooling of buying power to negotiate lower prices, is a popular tool in states’ arsenals to combat rising drug prices. Two general models have emerged: (1) middlemen that leverage large membership bases to obtain upfront discounts from drug manufacturers, and (2) group purchasing organizations (“GPOs”) that purchase drugs in sufficient quantities to lower the acquisition cost.

In the 1980s, Minnesota became a national leader in the first effort, founding MMCAP INFUSE, a multistate collaborative bargaining arrangement whose membership now consists of public entities in all 50 states.²⁷⁰ Members include public health facilities, correctional facilities, education institutions, mental health facilities, and public safety/first responders, which collectively make up over 90% of the membership. The Minnesota Department of Administration began operating MMCAP INFUSE with the goal of leveraging group purchasing power to procure prescription drugs at the best price possible. MMCAP INFUSE is voluntary, free to participating entities, and funded through administrative fees collected from vendors. MMCAP INFUSE’s expertise is self-administered drugs, as opposed to physician-administered drugs. As such, MMCAP INFUSE’s member entities generally have a pharmacy operation to dispense purchased pharmaceuticals. Purchases exceed \$1 billion annually.

Following Minnesota’s lead, other cooperative purchasing arrangements have emerged in Washington and Oregon. Multiple private consortia requiring state and federal approval have also emerged for various states’ Medicaid markets.²⁷¹ Yet other states, including Massachusetts and Washington, have established intrastate purchasing arrangements.

The purchasing power of these pooled-resource arrangements allows participants to enjoy significantly lower prices than the general public.²⁷² While some arrangements do not extend membership to the general public,²⁷³ some emerging programs have fewer restrictions. Washington’s program, for example, is open to all Washington residents.

Leveraging buying power through GPOs is a time-proven method of obtaining lower drug prices, but it should be noted that the reduction is significant mostly when compared to the prices advertised to the general public, as opposed to the undisclosed prices paid by industry participants. All 50 states, and several cities, currently participate in some form of intra- or interstate GPO. Such GPOs provide a framework for states to work together and coordinate efforts to lower drug prices.



4.1.3 Disincentivizing Abusive Practices.

Drug prices can be improperly inflated by bad industry actors that use a variety of abusive practices, including misuse of patents, coordinated price-gouging, and outright kickbacks. There are numerous administrative, civil, and criminal laws designed to reduce and punish fraud. This report summarizes only a small subset of the tools available to federal and state governments.

While patents and drug approvals are administered by federal agencies—the U.S. Patent and Trademark Office and the FDA, respectively—enforcement of relevant laws that can be used to address unlawful drug industry practices falls to both federal and state governments. Many states, for instance, have enacted consumer protection laws, which, as in Minnesota, restrict drug manufacturers from mislabeling or falsely marketing drugs to improve sales and reduce competition.²⁷⁴ Additionally, 29 states have passed some form of a False Claims Act,²⁷⁵ which, in conjunction with state contracts, often functions to prevent drug companies from billing the government after materially violating a state or federal law. The False Claims Act, and some consumer protection acts, have mechanisms for private parties to bring lawsuits against bad actors in the pharmaceutical market, thereby broadening the reach of these laws.

While 34 states have enacted some form of price-gouging laws that apply in cases of emergency, regulating arbitrary increases in drug prices has proven difficult. Many state drug pricing transparency laws contain reporting requirements triggered by spikes in drug pricing; however, of the 17 states to consider regulating unconscionable price increases of pharmaceuticals, only Maryland has enacted specific drug price-gouging legislation.²⁷⁶ That legislation, which permitted Maryland to regulate drug prices based on sales from manufacturers to third parties, was struck down as unconstitutional in 2018.²⁷⁷

4.1.4 Direct Pricing Legislation.

Historically, legislation directly regulating the cost of drugs has been limited to those drugs eligible for reimbursement in a federal or state health-care program. Medicaid, for instance, requires that a provider of drugs accept Medicaid's reimbursement for a drug at a "best price" rate, which is determined by finding the lowest price available from the manufacturer.²⁷⁸ Medicaid further authorizes the government to solicit and accept rebates from manufacturers to meet those "best prices."²⁷⁹

Maine has also successfully leveraged its "best price" Medicaid purchasing power to induce pharmaceutical manufacturers to provide lower drug prices to Maine consumers. With its program, Maine Rx, the state essentially filled the role of a PBM to Maine residents, and sought rebates from manufacturers that were at least equal to the rebate calculated under a federal program. For those manufacturers that did not enter into the agreement with Maine Rx, the state would publicly post the name of the manufacturer and require that all of its manufactured drugs obtain prior authorization before being reimbursed by Medicaid. Significantly, Maine's program regulated only sales of pharmaceuticals in Maine. The drug industry sued Maine over this initiative, but the United States Supreme Court upheld the program in 2003.²⁸⁰

In 2019, several states, including Maine and Maryland, passed new legislation forming a "Prescription Drug Affordability Board" that seeks to regulate pricing through annual spending targets for prescription drugs in state programs, utilizing new transparency legislation, the power to alter the state's formulary, and direct rebate negotiations.²⁸¹



Other state efforts to directly regulate drug prices have not fared well. As discussed above, Maryland's law was invalidated. Colorado, Florida, Maine, and Vermont have also passed laws that would permit international importation of drugs and their respective lower prices, but such efforts have been met with skepticism because federal approval is required.²⁸²

4.2 Selected Past and Current Law Enforcement Strategies to Address High Drug Prices.

In addition to the legislative efforts to address high drug prices, state and federal law enforcement agencies have also brought numerous law enforcement actions against companies to stop problematic practices that contribute to increased drug prices. Between 1991 and 2017, federal and state agencies have reached a total of 412 settlements, totaling \$38.6 billion dollars, with drug manufacturers.²⁸³ Nonetheless, the \$38.6 billion in penalties represents "only 5% of the \$711 billion in net profits made by the 11 largest global drug companies during just 10 of those 27 years (2003-2012)."²⁸⁴ Further, individual enforcement actions that typically only concern one or a handful of drugs, are a comparatively inefficient way to address this issue, given that the FDA has approved more than 20,000 prescription drugs for sale.

Sometimes the most consequential outcome of law enforcement actions that target problematic drug industry practices is that such litigation prompts policymakers to address the type of conduct at issue in the lawsuit more broadly, generally through legislative or rulemaking efforts. Examples of such actions are discussed at various points throughout this report. One example worth further discussion here, however, is the successful law enforcement campaign to change industry practices regarding how government programs pay for prescription drug coverage, which shifted the payment benchmark used by these programs from the average wholesale price ("AWP") to the average sales price ("ASP").²⁸⁵

Under government health programs, AWP served as the pricing benchmark for government reimbursement to health-care providers. AWP was supposed to reflect the average price of the drug received by manufacturers. In practice, however, drug manufacturers falsely inflated and set artificially high AWP for their drugs. Such false AWP were "often considerably higher than the actual amount providers pay for drugs because the AWP do not reflect the many discounts drug companies offer providers as an incentive to purchase their products."²⁸⁶

This AWP-inflation scheme created incentives that could increase drug costs. For example, providers could benefit by prescribing drugs with high "spreads" (the difference between the AWP and actual price providers pay) and drug companies could benefit by offering providers higher spreads through inflated AWP. Despite widespread knowledge and discussion of the problem in the 1990s, Congress did not act to change the pricing system.

At the same time, state and federal prosecutors took up the issue, leading to landmark settlements with Bayer Pharmaceuticals and TAP Pharmaceuticals in 2001. Both settlements were based on the False Claims Act and allegations that the companies reported AWP that were significantly higher than the average sales price offered to providers and further marketed that spread to providers. TAP Pharmaceuticals agreed to pay \$875 million and begin reporting a new pricing benchmark, the average sales price ("ASP"), tied to the actual market price of the drug. Bayer similarly agreed to report the ASP for its drugs. Both companies also agreed to enhanced internal compliance mechanisms and enhanced federal oversight.

These settlements led the way for other litigation by state attorneys general and private groups. They also prompted Congress to adopt the ASP standard, borrowed directly from the definition found in the settlements, for reimbursement rates in the Medicare Part D program.



5. Recommendations of the Minnesota Attorney General's Advisory Task Force on Lowering Pharmaceutical Drug Prices.

In an effort to lower the price of pharmaceutical drugs, the Task Force makes 14 recommendations, all of which contains additional, specific action steps. Each of the Task Force's recommendations stem from presentations or discussion at a working group or task force meeting, or individual suggestions by a Task Force member based on these presentations and discussions. The Task Force's recommendations are to:

- 5.1 create a Prescription Drug Accountability Commission to address drug pricing and related practices in Minnesota;
- 5.2 import through a prime vendor four critical access drugs (insulin, EpiPen, Truvada, and naloxone) on a trial basis, and if successful, expand this importation program
- 5.3 enact legislation prohibiting drug price-gouging;
- 5.4 strengthen Minnesota's consumer fraud laws as they relate to deceptive and misleading practices utilized in the pharmaceutical drug industry;
- 5.5 enact a state anti-kickback law that applies to both government programs and the private sector, including prohibiting copay coupons or equivalent programs when a generic version of the branded drug at issue is available;
- 5.6 amend Minnesota's antitrust laws to prohibit specific, anticompetitive practices long present in the drug industry, such as pay-for-delay settlements and product hopping;
- 5.7 advocate for reform of federal patent and drug exclusivity laws that are being misused and abused to block competition from rival generic drugs;
- 5.8 optimize and expand Minnesota's use of the 340B Drug Pricing Program to make the program's pricing discounts available to more Minnesota patients;
- 5.9 quantify how much all Minnesota government entities spend on prescription drugs, to enable these entities to better pool and utilize their bulk purchasing power to obtain additional pricing concessions from drug manufacturers;
- 5.10 optimize and better utilize Minnesota's bulk purchasing power through MMCAP INFUSE, including by expanding the pricing discounts this buying program receives to all Minnesotans;
- 5.11 more robustly regulate PBMs' business and pricing practices and increase transparency into the rebates they receive, through building on the legislative success of 2019;
- 5.12 enact measures to further increase transparency into how drugs are priced and reimbursed throughout the sales chain;
- 5.13 ensure patient access to pharmacists for effective medication use; and
- 5.14 support additional research into prescription drug pricing and drug benefits.



5.1 Create a “Prescription Drug Accountability Commission” to Oversee Drug-Industry Pricing Practices in Minnesota

Recommendation.

The Task Force recommends that Minnesota establish a Prescription Drug Accountability Commission. The objective of this Prescription Drug Accountability Commission (“Commission”) should be to create a review process to ensure that prescription drug and biological drugs are priced reasonably, and that those entities involved in establishing drug prices may be held accountable for their decisions. Although accountability measures can take various forms, the Task Force recommends that the Legislature authorize the Commission to investigate, review, and publish information on prescription drug prices, to take action to hold drug companies accountable for unreasonable or unlawful pricing practices, including by “capping” or setting maximum reimbursement prices for drugs under certain circumstances, and to make recommendations for additional legislative, regulatory, or other action necessary to address high drug prices.

Action Steps.

5.1.1 Perform a “drug affordability review” of high drug prices or significant drug price increases that impose an excess cost on Minnesota patients and the state’s health-care system. Criteria to consider that would trigger a drug affordability review include:

For brand name drug and biological products:

- If the list price for one-month (or normal course of therapy) supply exceeds \$____;
- If the list price changes more than __% at a single point in time; or
- If the list price changes more than __% over a one-year period.

For generic drug and biological products:

- If the list price for one-month (or normal course of therapy) supply exceeds \$____;
- If the list price changes more than __% at a single point in time; or
- If the list price changes more than __% over a one-year period.

For specialty drug and biological products:

- If the list price for one-month (or normal course of therapy) supply exceeds \$____;
- If the list price changes more than __% at a single point in time; or
- If the list price changes more than __% over a one-year period.

For all drug and biological products, if one of the following apply:

- The drug product is in a “protected class” under Medicare Part D;
- Minnesota statutes or rules require coverage of the drug or drug products;
- The drug has a list price that is more than 10% above the evidence-based value assessment price established by the Institute for Clinical and Economic Review;
- The Minnesota Attorney General has designated the drug product pricing as “price-gouging”;
- The FDA or the American Society of Health System Pharmacists has designated the drug product as a “drug shortage”;
- The patent for the drug product’s active ingredient has expired, and the drug product is still protected by one or more other patents or exclusivities;



- g. The drug product is subject to patents or exclusivities on a combination, a change in dosage strength or form, an isomeric configuration, or another “ever greening” strategy after the drug product’s initial active ingredient patent and exclusivities have expired;
- h. The drug product has a Risk Evaluation and Mitigation Strategies (“REMS”) process in place and the REMS process is being used to delay generic entry; and
- i. A biological product has had more than seven years of market exclusivity due to patents, exclusivities, or other reasons.

The Commission should also have the authority to establish other criteria that would trigger an affordability review.

5.1.2 The Commission should require manufacturers to notify it of price changes that meet the criteria above, and the Commission could also commence its own review based on publicly available information.

If the Commission cannot obtain sufficient information from these sources, the Commission should be authorized to compel drug manufacturers, PBMs, and others to provide the necessary data regarding their pricing practices.

5.1.3 If the Commission determines that an affordability review of a drug is warranted, the Commission may require drug companies whose products meet the above criteria to submit price-justification information.

The Commission could then consider whether appropriate utilization of the product under review has led or would lead to excess costs for Minnesota patients or Minnesota’s health-care system. The Commission should also review new drugs entering the market to determine price-justification information. The Commission should allow public input into each affordability review it conducts.

5.1.4 To better promote accountability and affordability, the Commission should be authorized to take appropriate actions if it determines that the price of a drug under review has led or would lead to excess costs for Minnesota patients or Minnesota’s health care system.

Among other things, the Commission should be authorized to “cap” or establish a maximum level of reimbursement that would be billed and paid among those in the supply chain; to identify a rebate for drugs covered by public payers in Minnesota; and to determine methods for public payers to meet spending targets. If after the affordability review, the Commission determines that a drug’s price or price increase is unreasonable or otherwise unlawful, it should refer the matter to the Minnesota Attorney General’s Office for potential prosecution, in addition to other action the Commission is authorized to take on its own accord.

5.1.5 In crafting this legislation, the Legislature should review and draw from Task Force Co-Chair Senator Jensen’s Senate File 353 (91st Leg. 2019-20) bill, model legislation introduced by the National Academy for State Health Policy (“NASHP”),²⁸⁷ and similar drug pricing legislation introduced in other states such as Illinois, Maryland, Maine, Massachusetts, Missouri, New Jersey, and Oregon.²⁸⁸

The Oregon and Texas legislation, in particular, provide examples of legislation that enables state agencies to undertake pricing reviews. SF353, the NASHP model legislation, and Maryland’s legislation also provide examples of reimbursement capping, while bills in Maine and Massachusetts address public payers.



Responsible Persons/Entities.

The Legislature would enact laws establishing the Prescription Drug Accountability Commission and defining its role. Subsequently, the Governor's Office and other stakeholders would appoint members to the Commission. The Minnesota Attorney General's Office would review and bring enforcement actions referred to it by the Commission under the law, as appropriate, including to enforce any action by the Commission to "cap" or set maximum reimbursement rates.

5.2 Import Critical-Access Drugs Into the State on a Trial Basis.

Recommendation.

The Task Force recommends that Minnesota develop a new channel to import and distribute four critical access drugs—insulin, EpiPen, Truvada, and naloxone—through a prime vendor on a trial basis. These drugs should be imported for use in Minnesota at affordable prices that are consistent with the global market rates for these four pharmaceuticals. As Minnesota learns from its experience importing these critical access drugs, it can refine the importation process and eventually expand the importation program, if feasible. This importation process would not involve direct purchase or acquisition of prescription drugs by Minnesota patients through the internet or similar avenues.

Action Steps.

- 5.2.1 Pursuant to the recently-established federal Safe Importation Action Plan²⁸⁹ and 21 U.S.C. § 384, Minnesota should approach HHS and the FDA to develop and receive approval of policies, processes, and procedures for the importation and distribution of insulin, EpiPen, Truvada, and naloxone in the state through a prime vendor.**
- 5.2.2 Minnesota should then issue a request for proposal soliciting bids from the prime vendor that will identify safe and feasible sources for each of these critical access drugs and negotiate the price of the drug with appropriately licensed manufacturers and/or distributors.**
Concurrently, Minnesota should design and establish appropriate roles within the state for the entities involved in the importation process, such as establishing a regulator, financier, and/or distributor to work with the prime vendor selected to import these critical access drugs and ensure their availability at Minnesota pharmacies and other health-care providers.
- 5.2.3 Within 24 months of implementing this importation channel for insulin, EpiPen, Truvada, and naloxone, Minnesota should evaluate and assess the effectiveness of this process. If it is found effective, it should be expanded to include additional drugs.**
- 5.2.4 The Legislature should pass any legislation needed to facilitate and support the importation of high-quality drug products at negotiated and affordable prices for distribution in Minnesota through this process.**



Responsible Persons/Entities.

The Governor's Office should select members of the Minnesota Department of Health and the Minnesota Department of Human Services to be included as part of an interagency working group to develop, in consultation with the relevant federal agencies, a satisfactory importation plan for insulin, EpiPen, Truvada, and naloxone. In addition, one or more representatives of the Minnesota Attorney General's Office should serve on the working group. The Legislature should enact appropriate legislation to facilitate and fund this initiative.

5.3 Enact Legislation Defining and Prohibiting Price-gouging Related to Prescription Drugs.

Recommendation.

As described throughout this report, some prescription drug manufacturers engage in a number of pricing practices that have resulted in skyrocketing costs for certain drugs, with prices sometimes increasing by 300-500% or more. The purpose of an anti-price gouging statute is to prevent and deter drug manufacturers from engaging in price-gouging practices for essential prescription drugs that are made available in Minnesota.

Action Steps.

5.3.1 **An anti-price gouging statute should prohibit drug manufacturers from charging or causing to be charged an unconscionable price—that is, a price that cannot be reasonably justified—for essential prescription drugs that are sold in Minnesota.**

Representative Lesch, a member of the Task Force, authored and introduced such a bill—House File 4 (91st Leg. 2019-20)—last legislative session. The statute should further provide for a notice mechanism to the Attorney General, such as the mechanism provided for in House File 4,²⁹⁰ for any unconscionable prescription drug price increases. Additionally, any such bill should be carefully crafted and reviewed so as to be able to survive any constitutional challenge from the drug industry.

Responsible Entities/Persons.

The Legislature would enact an anti-price gouging statute of the nature described above. Once enacted, the Minnesota Attorney General's Office would enforce this statute by, among other things, reviewing reported price increases and bringing enforcement actions referred to it, as appropriate, to deter and remediate price-gouging practices within the state.



5.4 Strengthen Deceptive Trade Practices and Advertising Laws Related to Drug Pricing Information.

Recommendation.

Minnesota's consumer fraud and deceptive trade practices laws²⁹¹ generally prohibit fraudulent, deceptive, and misleading conduct, including with respect to prescription drugs. These laws, however, do not contain an "unfair" or "unconscionability" prong, as do equivalent laws in many other states,²⁹² prohibiting unfair or unconscionable conduct. These laws also do not address specific deceptive and misleading practices found in the drug industry. The Task Force recommends that the Legislature reform and strengthen Minnesota's consumer protection laws in both of these manners.

Action Steps.

- 5.4.1 "Unfair" and "unconscionability" prongs should be added to Minnesota consumer-protection laws to allow the Attorney General's Office to take legal action against unconscionable pricing and other unfair business practices, including unconscionable drug-pricing practices.**
- 5.4.2 Review, define, and update the statutory text of Minnesota's consumer protection statutes by specifically addressing deceptive and misleading practices that relate to prescription drugs and their pricing, including by:**
- a. specifically prohibiting deceptive marketing practices that disclose only the copay amount for a drug without also disclosing the list price of the drug for a standard course of therapy;
 - b. specifically prohibiting deceptive marketing practices that represent the price of a drug is "90% off," for example, after a copay coupon, patient assistance program, or similar program is taken into account, which do not reflect what third-party payers (e.g., health plans) actually pay for the drug;
 - c. specifically prohibit deceptively marketing drug benefit programs that disclose only the copay amount, the plan paid amount, and the patient out-of-pocket amount, versus the total price of the drug.
- 5.4.3 More closely monitor and engage in additional enforcement actions to prevent and deter deceptive and misleading pricing practices used in the drug industry, including by giving private litigants the authority to do so directly when they have been harmed by such practices.**

Responsible Persons/Entities.

The Legislature would amend and strengthen Minnesota's consumer-protection laws in the manners described above. The Minnesota Attorney General's Office, as well as injured Minnesotans, would enforce these laws, once amended.



5.5 Enact a State Anti-Kickback Law, and Prohibit Copay Coupons and Similar Practices When a Generic Version of a Drug is Available.

Recommendation.

The Task Force recommends that the Legislature pass a state anti-kickback bill into law. The objective of this law should be to empower Minnesota enforcers to take action against behavior that is already illegal on a federal level²⁹³ by giving local law enforcement agencies, including the Minnesota Attorney General's Office, an additional tool to curb problematic practices in the drug industry.²⁹⁴

Action Steps.

5.5.1 **This anti-kickback statute should encompass kickbacks in the private marketplace, not just with respect to drugs paid for by state health-care programs.**

As currently written, the federal anti-kickback statute prohibits illegal remuneration only if money is expended by government health programs, such as Medicare and Medicaid. The Task Force recommends that private payers, including private citizens, be protected from kickback-type behavior to the same degree as is the government.

The Task Force also recommends Minnesota enact a statute prohibiting copay coupons and equivalent financial inducements regarding branded drugs when a generic equivalent to the branded drug exists, as it views such financial inducements to use a branded drug in these circumstances as a form of a kickback. As discussed above,²⁹⁵ while the copay coupon may result in a lower up-front cost to a patient, that patient's insurance premium may rise as a result of the increased costs to the health plan of paying for the more expensive branded drug, resulting in a higher overall cost to the patient.

5.5.2 **Even when a copay coupon is offered for a branded drug for which no generic exists, Minnesota law should require patients to be told if there is a time limit on the copay coupon when it is first offered to the patient, and manufacturers should be required to provide patients sufficient advanced warning if they will no longer be eligible or otherwise able to use the coupon in the future, among other disclosures.**

Responsible Entities/Persons.

The Legislature would enact a state anti-kickback statute of the nature described above, as well as statute prohibiting copay coupons and equivalent financial inducements when an equivalent generic drug is available. The Minnesota Attorney General's Office would enforce these statutes, once enacted.



5.6 Strengthen Laws Targeting Anticompetitive Behavior in the Drug Industry.

Recommendation.

Because the market for drugs is so complex, opaque, and often does not function in a competitive manner for the reasons discussed throughout this report,²⁹⁶ competition-focused solutions will only go part of the way towards addressing high drug prices. Nevertheless, they are important. While the anticompetitive conduct described in this report is extremely problematic, it is not easy and often resource-intensive to address using Minnesota's current antitrust laws, which speak in terms of broad standards, not specific practices.²⁹⁷ Changing these laws to make certain anticompetitive conduct in the drug industry explicitly illegal would greatly aid enforcement. The Task Force thus recommends that specific provisions be added to Minnesota's antitrust law rendering certain anticompetitive practices that exist in the drug industry as "per se" unlawful, including pay-for-delay and product hopping arrangements.

