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UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

WESTERN DIVISION

UNITED STATES OF AMERICA *ex rel*. BENJAMIN POEHLING,

Plaintiffs,

v.

UNITEDHEALTH GROUP, INC., *et al*.,

Defendants.

No. CV 16-08697 MWF (SSx)

UNITED STATES' AND RELATOR POEHLING'S REPLY MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF JOINT MOTION FOR PARTIAL SUMMARY JUDGMENT

Date: September 17, 2018
Time: 10:00 a.m.
Court: 5A. Hon. Michael W. Fitzgerald

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I. INTRODUCTION

Plaintiffs filed a straightforward motion seeking the answer to one simple question: Was United legally obligated to delete invalid diagnoses based on the results of its chart reviews? The answer to that question is "yes."

The obligation to delete invalid diagnosis codes is clear under the Medicare Advantage ("MA") Program. *See, e.g.*, Pls.' Ex. 5, Dkt. 234-7, 2013 Medicare Managed Care Manual § 40 ("If upon conducting an internal review of submitted diagnosis codes, the plan sponsor determines that any [diagnosis codes] that have been submitted do not meet risk adjustment submission requirements, the plan sponsor is responsible for deleting the submitted [diagnosis codes] as soon as possible.") (incorporated by reference in each of United's MA contracts). There is no ambiguity, and United cannot contest that its failure to delete invalid diagnoses resulted in more payments to it than it otherwise would have received from the MA Program.

Instead, United's primary argument is that any holding regarding its legal obligation to correct coding errors "depends on ambiguous pronouncements (requiring further evidence) and disputed facts." United's Opp. to Mot. for Partial Summ. Judgment ("Opp."), Dkt. 250, at 1. United also argues that CMS's risk adjustment model is somehow wrong, and that purported errors with that model should somehow excuse United's knowing violation of CMS's clear rules. *Id.* at 29 n.10 ("United is most assuredly challenging the legality of any obligation to delete unsupported codes without accounting for CMS's own errors and their impact on United's payment amounts"). According to United, it is entitled to refuse to delete or correct false information to compensate itself for what it believes are unfair errors in the MA risk adjustment model. However, no matter how many increasingly technical objections United raises about the model (which objections Plaintiffs address in this brief), United's objections do not excuse compliance with its clear legal obligations to submit valid data and delete invalid data. As set forth in Plaintiffs' Opening Brief, a party cannot commit fraud as a "means

of self-help," even to counterbalance what it claims to believe is unfair or unlawful action by the government. Opening Br., Dkt. 234-1, at 17-18.

Perhaps the greatest problem with United's opposition is that the issue presented by this motion has already been decided as a matter of law in favor of the United States and relator by the Ninth Circuit. In *United States ex rel. Swoben v. United HealthCare, Inc*., 848 F.3d 1161 (9th Cir. 2016), and *United States ex rel. Silingo v. Wellpoint, Inc*., 895 F.3d 619 (9th Cir. 2018), the Ninth Circuit held that MAOs are not entitled to obtain or retain payments based on invalid diagnosis data. Accordingly, the doctrine of *stare decisis* forecloses United's various arguments in its opposition, irrespective of whether, or the degree to which, they were raised in either of these two Ninth Circuit decisions. There is also no indication that the Ninth Circuit, in *Swoben,* found any ambiguity with respect to the obligation to delete invalid diagnoses such that it needed to look to extrinsic evidence to resolve this legal issue. Similarly, this Court does not need to consider such evidence to follow the holding in this controlling authority.

Further, none of United's other arguments affects its legal obligation to delete unsupported codes. The fee-for-service ("FFS") adjuster was a discretionary tool considered only in the context of extrapolating administrative audit findings to calculate contract-wide overpayments. It has no application to this case. The coding intensity adjuster ("CIA") is merely a statutory device designed to address program-wide differences in coding patterns and does not seek to provide a remedy for inaccurate or improper diagnosis coding or fraud. The CIA does not void United's regulatory and contractual obligation to delete diagnosis codes that are invalid, nor does it impliedly repeal any other statutes, including the FCA.

United's further argument that the motion for partial summary judgment is procedurally improper is also meritless. The motion is perfectly in accord with the plain language of Rule 56 (a), which specifies that a "party may move for summary judgment, identifying each claim or defense – or *the part of each claim or defense* – on which summary judgment is sought." Fed. R. Civ. P. 56(a) (emphasis added). United cannot

dispute that its obligation to correct erroneous coding is a fundamental element of the Plaintiffs' claim in this case and must ultimately be resolved as a legal issue by the Court. *See, e.g.*, *United States ex rel. Oliver v. The Parsons Co.*, 195 F.3d 457, 463 (9th Cir. 1999) (in FCA cases, the meaning of federal regulations "is ultimately the subject of judicial interpretation"); *United States ex rel. Raggio v. Jacintoport Int'l, LLC*, 2015 WL 13708607, at *2 (D.D.C. Mar. 12, 2015) ("Contract interpretation is a question of law, and therefore appropriate for resolution on a motion for summary judgment where the contract language is plain and unambiguous").

No amount of discovery can help United evade its clear legal obligation to delete improper codes. Accordingly, Plaintiffs' partial summary judgment motion should be granted and the Court should rule that United had an obligation to delete those diagnoses that it previously submitted to obtain payments when the result of its chart reviews showed that those diagnoses were invalid.

II. ARGUMENT

A. *Stare Decisis* Requires This Court to Follow Binding Ninth Circuit Authorities Regarding the Obligation to Delete Invalid Diagnoses

In *Swoben*, the Ninth Circuit expressly held that when MAOs conduct retrospective reviews of beneficiaries' medical records in a manner deliberately designed to "avoid identifying erroneously submitted diagnosis codes that might otherwise have been identified with reasonable diligence," they can no longer claim that their risk adjustment data is accurate and truthful and that an allegation based on such conduct "states a cognizable legal theory under the False Claims Act." 848 F.3d at 1175. In so holding, the Ninth Circuit repeatedly emphasized the fundamental legal requirement that "[e]ach diagnosis code submitted must be supported by a properly documented medical record." *Id*. at 1167 (citations omitted); *see also id.* at 1166-67 ("CMS has long made clear that . . . [MAOs] have 'an obligation to undertake 'due diligence to ensure the accuracy, completeness, and truthfulness' of the risk adjustment data they submit to CMS"). And, crucially for the issue here, the Ninth Circuit's decision necessarily rests

on its conclusion that the regulations require MAOs to report and withdraw unsupported diagnosis codes based on information available to them about such codes. The Ninth Circuit described the regulatory regime in precisely those terms: "[I]f a Medicare Advantage organization relied on medical record X to justify submitting a particular diagnosis code to CMS initially, and the retrospective reviewer concludes X does not support that diagnosis, then *the code should be withdrawn*." *Id*. at 1177 n.8 (emphasis added). Thus, it described the gravamen of the FCA theory violation as "design[ing] … retrospective review procedures to not reveal unsupported diagnosis codes, allegedly for no other reason than *to avoid reporting that information to the government*." *Id.* at 1175 (emphasis added).

In reaching its holding, the *Swoben* panel explicitly rejected United's argument that, because CMS does not verify diagnosis codes listed in claim forms by FFS providers, MAOs were not required to verify their submission of diagnosis data when they conducted chart reviews. The Ninth Circuit dismissed United's attempt to evade its "clear" legal obligation, stating as follows:

> [T]his is not a case about whether Medicare Advantage organizations have to *take* affirmative steps to verify risk adjustment data. The defendants indisputably took such steps by conducting retrospective reviews. This is a case about whether such organizations, having adopted affirmative verification procedures, have to conduct them in good faith.

Id. at 1179 (emphasis in original). And, although the Ninth Circuit did not have a reverse FCA claim before it in *Swoben*, it has since had an opportunity to clarify that "if enrollee diagnoses are overstated, then the capitation payments to [MAOs] will be improperly inflated." *Silingo*, 895 F.3d at 623-24 (noting that, "human nature being what it is," MAOs have "some incentive to improperly inflate" capitated payments, but that "[e]very diagnosis code submitted to CMS must be based on a 'face-to-face' visit that is documented in the medical record"). *Swoben* and *Silingo* combine to stand for the proposition, now settled, that MAOs had a good faith obligation to submit valid codes to

the Medicare Program and that they could be subject to FCA liability for failing to delete invalid codes discovered during their chart reviews.

Seeking to avoid the controlling force of binding authorities in *Swoben* and now *Silingo*, United tries but fails to distinguish *Swoben* on several grounds.[1] United's first argument that *Swoben* dealt with an "affirmative" FCA theory, not a "reverse false claims provision," Opp. at 47, is a not a meaningful distinction. If United cannot knowingly submit unsupported codes in an affirmative FCA case, neither can it knowingly avoid deleting them in a reverse FCA case. Furthermore, as described above, *Swoben did* address the obligation to withdraw previously-submitted invalid codes. The Ninth Circuit stated that the certifications would be false if United turned a blind eye to the results of blind chart reviews and "withholds known over-reporting errors from CMS." 848 F.3d at 1175-76. Failing to delete is equivalent to withholding known over-reporting errors from CMS. *See also id*. at 1174 (referring to the MAOs' obligation to address errors with their risk adjustment data).[2]

Nor is United helped by its contention that *Swoben* was decided on the pleadings. Plaintiffs' motion for partial summary judgment presents a legal issue, not a factual one. And, if the controlling law applies at the pleading stage, the same law applies at the

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[1] While United cryptically dismisses *Swoben* as "not the droid the [government] is looking for," Opp. at 5, 46-47 (citing Ex. 57, APA MTD Order at 12), its effort misses the mark. This passage, taken wholly out of context from Judge Collyer's Memorandum Opinion denying a motion to dismiss an action under the Administrative Procedures Act for lack of jurisdiction, does not mean what United would like it to mean. There, Judge Collyer not only noted that *Swoben* was a "non-controlling case in this [District of Columbia] Circuit," which is not true here, but also stated that *Swoben* did not concern the Overpayment Rule, 42 C.F.R. § 422.326, which, in her view, created new obligations by imposing FCA liability under a negligence standard, thereby giving United standing to challenge it. *Id*. at 13. Like *Swoben*, but unlike the APA case, the instant case does not involve the CMS' Overpayment Rule.

[2] Contrary to United's statement, the United States has never acknowledged that the certifications are not material. To the contrary, its position remains that they are in fact "bulwarks against fraud." *Swoben*, 848 F.3d at 1168. United and other MAOs should not believe that they are free to submit false attestations simply because the United States elected to pursue this case under the FCA's reverse false claims provisions.

summary judgment stage. *See Baghdasarian v. Amazon.com, Inc.,* 2009 WL 4823368, at *4 (C.D. Cal. Dec. 9, 2009) (legal requirements at pleading stage are the "same requirements at a summary judgment stage"), *aff'd*, 458 Fed. Appx. 622 (9th Cir. 2011).

Lest there be any doubt, *Swoben's* clear rejection of United's argument under 42 C.F.R. § 422.310(d) controls here. As previously stated, the Ninth Circuit rejected United's argument that data equivalency could excuse United's failure to delete unsupported codes when it conducted chart reviews. 848 F.3d at 1179. This ruling is controlling here and forecloses any further attempt by United to continue to evade its obligation to delete diagnoses codes that it knew were unsubstantiated by its chart reviews or, if it had not intentionally turned a blind eye, would have known were unsubstantiated by its chart reviews. The binding force of *Swoben* and *Silingo* is not diminished because here United relies on the terms "actuarial equivalence" and "same methodology" in the statute rather than on the regulation it unsuccessfully relied on in *Swoben* to make the same data equivalency argument. *See, e.g., In re Osborne*, 76 F.3d 306, 309 (9th Cir. 1996) ("under the doctrine of *stare decisis* a case is important only for what it decides -for the 'what,' not for the 'why,' and not for the 'how'"); *Rambus v. Hynix Semiconductor*, 569 F. Supp. 2d 946, 963 (N.D. Cal. 2008) ("a district court must apply the [circuit court's] claim construction even where a non-party to the initial litigation would like to present new arguments"), *aff'd,* 645 F.3d 1336, 1351 (Fed. Cir. 2011); *see also Morrow v. Balaski*, 719 F.3d 160, 181 (3d Cir. 2013) ("the very point of *stare decisis* is to forbid us from revisiting a debate every time there are reasonable arguments to be made on both sides"); *E.E.O.C. v. Trabuco*, 791 F.2d 1, 4 (1st Cir. 1986) (weak or ineffective presentation in a prior case does not deprive the ruling in that case of precedential effect for purposes of *stare decisis*).[3]

[3] If United wanted to further pursue its arguments regarding an MAO's data accuracy obligations, it should have sought an *en banc* rehearing in *Swoben*. *See Osborne*, 76 F.3d at 309 (a "panel of this [appellate] court may not overrule a decision of a previous panel, only a court *in banc* has such authority"). United cannot ask this Court to do the work that United itself failed to do. *Hart v. Massanari*, 266 F.3d 1155, 1170

B. United's Procedural Objections to Partial Summary Judgment Are Meritless

United erroneously contends that the Plaintiffs' motion for partial summary judgment is procedurally improper. Opp. at 16, 18 n.6. This motion is procedurally proper based on Rule 56's plain language, as well as the practice in this Circuit.[4] Rule 56(a) provides that "[a] party may move for summary judgment, identifying each claim or defense – *or the part of each claim or defense* – on which summary judgment is sought." Fed. R. Civ. P. 56(a) (emphasis added); *see also* Notes of Advisory Committee on Rules – 2010 Amendment to Fed. R. Civ. P. 56(a) ("The first sentence [of Rule 56(a)] is added to make clear at the beginning that summary judgment may be requested not only as to an entire case but also as to a . . . *part of a claim or defense*.") (emphasis added).

To support its argument, United cites to a handful of out-of-circuit district court decisions. Opp. at 16-17.[5] But courts in the Ninth Circuit have interpreted the plain

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(9th Cir. 2001) (a "district judge may . . . respectfully . . . disagree with his . . . own court of appeals [when it] has ruled on a controlling legal issue . . . but that "binding authority cannot be considered and cast aside; it is not merely evidence of what the law is . . . [r]ather case law on point *is* the law . . . until overruled by a body competent to do so") (emphasis in the original). Accordingly, this Court should follow the controlling precedents of *Swoben* and *Silingo* and reject United's meritless attempt to evade controlling Ninth Circuit law.

[4] United apparently believes that a motion for summary judgment on the obligation to delete invalid codes is only improper when it is filed by the government. In its opposition, United argues that if it thought it had a basis to bring such a motion, it would do so. *See* Opp. at 18 n.6.

[5] United also attempts to distinguish away a case cited in Plaintiffs' opening brief, *In Re Pharm. Indus. Average Wholesale Price Litig.*, 460 F. Supp. 2d 277, 288 (D. Mass. 2006), as a case involving "judgment on all . . . claims." Opp. at 17. But this misconstrues the order in the case, which considered "cross-motions for summary judgment *on the meaning of the term AWP in the Medicare statute.*" 460 F. Supp. 2d at 278 (emphasis added). After ruling on the statutory construction, the court granted summary judgment to defendants *only as to claims pertaining to post-2003 conduct*, i.e., *part* of a claim, not the whole claim. *Id.* at 288. Moreover, the court noted it would "address the remaining issues raised by the summary judgment papers at trial." *Id.*

language of Rule 56 to allow summary adjudication of particular legal or factual issues, *i.e.*, parts of claims or defenses. *See, e.g., Murphy v. Cal. Physician Serv.*, 213 F. Supp. 3d 1238, 1241 (N.D. Cal. 2016) (treating a motion for the determination of the standard of review in ERISA case (an issue of law) as a motion for partial summary judgment); *Brown v. Hain Celestial Grp., Inc.*, 2015 WL 3398415, at *2 (N.D. Cal. May 26, 2015) (concluding that "unusually abstract" motions requesting that the court "agree with several key points of law" were "an appropriate use of summary judgment" under Rule 56); *Fid. & Guar. Ins. Co. v. KB Home Coastal, Inc.*, 2014 WL 10485191, at *5 (C.D. Cal. July 7, 2014) (reaching merits of legal issues such as right to appoint counsel and obligation to pay fees); *Dreamroom Prods., Inc. v. HHSI, Inc.*, 2013 WL 12142952, at *1 (C.D. Cal. May 13, 2013) (evaluating merits of plaintiffs' motion for partial summary judgment on "issues" including ownership of copyrights).[6]

More importantly, the Ninth Circuit routinely reviews cases whose procedural history includes grants of partial summary judgment for the *plaintiff* on parts of a claim or defense. While the question of whether the summary judgment order is appealable is often at issue, the Ninth Circuit does not question the appropriateness of the partial summary judgment procedure. *See, e.g.*, *California Dept. of Toxic Substances Control v. Hearthside Residential Corp.*, 613 F.3d 910, 912 (9th Cir. 2010) (reviewing *de novo* grant of "partial summary judgment . . . on the *limited issue* of whether Hearthside was an 'owner and operator' of the Fieldstone property" in favor of plaintiff) (emphasis added); *Williamson v. UNUM Life Ins. Co. of Am.*, 160 F.3d 1247, 1252 (9th Cir. 1998)

[6] Courts outside this Circuit likewise correctly apply Rule 56 in this manner. *See, e.g., Odom v. Southeast Supply Header LLC*, 675 F. Supp. 2d 1105, 1113-14 (S.D. Ala. 2009) (holding that whether a pipeline was constructed in accordance with an easement raises a question of law appropriately resolved on summary judgment); *France Stone Co., Inc. v. Charter Twp. of Monroe*, 790 F. Supp. 707, 710 (E.D. Mich. 1992) (rejecting contrary authority and holding that plaintiff's motion for partial summary judgement on one issue in one of its claims, *i.e.*, whether dolomite deposits are a "valuable natural resource", was procedurally proper); *accord Little Caesar Enters., Inc. v. Smith*, 895 F. Supp. 884, 892 (E.D. Mich. 1995) (concluding partial summary judgment was proper on a single, non-dispositive issue).

(determining reviewability of *sua sponte* orders of partial summary judgment in favor of insured that declared the legal standard of review and decided the limited issue of duty to cooperate as a matter of law). In each of these cases, the Ninth Circuit reviewed partial summary judgment orders similar to the one sought here without questioning the partial summary judgment practice itself.

Here, an entry of partial summary judgment would resolve a purely legal question central to this litigation, as contemplated by the Advisory Committee's 2010 Notes defining "partial summary judgment" as "disposition of less than the whole action." *See* Notes of Advisory Committee on Rules – 2010 Amendment To Fed. R. Civ. P. 56(a). Importantly, notwithstanding United's suggestion to the contrary, Opp. at 19–20, such relief would also streamline these proceedings and advance this litigation. *Cf. Brown*, 2015 WL 3398415, at *3 (noting that "[a]n important function of Rule 56 is to streamline cases for trial"); *Little Caesar*, 895 F. Supp. at 892 (noting utility of partial summary judgment to "significantly advance[] the progress of . . . litigation"). The FCA claim being asserted requires the United States to prove, *inter alia*, an "obligation" and a "knowing and improper" avoidance of that obligation. 31 U.S.C. § 3729(a)(1)(G). The subject of this motion – United's obligation to delete unsubstantiated diagnosis codes from its RAPS and EDPS submissions – is based on an established regulatory and contractual duty over which there can be no genuine factual dispute. The United States has repeatedly identified the sources of this obligation to this Court. *See, e.g.,* Am. Compl., Dkt. 171, ¶¶ 66-114; Mem. in Supp. of Mot. for Partial Summ. J., Dkt. 234-1 at 8–13. Based on *Swoben*'s rejection of United's data equivalency argument and for other reasons discussed in Section D below, United's fixation on "actuarial equivalence" does not change its clear and longstanding legal obligation to submit accurate diagnosis data to CMS and delete invalid diagnoses based on the results of its chart reviews or other information in its possession evidencing the invalidity of the diagnosis codes that it submitted to CMS for payments.

Nevertheless, United has repeatedly attempted to distract and confuse by raising

this red herring. Summary adjudication of whether United was legally obligated to delete unsupported codes from its risk adjustment submissions would settle this foundational issue and extricate the Court from further entanglement with United's *post hoc* arguments about actuarial equivalence. Significantly, the legal question involves a regulatory and contractual duty that is neither ambiguous nor discretionary. As the Ninth Circuit held in *Oliver*, the meaning and scope of a regulatory standard are "ultimately the subject of judicial interpretation." 195 F.3d at 463 (rejecting defendant's attempt to blur the scope of its legal obligation under the FCA with its own "reasonable interpretation" of the governing regulation); *accord United States v. Chen*, 2006 WL 1554546, at *7 (D. Nev. May 30, 2006) ("Medicare regulations . . . are unambiguous in their requirements for billing").

Finally, United's argument that this motion seeks to preempt a ruling in its Administrative Procedures Act ("APA") action, *see* Opp. at 18, is wholly without merit. A grant of partial summary judgment in this matter – on a discrete legal issue unrelated to the enforceability of the regulation at issue in that case – will not preempt a ruling from Judge Collyer, who already determined that this FCA action neither overlaps with nor bears on the APA challenge before her. *See UnitedhealthCare Ins. Co. v. Price*, 255 F. Supp. 3d 208, 211 (D.D.C. 2017) ("Because United's alleged behavior in the FCA Cases is distinct from HHS's actions in promulgating the 2014 Overpayment Rule, the fact that the same parties are in all three actions is only a distraction."). As Judge Collyer noted, "any decision in [the APA] matter will not answer the most relevant questions in the [*Poehling and Swoben*] FCA Cases." *Id*. This Court reached the same conclusion in denying United's motion to transfer this case to the District of Columbia, where the APA matter is pending. Order Den. Mot. to Trans., Dkt. 134, at 9 ("This Court is disinclined to transfer this action to the District of Columbia so it can be coordinated with *Price* when the district court has already clearly stated that it finds the relevant facts and legal issues very different in each action."). Additionally, as this Court observed, Defendants themselves "were willing to state when it suited them that

[the APA case] and *Poehling* 'may never address any common legal issues'." *Id.* Defendants should not be permitted to take the opposite position on this issue, which in any event has already conclusively been resolved by both courts.[7]

More importantly, and as discussed *infra*, the Ninth Circuit has already ruled on the question of United's obligation to correct known coding errors in its risk adjustment submissions in *Swoben* and *Silingo*, both precedential opinions. It is the Ninth Circuit, not another district court, which provides the binding authority that this Court must follow. *See Hart*, 266 F.3d at 1170 ("[b]inding authority . . . cannot be cast aside"); *Starbuck v. City & Cnty. of San Francisco*, 556 F.2d 450, 457 n.13 (9th Cir. 1977) ("*stare decisis* does not compel one district court judge to follow the decision of another").

C. The Obligation to Delete Unsupported Diagnoses Is a Basic Legal Requirement of the Medicare Advantage Program

Regulations, the contracts United signed, and CMS policies and instructions expressly incorporated into those contracts, all confirm that United was obligated to refrain from knowingly submitting unsupported diagnosis codes for payment and to delete codes already submitted that subsequent information showed to be invalid. Nothing United says in opposition can erase this fundamental legal requirement of the risk adjustment system.[8]

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[7] Moreover, even where there is an overlap, in this Circuit, the "first-to-file rule may be applied 'when a complaint involving the same parties and issues has already been filed in another district.'" *Kohn Law Group, Inc. v. Auto Parts Mfg. Mississippi, Inc.*, 787 F.3d 1237, 1240 (9th Cir. 2015) (quoting *Alltrade, Inc. v. Uniweld Prods., Inc.*, 946 F.2d 622, 625 (9th Cir. 1991)). This rule is intended to "serve[] the purpose of promoting efficiency well and should not be disregarded lightly." *Id.* The complaint in this action was filed in the Western District of New York on March 24, 2011. In contrast, United did not file its APA action in the District of Columbia until January 29, 2016. Thus, the instant action was the first to be filed.

[8] Indeed, an MAO's obligation to delete known unsupported diagnosis codes is literally hard-wired into the risk adjustment system. As United acknowledges, since 2004, it has submitted codes to CMS via an electronic system that "allows MAOs to delete invalid diagnosis codes that were previously submitted and thereby retract the

1. CMS Requires MAOs to Submit Accurate Risk Adjustment Data and United Contractually Agreed to Comply With This Requirement

It is undisputed that HHS' regulations pertaining to all CMS programs require that each diagnosis code must be supported by a properly documented medical record. HHS has adopted the International Classification of Diseases ("ICD") guidelines for all CMS programs as a national standard (*see* 45 C.F.R. § 162.1002(a)(1)(i), (b)(1) & (c)(2)(i)), and these ICD guidelines clearly require that patients' medical records substantiate the diagnosis codes assigned to them. *See* Pls.' Ex. 10, Dkt. 234-13, ICD-9-CM Coding Guidelines at 5; Quick Facts, ICD-9-CM, June 2003. In the Part C risk adjustment regulation, HHS expressly noted each MAO's obligation to comply with this same national coding standard when submitting data for risk-adjusted payments. 42 C.F.R. § 422.310(d)(1) (requiring the submission of risk adjustment data that conform "to all relevant national standards"). This regulation further defines "medical records" as the source for "[v]alidation of risk adjustment data." 42 C.F.R. § 422.310(a), (b), (e).[9] It even warns that "[t]here may be penalties for submission of false data" – reinforcing the import of this requirement. 42 C.F.R. § 422.310(e).[10] Furthermore, when an MAO

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claim for payment for those invalid diagnoses." Statement of Genuine Disputes of Material Fact, at 12. Absent an obligation to delete invalid codes, such a system would be unnecessary.

[9] Notably, the Medicare Managed Care Manual also instructs plans to abide by International Classification of Diseases (ICD) guidelines, which state that "[t]he importance of consistent, complete documentation in the medical record cannot be overemphasized." Pls.' Ex. 5, Dkt. 234-7, 2013 Medicare Manual § 40.

[10] United's conflation (Opp. at 31) of the obligation to delete unsupported codes based on the results of its chart reviews with CMS' statements concerning an FFS Adjuster for *contract-level extrapolation* from a small sample of audited results is, as discussed *infra*, misleading at best. United cannot—and does not—dispute that the government *does* "recover funds associated with all diagnosis codes that lack chart support" in the sample it chose to audit. Just as *actual* unsupported codes revealed during a RADV audit must be deleted, so must *actual* unsupported codes revealed during a self-audit.

undergoes a RADV audit – which measures "risk adjusted payment ***integrity*** and ***accuracy***" – CMS bases the audit on "medical record review" for the purpose of revealing any "confirmed enrollee HCC discrepancies" at the "[d]etailed enrollee-level." 42 C.F.R. § 422.311(a), (b)(1), (b)(1)(i) (emphasis added).[11] Further cementing the centrality of accurate diagnosis codes to the risk adjustment system, the "[i]ssues eligible" for RADV "medical record review determination appeal" are confined to the "audited HCC(s) that the Secretary identified as being in error." 42 C.F.R. § 422.311(c)(2), (2)(iii). CMS' regulations thus make clear that, at every stage of the risk adjustment process, diagnosis codes must be supported by medical records.

United has known all this for many years. CMS has specified, at least since 2000, that an "encounter data submission[]"[12] is a "'claim' for payment" for which an MAO has "an obligation to undertake 'due diligence' to ensure the accuracy, completeness, and truthfulness" and to make "good faith efforts" regarding diagnosis accuracy. 65 Fed. Reg. at 40,268 (explaining 42 C.F.R. § 422.504(*l*) (certification rule)). CMS explained that "simple mistakes would not result in sanctions," but actual knowledge of the falsity of the risk adjustment data or "reckless disregard" for or "deliberate ignorance" of its truth or falsity would. *Id.*

United tries to skirt its obligation to delete unsupported diagnoses by claiming that 42 C.F.R. § 422.310(e) concerns only a plan's "obligation to cooperate with the *government's* validation of risk adjustment data, not an MA plan's responsibility to delete data on its own." Opp. at 30-31. This misses the point entirely. Section 422.310(e), as well as 42 C.F.R. § 422.311, requires cooperation with the government's validating and auditing functions *because* there exists an objective legal standard that the government seeks to enforce. An MAO's obligation to delete unsupported codes so that

[11] The HCC, or hierarchical condition category, is a grouping of diagnosis codes used to make risk adjustment payments.

[12] As the Ninth Circuit explained, "encounter data" and risk adjustment diagnosis codes are synonymous for relevant purposes. *Swoben*, 848 F.3d at 1166.

it is not paid based on invalid data cannot be understood to arise only when the government actively polices it. *Cf. United States ex rel. Youn v. Sklar*, 273 F. Supp. 3d 889, 901 (N.D. Ill. 2017) ("reject[ing] the proposition that defendants may insulate themselves from FCA liability by placing the burden on the government to ferret out non-reimbursable claims from among the enormous volume of claims the government receives" in Medicare Part B context). Diagnosis codes must *always* be supported by proper medical documentation.

Other MA regulations confirm that MAOs must ensure the accuracy of their risk adjustment data. For example, they must enact compliance programs that "ensure *ongoing* compliance with CMS requirements" and "conduct appropriate corrective actions" when they discover "evidence of misconduct related to payment . . . under the contract." 42 C.F.R. § 422.503(b)(4)(vi)(G)(1), (2). One such corrective action explicitly required of MAOs is "repayment of overpayments." *Id.* They must also certify "the accuracy, completeness, and truthfulness of relevant data" as a "condition for receiving . . . payment" under the Medicare Advantage program. 42 C.F.R. § 422.504(*l*).

United tries to avoid the clear command of these regulations by picking apart each one as not "answer[ing] the question underlying this motion." Opp. at 30. But this segmentation by United ignores that it is entirely permissible for a government agency to issue a broad or general rule and that such a rule does not need to specifically address every conceivable argument that a defendant may raise *post hoc* to excuse its failure to comply with the rule. The collective import of CMS' regulations is straightforward: Accurate risk-adjusted payments and the overall integrity of the MA Program are inexorably dependent on the use by MAOs of due diligence and good faith efforts to ensure that their diagnosis codes are supported by properly documented medical records. When MAOs possess information or knowledge that specific codes are unsubstantiated by medical record documentation or otherwise invalid, they cannot fail to delete those codes – that would be the opposite of "due diligence" and "good faith." CMS' regulations speak directly to the obligation that United now tries to avoid.

The obligation to delete is also established by MAOs' contracts with CMS, which spell out in even greater detail CMS' requirements for the accuracy, completeness, and truthfulness of risk adjustment data. For one, MAOs enter into Electronic Data Interchange ("EDI") agreements *specifically* and *exclusively* for "the Collection of Risk Adjustment Data" through CMS' RAPS and EDPS systems. Pls.' Ex. 2, Dkt. 234-4 (sample EDI agreement). In these contracts, MAOs agree, at paragraph 5, to "submit risk adjustment data that are accurate, complete, and truthful" and commit, at paragraph 11, to "research and correct risk adjustment data discrepancies." *Id.*[13] These EDI agreements could not be clearer in setting forth the obligation to delete unsupported diagnosis codes. United attempts (Opp. at 42) to avoid the unambiguous language in paragraph 11 by casting the EDI agreements as "concerned with . . . data glitches that can result from electronic submission of data" rather than substantive requirements. This characterization is plainly incorrect. United relies on paragraph 12, a third provision unrelated to the two cited above and entirely ignores the requirement in paragraph 5 that data be "accurate, complete, and truthful."

Additionally, in their annual contracts with CMS, United's MAOs "agree[d] to operate . . . in compliance with the requirements of this contract and applicable Federal statutes, regulations, and policies *(e.g., policies as described in the Call Letter, Medicare Managed Care Manual, etc.)*." Pls.' Ex. 1, Dkt. 234-3, 2011 Contract, Article II ¶ A (emphasis added). The instructions in the Medicare Managed Care Manual once again set forth MAOs' unambiguous obligation to correct invalid codes. The 2013 Manual states unequivocally: "If upon conducting an internal review of submitted diagnosis codes, the plan sponsor determines that any [diagnosis codes] that have been submitted do not meet risk adjustment submission requirements, the plan sponsor is responsible for

[13] United's quibble (Opp. at 42 n.16) concerning the accuracy of Plaintiffs' quotation of the EDI agreements ignores that (1) certain EDI agreements *do* speak to "risk adjustment data" instead of "encounter data;" and (2) those terms are synonymous in these circumstances as they both include diagnosis data relied upon by CMS to make risk adjustment payments.

deleting the submitted [diagnosis codes] as soon as possible." Pls.' Ex. 5, Dkt. 234-7, 2013 Medicare Managed Care Manual § 40. This requirement was not new in 2013. Rather, it existed in the Manual for many years pursuant to the long-standing instructions in the Manual that MAOs "must submit risk adjustment data that are substantiated by the physician or provider's full medical record" and monitor the accuracy and truthfulness of their data. Pls.' Ex. 4, Dkt. 234-6, 2004 Manual § 111.8; *id.* § 111.7 (CMS "expects [MAOs] to design and implement effective systems to monitor the accuracy, completeness, and truthfulness of risk adjustment data"). Regardless of phrasing, the obligation to delete is the same.

The Court should reject United's argument that the Manual only obligates it to delete unsupported codes when it both has actual knowledge of them and subjectively decides it should delete them based on its own judgment of how many unsupported diagnosis codes it is entitled maintain in the system and retain payment for. Opp. at 40. First, based on its blind chart reviews, United in fact *determined* codes that were unsupported by the beneficiaries' medical records; it just deliberately or recklessly ignored those *determinations*. Second, United cannot avoid the requirement in the Manual that it delete diagnoses that it determined do not comply with risk adjustment submission requirements (including the medical record requirement) by intentionally failing or refraining from making such determinations or subjectively deciding when it should delete them. Both that argument and such behavior smack of just the type of bad faith that the FCA was meant to prevent. *See Swoben*, 848 F.3d at 1174 (explaining that Congress intended the FCA to reach the "ostrich" type situation where a defendant buries its head in the sand). The Manual's deletion requirement must be interpreted in light of the MAOs' regulatory and contractual obligations that mandate diligence and "good faith," such as their obligation to conduct compliance activities to monitor for noncompliance with MA requirements. The Manual itself requires that MAOs "[e]nsure the accuracy and integrity of risk adjustment data submitted to CMS" in the same section that requires deletion of invalid codes, including those not supported by medical record

documentation. *See* Pls.' Ex. 5, Dkt. 234-7, 2013 Medicare Managed Care Manual § 40. If the results of a MAO's internal review of medical records show that the records do not support the diagnosis data that it has submitted, the MAO cannot in good faith avoid compliance with the Manual by turning a blind eye to those results. That is what the Ninth Circuit's decision in *Swoben* was all about: an MAO's obligation to exercise good faith. It was the entire underpinning of the decision. *See Swoben*, 848 F.3d at 1179 (holding that MAOs must perform medical record reviews in "good faith"). *Swoben* requires this Court to hold United to its obligation to exercise good faith.

United also tries to shirk its obligation to follow CMS policies and instructions altogether (Opp. at 32-33) by characterizing the manual as "non-binding, interpretive guidelines." However, the cases, statutes, and memoranda it cites have no bearing here, as the government does not claim the Manual standing alone binds United. Rather, United contractually agreed to follow not only CMS regulations but also its policies and instructions, including the Manual. *See* Pls.' Ex. 1, Dkt. 234-3, United's MA Contract, Article II, Section A (obligating compliance with CMS "policies" such as the "policies as described in the . . . Medicare Managed Care Manual"); *id.,* Article V, Section D(5) (if any MAO responsibility is delegated to another entity, including a related entity such as each of the non-MAO Defendants in this case, "all contracts or written agreements must specify that the related entity, contractor or subcontractor must comply with all applicable Medicare laws, regulation, and CMS instructions"). "Policies" and "instructions" are precisely what the Medicare Managed Care Manual provides.

United's attempts (Opp. at 34, 36-37) to wish away these contractual provisions by reading them narrowly or contending that they conflict with United's bid submissions are unpersuasive. For one, United's argument (Opp. at 34) that paragraph A of Article II of the contract serves ***only*** to "clarify" that United would offer a "coordinated care plan" as opposed to one of the other types of MA plans ignores the Article's plain terms. The contract specifies that United will operate its plan "as defined in 42 CFR § 422.4(a)(1)(iii) . . . ***and*** in compliance with . . . policies . . . as described in the

Medicare Managed Care Manual." *See also* 42 C.F.R. § 422.5(a)(1)(iii) (defining coordinated care plan). The first part of the sentence defines what type of plan United agreed to operate; the second part subjects that operation to statutes, regulations, and CMS policies – including policies on the submission of accurate data.

United's other arguments (Opp. at 34-38) for why the contracts do not impose an obligation to delete invalid payment data also fail. United is correct (Opp. at 34) that paragraph A of Article II does not define CMS' obligation to "*pay* the MA plan," but Article IV does. That is because paragraph A is about what *United*, not CMS, has agreed to do: (1) operate coordinated care plans, (2) including at least one MA-PD plan (3) as described in the final Plan Benefit Package approved by CMS and attested to in the Attestation of Benefit Plan and Price, and (4) do all of this "in compliance with the requirements of . . . [CMS] policies." United is wrong that its obligations under Article II extend only to CMS policies in the Manual pertaining to the benefits it provides to Medicare beneficiaries and does not pertain to all obligations imposed by the Manual. Article II does not expressly make this distinction or imply that there should be such a distinction. The entire article deals with what statutes, regulations and policies apply during the term of the contract period. None of the five sections makes a distinction between statutes, regulations and policies pertaining to benefits and those pertaining to payment. Furthermore, a reading of the contract reveals that no such distinction can logically or reasonably be drawn and no principle of contract interpretation supports such a distinction.

Similarly, United's other argument (Opp. at 35-36) – that Article II pertains only to statutes, regulations and policies relating to benefits and not payments because mid-year changes in benefits would not impose significant or new costs or burdens but changes in payment would – is similarly misguided. Requiring MAOs to provide more benefits can be more costly and burdensome than a change in payment. Section C of Article II also makes no distinction between changes relating to benefits or payment. But assuming for the sake of argument that it did, that section would not implicitly

modify the other sections of Article II. Moreover, this case has nothing to do with a change in payment rules. The payment integrity obligations at issue here have existed for many years.

United's attempt (Opp. at 36-38) to use paragraph A of Article II to incorporate its own self-serving bid submissions into the terms of the contract should also be summarily rejected. The contract does not contain any provision stating that its terms include United's bid assumptions or statements made in its bid submissions. It does not even incorporate these assumptions or statements by reference as it incorporates CMS policies, including the Medicare Managed Care Manual. Moreover, the requirement to delete unsupported codes as described in the Medicare Managed Care Manual does not conflict with United's bid submission or generate any conflicts between the contract and CMS' regulations, or within the contract itself. The issue before the Court is not what "actuarial assumptions" went into United's bid or whether those assumptions relating to beneficiaries' risk scores were based on audited diagnosis data. Rather, the issue before the Court is what United was required to do once it unearthed information through its own elective chart review processes that it had submitted invalid diagnosis data. CMS is not responsible for United's "express actuarial assumptions," just as it is not responsible for math errors or business strategy or any other internal factors that may have influenced United's bid. What matters under the contract is the validity of United's data submitted for payments and whether United knowingly avoided its obligation to delete diagnosis codes that it determined were invalid. CMS did not commit the Medicare Program to making improper payments based on invalid diagnoses simply because United may have based its bid assumptions on retaining payment for invalid diagnosis codes. The actuaries at CMS who review bids would not even have the authority to make such a commitment.

Finally, other regulations and contract provisions – such as those requiring MAOs to maintain and make available the underlying medical record data for CMS' inspection – reinforce the clear obligation to refrain from submitting known invalid diagnosis codes

for payment and to delete known unsupported codes when discovered. *See* Opening Br. at 8-13. But an exhaustive cataloguing of provisions is not needed to demonstrate what the sources described above unambiguously require and the Ninth Circuit already concluded: When "a Medicare Advantage organization relied on medical record X to justify submitting a particular diagnosis code to CMS initially, and the retrospective reviewer concludes X does not support that diagnosis," "the code should be withdrawn." *Swoben,* 848 F.3d at 1177 n.8.

2. United's Proffered Extrinsic Evidence Cannot and Does Not Undermine Its Legal Obligation to Delete Invalid Diagnoses

United attempts (Opp. at 43-45) to generate disputed factual issues using a few deposition quotes from a CMS employee about chart reviews conducted by his former private-sector employer for another MAO and two documents relating to CMS' privileged internal deliberations about whether to include an adjuster in the RADV methodology. But, this extrinsic evidence is not material to United's legal obligation to delete invalid diagnoses or otherwise return to the Medicare Program risk adjustment payments to which it was not entitled because they were based on diagnosis codes that United knew were invalid.

First, for the reasons discussed, the applicable regulatory and contractual provisions are not ambiguous as to United's duty to delete diagnoses codes when it possesses information showing them to be invalid. No extrinsic evidence can trump these clear legal mandates.

Second, and equally fatal to United's argument, is the extrinsic evidence that it itself seeks to introduce. The extrinsic evidence simply does not establish what United says it does. United misrepresents the testimony given by Jeff Grant. Prior to 2008, Mr. Grant performed work for CMS relating to risk adjustment under the MA Program. Mr. Grant then left CMS and worked in the private sector as a contractor for MAOs from 2008 to 2010. He later returned to CMS and currently works on the Affordable Care Program. As an agent for the MAOs during the 2008 to 2010 time period, Mr. Grant

advocated for the adoption of a payment error rate adjuster for RADV audits because CMS said it would extrapolate the results of those audits. At his deposition, Mr. Grant testified about various hypotheticals he posed while he was a consultant advocating for an adjuster when audit results are extrapolated to an entire MAO contract. However, he testified that he did not know whether there was actually a pattern of over-coding by FFS providers (*i.e.*, a pattern of submitting unsupported codes by FFS providers) that actually resulted in any under-prediction of costs by the coefficients (*i.e.*, multipliers) for any HCCs that would actually require an adjuster. Defs.' Ex. 7, Dkt. 254-1, Grant Dep. 231:11 – 234:14. He also testified that he did not know if there were more under-coding errors than over-coding errors in the FFS data. *Id*. at 311:21 – 314:4. Furthermore, his testimony was crystal clear that, even when representing the MAOs, he was only advocating for an adjuster for RADV audits if the results would be extrapolated to an entire contract or plan. *Id.* at 261:10 - 262:6; 264:19 - 267:2; & 314:5 - 315:5. He was equally as clear that the adjuster he was advocating for did not give MAOs a pass on submitting unsupported diagnosis codes. *Id.* at 258:4 - 259:19; *see also id.* at 266:15-17 ("From an individual basis, you're definitely paid wrong when you find an error in a diagnosis").

Mr. Grant also did not fulfill United's hopes of finding a CMS employee who would agree with its argument that an MAO is not obligated to delete every unsupported diagnoses it has found. Opp. at 21. Mr. Grant testified that, since the early or mid-2000s, he has held the opinion that MAOs must delete diagnosis codes that they know are invalid. Defs.' Ex. 7, Dkt. 254-1, Grant Dep. 311:1-20. He further testified that the existence of any error with respect to the CMS-HCC model's prediction of costs does not mean that MAOs can knowingly submit invalid diagnoses or refuse to correct diagnosis codes that they know are invalid. *Id.* at 321:6 - 322:12.[14]

[14] Mr. Grant recalled one instance in which the contractor he worked for from 2008 to 2010 (Health Risk Partners) was retained by an MAO (Coventry) to perform blind chart reviews. When asked whether Health Risk Partners compared the diagnosis

The CMS presentation (Defs.' Ex. 15, Dkt. 254-1) entitled "Model Calibration Factor" and the CMS "Agenda" bullet-point document (Defs.' Ex. 16, Dkt. 254-1) are both privileged deliberative process, pre-decisional documents. They were internal CMS documents drafted before the issuance of the February 2012 RADV methodology as aids in deliberating what the methodology should include.[15] Their purpose was to consider the argument being made by the MAOs that, because of extrapolation, they were entitled to an adjuster as part of the methodology for the RADV audits. They reflect the hypothesis that "[i]nclusion of undocumented diagnoses tends to reduce risk adjustment values" and not any conclusions about whether any particular HCCs under-predicted costs for this reason. Defs.' Ex. 15, Dkt. 254-1, CMS0005887. They also do not state that CMS is legally required to adopt an adjuster either in the RADV audit context or any other context based on the use of the term "actuarial equivalence" in the statute. In addition, they do not support United's argument (Opp. at 9:9-10) that "the *relative* accuracy of diagnostic coding in FFS and MA claims is the key metric" for the same reason that United is incorrect (Opp. at 13:3-7) that the payment error rate adjuster in the 2012 RADV audit methodology is a pass on a certain number of unsupported diagnoses equal to the number of unsupported diagnoses in the FFS data. Contrary to United's misrepresentation to this Court, CMS has never "acknowledged that it cannot just look at the rate of unsupported codes in the MA plans' data but must compare that rate to the

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codes identified through its blind chart reviews to the diagnosis codes that Coventry previously submitted to CMS, Mr. Grant testified that he was "not sure." Defs.' Ex. 7, Dkt. 254-1, Grant Dep. 309:8 - 310:16. He said "there were cases where we did," but he acknowledged "not systematically." *Id.* at 310:3-6; 323:7-11 ("We were not doing a review to systematically do a complete audit of a plan and determine the accuracy of codes. We were sometimes asked to do that, and if we were asked to do that, we could do a very careful review."). United's counsel asked Mr. Grant whether he thought it was improper for Health Risk Partners – a contractor retained to review medical charts – to not engage in a systematic effort to identify all of the unsupported codes. He testified that "at that time," he did not think it was improper and that he "did not knowingly participate in the fraudulent activity." *Id*. at 310:15-16.

[15] These documents were inadvertently produced by HHS in response to a FOIA request.

comparable figure in CMS' own data," Opp. at 20:24-26, and CMS has not "concluded [that] there is no overpayment to recover unless the plan's rate of unsupported codes exceeds CMS's." Opp. at 30:19-20. United can attempt to sow confusion for the Court by referring to a payment error rate adjuster as a coding error rate adjuster and can repeat this misrepresentation as often as it wants, but doing so does not make the misrepresentation true.

United's proffered extrinsic evidence regarding communications between CMS and it about the medical review regulation that CMS proposed in 2014 also does not and cannot modify United's clear regulatory and contractual obligations that existed prior to and after 2014. In fact, in 2014, CMS did not rescind any regulatory obligations, including those set forth in its risk adjustment data, RADV audit, compliance and attestation regulations, and it did not modify the terms of its contracts with MAOs. Furthermore, in 2014, CMS did not rescind or modify the requirement in the 2013 Medicare Managed Care Manual that MAOs delete invalid diagnoses if the results of their internal reviews show that the diagnoses "do not meet risk adjustment submission requirements," including the requirement that "diagnosis codes submitted must be documented in the medical record." Pls.' Ex. 5, Dkt. 234-7, 2013 Medicare Managed Care Manual § 40.[16] As explained by the Ninth Circuit, even though CMS did not

[16] United has also failed to authenticate and establish the admissibility of the extrinsic evidence that it has proffered and for that reason too the evidence should not be considered by the Court. *See Orr v. Bank of Am., NT & SA*, 285 F.3d 764, 773 (9th Cir. 2002). In particular, the United States objects to admission into evidence and the Court's consideration of the self-serving documents that United created in 2014 relating to its communications with CMS, including, for example, Mr. Renfro's purported April 8, 2014 notes, the purported April 29, 2014 CMS meeting notes; and Mr. Nelson's April 30, 2014 email. *See* Defs.' Exs. 45, 47, 47, Dkt. 254-3. These documents were created by United in anticipation of the government's intervention in Relator's pending FCA action against it and were an attempt to create "evidence" to support its arguments. Accordingly, they are untrustworthy. For that reason alone, they cannot be admitted into evidence and considered by the Court under any exceptions to the hearsay rules. *See* Fed. R. Evid. 802, 803(6)(E) (business record exception does not apply when the "source of information or method or circumstances of preparation indicate a lack of trustworthiness").

finalize the regulation, it made clear that MAOs have always been and would continue to be required to ensure that their risk adjustment payment data are accurate and truthful and that they were obligated to implement effective compliance programs to fulfill that requirement. *Swoben*, 848 F.3d at 1169-70 ("these 2014 events . . . are consistent with the regulatory requirements that have existed since 2000").

3. More Extrinsic Evidence Cannot Undermine United's Legal Obligation to Delete Invalid Diagnoses

The Court should reject United's request to refrain from ruling on its legal obligations because it wants further discovery under Rule 56(d) in the hopes of finding other extrinsic evidence that will magically make its legal obligations disappear. Opp. at 45-46. That rule allows a non-movant to show by affidavit or declaration "made on personal knowledge" why "it cannot present facts essential to justify its opposition . . . ." Fed. R. Civ. P. 56(c), (d). United fails to make any such showing, let alone based on competent testimony. The issue on which the United States seeks partial summary judgment is a matter of law capable of being decided by this Court now. No amount of additional discovery will shed any meaningful light on United's "clear" obligations under the MA Program. *Swoben*, 848 F.3d at 1166, 1175. In this situation, the issue is ripe for adjudication, not further discovery. As the Ninth Circuit has stated in a similar case under the FCA:

> [T]his case involves regulations that, while unquestionably technical and complex, are not discretionary. Their meaning is ultimately the subject of judicial interpretation, and it is [defendants'] compliance with these regulations, as interpreted by this court, that determines whether its accounting practices resulted in the submission of a 'false claim' under the [False Claims] Act.

Oliver, 195 F.3d at 463 (citations omitted).

4. *Post Hoc* Arguments Do Not Excuse United's Non-Compliance or Defeat Its FCA Liability

The above-described sources make clear that CMS has imposed, for many years, an obligation to delete invalid diagnosis codes, including those that are not substantiated by beneficiaries' medical records. Even United concedes that its opposition is ***not*** based on the assertion that "MA plans never have ***any*** obligation to delete unsupported codes." Opp. at 48 (emphasis in original). Rather, United seeks to avoid the obligation to delete on the ground that it is invalid because "the 'actuarial equivalence' mandate means that the government cannot demand United return ***all*** payments made on the basis of unsupported diagnosis codes until it first accounts for the unsupported codes in its own data." Opp. at 28 (emphasis added). This is not so. *See* Section D below.

Moreover, the law does not allow regulated entities to submit false data to the government as a self-help remedy to get around rules, even purportedly invalid ones. United cannot circumvent rules with false information and then use invalidity to excuse its falsehoods. *See, e.g., Cedars-Sinai Med. Ctr. v. Shalala*, 125 F.3d 765, 769 (9th Cir. 1997). United's attempts to brush aside (Opp. at 28) the cases so holding on the ground that they were affirmative FCA claims, not reverse FCA claims, is a distinction without a difference having no bearing on the reasoning behind the rule. The policy rationale underpinning these cases applies equally to all provisions of the FCA. As explained in *Bryson v. United States*, 396 U.S. 64 (1969), in an action "directed against … fraud," "[o]ne who elects such a course as a means of self help may not escape the consequences by urging that his conduct be excused because the statute which he sought to evade is unconstitutional," *id.* at 68—or, here, because the regulatory and contractual obligation evaded is purportedly contrary to a statutory provision.

D. United's *Post Hoc* Arguments based on "Actuarial Equivalence," "Same Methodology," and the Coding Intensity Adjuster are Meritless

United devotes the majority of its brief to *post hoc* arguments about the payment structure of the MA Program and the risk adjustment model employed by CMS, all in an

effort to distract from its legal obligation to delete known invalid diagnoses and justify its fraudulent avoidance of that obligation. However, any complaints that United may have about how its payments are calculated are not properly part of this FCA case. Neither the "actuarial equivalence" nor "same methodology" language in the Part C statute nor the CIA required by Congress excuse, limit, or otherwise modify United's legal obligation to delete invalid diagnoses or allow it to unilaterally decide whether to repay the Medicare Program for payments based on such invalid diagnosis codes. This Court should reject United's arguments about this statutory language and the CIA and hold that they do not excuse United from its obligation to delete diagnoses that it knows are invalid or otherwise repay Medicare for payments based on those diagnoses.

1. The Term "Actuarial Equivalence" Does Not Provide a Free Pass

United argues that "actuarial equivalence" allows it to obtain or retain payments for the same number or percentage of unsupported diagnoses that it assumes are present in the FFS data used to calibrate the CMS-HCC model. However, "actuarial equivalence" does not do what United wishes it to do. It was never intended to do so.

First, as a preliminary matter, it is worth noting that nothing in the Part C statute – including its use of the term "actuarial equivalence" – requires CMS to pay MAOs an amount equivalent to what it pays FFS providers. The statute requires CMS to ensure "actuarial equivalence," but it does not specify what these payments must be actuarially equivalent to. Under the statute, CMS could use the MAOs' own data to calibrate the model and ensure actuarial equivalence without any reference to FFS data.[17] Although CMS currently uses FFS data to calibrate the model, the agency could decide to stop

[17] Indeed, HHS had originally planned to use the MAOs' own utilization and cost data to calibrate the model when it first implemented risk adjustment in the late 1990s. *See* 63 Fed. Reg. 34,968, 35,006-07, 35,092 (June 26, 1998) (explaining former interim regulation, 42 C.F.R. § 422.257). However, the MAOs objected to providing their own data. *See* Pls.' Ex. 24, Pope *et al*., Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC Model, Health Care Financing Review, Vol. 25, No. 4, at 120 (Summer 2004).

using the FFS data and start using the MAOs' own data at any time. *See* 42 U.S.C. § 1395w-23(a)(1)(C)(ii)(IV) (recognizing that that CMS may "implement[] risk adjustment using Medicare Advantage diagnostic, cost, and use data"). If that were done, the coefficients would reflect the MAOs' coding patterns and relative costs to treat various medical conditions and not the amounts that CMS pays to FFS providers to treat those same conditions.[18] Yet, the term "actuarial equivalence" will remain in the statute.[19]

Second, in arguing that CMS must audit the diagnoses submitted by FFS providers and delete any unsupported diagnoses that might be present in the FFS data used to calibrate the CMS-HCC model, United appears to be suggesting that the phrase "actuarial equivalence" was intended to mandate perfect financial neutrality between the two programs. However, "actuarial equivalence" does not require actual or theoretical precision. Indeed, it is expected that there will be some variance between the estimated predicted cost and actual cost in any risk adjustment model, including the CMS-HCC model. That variance will result in both under- and over-prediction of cost for some subgroups of beneficiaries and will occur for a variety of reasons unrelated to whether the diagnoses in the FFS data were supported by the beneficiaries' medical records. *See* Ex. 25, Evaluation of the CMS-HCC Risk Adjustment Model (Mar. 2011) ("RA Model

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[18] This is another reason why the accuracy of data reported by MAOs is critical to the integrity of the Part C payment regime.

[19] As a preliminary matter, it is also worth noting that the term "actuarial equivalence" is not used in Part D of the Medicare Statute with respect to risk adjustment payments. Thus, United's "actuarial equivalence" arguments are not relevant to the United States' claims to recover risk adjustment payments under Part D. This further highlights the absurdity of United's argument. Even if – as United argues – the term "actuarial equivalence" somehow bars CMS from recovering payments made to MA/Part D (MA/PD) plans under Part C based on invalid diagnoses, there would be no corresponding bar on recovering payments made to those same MA/PD plans under Part D based on invalid diagnoses. Taken to its logical end, United's argument would mean that even though both Parts C and D rely on one universe of diagnosis data, MAOs could knowingly avoid deleting invalid diagnoses for Part C risk adjustment but not for Part D risk adjustment.

Report") at 25-34.[20] Such variance is tolerated. The American Academy of Actuaries ("AAA") has opined that "[t]he use of the word 'equivalence' in an actuarial context implies a misleading sense of theoretical precision. Actuarial analysis is inherently an estimation exercise and hence is somewhat inexact." *See* Ex. 26, American Academy of Actuaries, Public Policy Practice Note: Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program (Mar. 2008) at 6.[21] With respect to this "estimation exercise," AAA has also opined that "[t]here will be issues with data sources used, the projection methodologies, and other elements that mean any result of actuarial analysis is inherently an estimate rather than a precise number." *Id*.

The statute unambiguously assigns to the Secretary of HHS the discretion how best to achieve the goal of "actuarial equivalence," *i.e.*, how best to conduct this "estimation exercise." It is this discretion that, for example, allows the Secretary to decide that less than half of the HCCs in the model should be used to risk adjust the payments to the MAOs.[22] The Secretary has done nothing here that can be characterized as an abuse of his discretion and, thus, nothing that would permit the Court to recalibrate the model or to give Defendants a free pass from deleting a certain number or percentage

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[20] *See also* Ex. 25, RA Model Report at 24 (explaining predictive ratios: a predictive ratio of 1.0 equals an accurate prediction; a predictive ratio of greater than 1.0 indicates over-prediction; and a ration less than 1.0 indicates under-prediction).