Action Steps.

5.6.1 To deter pay-for-delay schemes, Minnesota should amend its antitrust laws by adopting a provision similar to one recently enacted by California, which renders these arrangements presumptively unlawful.²⁹⁸

Because the bill establishes the presumption that pay-for-delay agreements are anticompetitive, it shifts the burden to drug manufacturers to prove that these type of agreements foster competition and increase access to affordable drugs in the marketplace.

5.6.2 To deter product-hopping schemes, Minnesota should amend its antitrust laws to also render these schemes presumptively unlawful.

In drafting such statutory language, guidance can be drawn from New York ex rel. *Schneiderman v. Actavis PLC*, 787 F.3d 638 (2d Cir. 2015), which discusses circumstances that render product-hopping arrangements anticompetitive.

5.6.3 Pay-for-delay schemes and product-hopping arrangements should be added to Minnesota Statutes section 325D.53, which currently lists several specific behaviors— unrelated to the drug industry—that are per se unlawful.

5.6.4 Federal and state regulators should increase enforcement resources dedicated to reviewing mergers in the drug industry, and blocking those that are anticompetitive.

The question of how to slow corporate consolidation in the drug industry is broad and multifaceted. At the federal level, the U.S. Department of Justice and Federal Trade Commission review all large mergers. State attorneys general may also sue to prevent these mergers. Specific statutes governing drug-industry mergers may also be necessary.²⁹⁹



Responsible Persons/Entities.

The Legislature would enact the additional statutory subsections needed to address pay-for-delay arrangements and product hopping. The Minnesota Attorney General's Office would enforce these statutes, once enacted, as well as increase its enforcement activities with respect to policing drug-industry mergers.

5.7 Advocate for Reform of Certain Federal Patent and Exclusivity Laws Governing the Drug Industry.

Recommendation.

The Task Force recommends that Congress enact legislation to curb misuse and abuse of the patent and FDA drug exclusivity laws. Regarding patent laws, new legislation should be enacted to address patent thickets and “evergreening” of patents, such as modifying the current patent standards with respect to drugs to make it more difficult for minor changes that offer only trivial improvements to be the basis to secure new patent rights for a drug. The U.S. Patent and Trademark Office should also more closely scrutinize non-“new chemical” patents to prevent these type of practices, and more frequently refuse to grant a patent if the applicant simply makes an obvious improvement on an existing patent.

Action Steps.

5.7.1 Congress should reform federal patent laws by:

- a. raising the standard for obtaining a patent on prescription drugs;
- b. giving the FDA more authority to scrutinize which patents appear in the Orange Book;
- c. allowing for the removal of patents from the Orange Book that are later invalidated;
- d. requiring drug makers to elect a single period of market exclusivity—whether that be through a patent right, an FDA exclusivity, or other regulatory provision—so that multiple exclusivity periods could not be stacked;
- e. making it easier for generic drug makers to obtain samples of branded drugs needed for testing; and
- f. deeming REMS non-patentable.

5.7.2 Minnesota's congressional delegation should propose and/or endorse these and other measures designed to eliminate drug companies' misuse of patent laws.

5.7.3 Congress should also ensure that the U.S. Patent and Trademark Office has adequate resources to meaningfully review patents prior to the patent being granted.

5.7.4 Congress should continue to study means to combat drug manufacturers' abuse of patent laws, including considering whether to create different standards for drug patents, deem certain subject matters non-patentable, or prevent stacking of patent terms, to ensure that patent laws promote innovation and patient health without increasing health-care costs.



5.7.5 Congress should reform federal exclusivity laws by passing the Improving Access to Affordable Prescription Drugs Act.

Regarding exclusivity laws, proposed legislation already exists that would combat misuse of FDA exclusivities. The “Improving Access to Affordable Prescription Drugs Act”³⁰⁰ would, among other things, allow the FDA to consider a generic drug manufacturer’s application to market a generic of a brand name drug that is covered by the “new chemical” exclusivity after three years instead of the current five, shorten the regulatory exclusivity of biologics from 12 years to 7 years, add additional requirements before branded-drug manufacturers could gain the three-year clinical investigation exclusivity, and would terminate all FDA exclusivities for a drug if the manufacturer engaged in certain wrongful acts, including misbranding, illegally marketing the drug, or entering into an anticompetitive settlement of a patent lawsuit.

5.7.6 Minnesota’s federal congressional delegation should propose and/or endorse this act and other measures designed to eliminate drug companies’ misuse of exclusivity laws.

5.7.7 Congress should continue to study means to combat drug manufacturers’ abuse of FDA exclusivities, including considering whether to eliminate certain exclusivities, shortening exclusivity lengths, and adding additional requirements to ensure that exclusivities promote innovation and patient health without increasing health-care costs.

Responsible Persons/Entities.

Congress has the power to amend current patent and exclusivity laws. The entirety of Minnesota’s federal Congressional delegation should introduce and/or sign on as co-authors to such legislation. The Minnesota Attorney General’s Office should be a public champion for the reform of federal patent and exclusivity laws.

5.8 Optimize and Expand Use of the 340B Drug Pricing Program.

Recommendation.

Because of the significantly reduced prices that drug manufacturers are required to charge through the 340B Drug Pricing Program (“340B Program”), the Task Force recommends that Minnesota develop strategies and take actions to expand and optimize participation in —and use of— the 340B Program in the state, in government health-care programs and the private market. This expansion and optimization of drugs procured through the 340B Program should include both self-administered drugs and physician-administered drugs.

Action Steps.

5.8.1 A designated agency should perform and publish an inventory of all health-care providers in the state to identify whether they are eligible for—and participating in—the 340B Program.

This list could be used to identify any additional entities eligible for, but not enrolled in, the program and encourage them to join.



5.8.2 Minnesota should develop and fund strategies to increase the participation of eligible entities in the 340B Program.

Often times, eligible entities may choose not to enroll in the 340B Program due to the burden of maintaining records that document their compliance with all program requirements, or for other reasons.³⁰¹ This means some eligible entities are not receiving the benefit of being able to procure drugs at significantly reduced prices.

5.8.3 Minnesota should establish a technical assistance program to assist eligible entities with enrollment, implementation, and compliance with the 340B Program requirements.

The technical assistance program would encourage all eligible entities, even non-governmental entities, to effectively participate in and utilize the 340B Program. The technical assistance program would also clarify the eligibility criteria for participation in the program.

5.8.4 Regulatory changes should be enacted to require entities sharing in 340B Program drug pricing discounts to pass on a significant portion, if not all, of these savings directly to patients.

There are currently no regulations that require participating entities to pass the 340B Program savings on to patients in any particular manner.

5.8.5 As necessary and appropriate, legislation should be developed and enacted to facilitate and support the participation of Minnesota government and non-governmental entities in the 340B Program.**Responsible Persons/Entities.**

As the primary regulator of health-care providers in Minnesota, the Minnesota Department of Health should take the lead expanding and optimizing Minnesota's use of the 340B Program, with the support and assistance of the Governor's Office. To the extent any statutory changes are needed to facilitate additional entities participating in the 340B Program and ensure that drug savings obtained through the program are passed along to patients, this would be the responsibility of the Legislature.

5.9 Create An Inventory of All Government Entities to Determine Whether They Purchase Drugs Directly or Indirectly, and Identify Their Annual Expenditures.**Recommendation.**

The Task Force recommends that Minnesota survey, identify, and catalog what it spends on prescription drugs in the aggregate, including at the county and municipal level. The objective of this initiative is to better understand and quantify the total drug expenditures of Minnesota governmental entities, and to track these trends over time. To fully leverage its buying power—as discussed further in the next recommendation regarding MMCAP INFUSE—Minnesota needs to better collect and evaluate the current expenditures of state, county, and local entities on prescription drugs.



Actions Steps.

- 5.9.1 Create a survey in which the relevant Minnesota government entities identify their expenditures, both direct and indirect, on prescription drugs.**
To ensure a complete picture of expenditures, this survey should seek drug spending data on self-administered drugs purchased from manufacturers, wholesalers, or pharmacies, as well as physician-administered drugs used in a medical setting. Entity profiles could be compared with nationwide community pharmacy purchasing information contained in National Average Drug Acquisition Cost profiles to ensure best pricing practices for purchasers.
- 5.9.2 Minnesota should distribute this survey to all state, county, and municipal government entities on an annual basis.**
- 5.9.3 Minnesota should utilize a centralized entity to collect and evaluate the survey responses on an annual basis and provide a report on the results to the participating government entities and the public, including an analysis of trends over time.**
- 5.9.4 As necessary and appropriate, legislation should be developed and enacted to facilitate and support this survey process and ensure that all Minnesota government entities are able to provide the requested data.**

Responsible Persons/Entities.

The Governor's Office is best positioned to coordinate the distribution, collection, and evaluation of survey responses from all relevant Minnesota government entities. The Governor's Office should be assisted by both the Minnesota Department of Health and/or the Minnesota Department of Human Services, as they license many facilities that provide health care in the state, as well as other state agencies that oversee entities that purchase prescription drugs. The Legislature would enact any statutory changes needed to facilitate this survey process.

5.10 Optimize Use of MMCAP INFUSE Program and Further Expand It to Provide Similar Savings to Minnesota Patients.

Recommendation.

Pooled cooperative purchasing can be leveraged to extract lower prices from drug companies. Building on the recommendation to better quantify how much Minnesota spends on drugs, the Task Force recommends that Minnesota develop strategies and take action to expand and optimize participation by Minnesota government entities in the buying cooperative MMCAP INFUSE, the program that currently pools and leverages such buying power for the benefit of participating entities when purchasing drugs.³⁰² In addition, MMCAP INFUSE should be expanded to allow non-governmental Minnesota purchasers, i.e., private patients, to take advantage of the reduced pricing on prescription drugs the program achieves. In the alternative, a parallel program should be established to do so. An example of such a program is the Northwest Prescription Drug Consortium.³⁰³



Actions Steps.

5.10.1 Accordingly, a survey should be conducted of all Minnesota government entities—state, county, and municipal—to identify whether they participate in the MMCAP INFUSE program, the level of their participation, and the reasons they do or do not participate in the program.

MMCAP INFUSE's expansion to serve additional Minnesota governmental entities requires that MMCAP INFUSE be aware of Minnesota governmental entities that are either not participating, or have only limited participation in the program.

5.10.2 Based on this survey, strategies to increase the participation of Minnesota government and other entities in MMCAP INFUSE should be developed and implemented.³⁰⁴

5.10.3 Regulatory and statutory changes should be implemented to facilitate and encourage the participation of Minnesota government and other entities in MMCAP INFUSE, including as follows:

- a. At present, many different statutes give many different government entities their own procurement power, which results in disaggregating buying power, instead of all purchasers buying drugs through MMCAP INFUSE. With respect to prescription drug purchases, the Legislature should amend the relevant procurement statutes to require Minnesota governmental agencies to consider MMCAP INFUSE's contracting first, before signing a procurement contract with a drug manufacturer or wholesaler directly, which is likely to be more expensive;
- b. The Legislature should also consider consolidating statutes that give different government entities their own, separate procurement power, including with respect to drugs, into one statutory scheme;
- c. The Governor's Office should direct relevant state agencies to amend any procurement policies that inhibit participation in MMCAP INFUSE, as necessary, to ensure such policies and rules do not inhibit purchasing drugs through MMCAP INFUSE.

5.10.4 Expand MMCAP INFUSE and leverage its purchasing power to lower drug prices for Minnesota private patients.

MMCAP INFUSE's clientele is currently restricted by Minnesota statute to governmental entities and certain nonprofit organizations.³⁰⁵ MMCAP INFUSE's current model erects barriers to the creation of a prescription drug card program that Minnesota residents can use at privately-run pharmacies. Although less desirable than expanding MMCAP INFUSE because it disaggregates purchasing power, creating a parallel buying program for the benefit of Minnesota private patients, or joining the Northwest Prescription Drug Consortium, should be considered as an alternative.

Responsible Persons/Entities.

Any changes to administrative regulations or policies that inhibit optimization of MMCAP INFUSE as currently structured would be changed by the relevant state agency, as overseen by the Governor's Office. The Minnesota Department of Administration, as the operator of MMCAP INFUSE, should inventory what other state, county, and local government entities are currently eligible to use the program, and foster additional use of MMCAP INFUSE by those entities that do not currently rely on it. The Department of Administration should also take the lead in expanding the program to private Minnesota residents, or establishing a parallel program for their use. The Legislature would pass statutory changes optimizing and/or expanding MMCAP INFUSE.



5.11 Minnesota Should Robustly Regulate PBMs and Their Business Practices, Building on the PBM Legislation Enacted in 2019.

Recommendation.

In 2019, Minnesota enacted legislation regulating PBMs. See 2019 Minn. Laws ch. 39 (to be codified at Minn. Stat. ch. 62W). While a good first step, the Task Force recommends that this law should be strengthened to better address problematic PBM business practices, including the opaqueness of their business model, and that the Minnesota Department of Commerce (“Commerce”), who will administer this law, robustly use its rulemaking and other authority granted by the law to ensure proper oversight of, and transparency into, the operations of PBMs in Minnesota.

Action Steps.

- 5.11.1 Section 62W.06 should be amended to require public disclosure of the pricing information referenced in this statute**
Currently, disclosure is required only to a health-plan client on request, or to the Department of Commerce as part of a transparency report of which portions will be non-public.
- 5.11.2 Commerce should promptly implement the provisions of the PBM law, including engaging in robust rulemaking necessary to appropriately regulate PBMs.**
- 5.11.3 Commerce should develop a financial indicator for PBMs that is the equivalent of the medical loss ratio for health plans. It should reflect the proportion of PBMs’ revenue that is used to provide drug benefits to health plan enrollees, versus the proportion used for administrative costs, profits, and other purposes.**
- 5.11.4 Commerce should annually report, on a dedicated and easily-accessible website, on the following activities and practices of PBMs that operate in Minnesota:**
- the number of PBMs licensed each year in Minnesota;
 - the number and nature of any complaints it has received that a PBM has engaged in fraudulent activity or conduct that fails to comply with the requirements of Minn. Stat. § 62W;
 - the number of PBMs that have been alleged to, or found to, not “exercise good faith and fairdealing in the performance of its contractual duties.” (see Minn. Stat. § 62W.04);
 - the network adequacy of all PBMs, and the methods used to determine network adequacy for each PBM;
 - a quantitative summary of the provisions and requirements related to transparency of rebates, discounts, fees, and list prices of all licensed PBMs in a manner that allows comparability among PBMs operating in Minnesota (see Minn. Stat. § 62W.06);



- f. the pharmacy ownership status of pharmacies that contract with each PBM, see Minn. Stat. § 62W.07, and pharmacies in the network of each PBM, including but not limited to the number and percent of network pharmacies owned by the PBM, the ownership of any mail-order pharmacies, and specialty pharmacies used by the PBM;
- g. the number of Maximum Allowable Pricing lists used by each PBM for Minnesota health plans (see Minn. Stat. § 62W.08); and
- h. any other provisions of chapter 62W that demonstrate the intended impact of the results and outcomes these statutes were meant to bring about, as well as any significant unintended consequences.

Responsible Persons/Entities.

The Minnesota Department of Commerce will be responsible for regulating PBMs, publicly reporting data on their practices, and administrative rulemaking, pursuant to chapter 62W. It would be the responsibility of the Legislature to amend and strengthen Chapter 62W, including its transparency-promoting provisions.

5.12 Minnesota Should Encourage and Facilitate Price Transparency for Prescription Drugs.

Recommendation.

The Task Force believes additional pricing transparency is a necessary—but not a sufficient—measure required to address the high cost of prescription drugs. Accordingly, the Task Force recommends that Minnesota enact legislation to promote transparency into prescription drug prices. The objective of the legislation should be to establish a process to make transparent the actual, net price of critical and high visibility drugs in Minnesota. The information gathered through this process should be easily accessible to the public through a dedicated and easily-accessible website.

Action Steps.

5.12.1 Identify a list of critical and/or high-visibility drugs in Minnesota.

Such drugs may include: drugs advertised on television; drugs for which the pricing practices have been found to be price-gouging, as defined by the price-gouging statute the Task Force recommends be enacted; drugs in a “protected class” of drugs under Medicare Part D; drugs for which Minnesota statutes and rules require coverage; drugs above a certain price threshold for a course of therapy; drugs known to have copay coupons or that are subsidized through a patient assistance program when a generic equivalent is available; and drugs which are highlighted in the public media. The Legislature should also empower the entity compiling this list to establish other criteria for inclusion on the list, which should be published on a regular basis.



5.12.2 For the drugs that have been identified as critical and/or high-visibility drugs in Minnesota, develop a means to determine the current or recent actual, net price per course of therapy of the drugs, including through the ability to compel the production of this pricing information, if necessary.

Once this is accomplished, establish a process to publish the list of the drugs, and the prices of such drugs, online. The list should be updated at least quarterly.

5.12.3 The published information should also contain household economic information, including but not limited to the poverty level for an individual or a family, Social Security income, personal income, household income, and state and national gross domestic product.

Such information should assist the public in determining the affordability of drugs.³⁰⁶

5.12.4 As necessary and appropriate, legislation should be developed and enacted to facilitate and support this transparency-related initiative.

Responsible Persons/Entities.

The Legislature would enact any appropriate legislation. Once law, the Minnesota Department of Health would administer this process.

5.13 Assure Patient Access To Pharmacists' Services for Effective Medication Use.

Recommendation.

The Task Force recommends that Minnesota take additional steps to assure that all Minnesotans have access to a pharmacist in their local communities who can collaborate with other health-care providers to facilitate safe, effective, efficient, and optimal medication use.

Action Steps.

5.13.1 Minnesota should promote policies aimed at preventing pharmacy closures in rural and other underserved areas.

The closing of independent and other pharmacies in greater Minnesota and other non-urban areas throughout the country has rightfully been met with concern. Such pharmacy closures contribute to nonadherence of prescription medications, among other negative effects on patient outcomes. The elderly, in particular, are at high risk as a result of such pharmacy closures, due to their high rates of prescription medication use, concerns over drug interactions, their greater likelihood of experiencing transportation problems, and often limited financial resources. One possibility to consider is whether a program similar to the one designed to support "critical access hospitals,"³⁰⁷ which generally serve rural areas, would be appropriate to support "critical access pharmacies."



5.13.2 Expand the use of Medication Therapy Management ("MTM") to control drug costs.

MTM services provided by health-care professionals, including pharmacists, to review and optimize therapy regimens for patients. They are especially effective for patients with chronic conditions, complex medication therapies, high drug costs, and those with multiple prescribers.³⁰⁸ The additional use of MTM to control drug costs should include optimizing use of this practice in Medicare, Medicaid/Medical Assistance, MinnesotaCare, and commercial health plans.

5.13.3 Encourage and promote collaborative practice agreements ("CPAs") to foster better patient outcomes with prescription drugs.

Minnesota already permits CPAs,³⁰⁹ which define certain patient care functions that a pharmacist can autonomously provide, including optimization of drug therapies. Pharmacists are well-positioned to perform medication and wellness interventions that improve patient outcomes and these should be encouraged and promoted to foster better patient outcomes with respect to prescription drugs.

5.13.4 Encourage "academic detailing" to improve prescribing practices of targeted drugs.

"Academic detailing" is educational outreach to prescribers by other, independent health-care professionals who are unconnected to the drug industry. Offering physicians current research and evidence-based information provides them the opportunity to make informed clinical decisions regarding medication effectiveness, safety, and cost of therapy. The growth and success stemming from this process shows that physician prescribing can be changed without regulatory involvement.

5.13.5 Provide sufficient resources to ensure successful implementation of Minnesota's recently-passed drug repository program³¹⁰ and to engage in a public awareness campaign to ensure that patients (and authorized subscribers) are aware of the benefits of the program.

This program provides that prescription drugs, in their original, sealed, unopened, tamper-evident packaging, may be saved by defined donor patients upon discontinued use of the medication or supply. These unused drugs or supplies become available for use by other eligible individuals, who may not otherwise be able to have access to the drug.

Responsible Persons/Entities.

The Minnesota Board of Pharmacy, as the primary regulator of the practice of pharmacy in the state, should take the lead in implementing the recommendations in this section. The Legislature should pass any funding or statutory changes needed.



5.14 Support More Research on Prescription Drug Prices & Drug Benefits.

Recommendation.

In 2017, Minnesotans spent nearly \$8.7 billion on prescription drugs in retail and medical settings.³¹¹ Despite this spending making up a significant share of the state's economy, Minnesota does not currently have a dedicated government agency or unit responsible for studying the trends and policies of the drug industry, including with respect to its pricing practices. The Task Force recommends that additional resources be devoted to such research.

Action Steps.

- 5.14.1 Minnesota should support additional research on inter-professional collaboration among health-care providers who work in conjunction with one another to prescribe drugs to their patients and how this can be used to reduce drug costs.**
- 5.14.2 Minnesota should support additional research related to understanding how drug product discoveries and subsequent commercialization are funded, including how much funding provided to public entities—for example, public universities, government agencies, etc.—underlies the discovery, development, and commercialization of new prescription drugs.**
- 5.14.3 Minnesota should support additional research related to the use of pharmacogenomics in clinical practice, and how this method of personalized medicine may be used as a cost saving tool for individual patients and the state.**
- 5.14.4 Minnesota should support additional research related to broadly examining drug pricing, including the lack of transparency of prices, how drug costs impact Minnesotans, and exactly how much the state expends in prescription drug costs (most of which has been discussed in more depth in previous recommendations).**
Minnesota should also support additional research to track changes in drug-pricing policies implemented in the state and how these policies have affected drug spending.
- 5.14.5 Minnesota should support additional research related to the continued role of PBMs in the drug sales chain, including whether they should be subject to further regulation beyond what the Task Force had recommended above.**

Responsible Persons/Entities.

The Legislature should provide the Minnesota Department of Health with resources sufficient to initiate and conduct this research.



Conclusion and Next Steps



The Task Force considers this report as only a first step among many needed to lower skyrocketing drug prices. It will be up to lawmakers—and state and federal agencies with the administrative rulemaking authority—to implement some of the above recommendations. It will be up to the Minnesota Attorney General's Office and other law enforcers to re-double their efforts to police unlawful practices in the drug industry, under both existing law and any new legal tools implemented as a result of this report. It will be up to advocates to ensure the spotlight remains on the often life-or-death issue of lowering the exorbitant cost of prescription medications. The Task Force, with the assistance of the Minnesota Attorney General's Office, intends to be at the forefront of efforts to ensure the recommendations contained in this report are turned into policies that lower the cost of prescription medications for all Minnesotans.



Glossary of Terms

Acronym	Term
API supplier	active pharmaceutical ingredient manufacturer
ANDA	abbreviated new drug application
ASP	average sale price
AWP	average wholesale price
CDC	Centers for Disease Control
CMS	Centers for Medicare and Medicaid Services
CPA	collaborative practice agreements
CPI	consumer price index
DHS	Minnesota Department of Human Services
DIR fees	direct and indirect remuneration fees
FDA	Food & Drug Administration
FQHC	federally qualified health center
GPO	group purchasing organization
HHS	U.S. Department of Health and Human Services
HRSA	Health Resources and Services Administration
KFF	Kaiser Family Foundation
MAC	maximum allowable cost
MDH	Minnesota Department of Health
MTM	medication therapy management
NDA	new drug application
PAD	physician administered drug
PAP	patient assistance program
PBM	pharmacy benefit manager
REMS protocol	Risk Evaluation and Mitigation Strategy protocol
SAD	self-administered drug
WAC	wholesale acquisition cost



Committee Members

Co-Chair Nicole Smith-Holt.