[21] The AAA Practice Note is on AAA's website at www.actuary.org/files/publications/Practice_note_on_actuarial_equivalence_certification_for_private_prescription-drug_plans_under_Medicare_Part_D_mar2008.pdf.

[22] HCCs are categories of related diagnoses. *See* Ex. 25, RA Model Report at 8-12. Risk-adjusting HCCs" are the ones used by CMS to risk adjust payments. To date, CMS has used two models to pay MAOs, V12 and V22. V12, used for payment years 2004-2015, included 70 HCCs. V22, used starting in 2014 (along with V12 in 2014 and 2015 to create blended risk scores for those years and used alone thereafter), includes 79 HCCs. HCCs are included in the model if they meet certain principles, including that they are clinically meaningful and predict medical costs. Not all HCCs meet these principles. For this reason, the V12 and V22 models excluded more than half of the total number of 189 HCCs and, accordingly, numerous diagnoses for MA beneficiaries. *Id*.

of invalid diagnoses upon which risk adjusted payments were made to them.

Because there is no guarantee that the coefficients are perfect and they may both under- and over-predict MAOs' costs for numerous reasons (including that the model does not account for the differences in the type and amount of care provided by MAOs versus FFS providers), "actuarial equivalence" does not entitle United to payments based on invalid diagnosis data to correct any purported under-prediction of costs by the model. Any other conclusion would be a windfall to United and invite widespread abuse by United and other MAOs, which neither Congress nor CMS intended.

Third, United's vision of actuarial equivalence could never be achieved because coding by United's MAOs and their MA providers is fundamentally different from coding by FFS providers. *See* Defs.' Ex. 4, Dkt. 254-1, MEDPAC Report to the Congress: Medicare and the Health Care Delivery System, Issues for the risk adjustment in Medicare Advantage, Chapter 4, page 110, fn. 4 (June 2012) ("Financial neutrality can be obtained only if coding of conditions is the same in FFS Medicare and the MA program").

MAOs – including United – engage in numerous activities to generate diagnoses to submit to Medicare to increase their risk adjusted payments. For instance, in addition to chart review programs, MAOs often provide financial incentives to their providers for increased risk scores based on additional diagnoses and send non-treating providers to beneficiaries' homes to collect diagnoses. *See, e.g.*, Ex. 27, Medicare Payment Policy Report to Congress by the Medicare Payment Advisory Commission (MEDPAC) at 344-52 (Mar. 2016).[23] These diagnosis-generating activities result in significant asymmetry

[23] Each year, MEDPAC provides a statute report on Medicare Advantage to Congress. The March 2016 Report discusses one of the likely reasons why MAOs submit more diagnoses to CMS for risk adjustment payments than FFS providers include in their claims submitted to CMS for payments under Parts A and B. It discusses the MAOs use of health risk assessments (HRAs) to generate additional diagnoses to submit to CMS. These HRAs are based on home visits by non-treating providers and a significant percentage of the time do not even result in follow-up treatment. Ex. 27, Medicare Payment Policy Report to Congress by the Medicare Payment Advisory Commission (MEDPAC) at 348.

between the coding by MAOs (which have financial incentives to maximize coding) and the coding by FFS providers (who do not have those same incentives). Having created this non-random bias or asymmetry, United cannot argue that "actuarial equivalence" somehow gives it any right to avoid its obligation to delete diagnoses unsupported by its chart reviews.

For the same reason, the scenarios about "identical beneficiaries" that United sets forth in its opposition brief at pages 22-24 ignore MAOs' revenue-generating activities and do not support United's "actuarial equivalence" argument. United's beneficiaries are not "identical" to FFS beneficiaries because, among other things, United deliberately and systematically skews its beneficiaries' risk scores by aggressively addressing under-coding while ignoring evidence of over-coding. In its brief, United discusses a hypothetical FFS beneficiary with $10,000 in costs who has three risk adjustment factors: (1) her demographic group; (2) an unsupported diabetes code; and (3) a chart-supported multiple sclerosis code. Opp. at 23. United argues that an MA plan that enrolled the same beneficiary should be able to report the beneficiary's demographics and the diagnosis codes for diabetes and multiple sclerosis and should be paid $10,000. However, a more apt hypothetical example would involve an FFS beneficiary who has (1) her demographic group; (2) a reported diagnosis that is not supported by the medical record (diabetes); (3) a reported diagnosis that is supported by the medical record (multiple sclerosis); and (4) three unreported diagnoses (morbid obesity, major depression, and chronic obstructive pulmonary disease). If this beneficiary were enrolled in an MA Plan, the three unreported diagnosis codes would likely be identified, documented in the medical record, and reported by the beneficiary's physician (who received financial incentives to increase risk scores) or by a provider sent to the beneficiary's home (for the purpose of identifying additional diagnoses). If not, the MA Plan would likely identify the three unreported diagnoses in its review of the beneficiary's medical records. In this example, United argues that actuarial equivalence somehow mandates that it should be paid for all five codes – the four supported codes

(multiple sclerosis, obesity, depression, and COPD) and also the *unsupported* diabetes code – and receive significantly more than $10,000 for that beneficiary.

Even United has to admit that its "actuarial equivalence" argument makes no sense in this hypothetical. Opp. at 25-26. It contends, however, that the CIA somehow fixes the problem. *Id*. As explained more fully below, this is not correct. While the CIA was intended to address industry-wide "differences in coding patterns," nothing in the statute or its sparse legislative history suggests it was intended to permit United to obtain or retain risk adjustment payments based on invalid payment data.

Fourth, United's central argument – its argument that it will be underpaid if it is required to return risk adjustment payments based on unsubstantiated diagnoses and that this purported underpayment violates "actuarial equivalence" – is based on its misconception about how a risk adjustment payment system works and its unfounded speculation that HHS paid them too little for some or all medical conditions by using some FFS diagnoses that may not be supported by the FFS beneficiaries' medical records. United ignores that, when HHS calibrates the model using the FFS data to determine the coefficients for each risk factor, it distributes all the FFS expenditures (*i.e*., the amounts paid providers under Parts A and B) among all of the risk factors, including the demographic factors (*i.e*., age, sex, Medicaid dual eligibility, disability status, institutional status) and health status (*i.e*., the risk-adjusting HCCs). In other words, if an expenditure is not attributed to one risk-adjusting HCC, it will be attributed to other risk-adjusting HCCs or to demographic factors. *See* Ex. 25, RA Model Report at 5 & 13 ("the Medicare risk adjustment models use data from a large pool of beneficiaries . . . to estimate predicted costs on average for each of the component factors (e.g., age-sex, low income status, individual disease groups)"). Because all of the FFS costs are distributed by the model to determine the coefficients for the demographic factors and the risk-adjusting HCCs, if one of the coefficients for either a demographic factor or risk-adjusting HCC is "too low" then another coefficient for a demographic factor or risk-

adjusting HCC would be "too high" and vice versa.[24] Accordingly, assuming that United was entitled to a credit for a "too low" coefficient, the Medicare Program would get a credit for a "too high" coefficient.[25]

Fortunately, in order for this Court to enforce Defendants' obligation to delete invalid diagnoses codes and repay Medicare for payments based on invalid diagnoses, "actuarial equivalence" does not require this Court to recalibrate the model's coefficients and assign credits to ensure perfection. No risk adjustment model estimates predicted costs perfectly and there is no requirement for it to do so. It is within CMS' discretion to determine how best to calibrate the model given the data available to it to do so.

Fifth, CMS' reference in its February 2012 memorandum to the use of a payment error rate adjustment (often referred to as an "FFS Adjuster") for the purpose of determining final overpayments amounts for its Risk Adjustment Data Validation (RADV) audits provides no support for United's argument that it should not be required to delete known invalid diagnosis codes.

CMS' consideration of applying a payment error rate adjustment when extrapolating the findings of an audit was not based on any statutory requirement that it do so. The term "actuarial equivalence" in 42 U.S.C. § 1395w-23(a)(1)(C)(i) does not mandate the adoption of any payment error rate adjustment, either in the context of a RADV audit or in any other context. CMS' statement in its memorandum about using a payment error rate adjustment related to its determination of the amount it would seek to

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[24] Some healthcare analysts have suggested that, overall, the coefficients for both the demographic risk factors and the HCCs may be too high and that MA Plans are being overpaid even though risk adjustment payments may be too low for beneficiaries with the most serious medical conditions. *See* Ex. 28, Frogner *et al*., Incorporating New Research Into Medicare Risk Adjustment, Medical Care, Vol. 49, No. 3, at 300 (Mar. 2011).

[25] The coefficients are also known as relative risk factors ("RAFs"). Ex. 25, RA Model Report at 13. For each MA beneficiary, the demographic coefficients and risk-adjusting HCC coefficients (if any) are added to determine the beneficiary's total risk score. It is the total score that is multiplied against the fixed base monthly payment to determine the total monthly payment. *Id*. The total score is commonly referred to as the "multiplier."

recover in the context of administrative audits where sample results would be extrapolated to an entire MAO contract for an entire year and the contract-level overpayment amounts were predicted to be very substantial.

By referencing this payment error rate adjuster in its February 2012 memorandum, CMS was not signaling that United's speculation about possible under-payments or "lower payment rates" is correct. Contrary to United's misrepresentation, CMS has never acknowledged that "the commenters were right" or that payment rates were too low. Opp. at 12:25 & 19:20. CMS also did not, as part of its RADV payment error rate extrapolation methodology, adopt Defendants' argument (Opp. at 24:17-23) that they were entitled to keep risk adjustment payments for a percentage of unsubstantiated diagnoses or HCCs. The February 2012 RADV methodology memorandum does not even suggest that CMS agrees with United's "diagnosis coding error rate" argument. "Payment inaccuracy" due to under-prediction of cost (a "too low" coefficient) and payment error due to paying for an unsubstantiated and invalid diagnosis are unrelated matters. In the latter situation, there is always an overpayment.

The payment error rate adjuster described in the RADV methodology was not based on giving MAOs a free pass for a certain number or percentage of unsupported diagnoses based on the number or amount of unsupported diagnoses in FFS claims. The methodology was limited to the context of an audit with extrapolated results. In this case the government is not seeking to conduct any statistical sampling or extrapolation. To the contrary, this case is limited to United's failure to delete specific diagnosis codes that it knew were invalid or , if it had not acted with intentionally or reckless indifference, would have known were invalid based on the results of its chart reviews. Even United understood that, outside of the extrapolated contract-level audit context, there was no basis for conditioning the deletion of invalid codes on the promulgation of an adjuster. Indeed, based on its Claims Verification Program, United deleted approximately 120,000 unsupported diagnoses for date of service year 2011 and approximately 27,000 unsupported diagnoses for date of service year 2012. (Am. Compl. ¶ 235). United did

not request an adjuster when it made these deletes. Had it truly thought it was legally entitled to such an adjuster, United most certainly would have made the request that the time. Instead, it has now fashioned this meritless *post hoc* argument to excuse its misconduct.

The "Model Calibration Factor" presentation reflects CMS' internal deliberations about whether it might recalibrate the coefficients for the model's risk factors using audited FFS data. Defs.' Ex. 15, Dkt. 254-1, CMS0005891. The Agenda also refers to a *payment* error rate adjuster, not a *coding* error rate adjuster. Defs.' Ex. 16, Dkt. 254-1, CMS0006201. A recalibration based on audited data could ultimately result in an adjustment to the coefficients that over-predicted costs as well as those that under-predicted costs or could confirm that there was no or minimal under- or over-prediction with respect to various risk factors. But the mere possibility that CMS might conduct an analysis to determine the effect of recalibration does not invalidate the existing risk adjustment modeling.

CMS has not yet announced the amount, if any, of a payment error rate adjustment for its RADV audits. The predicted substantial overpayments due to extrapolation may not occur because of other aspects of the audit methodology. For instance, overpayments are reduced because CMS looks both ways and gives MAOs credit for additional diagnoses supported by the sample beneficiaries' medical records. Tellingly, it was United who argued that CMS must look both ways for the purpose of its RADV audits and give it credit for diagnoses that it did not submit but for which CMS' reviewers find support in the beneficiaries' medical records. *See* Am. Compl. ¶¶ 193-94. In addition, because the RADV methodology memorandum discusses the recalibration of the coefficients based on audited FFS data to examine whether the coefficients for the various model factors differ based on audited data,[26] any recalibration would address

[26] This is data based on a determination regarding the diagnoses supported by the FFS beneficiaries' medical records, regardless whether the FFS providers included those diagnoses in their claims submissions to CMS.

both the under-coding and over-coding of diagnoses by FFS providers and the under-prediction and over-prediction of the coefficients for the model, and any recalibration may not result in any credit benefitting United or any MAOs.

AAA's letter to CMS also does not support United's argument. AAA's letter obviously reflects the MA industry's concern about the significant monetary impact of extrapolated audits.[27] But AAA did not say that MAOs are entitled to payment based on or a certain number or percentage of invalid diagnoses. In fact, it stated that "[b]ecause improper coding can result in inaccurate payments to MA plans, RADV audits can help improve plan payment accuracy." Defs.' Ex. 33, Dkt. 254-2, AAA Jan. 21, 2011 Letter at 1. AAA has also repeatedly warned that payments should *not* be made to insurers based on their "manipulation" or "gaming" of risk adjustment payment systems, including their submission of invalid diagnosis data.[28] And, although AAA appears in its letter to be implicitly suggesting that CMS recalibrate the model's coefficients using audited data, it never states that "actuarial equivalence" or any other part of the Medicare Statute requires that CMS do this in order to extrapolate.

2. The Term "Same Methodology" Does Not Provide a Free Pass

United also erroneously relies on the section of the statute using the term "same methodology." That section does not pertain to risk adjustment payments to MAOs, but rather an annual reporting requirement.

Under Part C, the fixed base monthly payments based on the MAOs' bids are determined in part by benchmarks that are specific to the area in which each MA Plan is located. 42 U.S.C. § 1395w-23(1)(B). The statute requires HHS to publish the

[27] Members and financial supporters of the AAA work for the MAOs. For instance, the author of the AAA letter, Thomas Wildsmith, is a Senior Public Policy Manager for Aetna, which owns numerous MAOs.

[28] *See* Ex. 29, Actuarial Review of the Health Status Risk Adjuster Methodology by the American Academy of Actuaries Risk Adjuster Work Group at 8-9 and 36 (Jan. 14, 1999); Ex. 30, American Academy of Actuaries Issue Brief, Risk Assessment and Risk Adjustment at 5 (May 2010) ("The administering agency or organization should put controls in place to detect and resolve inappropriate coding").

benchmarks and "capitation rates" each April before the MAOs submit their bids. *Id*. at § 1395w-23(b)(1)(B). At the same time, HHS is also required to publish county-specific per capita expenditure information relating to the FFS program, which includes average risk factor information for the FFS population in each payment area. *Id*. at § 1395w-23(b)(4). With respect to the reporting of the average risk factor information, the statute states that "[s]uch average risk factor [should be] based on diagnoses for inpatient and other sites of service, using the same methodology as is expected to be applied in making payments under subsection (a) of this section." *Id*. at § 1395w-23(b)(4)(D). This simply means that, in reporting the average risk factor for the FFS population, CMS must use the methodology that it uses to make risk adjustment payments, the CMS-HCC model. CMS has always done this and published this information on its website. *See, e.g*., Ex. 31, Announcement of Calendar Year (CY) 2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 1 (Apr. 7, 2008) (referring to the posting of the information on CMS' website); Defs.' Ex. 1, Dkt. 254-1, Announcement of Calendar Year (CY) 2010 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 1 (Apr. 6, 2009) (same). This reporting requirement has nothing to do with United's obligation to submit valid data and to delete invalid data.

Moreover, the use of the term "methodology" does not permit MAOs to submit invalid diagnosis data or fail to knowingly delete invalid diagnosis data because the FFS diagnosis data used to report the average FFS risk factors per payment area is unaudited. "Methodology" does not refer to the data used to perform a method or procedure. "Same methodology" also cannot and should not be construed to mean "same data" here because the diagnosis data submitted by MAOs for payments is not the same as the FFS data used to determine the FFS averages due to the MAOs' aggressive coding activities. The "same methodology" argument also fails for all the same reasons that the "actuarial equivalence" argument fails.

3. The Coding Intensity Adjuster Does Not Excuse United's Failure to Delete Invalid Diagnoses

United contends that MAOs' diagnosis-generating activities are offset by a CIA mandated by Congress. United argues that even when an MAO incentivizes providers to report additional diagnoses, sends non-treating providers to beneficiaries' homes to gather diagnoses, and conducts one-way chart reviews to mine for unreported diagnoses, actuarial equivalence is not destroyed because these practices are fully addressed by the adjuster. However, the adjuster is a blunt tool that Congress implemented uniformly across all MAOs to address industry-wide differences in coding patterns between MAOs (and their MA providers) under Part C of the Medicare Program and FFS providers under Parts A and B of the Medicare Program. It is not a license for individual MAOs to redouble their diagnosis-generating efforts and submit millions of additional codes while at the same time contending that they would be underpaid if they deleted specific diagnosis codes that they discovered were invalid based on those same diagnosis-generating efforts or based on any other information.

Because MAOs are paid more for insureds with higher scores, Congress has long been concerned that MAOs had incentives to inflate their insureds' health risk scores. Congress has also expressed concern that MA risk scores are not clinically justified and are based on diagnoses that are inaccurately coded and unsupported by the insureds' medical records. *See* H.R. Report 109-362 (Dec. 18, 2005); H.R. Report 111-443 (Mar. 17, 2010); Remarks of Representative Pete Stark, Cong. Record, Vol. 158, No. 48, E430 (Mar. 22, 2012). However, the CIA, enacted as part of the Deficit Reduction Act of 2005 (DRA), addresses only the "differences in coding patterns between Medicare Advantage plans and providers under [Parts] A and B . . . to the extent that the Secretary [of HHS] has identified such differences." Public Law 109-171 (Feb. 8, 2006), codified at 42 U.S.C. § 1395w-23(a)(1)(C)(ii)(I) and (II). For payment years 2010 to 2013, CMS

applied a 3.41 percent adjuster.[29] Defs.' Ex. 1, Dkt. 254-1, Announcement of Calendar Year (CY) 2010 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 19-29 (April 6, 2009). In 2012, Congress amended the statute to impose minimum increases for the 3.41 percent adjuster used by CMS starting in 2010. 42 U.S.C. § 1395w-23(a)(1)(C)(ii)(III) (2012). In 2013, Congress increased the minimum increases. 42 U.S.C. § 1395w-23(a)(1)(C)(ii)(III) (2013). Congress has not amended the adjustor since then. Since 2014, CMS has increased the coding intensity adjustor by the minimums required by Congress and no further.

Contrary to United's argument, Congress has never stated that the CIA was meant to allow MAOs to submit invalid diagnoses or turn a blind eye to the negative results of their chart reviews. Nothing in the statute or legislative history suggests that Congress intended for MAOs to knowingly avoid their regulatory and contractual obligations to delete diagnosis codes that they knew were invalid. Indeed, nothing suggests that Congress even knew about these and other improper and fraudulent practices, their impact on risk adjustment payments, or which MAOs were and were not engaging in them. And Congress also never instructed CMS to develop and apply an individual adjuster for each MAO based on that MAO's diagnosis-generating activities, coding intensity or improper or fraudulent activity.[30] Rather, Congress created an adjustor that

[29] For payment years 2008 and 2009, CMS did not incorporate a CIA because it believed it needed more information to determine that differences in risk scores between MA and FFS were due to differences in "coding patterns" rather than other factors. *See* Ex. 31, Announcement of Calendar Year (CY) 2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 18-22 (Apr. 7, 2008). Thus, United has no basis for even trying to argue that the CIA somehow excuses its failure to delete invalid diagnosis codes for those two years.

[30] Congress' concern and its enactment of a CIA also undermines Defendants' argument that "actuarial equivalence" excuses the submission of unsubstantiated diagnoses. In 2005, when Congress first directed CMS to study the difference in coding intensity between MAOs and FFS providers and apply an adjuster, CMS was already implementing its HCC model and using FFS claims data to predict the average cost for each HCC. If Congress was concerned that MAOs were somehow undercompensated based on the use of FFS data, Congress could have instructed CMS to correct for that issue as part of determining the coding intensity adjuster. However, Congress has never

focuses on the difference in the coding patterns between one entire industry, *i.e.*, MAOs, including their MA providers, and another entire industry, *i.e.*, FFS providers. 42 U.S.C. § 1395w-23(a)(1)(C)(ii)(II).

Congress has not explained how it first established the minimum increases. There is no legislative history indicating that Congress' minimum increases were based on any studies of differences in coding pattern or the amount of invalid codes or improper payments due to fraudulent practices. Indeed, the legislative history does not refer to any study quantifying differences in coding patterns between MAOs and FFS providers or to any study or report about MAOs' chart reviews or other diagnosis-generating activities.[31] In any event, Congress would not have known the number of additional diagnosis codes that United submitted based on its chart reviews or the number of unsubstantiated diagnoses that United failed to delete over the last decade even if (assuming for the sake of argument) it meant the adjuster to compensate for such fraud.

CMS also applies the same adjustor (that is, the same percentage) across the board to all MAOs and all MA beneficiaries regardless of an individual MAO's coding pattern or intensity or an individual beneficiary's risk score. Thus, the adjustor does not address the coding patterns or intensity of individual MAOs or their MA plans or improper coding or fraud by MAOs or their plans. Ex. 32, Announcement of Calendar Year (CY) 2015 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter at 29 (Apr. 7, 2014) (in response to a comment by one MAO that the adjustor should not be applied to it because its risk scores were below

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stated that a separate adjuster is required by its use of the term "actuarial equivalence" to compensate for any under-prediction of costs by the CMS-HCC model.

[31] The House Report accompanying Pub. L. 111-152 analyzes text that does not include these statutory minimums. *See* H.R. Rep. 111-443, at 102, 371 (Mar. 17, 2010). The relevant language therefore appears to have been added in conference, and there is no report explaining the changed language. The 2013 increase in the statutory minimums was part of Pub. L. 112-240, the American Taxpayer Relief Act of 2012. That bill was not accompanied by any House, Senate, or Conference Report.

average, CMS explained that "the optimal way to apply the adjustment is to do so uniformly and industry wide"). CMS does this even though MAOs and their MA plans differ widely in how intensely they code.[32] For example, in 2015, individual plans' coding practices resulted in coding intensity differences ranging from approximately negative 3-4% (meaning that those plans coded less intensely than FFS providers) to more than 40% (meaning that those plans coded much more intensely than FFS providers).[33]

Furthermore, the CIA (that is, the percentage reduction) applies as an overall proportional reduction to each beneficiary's total risk score, "*leaving the proportion of the risk score that is determined by diseases intact.*" Defs.' Ex. 1, Dkt. 254-1, Announcement of Calendar Year (CY) 2010 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 27 (April 6, 2009) (emphasis added). It is *not* an adjustment to the diagnosis data submitted by the MAOs or to the HCCs. The CIA does not off-set or subtract from a beneficiary's risk score the amount of the coefficient for any HCCs triggered by a diagnosis (be it a valid or invalid diagnosis) that an MAO submitted for the beneficiary.

Because Congress directed CMS to adjust for differences in "coding patterns" and not to adjust for invalid diagnoses, improper coding, or fraud, CMS has rejected arguments that, in order to apply the CIA, it must find that the differences in coding were due to improper coding or fraud. *See* Ex. 31, Announcement of Calendar Year (CY)

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[32] *See* Ex. 33, 2011 Announcement (Apr. 5, 2010) at 18 (noting that "MA coding trends do differ among MAOs," but imposing a CIA that is "industry-wide and not plan-specific in nature"); Ex. 34, R. Kronick & W.P. Welch, *Measuring Coding Intensity in the Medicare Advantage Program*, 4 Medicare & Medicaid Research Review, No. 2, 2014, at E12 ("There is a striking amount of heterogeneity [in coding intensity] across MA contracts").

[33] Ex. 35, Medicare Payment Advisory Commission, Report to the Congress (Mar. 2017), Ch. 13 at 368, Fig. 13-5; *see also* Ex. 36, Medicare Payment Advisory Commission, Report to the Congress (Mar. 2018), Ch. 13 at 376, Fig. 13-5 (in 2016, individual coding intensity differences among MA plans ranged from negative 7-8% to nearly 40%).

2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 19-20 (Apr. 7, 2008). CMS has explained that the conferees' statement in the Conference Report for the DRA that the adjustments be made for differences resulting from "inaccurate coding" did not so limit the adjustor because the statute itself only required CMS to establish a difference in "coding patterns." CMS further explained that the terms "accurate" and "inaccurate" as used by Congress in the legislative history related to differences in coding patterns regardless of the reasons for the differences and did not mean improper or fraudulent coding. CMS cited the floor statement of Senator Charles Grassley, then Chairman of the Senate Committee on Finance, that the adjustor should apply to differences in coding patterns "even if such coding is accurate and complete for other purposes." *Id.*

As part of its response to various commenters, in 2008 and 2009, CMS also stated that if a MA plan was coding the same way as FFS providers, it was coding "accurately" and that if the plan was coding a different way it was coding "inaccurately." *See* Ex. 31, Announcement of Calendar Year (CY) 2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 20 (Apr. 7, 2008); Defs.' Ex. 1, Dkt. 254-1, Announcement of Calendar Year (CY) 2010 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 20 (Apr. 6, 2009). Again, those were references to the "accuracy" or "inaccuracy" of ***coding patterns***. CMS did not say that "inaccurate" ***diagnosis data***, including diagnoses unsubstantiated by beneficiaries' medical records, were "accurate" for payment purposes if the MA plan who submitted the invalid diagnoses was coding similarly to FFS providers. FFS providers, just like MAOs, are required to submit accurate data with their claims.[34]

[34] *See* Ex. 37, Section 10 of Chapter 23 of the Medicare Claims Processing Manual (Oct. 6, 2017) (referring to diagnosis and procedural codes used by FFS providers to submit claims to CMS and stating that "[p]roper coding is necessary on Medicare claims because codes are generally used in determining coverage and payment amounts"). FFS providers are also required to certify that the data they submit to CMS on their claim forms – including diagnosis data – are accurate. *See* Ex. 38, Section

As part of its implementation of the CIA, CMS never modified the regulatory and contractual obligations of MAOs to submit only valid data and delete invalid diagnoses, including those unsubstantiated by the beneficiaries' medical records. In fact, CMS has explained that differences in coding patterns and coding errors are two distinct issues. Defs.' Ex. 1, Dkt. 254-1, Announcement of Calendar Year (CY) 2010 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies at 21-22 (April 6, 2009). Thus, CMS has never accepted the argument that recovering overpayments through its administrative audits and applying the CIA would be double counting. *Id*. In its April 2010 announcement, CMS explained:

> As we have noted in previous Advance Notices and Rate Announcements, the MA coding adjustment factor is not intended to adjust for inaccurate coding, but for the impact on risk scores of coding patterns that differ from FFS coding, the basis for the CMS-HCC model and the Part C normalization factor. RADV audits have the purpose of validating that diagnosis codes submitted for risk adjustment are documented in the medical record and, therefore, are correctly reported for the beneficiary in question.

Ex. 33, Announcement of Calendar Year (CY) 2011 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter at 19 (April 5, 2010).[35]

The CIA provision in the statute does not state and there is no clear and manifest

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30.2(A) of Chapter 24 of the Medicare Claims Processing Manual (Apr. 5, 2016) (requiring FFS providers to sign Electronic Data Interchange agreements, pursuant to which they agree to "submit claims that are accurate, complete, and truthful" and "[t]hat [they] will research and correct claim discrepancies").

[35] *See also* Ex. 39, Announcement of Calendar Year (CY) 2012 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter at 37-38 (April 4, 2011); Ex. 40, Announcement of Calendar Year (CY) 2017 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter at 54 (April 4, 2016).

congressional intent evidencing that the CIA (an adjustor related solely to coding pattern differences between different parts of the Medicare Program) was supposed to be the means of addressing improper coding or fraud by MAOs and their providers or that it was meant to preempt the various means available to the government of ensuring payment accuracy. *See, e.g., San Luis & Delta-Mendota Water Authority v. Haugrud*, 848 F.3d 1216, 1230 (9th Cir. 2017) (requiring clear and manifest intent because repeals by implication are disfavored); *Moyle v. Director, Office of Workers' Compensation Programs*, 147 F.3d 1116, 1120 (9th Cir. 1998) (same). The statute does not state and Congress has never stated that the government should refrain from addressing improper coding or fraud or ensuring payment accuracy by such means as CMS' Risk Adjustment Data Validation (RADV) audits, HHS Office of Inspector General risk adjustment audits, enforcement of the statutory Overpayment Rule that specifically applies to payments to MAOs under Parts C and D of the Medicare Statute, 42 U.S.C. § 1320a-7k(d)(4)(C)(i), and enforcement of the FCA for the fraudulent submission and retention of risk adjustment payments based on invalid data.

There is also no basis for concluding that the coding intensity adjustor was meant to address or does address "the whole [or any of the] subject" of the FCA or was "clearly intended as a substitute." *Moyle*, 147 F.3d at 1120. The CIA is not a license for an MAO to knowingly avoid its obligation to delete invalid diagnoses or otherwise repay the Medicare Program for monies to which it is was not entitled based on invalid diagnosis data.[36]

III. CONCLUSION

For the foregoing reasons, the Court should grant the United States' motion for partial summary judgment. The Court should reject United's attempt to divert its attention away from the controlling Ninth Circuit law established by *Swoben* and *Silingo*

[36] Courts strongly disfavor implied repeal of the FCA, especially when the other statute does not provide a remedy for fraud. *See, e.g.*, United *States ex rel. Sutton v. Double Day Office Services, Inc.,* 121 F.3d 531, 534-35 (9th Cir. 1997).

and its attempts to waste the Court's and government's resources by engaging in discovery to fish for extrinsic evidence that cannot alter that controlling law or United's undeniable legal obligation to delete and repay. The Court should hold, as required by *Swoben*, that United had a legal obligation to delete the diagnoses submitted by it to CMS for payments when the results of its chart reviews showed that those diagnoses were unsubstantiated by its beneficiaries' medical records and that United was not entitled to the payments based on those invalid diagnoses. The only relevant issue in this case is whether United "knowingly" avoided its obligation to delete and repay. The United States will prove that it did.

Respectfully submitted,

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I hereby attest that the other signatory listed, on whose behalf the filing is submitted, concurs in the filing's content and has authorized the filing.

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UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

WESTERN DIVISION

UNITED STATES OF AMERICA *ex rel*. BENJAMIN POEHLING, Plaintiffs, v. UNITEDHEALTH GROUP, INC., *et al*., Defendants.	No. CV 16-08697 MWF (SSx) DECLARATION OF MARTHA GLOVER IN SUPPORT OF REPLY MEMORANDUM ON MOTION FOR PARTIAL SUMMARY JUDGMENT Date: September 17, 2018 Time: 10:00 a.m. Court: 5A. Hon. Michael W. Fitzgerald

DECLARATION OF MARTHA GLOVER

I, Martha Glover, declare:

1. I am an attorney and a Civil Law Clerk II (contractor) for the United States Department of Justice, Civil Division, in Washington, D.C. I have been so employed for nearly 6 years. I have personal knowledge of the matters set forth herein and, if called to testify, could and would testify competently thereto.

2. Attached hereto as Exhibit 24 is a true and correct copy of Gregory C. Pope, et al., Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC Model (Sept. 2004), available https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/downloads/evaluation_risk_adj_model_2011.pdf. This exhibit was also made a part of the administrative record in the Administrative Procedures Act ("APA") action in the District of Columbia at AR11880-AR12006.

3. Attached hereto as Exhibit 25 is a true and correct copy of excerpts of Gregory C. Pope, *et al.,* Evaluation of the CMS-HCC Risk Adjustment Model, Final Report (Mar. 2011), available at https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/downloads/evaluation_risk_adj_model_2011.pdf. This exhibit was also produced as part of the administrative record in the APA action at AR11857-AR11879. A non-excerpted version of this document was also marked as Exhibit 1009 at the March 20, 2018 deposition of Jeffrey Grant in this litigation.

4. Attached hereto as Exhibit 26 is a true and correct copy of excerpts of Public Policy Practice Note, Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program, American Academy of Actuaries (Mar. 2008), available at https://actuary.org/files/publications/Practice_note_on_actuarial_equivalence_certification_for_private_prescription-drug_plans_under_Medicare_Part_D_mar2008.pdf.

5. Attached hereto as Exhibit 27 is a true and correct copy of excerpts of Report to Congress, Medicare Payment Policy, Medicare Payment Advisory Commission ("MEDPAC") (Mar. 2016), available at http://medpac.gov/docs/default-

source/reports/march-2016-report-to-the-congress-medicare-payment-policy.pdf?sfvrsn=0.

6. Attached hereto as Exhibit 28 is a true and correct copy of Bianca K. Frogner, *et al.,* Incorporating New Research Into Medicare Risk Adjustment, Medical Care, vo. 49, No. 3 (Mar. 2011), available at https://journals.lww.com/lww-medicalcare/toc/2011/03000.

7. Attached hereto as Exhibit 29 is a true and correct copy of William F. Bluhm, et al., Actuarial Review of the Health Status Risk Adjuster Methodology, American Academy of Actuaries (Jan. 14, 1999), available at http://lobby.la.psu.edu/004_Risk_Adjuster/Organizational_Statements/AAA/AAA_Actuarial_Review.pdf.

8. Attached hereto as Exhibit 30 is a true and correct copy of Issue Brief, Risk Assessment and Risk Adjustment, American Academy of Actuaries (May 2010), available at http://www.actuary.org/files/publications/IssueBrief_Risk_Assesment_and_Adjustment_May2010.pdf.

9. Attached hereto as Exhibit 31 is a true and correct copy of Announcement of Calendar Year 2009, CMS (Apr. 7, 2008), available at https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2009.pdf. This exhibit was also made a part of the administrative record in the APA action at 004256-004288.

10. Attached hereto as Exhibit 32 is a true and correct copy of excerpts of Announcement of Calendar Year 2015, CMS (Apr. 7, 2014), available at https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2015.pdf. This exhibit was also made a part of the administrative record in the APA action at 004976-005019.

11. Attached hereto as Exhibit 33 is a true and correct copy of excerpts of Announcement of Calendar Year 2011, CMS (Apr. 5, 2010), available at

https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2011.pdf. This exhibit was also made a part of the administrative record in the APA action at 004434-004485.

12. Attached hereto as Exhibit 34 is a true and correct copy of Richard Kronick, *et al.,* Measuring Coding Intensity in the Medicare Advantage Program, Medicare & Medicaid Research Review, vol. 4, no. 2 (2014), available at https://www.cms.gov/mmrr/Downloads/MMRR2014_004_02_a06.pdf. This exhibit was also marked as Exhibit 1011 at the March 20, 2018 deposition of Jeffrey Grant and as Exhibit 1002 at the February 28, 2018 deposition of Marilyn Tavenner in this litigation.

13. Attached hereto as Exhibit 35 is a true and correct copy of excerpts of MEDPAC Report to Congress, Medicare Payment Policy, Medicare Payment Advisory Commission (Mar. 2017), available at http://medpac.gov/docs/default-source/reports/mar17_entirereport.pdf.

14. Attached hereto as Exhibit 36 is a true and correct copy of excerpts of MEDPAC Report to Congress, Medicare Payment Policy, Medicare Payment Advisory Commission (Mar. 2018), available at http://www.medpac.gov/docs/default-source/reports/mar18_medpac_entirereport_sec.pdf?sfvrsn=0.

15. Attached hereto as Exhibit 37 is a true and correct copy of Section 10 of Chapter 23 of the Medicare Claims Processing Manual (October 6, 2017), available at https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c23.pdf.

16. Attached hereto as Exhibit 38 is a true and correct copy of Section 30 of Chapter 24 of the Medicare Claims Processing Manual (April 5, 2016), available at https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c24.pdf.

17. Attached hereto as Exhibit 39 is a true and correct copy of excerpts of Announcement of Calendar Year 2012, CMS (Apr. 4, 2011), available at https://www.cms.gov/Medicare/Health-

Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2012.pdf. This exhibit was also made a part of the administrative record in the APA action at 004551-004638.

18. Attached hereto as Exhibit 40 is a true and correct copy of excerpts of Announcement of Calendar Year 2017, CMS (Apr. 4, 2016), available https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2017.pdf.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on August 27, 2018 at Washington, D.C.

MARTHA GLOVER

Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC Model

Gregory C. Pope, M.S., John Kautter, Ph.D., Randall P. Ellis, Ph.D., Arlene S. Ash, Ph.D., John Z. Ayanian, M.D., M.P.P., Lisa I. Iezzoni, M.D., M.Sc., Melvin J. Ingber, Ph.D., Jesse M. Levy, Ph.D., and John Robst, Ph.D.

This article describes the CMS hierarchical condition categories (HCC) model implemented in 2004 to adjust Medicare capitation payments to private health care plans for the health expenditure risk of their enrollees. We explain the model's principles, elements, organization, calibration, and performance. Modifications to reduce plan data reporting burden and adaptations for disabled, institutionalized, newly enrolled, and secondary-payer subpopulations are discussed.

INTRODUCTION

Medicare is one of the world's largest health insurance programs, with annual expenditures exceeding $200 billion. It provides health insurance to nearly 40 million beneficiaries entitled by elderly age, disability, or ESRD. Approximately 11 percent of Medicare beneficiaries are enrolled in private managed care health care plans, with the rest in the traditional FFS program. The 1997 BBA modified the Medicare managed care (MMC) and other capitated programs, collectively called M+C.[1] Medicare pays private plans participating in M+C a monthly capitation rate to provide health care services to enrolled beneficiaries.

Historically, capitation payments to MMC plans were linked to FFS expenditures by geographic area, with payments set at 95 percent of an enrollee's county's adjusted average per capita cost (AAPCC). The AAPCC actuarial rate cells were defined by: age, sex, Medicaid enrollment (indicating poverty), institutional status (for nursing home residents), and working aged status (for beneficiaries with employer-based insurance where Medicare is a secondary payer). Separate county factors were calculated for the aged and non-aged disabled (under 65 years), and at the State-level only (due to small numbers), for ESRD-entitled beneficiaries.

The AAPCC payment methodology explains only about 1-percent of the variation in expenditures for Medicare beneficiaries, and does not pay more for sicker people. Thus, research showed that the managed care program was increasing total Medicare Program expenditures, because its enrollees were healthier than FFS enrollees, and the AAPCC did not account for this favorable selection (Brown et al., 1993; Riley et al., 1996; Mello et al.,

Gregory C. Pope and John Kautter are with RTI International. Randall P. Ellis and Arlene S. Ash are with Boston University. John Z. Ayanian is with Harvard Medical School and Brigham and Women's Hospital. Lisa I. Iezzoni is with Harvard Medical School and Beth Israel Deaconess Medical Center. Melvin J. Ingber, Jesse M. Levy, and John Robst are with the Centers for Medicare & Medicaid Services (CMS). The research in this article was funded by CMS to RTI International under Contract Numbers 500-95-048 and 500-00-0030. The views expressed in this article are those of the authors and do not necessarily reflect the views of RTI International, Boston University, Harvard Medical School, Brigham and Women's Hospital, Beth Israel Deaconess Medical Center, or CMS.

[1] The Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA) renames the M+C program Medicare Advantage. However, since this renaming does not officially take place until 2006, we continue to use M+C.

2003). Also, more money was not directed to plans enrolling sicker beneficiaries, or to plans specializing in treating high-cost populations, such as beneficiaries with particular chronic diseases or high levels of functional impairment.

The M+C program fundamentally changed the MMC payment method, including a mandate for health-based Medicare capitation payments by 2000. To support this mandate, the BBA required managed care organizations (MCOs) to report inpatient encounter data (i.e., records for each inpatient admission of a plan's enrollees noting, among other things, the beneficiaries' diagnoses) beginning in 1998. In 2000 CMS, which administers the Medicare Program, implemented the PIP-DCG model as a health-based payment adjuster (Pope et al., 2000a). This model estimates beneficiary health status (expected cost next year) from AAPCC-like demographics and the worst principal inpatient diagnosis (principal reason for inpatient stay) associated with any hospital admission. PIP-DCG-based payments were introduced gradually, with only 10 percent of total Medicare capitation payments adjusted by PIP-DCG factors in 2000. The other 90 percent of payments were still adjusted using a purely demographic (AAPCC-like) model.

The PIP-DCG model was intended as a transition, a feasible way to implement risk adjustment based on the readily available, already audited inpatient diagnostic data. Relying on inpatient diagnoses is the PIP-DCG model's major shortcoming, since only illnesses that result in hospital admissions are counted; MCOs that reduce admis-sions (e.g., through good ambulatory care) can end up with apparently healthier patients and lower payments. Congress's BIPA (2000) addressed the PIP-DCG limitations by requiring the use of ambulatory diagnoses in Medicare risk-adjustment, to be phased in from 2004 to 2007 at 30, 50, 75, and 100 percent of total payments. CMS began collecting encounter data from MCOs for the physician office and hospital outpatient settings (i.e., records of each enrollee visit to these providers with dates, procedures performed, diagnoses, etc.) in October 2000 and April 2001, respectively. However, following complaints from MCOs about the burden of reporting encounter data, CMS suspended data collection in May 2001, ultimately adopting a drastically streamlined data reporting strategy (discussed later).

CMS evaluated several risk-adjustment models that use both ambulatory and inpatient diagnoses, including ACGs (Weiner et al., 1996), the chronic disease and disability payment system (CDPS) (Kronick et al., 2000), clinical risk groups (CRGs) (Hughes et al., 2004), the clinically detailed risk information system for cost (CD-RISC) (Kapur et al., 2003), and DCG/HCCs (Pope et al, 2000b). CMS chose the DCG/HCC model for Medicare risk-adjustment, largely on the basis of transparency, ease of modification, and good clinical coherence. The DCG/HCC model, part of the same DCG family of models as the PIP-DCG, was developed with CMS funding by researchers at RTI International[2] and Boston University, with clinical input from physicians at Harvard Medical School.[3]

Prior to implementing Medicare risk-adjustment in 2004, the DCG/HCC model developers and CMS staff adapted the original model for consistency with CMS' simplified data collection, and for customized fit for Medicare subpopulations. The resulting CMS-HCC model reflects these

2 The early development of the DCG/HCC model was done by Health Economics Research, Inc. while under contract to CMS. However, RTI International acquired Health Economics Research, Inc. in 2002.

3 The original version of the DCG/HCC model is described in Ellis et al. (1996). The DCG/HCC model has been refined as described in Pope et al., 1998 and 2000b.

Medicare-specific adaptations of the DCG/HCC model and provides a comprehensive framework for Medicare risk-adjustment.

This article describes the DCG/HCC and CMS-HCC models. The next section describes the DCG/HCC model, including the principles and elements of its diagnostic classification system and how its performance compares to earlier models. We then describe the modifications to accommodate the simplified data that lead to the CMS-HCC model. The final section describes the CMS-HCC model adaptations for subpopulations.

DCG/HCC MODEL PRINCIPLES

Diagnostic Classification System

The following ten principles guided the creation of the diagnostic classification system.

Principle 1—Diagnostic categories should be clinically meaningful. Each diagnostic category is a set of ICD-9-CM codes (Centers for Disease Control and Prevention, 2004). These codes should all relate to a reasonably well-specified disease or medical condition that defines the category. Conditions must be sufficiently clinically specific to minimize opportunities for gaming or discretionary coding. Clinical meaningfulness improves the face validity of the classification system to clinicians, its interpretability, and its utility for disease management and quality monitoring.

Principle 2—Diagnostic categories should predict medical expenditures. Diagnoses in the same HCC should be reasonably homogeneous with respect to their effect on both current (this year's) and future (next year's) costs. (In this article we present prospective models predicting future costs.)

Principle 3—Diagnostic categories that will affect payments should have adequate sample sizes to permit accurate and stable estimates of expenditures. Diagnostic categories used in establishing payments should have adequate sample sizes in available data sets. Given the extreme skewness of medical expenditure data, the data cannot reliably determine the expected cost of extremely rare diagnostic categories.

Principle 4—In creating an individual's clinical profile, hierarchies should be used to characterize the person's illness level within each disease process, while the effects of unrelated disease processes accumulate. Because each new medical problem adds to an individual's total disease burden, unrelated disease processes should increase predicted costs of care. However, the most severe manifestation of a given disease process principally defines its impact on costs. Therefore, related conditions should be treated hierarchically, with more severe manifestations of a condition dominating (and zeroing out the effect of) less serious ones.

Principle 5—The diagnostic classification should encourage specific coding. Vague diagnostic codes should be grouped with less severe and lower-paying diagnostic categories to provide incentives for more specific diagnostic coding.

Principle 6—The diagnostic classification should not reward coding proliferation. The classification should not measure greater disease burden simply because more ICD-9-CM codes are present. Hence, neither the number of times that a particular code appears, nor the presence of additional, closely related codes that indicate the same condition should increase predicted costs.

Principle 7—Providers should not be penalized for recording additional diagnoses (monotonicity). This principle has

two consequences for modeling: (1) no condition category should carry a negative payment weight, and (2) a condition that is higher-ranked in a disease hierarchy (causing lower-rank diagnoses to be ignored) should have at least as large a payment weight as lower-ranked conditions in the same hierarchy.

Principle 8—The classification system should be internally consistent (transitive). If diagnostic category A is higher-ranked than category B in a disease hierarchy, and category B is higher-ranked than category C, then category A should be higher-ranked than category C. Transitivity improves the internal consistency of the classification system, and ensures that the assignment of diagnostic categories is independent of the order in which hierarchical exclusion rules are applied.

Principle 9—The diagnostic classification should assign all ICD-9-CM codes (exhaustive classification). Since each diagnostic code potentially contains relevant clinical information, the classification should categorize all ICD-9-CM codes.

Principle 10—Discretionary diagnostic categories should be excluded from payment models. Diagnoses that are particularly subject to intentional or unintentional discretionary coding variation or inappropriate coding by health plans/providers, or that are not clinically or empirically credible as cost predictors, should not increase cost predictions. Excluding these diagnoses reduces the sensitivity of the model to coding variation, coding proliferation, gaming, and upcoding.

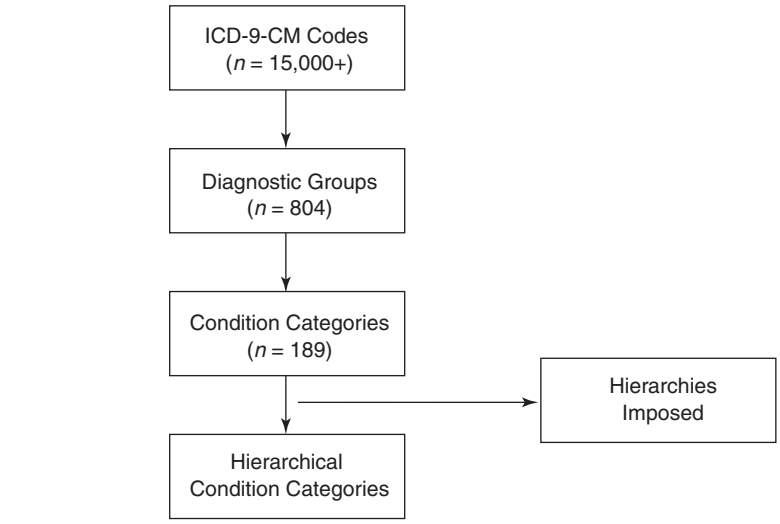
In designing the diagnostic classification, principles 7 (monotonicity), 8 (transitivity), and 9 (exhaustive classification) were followed absolutely. For example, if the expenditure weights for our models did not originally satisfy monotonicity, we imposed constraints to create models that did. Judgment was used to make tradeoffs among other principles. For example, clinical meaningfulness (principle 1) is often best served by creating a very large number of detailed clinical groupings. But a large number of groupings conflicts with adequate sample sizes for each category (principle 3). Another tradeoff is encouraging specific coding (principle 5) versus predictive power (principle 2). In current coding practice, non-specific codes are common. If these codes are excluded from the classification system, substantial predictive power is sacrificed. Similarly, excluding discretionary codes (principle 10) can also lower predictive power (principle 2). We approached the inherent tradeoffs involved in designing a classification system using empirical evidence on frequencies and predictive power, clinical judgment on relatedness, specificity, and severity of diagnoses, and the judgment of the authors on incentives and likely provider responses to the classification system. The DCG/HCC models balance these competing goals to achieve a feasible health-based payment system.

Elements and Organization

As shown in Figure 1, the HCC diagnostic classification system first classifies each of over 15,000 ICD-9-CM codes into 804 diagnostic groups, or DxGroups. Each ICD-9-CM code maps to exactly one DxGroup, which represents a well-specified medical condition, such as DxGroup 28.01 Acute Liver Disease. DxGroups are further aggregated into 189 Condition Categories, or CCs.[4] CCs describe a broader set of similar diseases, generally organized into body systems, somewhat like ICD-9-CM major diagnostic categories.

[4] Most CCs are assigned entirely with ICD-9-CM codes. But CCs 185-189 are assigned by beneficiary utilization of selected types of DME, such as wheelchairs. CC 173, Major Organ Transplant, is defined by procedure codes only. CC 129, ESRD is defined by Medicare entitlement status. None of these CCs are included in the CMS-HCC model.

Figure 1
Hierarchical Condition Categories Aggregations of ICD-9-CM Codes



NOTE: ICD-9-CM is *International Classification of Diseases, Ninth Revision, Clinical Modification*.
SOURCE: (Pope et al., 2000b.)

Although they are not as homogeneous as DxGroups, CCs are both clinically- and cost-similar. An example is CC 28 Acute Liver Failure/Disease that includes DxGroups 28.01 and 28.02 Viral Hepatitis, Acute or Unspecified, with Hepatic Coma.

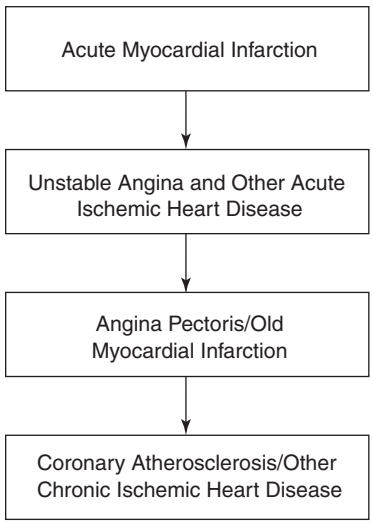
Hierarchies are imposed among related CCs, so that a person is only coded for the most severe manifestation among related diseases. For example (Figure 2), ICD-9-CM Ischemic Heart Disease codes are organized in the Coronary Artery Disease hierarchy, consisting of 4 CCs arranged in descending order of clinical severity and cost, from CC 81 Acute Myocardial Infarction to CC 84 Coronary Athlerosclerosis/Other Chronic Ischemic Heart Disease. A person with an ICD-9-CM code in CC 81 is excluded from being coded in CCs 82, 83, or 84 even if codes that group into those categories were also present. Similarly, a person with ICD-9-CM codes that group into both CC 82 Unstable Angina and Other Acute Ischemic Heart Disease, and CC 83 Angina Pectoris/Old Myocardial Infarction is coded for CC 82, but not CC 83. After imposing hierarchies, CCs become Hierarchical Condition Categories, or HCCs.[5]

Although HCCs reflect hierarchies among related disease categories, for unrelated diseases, HCCs accumulate. For example, a male with heart disease, stroke, and cancer has (at least) three separate HCCs coded, and his predicted cost will reflect increments for all three problems. The HCC model is more than simply additive because some disease combinations interact. For example, the presence of both Diabetes and Congestive Heart Failure (CHF) could increase predicted cost by more (or less) than the sum of the separate increments for people who have diabetes or CHF alone.

We tested 35 two- and three-way interactions among six common and high-cost chronic diseases defined by HCCs or

[5] The full list of hierarchies used in the CMS-HCC model is available on request from the authors.

Figure 2
Hierarchical Condition Categories Coronary Artery Disease Hierarchy



SOURCE: (Pope et al., 2000b.)

groups of HCCs: diabetes, cerebrovascular disease, vascular disease, or chronic obstructive pulmonary disease (COPD), CHF, and coronary artery disease (Pope et al., 2000b), as well as three interactions of several of these conditions with renal failure.[6] Simple additivity yields most of the explanatory power, in the sense that adding all 38 interactions barely increased the base DCG/HCC model's R^2 (from 11.10 to 11.13 percent). However, six interactions were substantial in magnitude, statistically significant, and clinically plausible. Hence, to improve clinical face validity and predictive accuracy for important subgroups of beneficiaries, we include them in the DCG/HCC model. For example, the simultaneous presence of CHF and COPD leads to higher expected costs than would be calculated by adding the separate increments for CHF and COPD alone.

Because a single beneficiary may be coded for none, one, or more than one DxGroup or HCC, the DCG/HCC model can individually price tens of thousands of distinct clinical profiles using fewer than 200 parameters. The model's structure thus provides, and predicts from, a detailed comprehensive clinical profile for each individual.

HCCs are assigned using hospital and physician diagnoses from any of five sources: (1) principal hospital inpatient; (2) secondary hospital inpatient; (3) hospital outpatient; (4) physician; and (5) clinically-trained non-physician (e.g., psychologist, podiatrist). The DCG/HCC model does not distinguish among sources; in particular, it places no premium on diagnoses from inpatient care. Using Medicare 5-percent sample FFS data, we investigated adding diagnoses from other sources (Pope et al., 2000b). Adding diagnoses from home health providers raised the explanatory power of the base model from

[6] In later work unpublished work, we also examined all two-way interactions of cancer with the other six diagnoses, but did not find any significant effects.

11.15 to 11.65 percent. Further adding diagnoses from DME suppliers raised the explanatory power from 11.65 to 11.85 percent. All other sources of diagnoses either add no predictive power (SNF, ASC, or hospice) or detract from predictive power (clinical laboratory and radiology/imaging clinics). Diagnoses assigned by home health and DME providers are likely to be less reliable than those assigned by physicians or other providers with greater clinical training. Diagnoses from laboratory and imaging tests are also problematic given the significant proportion of rule-out diagnoses. In implementing the CMS-HCC model, potential gains in predictive power from using additional sources were balanced against the costs of collecting and auditing these data; the decision was to only ask MCOs to collect diagnoses from the five baseline sources previously listed.

Consistent with principle 10, we excluded discretionary diagnostic categories (HCCs) from the preliminary prospective payment model. We excluded diagnoses that were vague/non-specific (e.g., symptoms), discretionary in medical treatment or coding (e.g., osteoarthritis), not medically significant (e.g., muscle strain), or transitory or definitively treated (e.g., appendicitis). We also excluded HCCs that did not (empirically) add to costs, and finally, the five HCCs that were defined by the presence of procedures or use of DME, because, as much as possible, we wanted payments to follow what medical problems were present as opposed to what services were offered.[7] Altogether, we excluded 88 of the 189 HCCs, leaving 101 HCCs in the preliminary prospective payment model. As discussed further, additional HCCs were excluded from the final, 70-category CMS-HCC model.

[7] The DME HCCs were developed to predict costs associated with functional impairment not captured by diagnoses. Although they did improve prediction for the functionally impaired, substantial under-prediction remained (Pope et al., 2000b; Kautter and Pope, 2001).