Ms. Holt serves as a patient advocate on the Task Force. Ms. Holt tragically lost her 26-year-old son because he was unable to pay for the insulin he needed to treat his diabetes. She has since become a national leader in the fight to make insulin affordable for all diabetics.

Co-Chair Senator Scott Jensen, MD.

Senator Jensen is a legislative member of the Task Force. He is a practicing family physician who also represents Minnesota Senate District 47. Senator Jensen is the lead author of SF353 (91st Leg. 2019-20), the Prescription Drug Affordability Act. Senator Jensen was also the lead author of a recently-enacted law requiring the licensure of and regulating pharmacy benefit managers, better known as “PBMs.” See 2019 Minn. Laws ch. 39.

Elo Alston.

Mr. Alston serves as a patient advocate on the Task Force. He has been a type 1 diabetic for over 30 years. Mr. Alston has firsthand experience with the challenges faced by patients who require life-saving drugs, but lack medical insurance.

Jessica Braun, RN, APRN-CNP.

Ms. Braun is a medical practitioner representative on the Task Force. She is a family nurse practitioner with over 10 years of experience in a variety of health-care settings including college health, acute care, chronic pain management, and family practice.

Nazie Eftekhari.

Ms. Eftekhari is a health insurance industry representative on the Task Force. She is the CEO and principal architect of HealthEZ, a Minneapolis-based company that provides services designed to simplify health-plan administration for employers, consumers, health-care providers, and insurers.

Representative Rod Hamilton.

Representative Hamilton is a legislative member of the Task Force. He represents Minnesota House District 22B. Representative Hamilton has been a multiple sclerosis patient since 1994, giving him firsthand experience managing the rising costs of necessary prescription drugs. He is the co-author of multiple bills intended to make pharmaceutical-drug pricing more transparent.

Phu Huynh, PharmD, RPh.

Dr. Huynh is a small, independent pharmacy representative on the Task Force. He is a pharmacist and a pharmacy manager at NorthPoint Medical Clinic, where he has managed all operational aspects of this independent clinic and pharmacy for more than eight years. Through this experience, he has witnessed the impact on underserved patient populations of skyrocketing drug costs.



Christy Kuehn.

Ms. Kuehn serves as a patient advocate on the Task Force. Her husband suffers from type 1 diabetes and requires insulin, which costs their family more than \$2,200 a month. She has experience managing a family budget in the face of rising drug prices, which has led her husband to ration his insulin by taking half doses.

Shirlynn LaChapelle, RN, APN, SNP.

Ms. LaChapelle serves as a patient advocate on the Task Force. She has been working in health care as a Surgical Nurse Practitioner since 1976. Ms. LaChapelle has served as the president of the Minnesota Black Nurses Association, where she organized a number of outreach activities around the metro area to improve health outcomes in underserved communities. Ms. LaChapelle is the owner of Nursing is the Answer LLC, and is currently completing her Psychiatric Mental Health Nurse Practitioner Program.

Representative John Lesch.

Representative Lesch is a legislative member of the Task Force. He represents Minnesota House District 66B. He is chair of the House Judiciary Finance and Civil Law Division and the lead author of HF4 (2019-20), a bill to prohibit price-gouging on prescription drugs and rein in skyrocketing drug prices.

Senator Matt Little.

Senator Little is a legislative member of the Task Force. He represents Minnesota Senate District 58. Senator Little has introduced numerous bills aimed at increasing transparency and curbing high drug prices. He is also a co-author of SF472 (2019-20), The Alec Smith Emergency Insulin Act, which is named after Task Force Co-Chair Nicole Smith-Holt's son.

Rose Roach.

Ms. Roach serves as a patient advocate on the Task Force. She has served as the executive director of Minnesota Nurses Association since October 2014. Before joining Minnesota Nurses Association, Ms. Roach spent 25 years advocating for high-quality health care in Minnesota and California.

Stephen Schondelmeyer, PharmD, PhD.

Dr. Schondelmeyer serves as a pharmaceutical industry academic on the Task Force. He is a nationally-recognized expert in pharmaceuticals. He is a professor of pharmaceutical economics and an Endowed Chair in Pharmaceutical Management & Economics and Professor & Director of the PRIME Institute with the College of Pharmacy at the University of Minnesota, which focuses on pharmaceutical research related to management and economics.

Leonard Snellman, MD.

Dr. Snellman is a medical practitioner representative on the Task Force. He has been a pediatrician since 1985. He has served on the Pharmacy and Therapeutics Committee of HealthPartners since 1986, and is currently the chair of the Pharmacy and Therapeutics Committee for Children's Hospitals and Clinics of Minnesota, where he reviews new and existing medications and the role they play in the therapeutic regimen of patients.

Cody Wiberg, PharmD, RPh.

Dr. Wiberg is the executive director of the Minnesota Board of Pharmacy. Prior to joining the board he was the Pharmacy Program Manager for the Minnesota Department of Human Services. Dr. Wiberg is also a Clinical Assistant Professor for the University of Minnesota College of Pharmacy and an Affiliate Clinical Instructor and Course Director for the University of Florida Graduate School.



Endnotes

- 1 Although not official members of the Task Force, Representative Robert Bierman (House District 57A) and Representative Kristin Bahner (House District 34B) attended numerous Task Force meetings and were active participants in the Task Force's work.
- 2 See generally Bylaws of Advisory Task Force on Lowering Pharmaceutical Drug Prices (hereinafter "Bylaws").
- 3 See Bylaws § 8.10.
- 4 See Bylaws § 8.11.
- 5 The Task Force in particular wants to recognize the assistance provided by the Minnesota Department of Health and the Minnesota Department of Administration. In addition to Commissioner Malcom's testimony, representatives of each agency testified before the Task Force. Representatives from each department also participated in multiple working group meetings, and provided invaluable information to the Task Force.
- 6 For more information on the subjects discussed in this subsection, see generally Management Sciences for Health, *MDS-3: Managing Access to Medicines and Health Technologies* (3rd ed. 2012), www.msh.org/resources/mds-3-managing-access-to-medicines-and-health-technologies (last visited December 5, 2019) ("MDS-3"), and Henry Waxman et al., The Commonwealth Fund, *Getting to the Root of High Prescription Drug Prices* (July 2017), www.commonwealthfund.org/sites/default/files/documents/___media_files_publications_issue_brief_2017_jul_waxman_getting_to_root_high_rx_drug_prices_ib_v2.pdf (last visited December 5, 2019).
- 7 *MDS-3* at 9.3.
- 8 *MDS-3* at 9.3.
- 9 *MDS-3* at 9.3.
- 10 See Section 4.6 (discussing subscriber marketing and financial inducements).
- 11 See Section 3.1 (discussing patent, exclusivity, and related laws and rules).
- 12 Examples of biologics include insulin, vaccines, and Humira—the top-selling drug in the world.
- 13 Dr. Stephen W. Schondelmeyer & Leigh Purvis, *AARP Rx Price Watch Report - Trends in Retail Prices of Specialty Prescription Drugs Widely Used by Older Americans: 2017 Year-End Update*, p. 1. (June 2019) ("June 2019 AARP Rx Price Watch Report").
- 14 June 2019 AARP Rx Price Watch Report at 1.
- 15 June 2019 AARP Rx Price Watch Report at 1.
- 16 Minnesota Department of Health, *Issue Brief: Pharmaceutical Spending and Use in Minnesota: 2009-2013* at 2 (Nov. 2016), www.health.state.mn.us/data/apcd/docs/RxIssueBrief1Proof20161102.pdf ("MDH November 2016 Issue Brief").
- 17 Centers for Medicare & Medicaid Services, *National Health Expenditures 2017 Highlights* at 1, www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/highlights.pdf (discussing national statistics); see also MDH November 2016 Issue Brief at 5 (discussing Minnesota statistics)..
- 18 MDH November 2016 Issue Brief at 2.



- 19 MDH November 2016 *Issue Brief* at 3.
- 20 Pharmacy claims generally refers to health insurance claims for prescription drugs that are “typically covered as part of a pharmacy benefit and may be obtained at retail and other pharmacy settings.” MDH November 2016 *Issue Brief* at 2.
- 21 MDH November 2016 *Issue Brief* at 2.
- 22 Stefan Gildemeister, Director Health Economics Program, Minnesota Department of Health, *Presentation to Advisory Taskforce on Lowering Pharmaceutical Drug Prices*, at slide 6 (July 23, 2019) (hereafter “7/23/19 Gildemeister Presentation”) (showing that in 2013 \$943 million was spent on these bundled medical claims for drugs in Minnesota, which was far more than any other therapeutic category).
- 23 MDH November 2016 *Issue Brief* at 5-6 (noting that this is a low estimate due to certain categories of data that were not captured as part of this study).
- 24 MDH November 2016 *Issue Brief* at 1-2.
- 25 MDH November 2016 *Issue Brief* at 2.
- 26 MDH November 2016 *Issue Brief* at 2.
- 27 MDH November 2016 *Issue Brief* at 3.
- 28 MDH November 2016 *Issue Brief* at 4 n.6.
- 29 Centers for Disease Control and Prevention (“CDC”), *Percentage of Adults Aged ≥18 Years Who Were Prescribed Medication in the Past 12 Months, by Sex and Age Group – National Health Interview Survey, 2017*. Morbidity and Mortality Weekly Report, Vol. 68 (No. 4) (February 1, 2019), www.cdc.gov/mmwr/volumes/68/wr/mm6804a6.htm?s_cid=mm6804a6_w (last visited October 25, 2019).
- 30 CDC, *Prescription drug use in the past 30 days, by sex, race and Hispanic origin, and age: United States, select years 1988-1994 through 2011-2014*. Table 79, United States, 2017, <https://www.cdc.gov/nchs/hsr/content2017.htm#079> (last visited October 25, 2019).
- 31 Minnesota Department of Health, *Background Statistics on Prescription Drugs Compiled by the Health Economics Program for the MN AG Task Force on Prescription Drugs* at 4. (October 1, 2019) (the report and statistics the Minnesota Department of Health compiled for the Task Force are on file with Ms. Sadaf Rahmani, the staff liaison from the Minnesota Attorney General’s Office to the Task Force) (hereafter “MDH Prescription Drugs Report”).
- 32 *MDH Prescription Drugs Report* at 4.
- 33 *MDH Prescription Drugs Report* at 4.
- 34 *MDH Prescription Drugs Report* at 4.
- 35 Dr. Stephen W. Schondelmeyer & Leigh Purvis, *AARP Rx Price Watch Report - Trends in Retail Prices of Brand Name Prescription Drugs Widely Used by Older Americans: 2017 Year-End Update* at 5 (September 2018), www.aarp.org/content/dam/aarp/ppi/2018/09/trends-in-retail-prices-of-brand-name-prescription-drugs-year-end-update.pdf (last visited October 25, 2019).
- 36 *Id.* at 1.
- 37 Stephen W. Schondelmeyer & Leigh Purvis, *Trends in Retail Prices of Prescription Drugs Widely Used by Older Americans: 2017 Year-End Update*, AARP Public Policy Institute, (September 2019), www.aarp.org/content/dam/aarp/ppi/2019/09/trends-in-retail-prices-of-prescription-drugs-widely-used-by-older-americans.doi.10.26419-2Fppi.00073.003.pdf (last visited November 26, 2019).



- 38 Stephen W. Schondelmeyer & Leigh Purvis, *Trends in Retail Prices of Specialty Prescription Drugs Widely Used by Older Americans: 2017 Year-End Update*, AARP Public Policy Institute (June 2019), www.aarp.org/content/dam/aarp/ppi/2019/06/trends-in-retail-prices-of-specialty-prescription-drugs-year-end-update.doi.10.26419-2Fppi.00073.001.pdf (last visited November 26, 2019). The AARP Public Policy Institute analyzed 97 widely used specialty prescription drugs. Examples of the specialty drugs included in the analysis included Capecitabine (used to treat certain cancers), Avonex (used to treat multiple sclerosis), Truvada (used to treat and prevent HIV infection), and Humira (used to treat arthritis and other inflammatory conditions).
- 39 Lisa L. Gill, *How to Pay Less for Your Meds*, Consumer Reports (April 5, 2018), www.consumerreports.org/drug-prices/how-to-pay-less-for-your-meds/ (last visited October 22, 2019).
- 40 Thomas Goetz, *Health insurance aside, Americans still struggle to pay for their medications*, GoodRx (November 25, 2018), www.goodrx.com/blog/health-insurance-aside-americans-still-struggle-to-pay-for-their-medications/ (last visited October 22, 2019).
- 41 Dr. Lars Osterberg & Dr. Terrence Blaschke, *Adherence to medication*, The New England Journal of Medicine, 353:487-97 (August 4, 2005), www.nejm.org/doi/full/10.1056/NEJMr050100?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed (last visited November 25, 2019).
- 42 Ashley Kirzinger et al., *KFF Health Tracking Poll – February 2019: Prescription Drugs*, The Kaiser Family Foundation (March 1, 2019), www.kff.org/health-costs/poll-finding/kff-health-tracking-poll-february-2019-prescription-drugs/ (last visited November 25, 2019).
- 43 Kaiser Family Foundation, *Kaiser Health Tracking Poll: November 2016* (2016), <http://files.kff.org/attachment/Kaiser-Health-Tracking-Poll-November-2016-Topline> (last visited November 25, 2019).
- 44 Bram Sable-Smith, *American travelers seek cheaper prescription drugs in Mexico and beyond*, National Public Radio (February 11, 2019), www.npr.org/sections/health-shots/2019/02/11/691467587/americans-seek-cheaper-meds-in-mexico (last visited November 25, 2019).
- 45 Emily Rauhala, *As price of insulin soars, Americans caravan to Canada for lifesaving medicine*, The Washington Post (June 16, 2019), www.washingtonpost.com/world/the-americas/as-price-of-insulin-soars-americans-caravan-to-canada-for-lifesaving-medicine/2019/06/14/0a272fb6-8217-11e9-9a67-a687ca99fb3d_story.html?utm_term=.f1566f95c50d (last visited November 25, 2019).
- 46 See generally MDH *Prescription Drugs Report* and 7/23/19 Gildemeister Presentation.
- 47 For example, a person may be both an active pharmaceutical ingredient manufacturer and a drug manufacturer, or be both a health plan and operate a provider network
- 48 See Margaret A. Hamburg, M.D., *Remarks at the Annual Conference of the Food and Drug Law Institute*, 67 Food & Drug L.J. 123, 128 (2012) (“FDA-regulated products originate from approximately 300,000 foreign facilities spread across more than 150 countries. On the drug side, astoundingly, approximately 80% of the active pharmaceutical ingredients used in FDA-approved drugs sold in this country are manufactured outside of the United States, and 40 percent of finished drugs consumed here are manufactured elsewhere.”).
- 49 Generally, drug manufacturers’ pricing and other business practices as described in this paragraph, including their relationships with other entities in the drug sales chain, are described in depth in *In re Pharm. Indus. Average Wholesale Price Litig.*, 491 F.Supp.2d 20 (D. Mass. 2007), *aff’d* 582 F.3d 156 (1st Cir. 2009) (“*In re AWP Litigation*”).
- 50 21 U.S.C. § 360; see also 21 C.F.R. pt. 207.
- 51 Minn. Stat. § 151.252.
- 52 In industry jargon, the list price is known as the “wholesale acquisition cost (WAC),” which is in turn used to set the “average wholesale price (AWP)” of the drug. Manufacturers set WAC directly. AWP is generally set by adding a certain markup to WAC, usually about 20%. Thus, setting WAC also functionally sets AWP. See *In re AWP Litigation*, 491 F.Supp.2d 20 (D. Mass. 2007).



- 53 Generally, wholesale drug distributors business practices as described in this paragraph, including their relationships with other entities in the drug sales chain, are described in depth in *In re Pharm. Indus. Average Wholesale Price Litig.*, 491 F. Supp. 2d 20 (D. Mass. 2007), *aff'd* 582 F.3d 156 (1st Cir. 2009).
- 54 See Minn. Stat. § 151.47, subd. 1a(b) (requiring licensure to act as a wholesale distributor), Minn. R. 6800.1400 et seq. (describing licensing requirements and qualifications).
- 55 Generally, PBMs' rebate, pricing, and other business practices as described in this paragraph, including their relationships with other entities in the drug sales chain, are described in depth in *In re Pharm. Indus. Average Wholesale Price Litig.*, 491 F. Supp. 2d 20 (D. Mass. 2007), *aff'd* 582 F.3d 156 (1st Cir. 2009).
- 56 Even within the formularies, drugs are typically sorted into differing "tiers." Depending into which tier a PBM classifies a particular drug, a health plan's member will pay more or less out of pocket for the drug. Oregon Joint Interim Task Force on Fair Pricing of Prescription Drugs, *Report on Transparency Strategies for The Pharmaceutical Supply Chain*, 19 (November 2018), <https://olis.leg.state.or.us/liz/201711/Downloads/CommitteeMeetingDocument/152412> (last visited November 14, 2019) ("Oregon Drug Pricing Report").
- 57 Manufacturers will sometimes offer bundled discounts known as 'rebate walls,' wherein the manufacturer promises large rebates to PBMs, but only if the PBMs agree to cover a large number of drugs from the same manufacturer. Refusing to cover even one drug in the bundle could result in the entire rebate being taken away. See David Balto, *FTC Must Tackle Anticompetitive Drug Rebate Practices*, Law360 (May 17, 2019).
- 58 Manufacturers agree to pay PBMs rebates because a PBM can drive demand for a particular drug by agreeing to provide it preferential pricing or other treatment over a competing drug through use of the PBM's formulary.
- 59 See generally 2019 Minn. Laws ch. 39 (to be codified at Minn. Stat. ch. 62W).
- 60 See generally Minn. Stat. ch. 151 (establishing the Minnesota State Board of Pharmacy and charging it with licensing and regulating pharmacies and pharmacists in the state).
- 61 National Community Pharmacists Association, *NCPA 2017 Digest* at 21 (2017), www.ncpa.co/pdf/digest/2017/2017-digest-lr.pdf (last visited November 14, 2019).
- 62 Licensed health-care professionals authorized to prescribe in Minnesota include: physicians, physician assistants, nurse practitioners, dentists, optometrists, and podiatrists, as well as veterinarians (for animal use only).
- 63 Colette DeJong et al., *Pharmaceutical Industry-Sponsored Meals and Physician Prescribing Patterns for Medicare Beneficiaries*, JAMA Internal Medicine (August 2016), <https://jamanetwork.com/journals/jamainternalmedicinefullarticle/2528290> (last visited November 14, 2019).
- 64 Minn. Stat. § 151.461
- 65 Minn. Stat. § 151.461. There are other ways that practitioners are influenced to use specific drugs. For example, Centers for Medicare and Medicaid reimburses at a rate of 106% of the Average Sales Price of a drug, giving physicians an incentive to choose a more expensive drug over a cheaper one. See Centers for Medicare and Medicaid Services, Medicare Part B Drug Average Sales Price, www.cms.gov/Medicare/Medicare-Fee-for-Service-Part-B-Drugs/McrPartBDrugAvgSalesPrice/index.html (last visited November 14, 2019).
- 66 The Kaiser Family Foundation, *The Uninsured: A Primer*, Supplemental Table #1 (December 2017), <http://files.kff.org/attachment/Supplemental-Tables-The-Uninsured-A-Primer-Key-Facts-about-Health-Insurance-and-the-Uninsured-Under-the-Affordable-Care-Act> (last visited November 25, 2019).
- 67 In 2018, the average worker contributed 18% of the premium for individual coverage and 29% for family coverage. The Kaiser Family Foundation, *Employer Health Benefits: 2018 Annual Survey*, 9 (2018), <http://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2018> (last visited November 25, 2019).
- 68 *Id.* at 153
- 69 MMCAP INFUSE was previously known as the Minnesota Multistate Contracting Alliance for Pharmacy.
- 70 See, e.g., Minn. Stat. §§ 16C.105, 471.59, subd. 1(b).



- 71 Biologics are derived from living materials, whether they be human, animal, or microorganism in origin. They include any “virus, therapeutic serum, toxin, antitoxin, vaccine, blood, blood component or derivative, allergenic product, . . . or analogous product, . . . applicable to the prevention, treatment, or cure of a disease or condition of human beings.” 42 U.S.C. § 262, subd (i). The FDA also approves over the counter drugs.
- 72 See generally 21 U.S.C. § 355 (small molecule new drug application).
- 73 21 C.F.R. § 601.2, subd. (a).
- 74 42 U.S.C. § 262, subd. (j).
- 75 21 U.S.C. § 355, subd. (j).
- 76 See 21 U.S.C. § 355, subd. (j)(2)(A)(i).
- 77 21 U.S.C. § 355, subd. (j)(2)(A).
- 78 21 U.S.C. § 355, subd.(j)(2)(A)(vii). If the generic manufacturer claims that the patent is invalid or that the generic manufacturer’s sale of the drug will not infringe on the drug, it must give notice to the owner of the patent and the holder of the approved brand name drug, which triggers a 45-day window to file a lawsuit for infringement of the patent. *Id.*, subd. (j)(5)(B)(iii). If no such infringement action is filed, the application may proceed. If an infringement action is filed, this may result in the FDA freezing the ADNA for up to thirty months. *Id.*
- 79 42 U.S.C. § 262, subd. (k).
- 80 42 U.S.C. § 262, subd. (k)(2)(A)(i)(II).
- 81 42 U.S.C. § 262, subd. (k)(4).
- 82 FDA, Center for Drug Evaluation and Research, *List of Licensed Biological Products* (July 23, 2019), www.fda.gov/media/89589/download (last visited November 25, 2019).
- 83 See 35 U.S.C. § 101
- 84 35 U.S.C. § 154(a)(2).
- 85 35 U.S.C. §§ 101, 102.
- 86 The law’s official name is Drug Price Competition and Patent Term Restoration Act, Public Law 98-417 (1984) (codified at 21 U.S.C. §§ 301, 355, 360cc).
- 87 35 U.S.C. § 156.
- 88 21 U.S.C. § 355(b)(1).
- 89 21 U.S.C. § 355(j)(2)(vii).
- 90 21 U.S.C. § 355(j)(5)(B)(iii).
- 91 See 42 U.S.C. § 262(l)(2)(A),(B).
- 92 See *Sandoz Inc. v. Amgen Inc.*, 137 S. Ct. 1664, 1672 (2017).
- 93 21 U.S.C. § 355, subd. (j)(5)(B)(iv).
- 94 42 U.S.C. § 262, subd. (k)(6). This period of exclusivity can be extended in the event of a patent dispute involving the biological product.
- 95 21 C.F.R. § 316.31.
- 96 “New chemical” means “a drug that contains no active moiety that has been approved by FDA in any other [new drug application] under [21 U.S.C. § 355, subd (b)].” 21 C.F.R. § 314.108, subd (a).