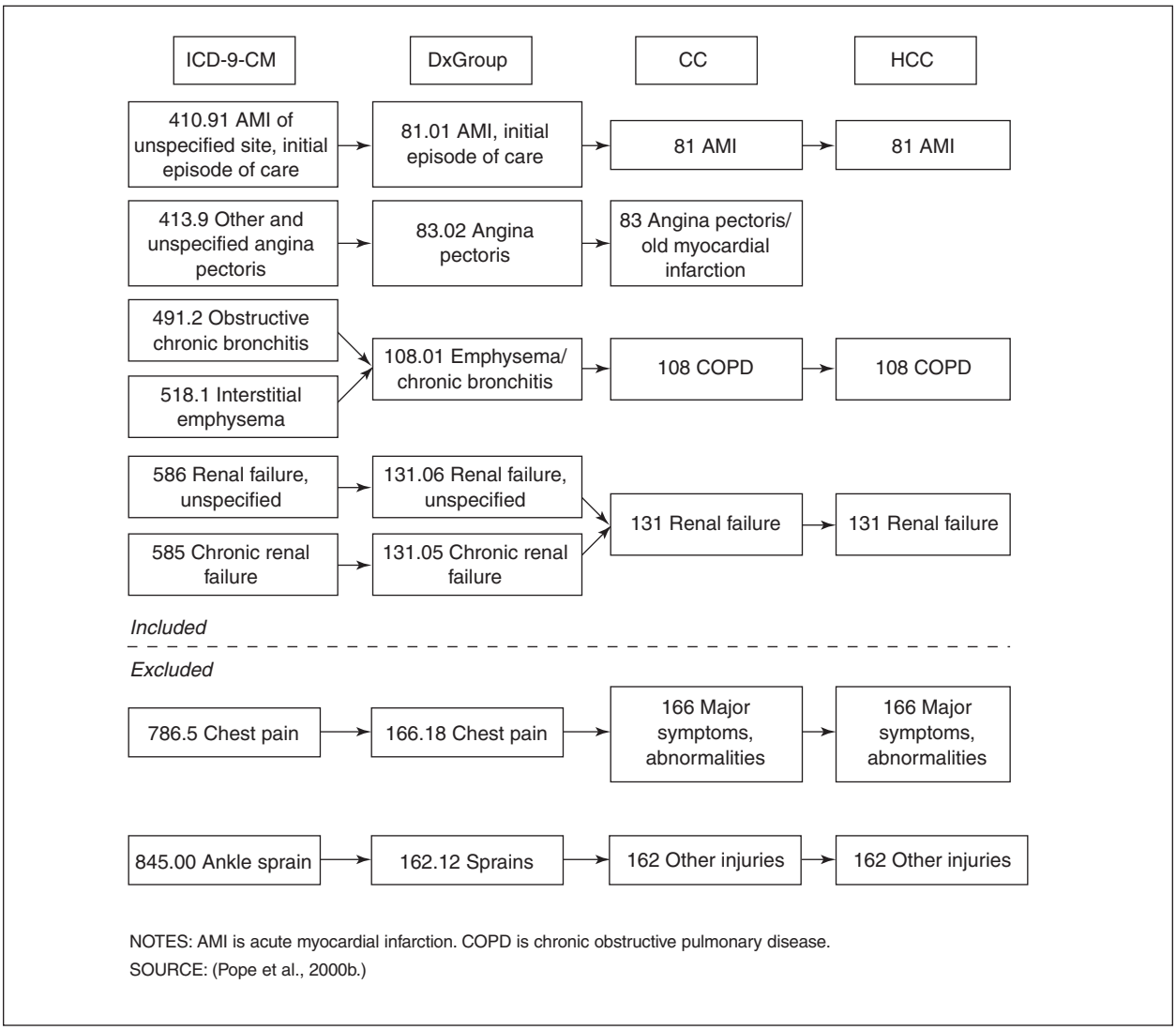
The DCG/HCC model also relies on demographics. Demographic adjusters included in the model are 24 mutually exclusive age/sex cells (e.g., female, age 65-69), an indicator for at least 1-month of Medicaid enrollment in the base year (a poverty indicator), and an indicator of originally disabled status. The age cells distinguish beneficiaries currently entitled to Medicare by age (65 or over) versus disability (under 65); a separate, explicit aged versus disabled entitlement status indicator would be redundant. The originally disabled indicator distinguishes beneficiaries who are currently age 65 or over, but were first entitled to Medicare before age 65 by disability. The age/sex, Medicaid, and originally disabled categories add to each other and to the HCC diagnostic categories.[8] The demographic variables are the same as have been used in the PIP-DCG model, and are discussed at greater length elsewhere (Pope et al., 2000a).

Figure 3 displays a hypothetical clinical vignette of a female age 79, eligible for Medicaid and diagnosed with acute myocardial infarction (AMI), angina pectoris, COPD, renal failure, chest pain, and an ankle sprain. Note that although this female receives CCs for both AMI and angina, she receives no HCC for angina because AMI is a more severe manifestation of coronary artery disease. Also note that while payment includes additive increments for females age 75-79 (demographic categories not shown in Figure 3), Medicaid, AMI, COPD, and renal failure, the HCCs for major symptoms and other injuries are excluded from the payment calculation. Chest pain is a symptom associated with a variety of medical conditions ranging from minor to serious, and sprains are transitory, with minimal implications for next year's cost.

[8] We did not systematically investigate interactions of age and sex with HCCs (diagnoses). This is a subject for future research.

Figure 3

Clinical Vignette for Hierarchical Condition Categories Classification 79 Year Old Female with AMI, Angina Pectoris, COPD, and Renal Failure



NOTES: AMI is acute myocardial infarction. COPD is chronic obstructive pulmonary disease.

SOURCE: (Pope et al., 2000b.)

PERFORMANCE OF DCG/HCC AND PIP-DCG MODELS

The predictive accuracy of risk-adjustment models is typically judged by the R^2 statistic (percentage of variation explained) to measure predictive accuracy for individuals and predictive ratios (ratios of mean predicted to mean actual expenditures for subgroups of beneficiaries) to measure predictive accuracy for groups. The R^2 of age/sex, PIP-DCG, and DCG/HCC models as measured on 1996-1997 Medicare's 5-percent sample FFS data are: age/sex, 1.0 percent; PIP-DCG, 6.2 percent; and DCG/HCC, 11.2 percent.

Adding PIP-DCG to demographic predictors (age/sex) increases predictive power sixfold. Adding secondary inpatient and ambulatory diagnoses (hospital outpatient and physician), and arraying them in a multi-condition cumulative model (DCG/HCC) nearly doubles the power again. Besides the R^2, another interesting summary statistic is the percentage of payments based on demographic variables: 100

Table 1

Predictive Ratios[1] for Alternative Risk-Adjustment Models

Category	Model		
Quintiles of Expenditures	Age/Sex	PIP-DCG	DCG/HCC
First (Lowest)	2.66	2.09	1.23
Second	1.93	1.54	1.23
Third	1.37	1.10	1.14
Fourth	0.95	0.84	1.02
Fifth (Highest)	0.44	0.75	0.86
Top 5 Percent	0.28	0.61	0.77
Top 1 Percent	0.17	0.47	0.69
Hospitalizations			
None	1.33	1.07	1.03
1	0.63	1.02	1.02
2	0.44	0.91	0.98
3 or More	0.26	0.69	0.82
Diagnoses[2]			
Heart Failure	0.47	0.74	0.97
Heart Attack	0.45	0.78	0.98
COPD	0.59	0.79	0.99
Hip Fracture	0.56	0.83	0.99
Depression	0.54	0.77	0.92
Colorectal Cancer	0.60	0.78	0.98
Cerebral Hemorrhage	0.44	0.73	1.04

[1] Mean predicted cost divided by mean actual cost.

[2] From either inpatient or ambulatory setting.

NOTES: Expenditures, hospitalizations, and diagnoses are measured in the base year. COPD is chronic obstructive pulmonary disease.

SOURCE: (Pope et al., 2000b.)

percent in a demographic model, 81 percent in the PIP-DCG model, but only 43 percent in the DCG/HCC model (Pope et al., 2001). With over one-half of payments determined by diagnoses, the DCG/HCC model moves decisively away from the AAPCC demographic-based payment system.

Table 1 shows predictive ratios for selected groups of Medicare beneficiaries. Ratios close to 1.0 indicate accurate prediction of costs; less than 1.0, under prediction; and, more than 1.0, over prediction. The PIP-DCG model improves substantially on age/sex, and in almost all cases, the DCG/HCC model improves significantly on the PIP-DCG model. This is true even for hospitalizations, where the PIP-DCG model distinguishes between those hospitalized or not, while the DCG/HCC model makes no distinction by source of diagnosis.[9] Despite the DCG/HCC model's impressive gains over the age/sex and PIP-DCG models, it still under-predicts for the most expensive and most often hospitalized beneficiaries.

CMS-HCC MODEL

This section describes how the DCG/HCC model was modified before implementation as the M+C risk adjuster for capitation payments in 2004. We will refer to the modified model as CMS-HCC.

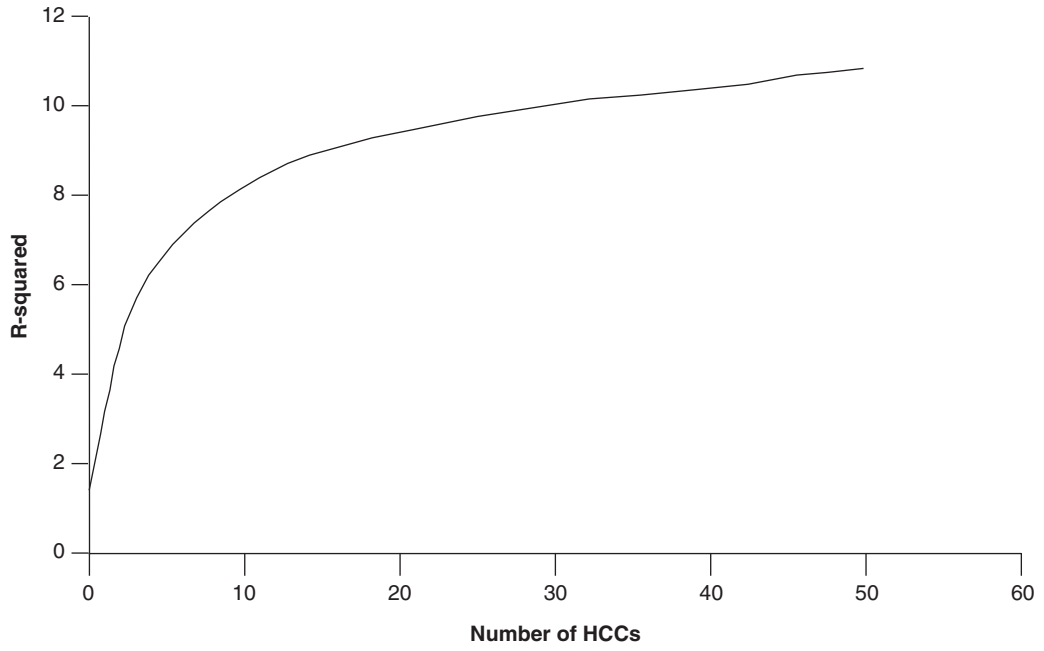
DCG/HCC Model Modification to Simplify Data Collection

When several MCOs withdrew from the M+C program around the year 2000, CMS sought to improve plan retention. Since some MCOs had complained of the burden of collecting encounter data for risk-adjustment, CMS sought to develop risk adjustment models that predict well and rely on ambulatory data, but with reduced data col-

[9] The DCG/HCC model captures multiple conditions that might be diagnosed in multiple inpatient stays, whereas the PIP-DCG model captures only the single principal inpatient diagnosis most predictive of future costs if multiple inpatient stays occur.

Figure 4

Model Explanatory Power as a Function of Number of Hierarchical Condition Categories (HCC)



NOTES: All models, including the one with zero HCCs, include 24 age/sex cells, and Medicaid and originally disabled status. Results based on stepwise regression analysis.

SOURCE: (Pope et al., 2001.)

lection requirements. One measure of the data collection burden imposed by a model is its number of diagnostic categories.[10]

We investigated the relationship between number of diagnostic categories used in the DCG/HCC model and its predictive power (Pope et al., 2001). Figure 4 plots the relationship between number of diagnostic categories and model explanatory power measured by R^2. Diagnostic categories (HCCs) were entered into the model in descending order of their incremental explanatory power using stepwise regression. The base model (with zero HCCs) includes 26 demographic variables, the 24 age/sex cells, and Medicaid and originally disabled status. Its R^2 is 1.69 percent.

The incremental contribution to predictive power declines rapidly with the number of diagnostic categories added to the model. The first diagnostic category entered by the stepwise regression is CHF, which more than doubles the demographic model R^2 to 4.11 percent. The second condition category entered is COPD, raising the R^2 to 4.94 percent. This is an incremental gain of 0.83 percentage points, substantial, but much less then the increment of 2.42 percentage points due to CHF. With 5 HCCs included, 61 percent of the maximum explanatory power of the full (101 HCC) model is attained; with 10 HCCs, 74 percent of the maximum is achieved; with 20, 85 percent, and with 30, 90 percent. The incremental R^2 from adding a diagnostic category is 0.48 percentage points at 5 HCCs; 0.26 percentage points at 10 HCCs; 0.08 percentage points at 20 HCCs; and 0.05 percentage points at 30 HCCs.

[10] The relationship between number of diagnostic categories and data collection burden is controversial. Some MCOs seemed to feel that it would be less burdensome to report all diagnoses, which CMS allows.

This analysis shows that a parsimonious risk-adjustment model with a substantially reduced number of diagnostic categories is almost as predictive as a full model. But parsimony has a cost. In limiting the number of conditions that affect payment, many serious, high-cost diagnoses—especially rare ones—will be ignored. MCOs enrolling beneficiaries with excluded diagnoses will be disadvantaged, and beneficiaries with such conditions may not be well served by MCOs.

CMS considered these results, and consulted with clinicians, on the tradeoff between number of diagnostic categories and predictive power, and also other criteria for diagnostic categories to include in risk adjustment, such as well-defined diagnostic criteria and clinical coherence and homogeneity. It was important that the HCC hierarchies not be disrupted by deletion of higher-ranked HCCs while lower-ranked HCCs were retained. After this process, CMS selected 70 HCCs to include in the CMS-HCC model. The choices reflect a balance among the competing considerations of reducing data collection burden, maximizing predictive power, including rare, high-cost conditions, and selecting only well-defined and clinically coherent conditions. Generally, the higher-cost, more severe conditions at the top of the HCC disease hierarchies were retained, while some lower-cost, more frequent and more discretionary conditions at the bottom of the hierarchies were pruned. For example, in the coronary artery disease hierarchy, AMI (heart attack), other acute IHD (e.g., unstable angina), and angina pectoris/old myocardial infarction were retained, but chronic IHD (e.g., coronary atherosclerosis) was excluded.

After the CMS-HCC model was finalized, a list of approximately 3,000 of the more than 15,000 ICD-9-CM diagnosis codes was identified that are sufficient to define the model's 70 HCCs. In addition, because the CMS-HCC model does not give extra credit for multiple reports of the same diagnosis, MCOs need only report a single encounter during the relevant year of data collection that establishes the diagnosis. The information required for the single encounter is: (1) beneficiary identification number, (2) date (to establish that the diagnosis was made during the relevant reporting period), (3) setting (to establish that the diagnosis was made in one of the allowed hospital or physician settings), and (4) ICD-9-CM diagnosis code. In short, MCOs are required to report only the minimum.

Concern about the quality of diagnostic reporting is the greatest in physician offices, where diagnoses have not heretofore affected payment, and recording of diagnoses is less rigorously practiced than in hospitals. The auditing standard that CMS has promulgated for reporting of physician office diagnoses is that a physician has established the diagnosis in the medical record, and that medical coders have recorded it in accordance with ICD-9-CM rules. CMS will conduct coding audits, but not clinical audits. That is, CMS will require MCOs to demonstrate that a diagnosis is present in the medical record on the specified date and has been coded according to ICD-9-CM. CMS will not require clinical verification of these diagnoses, such as diagnostic test results.

CMS-HCC Model Calibration

We calibrated the CMS-HCC model to 1999-2000 Medicare 5-percent sample FFS data for beneficiaries entitled by age or disability (beneficiaries entitled by ESRD were excluded). The model is prospective, meaning that diagnoses collected in a base year (1999) are used to predict expenditures in the following year (2000). An

important operational change from the PIP-DCG model is that the data lag will be eliminated, making the application of the model consistent with its calibration. With the PIP-DCG model, the data collection period for a payment year ended 6 months before the start of the year, i.e., on June 30 of the previous year, so that final capitation rates could be published by January 1 of the payment year. With the CMS-HCC model, provisional rates will be established by January 1 based on 6-month lagged data, and final rates will be available by June 30 of the payment year based on the previous calendar year's diagnoses. A reconciliation process will adjust the first 6 months of payments to the final rates, if necessary.

A standard set of sample restrictions was employed to ensure a population of beneficiaries with complete 12-month base year diagnostic profiles and complete payment year Medicare expenditures from the FFS claims for aged and disabled beneficiaries (Pope et al., 2000b). Decedents are included in the payment year for their eligible period. Complete FFS claims are not available for months of M+C enrollment or when Medicare is a secondary payer, and M+C plans are not responsible for hospice care, so these months were excluded from our sample. The final sample size is 1,337,887 beneficiaries.

We summed all Medicare payments for a beneficiary for months in 2000 satisfying our sample restrictions, excluding (1) deductibles and copayments paid by the beneficiary; (2) hospice payments; and (3) indirect medical education payments. Hospice and indirect medical education payments are excluded because they were not included in M+C capitation rates, but were paid directly to hospices and teaching hospitals utilized by M+C enrollees. Payments were annualized by dividing them by the fraction of months in 2000 that satisfy our sample restrictions; all analyses are weighted by this eligibility fraction. In general, annualization and weighting ensures that monthly payments are correctly estimated for all beneficiaries, including those who died (Ellis et al., 1996).[11]

The model was calibrated using weighted least squares multiple regression. The CMS-HCC regression model estimated for the combined aged and disabled Medicare population is shown in Table 2.

The elements of the model are:

- Age/sex cells (24).
- Medicaid interacted with sex and age/disabled entitlement status.
- Originally disabled status interacted with sex.
- HCC diagnostic categories (70).
- Interactions of diagnostic categories with entitlement by disability (5).
- Disease interactions (6).

The R^2 for this model is 9.8 percent. Several coefficients are constrained because the unconstrained coefficients violate the principle that higher-ranked conditions in a hierarchy should have higher predicted costs, or for other reasons.[12]

As an example of expenditure prediction, consider our hypothetical scenario in Figure 3 of a female age 79 eligible for Medicaid diagnosed with AMI, angina pectoris, COPD, renal failure, chest pain, and an ankle sprain. The female receives the following incremental cost predictions: female, 75 to 79, $2,562; aged, female, Medicaid, $616; AMI (HCC 81), $1,885; angina pectoris, $0; COPD (HCC 108), $1,936; renal failure (HCC 131), $2,908;

[11] In our calibration, we did not make any geographic adjustments to Medicare payments. In past work, we have found that deflating payments by a geographic input price index had little effect on estimated risk-adjustment model parameters.

[12] Clinical consultants to CMS suggested that metastatic cancer is not consistently correctly coded, so HCCs 7 and 8 were constrained to have equal coefficients. HCCs 81 and 82 were constrained to have equal coefficients because the ICD-9-CM diagnostic detail CMS collects from health plans is not sufficient to distinguish them.

Table 2

Centers for Medicare & Medicaid Services-Hierarchical Condition Categories (CMS-HCC) Combined, Community, and Institutional Models

	Models						
	Combined		Community		Institutional		
Number of Observations	1,337,887		1,291,308		65,593		
R^2	0.0977		0.0976		0.0596		
Adjusted R^2	0.0977		0.0976		0.0589		
Dependent Variable Mean	5,352		5,213		8,937		
Root Mean Square Error	13,407		13,337		15,954		
Model Parameters	105		105		50		
Variable	Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	
Female							
0-34 Years	678	3.81	598	3.36	5,457	11.72	
35-44 Years	1,110	8.82	1,012	8.03	5,457	11.72	
45-54 Years	1,177	11.20	1,096	10.40	5,457	11.72	
55-59 Years	1,463	11.87	1,360	11.00	5,457	11.72	
60-64 Years	1,996	17.26	1,924	16.56	5,457	11.72	
65-69 Years	1,648	42.11	1,572	40.15	5,970	11.73	
70-74 Years	2,061	60.25	1,970	57.42	6,049	17.09	
75-79 Years	2,562	71.59	2,475	68.56	5,089	19.63	
80-84 Years	2,998	71.39	2,936	68.34	4,813	22.51	
85-89 Years	3,360	63.45	3,408	61.01	4,515	23.28	
90-94 Years	3,683	46.81	4,077	46.25	4,048	19.08	
95 Years or Over	3,128	23.27	4,130	25.32	2,980	10.34	
Male							
0-34 Years	405	2.72	346	2.32	5,664	13.77	
35-44 Years	701	6.63	617	5.81	5,664	13.77	
45-54 Years	1,059	12.15	973	11.14	5,664	13.77	
55-59 Years	1,460	13.42	1,386	12.68	5,664	13.77	
60-64 Years	1,824	17.90	1,755	17.13	5,664	13.77	
65-69 Years	1,827	41.47	1,774	40.28	7,435	13.24	
70-74 Years	2,380	59.66	2,323	58.17	6,350	14.34	
75-79 Years	3,031	69.04	2,960	67.13	6,210	16.45	
80-84 Years	3,454	62.03	3,372	59.83	6,201	17.67	
85-89 Years	4,129	52.24	4,050	49.80	6,366	17.40	
90-94 Years	4,505	32.20	4,620	31.08	5,378	11.29	
95 Years or Over	4,753	15.83	5,307	15.89	4,287	5.34	
Medicaid and Originally Disabled Interactions with Age and Sex							
Medicaid-Female-Disabled	1,141	11.31	1,133	11.18	—	—	
Medicaid-Female-Aged	616	12.91	940	18.18	—	—	
Medicaid-Male-Disabled	632	6.80	592	6.31	—	—	
Medicaid-Male-Aged	788	10.33	944	11.62	—	—	
Originally Disabled-Female	1,231	17.34	1,213	16.44	—	—	
Originally Disabled-Male	809	11.66	757	10.73	—	—	
Disease Coefficients	**Label**						
HCC1	HIV/AIDS	3,587	13.16	3,514	12.88	6,893	5.42	C1
HCC2	Septicemia/Shock	4,365	34.74	4,563	32.92	4,854	13.89	
HCC5	Opportunistic Infections	3,643	10.43	3,346	9.29	6,893	5.42	C1
HCC7	Metastatic Cancer and Acute Leukemia	7,438	81.16	7,510	81.00	2,771	4.54	
HCC8	Lung, Upper Digestive Tract, and Other Severe Cancers	7,438	81.16	7,510	81.00	2,771	4.54	
HCC9	Lymphatic, Head and Neck, Brain, and Other Major Cancers	3,540	35.91	3,539	35.51	2,319	3.50	
HCC10	Breast, Prostate, Colorectal and Other Cancers and Tumors	1,209	26.35	1,194	25.79	1,330	4.01	

Refer to NOTES at end of table.

Table 2—Continued

Centers for Medicare & Medicaid Services-Hierarchical Condition Categories (CMS-HCC) Combined, Community, and Institutional Models

Variable		Models						
		Combined		Community		Institutional		
		Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	
Disease Coefficients	**Label**							
HCC15	Diabetes with Renal or Peripheral Circulatory Manifestation	3,827	37.71	3,921	36.90	3,137	10.49	
HCC16	Diabetes with Neurologic or Other Specified Manifestation	2,931	30.09	2,833	28.43	3,137	10.49	
HCC17	Diabetes with Acute Complications	2,056	7.84	2,008	7.41	3,137	10.49	
HCC18	Diabetes with Ophthalmologic or Unspecified Manifestation	1,839	18.35	1,760	17.32	3,137	10.49	
HCC19	Diabetes without Complication	1,055	26.10	1,024	25.02	1,308	5.32	
HCC21	Protein-Calorie Malnutrition	3,818	27.52	4,727	29.77	2,193	6.49	
HCC25	End-Stage Liver Disease	4,496	14.91	4,616	14.92	1,375	5.09	
HCC26	Cirrhosis of Liver	2,727	11.93	2,645	11.37	1,375	5.09	
HCC27	Chronic Hepatitis	1,839	6.73	1,841	6.71	1,375	5.09	
HCC31	Intestinal Obstruction/ Perforation	1,997	21.69	2,094	21.62	1,375	5.09	
HCC32	Pancreatic Disease	2,336	17.30	2,281	16.61	1,375	5.09	
HCC33	Inflammatory Bowel Disease	1,574	10.25	1,575	10.16	1,375	5.09	
HCC37	Bone/Joint/Muscle Infections/ Necrosis	2,629	19.68	2,546	18.41	2,539	4.42	
HCC38	Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	1,683	27.72	1,653	26.93	1,463	3.61	
HCC44	Severe Hematological Disorders	5,055	30.80	5,188	30.69	2,299	4.08	
HCC45	Disorders of Immunity	4,224	26.77	4,260	26.64	2,299	4.08	
HCC51	Drug/Alcohol Psychosis	1,571	6.57	1,810	6.99	1,131	6.06	
HCC52	Drug/Alcohol Dependence	1,477	6.15	1,361	5.44	1,131	6.06	
HCC54	Schizophrenia	2,592	26.75	2,786	27.04	1,131	6.06	
HCC55	Major Depressive, Bipolar, and Paranoid Disorders	2,024	30.00	2,209	30.85	1,131	6.06	
HCC67	Quadriplegia, Other Extensive Paralysis	5,665	27.45	6,059	27.20	504	3.94	
HCC68	Paraplegia	5,665	27.45	6,059	27.20	504	3.94	
HCC69	Spinal Cord Disorders/ Injuries	2,484	17.77	2,526	17.45	504	3.94	
HCC70	Muscular Dystrophy	2,239	3.82	1,981	3.27	504	3.94	
HCC71	Polyneuropathy	1,480	19.74	1,377	18.06	504	3.94	
HCC72	Multiple Sclerosis	2,329	11.44	2,654	12.19	504	3.94	
HCC73	Parkinson's and Huntington's Diseases	1,954	19.69	2,436	22.04	504	3.94	
HCC74	Seizure Disorders and Convulsions	1,334	17.25	1,381	16.68	504	3.94	
HCC75	Coma, Brain Compression/ Anoxic Damage	2,396	7.88	C1 2,912	8.62	C1 504	3.94	C2
HCC77	Respirator Dependence/ Tracheostomy Status	10,417	29.54	10,783	28.46	7,259	8.19	
HCC78	Respiratory Arrest	7,543	20.23	7,327	18.79	7,259	8.19	
HCC79	Cardio-Respiratory Failure and Shock	3,451	42.70	3,550	42.39	1,481	4.31	
HCC80	Congestive Heart Failure	2,055	38.48	2,141	38.54	903	4.16	
HCC81	Acute Myocardial Infarction	1,885	31.23	1,785	29.13	1,476	5.75	
HCC82	Unstable Angina and Other Acute Ischemic Heart Disease	1,885	31.23	1,785	29.13	1,476	5.75	
HCC83	Angina Pectoris/Old Myocardial Infarction	1,246	22.82	1,205	21.76	1,476	5.75	

Refer to NOTES at end of table.

Table 2—Continued

Centers for Medicare & Medicaid Services-Hierarchical Condition Categories (CMS-HCC) Combined, Community, and Institutional Models

Variable		Models						
		Combined		Community		Institutional		
		Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	
Disease Coefficients	**Label**							
HCC92	Specified Heart Arrhythmias	1,362	31.73	1,363	30.95	961	4.62	
HCC95	Cerebral Hemorrhage	1,901	10.05	2,011	9.88	774	4.01	
HCC96	Ischemic or Unspecified Stroke	1,498	20.90	1,569	20.34	774	4.01	
HCC100	Hemiplegia/Hemiparesis	1,678	13.96	2,241	16.61	504	3.94	
HCC101	Cerebral Palsy and Other Paralytic Syndromes	767	3.34	840	3.42	504	3.94	C2
HCC104	Vascular Disease with Complications	3,432	36.22	3,473	35.49	2,612	6.30	
HCC105	Vascular Disease	1,662	39.94	1,832	41.72	583	3.72	
HCC107	Cystic Fibrosis	1,936	45.73	1,929	44.87	1,180	4.69	
HCC108	Chronic Obstructive Pulmonary Disease	1,936	45.73	1,929	44.87	1,180	4.69	
HCC111	Aspiration and Specified Bacterial Pneumonias	3,010	20.47	3,556	21.53	2,377	6.82	
HCC112	Pneumococcal Pneumonia, Empyema, Lung Abscess	1,151	6.55	1,034	5.68	2,377	6.82	
HCC119	Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	1,975	13.36	1,791	11.96	5,102	5.46	
HCC130	Dialysis Status	15,926	26.97	15,778	25.96	15,959	5.82	
HCC131	Renal Failure	2,908	23.20	2,954	22.73	2,152	6.26	
HCC132	Nephritis	1,541	6.95	1,401	6.23	2,152	6.26	
HCC148	Decubitus Ulcer of Skin	3,888	32.32	5,285	37.28	1,628	5.98	
HCC149	Chronic Ulcer of Skin, Except Decubitus	2,381	26.76	2,485	26.65	1,346	3.98	
HCC150	Extensive Third-Degree Burns	4,427	2.36	4,935	2.54	1,274	3.37	
HCC154	Severe Head Injury	2,396	7.88	C1 2,912	8.62	C1 1,274	3.37	
HCC155	Major Head Injury	1,211	8.43	1,239	8.08	1,274	3.37	C3
HCC157	Vertebral Fractures w/o Spinal Cord Injury	2,462	20.64	2,514	20.23	504	3.94	C2
HCC158	Hip Fracture/Dislocation	1,301	13.37	2,010	18.51	0	—	
HCC161	Traumatic Amputation	3,965	17.86	C2 4,322	17.92	C2 1,274	3.37	C3
HCC164	Major Complications of Medical Care and Trauma	1,438	18.25	1,346	16.60	1,347	3.66	
HCC174	Major Organ Transplant Status	3,790	8.55	3,702	8.37	4,523	11.13	
HCC176	Artificial Openings for Feeding or Elimination	3,810	23.84	4,054	22.39	4,523	11.13	
HCC177	Amputation Status, Lower Limb/Amputation Complications	3,965	17.86	C2 4,322	17.92	C2 1,274	3.37	C3
Disabled/Disease Interactions								
D-HCC5	Disabled Opportunistic Infections	3,965	5.49	4,047	5.52	—	—	
D-HCC44	Disabled Severe Hematological Disorders	4,649	9.98	4,580	9.72	—	—	
D-HCC51	Disabled Drug/Alcohol Psychosis	2,830	7.12	2,608	6.32	—	—	
D-HCC52	Disabled Drug/Alcohol Dependence	2,160	6.90	2,122	6.61	—	—	
D-HCC107	Disabled Cystic Fibrosis	9,691	6.70	9,547	6.63	—	—	

Refer to NOTES at end of table.

Table 2—Continued

Centers for Medicare & Medicaid Services-Hierarchical Condition Categories (CMS-HCC) Combined, Community, and Institutional Models

Variable		Models					
		Combined		Community		Institutional	
		Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio	Parameter Estimate	*t*-ratio
Disease Interactions							
INT1	DM-CHF1	1,265	14.62	1,296	14.46	1,064	2.91
INT2	DM-CVD	490	4.05	639	4.89	—	—
INT3	CHF-COPD	1,261	14.82	1,238	14.06	1,906	4.95
INT4	COPD-CVD-CAD	316	1.49	406	1.82	—	—
INT5	RF-CHF1	857	3.94	1,202	5.24	—	—
INT6	RF-CHF-DM1	4,185	18.48	4,433	18.71	—	—

NOTES: Beneficiaries with the three-way interaction RF-CHF-DM are excluded from the two-way interactions DM-CHF and RF-CHF. DM is diabetes mellitus (HCCs 15-19). CHF is congestive heart failure (HCC 80). COPD is chronic obstructive pulmonary disease (HCC 108). CVD is cerebrovascular disease (HCCs 95-96, 100-101). CAD is coronary artery disease (HCCs 81-83). RF is renal failure (HCC 131). "|" means coefficients of HCCs are constrained to be equal. C1, C2, and C3 denote non-contiguous constraints.

SOURCE: Pope, G.C. and Kautter, J., RTI International, Ellis, R.P. and Ash, A.S., Boston University, Ayanian, J.Z., Harvard Medical School and Brigham and Women's Hospital, Iezzoni, L.I., Harvard Medical School and Beth Israel Deaconess Medical Center, Ingber, M.J., Levy, J.M., and Robst, J., Centers for Medicare & Medicaid Services, Analysis of 1999-2000 Medicare 5% Standard Analytic File (SAF).

chest pain, $0; and ankle sprain, $0[13] (Table 2). Her total cost prediction is the sum of these increments, or $9,907.

Calibration of DCG/HCC models on several years of data reveals increasingly thorough diagnostic coding. For example, if 1999 diagnoses are used to predict expenditures with a model calibrated on 1996/1997 data, mean expenditures will be over predicted. If more complete coding over time is not accounted for, MCOs will be overpaid by the use of current diagnoses with a model calibrated on historical data. CMS makes a slight downward adjustment in HCC-predicted expenditures to account for this.

CMS-HCC Models for Subpopulations

Medicare beneficiaries differ along characteristics that are important for risk adjustment. First, they may be entitled to Medicare in one of three ways: age, disability, or ESRD. Second, some beneficiaries reside in institutions rather than in the community. Third, some enrollees are new to Medicare and do not have complete diagnostic data. Fourth, Medicare is a secondary payer for some beneficiaries. To account for the different cost and diagnostic patterns of these disparate subgroups of beneficiaries, the CMS-HCC model was adapted for Medicare subpopulations. This section describes models for subpopulations.[14]

Beneficiaries Entitled by Disability

Approximately 12 percent of Medicare beneficiaries are entitled to Medicare because they are under age 65 and have a medical condition that prevents them from working (the disabled). Models calibrated on the full Medicare population (excluding ESRD eligibles), mostly reflect cost patterns among the elderly, the other 88 percent of the population. The implications of some diagnoses might differ between the elderly and disabled. For example, a diagnosis that is disabling may be more severe, and the cost of treating a disease may vary by age. We considered allowing differences in incremental expenditure weights for some diagnoses (HCCs) for the disabled (Pope et al., 1998; 2000b).

[13] The female receives no incremental cost prediction for angina pectoris because AMI is higher-ranked in the coronary artery disease hierarchy and excludes angina. No incremental prediction is made for chest pain and ankle sprain because these diagnoses are not included in the CMS-HCC model.

[14] Risk-adjustment models for ESRD-entitled and functionally-limited beneficiaries are not described in this article.

Using Medicare's 5-percent sample FFS data (1996-1997), we estimated the DCG/HCC model separately on aged and disabled subsamples. We evaluated differences in age versus disabled parameter estimates according to their statistical significance, magnitude, clinical plausibility, and frequency of occurrence in the disabled population (Pope et al., 2000b). Based on these considerations, we chose nine diagnostic categories to receive incremental payments when they occur among disabled beneficiaries. Five of these categories remained significantly different for the disabled when the CMS-HCC model was re-estimated on 1999-2000 data: opportunistic infections, severe hematological disorders (e.g., hemophilia, sickle cell anemia), drug/alcohol psychosis, drug/alcohol dependence, and cystic fibrosis. Incremental annual payments for these conditions among the disabled (in addition to base payments for the elderly) are substantial, ranging from $2,160 to $9,691.

Other than for these five conditions, disease risk-adjustment weights are the same for the aged and disabled populations. The CMS-HCC model is estimated on a combined sample of aged and disabled beneficiaries, with disabled interactions for these five diagnostic categories. The combined aged/disabled model is shown in Table 2.

Community and Institutional Residents

Using the newly available Medicare MDS, we identified long–term nursing home residents in the current (i.e., payment) year. Long-term nursing home residence was defined as continuously residing in a nursing home for at least 90 days, as indicated by a 90-day clinical assessment reported by the nursing facility through the MDS. In our prospective risk-adjustment modeling sample of 1,337,887 beneficiaries, 65,593 beneficiaries, or 5 percent, had at least 1 month of long-term nursing facility residence in 2000.[15]

Table 3 compares sample sizes and mean expenditures by demographic categories for community and institutional residents, and shows predictive ratios from the CMS-HCC model calibrated on the combined community/institutional sample (Table 2). Nearly one-half (49 percent) of long-term nursing facility residents are age 85 or over. Facility residents are only 2 percent of the combined community plus institutional population for females age 70 to 74, but fully 37 percent of the combined population for females age 95 or over.

Overall, institutional residents are 71 percent more expensive than community residents, $8,937 in mean annualized expenditures compared to $5,213. The age profiles of expenditures are quite different. Among community residents, mean expenditures rise steadily with age in the under 65 disabled population and then again in the elderly population, except for a slight decline for the oldest females. In contrast, among the institutionalized, mean expenditures are fairly constant across all ages until they decline significantly among the oldest old. For all age/sex cells except the oldest old, mean expenditures for the institutionalized are substantially higher than for community-dwelling beneficiaries.

However, although not shown in Table 3, among beneficiaries diagnosed with particular HCCs, mean expenditures for the institutionalized are often similar to those of community residents. For example, among all beneficiaries with CHF (HCC 80), expenditures for the institutionalized are $11,719, which is $255 less than for community residents. More generally, when classifying people by the presence of

[15] Beneficiaries with both community and long-term institutional months in the same year are included in both samples, weighted by the fraction of their total months alive in the year in each status.

Table 3

Descriptive Statistics for Community and Institutionalized Residents

	Community			Institutional		
Variable	Observations	Mean Annualized Expenditures	Predictive Ratio[1]	Observations	Mean Annualized Expenditures	Predictive Ratio[1]
Overall	1,291,308	5,213	0.99	65,593	8,937	1.12
Demographics						
Female						
0-34 Years	7,007	3,623	1.00	49	9,251	0.99
35-44 Years	15,566	4,332	1.00	199	9,395	0.94
45-54 Years	22,077	4,692	1.00	473	8,869	1.07
55-59 Years	14,023	5,254	1.00	343	10,168	0.91
60-64 Years	15,793	5,993	1.00	501	9,906	1.04
65-69 Years	129,970	3,714	1.00	1,380	10,961	0.99
70-74 Years	171,775	4,372	1.00	3,098	10,901	0.97
75-79 Years	157,586	5,260	1.00	6,260	9,458	1.08
80-84 Years	111,303	6,101	0.99	9,801	8,797	1.13
85-89 Years	66,301	6,882	0.97	12,294	8,054	1.19
90-94 Years	26,852	7,606	0.92	9,535	7,146	1.29
95 Years or Over	8,074	7,338	0.83	4,729	5,734	1.42
Male						
0-34 Years	10,272	2,868	1.00	106	10,622	0.95
35-44 Years	22,913	3,666	1.00	384	9,596	0.92
45-54 Years	29,377	3,968	1.00	606	10,186	0.91
55-59 Years	16,391	4,651	1.00	438	10,340	0.96
60-64 Years	18,581	5,214	1.00	588	10,486	1.00
65-69 Years	105,856	4,018	1.00	1,132	12,432	0.88
70-74 Years	128,874	5,014	1.00	1,921	11,501	0.99
75-79 Years	106,402	6,207	1.00	2,842	11,411	1.04
80-84 Years	64,263	7,083	1.00	3,404	11,049	1.06
85-89 Years	30,765	8,144	0.99	3,116	10,754	1.08
90-94 Years	9,343	8,731	0.97	1,783	9,489	1.20
95 Years or Over	1,944	9,062	0.92	611	8,096	1.37
Medicaid	196,604	6,523	0.97	33,074	8,895	1.17
Originally-Disabled	81,894	7,614	0.99	7,415	10,606	1.11

[1] Ratio of mean expenditures predicted by the Centers for Medicare & Medicaid Services - Hierarchical Condition Categories (CMS-HCC) model for combined community/institutional samples to mean actual expenditures.

SOURCE: Pope, G.C. and Kautter, J., RTI International, Ellis, R.P. and Ash, A.S., Boston University, Ayanian, J.Z., Harvard Medical School and Brigham and Women's Hospital, Iezzoni, L.I., Harvard Medical School and Beth Israel Deaconess Medical Center, Ingber, M.J., Levy, J.M., and Robst, J., Centers for Medicare & Medicaid Services, Analysis of 1999-2000 Medicare 5% Standard Analytic File (SAF).

a single diagnosis, expenditures for the institutionalized may be higher, lower, or about the same.

Thus, the main reason that people in facilities cost more is that they have more medical problems, a distinction that is fully accounted for by the HCCs. In fact, the predictive ratios from the combined CMS-HCC model for community and institutional beneficiaries are, respectively, 0.99 and 1.12 (Table 3). This means that the combined model, on average, under predicts expenditures for community residents by 1 percent, and over predicts expenditures for long–term nursing home residents by 12 percent. Lower expenditures among facility residents adjusting for disease burden could result from substituting non-Medicare for Medicare-reimbursed services; since most nursing home service are not reimbursed by Medicare. Also, greater monitoring of nursing home than community residents may identify and prevent problems leading to hospitalization. The under-prediction for community residents and over-prediction for facility residents is most severe for the oldest age groups, most likely due to decisions to limit

aggressive care for very old residents in nursing homes. The over-prediction of the costs of the institutionalized, together with their different cost patterns by age and diagnosis, led us to consider differentiating the CMS-HCC model for community and institutional populations.

Within a multiple regression model estimation framework, we investigated alternative approaches to allowing differences in the model between community and institutional residents, ultimately choosing to estimate separate models. This properly calibrates the prediction of each group's costs, while allowing all demographic and disease coefficients to differ between community and institutional populations.

In addition to the combined model, Table 2 shows the CMS–HCC community and institutional models. Not surprisingly, the community model R^2 and most of the demographic and disease coefficients are very similar to the combined model, because community residents comprise 95 percent of the combined sample. A few coefficients show greater differences. The community coefficients for the oldest age cells are significantly larger than the combined model coefficients because the lower-cost very old institutionalized have been removed from these cells. The community coefficients for the aged enrolled in Medicaid are also significantly higher, as are several HCC coefficients.

The institutional model R^2 is considerably lower than the community model. But some of the community model's predictive power comes from distinguishing beneficiaries who are healthy (no diagnoses) versus sick (with diagnoses), while the institutional model is explaining cost variations among a population comprised entirely of impaired individuals. Diagnoses help explain why someone might be institutionalized (i.e., distinguish healthy from sick), but are not as powerful in explaining expenditure differences among the institutionalized. Disease (HCC) coefficients tend to be smaller in the institutional model than in the community model (Table 2). Diagnoses are less predictive of incremental costs among the more uniformly expensive institutional population than they are among the community population.

We constrained certain groups of demographic and diagnostic coefficients in the institutional model to be equal (Table 2), because the small available sample of institutionalized beneficiaries resulted in their low prevalence in some diagnostic categories (HCCs) and made it difficult to obtain stable estimates of each separate parameter. For the same reason, we included no disabled interaction terms, and only two of the disease interaction terms in the institutional model. Also, HCC 158 Hip Fracture/Dislocation was excluded because its coefficient was negative.

The age/sex coefficients for the institutionalized are much higher than for community residents except for the oldest ages. This implies that institutionalized beneficiaries are predicted to be expensive regardless of their diagnostic profile (e.g., even lacking any of the diagnoses included in the CMS-HCC model), whereas community residents are predicted to be expensive only if diagnosed with at least one of the serious diseases included in the CMS-HCC model. This makes sense since institutionalization itself is a marker of poor health, aside from diagnostic profile, but the institutionalized age/sex coefficients decline for the oldest ages, and fall below the community coefficients. Medical treatment may be less aggressive for old, frail beneficiaries who are institutionalized.

Among the institutional population, the coefficient for Medicaid was negative and the coefficients for originally disabled was statistically insignificant. These variables

were excluded from the institutional model. Beneficiaries often qualify for Medicaid after spending down their personal assets to pay for a lengthy nursing home stay. Thus, Medicaid may be a proxy for beneficiaries in the later portion of their stays, when they are less expensive than in the earlier, post-acute phase of their nursing home tenure.

New Medicare Enrollees

The CMS–HCC model requires a complete 12-month base year diagnostic profile to predict the next year's expenditures. Beneficiaries without 12 months base year Medicare enrollment, but at least 1 month of prediction year enrollment, are defined as new enrollees. About two–thirds of new enrollees are age 65.[16] New enrollees may be under age 65 if they become eligible for Medicare by disability; they may be over age 65 if they delay Medicare enrollment or are not originally enrolled in both Parts A and B.[17] We developed a demographic model to predict expenditures for new enrollees who lack the data needed to apply the CMS-HCC model.

Table 4 presents frequencies and mean annualized expenditures from the 5-percent FFS sample data for new enrollees and continuing enrollees. Continuing enrollees are defined as beneficiaries having 12 months of Parts A and B Medicare enrollment in the base year and at least 1 month in the prediction year. For female and male new enrollees age 65, mean annualized expenditures are $2,729 and $2,900, respectively, less than one-half of costs of continuing enrollees ($6,952 for female and $6,055 for male). For almost all new enrollees age 65, the original reason for Medicare entitlement is age.[18] In contrast, continuing enrollees age 65 were originally entitled to Medicare by disability, and hence are much more expensive. For other ages, mean expenditures of new and continuing enrollees are much more similar. To achieve sufficient sample sizes in all age ranges to calibrate the new enrollees model, we merged the new and continuing enrollees samples, which resulted in a sample size of 1,495,225 with mean expenditures of $5,184. For age 65, actual new enrollees dominate the combined sample, and the cost weight reflects their (low) relative costs. Continuing enrollees age 65 are included in the sample to calibrate the originally disabled coefficient for age 65. For other than age 65, the sample is dominated by continuing enrollees, but their costs appear to proxy actual new enrollee costs reasonably well for younger or older ages.

Beneficiaries for Whom Medicare is a Secondary Payer

Working aged beneficiaries are Medicare beneficiaries, age 65 or over, with private group health insurance coverage from their or their spouse's employer. By law, Medicare is a secondary payer for these beneficiaries. The primary private health plan must pay for medical expenses to the extent of its defined benefits. Only if Medicare covers services not covered by the private plan, or has more generous coverage (e.g., lower deductibles or copayments) for Medicare-covered services, is Medicare responsible for payment, and then only to the extent of the difference in

[16] To simplify the new enrollees model, we recoded new enrollees age 64 on February 1 with an original reason for Medicare entitlement of aged to age 65. Thus, the age 65 cell in the new enrollees model combines new enrollees ages 64 and 65 on February 1 of the prediction year whose original reason for entitlement is aged.

[17] For example, a beneficiary might be entitled to Part A (hospital insurance) by age at age 65 or over, but might not pay Part B (physician insurance) premium until an older age.

[18] Some age 65 new enrollees might have originally been entitled to Medicare by disability when under age 65, but then have rejoined the work force and lost their Medicare eligibility, only to re-enroll at age 65.

Table 4

Descriptive Statistics for New and Continuing Medicare Enrollees[1]

Age/Sex Category	New Enrollees[2] Observations	New Enrollees[2] Mean Annualized Expenditures	Continuing Enrollees[3] Observations	Continuing Enrollees[3] Mean Annualized Expenditures
Female				
0-34 Years	2,540	3,532	7,037	3,653
35-44 Years	3,685	4,341	15,717	4,385
45-54 Years	5,891	4,814	22,431	4,767
55-59 Years	4,029	4,903	14,277	5,354
60-64 Years	3,310	5,705	16,159	6,094
65 Years	58,946	2,729	3,336	6,952
66 Years	1,448	3,319	29,534	3,401
67 Years	845	3,349	31,560	3,684
68 Years	531	3,116	32,578	3,740
69 Years	504	3,608	33,893	3,905
70-74 Years	1,311	4,672	173,829	4,461
75-79 Years	471	5,063	161,843	5,387
80-84 Years	200	6,043	118,144	6,276
85-89 Years	95	8,111	75,186	7,035
90-94 Years	46	5,931	34,135	7,500
95 Years or Over	15	6,457	11,886	6,795
Male				
0-34 Years	3,434	3,089	10,342	2,934
35-44 Years	4,281	3,690	23,172	3,746
45-54 Years	5,820	4,099	29,814	4,074
55-59 Years	4,120	4,603	16,677	4,772
60-64 Years	4,196	4,775	18,986	5,346
65 Years	46,262	2,900	3,940	6,055
66 Years	1,546	3,205	24,472	3,644
67 Years	872	2,976	25,279	3,933
68 Years	570	3,501	25,915	4,145
69 Years	490	3,638	27,009	4,295
70-74 Years	1,223	5,700	130,148	5,087
75-79 Years	429	6,476	108,214	6,307
80-84 Years	144	5,916	66,505	7,231
85-89 Years	63	8,028	32,848	8,326
90-94 Years	19	13,027	10,601	8,827
95 Years or Over	2	3,221	2,420	8,867

[1] Aged and disabled beneficiaries. Excludes working aged and ESRD beneficiaries.

[2] Enrollees with less than 12 months of base year eligibility.

[3] Enrollees with 12 months of base year eligibility.

SOURCE: Pope, G.C. and Kautter, J., RTI International, Ellis, R.P. and Ash, A.S., Boston University, Ayanian, J.Z., Harvard Medical School and Brigham and Women's Hospital, Iezzoni, L.I., Harvard Medical School and Beth Israel Deaconess Medical Center, Ingber, M.J., Levy, J.M., and Robst, J., Centers for Medicare & Medicaid Services, Analysis of 1999-2000 Medicare 5% Standard Analytic File (SAF).

coverage. Medicare expenditures for working aged beneficiaries are lower for this reason, as well as because working may be a proxy for better health.[19] Estimation of a separate model for the working aged is not feasible with the sample sizes available from the Medicare's 5-percent FFS sample. A simple adjustment to CMS–HCC model predictions is a multiplier that scales cost predictions to be lower for these beneficiaries.

We defined the working aged as beneficiaries otherwise satisfying the requirements of our 1999-2000 aged/disabled prospective modeling sample who had at least 1 month of working aged status in the prediction year (2000). There are 19,057 beneficiaries in our working aged sample, or about 1.4 percent as many individuals as in our aged/disabled sample. The mean annualized expenditures of the working aged are $966, less than one-fifth as much as for the aged/disabled community sample ($5,213). The CMS–HCC community

[19] Throughout this section, we use the terms working and working aged to include both those who are actually working, and the spouses of those who are working.

model over-predicts mean working aged expenditures by a factor of 3.66. Essentially, we define the working aged multiplier as the ratio of mean actual to mean predicted expenditures for the working aged sample, where expenditures are predicted by the CMS-HCC community model. With an adjustment for beneficiaries who have a mixture of working aged and non-working-aged months in the payment year, the working aged multiplier is 0.215.

CONCLUSIONS

CMS' adaptation of the DCG/HCC model makes substantially more accurate predictions of medical costs for M+C enrollees than has previously been possible. Its use is intended to redirect money away from MCOs that cherry-pick the healthy, while providing the MCOs that care for the sickest patients the resources to do so. The ultimate purpose of the CMS-HCC payment model is to promote fair payments to MCOs that reward efficiency and encourage excellent care for the chronically ill. The CMS-HCC model will continue to evolve. Additional diagnoses may be needed to predict drug expenditures incurred under the drug benefit enacted by MMA (2003). The model may need to be recalibrated to reflect new treatment patterns and disease prevalence. Diagnosis-based risk adjustment may need to be coordinated with disease management programs and incentives for quality of care.

The model has evolved over two decades of research,[20] with careful attention to clinical credibility, real-world incentives and feasibility tradeoffs. Continuous feedback between government technical staff and policymakers at CMS on the one hand, and research organization and academic researchers on the other, has shaped the CMS-HCC model. Much of the recent research reported in this article has related to adapting the model for Medicare subpopulations. The use of a single modeling framework—the CMS-HCC model—provides unity and organization to the subgroup models with the unique features specific to certain types of beneficiaries. Comprehensive risk adjustment, based on ambulatory as well as inpatient diagnoses, is just beginning to be implemented. Thus, it is too early to tell whether it will achieve its goals. As risk adjustment continues to be incorporated in Medicare payments to MCOs, it will be important to evaluate its impact on these organizations and the beneficiaries they serve, especially organizations that care for the chronically ill and their enrollees. This will tell us a great deal about the feasibility and consequences of matching health care resources to needs.

[20] The DCG line of risk-adjustment research dates back to the report by Ash et al. (1989), based on research begun in 1984.

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REFERENCES

Ash, A.S., Porell, F., Gruenberg, L., et al.: Adjusting Medicare Capitation Payments Using Prior Hospitalization. *Health Care Financing Review* 10(4):17-29, Summer 1989.

Brown, R.S., Clement, D.G., Hill, J.W., et al.: Do Health Maintenance Organizations Work for Medicare? *Health Care Financing Review* 15(1):7-23, Fall 1993.

Centers for Disease Control and Prevention: *International Classification of Diseases, Ninth Revision, Clinical Modification (IC+CD-9-CM)*. Internet address: http://www.cdc.gov/nchs/about/otheract/icd9/abticd9.ht. (Accessed 2004.)

Ellis, R.P., Pope, G.C., Iezzoni, L.I., et al.: Diagnosis-Based Risk Adjustment for Medicare Capitation Payments. *Health Care Financing Review* 17(3):101-128, Spring 1996.

Ellis, R.P., Pope, G.C., Iezzoni, L.I., et al.: Diagnostic Cost Group (DCG) and Hierarchical Coexisting Conditions (HCC) Models for Medicare Risk Adjustment. Final Report to the Health Care Financing Administration under Contract Number 500-92-0020, Delivery Order Number 6. Health Economics Research, Inc. Waltham, MA. April, 1996.

Ellis, R.P., Ash, A.S.: Refinements to the Diagnostic Cost Group Model. *Inquiry* 32(4):1-12, Winter 1995.

Hughes, J.S., Averill, R.F., Eisenhandler, J., et al.: Clinical Risk Groups (CRGs): A Classification System for Risk-Adjusted Capitation-Based Payment and Health Care Management. *Medical Care* 42(1):81-90, January 2004.

Kapur, K., Tseng, C.W., Rastegar, A., et al.: Medicare Calibration of the Clinically Detailed Risk Information System for Cost. *Health Care Financing Review* 25(1):37-54, Fall 2003.

Kautter, J., and Pope, G.C.: Predictive Accuracy of Diagnostic Cost Group (DCG) Risk Adjustment Models. Final Report to the Centers for Medicare & Medicaid Services under Contract Number 500-95-048. Health Economics Research, Inc. Waltham, MA. August 2001.

Kronick, R., Gilmer, T., Dreyfus, T., et al.: Improving Health-Based Payment for Medicaid Beneficiaries: Chronic Illness and Disability Payment System. *Health Care Financing Review* 21(3):29-64, Spring 2000.

Mello, M.M., Stearns, S.C., Norton, E.C., et al.: Understanding Biased Selection in Medicare HMOs. *Health Services Research* 38(3):961-992, June 2003.

Pope, G.C., Kautter, J., Ash, A.S., et al.: Parsimonious Risk Adjustment Models for Medicare. Final Report to the Centers for Medicare & Medicaid Services under Contract Number 500-95-048. Health Economics Research, Inc. Waltham, MA. December, 2001.

Pope, G.C., Ellis, R.P., Ash, A.S., et al.: Principal Inpatient Diagnostic Cost Group Model for Medicare Risk Adjustment. *Health Care Financing Review* 21(3):93-118, Spring 2000a.

Pope, G.C., Ellis, R.P., Ash, A.S., et al.: Diagnostic Cost Group Hierarchical Condition Category Models for Medicare Risk Adjustment. Final Report to the Health Care Financing Administration under Contract Number 500-95-048. Health Economics Research, Inc. Waltham, MA. December, 2000b.

Pope, G.C., Liu, C.F., Ellis, R.P., et al.: Principal Inpatient Diagnostic Cost Group Models for Medicare Risk Adjustment. Final Report to the Health Care Financing Administration under Contract Number 500-95-048. Health Economics Research, Inc. Waltham, MA. February 1999.

Pope, G.C., Adamache, K.A., Walsh, E.G., and et al.: Evaluating Alternative Risk Adjusters for Medicare. *Health Care Financing Review* 20(2):109-129, Winter 1998.

Pope, G.C., Ellis, R.P., Liu, C.F., et al.: Revised Diagnostic Cost Group (DCG)/Hierarchical Coexisting Conditions (HCC) Models for Medicare Risk Adjustment. Final Report to the Health Care Financing Administration under Contract Number 500-95-048. Health Economics Research, Inc. Waltham, MA. February 1998.

Riley, G., Tudor, C., Chiang, Y., et al.: Health Status of Medicare Enrollees in HMOs and Fee-for-Service in 1994. *Health Care Financing Review* 17(4):65-76, Summer 1996.

Weiner, J.P., Dobson, A., Maxwell, S.L., et al.: Risk-Adjusted Medicare Capitation Rates Using Ambulatory and Inpatient Diagnoses. *Health Care Financing Review* 17(3):77-100, Spring 1996.

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Evaluation of the CMS-HCC Risk Adjustment Model

Final Report

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MA program if capitation rates were unadjusted. Risk selection can occur by chance or by practices implemented by health plans (AARP, 2009). For example, if a health plan were to set high copayment rates for office visits to specialists, beneficiaries needing care from specialists might select not to enroll in that plan. To address this issue of risk selection and accurately compensate MA health plans for accepting the risk of enrolling beneficiaries of varying health statuses, the MA program uses risk adjustment and administrative policies.[1]

2.2 Risk Adjustment

The Medicare risk adjustment models use data from a large pool of beneficiaries (full sample sizes over 1 million for the CMS-HCC models) to estimate predicted costs on average for each of the component factors (e.g., age-sex, low income status, individual disease groups). This method of risk assessment is in accordance with the Actuarial Standard Board's Actuarial Standard of Practice for risk classification—the risk characteristics are related to expected outcomes and the risk classes are large enough to allow credible statistical inferences (ASB, 2005). The predicted costs from the risk adjustment models are then converted to relative risk factors so that payment adjustments can be made relative to the average Medicare beneficiary. It is important to understand that the underlying risk assessment is designed to accurately explain the variation at the group level, not at the individual level, because risk adjustment is applied to large groups (AAA, 2010). As the American Academy of Actuaries notes:

> "... Determining average experience for a particular class of risk is not the same as predicting the experience for an individual risk in the class. It is both impossible and unnecessary to predict expenditures for individual risks. If the occurrence, timing, and magnitude of an event were known in advance, there would be no economic uncertainty and therefore no reason for insurance." (AAA, 1980)

By risk adjusting the payments to MA plans—beneficiaries with lower-than-average predicted costs have their payments decreased incrementally based on their risk profile and beneficiaries with higher-than-average predicted costs have their payments increased incrementally based on their risk profile—CMS reduces the incentives for these plans to risk select only the healthiest beneficiaries and avoids indirectly penalizing plans that provide care for the most seriously ill beneficiaries.

The suitability of a risk adjuster depends on the nature of the groups to be paid using the adjuster. The MA program now allows not only general population health plans to participate, but specialty plans as well, in particular plans enrolling beneficiaries with a specified subset of chronic diseases. Sections 2.3 to 2.8 describe that characteristics and ability of the CMS-HCC risk adjustment model to account for the costs of these conditions as well as the comorbidities

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[1] Risk adjustment is one of a set of techniques CMS implements to compensate MA plans and to protect beneficiary access to these plans. Other techniques include these: a Total Beneficiary Cost metric, which beginning in CY2011 evaluates changes from year to year in a plan's cost-sharing or benefits and denies bids that propose significant increases in cost-sharing or decreases in benefits; and Discriminatory Cost-Sharing Assessments, which beginning in CY2012 provide three benefit discrimination assessments—Per Member Per Month Actuarially Equivalent Cost Sharing Maximums, Service Category Cost Sharing Standards, and Discriminatory Pattern Analysis. (Advance Notice, CY2012)

and complications related to these conditions. The evaluation of its ability to predict risk for enrollee groups that have concentrations with particular medical conditions, as well as other atypical profiles, are in Section 3.

2.3 History of Risk Adjustment Models for Medicare Managed Care

CMS has developed its risk adjustment methodology over time, modifying it to better account for differences in expected health expenditures. **Table 2-1** presents a summary of the Medicare managed care risk adjustment models and their explanatory power as measured by R^2. It is followed by a description of each of the models.

Table 2-1
Medicare Managed Care historic risk adjustment model R^2 statistics[1]

Risk adjustment model	Payment years	R^2
Adjusted Average Per Capita Cost (AAPCC)[2]	pre-2000	0.0077
PIP-DCG[2]	2000-2003	0.0550
CMS-HCC[2,4]	2004-2008	0.0997
Version 12 CMS-HCC (2005 recalibration)[3,4]	2009-current	0.1091
Version 21 CMS-HCC (2007 recalibration; 2009 clinical revision)[3,4]	proposed	0.1246

NOTES:

1. The R^2 statistic refers to the percentage of variation in individual expenditures predicted.
2. The R^2 statistics for the three earliest models are based on the 1999-2000 calibration sample which included both community and institutional beneficiaries.
3. These models are estimated on the recalibration samples and include community continuing enrollees only, no months of institutional status are included.
4. The CMS-HCC models include payment model HCCs only.

SOURCE: RTI analysis of Medicare claims and enrollment data—1999-2000, 2004-2005, and 2006-2007 5% sample.

Historically, capitation payments to Medicare managed care plans were linked to FFS expenditures by geographic area, with payments set at 95 percent of an enrollee's county's Adjusted Average Per Capita Cost (AAPCC). The AAPCC actuarial rate cells were defined by age, sex, Medicaid enrollment (indicating poverty), institutional status (for nursing home residents), and working aged status (for beneficiaries with employer-based insurance where Medicare is a secondary payer). Separate county factors were calculated for the aged and nonaged (under 65 years) disabled. Due to small numbers, only state-level factors were calculated for end-stage renal disease (ESRD)-entitled beneficiaries.

The AAPCC payment methodology explained only about 1 percent of the individual variation in expenditures for Medicare beneficiaries and, for beneficiaries with similar

demographic profiles, did not pay more for sicker people. Research showed that the managed care program was increasing total Medicare expenditures because its enrollees were healthier than FFS enrollees and the AAPCC did not account for this favorable risk selection (Brown et al., 1993; Riley et al., 1996; Mello et al., 2003). Also, this payment methodology was not appropriately compensating plans enrolling sicker beneficiaries or plans specializing in treating high-cost populations, such as beneficiaries with particular chronic diseases or high levels of functional impairment.

The 1997 Balanced Budget Act (BBA) modified the Medicare managed care and other capitated programs, then collectively known as Medicare+Choice (M+C). The BBA included a mandate for health-based Medicare capitation payments by 2000. In 2000, CMS implemented the Principal Inpatient Diagnostic Cost Group (PIP-DCG) model as its health-based payment risk adjuster (Pope et al., 2000a). This model estimated beneficiary health status (the expected cost) from AAPCC-like demographics and the most serious principal inpatient diagnosis (principal reason for inpatient stay) associated with any hospital admission from the prior year.

The PIP-DCG model was an improvement over the AAPCC payment methodology, increasing explanatory power of individual variation in beneficiaries' expenditures from about 1 percent to about 5.5 percent. The PIP-DCG model was intended as a transition model, a feasible way to implement risk adjustment based on the readily available: already adjudicated inpatient diagnostic data. However, relying on inpatient diagnoses was the PIP-DCG model's major shortcoming because only illnesses that result in hospital admissions were counted. Therefore, managed care organizations that reduced admissions (e.g., through good ambulatory care) could end up with apparently healthier patients and be penalized through lower payments. Congress's Benefits Improvement Protection Act (BIPA 2000) addressed the PIP-DCG limitations by requiring the use of ambulatory diagnoses in Medicare risk-adjustment, to be phased in from 2004 to 2007.

CMS evaluated several risk-adjustment models that use both ambulatory and inpatient diagnoses and ultimately chose the DCG-HCC model for Medicare risk-adjustment partly because it "…would lend itself most easily to necessary modifications that would be clear to analysts and physicians" (CMS, 2003). The model, part of the same DCG family of models as the PIP-DCG, was developed with CMS funding by researchers at RTI International and Boston University, with clinical input from physicians at Harvard Medical School (Pope, Kautter, Ingber, et al., 2004). Prior to its 2004 implementation, the model was modified to fit Medicare subpopulations and CMS' data collection system and became the CMS-HCC risk adjustment model. (The structure of the current model is described thoroughly in the next sections.) The CMS-HCC model was again an improvement over previous methodology, increasing explanatory power of individual variation in beneficiaries' expenditures to about 10 percent (compared to 5.5 percent in the PIP-DCG model).

One of the CMS-HCC model's strengths is its facility to be modified for improvements. CMS updates the software annually to account for changes in ICD-9-CM diagnosis codes. It recalibrates the model regularly on more recent diagnosis and expenditure data. Additionally, the CMS-HCC model underwent a major clinical revision in 2009 to adjust for changes in disease patterns, treatment methods, and coding practices, as well as compositional changes within the Medicare population. These modifications have again increased the CMS-HCC

model's explanatory power, raising it to 11 percent for the version of the model used in payment from 2009-current (Version 12 model) and then to 12.5 percent for the version of the model that will be implemented for PACE starting in 2012 (Version 21 model).[2]

2.4 Principles for Risk Adjustment Model Development

The CMS-HCC risk adjustment model is prospective—it uses demographic information (age, sex, Medicaid dual eligibility, disability status) and a profile of major medical conditions in the base year to predict Medicare expenditures in the next year. It is calibrated on the FFS population because this population, unlike the MA population, submits complete Medicare claims data, including both diagnoses and expenditures. Determining which diagnosis codes should be included, how they should be grouped, and how the diagnostic groupings should interact for risk adjustment purposes was a critical step in the development of the model. The following 10 principles guided the creation of the CMS-HCC diagnostic classification system:

> ***Principle 1*—Diagnostic categories should be clinically meaningful**. Each diagnostic category is a set of ICD-9-CM codes (Centers for Disease Control and Prevention [CDC], 2010). These codes should all relate to a reasonably well-specified disease or medical condition that defines the category. Conditions must be sufficiently clinically specific to minimize opportunities for gaming or discretionary coding. Clinical meaningfulness improves the face validity of the classification system to clinicians, its interpretability, and its utility for disease management and quality monitoring.
>
> ***Principle 2*—Diagnostic categories should predict medical expenditures**. Diagnoses in the same HCC should be reasonably homogeneous with respect to their effect on both current (this year's) and future (next year's) costs.
>
> ***Principle 3*—Diagnostic categories that will affect payments should have adequate sample sizes to permit accurate and stable estimates of expenditures**. Diagnostic categories used in establishing payments should have adequate sample sizes in available data sets. Given the extreme skewness of medical expenditure data, the data cannot reliably determine the expected cost of extremely rare diagnostic categories.
>
> ***Principle 4*—In creating an individual's clinical profile, hierarchies should be used to characterize the person's illness level within each disease process, while the effects of unrelated disease processes accumulate**. Because each new medical problem adds to an individual's total disease burden, unrelated disease processes should increase predicted costs of care. However, the most severe manifestation of a given disease process principally defines its impact on costs. Therefore, related conditions should be treated hierarchically, with more severe manifestations of a condition dominating (and zeroing out the effect of) less serious ones.

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[2] Throughout this report, we refer to V12 and V21 of the CMS-HCC risk adjustment model. These shorthand names refer to the versions of the model. Model versions are updated for a variety of reasons, including changes in valid diagnoses mapping to the HCCs, updates to accommodate more recent years of data, as recalibrations to incorporate clinical and other updates. Not all model versions are used for payment

***Principle 5*—The diagnostic classification should encourage specific coding**. Vague diagnostic codes should be grouped with less severe and lower-paying diagnostic categories to provide incentives for more specific diagnostic coding.

***Principle 6*—The diagnostic classification should not reward coding proliferation**. The classification should not measure greater disease burden simply because more ICD-9-CM codes are present. Hence, neither the number of times that a particular code appears, nor the presence of additional, closely related codes that indicate the same condition should increase predicted costs.

***Principle 7*—Providers should not be penalized for recording additional diagnoses (monotonicity)**. This principle has two consequences for modeling: (1) no condition category (CC) should carry a negative payment weight, and (2) a condition that is higher-ranked in a disease hierarchy (causing lower-rank diagnoses to be ignored) should have at least as large a payment weight as lower-ranked conditions in the same hierarchy.

***Principle 8*—The classification system should be internally consistent (transitive)**. If diagnostic category A is higher-ranked than category B in a disease hierarchy, and category B is higher-ranked than category C, then category A should be higher-ranked than category C. Transitivity improves the internal consistency of the classification system and ensures that the assignment of diagnostic categories is independent of the order in which hierarchical exclusion rules are applied.

***Principle 9*—The diagnostic classification should assign all ICD-9-CM codes (exhaustive classification)**. Because each diagnostic code potentially contains relevant clinical information, the classification should categorize all ICD-9-CM codes.

***Principle 10*—Discretionary diagnostic categories should be excluded from payment models**. Diagnoses that are particularly subject to intentional or unintentional discretionary coding variation or inappropriate coding by health plans/providers, or that are not clinically or empirically credible as cost predictors, should not increase cost predictions. Excluding these diagnoses reduces the sensitivity of the model to coding variation, coding proliferation, gaming, and upcoding.

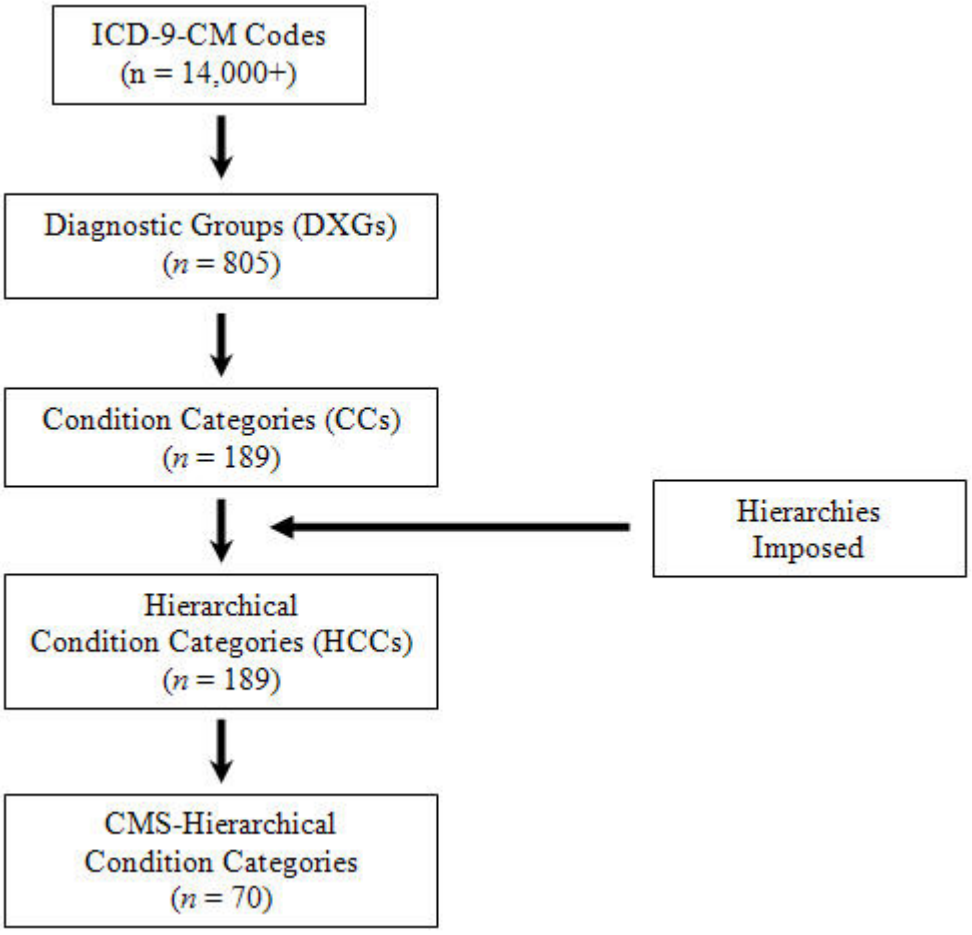
In designing the diagnostic classification, principles 7 (monotonicity), 8 (transitivity), and 9 (exhaustive classification) were followed absolutely. For example, if the expenditure weights for the models did not originally satisfy monotonicity, constraints were imposed to create models that did. Judgment was used to make tradeoffs among other principles. For example, clinical meaningfulness (principle 1) is often best served by creating a very large number of detailed clinical groupings. But a large number of groupings conflicts with adequate sample sizes for each category (principle 3). Another tradeoff is encouraging specific coding (principle 5) versus predictive power (principle 2). In current coding practice, nonspecific codes are common. If these codes are excluded from the classification system, predictive power may be sacrificed. Similarly, excluding discretionary codes (principle 10) can also lower predictive power (principle 2). The model developers approached the inherent tradeoffs involved in designing a classification system using empirical evidence on frequencies and predictive power; clinical judgment on relatedness, specificity, and severity of diagnoses; and their own professional judgment on incentives and likely provider responses to the classification system. The CMS-HCC model balances these competing goals to achieve a feasible, health-based payment system.

2.5 Elements and Organization of the CMS-HCC Model

2.5.1 Diagnostic Classification System

The HCC diagnostic classification system begins by classifying over 14,000 ICD-9-CM diagnosis codes into 805 diagnostic groups, or DXGs (see **Figure 2-1**). Each ICD-9-CM code maps to exactly one DXG, which represents a well-specified medical condition, such as *DXG 96.01 precerebral or cerebral arterial occlusion with infarction*. DXGs are further aggregated into 189 Condition Categories, or CCs. CCs describe a broader set of similar diseases. Although they are not as homogeneous as DXGs, diseases within a CC are related clinically and with respect to cost. An example is *CC 96 Ischemic or Unspecified Stroke*, which includes DXGs 96.01 precerebral or cerebral arterial occlusion with infarction and 96.02 acute but ill-defined cerebrovascular disease.

Figure 2-1
Hierarchical Condition Categories aggregations of ICD-9-CM codes, version 12 CMS-HCC model



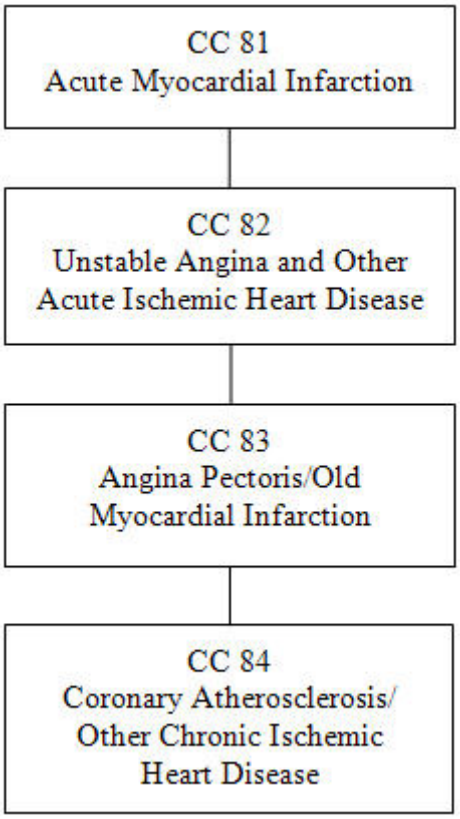
NOTE: ICD-9-CM is International Classification of Diseases, Ninth Revision, Clinical Modification.

SOURCE: RTI International.

2.5.2 Hierarchies

Hierarchies are imposed among related CCs, so that a person is coded for only the most severe manifestation among related diseases. For example (**Figure 2-2**), ICD-9-CM Ischemic Heart Disease codes are organized in the Coronary Artery Disease hierarchy, consisting of four CCs arranged in descending order of clinical severity and cost, from *CC 81 Acute Myocardial Infarction* to *CC 84 Coronary Atherosclerosis/Other Chronic Ischemic Heart Disease*. A person with an ICD-9-CM code in CC 81 is excluded from being coded in CCs 82, 83, or 84 even if codes that group into those categories were also present. Similarly, a person with ICD-9-CM codes that group into both *CC 82 Unstable Angina and Other Acute Ischemic Heart Disease* and *CC 83 Angina Pectoris/Old Myocardial Infarction* is coded for CC 82, but not CC 83. After imposing hierarchies, CCs become Hierarchical Condition Categories, or HCCs.

Figure 2-2
Hierarchical Condition Categories for coronary artery disease, created from ICD-9-CM ischemic heart diseases codes, version 12 CMS-HCC model



SOURCE: RTI International.

Although HCCs reflect hierarchies among related disease categories, for unrelated diseases, HCCs accumulate. For example, a male with heart disease, stroke, and cancer has (at least) three separate HCCs coded, and his predicted cost will reflect increments for all three problems.

In addition to the additive terms in the model, the CMS-HCC model also incorporates some interaction terms for conditions where the costs are more than additive. For example, the presence of both diabetes and congestive heart failure (CHF) leads to higher expected costs than would be calculated by adding the separate increments for diabetes and CHF alone. Therefore, the model includes a set of two-way interactions between pairs of disease groups, those which together have clinical validity and most strongly predict higher additional costs. Many interactions among diseases are tested during model development and the model reflects those that have significant effects on costs.

Because a single beneficiary may be coded for none, one, or more than one DXG or HCC, the CMS-HCC model can individually price tens of thousands of distinct clinical profiles using fewer than 200 disease parameters. The model's structure thus provides, and predicts from, a detailed comprehensive clinical profile for each individual.

HCCs are assigned using hospital and physician diagnoses from any of five sources: (1) hospital inpatient–principal diagnoses, (2) hospital inpatient–secondary diagnoses, (3) hospital outpatient, (4) physician, and (5) clinically-trained nonphysician (e.g., psychologist, podiatrist). These sources were found to be the most reliable and to provide the greatest predictive power. The CMS-HCC model does not distinguish among sources; in particular, it places no premium on diagnoses from inpatient care.

2.5.3 CMS-HCCs

The CMS-HCC V12 model includes the 70 HCCs (out of a total of 189 HCCs) that best predict Part A and Part B medical expenditures. The CMS-HCC V21 model includes 87 HCCs. Consistent with principle 10 (section 2.4), the CMS-HCC payment model excludes discretionary diagnostic categories (HCCs), containing diagnoses that are vague/nonspecific (e.g., symptoms), discretionary in medical treatment or coding (e.g., osteoarthritis), not medically significant (e.g., muscle strain), or transitory or definitively treated (e.g., appendicitis). The payment model also excludes HCCs that do not (empirically) add to costs, as well as HCCs that are fully defined by the presence of procedures or DME, in order to have payments based on medical problems that were present rather than services that were offered.

For some payment HCCs, the predicted costs of the disease are significantly different for the subpopulation entitled to Medicare by disability as opposed to the aged subpopulation. Thus, in addition to disease group interactions described earlier, the CMS-HCC model also includes a set of disease-disabled status interactions. For example, a female who has cystic fibrosis and is disabled receives an incremental payment to account for her higher expected costs.

The CMS-HCC model also relies on demographics. Demographic adjusters included in the model are 24 mutually exclusive Age-Sex cells (e.g., female, age 65–69), an indicator for at least 1 month of Medicaid enrollment in the base year (a poverty indicator), and an indicator of originally disabled status. The Medicaid indicator is interacted with sex and either aged or

disabled status to differentiate predicted costs. The originally disabled indicator, interacted with sex, distinguishes beneficiaries who are currently age 65 or over, but were first entitled to Medicare before age 65 because of disability. These demographic adjusters pick up the costs of diseases not in the model and differences in spending associated with each demographic factor. The Age-Sex, Medicaid, and originally disabled categories add to each other and to the HCC diagnostic categories.

2.5.4 Clinical Vignette

To illustrate the CMS-HCC model, we have created a hypothetical clinical vignette. **Figure 2-3** displays a hypothetical clinical vignette of a female, age 76, who lives in the community and has several chronic conditions. She received eight ICD-9-CM diagnosis codes from visits to hospitals and physicians, which are grouped into seven DXGs: acute myocardial infarction (AMI); angina pectoris; emphysema/chronic bronchitis; chronic renal failure; renal failure, unspecified; chest pain; and sprains. These seven DXGs in turn group into six CCs, with the chronic renal failure and unspecified renal failure DXGs mapping to a single CC of renal failure. Finally, the six CCs result in three payment HCCs—AMI, Chronic obstructive pulmonary disease (COPD), and Renal failure—that are used in risk adjusting Medicare capitation payments. Although this female receives CCs for both AMI and angina, she receives no payment HCC for angina because AMI is a more severe manifestation of coronary artery disease, and thus excludes angina in the coronary artery disease hierarchy. The HCCs for major symptoms and other injuries are also excluded from the payment calculation. Chest pain is a symptom associated with a variety of medical conditions ranging from minor to serious, and sprains are typically transitory, with minimal implications for next year's cost.

SECTION 3
MODEL EVALUATION

This Section presents a quantitative evaluation of the CMS-HCC risk adjustment models. Risk adjustment models are typically evaluated with two key statistics—the R^2, which measures the extent to which the model can explain individual differences, and predictive ratios, which measure the ability of the model to predict average costs over the entire group or subgroups. Predictive ratios should be assessed with individual explanatory power (R^2) also in mind.

A predictive ratio—the ratio of a group's predicted cost to its actual cost—measures the accuracy of the model in predicting the average cost of a group. When predictive ratios are close to 1.0, this indicates that the variance around the average within the group has an average close to zero. A simple model may be quite good at predicting the average cost for a large group of beneficiaries because these errors of prediction average out. However, the ability of the simple model to differentiate beneficiaries within the group may be poor. This is the case with the demographic risk adjustment model, where the predictive ratios can be 1.0, or close to 1.0, for some subgroups, but the model R^2 is very low, indicating that there is much unexplained variation among the beneficiaries within the group. Each version of the CMS-HCC model, which has a considerably greater R^2 than the demographic model, may have predictive ratios that are not quite as close to 1.0, but this model is superior in its ability to distinguish high and low cost individuals.

While prediction is expected to be accurate for diseases and characteristics included in the model, calculating these predictive ratios serves as a useful check on model performance. Model accuracy for characteristics not included in the model is less certain, and provides information on how accurate the model is for characteristics of interest, but that may not be appropriate to include in the model (e.g., because they establish poor incentives, or are gameable). The ratios presented in this report are mostly based on grouping by demographic characteristics, clinical characteristics and prior or current utilization or expenditures.

Section 3.1 covers predictive ratios for the CMS-HCC model, Version 12 (V12). Section 3.2 compares the performance of CMS-HCC V12 with the clinically-revised V21 of the CMS-HCC model. Predictive ratios from a demographic risk adjustment model are presented for comparison in each section. The demographic risk adjustment model includes the same age-sex cells, Medicaid, and originally disabled variables as are included in the V12 CMS-HCC model.

3.1 CMS-HCC Model V12 Predictive Ratios

This section presents predictive ratios that are used to evaluate the performance of the V12 CMS-HCC model. Predictive ratios evaluate the average predictive performance of the model for subgroups of beneficiaries. Predictive ratios are calculated as the ratio of mean predicted to mean actual expenditures for a group of beneficiaries. A predictive ratio of 1.0 indicates accurate prediction. A ratio greater than 1.0 indicates overprediction and a ratio less than 1.0 indicates underprediction.

This section reports predictive ratios for the different subpopulations to which the CMS HCC model is applied. In each table, sample sizes for each subgroup, along with mean actual and predicted expenditures, are shown with the predictive ratios. We begin in Section 3.1.1 with

by far the largest subpopulation, aged-disabled, community continuing enrollees. Section 3.1.2 addresses institutionalized beneficiaries. Section 3.1.3 discusses new Medicare enrollees.

3.1.1 Aged-Disabled Community Continuing Enrollees

All predictive ratios discussed in this section were calculated on the Medicare 2004-2005 5 percent sample of aged-disabled community continuing enrollees used for calibration of the V12 CMS-HCC model. This sample was also used for calibration of the demographic model.

Demographic groups

Table 3-1 shows predictive ratios for the entire calibration sample in various demographic subgroups. All of the characteristics in the table are included in the CMS-HCC model, and the predictive ratios confirm accurate prediction for them on the calibration sample.

Predicted expenditure deciles and percentiles

Table 3-2 shows predictive ratios by deciles of 2005 predicted expenditures and the top 5 and 1 percent of predicted beneficiary expenditures. Predictive ratios are shown for deciles and percentiles defined by expenditures predicted by the CMS-HCC model and by the demographic models. The CMS-HCC model predicts 2005 expenditures using 2004 diagnoses and demographic information. The demographic model predicts 2005 expenditures using demographic information only. The predictive ratios by deciles from a model's own predicted expenditures test model "calibration," that is, to what extent groups of beneficiaries predicted to have certain levels of expenditures actually have those levels on average.

For deciles and percentiles formed by CMS-HCC model predicted expenditures, CMS-HCC model prediction is quite accurate for the middle and high-expenditure deciles, and even for the top 5 and 1 percent of highest-predicted cost beneficiaries. There is some underprediction for the first two deciles. Underprediction for the lowest predicted groups is related to the dominance in the Medicare population of people with medical conditions captured by the model. The lowest predicted groups are quite healthy; most have no HCCs included in the model. The predictions for healthy people are determined by CMS-HCC model demographic factors only, and the values for these demographic factors are the same for both beneficiaries without HCCs and those with model HCCs. For those beneficiaries with HCCs, the age-sex factors have modest importance in explaining costs. The coefficient of an included HCC reflects the costs of not only that condition, but some of the costs of conditions not in the model if they occur frequently in people with the included HCC. The actual effect in dollars of the underprediction in the low deciles is quite small, as it is a percentage of a relatively small expenditure level.

CMS-HCC model predictions for the deciles and percentiles sorted on demographic model predicted expenditures are also quite good, except for a modest underprediction for the top 1th percentile. This good performance is not surprising because the CMS-HCC model includes demographic factors. The CMS-HCC model is well calibrated for demographic predicted expenditures.

Demographic model predictions for the deciles and percentiles sorted by demographic model predicted expenditures show that the predictive ratios of the demographic model in Table 3-2 are all close to 1.0, indicating that the demographic model is well-calibrated for its own

predictions. But the range of predicted expenditures of the demographic model is much narrower than the range of predicted expenditures of the CMS-HCC model. Demographic factors alone do not distinguish well between beneficiaries who will be costly in the next year versus beneficiaries who will not be costly. The tenth to first decile predicted expenditure range of the demographic model is only 2.7 to 1 ($11,620 versus $4,372) versus a 9.7 to 1 range of the CMS-HCC model ($23,306 versus $2,392). When deciles and percentiles are sorted on the CMS-HCC model predictions, the predictive ratios of the demographic model are poor, and differ substantially from 1.0 (top panel I. of Table 3-2, right hand side). The demographic model does not predict well the range of expenditures that have been ordered by a more powerful model, the CMS-HCC model.

Although predictive ratios grouped by actual cost have been published, we are not presenting these predictive ratios here since this grouping makes little analytic sense and interpreting such predictive ratios is not always meaningful. The reason that predictive ratios grouped by actual cost are not meaningful is that modeling of future medical spending can never exactly predict costs, and sorting by actual cost is essentially testing to see if all people with high actual costs were predicted high and all those with low actual costs were predicted low. Insurance models are developed using information known prior to the insurance period and future medical events have both predictable and unpredictable, essentially random, components. An insurance model captures the predictable component and seeks to balance the over and under-prediction errors so the average actual spending for a group equals the average predicted spending.

Instead of testing to see if a group organized by actual cost (a group influenced by random outcomes) had their costs predicted accurately, we test to see if a group organized by risk (predicted cost), had average actual costs that were equivalent to their predicted costs. In other words, grouping predictive ratios based on risk allows us to assess whether the over-predictions and under-predictions balance out, so that the average predicted costs over a large enough group equal the actual costs. This test is shown in Table 3-2. This evaluative measure sorts an insured population into premium classes related to risk and evaluates whether each class has revenue equal to payouts. To make an analogy with life insurance, the insured are sorted into their underwriting classes and the premiums for each class are compared to the payouts, which are related to the mortality rates.

When sorting on **actual** expenditures one is sorting from low actual spending to high actual spending. The analogy in life insurance would be to sort the insured by whether they lived (low payout) or died (high payout) and compare the premiums for each group to the payout for each group. Clearly there would be premium overpayment for the survivors and underpayment for the decedents. This pattern of over and under-prediction is not confined to insurance, but occurs with regression models of any type of data when the observations are sorted in this way, by actual rather than predicted values. In the risk adjustment model a low actual spending group is biased to be below the predicted because it contains people predictably low and additional people who randomly fell below their predicted level. There may even be a group of people who unpredictably have 0 spending in this group. A high actual spending group contains both people predictably high and a set of people who were randomly higher than predicted. There may even be extreme random outliers driving this group. The actual spending at the low end will average lower than the predicted, and the actual will average higher than the predicted at the high end.

The pattern of predicted ratios by actual cost groups is hard to interpret because it occurs as a matter of the mathematics rather than biases in the model. Since only a perfect model would not exhibit this behavior, we do not find such tables useful in judging the performance of the CMS-HCC model.

Number of HCCs

Table 3-3 shows predictive ratios by number of HCCs assigned to each beneficiary. Because the CMS-HCC is an additive model, a larger count of HCCs means a greater burden of disease. Table 3-3 restricts the HCC count to HCCs included in the payment model, which are serious, high-cost diseases. The CMS-HCC predictive ratios show that model prediction is accurate across a range of number of HCCs, from none (where prediction is entirely by demographic factors) to 10 or more (which indicates a high burden of serious disease co-existing conditions).

Chronic Disease HCC Groups: Individual and Multiple Chronic Diseases

Table 3-4 shows predictive ratios for selected groups of HCCs that together comprise a single serious chronic condition that is common in the Medicare population. For Table 3-4, the individual HCCs in a HCC clinical hierarchy that distinguish severity are grouped together to indicate presence of the disease. For example, the diabetes HCC group contains 5 HCCs, each of which indicates diabetes, and the coronary artery disease group contains 4 HCCs, each of which indicates coronary artery disease. The predictive ratios are exactly 1.0 for all but three of the HCC groups. The three groups with predictive ratios less than 1.0 contain some HCCs that are not included in the payment model. These predictive ratios show that the CMS-HCC model predicts accurately, although not perfectly, for beneficiaries with some individual major chronic conditions common in the Medicare population. Moreover, the CMS-HCC predictions are much more accurate than the demographic model predictions, even for beneficiaries with conditions not included in the CMS-HCC payment model.

Tables 3-5 and 3-6 show predictive ratios for beneficiaries with combinations of 2 or 3 of the HCC groups, for example, diabetes and cancer, or diabetes, cancer, and chronic obstructive pulmonary disease. Validation group beneficiaries have the specified 2 or 3 HCC groups and may have others in addition; the validation groups are not restricted to beneficiaries who have only the specified conditions. The predictive ratios for the 2- and 3-HCC groups are generally close to one, indicating accurate model prediction. These results indicate that the CMS-HCC model is predicting expenditures accurately for beneficiaries who have combinations of major chronic illnesses common in the Medicare population.

Predicted Expenditure Deciles and Percentiles for Chronic Disease HCC Groups

Tables 3-7 through 3-12 show predictive ratios for deciles of predicted expenditures for 5 HCC groups studied in Table 3-4, plus an additional condition, HCC 92, Heart Arrhythmias. These tables show several things. First, the HCC model predicts a wide range of expenditures for beneficiaries with specific chronic conditions. The expenditure predictions differ because the disease severity and burden of coexisting conditions, comorbidities, and complications varies widely, even among beneficiaries with a serious chronic illness. For example, if a beneficiary is diagnosed with uncomplicated diabetes only, his or her expenditure prediction will be relatively modest. But if a beneficiary has diagnoses for diabetes with chronic complications, congestive

heart failure, vascular disease, cancer, and chronic obstructive pulmonary disease, his or her predicted expenditures will be much higher.

Second, the CMS-HCC model is "well calibrated" across the wide range of predicted expenditures. That is, actual expenditures correspond well to predicted expenditures across the range of predictions, or, equivalently, the predictive ratios are fairly close to one. For example, the first decile of predicted expenditures for congestive heart failure (Table 3-8) is $6,938 and actual expenditures are $7,058. The top 1 percent of predicted expenditures is $59,805 and actual expenditures are $64,130. These numbers show that the model is doing well at distinguishing more expensive from less expensive beneficiaries with congestive heart failure, a predicted and actual cost range of 9 to 1.

Prior Year Hospitalizations

Table 3-13 shows predictive ratios by number of prior year (2004) beneficiary hospitalizations. Model prediction is good for beneficiaries with 0, 1, or 2 hospitalizations. But the model underpredicts expenditures by about 18 percent for the 2.8 percent of beneficiaries with 3 or more prior year hospitalizations.

Chronic Condition Special Needs Plan (C-SNP) Diagnoses

The next set of tables show predictive ratios for disease categories corresponding to the 15 SNP-specific chronic conditions that meet the definition of severe or disabling. Predictive ratios discussed in this subsection were calculated on the 2004-2005 Medicare fee-for-service 5 percent sample of aged-disabled community continuing enrollees calibration dataset.

1) C-SNPs: Definitions and Predictive Ratios

Table 3-14 identifies the 15 SNP-specific chronic conditions and lists the validation group definitions. While the 2008 SNP Chronic Condition Panel identified these chronic conditions and eligible subcategories within them, it did not provide ICD-9-CM code-specific definitions for each condition. The groupings for these predictive ratios are approximations based on an analysis of the Version 12 CMS-HCC structure. They are done at the HCC level, rather than the at the diagnostic group or individual code level, and include combinations of payment HCCs and non-payment HCCs. HCCs identified as “approximate mapping” include both the targeted diagnoses as well as a subset of diagnoses that were not specified by the panel.

Table 3-15 shows predictive ratios for 14 of the 15 C-SNP conditions. (*SNP 9 End-stage renal disease requiring dialysis* is excluded because it corresponds to the ESRD continuing enrollee dialysis model.) The results show the predictive accuracy is quite good for most of the C-SNP categories. For those conditions defined only by complete payment HCCs, the predictive ratios of 1.0 confirm accurate prediction. *SNP 6 Dementia* had the greatest underprediction, about 14 percent. It is defined by a single HCC which is not included in the V12 payment model. Other C-SNP categories with predictive ratios of less than 1.0 are defined by a mix of payment and non-payment HCCs.

With the possible exception of dementia, the results show that health plans concentrating on these chronic conditions or combinations of these conditions would have risk adjustment of

their rates that is appropriate. A risk adjuster that accounts for both the conditions being focused on and a wide range of comorbidities works well for such atypical enrollee groups.

2) C-SNPs: Predicted expenditure deciles and percentiles

Table 3-16 shows predictive ratios for deciles of predicted expenditures for the 14 C-SNP categories presented in Table 3-15. These results are consistent with those presented in the earlier chronic disease discussion (Tables 3-7 through 3-12). The CMS-HCC model predicts a wide range of expenditures for beneficiaries with these C-SNP conditions. As was noted earlier, the expenditure predictions differ because the disease severity and burden of coexisting conditions, comorbidities, and complications varies widely, even among beneficiaries with these severe or disabling chronic conditions. For example, a beneficiary within *SNP 1 Chronic alcohol and other drug dependence* could be diagnosed with alcohol dependence only, and his or her expenditure prediction would be relatively low. Another beneficiary in that same SNP 1 category could have diagnoses for alcohol psychoses, drug psychoses, schizophrenia, hepatitis, and liver failure, and his or her predicted expenditures would be much higher.

For many of these C-SNP categories, the CMS-HCC model is "well calibrated" across the wide range of predicted expenditures. That is, actual expenditures correspond well to predicted expenditures across the range of predictions, or, equivalently, the predictive ratios are fairly close to 1.0. For example, for *SNP 1 Chronic alcohol and other drug dependence,* the first decile of predicted expenditures is $6,291 and actual expenditures are $6,172. The top 1 percent of predicted expenditures is $65,760 and actual expenditures are $66,041. These numbers show that the model is doing well distinguishing more expensive from less expensive beneficiaries within this C-SNP category. Several of the C-SNP categories, such as *SNP 4 Cardiovascular disorders* and *SNP 14 Neurologic disorders*, underpredict for the lowest deciles, which is logical based on how they are defined. These C-SNP categories include non-payment HCCs in their definitions—at the lowest deciles there would be fewer payment-HCC comorbidities to be included in their predicted expenditures. This pattern is evident in the predictive ratios for *SNP 6 Dementia*. Although the dementia HCC is not included in the payment model, at the higher deciles the underprediction decreases as the CMS-HCC model picks up the predicted expenditures of the comorbidities.

3.1.2 Institutionalized Continuing Enrollees

This section discusses selected predictive ratios for institutionalized continuing enrollees. The predictive ratios in this section were calculated on the Medicare 2004-2005 100 percent sample of long-term institutionalized calibration dataset. This sample was also used for calibration of the demographic model.

Predicted Expenditure Deciles and Percentiles

Table 3-17 shows predictive ratios for validation groups defined by deciles and the top 5 and 1 percent of 2005 predicted beneficiary expenditures. Predictive ratios are shown for deciles and percentiles defined by predicted expenditures from both the CMS-HCC model and the demographic model. As seen from the table, the CMS-HCC model performs well when deciles/percentiles are sorted by its own predicted expenditures, as well as by the demographic model predicted expenditures. When sorted by the CMS-HCC model deciles/percentiles, the

results show that predictive accuracy is good across all deciles, with very slight overprediction in the middle set of deciles and significant underprediction only in the first decile. This brings attention to the model's ability to predict annualized expenditure in the lower range of predicted 2005 expenditure. Beneficiaries with low predicted expenditures tend to have zero payment HCCs, placing much explanatory burden on demographic factors, thus impacting the accuracy of prediction. Predictive accuracy for the top 5 percent and 1 percent is very good, indicating strong model performance at higher predicted expenditure levels.

Comparatively, the demographic model only performs well on its own predictions, and poorly when deciles/percentiles are sorted on CMS-HCC predicted expenditures. It is reassuring that both models predict well for the demographic model-predicted deciles, though this is expected since both models include demographic factors. Only the CMS-HCC model performs well in both scenarios. Thus, the CMS-HCC model incorporates most of the information in the previous demographic model, while adding new predictive information not captured by the demographic model.

Number of HCCs

Table 3-18 shows predictive ratios based on the number of payment HCCs assigned to each beneficiary. Due to the fact that the CMS-HCC model is additive, a larger count of HCCs suggests a greater burden of disease. The results show that predictive accuracy is quite good across a range of number of payment HCCs, except for zero HCCs. This is due to the fact that when zero payment HCCs are present, the expenditure prediction is based solely on demographic factors, preventing an accurate prediction. Once HCCs are incorporated (any count above zero), predictive accuracy is near perfect.

Chronic Disease HCC Groups: Individual and Multiple Chronic Diseases

Table 3-19 shows predictive ratios for selected groups of HCCs that together comprise a single serious chronic condition that is common in the Medicare population. For example, Renal Disease (RENAL) would include HCCs 130-132: dialysis status, renal failure, and nephritis. As seen in the table, all predictive ratios are 1.0 except for a few that are just above or below 1.0. These slight digressions are due in large part to the presence of HCCs not included in the payment model within these groups. For example, with Coronary Artery Disease (CAD), 1 of the 4 included HCCs is not in the payment model, decreasing predictive accuracy. The results show that overall, the CMS-HCC model predicts accurately for beneficiaries with individual major chronic conditions common in the Medicare population. In the institutional population, in contrast to the community population, CMS-HCC model predictive ratios are close to 1.0 for beneficiaries with dementia, even though dementia is not included in the V12 CMS-HCC model. The V12 CMS-HCC model for the institutionalized predicts spending for beneficiaries with dementia well, even without explicitly including dementia, because a large proportion of institutionalized beneficiaries have dementia. These beneficiaries are typical for the institutionalized population, and the institutional CMS-HCC model predicts the average expenditures of the institutionalized well. In contrast, beneficiaries with dementia are rare in the community population, and without the inclusion of dementia, the community CMS-HCC model does not predict the extra spending associated with a diagnosis of dementia in the community setting particularly well.

3.1.3 New Medicare Enrollees

All predictive ratios discussed in this section were calculated on the Medicare 2004-2005 5 percent sample calibration dataset for new Medicare enrollees (V12). See Section 2.7.2 for information on the new enrollee segment of the CMS-HCC model. About 12 percent of the modeling sample comprises true new enrollees, meaning those who are new to Medicare and those who are entitled to Medicare but have not enrolled in Part B. The tables in this section present predictive ratios for only the true new enrollee subsample. These predictive ratios are limited in that the new enrollee model is a demographic model only. There is no expectation that the new enrollee demographic model will predict well for domains outside the demographic groups as there is no clinical content in the model.

True New Enrollee Subsample: Demographic Groups

Table 3-20 shows predictive ratios for the true new enrollee subsample's demographic characteristics. As would be expected when profiling a small proportion of the modeling sample, these predictive ratios differ from 1.0 for nearly all groups. The beneficiary counts demonstrate how the true new enrollee population is concentrated at age 65. Because many of the new enrollee groups are quite small, their predictive ratios may be randomly or systematically different from 1.0.

True New Enrollee Subsample: Predicted Expenditure Deciles

Table 3-21 shows predictive ratios for deciles and top percentiles of predicted expenditures for the true new enrollee subsample. The results show predictive accuracy is good at most levels, with slight underprediction at the lowest decile and slight overprediction in some of the mid-level deciles.

3.2 Comparison of CMS-HCC Model V12 and V21

This section compares the performance of the CMS-HCC model V12 to the clinically-revised V21 of the model. Two types of statistics are presented. Section 3.2.1 presents R-squared, or R^2, statistics, which are defined as the percentage of variance in individual expenditures explained by the model. The R-squared statistic summarizes the ability of the models to explain variation in annual expenditures (Medicare payments) among individual beneficiaries. Section 3.2.2 presents predictive ratios for the model, and the ratio of mean predicted to mean actual expenditures for subgroups of beneficiaries. Predictive ratios measure the mean accuracy of the model in predicting expenditures for groups of beneficiaries.

3.2.1 Percentage of Variation in Expenditures Explained (R^2)

Table 3-22 shows the R^2 statistic for revised (Version 21, or V21) versus the current (Version 12, or V12) CMS-HCC models, by model segment. The revised model R^2s are higher for all sub-models. The increase in R^2 could be due to two factors. The first is improvements in the model. Several HCC diagnostic categories were added to the V21 payment model, notably dementia. Distinguishing between beneficiaries with and without these conditions raises the model's explanatory power. Also, the diagnoses assigned to the existing payment HCCs were refined. The model's Medicaid indicator was improved through the use of the CME "MMA state files" (rather than the Denominator file "state buy-in indicator"), resulting in the identification of

additional Medicaid-enrolled beneficiaries, who have higher average expenditures. This change in the Medicaid variable presumably plays the major role in explaining the increase in the R^2 of the new enrollees model, which does not include diagnoses.

The second factor raising the R^2s is the secular increase in the completeness of diagnostic coding, which has raised model R^2s over time, even when the same model is estimated on newer data. The revised model R^2s were estimated on 2006-2007 data, whereas the previous model R^2s were estimated on 2004-2005 data. Newer data may be particularly important in explaining the large increase in the R^2 of the ESRD dialysis model; the earlier version of that model was estimated on 2002-2003 data.

3.2.2 Predictive Ratios

Predictive ratios were compared between the V12 and V21 CMS-HCC models for the aged-disabled community continuing enrollee population. (Comparisons were made for the institutional or the new enrollee populations.) The predictive ratio comparisons are made between the V12 CMS-HCC models estimated on 2004-2005 data (the calibration dataset for the V12 CMS-HCC model), and the V21 CMS-HCC model estimated on 2006-2007 data (the calibration dataset for the V21 CMS-HCC model).

Demographic groups

Table 3-23 shows predictive ratios by demographic group. All the predictive ratios for demographic groups are 1.0 for both models, indicating exact prediction (on the calibration sample). This is expected because age, sex, Medicaid enrollment, and originally disabled status are included in all of these models.

Predicted expenditures deciles and percentiles

As shown in Table 3-24, the predictive ratios for predicted expenditure deciles and percentiles are similar between the V12 and V21 CMS-HCC models. The V12 model is slightly better calibrated for the low deciles of predicted expenditures, while the V21 model is slightly better calibrated for the highest deciles and percentiles of predicted expenditures.

Number of HCCs

Table 3-25 shows that the V21 CMS-HCC model predicts slightly more accurately by number of payment HCCs. The difference is greatest for 10 or more payment HCCs, where the V21 model's predicted costs are 95.2 percent of actual costs, whereas the V12 model's predicted costs are 92.8 percent of actual costs. This indicates some improvement in predictive accuracy among beneficiaries with the greatest burden of disease as measured by large numbers of HCCs.

Chronic Disease HCC Groups

Table 3-26 shows predictive ratios for HCC chronic disease groups, which are single or multiple HCCs that together define a single, major chronic disease such as diabetes or congestive heart failure. The predictive ratios are essentially the same for all conditions except for dementia. Spending for beneficiaries with dementia is significantly underpredicted by the V12 CMS-HCC model but is predicted accurately by the V21 CMS-HCC model. This reflects the addition of dementia to the payment HCCs of the V21 model.

Predicted Expenditure Deciles and Percentiles for Chronic Disease HCC Groups

Tables 3-27 through 3-32 show predictive ratios for deciles and percentiles for specific chronic disorders as represented by HCC groups. The V12 and V21 CMS-HCC model predictive ratios are generally quite similar. There are slight differences from disease to disease, but no strong patterns or differences between the models emerge across these tables.

Prior Year Hospitalizations

Table 3-33 shows predictive ratios by count of prior year hospital discharges. The V21 CMS-HCC model predictive ratios are slightly more accurate across these groups. For example, the V21 model's predicted costs are 83.1 percent of actual costs for beneficiaries with 3 or more prior year hospital discharges while the V12 model's predicted cost for these beneficiaries are 82.1 percent of actual costs. We note that beneficiaries with 3 or more hospitalizations comprise fewer than 3% of the population, while those with zero hospitalizations comprise 81% of the population. If MA plans enroll beneficiaries that experience anything close to the range of hospitalizations in the population, their risk will average out.

Body Systems/Disease Groups

The next set of comparison tables show predictive ratios for body system or disease group categories within the CMS-HCC payment models. These are clusters of related HCCs, as is shown in Table 3-34, which identifies the validation group definitions. These tables are designed to make comparisons by body system/disease group between the Version 12 model (2004-2005 data) and the clinically-revised and recalibrated Version 21 model (2006-2007 data). With the exception of the Version 12 Cognitive group, which relates to dementia, all groups are fully defined by payment HCCs only.

Table 3-35 presents the predictive ratios for the 26 categories. The predictive ratios for both sets, except V12 cognitive, are nearly identical to 1.0, as would be expected. The slight variations from perfect prediction are due to hierarchy structures within the individual categories. Significant differences in numbers of beneficiaries between the two versions help identify categories that were reconfigured in the clinically-revised model. For example, the Metabolic category, which in V12 is composed of a single payment HCC (HCC 21 Protein-Calorie Malnutrition), includes three HCCs in the V21 model (HCC 21 Protein-Calorie Malnutrition, HCC 22 Morbid Obesity, and HCC 23 Other Significant Endocrine and Metabolic Disorders).

Table 3-36 presents predictive ratios for deciles and top percentiles of predicted expenditures for the 26 categories. With the exception of the Cognitive category (dementia), which was previously discussed, there is no systematic pattern of differences between the two versions. Both the V12 and V21 versions of the CMS-HCC model predict a wide range of expenditures from the first to the tenth deciles. Most predictive ratios are relatively close to 1.0. In some cases, the categories with multiple deciles indicating over-prediction or under-prediction greater than 10 percent are those with small sample sizes.

Chronic Condition Special Needs Plan (C-SNP) Diagnoses

The next set of tables compares Version 12 (2004-2005 data) and Version 21 (2006-2007 data) predictive ratios for the C-SNP diagnoses described previously in section 3.1.1. Predictive

ratios discussed in this subsection were calculated on the Medicare fee-for-service 5 percent sample of aged-disabled community continuing enrollees calibration datasets, with the exception of *SNP 9 End-stage renal disease requiring dialysis*. For V21 only, SNP 9 was calculated on the 2006-2007 Medicare fee-for-service 100 percent sample of ESRD dialysis continuing enrollees calibration dataset. It is important to keep in mind these differences in samples when looking at the number of beneficiaries—only SNP 9 has 100 percent beneficiary counts, the other C-SNP categories have 5 percent counts.

Table 3-37 identifies the 15 C-SNP conditions and the validation group definitions for the V12 and V21 CMS-HCC models. The validation group definitions are comparable, but not exact matches. The V12 C-SNP set uses complete HCCs only, both payment and non-payment, and thus is broader in its definitions. The V12 validation group definitions were created for other analyses which permitted only complete HCCs. The V21 C-SNP set did not have the complete HCC restriction. It includes combinations of complete payment HCCs and non-payment HCCs, as well as subsets of HCCs when appropriate.

Table 3-38 presents V12 and V21 predictive ratios for the 15 C-SNP conditions. The results show the predictive accuracy is quite good for both versions of the CMS-HCC model. For those conditions defined by complete payment HCCs, the predictive ratios of 1.0 confirm accurate prediction. C-SNPs that are underpredicted, such as *SNP 14 Neurological disorders,* include diagnoses that are part of non-payment model HCCs.

Table 3-39 compares V12 and V21 predictive ratios for deciles of predicted expenditures for the 15 C-SNP categories. These results are consistent with those presented in the earlier chronic disease discussions. For most of these 15 C-SNP categories, the CMS-HCC model (or the ESRD Dialysis model) is "well calibrated" across the wide range of predicted expenditures. The V21 set of predicted ratios for *SNP 9 End-stage renal disease requiring dialysis* illustrate why a separate model is needed for dialysis (much higher expenditures) and that the ESRD dialysis continuing enrollee model does predict accurately, even for the top 1 percent. For the most part, comparisons across the two versions do not reveal systematic differences. As expected, *SNP 6 Dementia* has much better predictive ratios in V21 where it is defined by payment model HCCs. The C-SNP conditions that include diagnoses outside of the payment model, for example *SNP 4 Cardiovascular disorders* and *SNP 14 Neurologic disorders*, underpredict in both V12 and V21 for the lowest deciles. *SNP 8 End-stage liver disease* is the only C-SNP category with great variability in its predictive ratios and no logical pattern in that variability. Small sample size limits the model's predictive ability for this C-SNP in both V12 and V21. Presumably, no actual special needs plan would have a pool of potential enrollees large enough to support offering an "end-stage liver disease"-only C-SNP.

A PUBLIC POLICY PRACTICE NOTE

Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program

March 2008

American Academy of Actuaries'
Actuarial Equivalence PDP/MA-PD Practice Note Work Group

American Academy of Actuaries

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Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program

March 2008

Developed by the

American Academy of Actuaries'
Actuarial Equivalence PDP/MA-PD Practice Note Work Group

This practice note was prepared by the AE PDP/MA-PD practice note work group organized by the Health Practice Council of the American Academy of Actuaries. The work group was asked to:

- Review the regulations from Centers for Medicare & Medicaid Services (CMS) that require certification by an Academy member that a prescription drug plan (PDP) or a Medicare Advantage prescription drug plan (MA-PD) meets the actuarial equivalence standard; and

- Publish a practice note addressing the procedural and professional aspects of the certification.

coverage between the deductible and the ICL and above the catastrophic threshold to the effective coinsurance of the proposed plan. If the difference in the effective coinsurance between the two plans is below a threshold percentage specified by CMS, the proposed plan is deemed to be actuarially equivalent.

However, the actuarial equivalence tests for the second plan type, alternative plans, are quite different. The MMA and associated regulatory guidance contain five detailed tests, which must be met for a Part D plan design to qualify as an alternative plan. These tests are addressed in detail in the methodology section.

The actuarial equivalence tests for alternative coverage are designed to consider several perspectives, rather than to be an overall test of relative average costs of one plan design over another. These tests ensure that not only is the overall cost of the selected plan design similar to the defined standard coverage, but that certain additional safeguards are maintained:

- Beneficiaries are protected from any plan design that would substantially reduce coverage for beneficiaries with very high or very low annual drug spending.
- The Medicare program is protected in two ways. First, by testing the overall cost of the alternative plan design and requiring that any "excess" benefits be funded by beneficiary premiums (or application of MA rebate money[1]). Second, the methodology restricts the pricing variables that may differ between estimating the cost for the defined standard coverage versus the alternative benefit. This includes the requirement that the Medicare program not fund the cost of any additional utilization due to plan design.
- Basic alternative design changes are constrained by the equivalence tests. This restricts the range of permissible "basic" plan designs to a subset of all the possible designs that would be actuarially equivalent to the defined plan (e.g., a basic plan that trades reduced benefits below the initial coverage limit in exchange for partial benefits in the coverage gap would not be permissible). It may also have the effect of promoting *price* competition among actuarially equivalent plans, rather than *benefit* competition.

Actuarial equivalence tests are performed using the expected utilization under the defined standard and each alternative plan design. If the proposed plan is expected to lower costs due to plan design (e.g., generic/brand co-payment differences that encourage additional generic usage), total claims would be reduced and the benefits would need to be enriched in order to meet the actuarial equivalence test. Conversely, if the proposed plan is expected to increase costs due to plan design (e.g., no upfront deductible and low co-payments that encourage increased utilization), total claims would be increased and the benefits would need to be reduced in order to meet the actuarial equivalence test.

It also cannot be assumed that the actuarial equivalence tests guarantee that there will be no differences between actual emerging costs and the assumptions used in the estimation of those costs. The use of the word "equivalence" in an actuarial context implies a misleading sense of theoretical precision. Actuarial analysis is inherently an estimation exercise and hence is somewhat inexact. There will be issues with the data sources used, the projection methodologies, and other elements that mean any result of actuarial analysis is inherently an estimate rather than a precise number. Pharmacy costs are influenced by the introduction of new technology (e.g., new medicines) and rapid changes in prices (e.g., as patents expire and generic competitors become feasible). The combination of target population, benefit design, formulary, and new technology etc., has an interactive effect on the ultimate unit cost and utilization level. The effect due to a single influencing factor cannot be precisely measured in isolation.

[1] The MA rebate under Medicare Part C equals 75 percent of the excess of the benchmark over the sponsor's bid, both at the expected risk profile. MA rebate amounts must be returned to members in one or more of the following ways: reduced A/B cost sharing, other A/B mandatory supplemental benefits, reduced Part B premium, reduced basic or supplemental Part D premiums.