- 97 21 C.F.R. § 314.108, subd. (b)(2). The FDA reduces the period of exclusivity to four years if the subsequent drug application contains a certification of patent invalidity or noninfringement. *Id.*
- 98 Other exclusivities that may apply to prescription drugs are: a biologic reference drug exclusivity, see 42 U.S.C. § 262, subd. (k)(7); a pediatric exclusivity, see 42 U.S.C. § 284m, 21 U.S.C. § 355a; an antimicrobial exclusivity, see 21 U.S.C. § 355f; and, essentially, an “other” exclusivity, see 21 C.F.R. § 314.108, subds. (4), (5).
- 99 United States Government Accountability Office, *Drug Discount Program – Federal Oversight of Compliance at 340B Contract Pharmacies Needs Improvement*, GAO Report No. 18-480 (June 2018), www.gao.gov/products/GAO-18-480 (last visited November 25, 2019).
- 100 HRSA, *340B Drug Pricing Program* (August 2019), www.hrsa.gov/opa/index.html (last visited October 29, 2019).
- 101 HRSA, *340B Eligibility* (May 2018), www.hrsa.gov/opa/eligibility-and-registration/index.html (last visited November 1, 2019). Specifically, covered entities include Federally Qualified Health Centers (“FQHC”), FQHC Look-Alikes, Native Hawaiian Health Centers, Tribal / Urban Indian Health Centers, Ryan White HIV/AIDS Program Grantees, children’s hospitals, critical access hospitals, disproportionate share hospitals, free standing cancer hospitals, rural referral centers, sole community hospitals, Black Lung Clinics, comprehensive hemophilia diagnostic treatment centers, Title X family planning clinics, sexually transmitted disease clinics, and tuberculosis clinics.
- 102 HRSA Table of Minnesota 340B Entities and Contract Pharmacies (October 1, 2019) (hereafter “Minnesota 340B Entities Table”) (this table was compiled for the Task Force, and is on file with Ms. Sadaf Rahmani, the staff liaison from the Minnesota Attorney General’s Office to the Task Force); see also 42 U.S.C. § 1395ww (establishing which hospitals are considered “disproportionate share hospitals”).
- 103 Minnesota 340B Entities Table.
- 104 Minnesota 340B Entities Table. The Minnesota Board of Pharmacy website also allows persons to search for 340B Program entities in Minnesota, which can be accessed at <https://mn.gov/boards/pharmacy/public/savingonprescriptiondrugs.jsp> (last visited November 27, 2019).
- 105 HRSA, *Notice Regarding Section 602 of the Veterans Health Care Act of 1992 Patient and Entity Eligibility*, 61 Fed. Reg., 55,158 (October 24, 1996), www.hrsa.gov/sites/default/files/opa/programrequirements/federalregisternotices/patientandentityeligibility102496.pdf (last visited November 25, 2019). Specifically, HRSA defines an individual as an eligible patient if (1) the covered entity has established a relationship with the individual and maintains the individual’s health records, (2) the individual receives health-care services from who is employed or contracted with the covered entity, and (3) the individual receives health-care services consistent with the services for which grant funding or federally-qualified health center look-alike status has been provided to the covered entity.
- 106 United States Government Accountability Office, *Drug Discount Program – Federal Oversight of Compliance at 340B Contract Pharmacies Needs Improvement*, GAO Report No. 18-480, at 35 (June 2018), www.gao.gov/assets/700/692697.pdf (last visited November 25, 2019).
- 107 Minn. Stat. § 151.06.
- 108 Minn. Stat. § 151.22.
- 109 Minn. Stat. § 151.252.
- 110 Minn. Stat. § 151.34.
- 111 Minn. Stat. § 151.21, subd. 3 (stating that pharmacists may substitute generic versions of drugs unless the prescribing physician has personally handwritten or indicated electronically, “dispense as written” or “D.A.W.”).
- 112 Minn. Stat. § 151.21, subd. 3. The FDA had yet to approve any biosimilar products as interchangeable as of July 2019, however, see FDA, Center for Drug Evaluation and Research, *List of Licensed Biological Products* (July 23, 2019), www.fda.gov/media/89589/download (last visited November 25, 2019), and biosimilar drugs that are not interchangeable must be specifically prescribed by doctors. Minn. Stat. § 151.21, subd. 3.
- 113 See 2019 Minn. Laws ch. 39 (to be codified at Minn. Stat. ch. 62W).



- 114 Tori Marsh, *2 Years After the EpiPen Price Hike, Here's What's Changed*, GoodRx (August 16, 2018), www.goodrx.com/blog/epipen-price-change-since-mylan-released-generic-epinephrine (last visited November 25, 2019).
- 115 The United States Department of Justice, *Press Release: Mylan Agrees to Pay \$465 Million to Resolve False Claims Act Liability for Underpaying EpiPen Rebate* (August 17, 2017), www.justice.gov/opa/pr/mylan-agrees-pay-465-million-resolve-false-claims-act-liability-underpaying-epipen-rebates (last visited November 25, 2019).
- 116 Charles Duhigg, *Outcry Over EpiPen Prices Hasn't Made Them Lower*, The New York Times (June 4, 2017), www.nytimes.com/2017/06/04/business/angry-about-epipen-prices-executive-dont-care-much.html (last visited November 25, 2019).
- 117 *Id.*
- 118 In general, the information discussed in this paragraph is summarized from the allegations in the complaints in *Federal Trade Commission v. Mylan Laboratories, et al.*, Court File No. 98-cv-3114 (D.D.C.), and *State of Connecticut et al. v. Mylan Laboratories, et al.*, Court File No. 98-cv-3115 (D.D.C.). Some of these materials are also accessible on the Federal Trade Commission's website at www.ftc.gov/enforcement/cases-proceedings/9810146/mylan-laboratories-inc-cambrex-corporation-profarmaco-sri-gyma (last visited November 25, 2019).
- 119 Minnesota Department of Health, *Diabetes in Minnesota*, www.health.state.mn.us/diseases/diabetes/data/diabetesfacts.html (last visited November 25, 2019).
- 120 American Diabetes Association, *The Burden of Diabetes in Minnesota*, <http://main.diabetes.org/dorg/PDFs/Advocacy/burden-of-diabetes/minnesota.pdf> (last visited November 25, 2019).
- 121 Carolyn Johnson, *Why treating diabetes keeps getting more expensive*, The Washington Post (October 31, 2016), www.washingtonpost.com/news/wonk/wp/2016/10/31/why-insulin-prices-have-kept-rising-for-95-years/ (last visited November 25, 2019).
- 122 Robin Respaut and Chad Terhune, *US insulin costs per patient nearly doubled from 2012 to 2016*, Reuters (January 22, 2019), www.reuters.com/article/us-usa-healthcare-diabetes-cost/u-s-insulin-costs-per-patient-nearly-doubled-from-2012-to-2016-study-idUSKCN1PG136 (last visited November 25, 2019).
- 123 Jeremy Olson, *Son's death pushes Minnesota mom into fight against high, rising drug prices*, The Minneapolis Star Tribune (May 11, 2018), www.startribune.com/son-s-death-pushes-mom-into-drug-price-spotlight/482344871/ (last visited November 25, 2019).
- 124 The Minnesota Attorney General's Office sued Sanofi Aventis, Eli Lilly, and Novo Nordisk over the alleged pricing practices described in this subsection in 2018, claiming they were deceptive, fraudulent, and unlawful. The lawsuit remains pending in federal court in New Jersey. See *State of Minnesota, by its Attorney General, Keith Ellison v. Sanofi Aventis et al.*, Case No. 18-cv-14999 (D.N.J.).
- 125 United States Senate, Special Committee on Aging, *Sudden Price Spikes in Off-Patent Prescription Drugs: The Monopoly Business Model that Harms Patients, Taxpayers, and the U.S. Health Care System* (December 2016), www.aging.senate.gov/imo/media/doc/Drug%20Pricing%20Report.pdf (last visited October 22, 2019).
- 126 Andrew Pollack and Sabrina Tavernise, *Valeant's drug price strategy enriches it, but infuriates patients and lawmakers*, The New York Times (October 4, 2015), www.nytimes.com/2015/10/05/business/valeants-drug-price-strategy-enriches-it-but-infuriates-patients-and-lawmakers.html (last visited October 22, 2019).
- 127 Andrew Pollack, *Drug goes from \$13.50 a tablet to \$750, overnight*, The New York Times (September 20, 2015), www.nytimes.com/2015/09/21/business/a-huge-overnight-increase-in-a-drugs-price-raises-protests.html?_r=1&pagewanted=all (last visited October 22, 2019).
- 128 United States House of Representatives, Committee on Oversight and Reform, *Oversight Committee Requests Info on Documents Withheld from Congress by Valeant Pharmaceuticals: Press Release* (March 10, 2016), <https://oversight.house.gov/news/press-releases/oversight-committee-requests-info-on-documents-withheld-from-congress-by-valeant> (last visited October 22, 2019).
- 129 United States House of Representatives, Committee on Oversight and Reform, *Memorandum - Documents Obtained by Committee from Valeant Pharmaceuticals* (February 2, 2016), <https://oversight.house.gov/sites/democrats.oversight.house.gov/files/documents/Memo%20on%20Valeant%20Documents0.pdf> (last visited October 22, 2019).



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- 160 Harriet A. Washington, *Presentation to Working Group #1 of the Advisory Taskforce on Lowering Pharmaceutical Drug Prices* (July 18, 2019) (Ms. Washington is the author of the book “Medical Apartheid: The Dark History of Medical Experimentation on Black Americans from Colonial Times to the Present.” A recording of Ms. Washington’s presentation is on file with Ms. Sadaf Rahmani, the staff liaison from the Minnesota Attorney General’s Office to the Task Force.).
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R. Thomas, *Visiting Scholar, Patent "Evergreening": Issues in Innovation and Competition*, Congressional Research Service (November 13, 2009), www.ipmall.info/sites/default/files/hosted_resources/crs/R40917_091113.pdf (last visited November 22, 2019). A similar phenomenon is known as "product hopping," which happens when a drug maker changes a drug that is about to go off-patent, and aggressively encourages users of the first drug to switch to the new version. This is discussed further below. See Section 3.3.1.

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- 166 EvaluatePharma, Orphan Drug Report, at 9 (3rd ed. 2015), <http://info.evaluategroup.com/rs/607-YGS-364/images/EPOD15.pdf> (last visited November 22, 2019).
- 167 National Public Radio, *Drugs For Rare Diseases Have Become Uncommonly Rich Monopolies* (January 17, 2017), www.npr.org/sections/health-shots/2017/01/17/509506836/drugs-for-rare-diseases-have-become-uncommonly-rich-monopolies (last visited December 23, 2019). The Orphan Drug Act has also been criticized for allowing the re-classification of already-developed drugs or the development of "orphan drugs" that are actually marketed for off-label use. See, e.g., Sarah Jane Tribble, *FDA Moves to Rein In Drugmakers' Abuse of Orphan Drug Law*, National Public Radio (September 13, 2017), <https://www.npr.org/sections/health-shots/2017/09/13/550700062/fda-moves-to-rein-in-drugmakers-abuse-of-orphan-drug-law> (last visited November 22, 2019).
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- 172 21 U.S.C § 355(j)(5)(F)(iv).
- 173 Rebecca S. Eisenberg, *Patents and Regulatory Exclusivity*, The University of Michigan Law School, Scholarship Repository, at 15 (2012), https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1126&context=book_chapters (last visited on November 22, 2019).
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- 176 Jay Hancock & Sydney Lupkin, *Drugmakers Master Rolling Out Their Own Generics To Stifle Competition*, Kaiser Health News (August 5, 2019), <https://khn.org/news/drugmakers-now-masters-at-rolling-out-their-own-generics-to-stifle-competition/> (last visited on December 2, 2019). Moreover, because drug manufactures often offer price rebates for the name-brand version of a drug but not the authorized generic version of the drug, an authorized generic often has the same amount of profit as the brand name version of the drug. For example, the list price for the authorized generic version of Eli Lilly's Humalog insulin is \$137—less than half of brand-name Humalog—and yet after rebates for Humalog are taken into account, Eli Lilly nets approximately the same amount of profit for either version of the drug. As a pharmacy benefits executive told Congress, "Authorized generics are just another tactic for drug manufacturers to improve profitability." *Id.*
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- 184 Kaiser Family Foundation, *KFF health tracking poll – February 2019*, Kaiser Family Foundation (February 2019), at 8. <http://files.kff.org/attachment/Topline-KFF-Health-Tracking-Poll-February-2019> (last visited November 14, 2019).
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- 189 *State of Wisconsin et al v. Indivior Inc., et al*, Case No. 16-cv-5073, First Amended Complaint (E.D. Pa.).
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- 191 Sanofi, *Press Release: Sanofi Reaches Patent Settlement on Lantus® SoloSTAR®* (September 28, 2015), www.news.sanofi.us/2015-09-28-Sanofi-Reaches-Patent-Settlement-on-Lantus-SoloSTAR (last visited December 18, 2019) (“The agreement resolves a U.S. patent infringement lawsuit regarding Lilly’s pursuit of regulatory approval for a product that would compete with Lantus SoloSTAR. . . . In the U.S., Lilly will not sell its insulin glargine product before December 15, 2016.”).
- 192 See, e.g., *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 218 (1940) (“[F]or over forty years this Court has consistently and without deviation adhered to the principle that price-fixing agreements are unlawful . . . and that no showing of so-called competitive abuses or evils which those agreements were designed to eliminate or alleviate may be interposed as a defense.”). Other types of per se unlawful conduct under antitrust laws are market allocation schemes where competitors agree not to compete with one another in a particular geographic area or for a particular class of customers, group boycotts in which multiple competitors refuse to do business with another company unless that company stops doing business with other competitors, and certain types of tying arrangements in which unrelated products are sold together as a single unit, to force customers to buy both.
- 193 Antitrust lawsuits involving allegedly per se anticompetitive conduct often settle prior to a ruling on the merits by a court or a jury. As part of such settlements, drug manufacturers rarely are forced to admit the unlawfulness of their alleged



conduct.

- 194 *State of Connecticut et al v. Actavis Holdco U.S. Inc., et al*, Case No. 17-cv-03768 (E.D. Pa. October 31, 2017).
- 195 *State v. Actavis Holdco* Compl. ¶ 7.
- 196 Lisa M. Schwartz & Steven Woloshin, *Medical Marketing in the United States: 1997-2016*, The Journal of the American Medical Association, Vol. 321, No. 1, at 80 (January 8, 2019), <https://jamanetwork.com/journals/jama/fullarticle/2720029> (last visited November 27, 2019) (hereafter "*Medical Marketing*"). According to one study, "[s]pending increases from 1997 through 2016 were greatest for drugs for diabetes/endocrine diseases (from \$22 million to \$725 million), dermatology conditions (\$67 million to \$605 million), pain/central nervous system disorders (\$56 million to \$542 million), arthritis (\$27 million to \$484 million), cardiac diseases (\$0 to \$379 million) and cancer (\$3 million to \$274 million), largely reflecting competition among expensive new biologics and cancer therapies." *Id.* at 82; see also Joanne Kaufman, *Think You're Seeing More Drug Ads on TV? You Are, and Here's Why*, The New York Times (Dec. 24, 2017) (discussing another study that found TV ads for prescription drugs in 2017 increased to 771,368).
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- 198 United States House of Representatives, Committee on Energy and Commerce, Subcommittee on Oversight and Investigations, *Direct-to-Consumer Advertising: Marketing, Education, or Deception?* (May 8, 2008), www.govinfo.gov/content/pkg/CHRG-110hhrg54104/html/CHRG-110hhrg54104.htm (last visited November 27, 2019) (Hon. Bart Stupak opening statement).
- 199 American Medical Association, *Press Release: AMA Calls for Ban on DTC Ads of Prescription Drugs and Medical Devices* (November 17, 2015), www.ama-assn.org/press-center/press-releases/ama-calls-ban-dtc-ads-prescription-drugs-and-medical-devices (last visited November 27, 2019).
- 200 *Medical Marketing* at 88.
- 201 See Section 3.6 (discussing patient assistance programs, patient discount coupons, and other practices that create perverse economic incentives to purchase higher priced drugs).
- 202 *Medical Marketing* at 88.
- 203 *Id.* at 85.
- 204 *Id.* at 89.
- 205 *Id.* at 85.
- 206 *Id.*
- 207 See, e.g., *State v. Boehringer Ingelheim Pharmaceuticals, Inc.*, Court File No. 62-CV-17-7562 (2d Judicial Dist.) (deceptive marketing of Aggrenox, Atrovent, Combivent, and Micardis); *State v. Johnson & Johnson et al.*, Court File No. 62-CV-17-3263 (2d Judicial Dist.) (deceptive marketing of over the counter medications, including infants and children's Tylenol liquid products as well as Tylenol, Benadryl, Roloids, Motrin, and Zyrtec); *State v. Bristol-Myers Squibb Co.*, Court File No. 62-CV-16-6869 (2d Judicial Dist.) (deceptive marketing of Abilify); *State v. Amgen, Inc.*, Court File No. 62-CV-15-5054 (2d Judicial Dist.) (deceptive marketing of Aranesp and Enbrel); *State v. GlaxoSmithKline LLC*, Court File No. 62-CV-14-3930 (2d Judicial Dist.) (deceptive marketing of Advair, Paxil, and Wellbutrin); *State v. Wyeth Pharmaceuticals, Inc.*, Court File No. 62-CV-14-5503 (2d Judicial Dist.) (deceptive marketing of Rapamune); *State v. Abbott Laboratories*, Court File No. 62-CV-12-4065 (2d Judicial Dist.) (deceptive marketing of Depakote); *State v. GlaxoSmithKline, LLC*, Court File No. 62-CV-12-8721 (2d Judicial Dist.) (deceptive marketing of Avandia); *State v. Janssen Pharmaceuticals, Inc., et al.*, Court File No. 62-CV-12-6880 (2d Judicial Dist.) (deceptive marketing of Risperdal); *State v. AstraZeneca Pharmaceuticals LP, et al.*, Court File No. 62-CV-11-1785 (2d Judicial Dist.) (deceptive marketing of Seroquel).
- 208 United States Department of Health and Human Services, *Regulation to Require Drug Pricing Transparency*, 84 Fed. Reg. 20,734-20,758 (May 10, 2019).
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- 210 See Section 2.2.4 (providing an overview of PBMs and their business practices).
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- 213 Joseph S. Ross and Aaron S. Kesselheim, *Perspective: Prescription-Drug Coupons – No Such Thing as a Free Lunch*, *New England Journal of Medicine* at 1189 (September 26, 2013), www.nejm.org/doi/full/10.1056/NEJMp1301993 (last visited November 27, 2019) (hereinafter “NEJM *No Such Thing as a Free Lunch*”).
- 214 Congressional Research Service, *Prescription Drug Discount Coupons and Patient Assistance Programs (PAPs)* at 9 (June 15, 2017), <https://crsreports.congress.gov/product/pdf/R/R44264> (last visited November 27, 2019) (hereinafter “CRS *Discount Coupons and PAPs* Report”).
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- 216 CRS *Discount Coupons and PAPs* Report at 1.
- 217 *Id.*
- 218 CRS *Discount Coupons and PAPs* Report at 8-9.
- 219 *Id.* at 8 n.32 (this study noted that, among other things, “a well-designed coupon program could add 30 days to 60 days of patient drug use during a year.”).
- 220 NEJM *No Such Thing as a Free Lunch*.
- 221 Leemore Dafny et al., *When Discounts Raise Costs: The Effect of Copay Coupons on Generic Utilization*, The National Bureau of Economic Research (October 2016), www.hbs.edu/faculty/Publication%20Files/DafnyOdy_Schmitt_CopayCoupons_32601e45-849b-4280-9992-2c3e03bc8cc4.pdf (last visited November 27, 2019).
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- 223 2017 Cal. Stat. ch. 611 (codified at Cal. Health & Safety Code §§ 132000 *et seq.*), https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB265 (last visited November 27, 2019).
- 224 Mass. Gen. Laws ch. 175H § 3(b)(2); see also Thomas Sullivan, *Massachusetts & Drug Coupons: To Ban or Not to Ban, that is the Question*, Policy & Medicine A Rockpointe Publication (May 5, 2019), www.policymed.com/2019/05/massachusetts-drug-coupons-to-ban-or-not-to-ban-that-is-the-question.html (last visited November 27, 2019) (“The current law . . . prohibits manufacturers from offering discounts for any prescription drug that has an AB rated generic equivalent . . . or for any prescription drug that is a schedule II opioid”).
- 225 CRS *Discount Coupons and PAPs* Report at 12.
- 226 Recently, some health plans have attempted to combat the extra costs they pay as a result of discount coupons for branded drugs by implementing so-called “copay accumulators” policies. Under such policies, the health plan “doesn’t allow the value of a copay coupon to count against the [patients’] deductible or out-of-pocket maximum.” John S. Linehan, *State Legislatures Spring Ahead with Restrictions on Drug Copay Accumulators*, Managed Care (April 16, 2019), www.managedcaremag.com/voices/state-legislatures-spring-ahead-restrictions-drug-copayaccumulators (last visited November 27, 2019). Some have argued these programs are deceptive, and three states have enacted legislation restricting or banning such policies. *Id.*
- 227 Leemore Dafny et al., *When Discounts Raise Costs: The Effect of Copay Coupons on Generic Utilization*, *American Economic Journal: Economic Policy* (May 2, 2017), www.aeaweb.org/articles?id=10.1257/pol.20150588 (last visited November 27, 2019).
- 228 CRS *Discount Coupons and PAPs* Report at 19-20 (noting that manufacturers Celgene, Gilead Sciences, and Regeneron



have been investigated by federal authorities, and that another PAP charitable fund changed its name and revamped its board and operations after news reports disclosed its ties to Questcor Pharmaceuticals); see also Jayne O'Donnell, *Drug Co-Pay Assistance Programs Facing Increasing State, Federal Scrutiny*, USA Today (June 8, 2016), www.usatoday.com/story/news/politics/2016/06/08/drug-co-pay-assistance-programs-facing-increasingstate-federal-scrutiny/85547788/ (last visited November 27, 2019) (stating Gilead Sciences, Jazz Pharmaceuticals, Biogen, and Valeant Pharmaceuticals disclosed receiving subpoenas from federal investigators related to their funding of PAPs).

- 229 Norman V. Carrol, *Commentary – Pharmaceutical Patient Assistance Programs: Don't Look a Gift Horse in the Mouth or There's No Such Thing as a Free Lunch*, *Journal of Managed Care & Specialty Pharmacy*, Vol. 13, No. 7, at 615 (Sept. 2007), www.jmcp.org/doi/pdf/10.18553/jmcp.2007.13.7.614 (last visited November 27, 2019).
- 230 See *id.* (“physicians who treat medically indigent patients frequently face the choice of providing a ‘free’ PAP drug or an equally effective generic alternative.”)
- 231 CRS *Discount Coupons and PAPs* Report at 23.
- 232 CRS *Discount Coupons and PAPs* Report at 23-24 (quoting Jan Nielsen, Division President, of SonexusHealth).
- 233 Norman V. Carrol, *Commentary – Pharmaceutical Patient Assistance Programs: Don't Look a Gift Horse in the Mouth or There's No Such Thing as a Free Lunch*, *Journal of Managed Care & Specialty Pharmacy*, Vol. 13, No. 7, at 615 (Sept. 2007), www.jmcp.org/doi/pdf/10.18553/jmcp.2007.13.7.614 (last visited November 27, 2019).
- 234 *Medical Marketing* at 84 (finding manufacturers consistently spend approximately \$5 billion annually on marketing directly to health providers).
- 235 *Id.*
- 236 *Id.*
- 237 *Id.* at 92; see also Freek Fickweiler, Ward Fickweiler, & Ewout Urbach, *Interactions Between Physicians and the Pharmaceutical Industry Generally and Sales Representatives Specifically and their Association with Physicians' Attitudes and Prescribing Habits: A Systematic Review*, *BMJ OPEN* (2017) (“Physicians are susceptible to pharmaceutical industry and [physician-sales representative] interactions, which influences their clinical decision making leading to greater prescriptions of branded drugs over low-cost generic medicines and increasing healthcare costs.”)
- 238 Minn. Stat. § 151.461.
- 239 The Minnesota Board of Pharmacy also initiated an administrative disciplinary action against Insys. See *In the Matter of Insys Therapeutics, Inc.*, OAH Docket No. 84-0906-35288 (Minn. Off. Admin. Hr'gs).
- 240 *Complaint State v. Insys Therapeutics, Inc.*, Case File No. 27-CV-18-9081 (4th Judicial Dist. Minn. May 30, 2018).
- 241 *State v. Insys* Compl. ¶ 108.
- 242 *State v. Insys* Compl. ¶ 108.
- 243 *State v. Insys* Compl. ¶¶ 108, 110, 140-46.
- 244 *State v. Insys* Compl. ¶ 138.
- 245 *State v. Insys* Compl. ¶¶ 128, 133, 136; Aff. of Cerissa Stoltz in Support of the State's Mot. For Temp. Inj., ¶ 4.
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- 247 See Confirmation Order, *In re Insys Therapeutics, Inc. et al.*, Case No. 19-11292 (KG), D.I. 1115 (Bankr. D. Del. Jan. 16, 2020).
- 248 In industry jargon, the list price is known as the “wholesale acquisition cost (WAC),” which is in turn used to set the “average wholesale price (AWP)” of the drug. Manufacturers set WAC directly. AWP is generally set by adding a certain markup to WAC, usually about 20%. Thus, setting WAC also functionally sets AWP. See *In re AWP Litigation*, 491 F.Supp.2d 20 (D. Mass. 2007).



- 249 Moreover, some argue that patients often do not have choices so transparency is not sufficient to address problem drug pricing practices—they may not be able to switch drugs or forego using a drug, depending on what they have been prescribed, what alternative options exist, and what drug is covered by their health plan. See generally Alison Kodjak, *It Will Take More Than Transparency To Reduce Drug Prices, Economists Say*, National Public Radio (March 22, 2019), www.npr.org/sections/health-shots/2019/03/22/705469296/it-will-take-more-than-transparency-to-reduce-drug-prices-economists-say (last visited November 27, 2019).
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- 252 National Conference of State Legislatures, *Prescription Drug Database: 2015-Present* (December 9, 2019), www.ncsl.org/research/health/prescription-drug-statenet-database.aspx (last visited December 12, 2019).
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- 257 Nev. Rev. Stat. §§ 439B.600-695.
- 258 April McCullum, *Drug Costs Get Fresh Look in Montpelier*, Burlington Free Press (February 6, 2017), www.burlingtonfreepress.com/story/news/politics/government/2017/02/06/lawmakers-consider-updating-drug-cost-law/97465466/ (last visited December 12, 2019).
- 259 See, e.g., Minnesota House File 284 (91st Leg. 2019-20), www.revisor.mn.gov/bills/text.php?number=HF284&version=0&session_year=2019&session_number=0 (last visited November 27, 2019); Minnesota House File 288 (91st Leg. 2019-20), www.revisor.mn.gov/bills/text.php?number=HF288&version=0&session_year=2019&session_number=0 (last visited November 27, 2019); Minnesota House File 289 (91st Leg. 2019-20), www.revisor.mn.gov/bills/text.php?number=HF289&version=0&session_year=2019&session_number=0 (last visited November 27, 2019).
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- 275 United States Department of Health and Human Services, Office of Inspector General, *State False Claims Act Reviews* (2019), <https://oig.hhs.gov/fraud/state-false-claims-act-reviews/> (last visited December 17, 2019). The federal False Claims Act is found at 31 U.S.C. § 3729.
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- 287 See National Academy of State Health Policy, *Model Legislation: Affordability Review* (2019), <https://nashp.org/policy/prescription-drug-pricing/model-legislation/#toggle-id-3> (last visited December 2, 2019).
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- 289 See generally Food & Drug Administration, *Importation of Prescription Drugs*, 84 Fed. Reg. 70,796 (December 23, 2019), www.govinfo.gov/content/pkg/FR-2019-12-23/pdf/2019-27474.pdf (last visited on December 26, 2019).
- 290 Specifically, the bill provides that the Minnesota Board of Pharmacy, the Minnesota Department of Human Services, and private health plans must notify the Attorney General of any increase of 15% or more in the price of any essential prescription drugs sold in Minnesota.
- 291 See, e.g., Minn. Stat. § 325F.67, Minn. Stat. § 325F.69, and Minn. Stat. 325D.44.
- 292 See The National Consumer Law Center, *Consumer Protection in the States: A 50-State Evaluation of Unfair and Deceptive Practices Laws*, Map 2 (March 2018), www.nclc.org/images/pdf/udap/udap-report.pdf (last visited December 2, 2019) (noting that consumer protection statutes in 39 states include prohibitions against unfair or unconscionable conduct).
- 293 See 42 USC § 1320a-7b(b) (anti-kickback law); see also 42 USC § 1395nn (Stark law).
- 294 Currently, federal anti-kickback restrictions are effectively a stopgap measure until Minnesota enacts its own anti-kickback rules. See Minn. Stat. § 62J.23. This state statute, however, only vaguely references “restrictions” in federal law, and does not appear to explicitly adopt at least two important pieces of the federal anti-kickback statute: criminal liability and *per se* materiality in enforcement of the Minnesota False Claims Act.
- 295 See Section 3.6.1 (discussing how copay coupons incentivize persons to use expensive, brand name drugs).
- 296 See, e.g., Sections 2.1.1 (discussing how the drug industry is unique and often does not function like other markets), III.C (discussing various anticompetitive practices present in the drug industry).
- 297 See, e.g., Minn. Stat. 325D.51 (rendering unlawful “unreasonable” restraints on trade, without defining the term “unreasonable”).
- 298 California Assembly Bill No. 824 (2019), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200AB824 (last visited December 11, 2019).
- 299 For example, in 2013, the FTC created a regulation specifically stating that transfers of patent rights to drugs are reviewable. 16 C.F.R. §§ 801.1(o) to (q), 801.2(g).
- 300 Improving Access to Affordable Prescription Drugs Act, S. 771 (115th Congress 2017-18).



- 301 NACHC 340B Manual for Health Centers (2d Ed. March 2018) at 6 (noting that the rules and expectations for 340B are “significantly less clear” than other federal programs and maintaining compliance “requires an on-going investment of significant resources and attention”)
- 302 See *generally* Section 4.1.2 (discussing strategies to increase purchasing power).
- 303 The Northwest Prescription Drug Consortium (“NPDC”) is a government-run organization similar to MMCAP INFUSE in that it offers participating private residents the opportunity to use a free prescription-drug card. NPDC reports that it is able to leverage its purchasing power to obtain an average discount of 80% on generic drugs, and 20% on brand name drugs. In 2018, those discounts were used by nearly 240,000 individuals who saved roughly \$10.8 million, when compared to usual and customary pricing. See *generally* Washington State Health Care Authority, *NW Prescription Drug Consortium & Washington Prescription Drug Program* (this slideshow is on file with Ms. Sadaf Rahmani, the staff liaison from the Minnesota Attorney General’s Office to the Task Force).
- 304 MMCAP INFUSE currently utilizes regional sales executives to connect with potential new clients and promote awareness at trade shows, for example. MMCAP INFUSE has had success with regional/local initiatives as an introduction or entryway into learning about MMCAP INFUSE services. For example, select emergency medical services and police departments are utilizing MMCAP INFUSE for Narcan purchases at discounted pricing. As these departments become aware of MMCAP INFUSE savings and services, the awareness and desire to expand usage of MMCAP INFUSE grows.
- 305 See Minn. Stat. § 471.59
- 306 Minnesota may look to legislation in Texas as an example of legislation that addresses ascertaining drug prices and publishing that information online. The Texas law requires drug manufacturers to submit a report stating the wholesale acquisition cost information for certain drugs; and to submit additional information if the wholesale acquisition cost increases by a certain amount. The agency must then publish general public drug price information on a website. See Texas HB 2536 (86th Legislature 2019-20), <https://legiscan.com/TX/text/HB2536/id/1932058> (last visited December 18, 2019); see also Dena Bunis, *Texas Governor Signs Prescription Price Transparency Bill*, AARP (June 17, 2019), www.aarp.org/politics-society/advocacy/info-2019/texas-prescription-drug-price-bill.html (last visited December 18, 2019).
- 307 See *generally* United States Department of Health and Human Services, Center for Medicare and Medicaid Services, *Critical Access Hospitals* (July 2019), www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/CritAccessHospfctshst.pdf (last visited December 2, 2019).
- 308 For example, HealthPartners initiated a diabetes pilot program to determine MTM’s effectiveness, which revealed a projected cost savings of \$967,000 based on reduced hospital admissions and emergency room visits for their patient. See Dan Rehrauer, PharmD, Senior Manager, Medication Therapy Management Program and Community Pharmacy Partnerships, HealthPartners, *Presentation to Advisory Taskforce on Lowering Pharmaceutical Drug Prices* at slide 9 (September 25, 2019) (this presentation to the Task Force and the information contained therein are on file with Ms. Sadaf Rahmani, the staff liaison from the Minnesota Attorney General’s Office to the Task Force).
- 309 See Minn. Stat. § 151.01, subd. 27.
- 310 See Minn. Stat. § 151.555.
- 311 MDH Prescription Drugs Report at 1-2.







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Minnesota Prescription Drug Price Transparency

REPORT TO THE MINNESOTA LEGISLATURE

February 2023

Minnesota Prescription Drug Price Transparency: Report to the Minnesota Legislature

Minnesota Department of Health

Health Economics Program

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The Honorable Tim O'Driscoll, Ranking
Member, 237 State Office Building

February 21, 2023

To the Honorable Chairs and Ranking Members:

As directed in [Minnesota Statutes, Section 62J.84](#), the Minnesota Department of Health (MDH) has begun implementing the **Minnesota Prescription Drug Price Transparency Act** (the Act), which requires drug manufacturers to report information to MDH on high and quickly increasing drug prices and for MDH to publicly publish the reported information. Enclosed is the first required legislative report. It represents preliminary analysis of collected data, capturing information reported by manufacturers of prescription drugs from the first half of 2022. The report also includes early takeaways on the impact of the initiative.

Three key findings from the report include:

- Holding health care use constant, the price increases required to be reported in the first four months of 2022 are likely to impact—at minimum—an estimated 41,000 people living in Minnesota. As a result, health care spending is estimated to increase—at minimum—by \$32 million in 2022.
- Nearly a year after the first required data reporting, data quality and compliance with the statutory reporting requirement are poor. MDH is in the process of addressing data quality concerns with almost all manufacturers (69 manufacturers for 368 reports). Additionally, MDH is working to enforce compliance. Approximately half of expected reports have not been submitted (68 manufacturers for 442 reports).
- Minnesota’s legislation has had a positive impact on prescription drug price transparency in the state. Unfortunately, in its current design, the Act’s impact is limited because:
 - The focus is on list prices instead of net prices, and therefore does not represent the actual income manufacturers earn from the sale of their products.
 - The focus is only on manufacturers rather than the full supply chain. Other downstream entities—like pharmacy benefit managers, wholesalers, pharmacies, and payers—also contribute to the final price paid by consumers.
 - Reporting requirements treat drug pricing as if there is one market functioning under a single set of practices, which does not reflect the complex factors—such as incentives, economic environments, and business arrangements—driving pricing and rebate practices.
 - The Act broadly protects trade secret information, thereby shielding information from public release.

This report and the publicly available data reported by prescription drug manufacturers will become available on an MDH website ([Prescription Drug Price Transparency Home](https://www.health.state.mn.us/data/rxtransparency/) www.health.state.mn.us/data/rxtransparency/).

Questions or comments on the report may be directed to Stefan Gildemeister, the State Health Economist, at (651) 201-4520 or health.Rx@state.mn.us.

Sincerely,



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Executive Summary

In 2020, the Minnesota Legislature passed the Prescription Drug Price Transparency Act or “the Act” (Minnesota Statutes, Section 62J.84) to increase transparency into the pricing of prescription drugs. Drug manufacturers are required to report on prices for new drugs and price increases over specified thresholds (see Table 1). The Act requires submission of several data elements, but the primary reporting element is the Wholesale Acquisition Cost (WAC), or “list price,” for a 30-day supply. Requirements for reporting under the Act took effect January 1, 2022.

Overview

MDH identified 798 unique prescription drugs across 137 manufacturers with new drug introductions or price increases above the threshold in the Act that meet the reporting requirements on or before June 30th (this reporting period includes pricing event effective dates between January 1st and May 1st). MDH received about half (368) of the expected reports from 69 manufacturers and is actively seeking compliance for the additional reports not submitted. MDH has determined that virtually all reports covered in this analysis require clarifications or corrections by manufacturers. As a result, the analysis reported here should be considered preliminary.

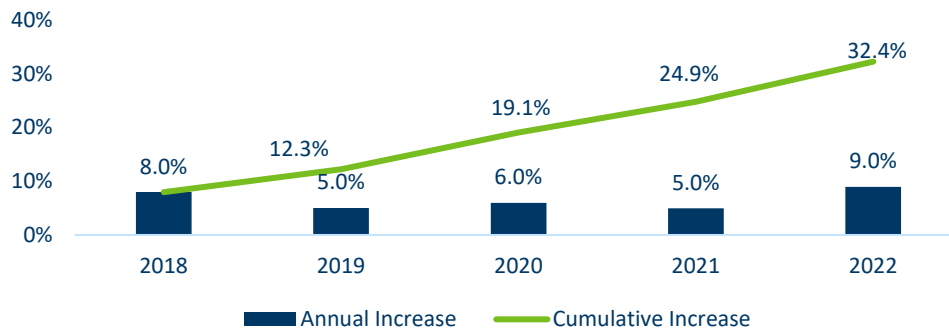
Preliminary Findings

Among *new drugs* reported to MDH, the median reported list price at market introduction was \$6,612.

Among drugs reported to MDH due to a *price increase*, the median reported list price after the increase was \$1,062. The median reported percent price increase was 7.9%, ranging from 1.5% to 106.0%.

Based on historical data, MDH estimates that the price increases included in this report (January 1st to May 1st) comprise about 68.0% of all price increases for calendar year 2022. The number of price increases that would have required price increase reporting under Minnesota thresholds has steadily declined over the last five years.

Five-Year Median Price Increase Percent with Cumulative Impact

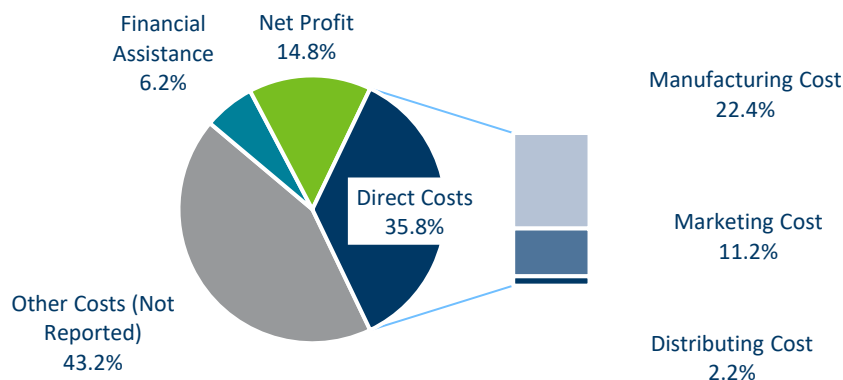


Source: MDH, Health Economics Program summary of data reported under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022.

Based on historical data, MDH estimates the price increases requiring reporting from January 1 to May 1 of 2022 would impact—at a minimum—41,000 people living in Minnesota during 2022 and would generate an additional \$32 million in health care spending in 2022.

As a percentage of gross revenue, on average manufacturers reported 35.8% was spent on direct costs on of manufacturing, marketing, and distributing, 14.8% on profit, and 6.2% on financial assistance.

Distribution of Preliminary Reported Gross Revenue Among Price Increase Reports



Source: MDH, Health Economics Program analysis for preliminary reported data under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022. Note: Other Costs (Not Reported) may include direct costs other than those of manufacturing, marketing, and distributing the prescription drug.

Takeaways and Next Steps

While MDH is not yet positioned to offer definitive and final insights into the efficacy of the Act given the recency of data availability and the need to validate and improve data quality and completeness, early takeaways from the initiative include:

- With the implementation of the Act, transparency in pharmaceutical pricing in Minnesota has distinctly increased.
- To meaningfully impact affordability and sustainability of prescription drug prices, transparency needs to be expanded and paired with stronger oversight and regulation of pricing practices.
- Transparency laws across the nation *may* have affected patterns of price increases by manufacturers.

MDH is expanding its analytic use and dissemination of reported data as it improves the quality of the data—including by considering other data on prescription drugs collected in Minnesota and by programs in other states and the federal government. As part of these activities, MDH will continue incrementally expanding the data available on the price transparency website as interactive dashboards ([Prescription Drug Price Transparency Home; www.health.state.mn.us/data/rxtransparency/](https://www.health.state.mn.us/data/rxtransparency/)).

Introduction

For many people living in Minnesota, drug therapy is a critical component of health care and well-being.¹ Prescription drugs provide many patients with life-saving treatment and improvements in quality-of-life. Yet, many people living in Minnesota face affordability challenges due to high and increasing prescription drug prices² and changes in health insurance benefit designs. There is considerable evidence that racial and ethnic minority populations disproportionately experience access barriers to novel and high-cost medications, lower-cost generic therapies, certain emergency use therapies, and preventive or critical care therapies.³

Prescription drug prices have been shown to cause patients to forego or reduce treatment; and prescription drug prices, as a component of overall out-of-pocket spending, affect the ability of people living in Minnesota to pay their health care bills.⁴ Not only are there increasing numbers of people living in Minnesota struggling to afford their medications,⁵ but trends in prescription drug prices also place pressure on public and private payers, as well as employers.⁶

In response, the Minnesota Legislature passed the Prescription Drug Price Transparency Act or “the Act” (see Appendix A) in 2020 to increase transparency into the pricing of prescription drugs and

¹ In 2013, the most recent year for which a more in-depth analysis was conducted most insured Minnesotans (about 3.2 million or 68.4 percent) filled one or more prescriptions at a pharmacy. This represents nearly 56 million filled pharmacy prescriptions for Minnesota residents that year. (MDH/Health Economics Program and PRIME Institute/Data IQ analysis of Minnesota All Payer Claims Database, 2016; MDH/Health Economics Program (2016) Pharmaceutical Spending and Use in Minnesota: 2009 to 2013, Issue Brief. [Pharmaceutical Spending and Use in Minnesota: 2009 - 2013 \(www.health.state.mn.us/data/apcd/docs/RxIssueBrief1Proof20161102.pdf\)](https://www.health.state.mn.us/data/apcd/docs/RxIssueBrief1Proof20161102.pdf); MDH/Health Economics Program and PRIME Institute/Data IQ analysis of Minnesota All Payer Claims Database, 2019.)

² For example, see 46brooklyn (2021). [The Rise of the Drug Mix Empire \(https://www.46brooklyn.com/research/2020/12/15/the-increasing-irrelevance-of-brand-drug-price-increases\)](https://www.46brooklyn.com/research/2020/12/15/the-increasing-irrelevance-of-brand-drug-price-increases).

³ Essien UR; Dusetzina SB; and WF Gellad. A Policy Prescription for Reducing Health Disparities—Achieving Pharmacoequity; JAMA. 2021;326(18)

⁴ In 2021, 5.7 percent of Minnesotans reported not filling a prescription in a 12-month period due to costs. (MDH/Health Economics Program analysis of the Minnesota Health Access Survey. In 2013, about 135,000 insured Minnesotans paid more than \$1,000 in out-of-pocket prescription drug pharmacy costs, with 1,835 Medicare beneficiaries and 1,075 commercially insured Minnesotans having paid \$5,000 or more out of pocket.

⁵ In 2021, 5.7 percent of Minnesotans reported not filling a prescription in a 12-month period due to costs. (MDH/Health Economics Program analysis of the Minnesota Health Access Survey. In 2013, about 135,000 insured Minnesotans paid more than \$1,000 in out-of-pocket prescription drug pharmacy costs, with 1,835 Medicare beneficiaries and 1,075 commercially insured Minnesotans having paid \$5,000 or more out of pocket.

⁶ In 2020, Minnesota spending on retail prescription drugs (less prescription drug rebates) totaled over \$5.9 billion, or 9.8 percent of all health care spending in Minnesota. If one includes estimates of spending on prescription drugs administered in medical settings, like hospitals, infusion centers, and nursing homes, prescription drug spending in Minnesota in 2020 likely reached as high as \$10.2 billion and accounted for 17.0 percent of total spending. (MDH/Health Economics Program (unpublished), “Minnesota Health Care Spending: 2020 Estimates and Ten-Year Projections; Minnesota Department of Health, Health Economics Program, MN APCD Issue Brief: Pharmaceutical Spending and Use in Minnesota: 2009-2013. November 2016. [Pharmaceutical Spending and Use in Minnesota: 2009-2013 \(https://www.health.state.mn.us/data/apcd/docs/RxIssueBrief1Proof20161102.pdf\)](https://www.health.state.mn.us/data/apcd/docs/RxIssueBrief1Proof20161102.pdf).

inform future policy through an improved understanding of factors driving prescription drug prices. The Act directs the Minnesota Department of Health (MDH) to develop a system for collecting data from pharmaceutical manufacturers and publicly reporting these data. The Act also requires MDH to annually submit a report to the legislature containing a synthesis of the data and assessment of the impact of the Act.

This is the first legislative report prepared by MDH. It contains:

- An overview of the Act.
- An update of MDH's implementation of the Act, including a summary of submitted information and preliminary analyses of reported data.
- A preliminary discussion of the effectiveness of the Act.

This report covers the reporting period from January 1, 2022⁷ to June 30, 2022.

Minnesota Prescription Drug Price Transparency Act

Overview of Statutory Requirements

The Act has three core requirements:

1. **Reporting:** Drug manufacturers must report to MDH a set of specified data elements when a drug's price meets the criteria for reporting. Broadly, reporting is required for higher priced new drugs and certain price increases.
2. **Public Posting:** MDH must publicly post data reported by manufacturers.
3. **Assessing Impact:** MDH must assess the Act's effectiveness in addressing the three primary statutory goals:
 - a) Promoting transparency in pharmaceutical pricing for the state and other payers.
 - b) Enhancing the understanding of pharmaceutical spending trends.
 - c) Assisting the state and other payers in the management of pharmaceutical costs.