MARCH 2016

REPORT TO THE CONGRESS

Medicare Payment Policy

MEDPAC Medicare Payment Advisory Commission

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TABLE 12-7 **Effects of eliminating both benchmark caps and double quality bonuses**

	Payment quartile based on FFS spending				
	All	115 percent	107.5 percent	100 percent	95 percent
Benchmark increases from eliminating caps (in millions)	$821	$315	$394	$110	$2
Benchmark decreases from eliminating double quality bonuses (in millions)	–$1,018	–$349	–$321	–$347	$0
Net change in benchmarks (in millions)	–$197	–$34	$73	–$237	$2

Note: FFS (fee-for-service). The changes in this table relate to benchmarks, not payments. Payments are determined both by benchmarks and bids. The 115 percent quartile is the lowest spending quartile, and the 95 percent quartile is the highest spending quartile.

Source: CMS Medicare Advantage rate calculation data, April 2015; CMS plan enrollment data, February 2015.

RECOMMENDATION 12-1

The Congress should eliminate the cap on benchmark amounts and the doubling of the quality increases in specified counties.

RATIONALE 12-1

Current law contains two special adjustments to the county benchmarks that make the benchmarks inequitable across counties. These adjustments are based on older, inequitable, administratively set payments. Both of these adjustments affect benchmarks primarily for high-quality plans and often offset one another. Eliminating both the cap on benchmarks and the doubling of quality increases would make the benchmark-setting process simpler and more equitable, while leaving overall payments at roughly the same level. There would be a reduction of roughly 0.1 percent of MA program spending.

IMPLICATIONS 12-1

Spending

- Our recommendation—to eliminate the Section 1853(n)(4) cap on benchmark amounts that limits benchmarks and to eliminate the doubling of the quality increases in specified counties that increases benchmarks—would decrease federal program spending relative to current law by between $50 million and $250 million over one year and between $1 billion and $5 billion over five years.

Beneficiary and provider

- We expect some redistribution of plan payments; some plans, depending on the mix of counties they serve, would see increased payments and some would see decreased payments. As a result, plans may find some markets more or less attractive than they are under current law. Also, plans may have a new incentive to improve quality in previously capped counties. Beneficiary access to plans thus may increase or decrease based on plan reactions to the new benchmarks.

  The effects are expected to be small for most plans; plans subject to larger impacts are expected to account for a small share of enrollment. To the extent that the Congress finds it necessary, implementation of these benchmark changes could be transitioned over two years.

MA risk adjustment and coding intensity adjustment

Medicare calculates its payment to plans separately for each beneficiary, multiplying the plan's payment rate by the beneficiary's risk score. The risk scores are based on diagnoses that providers coded during the year before the payment year. The diagnoses are reported to Medicare through claims for Medicare FFS beneficiaries or by the plans for MA enrollees. To receive the maximum payment, plans have an incentive to ensure that the providers serving the beneficiary record all diagnoses completely.

Recent research has found that risk scores for MA plan members have been growing more rapidly than risk scores for FFS beneficiaries (Kronick and Welch 2014). Thus, as mandated by the Deficit Reduction Act of 2005, CMS has been making across-the-board adjustments to

TABLE 12-8 **Effect of eliminating caps and double bonuses on organizations and enrollees, 2016**

	Number of organizations	Number of enrollees (in millions)
All organizations	182	17.288
Payments decreased by:		
2.0% or more	9	0.304
1.5% to 2.0%	13	0.706
1.0% to 1.5%	10	0.564
0.5% to 1.0%	8	0.383
Payment change less than 0.5%	115	14.375
Payments increased by:		
0.5% to 1.0%	14	0.697
1.0% to 1.5%	4	0.038
1.5% to 2.0%	4	0.101
2.0% or more	5	0.120

Source: MedPAC analysis of 2016 Medicare Advantage bid data and benchmark data from CMS.

the risk scores. Taking into account multiple years of coding differences, CMS reduced risk scores by 3.41 percent in each year from 2010 through 2013. PPACA specifies minimum reductions for 2014 and all future years, although CMS has discretion to make larger reductions. The Government Accountability Office found that CMS should make larger reductions to fully account for the coding differences (Government Accountability Office 2013). The American Taxpayer Relief Act of 2013 increased the minimum reductions that CMS must make in the scores. By law, the mandated reductions will end once CMS begins risk modeling based on MA diagnoses and expenditures rather than on the FFS diagnoses and expenditures supporting the current model. For 2016, CMS has chosen to reduce risk scores by 5.41 percent, the minimum reduction under current law. The law specifies that the minimum reduction rises by 0.25 percentage point each year until 2018, when it would reach 5.9 percent. The minimum reduction would remain 5.9 percent for 2019 and each subsequent year.

Last year, the Commission began its own analysis of coding differences between beneficiaries in FFS Medicare and those enrolled in MA plans. To test whether beneficiary risk scores grew faster in MA than in FFS, we used beneficiary risk scores and enrollment data from 2006 through 2013. We built cohorts of beneficiaries whose first full calendar year was spent in FFS and whose second and all subsequent full calendar years (through 2013) were spent entirely in either FFS or MA. For example, one cohort consisted of those beneficiaries whose first full year in Medicare was 2006, who were in FFS for all of 2006, and who either remained exclusively in FFS through 2013 or switched into MA in January 2007 and remained in MA through 2013. We examined the 2006 cohort and all the cohorts whose first full years in Medicare were in FFS in 2007 through 2011. Thus, all beneficiaries had an initial risk score that reflected their year in the FFS program, and the differences in the growth of their risk scores can be attributed primarily to the program in which they were coded. In this analysis, we found:

- Beneficiaries who spent their first calendar year in FFS and then switched to MA had entry risk scores that were 84 percent to 87 percent of those who remained in FFS, for each MA entry year from 2007 to 2012. In other words, beneficiaries enrolling in MA start out with lower risk scores than the average risk scores of beneficiaries remaining in FFS Medicare.
- The ratio of the average MA risk score to the average FFS Medicare risk score grew for every additional year of enrollment in MA.
- The ratio of the average MA risk score to the average FFS Medicare risk score during the first year of enrollment in MA increased by at least 6 percent.

- After the first year, the ratio of the average MA risk score to the average FFS Medicare risk score tended to increase by about 2 percent for each year the beneficiaries remained in MA.

While this analysis showed compelling evidence that a coding difference exists between beneficiaries in FFS Medicare and MA and that the difference grows over time, it did not tell us the level of the overall difference, which we would need to evaluate in order to determine whether the statutory coding adjustment seems adequate. To address the issue this year, we built cohorts of 2014 MA enrollees based on how long they had been continuously enrolled. We then compared the MA enrollees with FFS Medicare beneficiaries who had spent the same amount of continuous time in FFS. In this analysis, we found:

- The cohorts who had remained in MA longer had more growth in risk scores than their contemporaries who had remained in FFS.
- The MA enrollees who had been enrolled exclusively in MA in 2012, 2013, and 2014 had risk-score growth about 4 percent higher than beneficiaries who exclusively had FFS Medicare coverage for those three years, while the difference for those enrolled continuously during the eight years from 2006 to 2014 was about 16 percent.
- When weighted by the number of people in each continuous enrollment cohort, risk scores among the 2014 MA population had grown about 9 percent more than among the FFS population. Last year, this same analysis found that risk scores grew about 8 percent more among the 2013 MA population than among the FFS population.

Together, these analyses show that, because of coding practices, beneficiaries in MA plans will have higher risk scores than they would have had if they had remained in FFS. Further, those differences in coding are larger than the current (2016) 5.41 percent coding adjustment mandated by law. One possible source of coding differences is from the use of health risk assessments (HRAs) and the incorporation of diagnoses documented on HRAs in risk adjustment. We discuss this issue and present some analysis in the following section.

CMS has taken a step to help control the increased coding in MA. Beginning in 2014, CMS phased in a new CMS–hierarchical condition category (CMS–HCC) model. This new model reduces risk scores for some diagnoses and increases scores for others, relative to the old model. CMS acknowledges that scores are lower for diagnoses that are suspected of being more aggressively coded in MA plans. Our analysis, and analysis from other researchers, suggests that the impact of fully implementing this new CMS–HCC model would reduce MA risk scores by about 2 percent to 3 percent compared with the old model. Taking this analysis into account, we continue to find that the coding difference has been growing over time and will undoubtedly be greater by the time policy adjustments can be made.

Medicare Advantage risk adjustment

Medicare payments to MA organizations are adjusted to account for differences in beneficiary medical costs through the CMS–HCC model. The model uses demographic information and certain diagnoses grouped into HCCs to calculate a risk score for each enrollee, such that higher risk scores generate higher payments for beneficiaries with higher expected expenditures. CMS designed this risk adjustment model to maximize its ability to predict annual medical expenditures for Medicare beneficiaries. Therefore, in developing the model, CMS used statistical analyses to select certain HCCs for inclusion in the model based on each HCC's ability to predict annual Medicare expenditures, ensuring that diagnostic categories included were clinically meaningful and were specific enough to minimize inappropriate manipulation or discretionary coding (Pope et al. 2004).[6] As a result, CMS determined that only diagnoses resulting from a hospital inpatient stay, hospital outpatient visit, or a face-to-face visit with a physician or other health care professional were acceptable for determining payment through the risk adjustment model, though there are a few exceptions. Other possible sources of diagnoses, such as home health, nursing facility, ambulatory surgery, durable medical equipment, and hospice services, are not used to determine payment through the risk adjustment model due to concerns about the reliability of the diagnoses and concerns that adding diagnoses from these sources did not improve the model's ability to predict medical expenditures.

Diagnostic data in the CMS–HCC model are used prospectively, meaning that diagnoses collected during one calendar year are used to predict Medicare costs for the following calendar year. A particular diagnosis code needs to be submitted only once during the data collection year for the related HCC to be included in an enrollee's risk score in the following payment year. Multiple submissions of the same diagnosis code and submissions of different

diagnosis codes that are grouped in the same HCC do not have an effect on an enrollee's risk score.

Each demographic and HCC factor used to determine MA payment has a coefficient that represents the expected medical expenditures associated with that component. These coefficients are estimated based on Medicare FFS data. Medicare payment for a particular enrollee is equal to the sum of the dollar-value coefficients for all components identified for that enrollee. For example, annual Medicare payment to an MA organization in 2013 for an 84-year-old male ($4,808) with congestive heart failure ($3,116) would have been $7,924, which is the sum of the two relevant model components. Identifying an additional HCC for an enrollee can significantly increase the Medicare payment. If the same 84-year-old male with known congestive heart failure is also found to have polyneuropathy ($2,890), the Medicare payment to the MA organization would increase from $7,924 to $10,814. This $2,890 increase represents 32 percent of the annual Medicare reimbursement for an enrollee with average expenditures, which in 2013 was $9,005. The annual increase in 2013 payments to MA organizations for most HCCs when newly identified for an MA enrollee was between $1,000 and $5,000, and was $10,000 or more for some HCCs.

Health risk assessments in Medicare Advantage

HRAs are a preventive care tool used to identify health risks and evaluate patients for the presence of disease or disability. PPACA requires that an HRA be administered as part of Medicare's annual wellness visit (AWV), during which it is paired with patient counseling about relevant health risks and referrals for follow-up care. HRAs focus on patient behaviors, medical history, and current physical health and disease status. Information about exercise habits, diet, living condition, and chronic disease is collected through a patient interview or questionnaire, medical history review, physical examination, or biometric testing or screening. This information can be helpful in identifying gaps in care, and when administered in conjunction with appropriate feedback and with connection to available resources, HRAs play an integral role in engaging patients in their own health management and decision making. For MA plans, HRAs are often the basis for developing a plan of care for a particular enrollee.

In Medicare FFS, HRAs are covered only through an AWV, which can be initiated by a beneficiary or his or her primary care provider. In MA, HRAs are covered through an AWV; however, many plans take a more active approach to patient care and have reached out to initiate care planning by offering an HRA to enrollees. One implication of this approach is that in MA, HRAs are frequently initiated by MA organizations, through either a third-party vendor or through an MA organization's own program. Most HRAs are administered during a visit to an enrollee's home, which typically lasts about an hour and is often conducted by a nurse practitioner. A home visit may include reviewing a patient's self-reported medical history, measuring vital signs, conducting blood or urine tests, reviewing medications, and assessing the risks present in a patient's home. Although HRAs have been administered to Medicare beneficiaries for several years, MA organizations and third-party vendors have been providing an increasing number in recent years. Our analysis of MA encounter data shows that the number of HRAs administered increased from 2.3 million in 2012 to 3.4 million in 2013, an increase of nearly 50 percent.[7]

The Commission strongly supports the use of HRAs in any setting for care planning and coordination. Ideally, all health conditions identified through HRAs would be addressed in a plan of care and needed education or advice would be provided to support a beneficiary's engagement in his or her health management.

Impact of health risk assessments on Medicare Advantage risk adjustment

In current payment policy, diagnoses generated from HRA documentation are used in risk-adjusted payment, regardless of whether follow-up care is provided for those conditions. If conditions are documented without services being provided to treat the condition, current policy may result in increased payments to MA organizations by an amount that is greater than the benefit provided to Medicare beneficiaries. The Commission is concerned that this policy may incentivize inappropriate use of HRAs and has considered whether payment for conditions newly identified through an HRA should be made when treatment or other care is not provided for those conditions. Consequently, the Commission has questioned whether HRAs alone should be used to determine the prevalence of a diagnosis for payment increases through the HCC risk adjustment system. Given that the cost of providing an HRA is significantly less than the potential increase in Medicare payment if an additional HCC is discovered, there is a strong incentive for plans to conduct HRAs. Instead of current policy, the Commission considered requiring some documentation of the condition

TABLE 12–9 **HRA-only HCC frequency, 2012, and payment increase, 2013**

HCC number and name		HRA-only HCC frequency	Increase in 2013 payment per HCC	Total increase in 2013 payment
71	Polyneuropathy	105,315	$2,890	$304,412,233
105	Vascular disease[a]	86,995	2,719	236,574,577
16	Diabetes with neurologic or other specified manifestation[a,b]	73,453	3,341	245,386,284
55	Major depressive, bipolar, and paranoid disorders[a]	63,870	3,242	207,045,718
83	Angina pectoris/Old myocardial infarction[a,b]	56,522	1,531	86,523,341
108	Chronic obstructive pulmonary disease[a,b]	52,502	3,062	160,739,126
15	Diabetes with renal or peripheral circulatory manifestation[b]	50,759	3,341	169,571,868
80	Congestive heart failure[b]	42,146	3,116	131,310,453
131	Renal failure[a,b]	29,533	2,674	78,982,496
18	Diabetes with ophthalmologic or unspecified manifestation[a,b]	24,473	3,341	81,757,567
19	Diabetes without complication[a,b]	23,667	1,144	27,065,358
38	Rheumatoid arthritis and inflammatory connective tissue disease	15,219	3,251	49,472,078
92	Specified heart arrhythmias	14,064	2,602	36,599,364
100	Hemiplegia/hemiparesis[a,b]	9,676	4,808	46,526,882
52	Drug/alcohol dependence[a]	9,592	3,359	32,216,981

Note: HRA (health risk assessment), HCC (hierarchical condition category). "HRA-only HCCs" are HCCs documented on an HRA that are not documented on any other encounter used for risk adjustment.
[a] These HCCs are part of a hierarchy such that the actual frequencies and payments when hierarchies are imposed may be lower than those identified in this table.
[b] These HCCs are also included in the model as part of one or more two- or three-way interaction terms with disability status or other HCCs. Any increase in payments to Medicare Advantage plans resulting from interaction terms indicated as a result of HRA or home evaluation and management visits is not included in this table.

Source: MedPAC analysis of Medicare Advantage encounter data, 2012; CMS Advance Notice for 2013 Medicare Advantage payment.

being treated through a physician or other health care professional or through an inpatient or outpatient encounter (i.e., an encounter used for MA payment) in addition to HRA documentation.

Using MA encounter data for 2012, we found that about 1.8 million HCCs were documented on an HRA, which is a little more than 1 HCC per person who received an HRA. Sixty-three percent of those HCCs were documented on another encounter during 2012 that was used to determine MA payment, but 37 percent were not documented during any other physician or other health care professional, inpatient, or outpatient encounter used to determine MA payment. Put differently, the majority of the time (63 percent), plans seem to be identifying conditions through an HRA and providing care to treat the condition. The Commission supports this use of assessments because related care was provided to enrollees. However, 37 percent of the time, conditions were documented on an HRA but had no other documentation showing that physician or other health professional, inpatient, or outpatient care was provided.[8] These "HRA-only" HCCs, documented during 2012, were associated with about $2.3 billion in Medicare payments to MA organizations in 2013. The number of HRA-only HCCs documented during 2013 increased by 10 percent or 17 percent over 2012, depending on which HCC model is used as the basis for the analysis.[9]

Our analysis found that HRA-only HCCs were more common for particular conditions. Fifteen HCCs accounted for 87 percent of all HRA-only HCCs. For each of these HCCs, Table 12-9 shows the HRA-only frequency in 2012 (that is, the number of enrollees for whom the HCC was documented on an HRA but not documented by another encounter used to determine MA payment), the increase in payment each time the HCC was newly identified, and the total 2013 Medicare payment associated with HRA-only documentations.

Some Commissioners raised concern about instances in which HRA-only HCCs were treated with services not covered by Medicare, which may not be captured in MA

encounter data. Such services may include various forms of telehealth, medication management by a pharmacist, or certain nutritional services. It is permissible for plans to provide services not covered by Medicare, but plans are not required to report such services through the CMS encounter data reporting system. In these cases, the concern is that, if HCCs originating only from HRAs are not considered when determining payment through the HCC risk adjustment system, then plans are being denied the revenue they need to provide these services. However, the key issue is that non-Medicare-covered services must be financed either by rebates paid by the Medicare program (for plans bidding below their benchmarks for Medicare Part A and Part B services) or through an additional premium, beyond the Part B premium, that plans are permitted to charge to beneficiaries. The HCC risk adjustment system determines the amount of revenue plans will receive for providing Medicare-covered services. Thus, removing HRA-only diagnoses from the HCC risk adjustment system would not deny plans the appropriate level of revenue for care provided using non-Medicare-covered services because plans must cover the cost of providing those services through their rebate and premium revenue. It is common for plans to provide a variety of non-Medicare-covered services, some of which are provided for the purpose of reducing the plans' expected cost of providing Medicare Part A and Part B services (e.g., preventive care that is not covered by Medicare but that may reduce utilization of other, Medicare-covered, services). As the overall cost of Medicare-covered services is reduced, MA plans may reduce their bid for Medicare-covered services and receive a larger rebate in the following year. With additional rebate funding, MA plans can provide additional services that may be designed to attract new enrollees.

The Commission supports MA service innovations that provide health care more efficiently than in Medicare FFS. However, the Commission is concerned that HRA-only HCCs are not properly addressed when no related encounters with a physician or other health care professional or in an inpatient or outpatient setting are provided. When such treatment (i.e., using only non-Medicare-covered services) is appropriate, the payment rate determined by HCCs may not be appropriate because it represents the amount required to cover treatment for the condition using Medicare-covered services.

The Commission has also considered whether HRAs may identify diagnoses for which follow-up care would not be expected. Such diagnoses include those identified by International Classification of Diseases, Ninth Revision (ICD–9) V codes, which describe factors influencing health status or contact with health services other than disease or injury, and ICD–9 E codes, for self-inflicted poisoning or injury. Seven HCCs can be identified with ICD–9 V codes (asymptomatic HIV, long-term insulin use, tracheostomy or respirator status, dialysis testing or catheter status, major organ transplant status, artificial opening for feeding or elimination, or amputated limb status), and one HCC can be identified by ICD–9 E codes.[10] Seven of these eight HCCs were indicated by a V or E code in 0.1 percent or less of MA and FFS AWVs. The V code for long-term insulin use was used to identify the diabetes without complication HCC on 1.4 percent of AWVs in MA, but it was almost never used to identify that HCC during AWVs in FFS. Given the small number of HCCs that can be identified by V or E codes and their minimal prevalence in AWVs, we do not believe such codes are a major factor in identifying HCCs through HRAs.

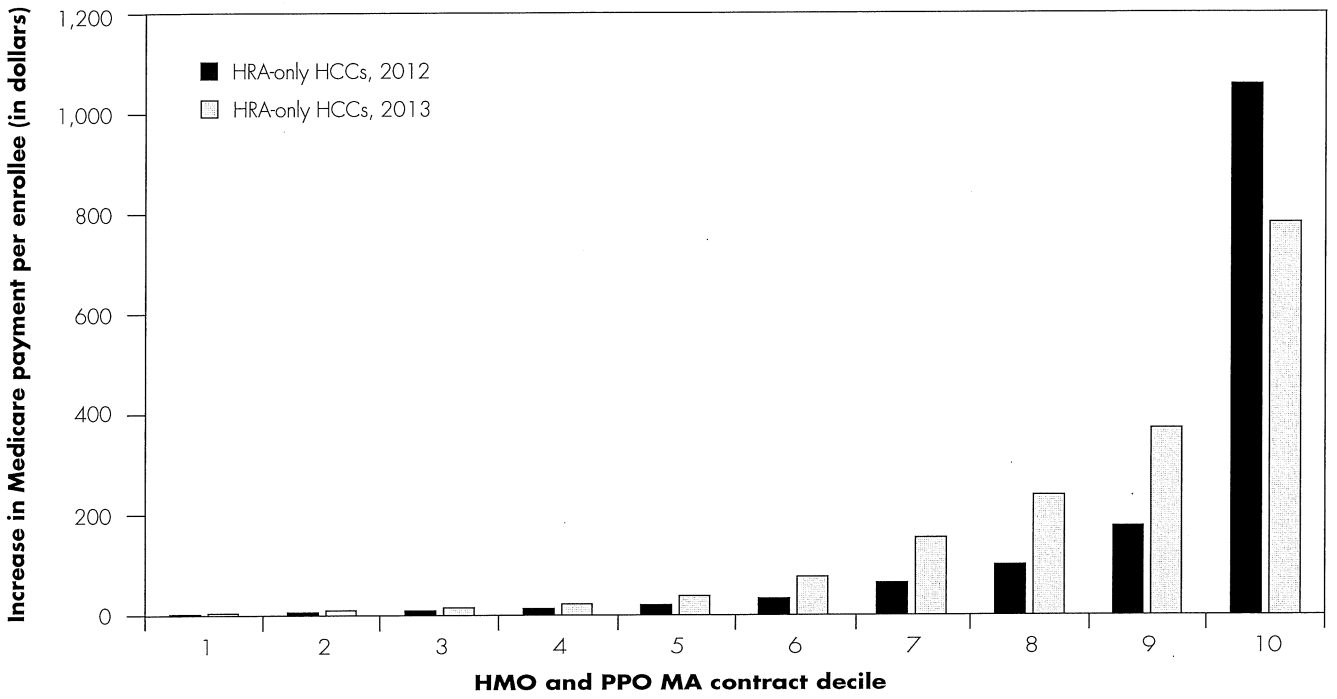
Finally, the number of HCCs identified through HRAs alone varies significantly across MA plans, as shown by our analysis of MA encounter data. For the HMO and PPO contracts with at least one HRA in 2012 or 2013, Figure 12-3 (p. 350) shows the average increase in annual Medicare payment per enrollee from HRA-only HCCs when these contracts are ranked into decile groups. Not all MA contracts received a significant source of revenue from HRA-only HCCs, though several contracts increased their revenue from HRA-only HCCs from 2012 to 2013, shown most prominently by increases in the sixth through ninth deciles when reading left to right. A small proportion of contracts generated substantial Medicare payments from HRA-only HCCs, shown in the highest decile. This decile included a few outlier contracts with very high HRA-only HCC revenue from 2012. Those contracts generally remained in the highest decile for 2013, but showed a reduction in revenue per enrollee from HRA-only HCCs to a level that was more in line with other contracts in that decile. To the extent that diagnoses are identified through HRAs more frequently by MA organizations than in Medicare FFS, these efforts contribute to overall differences in diagnostic coding between MA and Medicare FFS.

Concerns about health risk assessment diagnoses

The accuracy of the CMS–HCC risk adjustment model is ensured by the principles that diagnostic categories included in the model: (1) predict medical expenditures

FIGURE 12-3

Per enrollee increase in Medicare payment from HRA-only HCCs for MA contracts, by decile



Note: HRA (health risk assessment), HCC (hierarchical condition category), MA (Medicare Advantage), PPO (preferred provider organization). "HRA-only HCCs" are HCCs documented on an HRA that are not documented on any other encounter used for risk adjustment. The denominator in this analysis is total enrollment in each contract, not only those beneficiaries who received an HRA.

Source: MedPAC analysis of Medicare Advantage 2012 and 2013 encounter data.

and (2) are clinically meaningful and specific enough to minimize inappropriate manipulation or discretionary coding. However, these principles may be weakened by including diagnoses identified only through HRAs because the diagnoses are often based on enrollee self-reporting or cannot be accurately identified with equipment brought into an enrollee's home. That said, to the extent that diagnoses are accurate and follow-up care is not provided for what may be a significant chronic illness, the Commission is concerned that some plans may be acting unethically or diminishing the quality of care provided to MA enrollees. Finally, the financial incentives provided by identifying diagnoses through HRAs generate some concern about tactics used to recruit enrollees for in-home HRA visits. Anecdotal evidence from our focus groups (see text box on reactions to in-home health risk assessments) found that at least some MA enrollees experienced in-home visit recruitment to be uncomfortably aggressive. An additional anecdote from the Harvard Health Blog notes the financial incentives for plans to administer HRAs and some discomfort with the in-home visit offer, which, in the instance cited, included a gift card incentive for accepting (Merz 2015).[11]

CMS has also stated concern about the potential for HRAs to be used solely as a diagnosis-collection vehicle (Centers for Medicare & Medicaid Services 2014b, Centers for Medicare & Medicaid Services 2013a), and two whistleblower lawsuits add questions about the accuracy of diagnoses and related documentation collected during in-home HRA visits conducted by independent home visit vendors.

Despite those concerns, the Commission recognizes the value that HRAs provide when administered as part of a care plan that includes providing information to a beneficiary's primary care clinician and ensures that Medicare beneficiaries are provided necessary treatment

EXHIBIT 27

Medicare Advantage enrollees' reaction to in-home health risk assessments

This year, we conducted focus groups with Medicare beneficiaries in three cities across the country. Although the sample of Medicare Advantage (MA) enrollees was small, nearly all had received a phone call offering an in-home visit. Roughly half of those enrollees accepted the offer and found the experience pleasant, stating that it was nice to have an hour-long discussion with a nurse about their health. The other half said they received numerous calls offering an in-home visit and found the persistence aggravating or annoying. Some enrollees who declined the home visit offer said they were uncomfortable with the idea of a nurse visiting their home. Several enrollees said they were offered gift cards for $25 or $50 as an incentive to receive the home visit.

We also conducted focus groups with primary care physicians, who stated that they had received reports including results from these home visits for some of their patients but generally found them unhelpful because they often contained several pages of information that was already known or lacked context for their patient's care. Some primary care physicians noted that they would have appreciated information that was apparently not included in the reports they received—for example, information about their patient's living environment, including an assessment of fall risk, amount of food in the kitchen, and general cleanliness. One primary care physician, echoed by others, stated that he spent time ruling out diagnoses that were made incorrectly during a home visit and addressing the patient's concern and confusion caused by the misinformation. ■

or connection to resources. The Commission believes that many of the concerns described here would be alleviated if Medicare's payment policy required that follow-up treatment was provided for conditions that are newly identified through an HRA. If such a policy were implemented, the Commission would hope that the proper use of HRAs would grow for Medicare beneficiaries who may benefit.

Policies to address diagnostic coding differences

CMS's adjustment for coding differences does not account for the full impact of these differences, and as a result, Medicare payments to MA organizations on behalf of a particular enrollee are larger than Medicare would have made to providers had that same beneficiary been in Medicare FFS. Foremost, CMS should increase its adjustment for coding differences to fully account for the impact. Our analysis suggests that, in 2014, the total difference in risk scores due to prior coding differences was at least 6 percent. Assuming a moderate growth rate in coding difference that is supported by our analysis, the difference in 2017 could be 9 percent or higher, though we need more experience under the CMS–HCC model introduced in 2014 to more accurately estimate the impact of coding differences. In addition to accounting for the full impact of coding differences, CMS could use other policies that offer a more equitable adjustment across MA contracts than the across-the-board adjustment.

Exclude HRA-only diagnoses from risk adjustment One policy to address differences in MA and FFS coding intensity would be to remove HRAs as a source of diagnoses for risk adjustment, both from Medicare FFS diagnostic data when calibrating the model and from MA diagnostic data when calculating risk scores for payment. Our analysis shows that HRA-only HCCs are more common in MA than in Medicare FFS and vary in frequency across MA contracts. Therefore, a policy that excludes diagnoses found solely in HRAs from the risk score calculation would address some coding differences between MA and FFS; it would also be more equitable across MA contracts because contracts with more HRA-only HCCs would receive a larger effective adjustment, and vice versa. For example, we note that nearly all dual-eligible special needs plan (D–SNP) contracts made up of 50 percent or more dually eligible beneficiaries have a relatively low number of HRA-only HCCs, so that a policy removing HRA-only HCCs from risk adjustment would be beneficial to these contracts compared with an across-the-board coding adjustment with equivalent aggregate impact. CMS has twice proposed removing diagnoses from HRAs from risk adjustment but received

generally negative comments from the industry and has not implemented such a proposal (Centers for Medicare & Medicaid Services 2014c, Centers for Medicare & Medicaid Services 2013b). For 2016 payment, CMS provided guidance on best practices for providing in-home HRAs and stated that it would continue tracking care provided subsequent to a home visit (Centers for Medicare & Medicaid Services 2015a). Our analysis suggests that excluding diagnoses from HRAs for risk adjustment in 2017 would effectively reduce MA risk scores by roughly 2 percent to 3 percent relative to Medicare FFS and, thus, would reduce the need for an across-the-board coding intensity adjustment.

Use two years of diagnostic data for risk adjustment A second part of this policy addressing differences in MA and FFS coding intensity is based on our analysis presented in the June 2012 report to the Congress on improving the MA risk adjustment model (Medicare Payment Advisory Commission 2012). This analysis shows that using two years of FFS diagnostic data to estimate CMS–HCC model coefficients and using two years of MA diagnostic data to calculate MA risk scores would also decrease differences in MA and FFS coding intensity. Given that HCCs generally identify chronic conditions, conditions that are coded in one year and not the next often occur as a result of incomplete coding rather than a change in condition status. In addition to addressing some difference in coding intensity, using two years of data improves the completeness of chronic condition coding for both MA and Medicare FFS enrollees and slightly improves the predictive power of the risk adjustment model for enrollees with several chronic conditions. Our analysis of using two years of diagnostic data to estimate and calculate risk scores suggests that 2017 MA risk scores would effectively be reduced by 1 percent to 2 percent relative to Medicare FFS and, thus, would reduce the need for an across-the-board coding adjustment.

Apply across-the-board adjustment for remaining coding impact Both of these changes to the risk adjustment system would provide a more equitable adjustment for coding differences across MA contracts and could be implemented simultaneously. However, our analysis suggests that applying these two changes together would not fully account for the impact of coding differences on MA risk scores. Therefore, CMS would need to estimate the effect of coding differences after implementing these two changes and then apply an across-the-board adjustment factor of appropriate size such that the combined effect would eliminate the impact of differences in coding intensity between FFS and MA. If the across-the-board adjustment factor used in this approach were less than the minimum adjustment factor required by law, CMS might need to seek authority to implement this set of policies.

RECOMMENDATION 12-2

The Congress should direct the Secretary to:

- **develop a risk adjustment model that uses two years of fee-for-service (FFS) and Medicare Advantage (MA) diagnostic data and does not include diagnoses from health risk assessments from either FFS or MA, and**
- **then apply a coding adjustment that fully accounts for the remaining differences in coding between FFS Medicare and Medicare Advantage plans.**

RATIONALE 12-2

By law, the Congress requires the Secretary to adjust for the difference in coding between MA and Medicare FFS. The Secretary has the discretion to apply a larger coding intensity adjustment, up to the full impact of coding differences, but has chosen not to do so in recent years. Our policy recommendation would have the Secretary make coding adjustments in a more equitable manner. First, the recommendation seeks to eliminate HRAs as a source of diagnoses for risk adjustment. We contend that a small number of plans are using HRAs to increase Medicare payment without providing follow-up care. Second, the recommendation would base the CMS–HCC model on two years of diagnostic data. This approach gives MA plans a greater ability to document enrollees' chronic conditions and reduces year-to-year variation in Medicare FFS documentation. Finally, the recommendation proposes that the Secretary apply an across-the-board adjustment to account for the remaining impact of coding differences. We believe that implementing the two changes to the CMS–HCC model will reduce the across-the-board adjustment applied to all plans relative to current law.

IMPLICATIONS 12-2

Spending

- Our recommendation to use two years of diagnostic data, exclude diagnoses identified through health risk assessments, and apply a coding adjustment that fully accounts for the remaining differences in coding would decrease federal program spending relative to current law by between $750 million and $2 billion in one year and between $1 billion and $5 billion over

Incorporating New Research Into Medicare Risk Adjustment

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Background: The Medicare Advantage payment system underpays health plans that enroll beneficiaries with multiple and complex chronic conditions.

Objectives: This article addresses 3 major problems in the current payment system: (1) underreporting of chronic disease prevalence in fee-for-service (FFS) Medicare claims data, (2) overpayment of healthier and underpayment of sicker beneficiaries in the current payment system, and (3) underpayment for new beneficiaries in Medicare Advantage plans that require the beneficiaries to have at least one chronic disease to enroll.

Research Design: We incorporate 2 years of data and a count of chronic diseases in the current Medicare payment model. We develop a separate payment adjustment for new enrollees.

Subjects: A nationally representative sample of FFS beneficiaries in the 2004–2006 Medicare 5% claims data.

Measures: We use predictive ratios to evaluate whether our enhanced model improves the predictive accuracy over the current model overall and for subsets of beneficiaries.

Results: The underreporting of chronic disease prevalence in Medicare FFS by 20% leads to systematic bias in the disease coefficients and demographic adjusters. The enhanced model reduces the level of payment for healthy beneficiaries and increases the payment for beneficiaries with multiple and complex chronic conditions. It improves payment for plans that enroll new enrollees with specific chronic conditions.

Conclusions: Our enhanced model reduces financial incentives for health plans to engage in risk selection against beneficiaries with multiple chronic conditions.

Key Words: Medicare advantage, risk adjustment, chronic disease, aged, rate setting

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Spending in Medicare is highly concentrated; for example, two-thirds of Medicare spending is by beneficiaries with 5 or more chronic diseases.[1] Beneficiaries with complex and comorbid conditions can benefit from high-quality, integrated and coordinated medical care. This can be difficult to obtain in the fee-for-service (FFS) sector and thus beneficiaries with multiple chronic conditions often receive lower quality of care.[2] Consequently, the Centers for Medicare and Medicaid Services (CMS) has encouraged beneficiaries to enroll in Medicare Advantage (MA) programs, which covered about a quarter of Medicare beneficiaries in 2010. Special Needs Plans, a subset of MA plans, focus on providing coordinated care for beneficiaries with chronic conditions.

MA plans need to be paid appropriately to avoid risk selection. Payment rates for MA plans are based on diagnosed conditions and demographics measured within the FFS system. The literature recognizes that the current system overpays for healthier than average beneficiaries and underpays MA plans caring for beneficiaries with complex and comorbid conditions.[3–8] The current model relies on an additive model to predict spending for Medicare beneficiaries and largely ignores higher cost of treating patients with multiple chronic diseases, especially those with 4, 5, or more chronic conditions.[9–12] The current risk adjustment model has not been substantially updated since January 2004 and was based on research conducted primarily in the late 1990s.

We propose a revised payment model that includes the latest research on persistency of chronic diseases and recognizes the higher costs of treating beneficiaries with multiple chronic diseases to encourage MA plans to enroll and care for beneficiaries with complex and comorbid diseases. We also propose an adjustment for the health status of new enrollees into MA plans that requires the enrollee to have a chronic disease upon entry.

CURRENT RISK ADJUSTMENT MODEL

The current CMS model adjusts for the beneficiaries' most severe conditions, demographics (age and gender), dual eligibility, disability status, original reason for entitlement, and interactions between a few medical conditions. The risk adjustment model is based on the work originally done by Pope et al[13,14] and then modified by CMS. The current model uses hierarchical condition categories (HCCs) that map all ICD-9-CM diagnosis codes into 189 distinct condition categories. Diagnoses representing similar diseases are first organized into body systems and within that body system, ICD-9-CM codes with similar expected annual expenditures are

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combined together. Ultimately, CMS decided to use only 70 of the 189 condition categories, arguing that the more parsimonious model predicted almost as well as the full model.[14] Hence, some chronic conditions were excluded from the final model. The 70 HCCs are ranked hierarchically such that the most severe manifestation of a set of related conditions is coded. The payment does not depend on where the diagnosis is made, for example, inpatient versus outpatient. The HCC payment levels are continually updated with new data, but the underlying HCC groupings are not.

The current model takes into account 4 two-way and 2 three-way interactions among 6 common and high cost chronic diseases. Among the nonaged and disabled Medicare population, 5 additional conditions associated with high frequencies of disability are interacted with disability status. In April 2009, CMS instituted a 1.041 normalization factor for the age-disabled payment model to MA plans, which would reduce payments across all MA plans. This adjustment does not affect the relative level of payment between sick and healthy beneficiaries.

Community, institutional, and new enrollee populations are calibrated separately with parameter estimates updated every 2 years with a 4- to 5-year time lag (eg, 2005/2006 data are used to set 2010 rates). Beneficiaries with end-stage renal disease (ESRD) have separate parameter estimates that take into account whether the person is on dialysis, the person had a kidney transplant (with and without pancreas transplant), and their level of functioning grafts. We focus only on the community-dwelling population, but our concepts apply to other populations as well.

New beneficiaries are not assigned HCCs in their first year of enrollment because CMS does not have diagnosis data from the prior year. Instead, all new enrollees are assumed to have the health status of the average Medicare beneficiary, and are reimbursed accordingly. This can be problematic for Special Needs Plans if the beneficiary needs to have at least one chronic disease to enroll in the plan.

METHODS

Data Sets

We use the Medicare 5% sample (2004–2006), a commonly used, nationally representative sample of all Medicare beneficiaries. From the initial sample of 2,525,005, we created a community FFS sample by excluding beneficiaries enrolled in MA plans, institutionalized beneficiaries (90 or more days in a special needs facility), and beneficiaries who have ESRD or are disabled. Institutionalized, disabled, and ESRD beneficiaries are treated slightly differently in the Medicare calculations, and MA beneficiaries are not used in the calculation used to set their rates. Because they are missing essential clinical data, we dropped beneficiaries without both Part A and B coverage or were not a US resident between 2004 and 2006.

We divided the sample into 2 separate groups: (1) new enrollees and (2) aged beneficiaries meeting the conditions described earlier. New enrollees are defined as beneficiaries who completed the age of 65 in 2006 and were not previously disabled (N = 32,013). The second group of beneficiaries are age 65 years or older as of January 1, 2004, enrolled for a full 24 months of 2004 and 2005 and at least one day in 2006 (N = 1,115,936).

Variable Selection

The dependent variable is the 2006 annualized total Medicare expenditures adjusted for the number of months that the beneficiary was alive in 2006. For example, a beneficiary alive for 6 months in 2006 is given a weight of 0.5. The dependent variable is the amount the Medicare program paid and does not reflect any out-of-pocket spending by Medicare beneficiaries or payments by Medicare supplemental (Medigap) plans.

We examined 2 validated comorbidity measures to estimate the incremental costs of treating beneficiaries with multiple chronic diseases.[15,16] Both measures were independently entered into the model as index and as dummy variables (present/absent) for each comorbid condition. We created a third measure that counts the number of chronic diseases based on definitions developed by the Clinical Classification Software (CCS) at Agency for Healthcare Research and Quality.[17] The CCS software groups all ICD-9-CM codes into 285 mutually exclusive diagnoses groups, which are updated annually. We only used the CCS groups corresponding to chronic diseases. The CCS measure is a count of the number of chronic conditions.

The CCS methodology was designed to be a comprehensive measure used in any clinical setting that uses ICD-9-CM; a primary advantage over the Elixhauser and Deyo/Charlson measures, which were designed for inpatient settings only. In addition, the Elixhauser and Deyo/Charlson measures are based on a restricted list of conditions, whereas a count of CCS includes all chronic conditions. Finally, the CCS categories are updated annually.

We also investigated using 2 years of FFS data as an alternative to using only 1 year. The clinical rationale is clear—when a beneficiary acquires a chronic disease such as diabetes or chronic obstructive pulmonary disease (COPD), the beneficiary will likely have the disease for life. However, the current FFS payment system does not provide financial incentives for FFS providers to record all chronic diseases on each claim form. As a result, the number of chronic diseases could be significantly undercounted. This could bias the calculation of HCC scores and demographic factors because some of the chronic conditions are not recorded annually.

Estimation and Predictive Ratios

We use a multivariate linear regression and predictive ratios (PRs) to calculate and then compare the current and proposed models. A split sample methodology is used. Parameter estimates based on 50% of a randomly chosen sample (557,973 observations) are used to predict expenditures in 2006. The other half is used to test the predictive power of the model. PRs are a standard approach in the risk-adjustment literature to compare alternative models.[14,18,19] PRs are the predicted level of total payments divided by the actual expenses for the same group of beneficiaries in the same year. The objective is to create a model with PRs as close to 1.0 as possible to avoid risk selection. A ratio <1.0 means the predicted pay-

ment is lower than the actual spending, and MA plans will have a financial incentive to avoid these individuals. If the ratio is >1.0, then the predicted spending is above actual spending; MA plans will be encouraged to enroll these beneficiaries.

PRs allow comparisons of subgroups of the population to detect areas where risk selection can occur versus R-squared, which only provides information about variability explained. One hundred random (with replacement) samples, with 1000 beneficiaries in each sample were drawn. We used the same process for subgroups (eg, males) to determine the possibility of risk selection in certain subgroups of the population. We chose 1000 beneficiaries as an approximation of the size of the MA plans. We repeat this process 100 times to calculate 95% confidence intervals (using the 2.5th and 97.5th percentile PR values).

RESULTS

Table 1 shows the characteristics of the sample. Particularly important to note are that 30% of Medicare beneficiaries have 5 or more recorded chronic diseases and about 10% of the sample has at least 1 mental illness.

Persistency

Table 2 shows that chronic diseases are not consistently or persistently reported over time in Medicare FFS. For example, based on only 1 year of data, 13.7% of beneficiaries were identified as having COPD; but using 2 years of data, 18.9% were identified as having COPD. Assuming a beneficiary had COPD both years, 38% of beneficiaries with COPD are underreported using only 1 year of data. The level of underreporting for 5 common chronic diseases varied from 13.5% for diabetes to 38.0% for COPD. Overall, approximately 20% more chronic diseases are recorded using 2 years of data. This is a significant undercount and could bias the regression coefficients.

By using 2 years of data, the current model lowered nearly all the parameter estimates (data not shown). This can be explained statistically—beneficiaries with unreported chronic conditions are likely to have higher costs than beneficiaries with no chronic conditions. However, the regression coefficients estimated using 1 year of data compensates for this undercount by inflating the coefficients on the demographic and HCC variables.

It is inappropriate to use 1 year of data to calculate the coefficients to set the payment rates and then use 2 years of data to calculate the expected payment, but this approximates what happens. Although the Medicare program calculates the rates based on 1-year data in the FFS sector, MA plans record the prevalence of chronic disease more accurately, which resembles the 2-year data. This could lead to overpayments by as much as 20% if MA plans recorded all the chronic conditions.

Current Model

We calculated the payment rates using the first half of the split sample. The first model attempts to replicate the current payment method. The base payment of $2771 reflects the cost of a woman age 65 to 69 with no diseases that warrant an HCC score and no other characteristics (dual eligible, etc) that are included in the model (Appendix Table A1, Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A167). Expenditures increase with age, for example, women 70 to 74 years of age are $414 more expensive than women 65 to 69. Among the HCC groups, metastatic cancer and acute leukemia (HCC, 7) has the highest value of $14,732.

Most coefficients are statistically significant at $P \leq 0.01$, which is not surprising given the large sample size. There are some HCCs with relatively few observations and this could result in potentially unstable and confusing results. The number of beneficiaries with a specific HCC varies considerably from 10 beneficiaries with extensive third-degree burns to 89,226 with diabetes without complication. A few parameter estimates are surprisingly small given the seriousness of the illness. For example, the value for breast, prostate, colorectal, and other cancers and tumors (HCC, 10) is only $1835. There are some statistically insignificant coefficients that also tended to be negative (eg, coma/brain

TABLE 1. Characteristics of Aged Medicare Beneficiary Sample

Characteristics	Medicare Sample (N = 1,115,936)
Female	58.9%
65–69 yr	13.4%
70–74 yr	23.9%
75–79 yr	22.9%
80–84	19.4%
≥85	20.4%
Male	40.9%
65–69 yr	16.9%
70–74 yr	28.6%
75–79 yr	24.2%
80–84	17.4%
≥85	13.0%
Originally disabled	7.2%
Dual eligible in 2006	12.2%
No. chronic diseases (count of CCS categories) in 2005	
None	13.2%
1	11.6%
2	14.9%
3	16.1%
4	13.9%
≥5	30.3%
Prevalence of specific chronic diseases in 2005	
Chronic kidney failure	2.5%
Congestive heart failure	9.2%
COPD	13.7%
Diabetes	20.8%
Cardiovascular disease	68.9%
Mental illnesses	11.1%

Diabetes is defined as ICD-9-CM 250.x (all); chronic obstructive pulmonary disease is 490.x to 496.x (all); cardiovascular disease is 390.x to 459.x; congestive heart failure is 428.x (all); chronic kidney failure is 585.x (all); mental illness is 290.x to 318.x (all), 331.x (all), 357.5, 425.5, 535.3, 571.1, 648.3 to 648.4, 655.5, 760.7, 779.5, 790.3, 797, 965.0, E95xx, V11xx, V15xx, V663, V7xxx.

COPD indicates chronic obstructive pulmonary disease; CCS, Clinical Classification Software.

Source: 2004–2006 Medicare 5% sample.

TABLE 2. Consequence of Inconsistent Reporting of Chronic Disease: Using 1 Versus 2 Years of Data

	1-Year Data (2005) Recorded Prevalence (%)	2-Year Data (2004 and/or 2005) Recorded Prevalence (%)	Increase in Prevalence (%)
Chronic kidney failure	2.5	3.2	28.0
Congestive heart failure	9.2	12.5	35.9
Chronic obstructive pulmonary disorder	13.7	18.9	38.0
Diabetes mellitus	20.8	23.6	13.5
Cardiovascular disease	68.9	78.4	13.8

Diabetes is defined as ICD-9-CM 250.x (all); chronic obstructive pulmonary disease is 490.x to 496.x (all); cardiovascular disease is 390.x to 459.x; congestive heart failure is 428.x (all); chronic kidney failure is 585.x (all), mental illness is 290.x to 318.x (all), 331.x (all), 357.5, 425.5, 535.3, 571.1, 648.3 to 648.4, 655.5, 760.7, 779.5, 790.3, 797, 965.0, E95xx, V11xx, V15xx, V663, V7xxx.
Source: 2004–2006 Medicare 5% sample.

compression/anoxic damage; HCC, 75). The interaction between chronic kidney failure and congestive heart failure had a statistically significant negative parameter. A beneficiary with these 2 diseases has their total cost of care reduced by $614, yet the lower cost of care is unlikely and is contrary to the literature that suggests having multiple chronic diseases require more complex care. The usual procedure for CMS is to exclude HCCs with negative parameters. We chose not to remove these parameters to stay consistent with the theoretical model developed by Pope et al that suggest these diseases are important predictors. This highlights the potential need to revisit the HCC groupings because medical practice may have changed since the HCC groupings were created in the late 1990s. Another possibility is relatively small sample sizes used to create some of the parameter estimates.

The overall PRs for the current model using 1 year of data were close to 1.0 suggesting that the model works reasonably well for a cross-section of Medicare beneficiaries (Table 3). However, we also observed that the PRs are above 1.0 for healthier and less expensive beneficiaries whereas less than 1.0 for sicker and more expensive beneficiaries, which is consistent with the literature on risk selection by MA plans.

Enhanced Model

We then explored various refinements to the current model. Specifically, we investigated various combinations of the inclusion of 2 years of data and 1 of 3 comorbidity measures – (1) the Elixhauser, (2) the Deyo/Charlson, or (3) the CCS count measures—to improve the PRs of the current model. Comparing the various comorbidity measures, we see that the comorbid conditions identified by Elixhauser explained slightly more variation than the set of conditions identified by Charlson-Deyo, and both improved the PRs when using both 1 and 2 years of data (data not shown). The inclusion of the CCS count measure had the greatest effect on the PRs over the other 2 comorbid measures and was therefore included in the enhanced model. The final, or "enhanced," model includes 2 years of data.

TABLE 3. Average Predictive Ratios (With 95% Confidence Intervals) on Medicare 5-Percent Sample (N = 1,115,936)

	Current	Enhanced
Female, all ages	0.99 (0.89, 1.13)	0.99 (0.89, 1.12)
Female, age 65–69	0.97 (0.85, 1.12)	0.97 (0.85, 1.12)
Female, age 70–74	0.99 (0.85, 1.13)	0.99 (0.85, 1.11)
Female, age 75–79	0.99 (0.85, 1.13)	0.99 (0.85, 1.12)
Female, age 80–84	0.98 (0.88, 1.12)	0.98 (0.87, 1.11)
Female, ≥85	0.99 (0.90, 1.09)	0.98 (0.88, 1.09)
Male, all ages	0.98 (0.85, 1.14)	0.97 (0.84, 1.14)
Male, age 65–69	0.99 (0.86, 1.14)	0.98 (0.85, 1.10)
Male, age 70–74	0.98 (0.85, 1.14)	0.98 (0.84, 1.11)
Male, age 75–79	0.98 (0.85, 1.14)	0.98 (0.88, 1.09)
Male, age 80–84	0.98 (0.87, 1.08)	0.98 (0.87, 1.08)
Male, age ≥85	1.00 (0.88, 1.12)	1.00 (0.88, 1.12)
Previous year expenditures		
0–20th percentile	1.50 (1.20, 1.80)	1.24 (0.99, 1.55)
20th–40th percentile	1.22 (1.05, 1.46)	1.22 (1.06, 1.47)
40th–60th percentile	1.05 (0.93, 1.18)	1.11 (0.99, 1.26)
60th–80th percentile	0.89 (0.80, 0.99)	0.97 (0.87, 1.08)
80th–95th percentile	0.85 (0.79, 0.93)	0.86 (0.80, 0.94)
95th–100th percentile	0.84 (0.78, 0.93)	0.78 (0.72, 0.85)
No. chronic diseases		
None	1.46 (1.21, 1.83)	1.01 (0.80, 1.31)
1	1.14 (0.98, 1.29)	0.96 (0.83, 1.15)
2	1.07 (0.95, 1.22)	0.99 (0.87, 1.13)
3	1.00 (0.87, 1.14)	0.97 (0.85, 1.12)
4	0.97 (0.82, 1.12)	0.99 (0.88, 1.11)
≥5	0.90 (0.82, 0.98)	0.99 (0.88, 1.11)
Specific chronic diseases		
Diabetes	0.97 (0.86, 1.10)	0.98 (0.89, 1.10)
Congestive heart failure	0.98 (0.90, 1.05)	0.96 (0.89, 1.04)
Chronic kidney failure	0.93 (0.86, 1.01)	0.94 (0.87, 1.01)
Cardiovascular disease	0.95 (086, 1.06)	0.98 (0.89, 1.08)
COPD	0.95 (0.86, 1.06)	0.97 (0.88, 1.09)
Mental illness		
None	1.00 (0.89, 1.11)	0.98 (0.84, 1.13)
One or more	0.92 (0.84, 1.03)	0.98 (0.88, 1.10)
Schizophrenia	0.96 (0.89, 1.07)	1.00 (0.93, 1.11)

Enhanced model for the Medicare 5-percent data is the current HCC model plus counts of CCS categories (1, 2, 3, 4, 5 or more) with 2 years of data. The previous year expenditure cut-offs are 0 to 20th percentile $0 to $400, 20th to 40th percentile $400 to $1232, 40th to 60th percentile $1232 to $3017, 60th to 80th percentile $3017 to $10319, 80th to 95th percentile $10319 to $44575, 95th to 100th percentile $44575 and above. Diabetes is defined as ICD-9-CM 250.x (all); chronic obstructive pulmonary disease is 490.x to 496.x (all); cardiovascular disease is 390.x to 459.x; congestive heart failure is 428.x (all); chronic kidney failure is 585.x (all), mental illness is 290.x to 318.x (all), 331.x (all), 357.5, 425.5, 535.3, 571.1, 648.3 to 648.4, 655.5, 760.7, 779.5, 790.3, 797, 965.0, E95xx, V11xx, V15xx, V663, V7xxx.
COPD indicates chronic obstructive pulmonary disease.
Source: 2004–2006 Medicare 5% sample.

Our final parameters for the enhanced model are in Appendix Table A1 (Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A167). The addition of 2 years of data and CCS count measure improve the variability explained slightly from $R^2 = 0.101$ in the current model to $R^2 = 0.104$ in the enhanced model. The most important improvement occurs in the PRs for subgroups of

the population. As expected, no major differences in the PRs exist between the current and the enhanced models for random groups of beneficiaries or for basic demographic characteristics (Table 3).

The main objective is for the PRs to overlap with 1.0 for all subgroups of the population to reduce incentives for risk selection. The enhanced model achieves this in 4 crucial subgroups. Overpayment is corrected for Medicare beneficiaries in the 0 to 20th percentile of expenditures in the previous year and for beneficiaries with zero chronic diseases. Underpayment is corrected for Medicare beneficiaries in the 60th to 80th percentile and for beneficiaries with 5 or more chronic diseases.

We tried some other alternatives. We tested the CCS categories with 1 and 2 years of data; the combination of 2 years of data and the count of the CCS categories most improved the predictive accuracy of the model (Appendix Table B1, Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A168). Two years of data significantly improves the predictive accuracy of the model because it recognizes the persistency and the underreporting of chronic disease in the Medicare FFS population.

To address the possibility that the CCS count variable is identifying missing variables, we tested variations on our enhanced model by including all 189 HCCs instead of the 70 HCCs that CMS uses (Appendix Table B1, Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A168). Our results are similar to the results of Pope et al that suggest the additional 119 HCCs do very little to improve the predictive accuracy of the model.

New Enrollees

We compared the cost of beneficiaries who completed 65 years of age and newly enrolled in Medicare with different levels of chronic disease (Table 4). Beneficiaries with any of the listed chronic diseases were substantially more expensive than the average Medicare beneficiary. For example, in 2006, the Medicare program spent an average of $4393 on a new enrollee in 2006. However, the expected cost for new enrollees with diabetes mellitus was $7764 and $33,304 for beneficiaries with chronic kidney failure. MA plans that enroll one of these individuals and get paid only $4393 are likely to lose a considerable amount of money. Most MA plans have between 5% and 8% new enrollees each year but it varies from plan to plan.

TABLE 4. Average Medicare Expenditures of New Enrollees (N = 32,013) in 2006

All Medicare beneficiaries	$4393
Diabetes mellitus	$7764
Chronic obstructive pulmonary disorder	$16,675
Congestive heart failure	$26,794
Cardiovascular disease	$31,364
Chronic kidney failure	$33,304

Expenditures scaled to 12 months. Diabetes is defined as ICD-9-CM 250.x (all); chronic obstructive pulmonary disease is 490.x to 496.x (all); cardiovascular disease is 390.x to 459.x; congestive heart failure is 428.x (all); chronic kidney failure is 585.x (all), mental illness is 290.x to 318.x (all), 331.x (all), 357.5, 425.5, 535.3, 571.1, 648.3 to 648.4, 655.5, 760.7, 779.5, 790.3, 797, 965.0, E95xx, V11xx, V15xx, V663, V7xxx.
Source: 2004–2006 Medicare 5% sample.

DISCUSSION

The current model includes a parsimonious number of common combinations of chronic diseases. Our analysis suggests that their inclusion does little to improve the PRs in the enhanced model (Appendix Table B1, Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A168). The literature suggests that interactions between chronic conditions may be important, but to identify and test every combination of chronic conditions would be virtually impossible. The CCS count measure represents general combinations of chronic diseases by adding an extra parameter value depending on the number of chronic diseases that a person has (1, 2, 3, 4, 5 or more). Conceptually, it reflects that the cost of treating someone with both disease A and disease B is greater than the cost of treating one person with disease A and a different person with disease B. The interaction of diseases A and B adds to the cost. Our empirical estimates (Appendix Table A1, Supplemental Digital Content, online only, available at: http://links.lww.com/MLR/A167) suggest that the cost increases dramatically after the beneficiary has 5 or more chronic conditions.