Manufacturer reporting takes place throughout the year and is governed by defined triggering events associated with the introduction of new drugs⁸ and price increases. Table 1 summarizes the

⁷ Under the law, manufacturers have a 60 days after a triggering event (a qualifying price increase or introduction at a qualifying price level) for reporting and the submission of data. MDH received the first submission on March 1, 2022 for a triggering event date of January 1, 2022.

⁸ Minnesota Statutes 62J.84 criteria for reporting new drugs is defined in reference to the Centers for Medicare and Medicaid Services' tier threshold for specialty drugs, which was \$830 in 2022. Centers for Medicare and Medicaid Services. (February 3, 2022). [Contract Year 2023 Final Part D Bidding Instructions \(https://www.cms.gov/files/document/2023partdbiddinginstructions.pdf\)](https://www.cms.gov/files/document/2023partdbiddinginstructions.pdf).

main criteria for when reporting is required.⁹ Requirements for reporting under the Act took effect January 1, 2022, and manufacturers have 60-days after a triggering event to submit reports. For example, drugs with triggering events on January 1, 2022 must be reported by March 2, 2022. The price metric identified in the Act is the Wholesale Acquisition Cost (WAC),¹⁰ which is defined in federal law, and is a manufacturer's list price.

Table 1: Triggering Events for Prescription Drug Reporting

Trigger Type	Drug Type	Price Minimum	Criteria
Price Increase	Brand ¹¹	Greater than or equal to \$100 WAC	Greater than or equal to 10% increase in WAC over previous 12 months or 16% over previous 24 months
Price Increase	Generic ¹²	Greater than or equal to \$100 WAC	Greater than or equal to 50% increase in WAC over previous 12 months
Price at Market Entry	Brand	Greater than \$830 WAC in 2022	Introduction for sale
Price at Market Entry	Generic and Biosimilar	Greater than \$830 WAC in 2022 and is not at least 15% lower than the referenced brand name drug	Introduction for sale

⁹ For more detail on the triggers and criteria for reporting, see the Submission Requirements section of MDH's Form and Manner for Prescription Drug Price Data Sets guidance at: [Form and Manner for Prescription Drug Price Data Sets, Feb. 2022](https://www.health.state.mn.us/data/rxtransparency/docs/rxformmanner022322.pdf) (<https://www.health.state.mn.us/data/rxtransparency/docs/rxformmanner022322.pdf>).

¹⁰ Wholesale acquisition cost is defined in United States Code, title 42, section 1395w-3a(c)(6)(B) as "the manufacturer's list price for a prescription drug to wholesalers or direct purchasers in the United States, not including prompt pay or other discounts, rebates or reductions in price."

¹¹ Brand name drug is defined in Minnesota Statutes 62J.84, subdivision 2(c) as "an original, new drug application approved under United States Code, title 21, section 355(c), except for a generic drug as defined under Code of Federal Regulations, title 42, section 447.502; or a biologics license application approved under the United States Code, title 45, section 262(a)(c)."

¹² Generic drug is defined in Minnesota Statutes as "a drug that is marketed or distributed pursuant to: an abbreviated new drug application approved under United States Code, title 21, section 355(j); an authorized generic as defined under Code of Federal Regulations, title 45, section 447.502, or a drug that entered the market the year before 1962 and was not originally marketed under a new drug application."

Manufacturers are required to submit a range of data elements for each drug with a triggering event. Table 2 summarizes the data elements by data type (see Appendix B-1 and B-2). Manufacturers may identify certain information as trade secret and as non-public. They must provide a rationale for this designation. When MDH withholds non-public data from publication because they are protected by trade secret laws or other data practices provisions, MDH must describe the nature of information withheld and the basis for withholding the information.

Table 2: Required Data Elements

Data Type	Data Elements
Administrative Information	▪ Descriptive Drug Information ▪ Manufacturer Information ▪ Acquisition Information (company, date, price)*
Pricing History and Cost Drivers	▪ Net Increase Percent (current and previous five years) ▪ Factors Contributing to Increase ▪ Direct Costs (manufacturing, marketing, distribution) ▪ Sales Revenue and Net Profit ▪ WAC at Acquisition and Prior Year* (WAC at Introduction**) ▪ Year Introduced to Market and WAC at Introduction* ▪ WAC Price – Previous Five Years*
Industry Relationships and Market Context	▪ Financial Assistance Provided to Patient Programs ▪ Pay for Delay Agreements ▪ Patent Expiration Date ▪ Ten Highest Foreign Prices (brand only) ▪ Breakthrough Therapy Designation/Priority Review (Y/N)**

*Data element that is required for drugs acquired by a manufacturer within 12 months of triggering a price increase report.

**Data element required only for new drugs.

The Act also provides that a manufacturer may be subject to a civil penalty not to exceed \$10,000 per day of violation for failure to submit timely reports, failure to provide required information, or providing inaccurate or incomplete information.

National Context

With the adoption of the Act, Minnesota joined 17 other states that had passed drug price transparency laws and has been followed by three additional states passing transparency legislation.¹³ Minnesota's law differs in some important ways from those in other states:

- **Collection of trade secret information and evaluation of trade secret assertions.** Minnesota's law—like many state prescription drug price transparency initiatives—requires reporting of data elements regardless of trade secret status. However, Minnesota is among the few states that require manufacturers justify the reason for their position that data are trade secret and evaluate manufacturer justifications, disclosing them if no legal basis is found.
- **Volume of detailed information.** State transparency initiatives vary by what types of information, and at what level of specificity or aggregation are required. In Minnesota, manufacturers are required to report data at the drug product level. This means reporting occurs at a national drug code level¹⁴ for all unique combinations of drug name, dosage, strength, and package size. In addition, required data include administrative information, pricing history, cost drivers, industry relationships, and market context.
- **Reporting only from manufacturers and focus on list prices.** Minnesota's reporting requirement is limited to manufacturers of prescription drugs and the price they set for drugs, which is the WAC or the list price. Other states also collect data from other entities throughout the prescription drug supply chain, including pharmacy benefit managers (PBMs), wholesalers, pharmacies, and health plans. Reporting in other states also aims to collect data on *net prices* and *net expenditures*, thereby helping to illustrate the flow of funds through the supply chain and understanding the economic forces shaping pricing.
- **Continuous data reporting.** While the transparency initiatives in many other states require annual reporting, the Act in Minnesota requires manufacturers report to MDH on an ongoing basis within 60 days of a triggering event. Under this design, manufacturers' price changes may trigger reporting at any point and possibly multiple times in a calendar year.

¹³ National Academy of State Health Policy. "2022 State Legislative Action to Lower Pharmaceutical Costs." [NASHP - 2022 State Legislative Action to Lower Pharmaceutical Costs \(https://www.nasph.org/rx-legislative-tracker/\)](https://www.nasph.org/rx-legislative-tracker/).

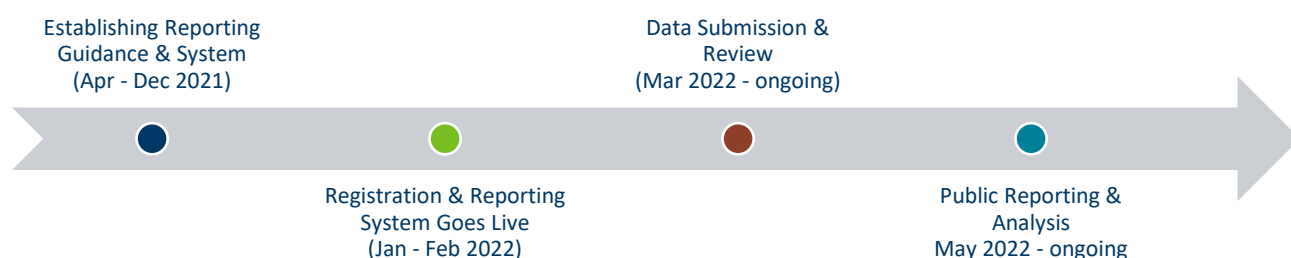
¹⁴ The National Drug Code (NDC) is a unique, three-segment number assignment by the FDA and used as a universal identifier for individual drug products in the United States. The first set of numbers identifies the labeler, such as the drug manufacturer, repackager, or distributor. The second set is the product code, which details the drug strength, dosage form and formulation, and the last set identifies the package size and type. [U.S. FDA - National Drug Code Directory \(https://www.fda.gov/drugs/drug-approvals-and-databases/national-drug-code-directory\)](https://www.fda.gov/drugs/drug-approvals-and-databases/national-drug-code-directory).

Implementation of the Act

MDH approached implementation of the Act with the goal to balance efficiency in data collection with ensuring that collected data would be timely and of high-quality. To that end, MDH consulted with industry representatives, communicated through GovDelivery announcements and state register notices, and sought feedback from stakeholders. MDH also established a website to host real-time information throughout the implementation process ([Prescription Drug Price Transparency Home \(www.health.state.mn.us/data/rxtransparency/\)](https://www.health.state.mn.us/data/rxtransparency/); see Appendix C). This website will also be the location where MDH hosts data for public reporting.

MDH drew on the expertise of state officials engaged in prescription drug policy and prescription drug price transparency initiatives in other states, subject matter experts, and the National Academy for State Health Policy (NASHP). Figure 1 provides an overview of four distinct milestones of implementation of the Act.

Figure 1: Implementation Milestones of the Act



Establishing Reporting Guidance

MDH sought to ensure that data reporting requirements were sufficiently rooted in industry practices by contracting with subject matter experts at Ten2Eleven Business Solutions, LLC, a firm that provides business technology solutions in the prescription drug space. To develop the reporting guidance, MDH held two public meetings between June and November 2021, at which MDH solicited manufacturer input. The final reporting guidance—which incorporated feedback from manufacturers, their trade associations, and other stakeholders—was released in December of 2021.

Registration & Reporting System

MDH developed an online reporting system for manufacturers to submit required information easily and securely. MDH held a training on the registration portal, responded to questions from manufacturers, and prepared online materials to assist manufacturers in their reporting.¹⁵

Data Submission & Review

Following the statutory reporting timeframes, MDH received its first data submissions in March 2022 for new drug introductions and price increases with triggering events on or after January 1, 2022. MDH staff has reviewed the initially reported data to assess compliance with the Act and reporting accuracy. A detailed analysis of the scope of reporting and state of quality of the data is reported in the section titled Reported Prescription Drugs. MDH is actively working with manufacturers to address the identified concerns and questions with compliance and data quality.

Public Reporting and Analysis

MDH's initial public posting of reported data will be iterative. MDH has prepared interactive displays that present drug-level data and aggregate trends—we refer to them as data dashboards. MDH anticipates releasing the following seven dashboards over time. They are accessible under the following URL: <https://www.health.state.mn.us/data/rxtransparency/>

- **Reporting Snapshot** – Descriptive tables of the volume and types of data reported to MDH, use and spending context for the reported drugs, and an overview of the review and public posting status of reported data.
- **Price Increase: Five Year Price Analysis** – Data on average current and cumulative price change percent over the most recent five years.
- **Price Increase: Comparative Price Analysis** – Data comparing the 5-year cumulative price change for a drug product with the cumulative mean price change of equivalent products.
- **Price Increase: Reported Revenues, Costs, and Profits** – Data on direct costs, revenues, and profits of drug products.
- **Price Increase: Drug Report** – List of drugs reported for price increases above statutory thresholds and all data elements that may be publicly posted.
- **New-to-market: Drug Report** – List of new-to-market drugs with prices above statutory thresholds and all data elements that may be publicly posted.

¹⁵ Materials that manufacturers can consult in the process of submitting the required information is available online: [Prescription Drug Price Transparency: Information for Reporting Entities \(www.health.state.mn.us/data/rxtransparency/rptgentities.html\)](https://www.health.state.mn.us/data/rxtransparency/rptgentities.html)

- **Acquired Product Price Impact Analysis** – Information about acquired drugs.

Additionally, MDH will make downloadable files available online of all reported data that may be made public. These dashboards and downloadable files will be updated on a rolling basis following the completion of reviews for compliance and accuracy, and remediation by manufacturers.

Reported Prescription Drugs

This section provides a preliminary summary of prescription drug prices reported to the department from manufacturers on or before June 30th, 2022. The data received are incomplete, inconsistent, and a significant portion remain unverified. As noted, MDH is in the process of verifying and reviewing data and is following up with virtually all manufacturers where the quality of data appears suspect or inconsistent with requirements. Additionally, MDH is pursuing compliance checks for manufacturers with incomplete or nonexistent/absent reporting. Therefore, due to data quality and quantity concerns, the summary and analysis presented in this report is preliminary. MDH believes despite the preliminary nature of the data, they lend themselves to exploring high-level takeaways.

To support our analysis and identify what reporting is expected, MDH benefited from a range of reference data—including Wolters Kluwer Medi-Span,¹⁶ FDA National Drug Code Directory,¹⁷ and FDA Purple Book.¹⁸ This information provides MDH the ability to analyze market attributes and pricing trends related to all drugs for which the department expects manufacturer reporting. Appendix D provides a summary of these reference data. Throughout this section, MDH presents the preliminary and unrefined **reported data**—submitted by manufacturers to MDH—in relation to the **data on expected reports** and statistics based on reference data on all drugs for which MDH expected to receive a report.

Overview of Reported Drugs

Manufacturers of drugs that met the triggering event criteria defined in the Act—either a new drug or a price increase—between January 1 and May 1 of 2022 were required to report on or before June 30, 2022.¹⁹ Historical data indicate that the pricing events targeted by the Act happen earlier in the year with 68.0% of all price increases within a typical calendar year occurring within these first four months. As such, the reporting period for this report likely covers most drug reports for the year.²⁰

¹⁶ Additional information about Medi-Span is available at: [Medi-Span: Drug Data Solutions for Healthcare \(https://www.wolterskluwer.com/en/solutions/medi-span\)](https://www.wolterskluwer.com/en/solutions/medi-span).

¹⁷ U.S. Federal Food and Drug Administration. National Drug Code Directory. Available at: [U.S. FDA - National Drug Code Directory \(https://www.fda.gov/drugs/drug-approvals-and-databases/national-drug-code-directory\)](https://www.fda.gov/drugs/drug-approvals-and-databases/national-drug-code-directory).

¹⁸ U.S. Federal Food and Drug Administration. Purple Book: Database of Licensed Biological Products. [U.S. FDA - Purple Book: Database of Licensed Biological Products \(https://purplebooksearch.fda.gov/downloads\)](https://purplebooksearch.fda.gov/downloads).

¹⁹ This lag is due to the 60 days manufacturers are allowed to submit data after a triggering event. This report includes all data submissions from January 1 to June 30, 2022 and may include some drugs with triggering events after May 1, 2022 that were submitted before June 30th.

²⁰ MDH conducted this analysis using reference data from Walters Kluwer's Medi-Span data for the years 2019 to 2021. Additional information about Medi-Span is available at: [Medi-Span: Drug Data Solutions for Healthcare \(https://www.wolterskluwer.com/en/solutions/medi-span\)](https://www.wolterskluwer.com/en/solutions/medi-span).

Using reference data, MDH identified 810 triggering events—either new drug introductions or price increases—for 798 unique prescription drugs across 137 manufacturers that were statutorily required to report on or before June 30.²¹ As shown in Table 3, MDH received 368 reports from 69 manufacturers—or 45.4% of expected reports from 50.4% of the manufacturers. (MDH received an additional 108 reports, 21 for new drugs and 87 for price increases, for the same period that were not statutorily required; these reports are included in the analysis in this section.)

Table 3: Expected Reports and Required Reports Received

Measure	Expected	Required and Received	Percentage Received
New Prescription Drug Reports	112	43	38.4%
Prescription Drug Price Increase Reports	698	325	46.6%
Total	810	368	45.4%

Source: MDH, Health Economics Program summary of preliminary data expected and reported under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022. Note: reports not statutorily required are not presented in this table.

New drug introductions and price increases occurred across a wide range of therapeutic classes.²² The ten therapeutic classes with the highest number of reports by report type are included in Table 4 and Table 5.

²¹ Some of these drugs had more than one price increase during this timeframe that triggered required reporting.

²² U.S. Federal Food and Drug Administration. USP Therapeutic Categories Model Guidelines. March 28, 2018. Available at: [USP Therapeutic Categories Model Guidelines \(https://www.fda.gov/regulatory-information/fdaaa-implementation-chart/usp-therapeutic-categories-model-guidelines\)](https://www.fda.gov/regulatory-information/fdaaa-implementation-chart/usp-therapeutic-categories-model-guidelines).

**Table 4: Top 10 Therapeutic Classes Associated with
New Prescription Drug Price Reports**

Therapeutic Class	Number of Reports	Percent of Reports Received
Antineoplastics and Adjunctive Therapies	17	26.5%
Hematological Agents – Misc.	8	12.5%
Endocrine and Metabolic Agents – Misc.	5	7.8%
Dermatologicals	5	7.8%
Cardiovascular Agents – Misc.	4	6.3%
Analgesics – Anti-Inflammatory	3	4.7%
Anti-Infective Agents – Misc.	2	3.1%
Antihistamines/Nasal Agents/Cough and Cold/Respiratory/Misc. – Antiasthmatic and Bronchodilator Agents	2	3.1%
Diagnostic Products	2	3.1%
Hematological Agents – Hematopoietic Agents	2	3.1%
Subtotal	50	78.0%

Source: MDH, Health Economics Program summary of preliminary data expected and/or reported under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022.

Table 5: Top 10 Therapeutic Classes Associated with Prescription Drug Price Increase Reports

Therapeutic Class	Number of Reports	Percent of Reports Received
Antineoplastics and Adjunctive Therapies	47	11.4%
Endocrine and Metabolic Agents – Antidiabetics	30	7.3%
Ophthalmic Agents	23	5.6%
Passive Immunizing and Treatment Agents	19	4.6%
Cardiovascular Agents – Antihypertensives	17	4.1%
Analgesics – Opioid	16	3.9%
Dermatologicals	15	3.6%
Anti-Infective Agents – Antivirals	14	3.4%
Nutritional Products – Minerals and Electrolytes	14	3.4%
Endocrine and Metabolic Agents – Misc.	13	3.2%
Subtotal	208	50.5%

Source: MDH, Health Economics Program summary of preliminary data expected and/or reported under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022.

Early Results: New Drugs

Using reference data, MDH identified 112 new drugs that required reporting during the first half of 2022 following their introduction to market at prices that exceeded \$830, the 2022 threshold. Of these, 81 were brand drugs and 31 were generic drugs. MDH received 38.4% of these expected reports by June 30, 2022. MDH identified an additional 44 generic drugs were introduced for sale at prices greater than \$830 but were not required to report because their drug products were introduced at a discount from the reference brand drug product of greater than 15%, or a reference brand drug was not on the market.

The median reported list price at market introduction was \$6,612.50 with half of all introductions priced between \$3,184.59 and \$15,396.47. Manufacturers reported existing patent protection for 64.1% of the submitted new drug reports. Patent protection means that the period during which a manufacturer enjoys market exclusivity where competitor drugs are delayed or cannot be brought to market has not ended. Among these, 28 were reported as having received priority review from the Food and Drug Administration (FDA), and of these, 16 were also indicated as having breakthrough therapy designation. Priority review and breakthrough therapy designation are FDA

approval processes that seek to reduce the development and review time for drugs that may provide a substantial improvement over existing treatment options.

Manufacturers reported information on direct costs attributed to manufacturing, marketing, and distributing.²³ Table 6 aggregates the average reported direct cost values for each category across new drug introductions. The Act requires collection of these three categories, but the manufacturer is not required to report other direct costs; so, the data represented likely captures only a portion of a manufacturer's total direct costs.²⁴ The cost of manufacturing and distribution each accounted for nearly half of the reported direct costs and marketing accounted for 6.3% of these costs. This data was inconsistently reported and, again, MDH is in the process of addressing many errors; so, the information presented is not final.

Table 6: Summary of Reported Direct Cost Information for New Drugs

Reported Direct Cost	Average Reported Value (in mill \$)	Percent of Total
Manufacturing	\$127.0	49.0%
Marketing	\$16.4	6.3%
Distribution	\$115.6	44.6%
Total	\$259.0	100.0%

Source: MDH, Health Economics Program summary of preliminary data expected and/or reported under Minnesota's Prescription Drug Price Transparency Act for new prescription drugs for the period of January 1, 2022, to June 30, 2022.

Early Results: Price Increases

MDH identified 698 triggering events for 686 unique drugs that were on the market that required reporting during the first half of 2022 due to exceeding the price and percentage increase criteria established by the Act.²⁵ MDH estimates that a minimum of 41,000 people living in Minnesota would be impacted by these price increases based on prescribing patterns from the first six months of 2021,²⁶ and estimates these increases will raise health care spending, at a minimum, by \$32 million in Minnesota in 2022.

Of the 698 expected price increase reports, only nine were for generic drugs. This disparity partially stems from the difference in reporting criteria in the Act between brand drugs and generic drugs:

²³ In some instances, manufacturers reported the same value for direct costs across multiple items with the same generic ingredient. For this analysis, MDH assumed these values represent total direct cost amounts distributed evenly rather than duplicate values.

²⁴ Direct costs collected by MDH do not include research and development costs.

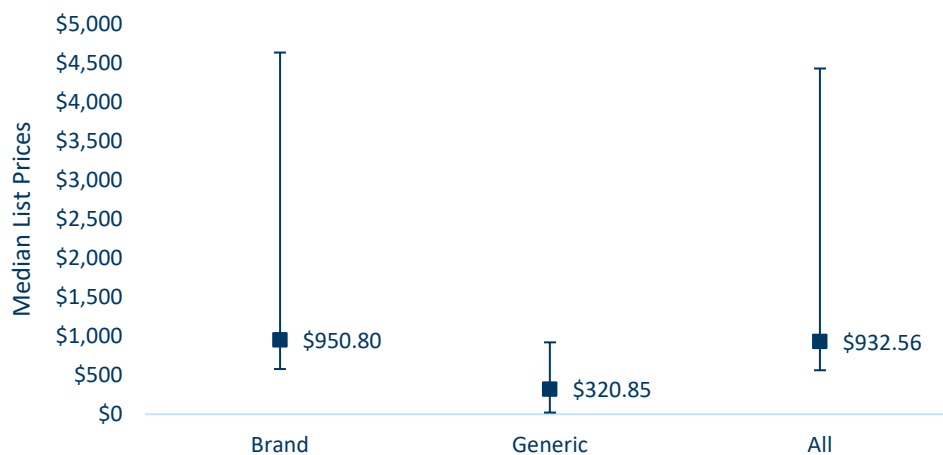
²⁵ Some of these drugs had more than one price increase during this timeframe that triggered required reporting.

²⁶ MDH reviewed pharmacy claims data collected in its Minnesota All Payer Claims Database (MN APCD) for claims incurred during the first six months of 2021 that relate to the drug products qualified as a triggering event for price increase reporting.

brand drugs must be reported for a price increase of 10% or more over a 12-month period or 16% or more over a 24-month period. Generic drugs that generally have lower prices in the first place need only be reported for a price increase of 50% or more during a 12-month period. If the reporting criteria were the same for generic drugs as they are for brand name drugs, an additional 127 generic drugs would have been required to be reported.²⁷

The median list price after price increase for drugs reported to MDH was \$1,062.35, with half of the prices between \$349.90 and \$3,354.12. Figure 2 provides data for all drugs for which reports should have been submitted. As expected, the range in the prices varied more greatly for brand name drugs compared to generics.