The number of CCS categories used as an adjustment variable has limitations. First, all chronic conditions are considered as equal although some are more serious than others. Fortunately, the HCCs already differentiate complex versus simple chronic conditions. The intention of the CCS variable is to differentiate persons with 0, 1, 2, 3, 4, 5 or more chronic conditions since, according to the literature, the number of chronic conditions in addition to the type of chronic condition increases costs and results in poorer outcomes. The CCS count measure is not intended to be a measure of comorbidity severity. We counted a beneficiary as having a CCS category if the person had an inpatient diagnosis with the condition or 2 distinct outpatient diagnoses with that condition. This approach eliminates "rule out" conditions.

As another concern, the CCS categories include conditions that were explicitly excluded from the HCCs. However, our empirical results show that the count of the number of chronic conditions is associated with higher costs in Medicare beneficiaries and, unless these costs are recognized, health plans will engage in risk selection. The disadvantage of the simple CCS count is gaming by upcoding the number of chronic diseases. However, this is on the FFS side; CMS is already concerned that MA plans have this incentive because the plans are already paid on the basis of the number of chronic conditions (HCC categories).

Administrative feasibility is of concern with any risk adjustment model. The CCS categories are in the public domain and do not require collection of new data. Also, no additional administrative efforts are anticipated if Medicare used 2 years of FFS data instead of 1 year.[18] In fact, incorporating 2 years of data could reduce the level of gaming by MA plans; HCC scores are reduced and the probability increases that a beneficiary is correctly identified as having a chronic disease. Thus MA plans would have reduced incentives to up-code.

CONCLUSION

Although the current model substantially overpays beneficiaries with zero chronic diseases and systematically underpays beneficiaries with multiple chronic diseases, the enhanced model reduces the incentives for health plans to engage in risk selection. In the enhanced model, the PRs are similar for beneficiaries with zero through 5 or more chronic diseases. Using 2 years of FFS data increases the number of chronic disease recorded by approximately 20% and reduces the coefficients of the demographic and HCC scores by approximately 20%. The result of this bias in the current model is overpayment to MA plans by approximately 20%.

The current model disadvantages MA plans that enroll beneficiaries new to the Medicare program by failing to take into account their existing chronic diseases. To improve accuracy of Medicare payments, one method would be to substitute in the higher costs of new enrollees (Table 4). Another alternative is to calculate the average cost of the MA plan that the newly eligible beneficiary is enrolling into, compare it to the average cost of the average MA plan, and then assume that new enrollees are similar in health status to the current enrollees.

The current Medicare risk adjustment model does not perform well for beneficiaries with the greatest need for coordinated care—beneficiaries with persistent chronic disease and especially beneficiaries with 5 or more chronic diseases. They are also responsible for most of the Medicare spending and generally have the worst outcomes. The enhanced model significantly improves the PRs for beneficiaries with multiple chronic diseases, but do not completely eliminate the financial disincentives. Two possible areas of improvements could be to better assess frailty and/or to include drug data.

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REFERENCES

1. Anderson GF. Medicare and chronic conditions. *N Engl J Med.* 2005; 353:305–309.
2. Wolff JL, Starfield B, Anderson GF. Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Arch Intern Med.* 2002;162:2269–2276.
3. Baldwin LM, Klabunde CN, Green P, et al. In search of the perfect comorbidity measure for use with administrative claims data: does it exist? *Med Care.* 2006;44:745–753.
4. Cucciare MA, O'Donohue W. Predicting future healthcare costs: how well does risk-adjustment work? *J Health Organ Manag.* 2006;20:150–162.
5. Mukamel DB, Peterson DR, Bajorska A, et al. Variations in risk-adjusted outcomes in a managed acute/long-term care program for frail elderly individuals. *Int J Qual Health Care.* 2004;16:293–301.
6. Noyes K, Liu H, Temkin-Greener H. Cost of caring for Medicare beneficiaries with Parkinson's disease: impact of the CMS-HCC risk-adjustment model. *Dis Manag.* 2006;9:339–348.
7. Noyes K, Liu H, Temkin-Greener H. Medicare capitation model, functional status, and multiple comorbidities: model accuracy. *Am J Manag Care.* 2008;14:679–690.
8. Zhao Y, Ash AS, Ellis RP, et al. Predicting pharmacy costs and other medical costs using diagnoses and drug claims. *Med Care.* 2005;43:34–43.
9. Boyd CM, Darer J, Boult C, et al. Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. *J Am Med Assoc.* 2005;294:716–724.
10. Fried LP, Bandeen-Roche K, Kasper JD, et al. Association of comorbidity with disability in older women: the Women's Health and Aging Study. *J Clin Epidemiol.* 1999;52:27–37.
11. Lee TA, Shields AE, Vogeli C, et al. Mortality rate in veterans with multiple chronic conditions. *J Gen Intern Med.* 2007;22(suppl 3):403–407.
12. Rijken M, van Kerkhof M, Dekker J, et al. Comorbidity of chronic diseases: effects of disease pairs on physical and mental functioning. *Qual Life Res.* 2005;14:45–55.
13. Pope GC, Ellis RP, Ash AS, et al. Principal inpatient diagnostic cost group model for Medicare risk adjustment. *Health Care Financ Rev.* 2000;21:93–118.
14. Pope GC, Kautter J, Ellis RP, et al. Risk adjustment of Medicare capitation payments using the CMS-HCC model. *Health Care Financ Rev.* 2004;25:119–141.
15. Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. *J Clin Epidemiol.* 1992;45:613–619.
16. Elixhauser A, Steiner C, Harris DR, et al. Comorbidity measures for use with administrative data. *Med Care.* 1998;36:8–27.
17. Elixhauser A, Steiner C, Palmer L. *Clinical Classifications Software (CCS).* US Agency for Healthcare Research and Quality; 2010. Available at: http://hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp.
18. MedPAC. *Report to the Congress: Improving Risk Adjustment in Medicare.* Washington, DC: MedPAC; 2000.
19. Weiner JP, Dobson A, Maxwell SL, et al. Risk-adjusted Medicare capitation rates using ambulatory and inpatient diagnoses. *Health Care Financ Rev.* 1996;17:77–99.

American Academy of Actuaries
Risk Adjustor Work Group

ACTUARIAL REVIEW OF THE HEALTH STATUS RISK ADJUSTOR METHODOLOGY

Risk Adjustor Work Group

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January 14, 1999

Table of Contents

I. Executive Summary

This report presents the analysis by the American Academy of Actuaries' Risk Adjustor Work Group of the health status risk adjustment methodology proposed for implementation by the Health Care Financing Administration (HCFA). By law, a risk adjustment methodology must be used by HCFA for determining payments to Medicare+Choice health plans starting in the year 2000. The Risk Adjustor Work Group was formed in response to a request from HCFA for an actuarial review of their work on a risk adjustment methodology. This review is required by the Balanced Budget Act of 1997 which mandated HCFA's development of a risk adjustment payment system.

The adoption of a new risk adjustment system for Medicare reimbursements based on health status factors represents a significant change for health plans, contracting providers and health plan members. ***While the Academy Work Group believes the conceptual basis of the risk adjustment method proposed by HCFA is "actuarially sound" as defined in our report, we have serious concerns about the method's implementation, operation and impact.***

The new methodology for making health status risk adjustments to Medicare payments appears to meet the requirements of the Balanced Budget Act of 1997, provided the system is implemented carefully. On balance, and with a phase-in, the proposed risk adjustment method appears to be a reasonable first step in what should be a long-term evolutionary process. HCFA is to be commended for the progress to date and for recognizing the limitations of the proposal arising from the available data, timing requirements and areas for future improvements.

While HCFA has done much work in a short time period to develop the new methodology and design implementation strategies, additional work remains to fully define HCFA's risk adjustment method and test application of the method to make sure it achieves the intended results. The Work Group recommends that HCFA further modify the risk adjustment model with the knowledge gained during the first year of operation.

Based on our review of the information and data provided by HCFA, the Work Group has serious concerns about the actual implementation of the new payment system and its impact on the Medicare health plan market. These issues include:

- *Decisions to exclude or limit the use of certain types of diagnosis categories from the risk adjustment methodology, such as one-day hospital stays, which may penalize health plans that effectively manage the delivery of health care.*

- *Lack of adequate testing of the potential impact of the new methodology on health plans and Medicare+Choice beneficiaries.*

- *Administrative feasibility of the implementation of the new system because of timing and data collection issues.*

- *The processing of extraordinary amounts of newly collected data and completing a series*

of complex calculations introduces an element of uncertainty that cannot be anticipated until health plans and HCFA have full opportunity to understand the implications.

- *Use of only fee-for-service data as the basis for the development of risk adjustment weights.*

During the review process, HCFA provided the Work Group with preliminary results of the potential payment impact of the risk adjustment methodology on Medicare+Choice plans. However, the Work Group was not able to verify the accuracy of the data collected by HCFA or the calculations used by HCFA to determine the impact on health plans. In addition, HCFA did not provide the Work Group with an assessment of the impact of the risk adjustment methodology on beneficiaries.

There is a substantial risk for the Medicare system if the risk adjustment methodology does not work as intended. The negative consequences could include withdrawal of Medicare+Choice health plans from the market, financial problems or insolvency for health plans and the potential for a reduction in benefits provided to beneficiaries. Because of these concerns, the Work Group believes HCFA's decision to implement the new methodology under a phased-in approach is a sound one and will limit changes from the current payment system while HCFA and the health plans assess the impact of the new methodology.

The Work Group was unable to fully analyze the proposed risk adjustment method due to: (1) incomplete available data and information, and (2) the continuing development of the new risk adjustment methodology by HCFA. The Work Group was not able to undertake a detailed analysis of the mathematical formulas used to develop the risk adjustment methodology, but rather focused its review on the conceptual and theoretical basis of the system. Because HCFA is still working on the proposed methodology and there are a number of unresolved implementation issues, this report is a qualified review of the actuarial soundness of the proposal. The Work Group would like the opportunity to provide further comments on the new system as it is completed.

II. Introduction

The American Academy of Actuaries (Academy) has been asked by the Health Care Financing Administration (HCFA) to evaluate its proposed method for using the health status of Medicare beneficiaries to risk adjust Medicare payment rates. The Academy formed a Risk Adjustor Work Group (Work Group) consisting of health actuaries who are consultants to health plans and health insurers and staff actuaries for health plans or health insurers to review HCFA's proposal. This report presents the Work Group's analysis, conclusions and recommendations.

The Balanced Budget Act of 1997 (BBA) requires HCFA to incorporate health status risk adjustment

in the agency's payments to Medicare+Choice health plans.[1] The law also provides that HCFA will report to Congress on its proposed method for risk adjustment. The purpose of this report is to assist HCFA in satisfying Section 1853(a)(3)(A) of the Act, which states that HCFA's Report to Congress shall include, "*an evaluation of such method by an outside, independent actuary of the actuarial soundness of the proposal.*"

HCFA plans to implement the initial health status risk adjustment method on January 1, 2000 and then replace it with a more comprehensive method at a later date. The scope of the Academy's report includes both the initial Principal Inpatient Diagnostic Cost Group (PIP-DCG) method and the possible subsequent modifications to the methodology proposed by HCFA.

The Work Group analyzed the actuarial soundness of HCFA's risk adjustment proposal in terms of (1) established actuarial goals and criteria for risk adjustment, (2) Actuarial Standards of Practice, and (3) the general principles and practices of actuarial science. Actuarial Standards of Practice are guidelines developed by the Actuarial Standards Board to help actuaries in their work. Specific actuarial goals and criteria for risk adjustment are described in the Academy's May 1993 monograph titled, "Health Risk Assessment and Health Risk Adjustment: Crucial Elements in Effective Health Care Reform" (Health Risk Adjustment Monograph).

The Academy understands that this report will be used by both Congress and HCFA and will become part of the public record. The Academy also understands the report may be provided to other interested parties. This report should only be distributed in its complete form.

III. Report Background and Methodology

A. Overview of Risk Adjustment

Health risk adjustment is a means of modifying or redistributing payments received by risk bearing entities within a health insurance system to more equitably compensate those entities for the risks they have assumed relative to one another. A major purpose of a health risk adjustment system is to make the basis of competition among carriers their administrative and medical efficiency rather than the health plans' ability to select healthy people.

The risk adjustment process uses the results of health risk assessment to determine the appropriate magnitude of revenue adjustments. Health risk assessment is a method for objectively determining the relative health risks (or expected relative costs) of individuals or groups of individuals relative to an average. Risk is assigned as a simple numerical value or score reflecting the relative cost of health care resources required to meet the total health care needs of that individual or group. A key goal of the risk adjustment process is to more equitably match financial reimbursement with financial liability within an insurance system.

[1]Section 1853 of the Balanced Budget Act of 1997 (PL 105-33).

B. HCFA's Proposal

Currently, HCFA's published local payment rates for Medicare+Choice health plans are adjusted to reflect the risk characteristics of the plans' participants in a particular county as defined by demographic factors: age, gender, status (institutionalized or non-institutionalized, Medicaid or non-Medicaid and Working Aged). Beginning in the year 2000, HCFA is required by the Balanced Budget Act of 1997 to supplement demographic adjustments with a health status risk adjuster.

The PIP-DCG risk adjuster methodology was developed for HCFA by researchers at Health Economics Research, Inc. (HER), Boston University, and Harvard Medical School. The PIP-DCG risk adjuster will be used to assign each Medicare beneficiary a risk score based on diagnosis information from hospital inpatient stays. These risk scores, along with county of residence, age, gender, and other factors, will be used on a prospective basis to determine the Medicare payment rate for each beneficiary in a Medicare+Choice health plan.

As part of HCFA's proposed risk adjustment method, HCFA will be "rescaling" or adjusting the base payment rates. The purpose is to ensure that for each county, the new reimbursement rates utilizing health status risk adjusters should produce the same total payments for the fee-for-service populations as the current approach if every Medicare FFS member in a county were enrolled in a Medicare+Choice organization. However, implementing risk adjusters could increase or decrease total Medicare payments to health plans depending on whether Medicare+Choice organizations currently enroll a higher or lower than average share of the less healthy Medicare beneficiaries.

C. Work Group's Method of Review

The Academy was asked by HCFA to evaluate the "actuarial soundness" of its proposal. Although there is no widely recognized definition of "actuarial soundness," the Work Group analyzed HCFA's proposal according to the standards for risk assessment and risk adjustment outlined in the Academy's Health Risk Adjustment Monograph. These criteria are:

Accuracy: Since payments to health plans will be determined based on the risk adjustment mechanism, accuracy and avoidance of statistical bias is critical.

Practicality and Reasonable Cost: The risk adjustment mechanism should not be so complex that implementation is extremely cumbersome, thereby adding significant cost to the system.

Timeliness and Predictability: Carriers setting premium rates should be able to predict the impact of risk adjustment on their premiums with a fair degree of accuracy and in a timely manner, in order to avoid solvency concerns and disruption to members.

Resistance to Manipulation: The risk adjustment mechanism should aim to make it impossible for

specific carriers to benefit financially by "gaming" the mechanism.

In addition, the Academy has assessed the effectiveness of the proposed methods in achieving the *goals of risk adjustment* as outlined in the Health Risk Adjustment Monograph. These goals are:

- *Reducing the effects of either inadvertent or intentional risk selection*, so carriers in a competitive market can compete on the basis of medical and administrative efficiency and the quality of service and care, rather than on the ability to select risk;

- *Compensating carriers fairly and equitably for risks they assume*;

- *Maintaining consumer choice* between multiple health plans based on rates or employee contributions that reflect relative medical and administrative efficiencies; and

- *Protecting the financial soundness of the health care system*.

The Academy's review takes into account all aspects of the proposed methodologies that impact on its "actuarial soundness," including, but not limited to:

- The proposed formulas;

- The availability, quality, and relevance of the data required; and

- The ability to be implemented as intended.

In addition, the Academy has evaluated the appropriateness of the proposed methods in relation to available alternatives (including non-administrative data models such as surveys, enhanced age/gender/status, and the status quo) and in light of the modifications being made to the underlying base rates by county over the same time period.

D. Limits of the Work Group's Analysis

In preparation for this analysis, the Academy's Work Group met with representatives of HCFA to establish the purpose and scope of the evaluation to be provided. During the meeting, HCFA staff provided an overview of their proposed methodology that they indicated was still in draft form.[2]

[2] During the meeting with HCFA staff, the Work Group was provided with materials outlining the current Medicare payment system and the proposed PIP-DCG methodology including a technical paper titled, "Risk Adjustment for the Medicare Program: Lessons Learned from Research and Demonstrations" by Leslie M. Greenwald, PhD, Al Esposito, MS, Melvin J. Ingber, PhD and Jesse M. Levy, PhD. All of the authors are with HCFA's Office of Strategic

The agency's staff also stated they would be receptive to the Academy's suggestions for modifications to the methodology that would improve its soundness or effectiveness. Shortly before this review was finalized, HCFA also introduced three modifications to the proposal that the Work Group had reviewed. While the Work Group sees no immediate major implications of those three changes (other than as already discussed in this report), we have not had the opportunity to analyze the changes in depth.

A preliminary draft of this report was provided to HCFA for review and comment on December 8, 1998. The agency responded and submitted additional materials and data to the Work Group along with specific comments concerning some of the issues raised in the report. The Work Group considered HCFA's response and materials as it completed its work on this report.

In performing this review, the Work Group relied upon information and data provided by HCFA. This information included descriptions of the statistical methodologies summarized by Health Economics Research,[3] reports and other summary materials, answers to written inquiries submitted by the Academy,[4] and an initial version of the methodology established by HCFA during the course of this review. In addition, the Academy relied upon descriptions of the methodologies published in the Federal Register.[5]

It is important to note that the analysis and conclusions in this report are dependent on the information supplied to the Work Group by HCFA. As of the date of this report, HCFA has not provided the final version of the PIP-DCG risk adjustment formula. In addition, only preliminary revisions of the comprehensive data methods for the risk adjustment methodology have been discussed. No formal methods have been released. **Changes in the methodology or adjustments to the data and information provided by HCFA to the Academy could dramatically impact the findings of this report.** The development of a risk adjusted payment system by HCFA is still a "work in progress" and **this report reflects a qualified opinion by the Academy on the "actuarial**

Planning (Research and Evaluation Group).

[3]The Work Group reviewed several reports from HER: (a) Diagnostic Cost Group (DCG) and Hierarchical Coexisting Conditions (HCC) Models for Medicare Risk Adjustments (Volumes I and II, April 26, 1996); (b) Revised Diagnostic Cost Group (DCG)/Hierarchical Coexisting Conditions (HCC) Models for Medicare Risk Adjustment (February 6, 1998) and © Updated and Revised Principal Inpatient Diagnostic Cost Group Models (Draft Report, July 17, 1998).

[4]HCFA provided three submissions to the Work Group (dated October 8, 1998, November 3, 1998 and November 19, 1998) in response to requests for additional information. HCFA also submitted additional materials to the Work Group on December 14, 1998, December 21, 1998, December 29, 1998 and January 5, 1999, as part of its response to a draft copy of the report reviewed by HCFA.

[5]Federal Register, Vol. 63, No. 173 (September 8, 1998).

soundness" of HCFA's proposals based on the information available to the Work Group at the time it performed its review. The limitations on the Work Group's analysis and findings are applied throughout the report.

In addition, the Work Group did not undertake an analysis of the specific mathematical formulas used by HCFA in the development of risk scores and was not able to determine the accuracy of HCFA's application of the risk adjustment methodology to the data collected from Medicare health plans. As a result, this report should not be considered a "peer review" of the risk adjustment formula under which the Work Group would have examined the mathematical processes used to develop the health status risk scores. The Work Group's analysis is limited to the conceptual framework of the risk adjustment methodology developed by HCFA.

IV. PIP-DCG Risk Assessment Model

A. Key Components of Model

Use of Only Inpatient Data

As previously discussed, the initial model developed by HCFA will use inpatient diagnostic data to develop a risk score for each Medicare beneficiary.[6] This information is based on hospital inpatient stays over one day for certain diagnosis groups. The risk score will be combined with revised demographic factors to develop the payment rates.

A significant component of the PIP-DCG model is the restriction of the risk adjustment method to conditions identified by inpatient hospital claims. This feature has both advantages and disadvantages. As one positive factor, this requirement matches well with the information currently available to the Medicare program. Currently, hospital claim information is more accessible and easier to audit than ambulatory care data and requires a lower amount of additional work by health plans to report to HCFA.

However, there are several drawbacks to a system that uses only inpatient data. First, it is possible that a system relying on inpatient data may penalize plans which more efficiently manage health care. A major feature of managed care has been the measurable reduction in use of inpatient care, the shifting of that care to other, more cost-effective sites of service and the substitution of less invasive therapies to treat a given condition. When the risk assessment system is restricted to inpatient claims, the members enrolled in managed care can appear healthier than their actual risk level because of limits on what is measured.

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[6]Individuals who are newly eligible for Medicare will be assigned a risk score based on HCFA's analysis of existing Medicare fee-for-service data. HCFA will construct a special set of risk scores for these individuals which estimates their predicted medical expenditures since they will not have any inpatient claims experience under the Medicare system.

A possible ramification of the PIP-DCG method is that, by using only inpatient data, the risk adjustment method is less effective than one that also includes ambulatory data because the PIP-DCG formula measures less risk (based on benchmarks such as the R-Squared statistic and predictive ratios). If ambulatory data is added to the inpatient claims information, a better picture of the potential "risk" of each individual Medicare beneficiary is obtained. The PIP-DCG methodology may result in a smaller variation in risk-adjusted payments made to Medicare+Choice health plans than would occur if a more comprehensive method were used. In the initial phases of the program this may be desirable, to the extent it causes less disruption to plans which participate in Medicare+Choice.

Principal Diagnosis

The PIP-DCG model measures conditions by capturing the principal diagnosis recorded on each inpatient claim. The use of the principal diagnosis for the PIP-DCG model is based on existing coding practices for inpatient claims used by hospitals. Since only the principal diagnosis is generally used, it is possible that not all appropriate information is collected or used. A qualifying condition could be listed as the secondary (or other) diagnosis which could be a contributing factor leading to the need for hospitalization.

For example, a hospital admission for an acute condition caused or exacerbated by hypertension or diabetes may identify that acute condition as the principal diagnosis even though it could be argued the patient would not have been hospitalized had it not been for the underlying chronic condition. There is also the possibility that restricting the data source to principal diagnosis could lead to listing a qualifying event as a "principal diagnosis" on a claim in order to receive "credit" for that more serious inpatient condition.

Alternately, there is a common belief that many secondary conditions currently reported are not as reliable and should not be included in the measurement system. Since the initial stages of the risk assessment system will be using data that was recorded without the presence of direct coding incentives, it may be reasonable to use only principal diagnosis information. However, as the PIP-DCG system is implemented, the restriction to using only principal diagnostic groups should be re-evaluated.

Number and Development of PIP-DCG Groups

Health Economics Research constructed the diagnostic groupings using HCFA's survey of Medicare FFS data (a sample of 5% of Medicare beneficiaries). The claims and eligibility information for this analysis fell in the two-year interval from January 1, 1995 through December 31, 1996. Beneficiaries who were not alive and enrolled in Medicare for the entire period from March 1, 1995 through December 31, 1995 and enrolled on January 1, 1996 were excluded from the sample. Beneficiaries were removed from the data sample if they would not have been eligible

for coverage by a Medicare+Choice program for various reasons.[7]

The 5% sample is itself a bit of a misnomer. There were approximately 37.3 million Medicare beneficiaries on July 1, 1995. A 5% sample should yield around 1.9 million lives. However, after excluding beneficiaries based on length of eligibility or future managed care plan participation requirements, the sample used in setting the PIP-DCG risk adjusters is 1.4 million, which is 25% smaller. Therefore, the 5% sample is really roughly a 3.5% sample.

HER used diagnostic codes to form the diagnostic groups (DxGroups) which are used in the PIP-DCG methodology. In order to qualify for a DxGroup used in the PIP-DCG formula, there must have been at least 1,000 individuals with that diagnosis in the Medicare 5% sample. When the PIP-DCG methodology is used starting in 2000, those Medicare beneficiaries who do not fall into one of the DxGroups will be classified into a "base" group and they will be scored only on the demographic risk factors.[8]

There are questions with respect to data credibility and the design of diagnostic groups based on the HCFA 5% sample. For example, is it appropriate to use 1,000 individuals as the "cut-off" for forming DxGroups? How different would the resulting DxGroups look if the sample had been 10% of Medicare beneficiaries, or if a different 5% sample had been selected?

A second sample could be drawn to test the variability of PIP-DCGs. One possible approach would be to use a stratified sample which examines a higher percentage of beneficiaries with claims in the diagnostic categories that make up the PIP-DCG formula. While the overall number of Medicare beneficiaries in the sample might be less than 5%, the survey could sample a greater number of health plan members who fall into one of the claims categories that make up the diagnostic groups and greatly increase the effectiveness of the process. Since the goal of the sample would be to examine the cost of claims and not necessarily claim frequency, a stratified sampling would seem to be a useful tool.

In addition, the requirement to utilize DxGroups with at least 1,000 members may be overly conservative. While this level of robustness certainly contributes to the credibility of each DxGroup, it may result in risk assessment values that are not as widely dispersed as the underlying distribution of health risk. Relaxing the restraint that DxGroups have at least 1,000 members may result in use of more DxGroups, a likely higher maximum value and a more continuous distribution of resulting risk assessment values (i.e., there would be more DxGroups with smaller increments between categories).

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[7] For a complete description of the sampling technique, see Chapter 2 of HER's draft report, "Updated and Revised Principal Inpatient Diagnostic Cost Group Models" (July 17, 1998).

[8] The development of the diagnostic groups is discussed in Chapter 4 of the HER draft report dated July 17, 1998.

Because of this requirement, diagnoses could be paid at radically different levels depending upon the adequacy of the sample size when the risk adjusters are established. For example, under the current PIP-DCG modeling with no discretionary diagnosis exclusions, the highest DxGroup is formed at expenditure level 32 (approximately $32,000). There were an insufficient number of beneficiaries to form PIP-DCGs until level 23 (approximately $23,000). The information available to the Work Group did not state how many beneficiaries had PIP DxGroups at levels 24 through 31. Similarly, reversing the exclusion of PIP diagnoses with under 50 people could have the effect of restoring some bona fide conditions to the list of risk adjuster diagnoses.

The Work Group recommends that HCFA reexamine the decision to construct DxGroups using the 1,000 member cut-off once they have started collecting information from Medicare+Choice plans and have implemented the new risk adjustment payment system. The validity of this size criteria can then be based on more current inpatient data on Medicare beneficiaries.

Exclusion of "Discretionary" Conditions

The base cost group also includes Medicare beneficiaries with diagnoses that were determined by HER to be discretionary, vague, or which only occasionally resulted in inpatient admissions. This exclusion of those "discretionary" conditions has the beneficial effect of reducing potential bias in the formula against Medicare+Choice health plans with well managed care delivery systems by not giving credit for discretionary admissions and by removing the incentives to hospitalize a patient for minor illness. The diagnoses included in this restriction should be reviewed in the future as coding practices change under the PIP-DCG system. If hospitals become more aggressive in their coding in the future, the percentage of claims falling into a PIP-DCG may change and weights would need to be recalibrated, particularly if the PIP-DCG method is used beyond the currently planned three-year period.

Exclusion of 1-Day Hospitalizations

The HER report recommends excluding one-day hospitalizations from the risk assessment system to avoid giving credit for very short stays, under the assumption that including them may result in "gaming" of the system by health plans. Plans could "game" the system by ordering one-day stays for minor medical conditions in order to include beneficiaries in the health status risk adjustment process.

The prohibition against using one-day stays may result in lower risk scores being given to members in plans which efficiently manage the delivery of health care because such plans generally have shorter lengths of hospital stays. The HER report asserts that this exclusion results in only 5% of otherwise qualifying diagnoses being removed from the health status risk adjustment formula. However, this measurement was made using fee-for-service data; the impact on managed care plans may be significantly different.

HER has proposed an alternative method to excluding one-day hospitalizations which assigns

varying weights to stays that are one day long versus two or more days. While this alternative does at least partially address the gaming issues, it may cause other problems. First, crediting various values to one-day hospital stays could add to the complexity of administering and understanding the system. Second, if variable DCG weights were constructed for one-day versus longer stays using fee-for-service data, these weights might not reflect the higher intensity and cost of one-day stays in a managed care plan. Third, if the same credibility and robustness requirements were applied to these hospital stays (i.e., DxGroups must contain at least 50 people), this calculation could result in more diagnoses falling into the "base" category due to insufficient people in the category and clinical judgment would be required to "reclassify" those DxGroups.

The underlying concept of excluding one-day admissions does have merit. It can reduce gaming of the system by requiring each hospitalization to be of a certain severity (measured by a length of two days or more) and plans would not have an incentive to hospitalize a patient overnight just to receive "credit," thus, the majority of PIP-DCG diagnoses are severe enough to have an average length of stay in excess of this two-day minimum. However, there are several disadvantages that should be considered.

First, according to the HER report, excluding one-day stays reduces the predictive power of the health status risk adjustment methodology.[9] If data from Medicare+Choice organizations is used, there may be more than 5% of otherwise qualifying conditions excluded from the formula. Second, this exclusion may penalize plans which more efficiently manage care, since data generally indicates that these plans have a lower average length of stay. This indicates that a plan which manages care may be paid less than a plan which does not manage care for exactly the same type of patients. Finally, it should be considered if excluding one-day hospitalizations shifts the issue of "gaming" from whether to hospitalize someone at all to a question of whether to keep the patient for an extra day. It would be appropriate to analyze the risk adjustment methodology based on whether it is easier to "game" admissions or to "game" length of stay and any resulting adverse incentives for health plans.

The Work Group suspects that the disadvantages of excluding one-day hospitalizations may outweigh any possible gain. One of HCFA's goals in designing the risk assessment methodology should be to negate bias against the prudent management of health care costs by Medicare+Choice plans. HCFA may want to consider either using one-day stays as part of the risk adjustment formula or giving a partial credit or other adjustments for those hospitalizations in structuring payments to health plans.

Chemotherapy

HCFA has indicated that beneficiaries who are undergoing chemotherapy will be placed in a diagnosis category based on the patient's secondary diagnosis (most likely cancer). Since the

[9] See Chapter 4 of the draft HER report dated July 17, 1998.

medical conditions underlying the need for chemotherapy represent high-cost, ongoing conditions that are predictive of future medical expenses, it is appropriate that they be included in the risk assessment model. The Work Group believes including chemotherapy as part of the diagnosis groups will increase the ability of the methodology to predict future health care costs.

Demographic Factors

The health status risk adjustment methodology includes a number of demographic factors that will be used to measure the baseline predicted cost for each person. Medicare+Choice health plan members with PIP-DCG conditions will be assigned the extra cost of the diagnosis in addition to their underlying demographic costs. In general, it is not possible to "game" demographic factors such as age and gender. A brief discussion of the other demographic factors follows:

- **One Rate Book for Aged and Disabled.** While not a demographic factor per se, it is an important feature of this system because it creates a unified and self-contained methodology that includes all Medicare members (except for beneficiaries with End Stage Renal Disease, which is handled through a separate payment system).

- **Ever Disabled.** Having this add-on factor for Aged members (i.e., beneficiaries who qualify for Medicare because of their age) who were previously covered by Medicare due to disability maintains the internal consistency of the model and appears to appropriately measure the additional cost of these Aged members.

- **Medicaid.** HER indicated in its report that Medicare beneficiaries who were eligible for Medicaid one month or more during the 12-month data collection period typically had higher medical expenses in the future. Medicaid status information is generally available and does not require additional plan reporting so this coverage may be an appropriate factor to add to this model. Before implementation of the PIP-DCG system, it would be desirable to sample and verify Medicaid status, particularly in small enrollment counties where this factor could make a significant impact in the risk assessment values and the resulting payments to health plans.

- **Institutional Status.** The HER analysis indicated that available Medicare data on institutional status of beneficiaries includes two different groups, those individuals in skilled nursing facilities, which have high current medical costs, and individuals in other types of sub-acute long term nursing home care, which generally have lower current costs. However, the HER report indicated HCFA does not collect this information on a routine basis and thus it is difficult to accurately distinguish between the two types of care using currently available Medicare data. Since institutional status information may not be uniformly collected by health plans and is subject to potential gaming, it is appropriate that it not be included as a demographic factor.

There is a concern however, that certain institutional demonstration projects (such as Programs of All-Inclusive Care for the Elderly or "PACE" and Social Health Maintenance Organizations) may have other, more expensive subgroups of institutionalized individuals; individuals who are

significantly underpaid by the exclusion of this status, especially if the programs reduce the number of acute admissions which form the start of an institutional stay. HCFA should consider the development of specific health status categories for these individuals.

- **Working Aged.** At the time the draft HER report was provided to the Academy, there was an indication that HCFA was considering use of a factor for those Medicare beneficiaries who are still employed (Working Aged), since a large portion of the medical costs for those plan members may be paid by their employers. However, the use of this demographic factor must be carefully considered, since the employer who is the primary payer for medical services may not report to HCFA that a Medicare beneficiary is covered through an employer health plan.

Exclusion of Indirect Medical Education Costs

The model developed by HER excludes indirect medical education (IME) costs from the Medicare FFS data used to calculate the relative weights used in this system. The IME costs are approximately two-thirds of the total graduate medical education costs currently paid through Medicare (the FFS data does include direct medical education (DME) expenses). While it is technically incorrect to include any graduate medical education costs (since medical education costs will be paid outside of the capitation rate in the future), any distortion is likely to be small. However, it is possible there will be some internal inconsistencies in the model since high-cost conditions captured in the PIP-DCGs may more likely be treated in a tertiary care or teaching hospital.

Factors for Newly Enrolled Medicare Members

In addition to currently eligible Medicare beneficiaries (either in the FFS program or in health plans), the risk adjustment method will have "neutral" factors for new Medicare members without any diagnostic history. HCFA has decided to develop a special set of risk scores for those individuals who are eligible for Medicare for the first time and do not have any prior encounter data in the Medicare system.

HCFA has used FFS data to construct average expenditures for categories of newly eligible members (beneficiaries who become eligible for Medicare because of age or disability or members who were previously eligible for coverage but deferred entry into the Medicare system). Newly eligible members will be assigned an estimated risk score based on HCFA's estimate of their predicted medical expenditures. The validity of these risk scores is unclear. We therefore suggest HCFA review its risk scores for the newly eligible once current data is available.

Application

In developing risk assessment scores for each person, HCFA intends to examine all fee-for-service and encounter data to produce each person's score. It is important to combine data from all sources to account for movement between plans and between the fee-for-service and managed

care systems. The impact of the new system on individual Medicare+Choice contractors is unclear. HCFA has not completed substantial testing of individual contractors.

B. Predictive Power of the Model

According to HER, approximately 87% of Medicare+Choice health plan members will receive a score based on demographic factors alone. The other 13% will also be assigned a score based on their PIP-DCG diagnosis. A primary question is the extent to which the proposed health status risk adjustment methodology is useful in predicting future medical expenses and therefore is an appropriate formula for Medicare reimbursement to health plans.

Risk Assessment - A "Work in Progress"

The goal of a risk adjustment method is to match the payment to a health plan or provider with the need for health care services of members. The goal of risk assessment for the Medicare population is to appropriately pay health plans for chronically ill members. Defining the "need" for health care services is a less than exact science. Most risk assessment methods which have been developed to date have tended to share certain inherent assumptions. While these assumptions represent the best available current mechanisms for measuring health care needs, they are also generally recognized as being less than perfect.

One assumption is that the "need" for health care services can be measured by prior use of services. Some observers argue that many of the health care services which are performed today are not medically necessary. However, it must also be recognized that there is no general agreement about which services are appropriate and which services are, in fact, unnecessary. To the extent that certain disease categories have a greater or lesser number of "unnecessary" services than other disease categories, current risk assessment methods may overstate or understate the true "need" for services.

Another premise is that people with similar physical conditions will need similar amounts of medical services. The difficulty lies in defining "similar physical conditions." No current administrative method of diagnostic coding captures all of the aspects of illness which relate to a patient's "need" for services. Even if such a method were devised, it is not currently administratively feasible to collect all of the specific details in order to completely define any given patient's medical needs. Risk assessment methods will always put some patients with varying needs for services into identical risk stratification categories. At the same time, no risk assessment mechanism should be expected to completely replicate prior costs.

Concurrent Versus Prospective Risk Assessment

Another important factor in predictive power is whether the risk assessment method is prospective or concurrent. A concurrent method matches the current year's risk factors with the

current year's health care need. A prospective method uses the current year's risk factors to predict the following year's need. Predicting future costs based on current conditions will always be less accurate than predicting the costs which were incurred during the time frame when the risk assessment factors were assigned.

For a variety of reasons, however, prospective approaches for a risk assessment method are still preferred by most observers. Concurrent methods tend to compensate for the treatment of acute conditions. In addition, concurrent methods compensate for accidental conditions which are otherwise unpredictable and do not require risk adjustment. A prospective risk adjustment method, therefore, should not be rejected simply because it does not predict costs as well as a concurrent method.

HCFA has indicated it will use the prospective system in its risk adjustment methodology. This choice is likely to reduce gaming of the system by placing the emphasis on diagnoses with high ongoing costs, which are typically chronic in nature, thus reducing the emphasis on traumatic, acute conditions which may be self-limiting. The disadvantage of a prospective system is that it has significantly lower predictive power than a concurrent system. The advantage of the prospective methodology is that it provides health plans with an incentive to manage care because they stand to gain if future costs are lower than prospective payments. A prospective risk adjustment methodology also provides health plans with a greater ability to predict future payments which improves the solvency of the system.

Measures of Predictive Power

There are several measures of predictive power in general use today, including the R-Squared statistic and the Predictive Ratio. The R-Squared statistic measures the variance between the predicted use of services and the actual use of services on an individual by individual basis and compares the result to the variance for the entire population. The resulting score is expressed as a percentage of variance and the highest (i.e., most predictive) score is 100%. The best prospective risk assessment methodologies currently range in the area of 10% for individual Medicare beneficiaries. Using demographic information alone (similar to the current Medicare AAPCC model) will usually produce an R-Squared score of about 1%. A number of researchers estimate the best possible individual score is around 20% for risk assessment systems.

The Individual R-Squared value is less useful to health plans since the nature of insurance is to spread risks of random fluctuations over larger populations. Identifying actual values for each participant is less important.

Another measure of predictive power is the "predictive ratio." This indicator measures the ratio of the actual use of services to the predicted use of services for a group of individuals. Predictive ratio scores may range from 0 to many multiples of 1. Typically, risk assessment methods for large random groups will typically generate predictive ratios very near or at 1.00. On the other hand, application of risk assessment to non-random groups consisting of all individuals with

certain diagnosis categories such as diabetes or asthma can sometimes achieve scores between .85 and 1.15 if better risk adjustment methods are applied.[10] In general, predictive ratios are more meaningful than R-Squared scores to health plans, particularly if a health plan contracts with specific providers with expertise in certain high cost conditions and therefore attracts more than its share of individuals with these conditions.

Risk Adjustment - Not a Remedy for Inefficiency

If a risk adjustment method has a high degree of predictive power, it will better allocate available funds according to the underlying need. This does not mean, however, that all health plans will have similar financial results. Even if the predictive power of a risk assessment scheme is very accurate, more efficient health plans will either be more profitable or will be able to charge lower premiums than less efficient health plans.

How Much Predictive Power is Enough

One test of a risk assessment mechanism is whether a majority of health plans receive sufficient income to cover their costs on an on-going basis. A successful method will encourage health plans to continue contracting to provide Medicare coverage and to expand their marketing to higher risk beneficiaries.

For Medicare beneficiaries, a successful method will minimize disruption in the market and possibly increase the number of health plan choices available. For policy makers and financing organizations, a successful method will provide an indicator that funding is appropriate (i.e., minimizing excess profits/surplus), that enrollment is expanding, and that beneficiaries with higher risk status are not avoided.

C. Implications of Indefinite Use of the PIP-DCG System

The proposed PIP/DCG system is expected to be in place only for a few years at most and then replaced with an enhanced system. The Work Group believes that there are significant negative implications if the proposed PIP-DCG system is used more than a few years. One of these is that health plans which use outpatient alternatives to hospitalization would be financially penalized by a risk adjustment system that uses a formula based only on inpatient diagnostic data. Potentially, this limitation could penalize the more efficient plans enough to make them leave the Medicare market. In addition, it might create an incentive for plans to promote less efficient care modalities in order to increase Medicare payments.

In addition, the proposed system does not increase risk factors when an individual falls into two or more diagnostic groups; rather, the individual is scored only at the highest severity group. This

[10] See: "Risk Adjustment For The Medicare Program," Greenwald, et al.

lack of increased risk adjustment for combined conditions may unduly reduce the effectiveness of the risk adjustment system, as health plans with the most severe cases of a given DxGroup will have a greater incidence of multiple conditions.

This restriction could underpay health plans which include providers that typically treat more patients with multiple chronic conditions, provide incentives for those plans to drop those providers from their provider panels, or provide incentives for health plans to market themselves to only the most healthy potential enrollees. On the other hand, any recognition of the higher cost of these chronically ill members is an improvement over the current demographic-only method of capitation rate development.

V. Consideration of Comprehensive Data Models

The currently proposed risk adjustment methodology only uses diagnostic data from inpatient hospitalizations. HCFA has indicated that one future enhancement to the system will be to include comprehensive data, starting with ambulatory diagnostic data.

There are a number of advantages to including ambulatory data:

- Using ambulatory data can capture high risk situations even where hospitalization did not occur. Some high cost treatments, such as chemotherapy, can be performed on an outpatient basis. Even though such patients require a high level of medical services, they are not recognized as high risk by an inpatient-only system. In addition, efficient health plans which have implemented disease management processes to avoid the need for hospitalization would be treated more appropriately under a system which includes ambulatory care.

- Some risk assessment systems using ambulatory data have significantly better ability to predict risk levels. Higher predictive power means more equitable payments to health plans.

- Even if not used for risk adjustment purposes, it would be helpful for health plans to capture this data to measure the efficiency and quality of health care delivery.

- Using only inpatient diagnoses produces a financial advantage to health plans to admit patients even if hospitalization is otherwise questionable. Public policy probably argues that health plans should not be rewarded for choosing more expensive treatment than is medically necessary.

On the other hand, there are several disadvantages:

- Complete ambulatory data is not currently captured by many health plans via an electronic mechanism. Requiring ambulatory data will require the expenditure of

significant capital expenses for certain plans. This requirement will add to the overall cost of the system.

- Including ambulatory encounters will significantly increase the amount of data required from health plans. This situation increases the opportunity for error. Auditing an inpatient stay requires a relatively small expenditure relative to the cost of hospitalization. Auditing an ambulatory encounter requires an expenditure which represents a significantly larger percentage of the cost of the services provided.

- Many diagnoses are originally coded by physicians more as possibilities rather than conclusions. Hospital diagnoses are the diagnosis as of discharge, which is much more likely to reflect the best conclusion of the medical staff. Ambulatory diagnoses do not distinguish between admitting and discharge diagnoses and are, therefore, somewhat less likely to be accurate.

- Ambulatory data will need to be captured from a wide variety of sources and will likely require significantly more time to accumulate. A small fraction of the population is hospitalized in any given year, but the majority of people have some contact with the medical community. The increase in the input data to the risk assessment system would be very significant.

- There is more likelihood of inconsistent coding, because while some physician contracts may include incentives for better coding, other capitation contracts may reduce physician incentives to code thoroughly.

Including ambulatory diagnoses in the risk assessment system should increase its predictive power and therefore the equity of payments. It will reduce bias toward compensating health plans for more intensive treatment than is strictly necessary. On the other hand, including ambulatory diagnoses will increase the cost of any risk assessment system, will decrease the timeliness of the system, and may provide more opportunity for incorrect or inconsistent coding.

In general, the advantages of including ambulatory diagnoses seem to justify their use. A more thorough cost-benefit analysis should be performed. Currently, the Work Group is unaware of any other means of risk assessment which would meet the stated goals of a risk assessment system in a more efficient manner than a proper use of ambulatory diagnostic data.

VI. Implementation Issues

One of the keys to any risk adjustment methodology is the ease or difficulty with which it is implemented by HCFA and the resulting impact on Medicare+Choice health plans and their members. The recent decision by a number of Medicare+Choice organizations to withdraw from the Medicare market underscores the need for developing a system which fits within the operational needs of managed care plans.

A. Timing of Payments

HCFA has indicated that data are likely to be collected from July 1, 1998 through June 30, 1999 for application to capitation rates effective January 1, 2000. This schedule, combined with prospective risk adjustment regression factors, will result in capitation rates that lag behind the theoretical prediction period. For example, for a person hospitalized on July 1, 1998, the regression factors predict that person's cost for the year beginning July 1, 1999. However, the capitation rates using these regression factors will not be paid until January 1, 2000. This lag between the data reporting and application, while lengthy, is significantly shorter than the lag in other systems currently used, such as the Health Insurance Plan of California or the planned implementation by the Washington State Health Care Authority. Other systems, such as Business Health Care Action Group in Minneapolis, use more frequent quarterly updates.

Another timing issue concerns the determination of year 2000 benefits. The proposed timing of risk adjustment causes some serious problems for Medicare+Choice health plans. By March 1, 1999, these carriers will only know the preliminary estimated risk scores, calculated on a market wide average basis. However, the health plans must also commit to the year 2000 premium rates and benefits by May 1, 1999 when they file the Adjusted Community Rate (ACR) proposal. Health plans can not make such commitments with any degree of certainty while their income in the year 2000 is so uncertain. As a result, carriers may take various measures to limit this risk, including reducing benefits or even leaving the program altogether.

The Work Group suggests that HCFA consider addressing this timing by giving each health plan their own member-level risk scores by March 1, 1999 or earlier, or by allowing health plans to submit rate and benefit revisions after May 1, 1999. HCFA may also consider limiting the amount by which the risk adjustment factor will be used to calculate the reimbursements.

The Work Group recognizes that some of the timing issues are based on legislative requirements set out in the BBA. To the extent that any of the changes suggested by the Work Group in this report require legislative action, HCFA may want to work with Congress to modify the existing law.

B. Recalibration of the PIP-DCG Model

As discussed, HCFA intends to start using additional data in its risk adjustment methodology within the next few years. Therefore, risk adjustments are likely to be based upon updated and more comprehensive data in the near future. However, the proposed time frame for establishing a more comprehensive risk adjustment system may be aggressive. If the PIP-DCG system is used going forward, re-measurement and recalibration of the current PIP-DCG weights should be considered.

The Balanced Budget Act of 1997 enacted several changes in provider payments. These changes

are effective at different points in time, but all are effective starting after 1997. Therefore, the relative values of the diagnostic cost groupings based upon future claims will most likely differ from measurements based upon 1995 and 1996 Medicare payment rates. For example, on the fee-for service side, BBA increases payments to primary care physicians and decreases payments to surgeons. Payments to hospitals are being reduced: fiscal year 1998 hospital reimbursements are frozen at 1998 levels and capital and disproportionate share reimbursements are being reduced. Capitation payments to Medicare+Choice plans will exclude graduate medical education costs in the future; however, the direct medical education expense component of these costs are included in the claims data used to develop the risk assessment model. As previously discussed, any distortion that results from including DME may be small.

C. Examination of the Re-Scaling Factor

It is the Work Group's understanding that one of the key factors in the implementation of the PIP-DCG model is the re-scaling factor. This factor is necessary to assure that average payments for the FFS population in a county remain the same, whether the current AAPCC methods or the new PIP-DCG model is used. In other words, risk scores of health plans must be synchronized with a new measure of the average risk of Fee For Service Medicare beneficiaries in a county.

Although the re-scaling factor is not a direct part of the PIP-DCG method (re-scaling would be required with any new method), the Academy cannot determine the effects of the PIP-DCG method on health plans without understanding its implications - which means understanding how the re-scaling factor works. It is likely that health plans will feel it important that the details be disclosed prior to final implementation of the new risk adjustment methodology, so that they can fully assess the impact of the new risk adjustment system.

The credibility of the factors used in small enrollment counties and in counties with relatively few remaining fee-for-service enrollees should be considered. Since this factor is critical in the operation of any formula, it is important to understand exactly what the effect is in small counties, how sensitive the factor is to changes in base years, and what techniques HCFA will use to increase credibility or to minimize the effects of statistical fluctuations. For example, the number of Medicaid recipients in a small county may vary dramatically from year to year, especially with changes in the economy.

HCFA provided the Work Group with a general outline of how the rescaling process will work. We understand that HCFA plans to compute average risk scores for each county using three years of FFS data (1994, 1995 and 1996). However, a single year (1996) will be used in all but the smallest counties to create a restandardized rate book for determining the risk adjusted payments beginning in 2000.

The Work Group cannot adequately estimate the impact of the health status risk adjustment formula on health plans without more detailed information about the method, the calculation and the data underlying the calculations. The Work Group was unable to fully analyze the

mathematical formula used to produce the rate book or how the formula would operate with the data collected from health plans. The Work Group suggests that HCFA continue to review the rescaling process and determine its overall impact on the risk adjustment payment system.

D. Phase-In of the Risk Adjustment Methodology

HCFA has indicated it will phase-in the new risk adjustment payment system rather than make the changes all at once. It is anticipated the new payment amounts based on the health status risk scores will be blended in some fashion with payments calculated under the current system. The shift to the new methodology will be made in incremental steps over the next few years.

The Work Group believes this decision to phase-in the risk adjustment methodology will help avoid significant market disruption that might otherwise occur. The potential impact on health plans from the risk adjustment formula could be significant and both HCFA and the plans need time to fully understand the changes. This phase-in approach will also provide HCFA with the opportunity to adequately test the accuracy of data collected from plans and to verify the underlying assumptions used to develop the risk adjustment formula.

VII. Recommendations

A. Sensitivity Testing

Health Economics Research performed a number of tests on the PIP-DCG risk adjuster methodology to determine how well it predicts total expected medical costs. The recommendations made by HER regarding several key components of the model such as the use of inpatient data only, exclusion of one-day stays and the number of PIP-DCG groups to be used, appear to be reasonable based on the FFS data which was reviewed. While Health Economics Research has discussed potential bias against managed care organizations that deliver care more efficiently than fee for service providers, HER did not have managed care data to determine what, if any, bias exists.

HCFA has completed some preliminary testing of the potential impact of the new risk adjustment methodology on Medicare+Choice plans, including managed care organizations. The Work Group believes HCFA should update these tests as additional data is available from plans and the agency and health plans gain more experience with the operation of the risk adjustment mechanism.

The Work Group recommends that HCFA consider the following testing protocols to allow a more thorough analysis of its health status risk adjustor methodology:

<u>Tests Using Managed Care Data</u>

1. Continue to test the impact of the risk adjustment methodology on managed care organization revenue. Managed care organizations could experience significant decreases in revenue due to the implementation of the risk adjustment methodology. The results of the tests should be compared among managed care plans with several different characteristics:

a. Medicare enrollment (large, medium or small).

b. Total enrollment (large, medium or small).

c. Urban versus rural service areas.

d. Level of county payment rates (low, medium or high).

2. Test the impact of coding practices.

a. Start with a given set of inpatient charts.

b. Code once, within legally allowable parameters, with the goal of producing the most revenue under the risk adjustment methodology.

c. Code again, within legally allowable parameters, with the goal of producing least revenue under the risk adjustment methodology.

d. Compare the results from (b) and (c). Significant differences indicate that the method is subject to gaming.

3. HCFA's data testing needs to address the scenario in which a member enrolls in a new Medicare+Choice plan and the data from the enrollee's previous Medicare+Choice plan was inadequate.

4. Test the sensitivity of re-scaling to choice of underlying data.

a. For a sample of counties, perform the re-scaling process calculations with one and more than one year of data.

b. Test the sensitivity of re-scaling factors to the quality of Medicaid and institutionalized status fields.

5. Test the sensitivity of working aged adjustments. As the actual development and methodology for the working aged adjustments have not yet been finalized by HCFA, suggestions here are premature.

<u>Tests on FFS Data</u>

1. Test the calculation of PIP scores for small counties using one year and multiple years of FFS data.

2. Review the calculation of PIP scores across similar small counties.

3. Test PIP scores on counties with very large HMO market penetration.

Tests on Risk Assessment Formulas

1. Test variations due to differing combinations of statuses, when combining together the aged and disabled factors.

2. Test variations in the FFS demographic scores using multiple years of institutionalized or Medicaid status information by county.

B. Cost-Benefit Analysis

Consideration should be given to producing a cost-benefit analysis of the PIP-DCG methodology and any subsequent modifications. The proposed system is relatively new and it is likely that there will be difficulties in implementation. It would be very helpful to establish more accurate estimates of the cost of implementing the PIP-DCG methodology and any modifications (such as using ambulatory data) and to determine the benefits to be derived from these systems before final decisions as to implementation are made. The analysis should specifically include the costs incurred by health plans due to changes to the system. To the extent there are significant additional expenses placed on plans, they may choose to drop out of the Medicare system rather than enter into new contracts or continue existing contracts using the new risk adjustment methodology.

C. Actuarial Oversight

HCFA apparently plans to conduct additional analysis of the impact of the PIP-DCG methodology on managed care plans. It is unclear what form that impact analysis will take. In addition, there is a need for continuing monitoring and testing of the system and future modifications. The Academy suggests that additional actuarial review be included as the system and subsequent changes are implemented.

D. Improving The Current Structure

Even if the use of ambulatory diagnoses is not considered as a future enhancement, the current system is cumbersome and could be improved in terms of simplicity, accuracy and predictability.

Simplicity - The current system uses rate books which are based on calculations that have been subject to various minimums, both in absolute amounts and in relative growth, and the rate book system is both cumbersome and inaccurate. One possible change to simplify the system would be to calculate directly the rate book amount for each geographic location to a value which represents the local cost for an individual with a demographic factor of 1 and a health risk assessment factor of 1.

Accuracy - The current system intends to use the 1997 local rate book values as the basis for future years' amounts. Increases to the factors are based on national increases and predetermined legislative minimums. One possible change to improve the accuracy would be to recalculate updates on an annual basis, using local data regarding cost, demographics and risk.

Predictability - The current system recalculates values annually using one full year's worth of data. One possible change to improve predictability would be to calculate amounts quarterly on either a year-to-date or a twelve-months-rolling basis, which would allow health plans to predict what future reimbursement levels will eventually result.

E. Timing of HCFA's Initial Testing and Analysis

The Work Group believes that testing should be done to assess the potential impact of risk adjustment in the market place. These concerns relate both to the potential changes created in the marketplace and to the delivery of care to beneficiaries participating in the Medicare+Choice program.

The introduction of the proposed PIP-DCG risk adjustment mechanism into the Medicare program creates increased uncertainty and risk to Medicare+Choice plans. Testing and analysis is the only way to reduce this risk and uncertainty.

HCFA has completed significant testing based on fee-for-service data. The Work Group believes that further testing must be done if the uncertainty to health plans is to be alleviated. The testing should include two components. First is the sensitivity of the formula to changes in key assumptions. Second is determining the impact of the proposal on managed care organizations. Changes in revenue should be examined to ascertain if large dislocations will occur, which may result in unfortunate consequences to beneficiaries. A reasonable test of the proposal is whether or not a majority of health plans receive sufficient income to cover costs on an ongoing basis, without reducing benefits dramatically

Another concern is the quality and timeliness of hospital encounter data submitted by health plans, which might also be part of the testing process. The Work Group urges HCFA to complete its planned data testing, and to include a comparison of the number of submitted claims with an external standard for the expected number. Risk adjustment will be inaccurate if claims are either held back or denied due to edits, or get caught in a data processing bottleneck.

In order to understand the value of detailed testing when a risk adjustment mechanism is significantly changed, it would be instructive to select recent historical examples of significant change to the risk adjustment mechanisms in current use. The following examples come to mind:

- The use of risk adjustment in the Health Insurance Plan of California (HIPC); and
- The use of risk adjustment in managed Medicaid programs (e.g., Maryland and Oregon).

In planning for a significant change to a current risk adjustment mechanism, actuarial soundness could be analysed in a prospective manner through sufficient testing or in a retrospective manner through an actuarial oversight function (such as through a committee or an independent evaluation).

In the example of the Health Insurance Plan of California (HIPC), a one year simulation was conducted prior to the actual start of the program. The HIPC is an inpatient only model, similar to the initial proposed HCFA (PIP-DCG) approach.

In the Oregon Medicaid program, two methods were tested; the Disability Payment System and the HIPC inpatient only model. Score variations were reviewed and a method of credibility was introduced through the use of corridors on final risk adjustment scores.

In the Maryland Medicaid program, carve-outs for behavioral health, maternity, AIDS and "rare and expensive conditions" are used. Stop-loss insurance is also provided. In addition, an article describing the process in the October 1998 *Journal of Ambulatory Care Management* noted that, "it will also be important to support adequate quantitative and qualitative evaluation including assessments of the actual accuracy of the payment system and its impact on patients and providers."

In each of the examples mentioned above, there was either extensive detailed initial testing or a follow-on actuarial oversight function (actual or implied). In several other states, implementation of a risk adjustment system without testing led to problems which required changes in the methodology.

VIII. Conclusion

A. Comparison of the PIP-DCG Method With Other Models

It is the Academy's understanding of the BBA provision that HCFA is mandated to use some form of health status based payment method starting in the year 2000. HCFA's current intention to implement the PIP-DCG model leads naturally to questions regarding the choice of the PIP-DCG model versus other available payment models.

The following are the Work Group's comments about various other types of risk adjustment

models in the context of HCFA's choice of the PIP-DCG method. We recognize that there is a substantial body of research regarding various risk adjuster models and that we are providing only an actuarial perspective.

What types of models satisfy the BBA requirements?

Based on our experience, there appear to be at least three main classes of models that meet the BBA requirement for health status-based payment. These are:

- Diagnostic-based models with data gained from administrative sources (typically from claim records or encounter data files);

- Diagnostic information from clinical records, such as medical charts; and

- Survey-based health status information.

A great deal of research has been completed recently in the diagnostic/administrative class of models. PIP-DCGs fall into this category, as well as the other versions of DCGs, Ambulatory Care Groups, the Disability Payment System, the Global Risk Adjustment Method and several others. It is our understanding that any of these methods would likely satisfy the BBA requirement and most of the models have approximately the same degree of predictive power on a prospective basis.

All of these data-intensive methods assume that reliable data from health plans will be available at little marginal cost. While the diagnostic data needed to produce risk assessment results will have many uses, gathering and transmitting that data in a fully operational implementation will likely prove to be challenging. Part of the challenge is just the management, transmission and audit of the data. A related issue is the need for some health plans to revise significantly their contracts, particularly if they are globally capitating providers for both professional and institutional services, without obtaining the requisite data under current contract terms.

A few researchers have explored the use of more detailed clinical risk adjustment models in a limited setting. While most clinicians would be likely to offer more support for this class of methods, the data-gathering cost is prohibitive. At this point in time, it is our experience as actuaries that clinical information from sources such as medical records and patient charts is nearly impossible to gather, except in the most manpower-intensive manner through actual chart audits, etc. As a result, models in this category are of great theoretical interest but of little practical help for the Medicare+Choice program.

Survey-based models have also been extensively researched. Many researchers report that surveys with sufficient response rates provide predictive power that is in the same range as the diagnostic/administrative class. The experience with self-reported surveys (e.g., the RAND SF-36) indicate that the health status information gathered by surveys is dependable and provides a good base for predicting future costs. There are, however, major drawbacks to use of surveys,

particularly with the elderly. These drawbacks include:

- High cost of administering the survey;
- Possible low response rates;
- Likely difficulties that the elderly would have completing the survey by themselves;
- Possibility of gaming of survey results when payment is dependent on survey answers; and
- Concerns about privacy of health information.

Because it appears that HCFA wants to obtain health-related data on every Medicare-eligible person, surveys don't appear practical, since response rates will never be 100% (except in special cases, like the SHMO and PACE demonstrations). In addition, the cost of obtaining the data is known to be significant.

As a result, the only practical class of health-based risk adjusters, at this time, would appear to be the diagnostic/administrative models.

What models are appropriate alternatives to the PIP-DCG model?

Many observers recognize that using only inpatient data in the PIP-DCG risk adjustment model may result in a bias toward the FFS system. The potential problems with using inpatient data and limiting DCGs to hospital stays over one day have been discussed earlier in this report. As discussed, HCFA's PIP-DCG model uses only inpatient data. A number of the other risk adjustment systems that the Work Group is familiar with use either both ambulatory and inpatient data or ambulatory data only. We also note that new methods are constantly emerging, such as research into the use of prescription drug data.

From various research (including that funded by HCFA), "comprehensive data models" (i.e., those that use inpatient and ambulatory data) have superior predictive power to inpatient-only methods. The Hierarchical Condition Categories model as well as various ambulatory cost group models perform at an R-squared value of around 0.09 versus the approximately 0.06 performance of the PIP-DCG model.[11]

If feasible, a model which uses ambulatory and inpatient data is preferable. However, there are very significant current barriers to implementation of a full data model within Medicare, including:

- HCFA initially collected inpatient data and does not plan to collect ambulatory data from plans until at least October 1, 1999;

[11] See: "Risk Adjustment For The Medicare Program," Greenwald, et al., pp. 10-12.

- As discussed earlier, many Medicare health plans do not capture ambulatory data for a variety of reasons. Most plans delegate data collection to their medical providers and ambulatory data is either not collected, is available only in very crude form, or is significantly under reported; and

- While there is standardization for the collection of inpatient data by hospitals, there is a great deal of variability in the coding of ambulatory claims. Even if data could be readily gathered from physician organizations, there may be considerable "noise" in the data due to the different coding practices used by medical providers.

As a result of HCFA's actions and the current state of ambulatory data available from physician organizations which contract with health plans, we believe that the PIP-DCG method is the only choice (by default) from the diagnosis/administrative class of models.

Are there other alternative payment models which may not satisfy the BBA provisions but would be an improvement over the current Medicare reimbursement system?

Although the BBA requires a health status based method, other methods which require less intensive methods may provide improvements over the current system. To the extent that HCFA has any experience or research involving other possible alternatives, we suggest HCFA discuss its findings with the appropriate legislative representatives and staff.

For example, it may be possible to create an "enhanced demographic model" which uses more readily available information, rather than health-status-based data. Enhancements could include a payment adjustment for new entrants into health plans (although it should be based on actual health plan experience, not on prior Medicare FFS claims) or modifying payment for health plan members who die in a payment year. Again, there are other issues that arise with these suggestions (such as possible perverse incentives which may appear to pay more to health plans which have more deaths). However, we believe that HCFA should consider all alternatives to improve the current AAPCC system, rather than be limited to only a narrow class of payment models.

Is there sufficient improvement in payment through the PIP-DCG model (or other health status based model) to justify the change from the current system?

Based on the preliminary report from the Health Economics Research firm, we understand the rationale which is the foundation of the PIP-DCG model. We have requested information from HCFA which would illustrate the changes in payment which would occur in a variety of circumstances. We were told any testing could not be completed until data from health plans was collected and processed, which has not yet occurred.

While this response is understandable, it fails to recognize that the health plans themselves will be required to submit Adjusted Community Rate "bids" to HCFA by May 1, 1999, shortly after the projected March 1, 1999 date when they receive information. Two months is not sufficient time reasonably to analyze such data and prepare corresponding bids. We therefore suggest that

HCFA consider speeding up the testing and disclosure process, or that it delay implementation until the results are known to HCFA itself and other stakeholders (health plans, policy makers, beneficiaries and taxpayers).

At this point, the Academy cannot comment fully on the effectiveness of the PIP-DCG payment mechanism. There appears to be potential for the perception of significant problems by health plans, which can only be remedied by further information.

B. How Well Does the PIP-DCG Method Satisfy Risk Adjustment Goals?

The goals of risk adjustment are identified by the American Academy of Actuaries' Health Risk Adjustment Monograph and were previously outlined in Section III of this report. In addition, risk adjustment systems ought to be easily administered and should not provide perverse incentives to health plans or providers. The PIP-DCG methodology developed by HCFA can be analyzed in relation to those criteria as follows:

Reducing the Effects of Risk Selection

Risk selection is a process used to enroll larger numbers of relatively low cost individuals and fewer relatively high cost individuals. High cost individuals are avoided because their cost may exceed premiums, while healthy individuals are sought because their costs will be less than the average.

Without risk adjusters, health plan revenue is based on average costs. To reduce the effects of risk selection, the health risk assessment mechanism must estimate the cost of the individual and adjust the health plan's compensation to at least partially reflect the expected difference in cost due to health status. If the additional compensation for high cost individuals is not high enough, a plan will lose money on the high cost individual and will still have an incentive to avoid covering him or her. If additional compensation is too high, the health plan will be overpaid for the risk and may seek out such individuals for whom payment exceeds future costs.

The PIP-DCG mechanism uses hospitalizations in a year to predict an individual's cost in the following year. Thus, incentives are created for health plans to identify individuals for which they will receive PIP-DCG based payments lower than expected costs and, in turn, avoid enrolling them. In particular, the proposed PIP-DCG risk adjustment mechanism will create incentives for health plans to avoid enrolling Medicare beneficiaries with:

- Chronic medical conditions, but no inpatient admissions in the previous year that would result in increased payments under the PIP-DCG mechanism;

- High cost admissions in the previous year that do not trigger increased payments under the PIP-DCG mechanism, but where significant follow-up health care costs are expected; or

- Medical conditions which are more likely than average to cause high costs from end-of-life hospitalizations, but no increase in payments under the PIP-DCG mechanism should the Medicare beneficiary die before the following year (this is an unavoidable consequence of a prospective system based on inpatient data).

Despite these concerns, we note that incentives exist in the present reimbursement mechanism to avoid enrolling any unhealthy Medicare beneficiaries (whose expected costs are greater than payments). While the PIP-DCG methodology will include some undesirable incentives for health plans, it does reduce some of the incentives that exist under the current payment mechanism.

The use of demographic-only factors for adjustment of new participants may allow for some incentive to select. However, since these individuals are typically healthier and since health plans know that a member may stay with them for life, the one year lack of adjustment is likely a relatively minor incentive.

Adjustments based on last year's hospital diagnoses may result in some mismatch between health care cost and health plan compensation. The additional premium received through a prospective risk adjustment system is not for the high cost of the initial hospitalization, but rather is for the anticipated higher cost in the following year. In non-chronic cases or in cases where most of the cost is associated with the initial high-cost hospitalization, the future premium will not be adjusted for most of the high cost. In end-of-life hospitalizations, no insurer will receive the increased premium in the subsequent year. These mismatches may result in some continued incentive for selection.

Compensating Health Plans Fairly and Equitably for the Risks That They Assume

Fair and equitable compensation implies that the actual average health care cost is within a predictable range of the anticipated average health care cost. If a plan experiences average health care costs within this range for each age-gender, institutional, ever-disabled, Medicaid risk category, it is fairly compensated. If a higher or lower than average number of high-cost individuals are enrolled (due to risk maldistribution), the plan will not be fairly compensated unless the PIP-DCG adjustment accurately adjusts for the discrepancy. The Work Group has specific concerns about the treatment of short hospital stays, the accuracy of the Medicaid status indicator and the accuracy of the working aged status information.

If a health plan enrolls an unusually high number of individuals in a category with high cost hospitalizations, it may not be fairly compensated for the additional risk, since there is no additional premium adjustment in the year of hospitalization. However, the plan will be compensated in the year after hospitalization for projected ongoing costs.

For an individual the PIP-DCG accounts for 6% of the following year cost variability on an individual basis, which may not be sufficient to compensate for the additional cost due to potential selection abnormalities. For non-random groups of health plan enrollees, however, the PIP-DCG

method represents a significant improvement to age and gender based payments. Predictive ratios for non-random groups are much closer to 1.0, meaning that the amount of over or underpayment is much reduced.[12]

Maintaining Consumer Choice

One of the goals of the Medicare+Choice program is to increase the choice given to seniors for their Medicare coverage. The health status risk adjusters may encourage health plans to offer more choices, without the fear of being selected against if they offer programs that may attract less healthy individuals. To the extent health status risk adjusters compensated plans fairly, this may result in more choices for seniors.

It should be noted, however, that carrier participation is very sensitive to the level of funding. For example, last year over 40 Medicare+Choice health plans either withdrew entirely from the Medicare market or reduced service. These withdrawals impacted 440,000 beneficiaries who were forced to switch to another Medicare+Choice plan or a traditional FFS Medicare program.[13] A reduction in Medicare+Choice funding might also harm consumer choices by forcing a reduction in benefits. Without HCFA's risk adjustment method being more fully defined and tested, neither HCFA nor the Work Group can predict the impact of risk adjustment on consumer choice.

Protecting the Financial Soundness of the Health Care System

Financial soundness is maintained when costs do not consistently exceed income. Health plan costs primarily consist of health care expenses and administrative expenses. The proposed PIP-DCG methodology does not have a direct impact on administrative efficiency or costs, which in a poorly run health plan can threaten the financial soundness of the organization. Health status risk adjusters will help match the financial risk of a plan's health care expenses with income and thus could improve the financial soundness of the health care system.

Without additional testing, it is difficult to determine the effect of implementing the risk adjustment method on the current Medicare program. Since payment adjustments are not made in the year of initial hospitalization, there will be a lag in increasing plan premiums that could impact a small or financially challenged health plan.

In addition, many observers feel there is a positive impact or "spillover effect" on the health costs incurred by fee-for-service plans in those markets with a high degree of penetration by managed care plans. This effect is believed to result from the improved operational efficiencies of medical

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[12] See: "Risk Adjustment For The Medicare Program," Greenwald, et al., pp. 10-12.

[13] "Quick-Fix Push May Derail Long-Term Medicare Plan," Wall Street Journal, January 5, 1999.

providers in their managed care contracts which are then transferred to their FFS patients. It is possible that if fewer Medicare+Choice plans are in the market, then there will be less of this "spillover" on Medicare fee-for-service plans.

Administrative Feasibility

Many other programs such as state small group reform programs have had barriers to using a PIP-DCG mechanism because of the lack of data and administrative difficulties. This may be less of a barrier to Medicare due to the central nature of the program that allows for data on individuals to be consolidated, even if beneficiaries change plans. The program's success will depend on the accuracy and completeness of the data provided across all plans. Medicare performs extensive auditing of information on payers that increases the quality of payer data. Medicare risk programs have not had as detailed reporting requirements and will have to provide data to a centralized organization so that each individual can be classified using their hospitalization diagnosis data. The advantage of the PIP-DCG mechanism is that the information needed is part of the standardized hospital record and, therefore, generally available.

Resistance to Gaming Behavior by Insurers and Minimizing Perverse Health Plan or Provider Incentives

When reimbursement is based on claim coding, there is always a chance of "gaming" behavior through "upcoding." When there is discretion concerning the diagnosis used on an admission, the code with the higher reimbursement may be likely to be selected in order to increase the reimbursement. The PIP-DCG methodology would be less susceptible to upcoding because hospital reimbursement is not directly impacted by the risk assessment score derived from the coding and the insurer is usually removed from the actual coding. This statement is less true when the provider essentially "is" the plan, such as in the case of a provider-sponsored organization or a staff-model HMO.

Since future health plan capitation is increased when there is a qualifying hospitalization, there will be an incentive to hospitalize patients rather than use outpatient settings. Once a patient has been hospitalized during a year there is no further incentive to hospitalize or to over-utilize services, since there is no further increase in future premiums.

One-day admissions were not included in the original study. If this component is chosen as a permanent part of the method and plans understand that if they routinely keep patients more than one day for a given diagnosis, this admission will be scored as part of the PIP-DCG payment methodology, there will be an incentive to increase some stays.

C. Meeting the Needs of the Medicare System

As noted in this report, the proposed risk adjustment methodology may tend to penalize health plans which efficiently manage the delivery of health care because of the use of inpatient data and

the design of the DxGroups which make up the formula. As a result, HCFA probably wants to take steps to minimize this bias wherever practical, assuming the bias does not have a public policy basis. The Work Group recommends the implementation of a risk adjustment system based on more comprehensive data as soon as administratively feasible. The Work Group recognizes the critical limits on the current collection of Medicare data and strongly recommends that HCFA test both any new risk adjustment methods and the ability to collect comprehensive data prior to implementation. This testing should include an independent verification of mathematical calculations which make up the risk adjustment formula.

The Work Group also suggests that HCFA periodically audit the quality of data it is using to develop risk scores, and conduct tests to verify the accuracy of the assumptions which underlay the risk adjustment methodology, as the program operates over the next several years. It is important for HCFA to develop a mechanism which allows the agency to continually monitor how well the proposed methodology is meeting the provisions of BBA as well as the goals of a risk adjustment system as discussed in this report.

The Work Group acknowledges the time and effort that HCFA and its contractors have expended in preparing to implement health status-based risk adjustment for the Medicare+Choice program. The PIP-DCG risk adjustment method is a practical interim step towards better payment to Medicare+Choice contractors and is an improvement over the current demographic factor-based payment method (i.e., the AAPCC methodology), if implemented cautiously.

In addition, the PIP-DCG method appears to represent the only practical health status risk adjustment alternative available for implementation on January 1, 2000 as required by the Balanced Budget Act. The Work Group believes that more sophisticated payments methods are a step in the right direction to successful implementation of Medicare+Choice and its goal of better managing Medicare expenditures and providing choice for Medicare beneficiaries.

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Key Topics

- Currently, risk adjustment is used in the Medicare Advantage and Medicare prescription drug programs, many Medicaid programs, other governmental programs, and some private plans.
- The *Patient Protection and Affordable Care Act* (PPACA) establishes a risk adjustment system for plans in the individual and small group markets beginning in 2014.
- When determining how to implement a risk adjustment system under PPACA, it is important to balance the tradeoffs between using data that are available in a timely manner, maximizing the model's predictive accuracy, and minimizing the opportunity for gaming, while also ensuring the model can be implemented at a reasonable cost.

Risk Assessment and Risk Adjustment

Risk adjustment is an actuarial tool used to calibrate payments to health plans or other stakeholders based on the relative health of the at-risk populations. In particular, if insurers are limited in the extent to which premiums can vary by health status or other factors that are associated with health spending, risk adjustment can help ensure that health plans are appropriately compensated for the risks they enroll. A well-designed risk-adjustment system is one that properly aligns incentives, limits gaming, and protects risk-bearing entities (e.g., insurers, health plans). Currently, risk adjustment is used in the Medicare Advantage and Medicare prescription drug programs, many Medicaid programs, other governmental programs, and some private plans. This paper is intended to provide background on risk adjustment and considerations for implementing risk-adjustment methods. Because risk adjusting plan payments relies on risk assessment to determine the relative risk of insured populations, an overview of the risk-assessment process is also provided.

Health Risk Assessment

Health risk assessment is a means of objectively determining whether an individual or group represents a risk that is reasonably close to the population average and, if not, of quantifying the relative deviation from the average. Individuals who are expected to incur higher health spending are considered relatively worse (i.e., higher) risks than those who are expected to incur lower spending.

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In a typical health risk assessment, each individual is scored based on an algorithm that incorporates information on the individual's age, any illnesses during the previous year, and other factors. This process can operate like a multiple-choice questionnaire with many questions. The response to each question generates a numerical value, which is combined to produce a risk score for each individual, so that *a weighted average value* can be determined and used to compare the relative risk of one population to another. In other words, the relative risk of any particular risk category is the ratio of the average health spending for all individuals in the risk category to the average health spending for all individuals in all risk categories.

Claims-based risk-assessment models use data, typically from a 12-month period, to identify underlying conditions and assign a risk score. For example, a risk assessment model might use health care claims data from the 12 months ending June 2009 to predict health care spending in calendar year 2010. The gap period between June 2009 and the beginning of 2010 is necessary for most of the claims data from the 12-month period to become available, be considered complete, and be evaluated by the risk-assessment model.

Table 1 provides a hypothetical risk score development for a sample member. The example shows each of the member's conditions identified from historic claims data and the resulting risk score.

Table 1. Hypothetical Risk Score Development

Risk Marker	Risk Weight
Male Age 32	0.22
Diabetes with significant co-morbidities	1.32
Asthma / COPD	0.96
Low cost dermatology	0.30
Total	**2.80**

In this hypothetical example, a 32-year-old male has diabetes, asthma, and a low-cost dermatology condition. His risk score is the sum of the demographic risk weight and the risk weights for his indicated conditions (most risk-assessment models have dozens of condition categories). In this example, the population average risk score is 1.0. This particular member has a risk score of 2.80, which means that his costs are expected to be about 2.8 times that of an average member according to this risk-assessment model.

Risk assessment can be used to risk-adjust payments to health plans and to providers who accept capitated payments. It also can be used by health plans for underwriting, identifying high-cost patients for disease management programs, and measuring provider efficiency.

Currently Available Health Risk-Assessment Tools

A wide range of health risk-assessment tools are currently available, many from private vendors who charge a fee for their use. Basic risk-assessment models include demographic factors such as age, gender, and self-reported health-status information. More sophisticated models use medical condition or treatment information.

The Society of Actuaries (SOA) undertook a study that evaluated the predictive accuracy of 12 claims-based health risk-assessment models.[1] To varying degrees, the different models incorporated information on medical diagnoses, medical procedures, prescription drugs used, previous total health spending, and previous prescription drug spending. For instance, some models relied solely on either medical condition information or prescription drug utilization, while others used both.

In general, the SOA study found that when used prospectively, the models were able to explain between 15 percent and 28 percent of the variation in medical claim costs across individuals (i.e., the R-squared ranged from 15 percent to 28 percent). Although that leaves a

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significant portion of variation unexplained, this is an improvement over using age and gender information only, as together they explain less than 5 percent of the variation in medical claims. In addition, risk assessment does a much better job of explaining variations in costs among larger groups than among individuals. For instance, explained variation for groups greater than 500 can exceed 90 percent. This is an important distinction because risk adjustment typically is applied to large groups of individuals.

Aside from predictive accuracy, other criteria are important when evaluating and selecting a risk-assessment model, including cost, ease of use, access to quality data, underlying logic of the model, transparency, and resistance to gaming. Many of these will be explored in more detail below.

Health Risk Adjustment

Health risk adjustment is the process of adjusting payments to organizations (usually health insurance plans) based on differences in the risk characteristics of people enrolled in each plan. Risk adjustment relies on risk assessment to determine the relative risks among individuals and groups.

Risk-adjustment methods can be designed to accomplish several goals, including:

- Compensating insurers fairly and equitably for the risks they assume;
- Reducing the effects of either inadvertent or intentional risk selection so that insurers in a competitive market can compete on the basis of medical and administrative efficiency and quality of service and care, rather than on the ability to select risk;
- Maintaining consumer choice from among multiple health plans based on premiums that reflect plan design differences and relative medical and administrative efficiencies, rather than selection;
- Protecting the financial soundness of the system.

Risk adjustment may be necessary when rating restrictions prohibit health plans from recognizing health status or other risk factors in premium rates. For instance, in a pure community-rating environment, premiums are not allowed to vary by health status or other factors that are associated with health spending, such as age and gender. Even when rating rules allow the use of such factors, the degree to which premiums are allowed to vary by insured characteristics is often limited. When premiums for individuals at risk for high health spending don't reflect fully those higher costs, health plans could develop strategies for avoiding high-risk individuals. Risk adjustment can be used to reallocate premium income among plans to take into account the health status of plan participants. Risk adjustment helps to make payments to competing plans more equitable, thereby protecting plan solvency and reducing the incentives for competing plans to avoid high-risk individuals with higher-than-average costs.

Risk adjustment would also be appropriate when multiple health plan options are available to members. When plans with high cost-sharing requirements are offered alongside plans with low cost-sharing requirements, people who expect to be high users of medical care tend to enroll in the plans with lower cost sharing, even after the plan design differences are reflected in the premium. Reflecting this selection in the premiums would result in even larger premium differences between the plan offerings. Risk adjustment can be used by a plan to internally reallocate funds to adjust for selection, when actual premiums are set to reflect plan-design differences, but not the full effect of selection.

How Health Risk Adjustment Is Used Today

MEDICARE—Risk adjustment is used to adjust plan payments in the Medicare Advantage (MA) program, as well as in the Part D prescription drug program. Payments to MA plans currently are adjusted to reflect enrollee

[1] Ross Winkelman and Syed Mehmud. 2007. *A Comparative Analysis of Claims-Based Tools for Health Risk Assessment.* Schaumburg, Ill.: Society of Actuaries.

demographics and diagnoses based on historical medical claims data, as well as Medicaid, disability, and institutional status. Payments to prescription drug plans are adjusted using similar methods, including demographics and diagnoses based on historical medical claims data, as well as low-income subsidy eligibility and institutional status. Data on drug claims are scheduled to be incorporated into the risk-adjustment process in 2011. For both MA plans and drug plans, plan payments for new enrollees are adjusted for demographics and non-diagnosis-based factors only.

MEDICAID—Many state Medicaid programs include managed care programs, in which Medicaid enrollees can or must enroll with a private health insurance company. Many of these state Medicaid programs employ claims-based risk adjustment to mitigate selection issues, using various approaches and methodologies.

MASSACHUSETTS—The Commonwealth Care program offers subsidized health insurance coverage to income-eligible individuals and is set up structurally like a Medicaid managed care program in which private health insurance companies bid for the ability to enroll eligible members. Risk adjustment has been implemented to mitigate selection issues among the health plans, with risk-adjustment factors based on demographics and diagnoses. Risk-adjustment mechanisms are not currently being used in the state's Commonwealth Choice program, which offers unsubsidized coverage.

EMPLOYER-BASED PLANS—In the private-plan setting, risk adjustment is used to modify plan payments, particularly when employers offer multiple plan options to their employees. Some employers who offer multiple plan options pay risk-adjusted premiums to the plans, depending on the average risk profile of employees enrolled in each plan. The employee share of the premiums can be set to include only the impact of plan-design differences or also to include, at least in part, the impact of selection.

Considerations When Determining How to Implement Risk Adjustment Under the *Patient Protection and Affordable Care Act*

The *Patient Protection and Affordable Care Act* (PPACA), enacted in March 2010, includes provisions related to risk adjustment. In particular, non-grandfathered plans in the individual and small group markets will be subject to risk adjustment beginning in 2014. States will assess charges to plans with enrollment of less-than-average risk and will provide payments to plans with enrollment of higher-than-average risk. The Secretary of Health and Human Services, in consultation with states, the National Association of Insurance Commissioners (NAIC), and other interested parties, will establish the criteria and methods to be used in the risk-adjustment process. The discussion below provides some initial guidance on the various issues that will need to be addressed in the regulatory process.

Health-based data options

In addition to incorporating demographic information and other appropriate non-health based characteristics (e.g., low-income eligibility status), medical condition indicators are a key component of risk-adjustment models. Determining which specific health-based indicators to use will depend on the availability of timely data and the susceptibility of the indicators to gaming. When possible, it is preferable to base risk-adjustment systems on diagnosis-related health data, rather than on treatment data, because diagnosis data is more resistant to gaming. (More detail on the need for risk-adjustment systems to be resistant to gaming is provided below.)

In general, claims information can be used to develop risk-adjustment systems based on three types of data either alone or in combination—diagnosis data from inpatient claims, diagnosis data from outpatient claims, and pharmacy claims data. Each data source comes with advantages and disadvantages for use in risk-adjustment models.

- **DIAGNOSIS DATA FROM INPATIENT CLAIMS**—Diagnosis data from inpatient claims are very resistant to gaming. However, diagnosis

information can be incomplete, especially when providers are paid on a capitated basis rather than on a fee-for-service basis, and there can be a long lag in the data-collection process. In addition, inpatient diagnosis data will not capture diagnosis information for plan enrollees who only use outpatient services.

- **DIAGNOSIS DATA FROM OUTPATIENT CLAIMS**—Diagnosis data from outpatient claims are more susceptible to gaming than inpatient diagnosis data, in part because outpatient services can be more discretionary. They are therefore potentially more reflective of differences in treatment patterns than underlying diagnoses. However, including diagnoses from both inpatient and outpatient claims data provide a more complete assessment of an individual's relative risk and has become the norm in risk-adjustment methodologies.
- **PHARMACY CLAIMS DATA**—Pharmacy data are fairly uniform across health plans, complete very quickly, and do not have many of the issues associated with diagnosis data. But because pharmacy prescriptions are more treatment-based than diagnosis-based, and more discretionary in nature than some medical procedures, pharmacy data are even more susceptible to gaming than outpatient diagnosis data. Also, pharmacy-only risk-assessment models typically cannot distinguish between different levels of severity among enrollees who are prescribed drugs in the same therapy class. However, risk-adjustment models that use only pharmacy claims data have proven to be surprisingly powerful predictors of future medical costs—the SOA risk-assessment study found that, in terms of predictive power, pharmacy-only models rival models that use both diagnosis data and pharmacy data. Nevertheless, the gaming concerns with pharmacy data are significant and should be addressed carefully if a pharmacy risk-assessment model is used.

Resistance to Gaming

Risk-adjustment systems should be designed to minimize the extent to which they can be manipulated to their benefit by health plans or providers. Health care provider coding practices vary considerably across organizations and individuals. Risk adjustment provides incentives for organizations to completely report encounters with patients and prescribe necessary medications so that the organization gets full credit for the conditions of its individuals. However, incentives can be so strong that they could cause providers to upcode diagnoses, an activity usually referred to as "gaming." Pharmacy-based risk-adjustment models are particularly susceptible to gaming concerns—there is often a choice of appropriate medications, giving providers the opportunity to prescribe the medication that will maximize risk-adjustment payments. Carefully selecting a risk-adjustment model and methodology is important to prevent gaming. The administering agency or organization should put controls in place to detect and resolve inappropriate coding or prescribing.

Individual or Aggregate Adjustment

Risk-adjustment systems always calculate risk scores for each individual, but there are two basic approaches for using individual scores to adjust plan payments. For the purposes of illustrating these approaches, assume that a risk-adjustment program uses claims data from July 2008 to June 2009 to calculate individual member-level risk scores, with a premium payment period of calendar year 2010.

Under an 'individual' approach, risk scores follow members during the rating period. In the example, the risk-adjustment factor for each health plan will be based on who is enrolled with that health plan during 2010.

Under an 'aggregate' approach, risk-adjustment factors for each health plan are based on the enrollment in that health plan during the data collection period (July 2008 to June 2009). The aggregate approach assumes risk differences across health plans do not change rapidly and are stationary across time.

The aggregate approach is simpler—plan risk scores can be calculated in a more timely fashion and claims-based risk scores (rather than risk scores based only on demographics)

can be assigned to a higher share of individuals since new enrollees are not explicitly scored. However, the aggregate approach does not measure any shifts in risk caused by changes in enrollment, product offerings, or other program changes. This is especially problematic for new programs and health plans that are new to a market.

The Medicare Advantage program, some state Medicaid programs, and the Massachusetts Commonwealth Care program currently use the individual-based risk-adjustment approach. Other state Medicaid programs use the aggregate-based approach and a few use hybrid approaches.

Prospective or Concurrent Models

To predict health spending in any given period, prospective risk-assessment models use information on health spending indicators from a previous period. Concurrent risk-assessment models use information on health spending indicators during the current period. Some health status indicators, such as the diagnosis of a chronic condition, are accurate predictors of health spending not only in the current year, but also in future years. Other health status indicators, such as a broken arm or leg due to an accident, can help predict costs in the current year, but do not necessarily translate to spending in future years. Because concurrent models will reflect new diagnoses that arise during the year, retrospective payment adjustments are typically required.

Whether an individual-based or aggregate-based risk-adjustment approach is used will help determine whether a prospective or concurrent model is used. Individual-based approaches generally use prospective models and aggregate-based approaches generally use concurrent models.

Concurrent models typically differentiate more between health plans' risks than prospective models. But, they also can be less resistant to gaming. Because current diagnoses and/or treatments can affect the risk-adjusted payments to plans, there may be more opportunity and incentive to code diagnoses or prescribe treatments to maximize the payments to the plan.

Administrative Costs

The administrator or payer charged with coordinating the risk-adjustment process will incur various administrative costs, including the following:

- If a licensed risk-assessment model is selected, the vendor will typically charge a periodic flat fee as well as a per-enrollee fee. If, instead, a publicly available free risk-assessment model is used, such fees would be avoided.
- There are also costs associated with collecting the demographic and claims-based data that will be used as inputs to the risk-assessment model, checking and correcting the data for any inaccuracies, standardizing the data for consistency, storing the data, and processing the data through the risk-assessment model. To some extent, these costs already might be incurred if data are being collected and used for other purposes, such as clinical outcomes analyses or provider efficiency measurement.
- There will be costs associated with reporting requirements.
- If retrospective payment reconciliations are performed, costs will be incurred for any associated data analysis and reporting activities.

Administrative costs during the first year of implementation can be especially high, as they will include any start-up costs associated with setting up the data collection and reporting systems. Also, many private vendors of risk-assessment models have standard models that can be used to adjust payments to public or private plans. However, these models typically need to be calibrated or customized to reflect the specific program and characteristics of the covered population. It is important to consider the extent of the differences between how the model was developed and how it will be used when deciding whether to customize (recalibrate) it. If it is decided to customize the model, the associated costs also will be incurred as part of start-up costs. After the start-up period, the annual implementation costs can be more moderate. The start-up and annual costs could

be passed along to the plans or be financed through alternative means.

In addition to any administrative costs incurred by the administrator or payer, the participating plans may incur costs associated with data and reporting activities. They will also incur model vendor fees if they wish to replicate in-house the risk assessment results that the payer presents to them.

Other considerations

- **PHASED-IN IMPLEMENTATION**—When a risk-adjustment system is first put into place, complete data on health-based information may not be available for many plan enrollees, and health plan diagnosis data may not be fully coded. Therefore, it may be appropriate to phase in implementation of a risk-adjustment payment system over a period of time. During the initial years, demographic and other non-health based information can be used, with claims-based risk-adjustment models phasing in over time. The Medicare Advantage program has taken this approach. Risk-sharing provisions, such as risk corridors or reinsurance, can be used during the first years of a new health program to help protect health plans against adverse selection while the risk adjustment model is being phased in. Because it may take health plans time to improve their diagnosis data reporting and pharmacy data, it may be appropriate to phase from a demographic-based risk-adjustment system to a pharmacy-based system to a diagnosis-based system using inpatient and/or outpatient claims. The Florida Medicaid program, for instance, has taken this approach.
- **REINSURANCE**—Risk-assessment tools perform very well for projecting relative costs of large groups composed of a broad cross section of health risks. Future health costs can be fairly predictable for individuals identified as having chronic conditions since extensive data are available to estimate future spending based on prior experience. However, some enrollees will likely need extremely expensive treatment for unusual conditions. This spending will be less well-predicted by the risk-assessment model; the low frequency of the condition means that there will be little, if any, experience data available upon which to base spending estimates. In addition, some individuals will experience health spending associated with accidents or other acute episodes that won't be predicted at all by a risk-assessment model that relies on prior claims or diagnoses. Reinsurance, either through the private market or sponsored by the government, can help protect health plans from unpredictable swings in costs that can occur despite the existence of a risk-adjustment system.
- **BUDGET NEUTRALITY**—Risk adjusting plan payments is typically done on a budget-neutral basis. Plans with a disproportionate share of higher-risk enrollees receive relatively higher payments, and plans with a disproportionate share of lower-risk enrollees receive relatively lower payments. Therefore, the net effect of risk adjustment is a movement of money among participating organizations, rather than a net increase or decrease in total payments within the system.
- **ALIGNING RISK-ADJUSTMENT METHODOLOGY AND PREMIUM RATE DEVELOPMENT**—Risk adjustment is used to ensure that plans receive adequate payments when rating restrictions limit the extent to which premiums are allowed to vary by known risk factors. Therefore, it is important to align the risk-adjustment methodology with the underlying premium-rate development. To the extent that certain factors are incorporated in premiums, these factors may not be appropriate to include in the risk-adjustment methodology. Otherwise, these factors may be double-counted and reflected in both the premiums and the risk-adjustment payments.
- **WHICH PLANS TO RISK ADJUST**—When individuals obtain their coverage through a particular mechanism, such as through a state Medicaid program or through their employer, it can be feasible to risk-adjust the plans competing for those individuals.

For instance, risk-adjusted payments can be made on a budget-neutral basis to Medicaid plans based on the relative risk of their enrollees. Similarly, an employer offering multiple plan options to its employees can risk-adjust the plan payments to account for selection effects between the plans. However, it can be more complicated to implement a risk-adjustment mechanism in a broader market context unless there is a centralized administrative authority. For instance, it may be feasible to risk-adjust plan payments if there is a market exchange or connector system, with payment adjustments flowing between plans in the exchange. However, if insurance plans also are offered to the same population outside of the exchange, the risk-adjustment system ideally would include these plans (including self-insured plans) within the risk-adjustment system as well. Otherwise, there could be incentives to game the risk-adjustment system by enrolling certain individuals or groups inside or outside of the exchange, depending on which method is more advantageous to the plan. It may be administratively difficult, however, to include plans outside of the exchange in the risk-adjustment system due to increased data collection difficulties.

Conclusion

Risk-adjustment mechanisms can help mitigate incentives for plans to develop strategies to avoid high-cost enrollees, leading to plan competition that is based on risk selection rather than on medical and administrative efficiencies and quality. Risk adjustment helps to ensure that plans receive adequate payments when rating restrictions limit the extent to which premiums are allowed to vary by known risk factors. It is most needed when there is wide variability in claims among enrollees in the same premium category. That said, the administrative costs of a risk-adjustment system can be substantial, especially during the start-up period. These costs need to be reasonable compared to the amount of money that is shifted between plans through the risk-adjustment process.

A well-designed risk-adjustment system is one that properly aligns incentives and protects risk-bearing organizations. To do so, it must be designed to balance the tradeoffs between using data that are available in a timely manner, maximizing the model's predictive accuracy, and minimizing the opportunity for gaming, while also ensuring the method can be implemented at a reasonable cost.

April 7, 2008

NOTE TO: All Medicare Advantage Organizations, Prescription Drug Plan Sponsors, and Other Interested Parties

SUBJECT: Announcement of Calendar Year (CY) 2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies

In accordance with section 1853(b)(1) of the Social Security Act (the Act), we are notifying you of the annual Medicare Advantage (MA) capitation rate for each MA payment area for 2009, and the risk and other factors to be used in adjusting such rates. Attached is a spreadsheet containing the capitation rate tables for CY 2009. Also included is a spreadsheet which shows the statutory component of the regional benchmarks. The rates are posted on the Centers for Medicare & Medicaid Services (CMS) web site at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/ under Ratebooks and Supporting Data.

Attachment I shows the final estimates of the increase in the National Per Capita MA Growth Percentage for 2009. As discussed in Attachment I, the final estimate of the increase in the National Per Capita MA Growth Percentage for combined aged and disabled beneficiaries is 4.24 percent. These growth rates will be used as the minimum update percentage in calculating the 2009 rates, except for the ESRD State rates, which are subject to a 2 percent minimum increase under Section 1853(a)(1)(H). The county fee-for-service (FFS) rates for 2009 were rebased. Under section 1853(c)(1) of the Act, MA capitation rates in 2009 will be based on the higher of the county FFS per capita amount or a minimum percent increase over the 2008 rate.

Attachment II provides a set of tables that summarizes many of the key Medicare assumptions used in the calculation of the National Per Capita MA Growth Percentage.

Section 1853(b)(4) of the Act requires CMS to release county-specific per capita FFS expenditure information on an annual basis, beginning with March 1, 2001. In accordance with this requirement, FFS data for CY 2006 is being posted on the above website at this time as well.

We received comments from 30 organizations in response to CMS' request for comments on the Advance Notice of Methodological Changes for CY 2009 MA Capitation Rates and Part D Payment Policies (Advance Notice), published on February 22, 2008. Six comments were from Associations, 23 comments were from plans, and one comment was from the Congress. Attachment III summarizes key policy changes from the approaches proposed in the Advance Notice , the key policies adopted as proposed in the Advance Notice, and then presents responses to comments on Part C and Part D issues in the Advance Notice. Attachment IV contains tables with the 2009 CMS-HCC risk adjustment factors, Part D benefit parameters, and other information. The CMS-HCC factors are also available in Excel files on the CMS website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/RSD/list.asp#TopOfPage.

Questions can be directed to:

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Attachments

Attachment I. Final Estimate of the Increase in the National Per Capita MA Growth Percentages for 2009

The first table below shows the National Per Capita MA Growth Percentages (NPCMAGP) used to determine the minimum update percentages for 2009. Adjustments of 0.22 percent, 2.07 percent, -11.69 percent and 0.48 percent for aged, disabled, ESRD, and combined aged and disabled, respectively, are included in the NPCMAGP to account for corrections to prior years' estimates as required by section 1853(c)(6)(C). The combined aged and disabled increase is used in the development of the ratebook.

The second table below shows the monthly actuarial value of the Medicare deductible and coinsurance for 2008 and 2009. In addition, for 2009, the actuarial value of deductibles and coinsurance is being shown for non-ESRD only, since the plan bids will not include ESRD benefits in 2009. These data were furnished by the Office of the Actuary.

Increase in the National Per Capita MA Growth Percentages for 2009

	Prior Increases	Current Increases			NPCMAGP for 2009 With Sec.1853(c)(6)(C) adjustment[1]
	2003 to 2008	2003 to 2008	2008 to 2009	2003 to 2009	
Aged	33.78%	34.07%	3.66%	38.97%	3.88%
Disabled	38.10%	40.96%	4.20%	46.87%	6.35%
ESRD[2]	28.99%	13.91%	1.34%	15.44%	- 10.51%[3]
Aged+Disabled	34.24%	34.89%	3.74%	39.94%	4.24%

[1]Current increases for 2003 to 2009 divided by the prior increases for 2003 to 2008.

[2]Starting in 2008, increases for ESRD reflect an estimate of the increase for dialysis-only beneficiaries.

[3]The NPCMAGP for ESRD for 2009 will be the minimum 2 percent increase.

Monthly Actuarial Value of Medicare Deductible and Coinsurance for 2008 and 2009

	2008	2009	Change	2009 non-ESRD
Part A Benefits	36.71	37.94	3.35%	36.35
Part B Benefits[4]	105.69	97.97	- 7.30%	92.30
Total Medicare	142.40	135.91	- 4.56%	128.65

[4]Includes the amounts for outpatient psychiatric charges.

Medical Savings Account (MSA) Plans. The maximum deductible for current law MSA plans for 2009 is $10,500. For MSA demonstration plans, the 2009 minimum deductible amount is $2,200, the maximum out-of-pocket amount is $10,500, and the minimum difference between the deductible and deposit is $1,000.

Attachment II. Key Assumptions and Financial Information

The USPCCs are the basis for the National Per Capita MA Growth Percentages. Attached is a table that compares the published United States Per Capita Costs (USPCC) with current estimates for 2000 to 2009. In addition, this table shows the current projections of the USPCCs through 2011. We are also providing an attached set of tables that summarizes many of the key Medicare assumptions used in the calculation of the USPCCs. Most of the tables include information for the years 2000 through 2011.

All of the information provided in this enclosure applies to the Medicare Part A and Part B programs. Caution should be employed in the use of this information. It is based upon nationwide averages, and local conditions can differ substantially from conditions nationwide.

None of the data presented here pertain to the Medicare prescription drug benefit.

Comparison of Current Estimates of the USPCC with Published Estimates

PART A:

Calendar Year	Aged			Disabled			Aged and Disabled		
	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio
2000	$263.29	$286.18	1.087	$218.80	$230.48	1.053	$257.32	$278.61	1.083
2001[1]	$283.70	$288.62	1.017	$234.62	$235.50	1.004	$276.94	$281.25	1.016
2001[2]	$283.70	$298.43	1.052	$234.62	$242.00	1.031	$276.94	$290.59	1.049
2002	$297.13	$294.46	0.991	$248.90	$242.06	0.973	$290.30	$287.10	0.989
2003	$304.89	$290.50	0.953	$254.01	$234.89	0.925	$297.41	$282.50	0.950
2004	$321.69	$326.78	1.016	$268.45	$271.69	1.012	$313.59	$318.43	1.015
2005	$344.77	$348.28	1.010	$288.32	$291.45	1.011	$335.90	$339.49	1.011
2006	$354.98	$351.38	0.990	$302.34	$295.15	0.976	$346.55	$342.67	0.989
2007	$369.31	$370.34	1.003	$326.21	$318.17	0.975	$362.38	$362.06	0.999
2008	$395.22	$385.61	0.976	$356.44	$344.31	0.966	$389.02	$379.02	0.974
2009	$414.22	$414.22	1.000	$378.40	$378.40	1.000	$408.50	$408.50	1.000
2010	$430.77			$395.77			$425.13		
2011	$445.76			$412.87			$440.46		

PART B:

Calendar Year	Aged			Disabled			Aged and Disabled		
	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio
2000	$199.17	$218.78	1.098	$183.62	$195.91	1.067	$197.24	$216.03	1.095
2001[1]	$219.73	$217.57	0.990	$206.93	$191.99	0.928	$218.10	$214.32	0.983
2001[2]	$219.73	$223.83	1.019	$206.93	$198.69	0.960	$218.10	$220.63	1.012
2002	$233.03	$244.17	1.048	$226.37	$218.23	0.964	$232.16	$240.76	1.037
2003	$250.81	$232.24	0.926	$246.76	$211.58	0.857	$250.26	$229.47	0.917
2004	$276.49	$263.39	0.953	$274.60	$252.74	0.920	$276.22	$261.89	0.948
2005	$296.08	$281.90	0.952	$292.35	$272.79	0.933	$295.54	$280.58	0.949
2006	$318.61	$311.28	0.977	$312.22	$316.82	1.015	$317.66	$312.09	0.982
2007	$332.84	$334.02	1.004	$329.40	$343.76	1.044	$332.32	$335.47	1.009
2008	$349.79	$354.44	1.013	$349.43	$343.26	0.982	$349.74	$352.75	1.009
2009	$358.03	$358.03	1.000	$357.10	$357.10	1.000	$357.89	$357.89	1.000
2010	$370.01			$371.74			$370.27		
2011	$381.97			$386.31			$382.63		

PART A & PART B:

Calendar Year	Aged			Disabled			Aged and Disabled		
	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio	Current Estimate	Published Estimate	Ratio
2000	$462.46	$504.96	1.092	$402.42	$426.39	1.060	$454.56	$494.64	1.088
2001[1]	$503.43	$506.19	1.005	$441.55	$427.49	0.968	$495.04	$495.57	1.001
2001[2]	$503.43	$522.26	1.037	$441.55	$440.69	0.998	$495.04	$511.22	1.033
2002	$530.16	$538.63	1.016	$475.27	$460.29	0.968	$522.46	$527.86	1.010
2003	$555.70	$522.74	0.941	$500.77	$446.47	0.892	$547.67	$511.97	0.935
2004	$598.18	$590.17	0.987	$543.05	$524.43	0.966	$589.81	$580.32	0.984
2005	$640.85	$630.18	0.983	$580.67	$564.24	0.972	$631.44	$620.07	0.982
2006	$673.59	$662.66	0.984	$614.56	$611.97	0.996	$664.21	$654.76	0.986
2007	$702.15	$704.36	1.003	$655.61	$661.93	1.010	$694.70	$697.53	1.004
2008	$745.01	$740.05	0.993	$705.87	$687.57	0.974	$738.76	$731.77	0.991
2009	$772.25	$772.25	1.000	$735.50	$735.50	1.000	$766.39	$766.39	1.000
2010	$800.78			$767.51			$795.40		
2011	$827.73			$799.18			$823.09		

[1]Applies to M+C ratebook for January to February, 2001
[2]Applies to M+C ratebook for March to December, 2001

Comparison of Current Estimates of the USPCC with Published Estimates- continued

PART A:

Calendar Year	ESRD Current Estimate	ESRD Published Estimate	Ratio
2000	$1,311.44	$1,443.13	1.100
2001[1]	$1,424.11	$1,541.76	1.083
2001[2]	$1,424.11	$1,597.34	1.122
2002	$1,459.75	$1,435.62	0.983
2003	$1,570.85	$1,596.58	1.016
2004	$1,682.53	$1,685.25	1.002
2005	$1,589.31	$1,759.90	1.107
2006	$1,635.76	$1,717.97	1.050
2007	$1,687.04	$1,874.54	1.111
2008	$1,812.40	$1,855.03	1.024
2009	$1,911.06	$1,911.06	1.000
2010	$1,996.18		
2011	$2,077.10		

PART B:

Calendar Year	ESRD Current Estimate	ESRD Published Estimate	Ratio
2000	$1,676.80	$2,436.13	1.453
2001[1]	$1,880.19	$1,875.57	0.998
2001[2]	$1,880.19	$1,921.53	1.022
2002	$1,995.37	$2,014.79	1.010
2003	$2,021.40	$1,847.53	0.914
2004	$2,161.10	$2,552.18	1.181
2005	$2,304.98	$2,739.99	1.189
2006	$2,257.38	$2,454.98	1.088
2007	$2,308.31	$2,470.81	1.070
2008	$2,279.51	$2,773.04	1.217
2009	$2,235.70	$2,235.70	1.000
2010	$2,250.59		
2011	$2,269.06		

PART A & PART B:

Calendar Year	ESRD Current Estimate	ESRD Published Estimate	Ratio
2000	$2,988.24	$3,879.26	1.298
2001[1]	$3,304.30	$3,417.33	1.034
2001[2]	$3,304.30	$3,518.87	1.065
2002	$3,455.12	$3,450.41	0.999
2003	$3,592.25	$3,444.11	0.959
2004	$3,843.63	$4,237.43	1.102
2005	$3,894.29	$4,499.89	1.156
2006	$3,893.14	$4,172.95	1.072
2007	$3,995.35	$4,345.35	1.088
2008	$4,091.91	$4,628.07	1.131
2009	$4,146.77	$4,146.77	1.000
2010	$4,246.77		
2011	$4,346.16		

[1]Applies to M+C ratebook for January to February, 2001
[2]Applies to M+C ratebook for March to December, 2001

Summary of Key Projections Under Present Law[1]

Part A

Year	Calendar Year CPI Percent Increase	Fiscal Year PPS Update Factor	FY Part A Total Reimbursement (Incurred)
2000	3.5	1.1	-0.8
2001	2.7	3.4	7.9
2002	1.4	2.8	7.7
2003	2.2	3.0	3.9
2004	2.6	3.4	8.5
2005	3.5	3.3	8.9
2006	3.2	3.7	5.8
2007	2.8	3.4	6.5
2008	2.8	3.3	8.3
2009	2.5	2.8	7.9
2010	2.8	1.4	6.4
2011	2.8	2.8	6.0

Part B[2]

Calendar Year	Physician Fee Schedule		Part B Hospital	Total
	Fees	Residual[3]		
2000	5.5	3.6	-0.8	10.4
2001	4.8	4.1	12.5	9.7
2002	–4.8	6.1	-1.4	6.1
2003	1.7	4.5	5.4	6.9
2004	1.5	5.9	9.9	9.7
2005	1.5	3.3	8.3	6.8
2006	0.2	4.7	4.5	5.9
2007	0.0	4.0	2.2	3.3
2008	–4.6	5.2	4.7	3.9
2009	–10.4	6.6	6.5	1.7
2010	–5.5	3.2	7.0	2.9
2011	–5.3	3.2	6.6	2.9

[1]Percent change over prior year.
[2]Percent change in charges per Aged Part B enrollee.
[3]Residual factors are factors other than price, including volume of services, intensity of services, and age/sex changes.

Medicare Enrollment Projections Under Present Law (In Millions)

Non-ESRD

Calendar Year	Part A		Part B	
	Aged	Disabled	Aged	Disabled
2000	33.700	5.222	32.421	4.590
2001	33.904	5.416	32.582	4.747
2002	34.080	5.619	32.713	4.915
2003	34.427	5.929	33.027	5.187
2004	34.837	6.249	33.282	5.458
2005	35.244	6.574	33.584	5.747
2006	35.781	6.820	33.960	5.975
2007	36.361	6.965	34.363	6.128
2008	37.032	7.042	34.927	6.197
2009	37.793	7.178	35.557	6.318
2010	38.503	7.398	36.131	6.496
2011	39.408	7.570	36.833	6.646

ESRD Part A

Calendar Year	Part A			
	Aged	Disabled	299I[1]	Total
2000	0.136	0.109	0.088	0.333
2001	0.144	0.115	0.091	0.349
2002	0.151	0.120	0.094	0.366
2003	0.160	0.126	0.096	0.383
2004	0.167	0.132	0.100	0.399
2005	0.174	0.137	0.104	0.415
2006	0.182	0.141	0.107	0.430
2007	0.190	0.143	0.110	0.443
2008	0.199	0.144	0.113	0.455
2009	0.206	0.146	0.116	0.468
2010	0.213	0.149	0.118	0.480
2011	0.219	0.152	0.120	0.491

ESRD Part B

Calendar Year	Part B			
	Aged	Disabled	299I	Total
2000	0.138	0.104	0.082	0.324
2001	0.145	0.110	0.084	0.338
2002	0.153	0.114	0.087	0.354
2003	0.161	0.120	0.088	0.370
2004	0.168	0.125	0.089	0.382
2005	0.175	0.130	0.092	0.396
2006	0.183	0.133	0.095	0.411
2007	0.190	0.135	0.097	0.422
2008	0.198	0.135	0.100	0.433
2009	0.206	0.137	0.102	0.444
2010	0.212	0.140	0.103	0.455
2011	0.218	0.143	0.105	0.466

[1] Individuals who qualify for Medicare based on ESRD only.

Part A Projections Under Present Law [1]

Calendar Year	Inpatient Hospital		SNF		Home Health		Managed Care		Hospice: Total Reimbursement (in Millions)	
	Aged	Disabled	Aged	Disabled	Aged	Disabled	Aged	Disabled	Aged	Disabled
2000	2,218.26	2,385.85	310.23	104.90	99.05	70.38	593.36	269.74	2,772	146
2001	2,406.91	2,595.76	376.02	129.04	121.53	64.75	571.77	255.43	3,575	188
2002	2,578.76	2,780.67	411.58	145.08	130.36	69.82	523.26	227.72	4,391	231
2003	2,670.88	2,863.47	420.10	149.83	132.99	72.01	522.57	218.64	5,428	286
2004	2,776.44	3,007.09	469.84	173.01	143.45	78.03	569.12	236.84	6,506	342
2005	2,886.98	3,141.22	513.73	193.18	151.58	82.66	675.62	300.03	7,612	401
2006	2,837.70	3,134.52	542.50	206.19	151.98	83.23	823.75	474.01	8,748	460
2007	2,829.10	3,213.58	565.07	221.10	154.92	87.39	984.40	666.45	9,453	498
2008	2,939.56	3,435.57	583.27	235.54	154.64	89.99	1,175.32	805.09	10,113	532
2009	3,029.56	3,601.65	601.50	248.51	155.54	92.45	1,300.70	897.73	10,854	571
2010	3,109.61	3,728.42	619.02	259.56	156.74	94.37	1,405.86	975.24	11,658	614
2011	3,184.88	3,861.11	634.19	271.16	156.90	96.05	1,499.60	1,043.05	12,510	658

[1] Average reimbursement per enrollee on an incurred basis, except where noted.

Part B Projections Under Present Law[1]

Calendar Year	Physician Fee Schedule		Part B Hospital		Durable Medical Equipment	
	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD
2000	1,003.19	951.69	238.98	290.69	118.54	184.47
2001	1,131.47	1,064.17	326.94	400.13	137.14	215.29
2002	1,177.46	1,109.73	333.67	423.49	158.40	261.50
2003	1,263.13	1,190.84	378.19	470.64	182.20	302.52
2004	1,393.46	1,311.26	429.01	545.24	180.98	301.14
2005	1,452.56	1,355.63	472.86	584.41	181.59	304.17
2006	1,457.68	1,335.63	489.78	599.35	185.65	314.41
2007	1,430.16	1,327.52	486.21	613.63	181.03	315.26
2008	1,371.02	1,295.41	496.09	639.55	185.69	333.65
2009	1,279.68	1,222.91	523.40	682.54	179.85	328.19
2010	1,230.21	1,184.36	556.97	731.97	185.64	342.21
2011	1,184.41	1,148.13	591.38	782.77	191.75	357.18

Calendar Year	Carrier Lab		Other Carrier		Intermediary Lab	
	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD
2000	58.89	61.22	201.38	195.17	46.25	59.30
2001	64.86	66.15	239.97	231.14	47.73	64.78
2002	70.96	74.14	286.95	281.69	55.38	74.69
2003	76.42	79.72	337.18	349.92	60.27	80.00
2004	82.37	86.53	362.42	395.20	65.27	88.18
2005	86.79	91.26	371.40	422.84	67.49	91.92
2006	89.80	95.03	376.42	387.94	67.83	92.96
2007	92.25	105.97	381.02	397.92	63.98	90.82
2008	94.33	113.32	413.89	446.22	62.72	90.94
2009	100.76	122.32	452.17	489.48	64.52	94.60
2010	106.57	130.27	492.00	532.51	66.92	98.85
2011	112.57	138.55	535.41	580.30	69.81	103.84

Calendar Year	Other Intermediary		Home Health		Managed Care	
	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD	Aged	Disabled Non-ESRD
2000	117.91	108.13	129.45	99.19	531.83	221.42
2001	138.59	114.61	125.20	104.59	498.03	189.91
2002	173.74	143.90	131.98	110.78	494.67	205.08
2003	179.80	138.02	139.32	117.10	481.20	199.56
2004	205.83	165.80	159.56	133.66	537.12	233.86
2005	227.89	178.59	183.06	154.29	624.54	291.73
2006	225.97	187.06	206.98	176.21	836.07	531.56
2007	222.49	187.29	241.42	206.61	1,017.79	683.90
2008	226.83	198.19	257.46	225.22	1,216.35	825.41
2009	225.11	199.81	268.08	238.03	1,333.73	884.49
2010	233.98	210.00	275.19	247.02	1,430.58	956.74
2011	243.47	220.94	276.61	251.43	1,523.40	1,024.61

[1]Average reimbursement per enrollee on an incurred basis.