Figure 2: Median and Interquartile Range of List Prices for Expected Price Increase Drugs



Source: MDH, Health Economics Program analysis of Medi-Span reference data from Wolters Kluwer's Medi-Span Suite of electronic drug data files on expected for price increase reporting for the period of January 1, 2022, to June 30, 2022. Additional information about Medi-Span is available at: [Medi-Span: Drug Data Solutions for Healthcare \(https://www.wolterskluwer.com/en/solutions/medi-span\)](https://www.wolterskluwer.com/en/solutions/medi-span).

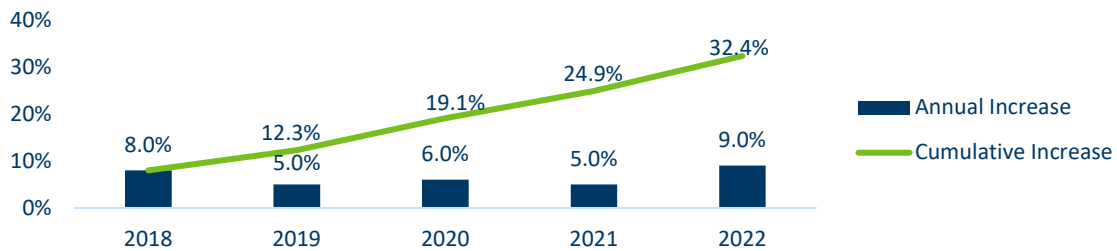
Manufacturers reported that 143 of the drugs reported for their price increase retained patent protection.

Price increases for drugs that are the subject of this initial reporting under the Act tend to occur on regular schedules. As shown in Figure 3, this means that price increases build up over time just like compound interest. The median cumulative increase reported by manufactures over the five-year period preceding the current increase, therefore preceding the time the Act was in force, was

²⁷ If statutory pricing criteria were the same for brand and generic drugs, 18.9 percent of brand drugs and 17.1 percent of generic drugs with a price increase of any amount during the review period would have required reporting.

32.4%. Figure 3 shows aggregated preliminary data; once data are validated and corrected, MDH will be able to report these trends for specific drugs (National Drug Code or “NDC”), drug families, and for therapeutic classes.

Figure 3: Five-Year Median Price Increase Percent with Cumulative Impact

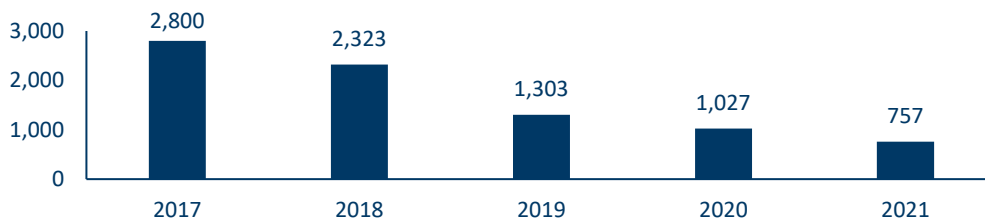


Source: MDH, Health Economics Program summary of preliminary data reported under Minnesota’s Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022.

For illustration, Figure 4 presents a review of reference data that shows the number of price increase events over the previous five years that would have met the Act’s requirements for reporting. Note that this is solely for reference as the reporting requirement was not in force in Minnesota until 2022. The number of significant price increases, as defined by the Act, has steadily declined. Several factors may have influenced this change in pricing dynamics, including:

- Increased competition resulting from a significant number of blockbuster drugs becoming generically available between 2010 and 2020.²⁸
- Implementation of price transparency laws requiring manufacturer reporting of significant price.
- Operational and financial decisions influenced by the COVID-19 pandemic in 2020 and 2021.

Figure 4: Estimated Number of Price Increase Events that Would Have Met Minnesota’s Reporting Thresholds for the Five Years Prior to Implementation



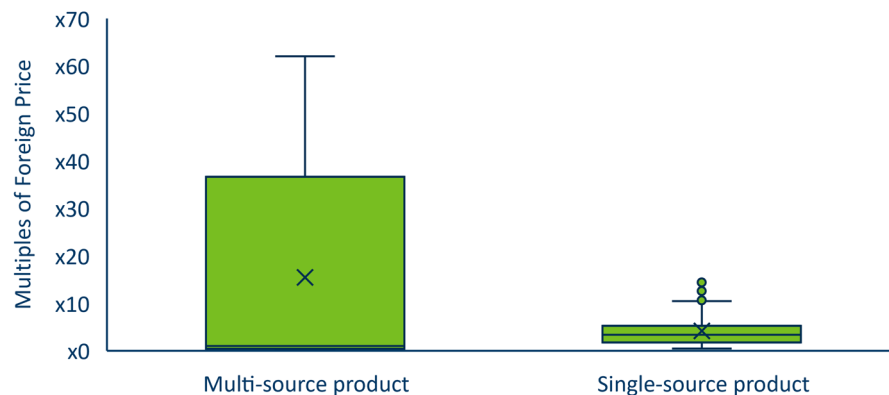
²⁸ DeRuiter, Jack, and Holston, Pamela L. “Drug Patent Expirations and the ‘Patent Cliff.’” Published June 20, 2012. U.S. Pharmacist. [U.S. Pharmacist - Drug Patent Expirations and the "Patent Cliff"](https://www.uspharmacist.com/article/drug-patent-expirations-and-the-patent-cliff) (<https://www.uspharmacist.com/article/drug-patent-expirations-and-the-patent-cliff>).

Source: MDH, Health Economics Program analysis of Medi-Span reference data from Wolters Kluwer's Medi-Span Suite of electronic drug data files. Additional information about Medi-Span is available at: [Medi-Span: Drug Data Solutions for Healthcare](https://www.wolterskluwer.com/en/solutions/medi-span) (<https://www.wolterskluwer.com/en/solutions/medi-span>).

As part of the Act's requirements, manufacturers reported the top ten foreign prices for 21% of reported drugs.²⁹ MDH is following up with manufacturers to ensure that drug-specific reporting on international prices is complete, accurate, and posted publicly; at this point these data have significant gaps and several manufacturers are claiming trade secret protection over these data. Analyzing data as submitted, MDH finds U.S. list prices overall exceed the reported international prices by substantial amounts. Although U.S. prices for a few reported drugs are below international list prices, U.S. prices on average are nearly three times larger than their international counterparts.³⁰

As shown in Figure 5 (which distinguishes between single-source³¹ and multi-source drugs³²) the U.S. list prices for most drugs significantly exceed international prices, sometimes 60-times larger. Price differences in foreign countries for single source brand drug products were less significant, suggesting that brand drug prices for multisource drug products may recognize more rapid price reductions as generic products are introduced to the market in foreign countries.

Figure 5: U.S. WAC as a Multiple of the Foreign Price: Full Range, Interquartile Range and Median for Price Increase Drugs



²⁹ Some manufacturers have indicated that they have not reported prices in other countries because drugs are not being sold in equivalent package sizes. MDH has communicated to manufacturers that they must estimate respective prices in these circumstances.

³⁰ The median percentage that WAC was reported priced above foreign prices was 260.6 percent during the previous calendar year.

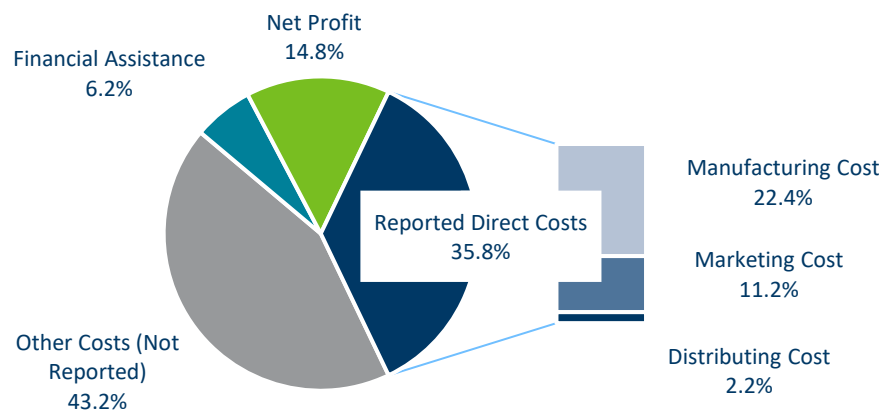
³¹ Single-source drugs are drugs that do not face competition from generic drugs rated as therapeutically equivalent under the Food and Drug Administration.

³² Multi-source drugs are drugs for which there is at least one other drug product that is rated as therapeutically equivalent by the Food and Drug Administration and is sold or marketed in the United States.

Source: MDH, Health Economics Program analysis for preliminary reported data under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022.

One benefit of increasing prescription drug transparency is to better understand how price increases are related to the direct costs manufacturers experience and the revenue and profits the drugs generate. Manufacturers that provided data across all revenue, cost, and profit data elements, reported that average reported direct costs (manufacturing, marketing, and distribution) accounted for 35.8% of gross revenue and the average profit margin amounted to 14.8%, as shown in Figure 6. Only 6.2% of gross revenue for reported drugs was devoted to financial assistance.³³

Figure 6: Distribution of Preliminary Reported Gross Revenue Among Price Increase Reports



Source: MDH, Health Economics Program analysis for preliminary reported data under Minnesota's Prescription Drug Price Transparency Act for the period of January 1, 2022, to June 30, 2022. Note: Other Costs (Not Reported) may include direct costs other than those of manufacturing, marketing, and distributing the prescription drug.

Manufacturers are required to submit narratives describing the factors contributing to the price increase, from which Minnesota expected to learn about what dynamics drive price increases and how they differ across products, manufacturers, drug classes, and drug characteristics. From the relatively brief and universal narrative descriptions submitted by manufacturers, MDH noted the following preliminary trends:

- Each manufacturer provided essentially the same justification language for all their reported drug products, rather than identifying drug-specific factors.

³³ Other Costs (Not Reported) represents the difference between reported gross revenue reduced by direct costs and financial assistance and the value reported as net profit.

- Many manufacturers referred to “costs and market dynamics” and “patient value” as key factors without indicating what that meant specifically.
- Some manufacturers referenced “marketing and distribution costs” as reasons for price increases—again without noting what underlying factors drove changes in these direct costs and ultimately drove price increases.
- Some manufacturers noted that drug prices as reported are needed to finance operations related to innovation, oversight, and patient access.

Data Considerations

As noted in the introduction to this section, the analysis reported here should be considered preliminary because of concerns about the quality and completeness of the data. Users of these data should be aware of the following considerations:

The reported data contain suspected inaccuracies and are incomplete. MDH has determined that virtually all reports covered in this analysis require clarifications or corrections by manufacturers. Common reasons include that:

- Reported data do not match reference data.
- Data were reported at an aggregated level rather than an NDC-specific level.
- Required data fields were not completed.
- Reports did not adhere to reporting requirements.

MDH is assessing these data on an ongoing basis and is following-up with manufacturers to address these issues.

The narrative descriptions of factors contributing to price increases often lacked meaningful, drug-specific information. Our understanding of the intent of this requirement was to better understand the factors responsible for price increases—such as manufacturing capacity, input price trends, formulary design considerations, or product competition. However, information submitted by manufacturers lacked significant detail or specificity that would generate meaningful and actionable insights. Furthermore, manufacturers frequently reported the same written narrative description of factors contributing to price increases regardless of the magnitude of a price increase or the drug product. Without drug-specific information, this data element holds little utility in understanding the distinct factors behind drug prices and their market environments. The narrative descriptions of the factors contributing to price increases suggested that manufacturers set list prices based on several other factors in addition to costs.

Many data elements reported to MDH were designated as not public and/or trade secret by manufacturers, which may prevent these data from being publicly reported. Not public and/or trade secret designations must be accompanied by written statements from the manufacturer that

substantiate the assertions by showing that each designated data element is supported by law as not public data or by citing applicable federal or state law and relevant legal authority. MDH must review these assertions to determine whether elements should be withheld from publication.

Virtually all (90%) of submitted reports included at least one data element designated by manufacturers as not public and/or trade secret. The data elements with the highest share of not public designation were those that contained financial information, including:

- Gross revenue and net profit.
- Direct costs incurred (manufacturing, distributing, and marketing).
- The estimated amount of financial assistance provided.

Many not-public assertions declare that disclosure of the data would provide competitors, customers, insurers, pharmacy benefit managers, and/or marketers with information that could be used to impact the ability to negotiate purchase and rebate agreements, and/or increase the leverage that consumers may have over the manufacturer.

Assessing the Effectiveness of the Act

Early Takeaways

One of the requirements of the Act is for MDH to assess its impact on three outcomes: (1) promoting transparency in pharmaceutical pricing, (2) enhancing Minnesota's understanding of pharmaceutical spending trends, and (3) assisting the state and other payers in the management of pharmaceutical spending.

While MDH is not yet positioned to offer definitive insights into the efficacy of the Act given the recency of data availability and the need to validate and improve data quality and completeness, MDH is presenting early takeaways on the first two items based on the data MDH has reviewed, the analysis MDH has conducted, and the experience MDH has gained from observing transparency initiatives in other states. In the coming months, MDH will assess the Act's effectiveness more comprehensively, including by:

- **Analysis of Clean Data:** Working with a representative set of data for which the review has been successfully concluded. This will likely take several months of engagement with manufacturers.
- **Obtaining Stakeholder Perspectives:** Engaging with stakeholders—such as payers, patient representatives, and experts—to consider their insights on the effectiveness of the Act to accomplish the legislative goals.

In the meantime, the following are our early takeaways:

Transparency in pharmaceutical pricing in Minnesota has distinctly increased. Pharmaceutical prices and the factors that drive pricing in the U.S. have long been shielded from public scrutiny. Initiatives in Minnesota and other states are illuminating pricing elements (the individual elements that contribute to the total price) and market incentives that influence drug costs in the country. As high-quality data become available, stakeholders will be able to gain substantial new insights from:

- Analyzing patterns in list prices for new drug introductions and drugs with price increases.
- Assessing market competition by comparing prices of select high-cost drugs to those of equivalent drugs available in the pharmaceutical market.
- Assessing U.S. prices in the context of international prices.
- Weighing the impact of price increases within the context of drug use and spending in Minnesota.
- Monitoring revenue and profits associated with certain drugs relative to certain direct spending, such as marketing and manufacturing costs.

The impact of the Act is limited in multiple ways. Prescription drug price transparency—like all transparency initiatives—is an essential first step to transforming systems. Price transparency

always needs to evolve and, ultimately, be paired with specific policies providing reimbursement oversight and regulation to meaningfully impact affordability and sustainability of prescription drug prices. Here are several of the Act's limiting factors:

- a. **The focus is on list prices instead of net prices.** Manufacturers grant substantial discounts from list prices, so the manufacturer list prices do not represent the actual income manufacturers earn from the sale of their products. These discounts are shaped by a complex set of market factors—including the degree of competition, the business interests of intermediaries in the supply chain, and the benefits of influencing product placement on insurance benefit formularies. As such, list prices alone are not sufficiently suited to evaluating the financial performance of individual drugs. Trends in net prices (which can directionally differ from those of list prices) offer more meaningful insight to amounts paid by payers and overall trends in the market. Other states have demonstrated that these data can be collected in a way that preserves manufacturers' business interests *and* produces powerful value to state policy making.³⁴
- b. **The focus is only on manufacturers rather than the full supply chain.** Manufacturers have a key role in determining the prices of pharmaceutical products through price setting and determining discounts. The Act only focuses on the earliest stage of the pharmaceutical price setting by requiring reporting from pharmaceutical manufacturers. It does not consider the pricing dynamics by downstream supply chain entities such as wholesalers, pharmacy benefits managers (PBMs), pharmacies, and payers (see Figure 7 for a conceptual model of the prescription drug supply chain). These downstream entities further impact the price paid by consumers by applying additional discounts, fees, and markups to drug products. Studying rebates and markups along the *whole* supply chain would reveal who retains the cost reductions and rebates provided by manufacturers. It will also assist in evaluating where along the supply chain pricing power leads to the excess prices that have contributed to considerable affordability concerns among payers and patients.
- c. **Reporting requirements treat drug pricing as if there is one market functioning under a single set of practices.** The Act considers the market for prescription drugs as functioning under a single, standardized market strategy for all products. The pharmaceutical market is extremely complex and the factors driving pricing and rebate practices differ between brand and generic products.³⁵ Transparency across the broad spectrum of prescription

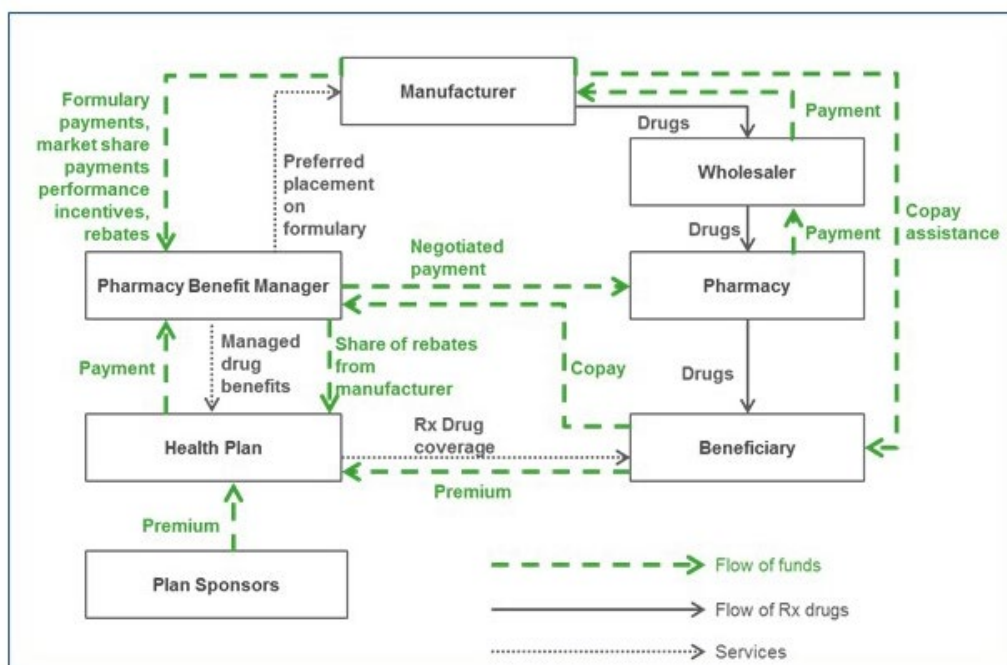
³⁴ Van Nuys, K; Ribero, R; Ryan, M and N. Sood. Estimation of the Share of Net Expenditures on Insulin Captured by US Manufacturers, Wholesalers, Pharmacy Benefit Managers, Pharmacies, and Health Plans From 2014 to 2018. JAMA Health Forum. 2021 Nov; 2(11); based on Jones, S.; Thompson, P; Tucker, J; Mitchell H; McKnight TJ; Wallace H and K Devine. Drug Transparency Report, 2019 Essential Diabetes Drugs. Nevada Department of Health and Human Services, 2019.

³⁵ See for example: Prescription Drug Transparency Report, Maine Health Data Organization, Jan. 2022; [MDHO Prescription Drug Transparency Report 2022 \(https://mhdo.maine.gov/_pdf/MHDO%20Rx%20Transparency%20Report%202021%20Final.pdf\)](https://mhdo.maine.gov/_pdf/MHDO%20Rx%20Transparency%20Report%202021%20Final.pdf)

drugs requires the collection of data—across the supply chain and across drugs within a class—that take those differences into account.

- d. **The Act broadly protects trade secret information.** Among states with transparency initiatives, Minnesota's is somewhat unique in that it requires the reporting of business information that manufacturers consider trade secret. In our initial analysis, virtually all submitted reports included at least one data element designated by manufacturers as not public. This designation indicates that manufacturers are seeking to shield from public reporting drug-specific reporting of net profits, gross revenue, direct costs, or comparisons between international and U.S. prices. The existing broad protection of data as trade secret paired with the state's limited resources and expertise devoted to evaluating legal arguments for trade secret, significantly limits developing a more informed public understanding of pricing patterns and restricts policymakers from identifying levers to improve affordability and management of drug spending.

Figure 7: Conceptual Model of the Prescription Drug Supply Chain



Source: Sood, N; Shih, ; Van Nuys, K; and Goldman D. Flow of Money Through the Pharmaceutical Distribution System. June 6, 2017. USC Schaeffer Center - Flow of Money Through the Pharmaceutical Distribution System (<https://healthpolicy.usc.edu/research/flow-of-money-through-the-pharmaceutical-distribution-system/>).

Transparency may have affected patterns of price increases by manufacturers. The National Academy of State Policy (NASHP) recently issued a report finding that since enactment of the first state price transparency laws in 2016, price increases that trigger reporting under these laws have decreased. Though there are many factors potentially accounting for the change in the number of

price increases, the number of states in the U.S. requiring some price reporting associated with prescription drugs rose to nearly two dozen by 2022. This has focused significant attention on pricing patterns and trends, thereby possibly affecting the number and rate of price increases.³⁶

Next Steps

Price transparency initiatives have the potential to affect industry behavior on pricing, to provide an evidence base for policy makers toward strengthening affordability, and to inform discussions between consumers and their care team about prescribing options. As noted, extending existing provisions in the Act in scope and scale would further support these outcomes.

Yet, transparency legislation and pricing data alone are unlikely to guarantee that drugs are accessible to all the people who need—in other words, ensuring equal access. Identifying future policies that are effective at reducing price growth *and* overcoming disparities in access to novel treatments and essential prescription drugs requires examining prescription drug prices, market behavior, utilization, and costs—for individuals and the overall system—within a broader context.

Some key dynamics to consider in this broader context include:

- Assessing the relationships between health insurance benefit design, drug use, health care costs, patient cost-sharing, and foregone care for prescription drugs.
- Estimating which market dynamics contribute to high cost sharing and explore how to address them through regulatory reforms.
- Exploring patterns of prescribing and the relative therapeutic and economic value of prescribed drugs (e.g., brand vs. generic, chronic vs. acute care, treatments choices across alternative therapies) across demographics, coverage types, and prescriber characteristics.

Over the next twelve months, MDH will be working with partners, stakeholders and experts—locally and nationally—to generate a research agenda, identify available and additional needed data, and study approaches to consider broader questions of prescription drug pricing, access, affordability, and disparities.

More narrowly, as it concerns continuing to implement the transparency initiative, MDH will pursue the following activities:

³⁶ Butler J and J. Reck. National Academy for State Health Policy. (January 10, 2022). [Drug Price Transparency Laws Position States to Impact Drug Prices](https://www.nashp.org/drug-price-transparency-laws-position-states-to-impact-drug-prices/) (<https://www.nashp.org/drug-price-transparency-laws-position-states-to-impact-drug-prices/>).

Assessing data designations: Over the next several months, MDH will continue to review and make determinations on the not public/trade secret assertions made by manufacturers over data elements included in required reporting. Unlike many other state prescription drug price transparency initiatives, Minnesota's law requires manufacturers to report information they believe to be trade secret and grants MDH the authority to review and assess the validity of trade secret claims. When MDH agrees with a manufacturer's assertion, those data elements will be withheld from public posting and MDH will instead post a description of the nature of the data and the basis for withholding it. When MDH disagrees with a manufacturer's assertion, MDH will provide the manufacturer written notice 30 days in advance of posting the data to allow manufacturers the opportunity to challenge MDH's determination.

Enforcement: MDH will continue pursuing enforcement of the drug price reporting requirements. This includes three activities: (1) to conduct ongoing review of new data submissions, (2) to communicate with manufacturers on data quality and noncompliance issues, and (3) to implement enforcement actions against manufacturers—including, as applicable, the assessment of penalties as authorized under the law.

Public posting and analysis of reported data: MDH has posted an initial set of interactive displays or data dashboards online (<https://www.health.state.mn.us/data/rxtransparency/>). Over the next few months, MDH will be incrementally expanding the scale and scope of data available online, including through input from stakeholders and content experts. We will also be expanding our own analytic use and dissemination of analysis as MDH improves the quality of the data. Along the way, MDH expects to make use of other available data on prescription drugs—such as the Department of Commerce's transparency reporting by pharmacy benefit managers; data from the Minnesota All Payer Claims Database (MN APCD) about prescription drug prices and utilization; as well as initiatives in other states and the federal government.

Conclusion

The passage of the Prescription Drug Price Transparency Act in 2020 provided people living in Minnesota and MDH with better sight lines into pharmaceutical pricing. However, more work is needed to meaningfully impact affordability of prescription drugs and the sustainability of total spending. MDH is actively seeking to improve the data we do have by working with manufacturers to fully report required information and clarify and correct submitted information. MDH is also exploring ways to better examine how drug prices are situated within the broad context of health care and how this may inform future policy discussions.

Expanding transparency in Minnesota—focusing on net prices, collecting data from entities throughout the supply chain, supporting public disclosure of reported information, evaluating prices against data on clinical outcomes, and analyzing the downstream health equity effects of prescription drug prices—would also enhance the value of these data to researchers and the public. It would position MDH to more fully answer the statutory charge to assist in the management of pharmaceutical costs and better equip Minnesota to move beyond transparency and develop targeted and effective policy.

MDH is looking forward to working with the legislature and stakeholders on strengthening this initiative and supporting ideas for making prescription drugs more affordable for patients and the total spending on prescription drugs sustainable.

Appendix A: Minnesota Statutes, Section 62J.84

1

MINNESOTA STATUTES 2021

62J.84

62J.84 PRESCRIPTION DRUG PRICE TRANSPARENCY.

Subdivision 1. **Short title.** This section may be cited as the "Prescription Drug Price Transparency Act."

Subd. 2. **Definitions.** (a) For purposes of this section, the terms defined in this subdivision have the meanings given.

(b) "Biosimilar" means a drug that is produced or distributed pursuant to a biologics license application approved under United States Code, title 42, section 262(K)(3).

(c) "Brand name drug" means a drug that is produced or distributed pursuant to:

(1) an original, new drug application approved under United States Code, title 21, section 355(c), except for a generic drug as defined under Code of Federal Regulations, title 42, section 447.502; or

(2) a biologics license application approved under United States Code, title 45, section 262(a)(c).

(d) "Commissioner" means the commissioner of health.

(e) "Generic drug" means a drug that is marketed or distributed pursuant to:

(1) an abbreviated new drug application approved under United States Code, title 21, section 355(j);

(2) an authorized generic as defined under Code of Federal Regulations, title 45, section 447.502; or

(3) a drug that entered the market the year before 1962 and was not originally marketed under a new drug application.

(f) "Manufacturer" means a drug manufacturer licensed under section 151.252.

(g) "New prescription drug" or "new drug" means a prescription drug approved for marketing by the United States Food and Drug Administration for which no previous wholesale acquisition cost has been established for comparison.

(h) "Patient assistance program" means a program that a manufacturer offers to the public in which a consumer may reduce the consumer's out-of-pocket costs for prescription drugs by using coupons, discount cards, prepaid gift cards, manufacturer debit cards, or by other means.

(i) "Prescription drug" or "drug" has the meaning provided in section 151.441, subdivision 8.

(j) "Price" means the wholesale acquisition cost as defined in United States Code, title 42, section 1395w-3a(c)(6)(B).

Subd. 3. **Prescription drug price increases reporting.** (a) Beginning January 1, 2022, a drug manufacturer must submit to the commissioner the information described in paragraph (b) for each prescription drug for which the price was \$100 or greater for a 30-day supply or for a course of treatment lasting less than 30 days and:

(1) for brand name drugs where there is an increase of ten percent or greater in the price over the previous 12-month period or an increase of 16 percent or greater in the price over the previous 24-month period; and

(2) for generic drugs where there is an increase of 50 percent or greater in the price over the previous 12-month period.

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(b) For each of the drugs described in paragraph (a), the manufacturer shall submit to the commissioner no later than 60 days after the price increase goes into effect, in the form and manner prescribed by the commissioner, the following information, if applicable:

- (1) the name and price of the drug and the net increase, expressed as a percentage;
- (2) the factors that contributed to the price increase;
- (3) the name of any generic version of the prescription drug available on the market;
- (4) the introductory price of the prescription drug when it was approved for marketing by the Food and Drug Administration and the net yearly increase, by calendar year, in the price of the prescription drug during the previous five years;
- (5) the direct costs incurred by the manufacturer that are associated with the prescription drug, listed separately:
 - (i) to manufacture the prescription drug;
 - (ii) to market the prescription drug, including advertising costs; and
 - (iii) to distribute the prescription drug;
- (6) the total sales revenue for the prescription drug during the previous 12-month period;
- (7) the manufacturer's net profit attributable to the prescription drug during the previous 12-month period;
- (8) the total amount of financial assistance the manufacturer has provided through patient prescription assistance programs, if applicable;
- (9) any agreement between a manufacturer and another entity contingent upon any delay in offering to market a generic version of the prescription drug;
- (10) the patent expiration date of the prescription drug if it is under patent;
- (11) the name and location of the company that manufactured the drug; and
- (12) if a brand name prescription drug, the ten highest prices paid for the prescription drug during the previous calendar year in any country other than the United States.

(c) The manufacturer may submit any documentation necessary to support the information reported under this subdivision.

Subd. 4. New prescription drug price reporting. (a) Beginning January 1, 2022, no later than 60 days after a manufacturer introduces a new prescription drug for sale in the United States that is a new brand name drug with a price that is greater than the tier threshold established by the Centers for Medicare and Medicaid Services for specialty drugs in the Medicare Part D program for a 30-day supply or a new generic or biosimilar drug with a price that is greater than the tier threshold established by the Centers for Medicare and Medicaid Services for specialty drugs in the Medicare Part D program for a 30-day supply and is not at least 15 percent lower than the referenced brand name drug when the generic or biosimilar drug is launched, the manufacturer must submit to the commissioner, in the form and manner prescribed by the commissioner, the following information, if applicable:

- (1) the price of the prescription drug;

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(2) whether the Food and Drug Administration granted the new prescription drug a breakthrough therapy designation or a priority review;

(3) the direct costs incurred by the manufacturer that are associated with the prescription drug, listed separately:

- (i) to manufacture the prescription drug;
- (ii) to market the prescription drug, including advertising costs; and
- (iii) to distribute the prescription drug; and
- (4) the patent expiration date of the drug if it is under patent.

(b) The manufacturer may submit documentation necessary to support the information reported under this subdivision.

Subd. 5. Newly acquired prescription drug price reporting. (a) Beginning January 1, 2022, the acquiring drug manufacturer must submit to the commissioner the information described in paragraph (b) for each newly acquired prescription drug for which the price was \$100 or greater for a 30-day supply or for a course of treatment lasting less than 30 days and:

(1) for a newly acquired brand name drug where there is an increase of ten percent or greater in the price over the previous 12-month period or an increase of 16 percent or greater in price over the previous 24-month period; and

(2) for a newly acquired generic drug where there is an increase of 50 percent or greater in the price over the previous 12-month period.

(b) For each of the drugs described in paragraph (a), the acquiring manufacturer shall submit to the commissioner no later than 60 days after the acquiring manufacturer begins to sell the newly acquired drug, in the form and manner prescribed by the commissioner, the following information, if applicable:

- (1) the price of the prescription drug at the time of acquisition and in the calendar year prior to acquisition;
- (2) the name of the company from which the prescription drug was acquired, the date acquired, and the purchase price;
- (3) the year the prescription drug was introduced to market and the price of the prescription drug at the time of introduction;
- (4) the price of the prescription drug for the previous five years;
- (5) any agreement between a manufacturer and another entity contingent upon any delay in offering to market a generic version of the manufacturer's drug; and
- (6) the patent expiration date of the drug if it is under patent.

(c) The manufacturer may submit any documentation necessary to support the information reported under this subdivision.

Subd. 6. Public posting of prescription drug price information. (a) The commissioner shall post on the department's website, or may contract with a private entity or consortium that satisfies the standards of section 62U.04, subdivision 6, to meet this requirement, the following information:

(1) a list of the prescription drugs reported under subdivisions 3, 4, and 5, and the manufacturers of those prescription drugs; and

(2) information reported to the commissioner under subdivisions 3, 4, and 5.

(b) The information must be published in an easy-to-read format and in a manner that identifies the information that is disclosed on a per-drug basis and must not be aggregated in a manner that prevents the identification of the prescription drug.

(c) The commissioner shall not post to the department's website or a private entity contracting with the commissioner shall not post any information described in this section if the information is not public data under section 13.02, subdivision 8a; or is trade secret information under section 13.37, subdivision 1, paragraph (b); or is trade secret information pursuant to the Defend Trade Secrets Act of 2016, United States Code, title 18, section 1836, as amended. If a manufacturer believes information should be withheld from public disclosure pursuant to this paragraph, the manufacturer must clearly and specifically identify that information and describe the legal basis in writing when the manufacturer submits the information under this section. If the commissioner disagrees with the manufacturer's request to withhold information from public disclosure, the commissioner shall provide the manufacturer written notice that the information will be publicly posted 30 days after the date of the notice.

(d) If the commissioner withholds any information from public disclosure pursuant to this subdivision, the commissioner shall post to the department's website a report describing the nature of the information and the commissioner's basis for withholding the information from disclosure.

(e) To the extent the information required to be posted under this subdivision is collected and made available to the public by another state, by the University of Minnesota, or through an online drug pricing reference and analytical tool, the commissioner may reference the availability of this drug price data from another source including, within existing appropriations, creating the ability of the public to access the data from the source for purposes of meeting the reporting requirements of this subdivision.

Subd. 7. Consultation. (a) The commissioner may consult with a private entity or consortium that satisfies the standards of section 62U.04, subdivision 6, the University of Minnesota, or the commissioner of commerce, as appropriate, in issuing the form and format of the information reported under this section; in posting information pursuant to subdivision 6; and in taking any other action for the purpose of implementing this section.

(b) The commissioner may consult with representatives of the manufacturers to establish a standard format for reporting information under this section and may use existing reporting methodologies to establish a standard format to minimize administrative burdens to the state and manufacturers.

Subd. 8. Enforcement and penalties. (a) A manufacturer may be subject to a civil penalty, as provided in paragraph (b), for:

(1) failing to submit timely reports or notices as required by this section;

(2) failing to provide information required under this section; or

(3) providing inaccurate or incomplete information under this section.

(b) The commissioner shall adopt a schedule of civil penalties, not to exceed \$10,000 per day of violation, based on the severity of each violation.

(c) The commissioner shall impose penalties under this section as provided in section 144.99, subdivision 4.

(d) The commissioner may remit or mitigate civil penalties under this section upon terms and conditions the commissioner considers proper and consistent with public health and safety.

(e) Civil penalties collected under this section shall be deposited in the health care access fund.

Subd. 9. **Legislative report.** (a) No later than May 15, 2022, and by January 15 of each year thereafter, the commissioner shall report to the chairs and ranking minority members of the legislative committees with jurisdiction over commerce and health and human services policy and finance on the implementation of this section, including but not limited to the effectiveness in addressing the following goals:

- (1) promoting transparency in pharmaceutical pricing for the state and other payers;
- (2) enhancing the understanding on pharmaceutical spending trends; and
- (3) assisting the state and other payers in the management of pharmaceutical costs.

(b) The report must include a summary of the information submitted to the commissioner under subdivisions 3, 4, and 5.

History: 2020 c 78 s 1; 2021 c 30 art 3 s 5-9

Appendix B-1, Data Elements Descriptions: Prescription Drug Price Increase Reporting

<i>Data Element</i>	<i>Description</i>
<i>NDC</i>	NDC of the drug
<i>Drug Description</i>	Description of the drug to including product name, dosage form, strength, package size
<i>WAC at Introduction</i>	WAC price of the drug at introduction to market
<i>Year of Introduction</i>	Year of introduction to market
<i>WAC Last Day 1 Year Prior</i>	WAC price of the drug on the last day of the year one calendar year preceding the price increase
<i>WAC Last Day 2 Year Prior</i>	WAC price of the drug on the last day of the year two calendar years preceding the price increase
<i>WAC Last Day 3 Year Prior</i>	WAC price of the drug on the last day of the year three calendar years preceding the price increase
<i>WAC Last Day 4 Year Prior</i>	WAC price of the drug on the last day of the year four calendar years preceding the price increase
<i>WAC Last Day 5 Year Prior</i>	WAC price of the drug on the last day of the year five calendar years preceding the price increase
<i>Generic Delay Agreement</i>	Indication of the existence of an agreement between a manufacturer and any other entity contingent upon any delay in offering to market a generic version of the drug 1 = True / 0 = False
<i>Patent Expiration Date</i>	Patent expiration date of the drug if it is under patent
<i>WAC at Acquisition</i>	If the manufacturer acquired a drug and the price meets the above reporting criteria on the

Data Element	Description
	day the manufacturer begins to sell the drug, the WAC on the date of acquisition
<i>WAC Year Prior to Acquisition</i>	If the manufacturer acquired a drug and the price meets the above reporting criteria on the day the manufacturer begins to sell the drug, the WAC on the date one calendar year prior to the acquisition
<i>Company Acquired From</i>	If the manufacturer acquired a drug and the price meets the above reporting criteria on the day the manufacturer begins to sell the drug, the name of the company from which the drug was acquired
<i>Date of Acquisition</i>	If the manufacturer acquired a drug and the price meets the above reporting criteria on the day the manufacturer begins to sell the drug, the date the drug was acquired
<i>Acquisition Price</i>	If the manufacturer acquired a drug and the price meets the above reporting criteria on the day the manufacturer begins to sell the drug, the acquisition price of the drug
<i>WAC Effective Date</i>	Effective date of WAC increase
<i>WAC After Increase</i>	WAC after the price increase
<i>Percent Increase Over Previous WAC</i>	Percentage increase over previous WAC
<i>Price Increase Factors</i>	Factors that contributed to the price increase
<i>Generic Nonproprietary Name</i>	Nonproprietary name of any generic version of the drug available on the market, if applicable
<i>Manufacturing Cost</i>	Direct costs incurred to manufacture the drug during the 12-month period preceding the price increase or cumulatively since the direct cost was first incurred

<i>Data Element</i>	Description
<i>Marketing Cost</i>	Direct costs incurred to market the drug, including advertising costs, during the 12-month period preceding the price increase or cumulatively since the direct cost was first incurred
<i>Distributing Cost</i>	Direct costs incurred to distribute the drug during the 12-month period preceding the price increase or cumulatively since the direct cost was first incurred
<i>Gross Revenue from Sales</i>	Total gross revenue from sales of the drug during the 12-month period preceding the price increase
<i>Net Profit</i>	Net profit attributable to the drug during the 12-month period preceding the price increase
<i>Financial Assistance Provided</i>	Total amount of financial assistance provided through Patient Assistance Programs during the 12-month period preceding the price increase or cumulatively since the financial assistance was first provided
<i>Manufacturing Company</i>	Name of the company that manufactured the drug
<i>Manufacturing Company Address</i>	Address of the company that manufactured the drug
<i>Brand Foreign Prices</i>	If a brand name drug, the ten highest prices paid for the drug during the calendar year prior to the price increase in any country other than the United States. Prices should represent the WAC equivalent in the country and be expressed in dollars according to the current exchange rate
<i>General Comments</i>	General comments and/or additional information related to the data submitted for the drug, if applicable

Appendix B-2, Data Elements Descriptions: New Prescription Drug Price Reporting

<i>Data Element</i>	<i>Description</i>
<i>NDC</i>	NDC of the drug
<i>Drug Description</i>	Description of the drug to including product name, dosage form, strength, package size
<i>Date of Introduction</i>	Date of introduction for sale in the United States
<i>WAC at Introduction</i>	WAC price of the drug at introduction to market
<i>Breakthrough Therapy Designation</i>	Indication of whether the drug was granted breakthrough therapy designation by the federal Food and Drug Administration 1 = True / 0 = False
<i>Priority Review</i>	Indication of whether the drug was granted priority review by the federal Food and Drug Administration 1 = True / 0 = False
<i>Manufacturing Cost</i>	Direct costs incurred to manufacture the drug
<i>Marketing Cost</i>	Direct costs incurred to market the drug, including advertising costs
<i>Distributing Cost</i>	Direct costs incurred to distribute the drug
<i>Patent Expiration Date</i>	Patent expiration date of the drug if it is under patent
<i>General Comments</i>	General comments and/or additional information related to the data submitted for the drug, if applicable

Appendix C: Online Presence of the Minnesota Prescription Drug Price Transparency Act



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Prescription Drug Price Transparency



To increase transparency into the pricing of prescription drugs, the Minnesota Legislature passed the Minnesota Prescription Drug Price Transparency Act in 2020, which requires MDH to develop a system for collecting and reporting data from drug manufacturers on high and quickly increasing prescription drug prices ([Minnesota Statutes 62J.84](#); amended by [Minnesota Laws, 2021, Regular Session, Chapter 30 – HF 2128 – Article 3, Sec. 5 - 9](#)).

MDH will publicly post information from manufacturers on this website and produce an annual report to the legislature. The goals of these efforts are to:

- Promote transparency in pharmaceutical pricing in Minnesota.
- Enhance the understanding of pharmaceutical spending trends.
- Assist the state and other payers in the management of pharmaceutical costs.

Please refer to this page to monitor progress, access resources, ask questions and [sign up for our email updates](#) for news and notifications.

NEW [Registration and Reporting System](#)

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Questions?
 Contact:
health.Rx@state.mn.us

Email Updates
 Sign up for Prescription Drug Price Transparency updates:
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Available at: [Prescription Drug Price Transparency Home \(www.health.state.mn.us/data/rxtransparency/\)](http://www.health.state.mn.us/data/rxtransparency/).

Appendix D: Summary Statistics on Drugs with Expected Price Increase Reports

Category Value	NDC	WAC After Increase		Current Increase		12-Month Increase		24-Month Increase	
	Count	Median	IQR	Median	IQR	Median	IQR	Median	IQR
By Brand/Generic									
Brand Drug	689	\$950.80	\$371.90 - \$3,685.50	7.9%	5.0% - 9.5%	10.1%	9.0% - 14.5%	16.7%	14.5% - 20.8%
Generic Drug	9	\$320.85	\$300.00 - \$600.00	90.0%	75.0% - 125.3%	113.7%	90.0% - 166.7%	113.7%	90.0% - 166.7%
By Years on the Market									
<= 5 Years	277	\$1,113.00	\$436.37 - \$4,604.05	8.5%	5.0% - 15.8%	13.1%	10.2% - 23.2%	17.6%	23.2% - 23.3%
6 – 10 Years	158	\$1,231.20	\$462.40 - \$6,272.80	6.0%	5.0% - 9.0%	10.1%	7.9% - 14.5%	16.7%	14.5% - 20.0%
11 – 15 Years	94	\$1,441.85	\$476.78 - \$3,262.13	7.0%	5.0% - 9.4%	10.0%	9.4% - 13.4%	18.8%	13.4% - 21.1%
16 – 20 Years	74	\$509.38	\$157.99 - \$1,731.29	9.0%	6.0% - 9.4%	9.4%	8.5% - 9.4%	19.1%	9.4% - 19.7%
Over 20 Years	95	\$339.27	\$225.25 - \$823.20	9.0%	9.0% - 9.7%	9.0%	9.0% - 10.0%	16.6%	10.0% - 19.1%
By WAC Price									
<= \$500.00	245	\$256.11	\$193.00 - \$374.12	9.0%	6.0% - 9.9%	9.9%	9.0% - 15.4%	16.6%	15.4% - 20.8%
\$500.01 - \$1700.00	195	\$883.59	\$623.69 - \$1,169.05	9.0%	5.0% - 10.0%	10.0%	9.4% - 15.0%	19.1%	15.0% - 21.2%
>= \$1700.01	258	\$5,704.80	\$2,899.93 - \$12,129.88	6.5%	5.0% - 8.9%	11.3%	9.4% - 14.5%	16.3%	14.5% - 19.7%
Top 10 Therapeutic Classes									
Allergenic Extracts/Biologicals Misc.	62	\$533.57	\$321.95 - \$1,079.04	23.2%	23.2% - 23.4%	23.2%	23.2% - 23.4%	23.2%	23.4% - 23.4%
Antineoplastics and Adjunctive Therapies	58	\$9,741.43	\$4,172.71 - \$16,357.52	6.5%	5.5% - 7.0%	12.2%	11.3% - 14.5%	14.5%	14.5% - 17.9%
Passive Immunizing and Treatment Agents	51	\$950.80	\$437.90 - \$2,012.10	4.8%	4.0% - 9.0%	12.4%	10.0% - 13.1%	14.5%	13.1% - 16.3%
Nutritional Products – Minerals and Electrolytes	44	\$176.96	\$141.11 - \$234.54	9.0%	9.0% - 9.0%	9.0%	9.0% - 9.0%	16.6%	9.0% - 16.6%
Analgesics – Opioid	35	\$1,362.29	\$423.98 - \$2,523.00	9.4%	9.4% - 15.0%	9.4%	9.4% - 15.0%	19.7%	15.0% - 26.4%
Endocrine and Metabolic Agents – Misc.	34	\$14,602.56	\$2,970.60 - \$14,602.56	5.0%	5.0% - 5.0%	11.4%	10.3% - 11.8%	15.2%	11.8% - 17.5%
Endocrine and Metabolic Agents – Antidiabetics	32	\$1,564.20	\$521.40 - \$3,476.00	5.0%	5.0% - 5.0%	10.1%	10.1% - 10.1%	10.1%	10.1% - 10.1%
Ophthalmic Agents	29	\$317.61	\$242.51 - \$532.30	6.0%	6.0% - 6.0%	6.0%	6.0% - 6.0%	19.1%	6.0% - 19.1%
Nutritional Products – Nutrients	23	\$231.47	\$171.09 - \$287.80	9.0%	9.0% - 9.0%	9.0%	9.0% - 9.0%	16.6%	9.0% - 16.6%
Cardiovascular Agents – Misc.	22	\$1,231.20	\$623.69 - \$1,871.09	6.0%	6.0% - 6.8%	6.0%	6.0% - 12.4%	19.1%	12.4% - 19.1%

Source: MDH, Health Economics Program analysis of Medi-Span reference data from Wolters Kluwer’s Medi-Span Suite of electronic drug data files. Additional information about Medi-Span is available at: [Medi-Span: Drug Data Solutions for Healthcare \(https://www.wolterskluwer.com/en/solutions/medi-span\)](https://www.wolterskluwer.com/en/solutions/medi-span). IQR stands for Inter-Quartile Range.

Minnesota Prescription Drug Price Transparency: Report to the Minnesota Legislature

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