Claims Processing Costs as a Fraction of Benefits

Calendar Year	Part A	Part B
2000	0.002195	0.014790
2001	0.001862	0.013223
2002	0.001496	0.011708
2003	0.001849	0.011194
2004	0.001676	0.010542
2005	0.001515	0.009540
2006	0.001245	0.007126
2007	0.000968	0.006067
2008	0.000968	0.006067
2009	0.000968	0.006067
2010	0.000968	0.006067
2011	0.000968	0.006067

Approximate Calculation of the USPCC and the National MA Growth Percentage for Aged Beneficiaries

The following procedure will approximate the actual calculation of the USPCCs from the underlying assumptions for the contract year for both Part A and Part B.

Part A:
The Part A USPCC for aged beneficiaries can be approximated by using the assumptions in the tables titled "Part A Projections Under Present Law" and "Claims Processing Costs as a Fraction of Benefits." Information in the "Part A Projections" table is presented on a calendar year per capita basis. First, add the per capita amounts for the aged over all types of providers (excluding hospice). Next, multiply this amount by 1 plus the loading factor for administrative expenses from the "Claims Processing Costs" table. Then, divide by 12 to put this amount on a monthly basis. The last step is to multiply by .97612 to get the USPCC for the aged non-ESRD. This final factor of .97612 is the relationship between the total and non-ESRD per capita reimbursements in 2009. This factor does not necessarily hold in any other year.

Part B:
The Part B USPCC can be approximated by using the assumptions in the tables titled "Part B Projections Under Present Law" and "Claims Processing Costs as a Fraction of Benefits." Information in the "Part B Projections" table is presented on a calendar year per capita basis. First, add the per capita amounts for the aged over all types of providers. Next, multiply by 1 plus the loading factor for administrative expenses and divide by 12 to put this amount on a monthly basis. Then multiply by .96457 to get the USPCC for the aged non-ESRD.

The National Per Capita MA Growth Percentage:

The National Per Capita MA Growth Percentage for 2009 (before adjustment for prior years' over/under estimates) is calculated by adding the USPCCs for Part A and Part B for 2009 and then dividing by the sum of the current estimates of the USPCCs for Part A and Part B for 2008.

Attachment III. Responses to Public Comments

Key Policy Changes from the Advance Notice

Attachment I provides the final estimates of the National MA Growth Percentages (growth trends) and information on deductibles for MSA standard and demonstration plans, and on the maximum out-of-pocket amount for MSA demonstrations plans.

Attachment III, Section E announces the policy decision on the MA coding intensity adjustment for 2009.

Attachment III, Section F provides information on upcoming audit activities.

Attachment III, Section G announces that the CMS is unable to determine for CY 2009 whether an adjustment other than zero to the FFS rates is appropriate to reflect the cost of services obtained by MA enrollees at VA and DoD facilities.

Attachment III, Section I announces that CMS is still preparing the final rule concerning the reporting of drug costs for Part D sponsors that contract with PBMs, and discusses Part D sponsors' options for pricing.

Attachment III, Section J announces that the proposal in the Advance Notice on calculation of the low-income benchmark premium amount is replaced by the approach announced in the final rule CMS-4133-F, titled "Modification to the Weighting Methodology Used to Calculate the Low-income Benchmark Amount," published on April 3, 2008.

As in past years, policies proposed in the Advance Notice that are not modified or retracted in the Rate Announcement become effective in the upcoming payment year, as set forth in the Advance Notice. Clarifications in the Announcement supersede materials in the Advance Notice.

Key Policies Adopted as Proposed in the Advance Notice

Recalibration of the CMS-HCC model. In 2009, CMS will implement an updated version of the aged-disabled CMS-HCC risk adjustment model, including community, institutional, and new enrollee segments of the model. See Section B below for comments and responses regarding the recalibrated model. See Attachment IV, Tables 1, 2, and 3 for the final 2009 model coefficients.

Recalibrated frailty factors. CMS will implement recalibrated frailty factors for CY 2009. See Attachment IV, Table 4 for the final factors.

Frailty Adjustment Transition for PACE organizations. Frailty adjustment factors will be applied to payment to PACE organizations using the transition schedule published in the 2008 Announcement (published April 2, 2007). PACE frailty scores for payment year 2009 will be calculated at a blend of 70% of the frailty factors in use prior to 2008 and 30% of the recalibrated frailty factors implemented in 2009.

Frailty Adjustment Transition for Certain Demonstrations. Frailty adjustment factors will be applied to payment to the following MA plan types using the phase-out schedule published in the 2008 Announcement (published April 2, 2007): Social Health Maintenance Organizations (S/HMOs), Minnesota Senior Health Options (MSHO)/ Minnesota Disability Health Options (MnDHO), Wisconsin Partnership Program (WPP) and Massachusetts Senior Care Options (SCO) plans. The phase out schedule for 2009 is 50% of the pre-2008 frailty factors.

Normalization Factors. Normalization factors for 2009 are as follows:

- The final 2009 normalization factor for the aged-disabled model is 1.030.
- The final 2009 normalization factor for the ESRD dialysis model is 1.019.
- The final 2009 normalization factor to be applied to the risk scores of enrollees in functioning graft status is 1.058.
- The final 2009 normalization factor for the RxHCC model is 1.085.

Budget Neutrality. For 2009, 25 percent of the BN factor will be applied to the risk rates.

Medicare as Secondary Payer (MSP) Adjustment Factor for Aged & Disabled Enrollees. CMS has recalculated the MSP adjuster for working aged and working disabled beneficiaries. The adjuster will be 0.174 in the 2009 payment year.

ESRD Bidding and Payment. For 2009, CMS will continue the policy of excluding costs for ESRD enrollees in the plan A/B bid.

For payment year 2009, CMS' payments for ESRD dialysis and transplant enrollees will be based on State rates calculated using a blend of 50% of the old State ratebook (in use through 2007) and 50% of the revised State ratebook (implemented in 2008).

For 2009 CMS will continue to use the functioning graft coefficients published in the April 7, 2007 Advance Notice for 2008, when the ESRD dialysis model was last recalibrated. (See above for the 2009 normalization factor to be used with the functioning graft risk scores.)

Regional Plan Stabilization Fund. Section 101 of the Medicare, Medicaid, and SCHIP Extension Act of 2007 – enacted December 18, 2007 – delayed Stabilization Fund payments until January 1, 2013.

Continuation of Clinical Trial Policy. In 2009, we will continue the policy of paying on a fee-for-service basis for clinical trial items and services provided to MA plan members that are covered under the relevant National Coverage Determinations on clinical trials.

Reporting of Medicaid Status for Part C Payment. In CY 2009, CMS will complete the transition to using the MMA Medicare/Medicaid Dual Eligible monthly submission file (MMA State files) as the main source of Medicaid status for Part C plan payments. The data sources for the assignment of Medicaid status can be found in Attachment IV, Table 5.

Standard Set of ICD-9 Diagnosis Codes for Risk Adjustment. Starting with payment year 2009, RAPS will only accept valid ICD-9-CM codes for two fiscal years -- the fiscal year that begins prior to the payment year and the fiscal year that begins during the payment year -- for the CMS-HCC, ESRD, and RxHCC risk adjustment models. For example, for diagnoses codes to be used

in 2009 final payment, i.e., for diagnoses from service dates between January 1, 2008 and December 31, 2008, RAPS will only accept codes that are valid for Fiscal Year 2008 and Fiscal Year 2009. See Attachment IV, Table 6 for the acceptable codes.

Medicare Part D Benefit Parameters: Annual Adjustments for Defined Standard Benefit in 2009. In accordance with section 1860D-2(b) of the Social Security Act (the Act), CMS must update the statutory parameters for the defined standard Part D prescription drug benefit each year. See Attachment IV, Table 7 for the 2009 updated Part D benefit parameters for the defined standard benefit, low-income subsidy, and retiree drug subsidy.

Calculation of the Part D National Average Monthly Bid Amount. CMS will complete the transition to the weighted average method based on actual plan enrollments in 2009. Thus for contract year 2009, 100% of the national average monthly bid amount will be based on the enrollment-weighted average.

Coordination of Benefits (COB) User Fees. Upon review of the anticipated costs of COB activities in 2009, the Part D COB user fee will increase to $2.52 per enrollee per year for contract year 2009. This COB user fee will be collected at a rate of $0.28 per enrollee per month from January to September (for an annual rate of $0.21 per enrollee per month) for a total user fee of $2.52 per enrollee per year. Part D sponsors should account for this COB user fee when developing their 2009 bids.

Budget Neutrality Offsets for Reinsurance Payment Demonstration Plans in 2009. The budget neutrality offsets applied to the capitated reinsurance payments for flexible capitated, fixed capitated, and Medicare Advantage rebate option plans will remain at $10.00 per member per year for contract year 2009.

Payment Reconciliation. The 2009 risk percentages and payment adjustments for Part D risk sharing are unchanged from contract year 2008. The risk percentages for the first and second thresholds remain at 5% and 10% of the target amount respectively for 2009. The payment adjustments for the first and second corridors are 50% and 80% respectively.

As in past years, policies proposed in the Advance Notice that are not modified or retracted in the Rate Announcement become effective in the upcoming payment year, as set forth in the Advance Notice. Clarifications in the Announcement supersede materials in the Advance Notice.

Section A. Estimate of the National Per Capita MA Growth Percentage for Calendar Year 2009

As mentioned in Attachment I, the final estimate of the 2009 MA growth trend for combined aged and disabled beneficiaries is 4.24 percent, which is a little lower than the preliminary estimate of 4.8 percent announced February 22, 2008 in the Advance Notice. The President's Budget baseline was used for the preliminary estimate, and the 2008 Trustees Report baseline was used for the final estimate. The primary reason for the lower final estimate is that cash expenditure data for the remainder of 2007 was available which indicated that the actual expenditures for 2007 were lower than previously estimated.

The manner in which the Tax Relief and Health Care Act (TRHCA) of 2006 and the Medicare, Medicaid, and SCHIP Extension Act (MMSEA) of 2007 structured the physician fee schedule increase affects both the adjustment to the 2008 growth rate and the 2009 trend as compared to the 2009 trend reported in the 2007 Trustees Report. About 1 percentage point of the 1.9 percent increase in the 2008 trend is due to legislative changes in the physician fee schedule update, because the previously expected -10 percent adjustment for 2008 was eliminated for half of the year and replaced with a 0.5 percent update. For the second half of the 2008, the update will revert to the current law update of -10 percent, as required by the MMSEA of 2007. Hence, the average for the year is approximately a -5 percent update. The -5 percent update compared to the previously expected -10 percent update increases the overall USPCC growth rate for 2008 by about 1 percent.

However, this revision to the prior 2008 estimate of about a 1 percent increase is offset by a reduction in the 2009 trend change. That is because, under the MMSEA, the 2008 increase has no effect on the calculation of the 2009 physician fee schedule update. As a result, the current law baseline for 2009 reflects a -10 percent update for physician fees. The net impact on the overall 2009 USPCC of this -10 percent update compared to the -5 percent for 2009 as reported last year is about a 1 percent decrease in the trend.

Comment: One commenter believes that the proposed 2009 trend change in the Advance Notice of 3.4% is too low and does not reflect the underlying increases in Medicare health care costs. This commenter feels that CMS should increase the 2009 trend change in the final notice to at least 4.5 percent to be aligned with other CMS estimates of Medicare growth. In addition, this commenter was concerned with the downward adjustments in the growth percentage for 2005 and 2007 and recommended that CMS increase these adjustments to previous years' trend changes and provide a detailed explanation for these proposed changes. Finally, the same commenter recommended that CMS recalculate the estimate of 100% FFS costs for previous years to account for increased Medicare physician payments and trend forward to the 2009 rates.

Response. By law, CMS must release the national MA growth percentage for the upcoming year by the first Monday in April. In years when legislative changes to the physician fee schedule updates are passed after April, such changes are not incorporated into the MA growth trend until the following year, when they are reflected as adjustments to the prior years' estimates. The Tax Relief & Health Care Act (THRCA) of 2006 and the Medicare, Medicaid, and SCHIP Extension Act (MMSEA) of 2007 explicitly limited the increased physician fee schedule updates—for 2007 and for the first half of 2008, respectively, to specific time periods. Moreover, the TRHCA required that the physician fee schedule update for 2008 must be calculated as if the 2007 increase did not occur. Similarly, the MMSEA requires that the physician fee schedule update for the last six months of 2008 and 2009 must be calculated as if the increase for the first six months of 2008 did not occur. As a result, in 2007 and 2008, OACT had to estimate underlying trends for CYs 2008 and 2009, respectively, based on current law updates of approximately -10%.

Regarding the commenter's question about prior years' estimates, the additional adjustments to the 2004 to 2006 growth rates are fairly insignificant and for the three years combined are slightly positive. Since the Medicare growth rates are tabulated on an incurred basis, it can take several years before all bills for a given year are tabulated through the claims history file. This is

why we can still see small changes for years back to 2004. The latest estimates for 2007 were based on incurred data reported through June of 2007. Hence, the claims history for 2007 is relatively incomplete. CMS has cash data through December 2007 from the U.S. Treasury, which indicates that outlays for 2007 were lower than expected. Therefore, the expected increase for 2007 was lowered. As more incurred data is received for 2007, adjustments will be made to account for the actual 2007 trend rates as allowed by law in future payment updates.

Regarding the commenter's recommendation that CMS recalculate the estimate of 100% FFS costs for previous years to account for increased Medicare physician payments and trend forward to the 2009 rates, this is not necessary. The law already allows for adjustments to the growth percentage for prior years' over/underestimates. Therefore, increased payments due to the prior legislative physician updates are already accounted for. In addition, the historical data which is used for calculating the geographic indices for the 100% FFS costs also reflect all prior legislative changes.

Section B. Recalibration of the CMS-HCC Model

Comment. One commenter stated that recalibrating on a biannual basis adds significant uncertainty for MA organizations because of the complexity of estimating the impact of recalibration as they engage in the bid development process and consider strategies for continuing to provide comprehensive and stable benefit packages to enrollees. The commenter recommended that CMS recalibrate the model once every three years, instead of biannually, in order to provide MA organizations with more predictability, while also ensuring the risk adjustment model continues to be based upon regularly updated data. Another commenter was concerned about significant year-to-year variations in MA payments accompanying the recalibration of the CMS-HCC risk adjustment model, and requested that CMS explore opportunities to reduce such variations. In particular, this commenter was concerned that plans in certain geographic areas not be disadvantaged over other plans in other geographic areas.

Response. CMS' policy goal is to recalibrate every two years to strike a balance between updating the model to reflect recent shifts in average relative expenditures among disease groups and reducing the burden of annual model changes. Recalibrating every three instead of every two years could generate more significant shifts in the relative cost factors for each HCC grouping, which could increase the relative level of changes in payments and the degree of uncertainty for the industry. Moreover, CMS seeks to align recalibration of the CMS-HCC model with rebasing of the FFS rates.

In terms of the commenter's request that CMS consider ways to reduce differential geographic impacts, CMS recalibrates the CMS-HCC model using actual FFS diagnoses and claims expenditures. We are not clear what options we could explore to reduce actual geographic variation.

Comment. Two commenters requested that CMS post to the Health Plan Management System (HPMS) as soon as possible the recalibrated risk scores for plans. The commenters noted that this information is critical in order to develop accurate bids. One commenter also noted that it is

difficult to comment on a new model without knowledge of how that model could impact their plan.

Response. Plan-specific recalibrated risk scores will be available through HPMS the week of April 7, 2008, in conjunction with the final bid instructions. In addition, the 2009 CMS-HCC model software reflecting the model recalibrated risk factors was posted March 7, 2008 on the CMS website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp#TopOfPage.

Comment. One commenter requested that CMS publish frequency tables that show the estimated number of beneficiaries who fall into each HCC category under the existing and recalibrated models (e.g., the percent of members with HCC1 in 2004 and also in 2005) in the 2009 Rate Announcement, and in future Advance Notices. The commenter indicated that this information will assist plans in evaluating the impact of the recalibration as they develop their bids.

Response. This information is available through analysis of the 5 percent Standard Analytic File (SAF). CMS provides the CMS-HCC model software, as mentioned above, to facilitate the analysis described by the commenter.

Comment. One commenter expressed concern that the recalibrated risk factors could result in plan risk score reductions that would drop risk adjusted payments below the level of budget neutrality. The commenter requested that CMS publish the math and supporting documentation for the recalibration of the CMS-HCC coefficients.

Response. In terms of the relationship of recalibrated model factors to the budget neutrality factor, CMS determined the budget neutrality factor for 2009 using the recalibrated risk scores for each plan. Specifically, the BN factor is calculated as the estimated difference between payments to MA organizations at 100 percent of the demographic rates and payments at 100 percent of the risk rates. The size of the total BN factor is determined by the difference in aggregate payments made to MA organizations under the recalibrated risk model and aggregate payments made under the demographic model. Therefore, the effect of the recalibrated model is taken into account when the BN factor is calculated. As we noted in the Advance Notice, for 2009, 25 percent of the BN factor is applied to the risk rates that have been released with this Announcement.

Comment. One commenter expressed concern that their preliminary estimates of the impact of the recalibrated CMS-HCC model leads to a reduction in risk scores.

Response. . At the aggregate level, model recalibration has a neutral effect on the MA risk scores. When we recalibrate, the relative payment weights (risk factors) in the model can change, potentially affecting plan-specific average risk scores. The plan-specific impact will depend on the disease profile of the beneficiaries enrolled in the plan.

Section C. Normalization Factors

Comment. One commenter expressed appreciation that CMS released preliminary estimates of the normalization factors. The commenter also expressed concern that the CMS-HCC factor

represents a 3 percent reduction to risk scores, which will offset any increase in the MA capitation rates. The commenter recommended that CMS reduce the normalization factor and continue to do so as the BN factor is phased-out because continuing high negative adjustments will negatively impact MA payments as budget neutral risk-adjustment is phased out.

Response. CMS is required by the Deficit Reduction Act of 2005 to phase-out the implementation of budget neutral risk-adjusted payments (i.e., budget neutral to payments based on 100 percent of the demographic rates). Application of the normalization factors addresses an unrelated issue, which is that CMS must correct for population and coding changes between the data years used in calculating the model relative factors (the "denominator year") and the payment year. CMS cannot phase-out application of normalization factors because there will always be a lag between denominator and payment years.

Comment. One commenter requested additional information regarding how the 2009 normalization factor for the RxHCC model was determined because the factor of 1.085 appears to be a significant recalibration of Rx risk scores. The commenter requested additional explanation of how the annual trend is calculated and how it is applied for the two years between the calculation of actual average Part D risk score and the payment year (2007-2009). In addition, the commenter asked what prescription drug data was used before Part D began in 2006.

Response. The Part D normalization factor was 1.065 for 2008, and will be 1.085 for 2009. To calculate the 2009 Part D normalization factor, which will adjust for coding trends from the calibration year (2004) to the payment year (2009), we first obtained the actual trend in Part D risk scores by using the actual 2007 average Part D risk score for all potential Part D enrollees. We then projected the trend from 2007 to 2009 using an annual trend calculated on five years of risk score data (2003-2007). We calculated this trend the same way we calculated the trends for the CMS-HCC and the ESRD dialysis factors: we first calculate average predicted costs using the most recent model (in the case of the Rx-HCC model, we have only one model) for the most recent five years for which we have complete diagnosis data. We then use these data points to estimate the annual average trend in predicted costs. We applied this annual trend for the years between 2007 to 2009 and added it to the actual trend identified by the 2007 average Part D risk score. This downward adjustment, which helps ensure that the average risk score across all Part D plans equals 1.0, will not affect total plan revenue.

For information on what prescription drug data was used for initial calibration of the Part D Rx-HCC model, see the 2006 Advance Notice, Attachment III (pages 43-48), released on February 18, 2005 on the CMS website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/AD/list.asp#TopOfPage.

Section D. Budget Neutrality

The final estimate of the National Per Capita MA Growth Percentage is not the only factor that determines the final capitation rates for a year. The DRA specifies the components that CMS must include in the estimate of budget neutral (BN) risk adjustment factor, and codifies the phase-out of the BN factor. As in prior years, the BN factor was estimated as the difference

between aggregate payments to plans using 100 percent demographic payments and aggregate payments to plans using 100 percent risk adjustment payments, expressed as a percent of risk adjusted payments. For purposes of the calculation, CMS assumes that risk payments to plans will be at the local benchmarks, adjusted for each plan's risk score. CMS calculates a single BN factor for all MA plan enrollees.

The BN factor estimate for 2009 is 1.009. This factor was calculated based on a full BN factor of 1.038, multiplied by the BN phase-out percentage of 25 percent. As 2009 is the third year of the phase-out required by the DRA of 2005, 25 percent of the full BN factor is applied to the rates, as the same percentage for all counties.

Comment. One commenter requested that CMS release the BN factor before the Rate Announcement is released because of the shortened time frame in 2008 between release of the Announcement and the bid due date.

Response: Since CMS cannot calculate the BN factor until the final capitation rates are determined, and the final capitation rates are not determined until the National Per Capita MA Growth Percentage is determined (using the 2008 Trustees Report baseline), it is not possible for CMS to release the BN factor prior to the April 7 release of the Rate Announcement and final capitation rates.

Section E. Adjustment for MA Coding Intensity

In the 2009 Advance Notice, CMS summarized findings from our analysis of risk scores in FFS and Medicare Advantage over the 2004-2006 time period and proposed to apply a coding difference adjustment to contracts whose disease scores for stayers exceeded FFS by twice the industry average. We proposed to apply an adjustment calculated based on those contracts that fell above our threshold.

In response to the Advance Notice, CMS received a significant number of comments on the proposed adjustment for MA coding differences, most of which disagreed with our view that we had identified differences in coding patterns between MA and FFS Medicare. Based on our analysis of the comments received, and our further consideration of the question of whether differences in risk scores can be attributed to differences in coding patterns, we have again decided not to make a coding intensity adjustment for 2009.

We hope to be able to reach a more definitive conclusion as to whether differences in risk scores are attributable to differences in coding patterns prior to the Rate Announcement for 2010. In the Advance Notice, we identified differences between the risk scores of MA and FFS Medicare enrollees. However, we did not have available comprehensive information from medical records to support our hypothesis that risk score differences were driven by coding pattern differences, rather than by the health status of MA enrollees. For 2010, we intend to use the results of the first year of plan-level annual MA plan audits (see section F below) to further inform our study of coding pattern differences. .Moreover, CMS will collect additional utilization data from MA organizations to increase the accuracy of our risk-adjusted payments.

Below, we summarize and respond to the comments received on the proposed coding intensity adjustment.

(1) Legal Justification for the MA Coding Intensity Adjustment

Comment. Twenty-nine of the 30 commenters on the Advance Notice expressed views on our coding intensity proposal, and all but one of these 29 commenters opposed the adjustment as proposed. The commenter who supported the adjustment was encouraged by CMS' efforts to implement the Deficit Reduction Act (DRA) provision, but argued that CMS had too narrowly defined the subset of plans targeted to have their risk scores adjusted, and felt that CMS' effort to correct upcoding was minimal and unacceptable. Twenty eight commenters opposed the adjustment. Many contended that CMS has not demonstrated that conclusive evidence of coding differences exists, and contended that CMS had not met the requirement in the Deficit Reduction Act (DRA) that the Secretary must identify differences in coding patterns in order to adjust capitation payments to "reflect […] differences in coding patterns between Medicare Advantage plans and providers under part A and B…" Some commenters suggested that CMS defer implementation of the DRA provision pending completion of further research and analysis to determine the extent of coding inaccuracies by MA organizations.

Response. As noted above, CMS has determined that for CY 2009, we will not make an adjustment to risk scores when calculating 2009 plan payments. We believe that the results of the Audits discussed below in Section F will result in an ability to determine more conclusively whether the differences in risk scores we have identified are attributable to differences in coding patterns.

Comment. Authority under the DRA. Many commenters cited the Deficit Reduction Act (DRA) requirement directing CMS to adjust capitation payments to "reflect [ ] differences in coding patterns between Medicare Advantage plans and providers under part A and B to the extent that the Secretary has identified such differences" and contended that CMS has not demonstrated that evidence of such differences exists. Further, numerous commenters also cited the Conference Report for the DRA, which states that "The conferees intend that any adjustments made for the differences in coding patterns be made for differences resulting from inaccurate coding." These commenters interpret the conferees' use of the term "inaccurate" to refer to "improper" or fraudulent coding, and noted that, in the 2009 Advance Notice, CMS stated that "We do not assume that the coding pattern differences that we found in our study are the result of improper coding." The commenters thus argued that CMS does not have the authority to make adjustments based on the coding pattern differences that CMS found. Some commenters suggested that CMS defer implementation of the DRA provision pending completion of further research and analysis to determine the extent of coding inaccuracies by MA organizations.

Response. CMS believes that the statutory language in the DRA provision at issue provides for a payment adjustment if CMS establishes that there are "differences in coding patterns between Medicare Advantage plans and providers under part A and B." The Conference Report language necessarily must be read in light of the statutory language that Congress actually enacted.

Given the fact that the MA payment methodology is based on fee-for-service payments, and that the risk adjustment methodology is designed to compare the risk scores of MA plan enrollees to other plan enrollees and beneficiaries not enrolled in MA plans, for this comparison to be valid, MA plans must code the way Medicare Part A and B does. This would result in the MA plans' coding "accurately" reflecting the fee-for-service coding used on the beneficiaries to whom MA plan enrollees are being compared. In this sense, "differences" in coding patterns, regardless of the source, would make the MA plan coding "inaccurate" for purposes of implementing risk adjustment.

This reading of the word "inaccurate" is supported by floor statements made by Senator Grassley, Congressman Barton, and Congressman Thomas. Senator Grassley made the following floor statement; the other two committee chairs made very similar statements:

> Section 5301 and the joint statement which accompanied the conference report in the Senate requiring adjustments for differences in coding patterns is intended to include adjustments for coding that is inaccurate or incomplete for the purpose of establishing risk scores that are consistent across both fee-for-service and Medicare Advantage settings, even if such coding is accurate or complete for other purposes. This will ensure that the goal of risk adjustment—to pay plans accurately—is met.

Comment. Several commenters contended that the DRA provision requiring a coding intensity adjustment did not provide for an adjustment that would be applied to a subset of plans, as opposed to the MA program generally.

Response. The DRA requires that, in "applying the adjustment under [section 1853(a)(1)(C)(i)] for health status to payment amounts, the Secretary shall ensure that such adjustment reflects. . .differences in coding patterns between the Medicare Advantage plans and providers under Part A and B to the extent that the Secretary has identified such differences." Section 1853(a)(1)(C)(ii)(I). The adjustments to capitation rates made under section 1853(a)(1)(C)(i) generally are specific to a particular MA organization. In the case of adjustments based on an enrollee's risk score, they are specific to the plan's individual enrollees. In the case of adjustments made to reflect working aged enrollees, they are made at the plan level based on that plan's enrollees.

We believe, therefore, that if we had made a final determination that an adjustment for 2009 was justified, we would have had the authority to make adjustments where we found the greatest differences in coding patterns (and where such adjustments arguably would be more necessary in order for risk scores to have the same meaning for MA enrollees and original Medicare enrollees), while not doing so where there are no such differences, or where the difference is of a smaller magnitude.

(2) Purpose of coding differences adjustment and informing of public of final methodology

Comment. One commenter contended that the Advance Notice did not make clear precisely the purpose of the proposed coding intensity adjustment, other than citing the Deficit Reduction Act (DRA). Other commenters felt that CMS had not adequately demonstrated the need for such an adjustment for coding pattern differences, and had not identified with any certainty the reasons

for the difference. Commenters suggested that there were other explanations of coding pattern differences, such as regional coding pattern differences, other than those identified by CMS.

Response. The DRA requires that CMS adjust payments to reflect "differences in coding patterns between Medicare Advantage plans and providers under part A and B to the extent that the Secretary has identified such differences." While we have reconsidered our view that the differences that we found were conclusively the result of coding pattern differences, if we had reached such a conclusion, an adjustment would have been appropriate without regard to the findings cited by commenters.

(3) Impact of plans, markets, beneficiaries

Comment. While some commenters felt that CMS too narrowly limited the number of contracts to which the adjustment would be applied, and a few others agreed with the CMS proposal to apply the adjustment to plans whose risk score change relative to FFS Medicare is significantly above the average change relative to FFS Medicare, many commenters expressed concerns that applying an adjustment to a subset of contracts was inequitable and had anti-competitive implications.

Several commenters felt that the adjustment penalized MA organizations that have been in the program longer and are now operating more efficiently. A number of commenters posited that the coding adjustment could discourage providers from contracting with plans that received the coding intensity adjustment, since MA organizations, especially those that pay providers a percent of revenue, may have to lower provider payments, which might lead to difficulty in maintaining provider networks and accessibility of care, instability in beneficiary access to care, and consumer dissatisfaction if their physicians leave the plan. Commenters also expressed concern that a coding intensity adjustment would lead to increased premiums and cost sharing and decreased benefits, and possibly cause disruption for beneficiaries who may then feel that they have to disenroll from their plan, and who may then have to switch providers. One commenter suggested that plans will lack incentive to enroll sicker, higher-risk patients. Several commenters expressed concern about the ability of plans to continue to provide appropriate care.

Response. We appreciate commenters' concerns regarding their perceptions of inequity in applying a coding differences adjustment to a subset of contracts and the market implications of such a targeted approach. Because we have decided not to make an adjustment for 2009, the above issues are moot for the 2009 bidding process.

(4) Methodological Questions and Concerns

Comment. Commenters disagreed with CMS's proposal to use the average stayer percentage to adjust the adjustment factor, in order to apply it to all enrollees, noting changes in enrollment over the time period of the study, and variations in stayer percentages among contracts as a result of different enrollee populations. Other commenters felt that an adjustment would disadvantage MA organizations with sicker enrollees. Several commenters suggested that an adjustment for coding pattern differences would discourage initiatives to improve coding, or to maintain thorough coding, since increased coding might risk a revenue reduction in future years. Several

commenters disagreed that CMS had taken into full account the degree of "catch up" and felt that a number of MA organizations would face the possibility of being penalized for these efforts.

Response. We appreciate commenters' concerns about the methodology of our approach to calculating and applying an MA coding differences adjustment. Because we are not making an adjustment for 2009, these comments are moot for this year.

Comment. One commenter suggested that CMS identify strategies for improving coding accuracy in FFS to reduce the variance in coding patterns directly related to differences in financial incentives between MA and FFS – strategies such as risk-adjusting FFS payments.

Response. CMS does make adjustments to FFS payments for diagnosis coding that is not in synchronization with a provider's case mix. We have applied an adjustment to long term hospitals that is projected to total $430 million over five years (FY 2009-FY 2013) and to home health providers that is projected to total $6.53 billion from 2008-2012.

Section F. CMS Audits

In CY 2007, CMS' payments to MA plans were 100 percent risk-adjusted for the first time because the transition from demographic-only to risk-adjusted payments was completed. Given this milestone, CMS has determined that our Risk Adjustment Data Validation, starting with CY 2007 payments, will be conducted using a sampling frame that generates statistically valid plan-level payment error estimates for those plans selected for review.

CMS will audit a subset of MA plans each year. The audit will include randomly-selected plans and targeted plans. Targeted plans will be selected based on how their risk score growth compared to FFS.

Findings from our validation studies from CY 2007 onward may inform CMS why plan average risk scores did or did not grow rapidly. This analysis will allow us to further refine our MA coding intensity adjustment. In addition, because we will have statistically-valid plan-level error estimates, we will make plan-level payment adjustments rather than adjustments to payments for specific beneficiaries whose risk scores were not supported by the medical record reviews, as we have done previously.

Section G. Adjustment to FFS Capitation Rates for VA-DOD Costs

In the Advance Notice, CMS proposed to adjust to the extent appropriate the 2009 FFS rates to reflect CMS' "estimate, on a per capita basis, of the amount of additional payments that would have been made in the area involved under this title if individuals entitled to benefits under this title had not received services from facilities of the Department of Defense or the Department of Veterans Affairs." Specifically, the Office of the Actuary (OACT) proposed to compare the risk-adjusted Medicare reimbursements of dual-eligible individuals — those entitled to benefits under this title and entitled to benefits from the Department of Defense (e.g., DoD TRICARE for Life and DoD US Family Health Plan) or the Department of Veterans Affairs (VA) — with individuals entitled only under this title. In cases where groupings of dual-eligible individuals

(who would possibly have services provided in VA or DoD facilities not reimbursed by Medicare) have risk-adjusted Medicare reimbursements significantly different from other Medicare-eligible individuals, we propose to adjust the MA FFS rates by excluding these individuals from the calculation.

For 2009, CMS will not make the proposed adjustment to the FFS rates. While analysis is underway on VA data, CMS has not yet received the necessary data from DoD. For this reason, CMS is unable at this time to determine the extent to which an adjustment other than zero is appropriate. CMS will continue to work on acquiring the data to support the necessary analysis.

Comment. One commenter commended CMS for moving forward with this analysis and requested an opportunity to obtain a detailed understanding of the methodology that is developed and its anticipated impact as CMS proceeds with this effort.

Response. Over the coming year, CMS is open to discussions with interested parties about the proposed methodology.

Comment. One commenter expressed appreciation that CMS is proceeding to incorporate this adjustment into the FFS rates, but expressed concern that some county capitation rates would be reduced as a result. The commenter recommended that CMS phase-in any VA-DoD-related adjustments that would reduce MA county rates to limit the negative impact on beneficiaries.

Response. As noted above, CMS is unable to determine whether an adjustment other than zero is appropriate for CY 2009. We will take the commenter's concern into account as we continue our analysis.

Section H. Standard Set of ICD-9 Diagnosis Codes for Risk Adjustment

Comment. One commenter supported CMS's adoption of a standardized list of diagnosis codes for risk adjustment and asked if CMS would provide a crosswalk to plans between the old and new codes. The commenter also asked if CMS had done any analysis on the impact of establishing this change (e.g., estimates of increases in rejection rates and/or associated financial impact).

Response. ICD-9 codes are updated on an annual basis. You can find additional information on this process at: www.cdc.gov/nchs/icd9.htm. CMS has been monitoring rejection rates for invalid ICD-9 codes since January 2008 when edits against the standardized code set were implemented in the Risk Adjustment Processing System. CMS has seen no evidence of an increase in error rates for invalid ICD-9 codes, strongly suggesting that MA organizations were themselves operating under this standard before CMS implemented the edits. A complete listing of the risk adjustment diagnosis codes acceptable for risk adjustment prior to January 2008 and after implementation of the change in editing rules is available on the CMS website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp#TopOfPage .

Section I. Part D – Reporting Drug Costs When Contracting with a Pharmacy Benefit Manager (PBM)

In the Advance Notice, we stated that we intended to issue a final rule this Spring concerning the reporting of drug costs for Part D sponsors that contract with PBMs. We are still preparing this final rule and therefore are unable to issue the final rule this Spring as expected. As a result, Part D sponsors will not have sufficient time after the release of the final rule to prepare their 2009 bids in accordance with the policies that will be established in this rule. Therefore, for plan year 2009, as in 2006, 2007, and 2008, Part D sponsors that use a PBM may apply either the pass through or lock-in pricing approach when calculating cost-sharing and reporting drug costs. Part D sponsors must choose only one approach and cannot switch between them for purposes of calculating cost-sharing and reporting drug costs. Thus, the chosen pricing approach must be used consistently as a basis for: (i) calculating beneficiary cost-sharing; (ii) accumulating gross covered drug costs; (iii) calculating TrOOP; (iv) reporting drug costs on the Prescription Drug Event (PDE) records; and (v) developing bids submitted to CMS.

To ensure transparency in bid development, all plans will be required to submit an actuarial attestation, through HPMS and in hardcopy, which identifies the pricing approach (lock-in or pass through) that was used in the development of each 2009 bid. Additional information regarding this attestation will be issued in future guidance.

Section J. Part D - Calculation of the Low-Income Benchmark Premium Amount.

In Attachment III, Section B2 of the Advance Notice, CMS proposed to extend to 2009 the regional benchmark weighting component of the "Medicare Demonstration to Transition Enrollment of Low Income Subsidy Beneficiaries." We also noted in this same section that the de minimis component of the demonstration would be replaced by the final version of the proposed rule titled "Option for Prescription Drug Plans to Lower Their Premiums for Low-Income Subsidy Beneficiaries" which was published on January 8, 2008. The objective of both extending the demonstration an additional year and codifying a variation of the de minimis policy in regulation was to reduce the number of LIS beneficiaries who are reassigned to new Part D sponsors because their current plan's premium exceeds the regional LIS benchmark.

A final version of the rule was published on April 3, 2008. The final rule CMS-4133-F is titled "Modification to the Weighting Methodology Used to Calculate the Low-income Benchmark Amount." The final rule changes how the regional benchmarks are calculated and eliminates the need to extend the LIS transition demonstration. Therefore, CMS will not extend the LIS transition demonstration to 2009.

Section K. Part D - Coordination of Benefits (COB) User Fee

Comment: One commenter asked CMS to provide more information on why the COB user fee increased over 85%.

Response: The increase in the COB user fee is due to several new CMS initiatives to improve the coordination of benefits. For example, CMS is replacing the current manual TrOOP balance

transfer process with a streamlined automated transfer process. The increase in the COB user fee reflects, in part, the costs associated with developing and implementing this new automated process. CMS is also working with States to permit more frequent reporting of information regarding low-income status (full dual and LIS files for Medicare Part D). This initiative will enhance the accuracy of LIS data at point-of-sale, thus reducing Part D sponsors' reliance on Best Available Evidence. Recent legislation has mandated that all third party insurers that are secondary to Medicare provide CMS with information regarding other health insurance coverage. The COB user fee also has been increased to reflect the costs associated with receiving and subsequently providing this additional information to Part D sponsors and the TrOOP Facilitator.

Attachment IV 2009 Risk Adjustment Factors, Part D Benefit Parameters, and Other Information

The tables in this enclosure are identical to those published in the February 22, 2008 Advance Notice.

Table IV-1. 2009 Community and Institutional Factors for the CMS-HCC Model

Variable	Disease Group	Community Factors	Institutional Factors
Female			
0-34 Years		0.187	1.026
35-44 Years		0.206	0.884
45-54 Years		0.275	0.888
55-59 Years		0.333	0.943
60-64 Years		0.411	0.943
65-69 Years		0.299	0.971
70-74 Years		0.368	0.931
75-79 Years		0.457	0.835
80-84 Years		0.544	0.775
85-89 Years		0.637	0.704
90-94 Years		0.761	0.614
95 Years or Over		0.771	0.457
Male			
0-34 Years		0.120	1.030
35-44 Years		0.164	0.871
45-54 Years		0.217	0.871
55-59 Years		0.249	0.978
60-64 Years		0.389	1.015
65-69 Years		0.328	1.221
70-74 Years		0.413	1.154
75-79 Years		0.517	1.143
80-84 Years		0.597	1.087
85-89 Years		0.692	1.001
90-94 Years		0.834	0.932
95 Years or Over		0.980	0.743
Medicaid and Originally Disabled Interactions with Age and Sex			
Medicaid_Female_Aged		0.179	0.091
Medicaid_Female_Disabled		0.131	0.091
Medicaid_Male_Aged		0.166	0.091
Medicaid_Male_Disabled		0.077	0.091
Originally Disabled_Female		0.204	0.023
Originally Disabled_Male		0.168	0.023
Disease Coefficients	**Description Label**		
HCC1	HIV/AIDS	0.945	0.967
HCC2	Septicemia/Shock	0.759	0.764
HCC5	Opportunistic Infections	0.300	0.288
HCC7	Metastatic Cancer and Acute Leukemia	2.276	0.824

Variable	Disease Group	Community Factors	Institutional Factors
HCC8	Lung, Upper Digestive Tract, and Other Severe Cancers	1.053	0.470
HCC9	Lymphatic, Head and Neck, Brain, and Other Major Cancers	0.794	0.368
HCC10	Breast, Prostate, Colorectal and Other Cancers and Tumors	0.208	0.182
HCC15	Diabetes with Renal or Peripheral Circulatory Manifestation[1]	0.508	0.459
HCC16	Diabetes with Neurologic or Other Specified Manifestation[1]	0.408	0.459
HCC17	Diabetes with Acute Complications[1]	0.339	0.459
HCC18	Diabetes with Ophthalmologic or Unspecified Manifestation[1]	0.259	0.459
HCC19	Diabetes without Complication[1]	0.162	0.248
HCC21	Protein-Calorie Malnutrition	0.856	0.374
HCC25	End-Stage Liver Disease	0.978	0.654
HCC26	Cirrhosis of Liver	0.406	0.384
HCC27	Chronic Hepatitis	0.406	0.384
HCC31	Intestinal Obstruction/Perforation	0.311	0.345
HCC32	Pancreatic Disease	0.403	0.309
HCC33	Inflammatory Bowel Disease	0.241	0.205
HCC37	Bone/Joint/Muscle Infections/Necrosis	0.535	0.497
HCC38	Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	0.346	0.215
HCC44	Severe Hematological Disorders	1.015	0.493
HCC45	Disorders of Immunity	0.912	0.427
HCC51	Drug/Alcohol Psychosis[3]	0.274	0.000
HCC52	Drug/Alcohol Dependence[3]	0.274	0.000
HCC54	Schizophrenia	0.524	0.351
HCC55	Major Depressive, Bipolar, and Paranoid Disorders	0.353	0.293
HCC67	Quadriplegia, Other Extensive Paralysis	1.011	0.434
HCC68	Paraplegia	0.993	0.434
HCC69	Spinal Cord Disorders/Injuries	0.558	0.225
HCC70	Muscular Dystrophy[3]	0.395	0.000
HCC71	Polyneuropathy	0.327	0.225
HCC72	Multiple Sclerosis	0.599	0.145
HCC73	Parkinson's and Huntington's Diseases	0.592	0.092
HCC74	Seizure Disorders and Convulsions	0.267	0.177
HCC75	Coma, Brain Compression/Anoxic Damage[3]	0.415	0.000
HCC77	Respirator Dependence/Tracheostomy Status	1.867	1.559
HCC78	Respiratory Arrest	1.082	1.235
HCC79	Cardio-Respiratory Failure and Shock	0.578	0.445
HCC80	Congestive Heart Failure	0.410	0.228
HCC81	Acute Myocardial Infarction	0.359	0.424
HCC82	Unstable Angina and Other Acute Ischemic Heart Disease	0.284	0.424
HCC83	Angina Pectoris/Old Myocardial Infarction	0.244	0.290
HCC92	Specified Heart Arrhythmias	0.293	0.207
HCC95	Cerebral Hemorrhage	0.324	0.179
HCC96	Ischemic or Unspecified Stroke	0.265	0.179
HCC100	Hemiplegia/Hemiparesis	0.437	0.039
HCC101	Cerebral Palsy and Other Paralytic Syndromes[3]	0.180	0.000

Variable	Disease Group	Community Factors	Institutional Factors
HCC104	Vascular Disease with Complications	0.610	0.482
HCC105	Vascular Disease	0.316	0.165
HCC107	Cystic Fibrosis	0.399	0.631
HCC108	Chronic Obstructive Pulmonary Disease	0.399	0.359
HCC111	Aspiration and Specified Bacterial Pneumonias	0.703	0.573
HCC112	Pneumococcal Pneumonia, Emphysema, Lung Abscess	0.249	0.181
HCC119	Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	0.252	0.497
HCC130	Dialysis Status	1.349	1.718
HCC131	Renal Failure	0.368	0.388
HCC132	Nephritis	0.125	0.253
HCC148	Decubitus Ulcer of Skin	1.153	0.485
HCC149	Chronic Ulcer of Skin, Except Decubitus	0.449	0.241
HCC150	Extensive Third-Degree Burns[3]	1.416	0.000
HCC154	Severe Head Injury[3]	0.415	0.000
HCC155	Major Head Injury[3]	0.106	0.000
HCC157	Vertebral Fractures without Spinal Cord Injury	0.443	0.161
HCC158	Hip Fracture/Dislocation[3]	0.429	0.000
HCC161	Traumatic Amputation	0.678	0.260
HCC164	Major Complications of Medical Care and Trauma	0.296	0.309
HCC174	Major Organ Transplant Status	0.705	0.920
HCC176	Artificial Openings for Feeding or Elimination	0.662	0.841
HCC177	Amputation Status, Lower Limb / Amputation Complications	0.678	0.260
Disabled/Disease Interactions			
D_HCC5	Disabled_Opportunistic Infections	0.623	1.016
D_HCC44	Disabled_Severe Hematological Disorders	1.036	0.362
D_HCC51	Disabled_Drug/Alcohol Psychosis	0.729	0.299
D_HCC52	Disabled_Drug/Alcohol Dependence	0.310	0.299
D_HCC107	Disabled_Cystic Fibrosis[3]	1.097	-
Disease Interactions			
INT1	DM_CHF[2]	0.154	0.125
INT2	DM_CVD	0.102	0.028
INT3	CHF_COPD	0.219	0.194
INT4	COPD_CVD_CAD	0.173	0.071
INT5	RF_CHF[2,3]	0.231	-
INT6	RF_CHF_DM[2]	0.477	0.358

NOTES:

[1] Includes Type I or Type II Diabetes Mellitus.

[2] Beneficiaries with the three-way interaction RF*CHF*DM are excluded from the two-way interactions DM*CHF and RF*CHF. Thus, the three-way interaction term RF*CHF*DM is not additive to the two-way interaction terms DM*CHF and RF*CHF. Rather, it is hierarchical to, and excludes these interaction terms. A beneficiary with all three conditions is not "credited" with the two-way interactions. All other interaction terms are additive.

[3] HCC or disease interaction excluded from institutional model because estimated coefficient less than 0 or t-statistic less than 1.0.

The 2007 denominator of $7,463.14 used to calculate both the community and institutional factors is the national predicted average annual cost under the model.

DM is diabetes mellitus (HCCs 15-19).
CHF is congestive heart failure (HCC 80).
COPD is chronic obstructive pulmonary disease (HCC 108).
CVD is cerebrovascular disease (HCCs 95, 96, 100, and 101).
CAD is coronary artery disease (HCCs 81-83).
RF is renal failure (HCC 131).

SOURCE: RTI International analysis of 2004/2005 Medicare 5% sample.
SOURCE: RTI International analysis of 2004/2005 Medicare 100% institutional sample.

Attachment IV-2. Disease Hierarchies for the CMS-HCC Model

Hierarchical Condition Category (HCC)	If the Disease Group is Listed in This Column…	…Then Drop the Associated Disease Group(s) Listed in This Column
	Disease Group Label	
5	Opportunistic Infections	112
7	Metastatic Cancer and Acute Leukemia	8, 9, 10
8	Lung, Upper Digestive Tract, and Other Severe Cancers	9, 10
9	Lymphatic, Head and Neck, Brain and Other Major Cancers	10
15	Diabetes with Renal Manifestations or Peripheral Circulatory Manifestation	16, 17, 18, 19
16	Diabetes with Neurologic or Other Specified Manifestation	17, 18, 19
17	Diabetes with Acute Complications	18, 19
18	Diabetes with Ophthalmologic or Unspecified Manifestations	19
25	End-Stage Liver Disease	26, 27
26	Cirrhosis of Liver	27
51	Drug/Alcohol Psychosis	52
54	Schizophrenia	55
67	Quadriplegia/Other Extensive Paralysis	68, 69, 100, 101, 157
68	Paraplegia	69, 100, 101, 157
69	Spinal Cord Disorders/Injuries	157
77	Respirator Dependence/ Tracheostomy Status	78, 79
78	Respiratory Arrest	79
81	Acute Myocardial Infarction	82, 83
82	Unstable Angina and Other Acute Ischemic Heart Disease	83
95	Cerebral Hemorrhage	96
100	Hemiplegia/Hemiparesis	101
104	Vascular Disease with Complications	105, 149
107	Cystic Fibrosis	108
111	Aspiration and Specified Bacterial Pneumonias	112
130	Dialysis Status	131, 132
131	Renal Failure	132
148	Decubitus Ulcer of Skin	149
154	Severe Head Injury	75, 155
161	Traumatic Amputation	177

How Payments are Made with a Disease Hierarchy -- EXAMPLE: If a beneficiary triggers HCCs 148 (Decubitus Ulcer of the Skin) and 149 (Chronic Ulcer of Skin, Except Decubitus), then HCC 149 will be dropped. In other words, payment will always be associated with the HCC in column 1 if a HCC in column 3 also occurs during the same collection period. Therefore, the MA organization's payment will be based on HCC 148 rather than HCC 149.

Attachment IV-3. 2009 CMS-HCC Model for New Enrollees

	Non-Medicaid & Non-Originally Disabled	Medicaid & Non-Originally Disabled	Non-Medicaid & Originally Disabled	Medicaid & Originally Disabled
Female				
0-34 Years	0.496	0.807	0.000	0.000
35-44 Years	0.652	0.963	0.000	0.000
45-54 Years	0.841	1.152	0.000	0.000
55-59 Years	0.969	1.280	0.000	0.000
60-64 Years	1.094	1.404	0.000	0.000
65 Years	0.497	0.958	1.096	1.557
66 Years	0.554	0.987	1.153	1.587
67 Years	0.595	1.028	1.194	1.628
68 Years	0.619	1.052	1.218	1.651
69 Years	0.652	1.085	1.251	1.684
70-74 Years	0.759	1.208	1.320	1.769
75-79 Years	0.955	1.357	1.430	1.832
80-84 Years	1.118	1.520	1.593	1.995
85-89 Years	1.255	1.657	1.730	2.132
90-94 Years	1.358	1.760	1.834	2.236
95 Years or Over	1.232	1.634	1.707	2.109
Male				
0-34 Years	0.344	0.675	0.000	0.000
35-44 Years	0.583	0.914	0.000	0.000
45-54 Years	0.729	1.060	0.000	0.000
55-59 Years	0.827	1.158	0.000	0.000
60-64 Years	1.033	1.365	0.000	0.000
65 Years	0.550	1.022	1.116	1.587
66 Years	0.586	1.058	1.117	1.589
67 Years	0.664	1.136	1.195	1.667
68 Years	0.664	1.136	1.195	1.667
69 Years	0.723	1.195	1.254	1.726
70-74 Years	0.855	1.322	1.392	1.859
75-79 Years	1.113	1.484	1.521	1.893
80-84 Years	1.299	1.670	1.707	2.078
85-89 Years	1.468	1.839	1.876	2.247
90-94 Years	1.630	2.001	2.038	2.409
95 Years or Over	1.638	2.009	2.046	2.417

NOTES:
The 2007 denominator of $7,463.14 used to calculate the new enrollee factors is the national predicted average annual cost under the model.

Three sets of interaction coefficients were constrained to be equal (Male, Age 67 & Male, Age 68; Medicaid, Male, Age 65 & Medicaid, Male, Ages 66 to 69; Originally Disabled, Female, Age 65 & Originally Disabled, Female, Ages 66 to 69). These constraints are necessary so that predicted expenditures, and risk scores for all demographic groups, vary in a reasonable way, as shown in the table of mutually exclusive demographic groups.

SOURCE: RTI International analysis of 2004/2005 Medicare 5% sample.

Table IV-4. Final Recalibrated Frailty Factors for CY 2009

ADL	2008 Factors (Non-Medicaid)	2009 Recalibrated Factors (Non-Medicaid)	2008 Factors (Medicaid)	2009 Recalibrated Factors (Medicaid)
0	-0.089	-0.093	-0.183	-0.180
1-2	+0.110	+0.112	+0.024	+0.035
3-4	+0.200	+0.201	+0.132	+0.155
5-6	+0.377	+0.381	+0.188	+0.200

Table IV-5. Data sources for the assignment of Medicaid status

	Payment year 2007	**Payment year 2008**	**Payment year 2009**
New enrollees	1. Third Party Buy-In file 2. Plan-reported Medicaid • Batch "01" transactions • Retroactive "01s" through IntegriGuard	1. MMA State files 2. Plan-reported • Retroactive "01s" through IntegriGuard	1. MMA State files 2. Plan-reported • Retroactive "01s" through IntegriGuard
Full risk enrollees		1. MMA State files 2. Third Party Buy-In file 3. Plan-reported Medicaid • Batch "01" transactions • Retroactive "01s" through IntegriGuard	

Notes: Full risk enrollees. CMS considers full risk Medicare beneficiaries as dually-eligible if they were eligible for title XIX during any month in the year prior to the payment year. Full risk Medicare beneficiaries have 12 months of Part B in the year prior to the payment year.
New enrollees. CMS assigns Medicaid status for new enrollees on a concurrent basis, i.e., if a newly-enrolled Medicare beneficiary is eligible for title XIX during any month during the payment year, they are considered Medicaid for that year.

Table IV-6. Acceptable diagnoses codes

Year of Payment	**Date of Service**	**Source of codes**
2007	1/06 – 12/06	The list of codes published on our website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp#TopOfPage (which lists acceptable codes by year)
2008	1/07 – 12/07	The list of codes published on our website at http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp#TopOfPage (which lists acceptable codes by year)
2009	1/08 – 12/08	Valid diagnoses in Fiscal Years 2008, 2009
2010	1/09 – 12/09	Valid diagnoses in Fiscal Years 2009, 2010
2011	1/10 – 12/10	Valid diagnoses in Fiscal Years 2010, 2011

Table IV-7. Updated Part D Benefit Parameters for Defined Standard Benefit, Low-Income Subsidy, and Retiree Drug Subsidy

Annual Percentage Increases	Annual percentage trend for 2008	Prior year revisions	Annual percentage increase for 2008
Applied to all parameters but (1)	5.97%	1.48%	7.54%
CPI (all items, U.S. city average): Applied to (1)	2.60%	0.57%	3.18%

Part D Benefit Parameters	2008	2009
Standard Benefit Design Parameters		
Deductible	$275	$295
Initial Coverage Limit	$2,510	$2,700
Out-of-Pocket Threshold	$4,050	$4,350
Total Covered Part D Drug Spend at OOP Threshold (2)	$5,726.25	$6,153.75
Minimum Cost-sharing in Catastrophic Coverage Portion of Benefit		
Generic/Preferred Multi-Source Drug	$2.25	$2.40
Other	$5.60	$6.00
Part D Full Benefit Dual Eligible Parameters		
Copayments for Institutionalized Beneficiaries	$0.00	$0.00
Maximum Copayments for Non-Institutionalized Beneficiaries		
Up to or at 100% FPL		
Up to Out-of-Pocket Threshold (1)		
Generic/Preferred Multi-Source Drug (3)	$1.05	$1.10
Other (3)	$3.10	$3.20
Above Out-of-Pocket Threshold	$0.00	$0.00
Over 100% FPL		
Up to Out-of-Pocket Threshold		
Generic/Preferred Multi-Source Drug	$2.25	$2.40
Other	$5.60	$6.00
Above Out-of Pocket Threshold	$0.00	$0.00
Part D Non-Full Benefit Dual Eligible Full Subsidy Parameters		
Resources ≤ $6,290 (individuals) or ≤ $9,440 (couples) (4)		
Maximum Copayments up to Out-of-Pocket Threshold		
Generic/Preferred Multi-Source Drug	$2.25	$2.40
Other	$5.60	$6.00
Maximum Copayments above Out-of-Pocket Threshold	$0.00	$0.00
Resources bet $6,290-$10,490 (ind) or $9,440-$20,970 (couples) (4)		
Deductible (3)	$56.00	$60.00
Coinsurance up to Out-of-Pocket Threshold	15%	15%
Maximum Copayments above Out-of-Pocket Threshold		
Generic/Preferred Multi-Source Drug	$2.25	$2.40
Other	$5.60	$6.00
Part D Non-Full Benefit Dual Eligible Partial Subsidy Parameters		
Deductible (3)	$56.00	$60.00
Coinsurance up to Out-of-Pocket Threshold	15%	15%
Maximum Copayments above Out-of-Pocket Threshold		
Generic/Preferred Multi-Source Drug	$2.25	$2.40
Other	$5.60	$6.00
Retiree Drug Subsidy Amounts		
Cost Threshold	$275	$295
Cost Limit	$5,600	$6,000

(1) CPI adjustment applies to copayments for non-institutionalized beneficiaries up to or at 100% FPL.
(2) Amount of total drug spending required to attain out-of-pocket threshold in the defined standard benefit if beneficiary does not have prescription drug coverage through a group health plan, insurance, government-funded health program or similar third party arrangement.
(3) The increases to the LIS deductible, generic/preferred multi-source drugs and other drugs copayments are applied to the unrounded 2008 values of $55.91, $1.04, and $3.13 respectively.
(4) The actual amount of resources allowable will be updated for contract year 2009.

Office of the Actuary, Centers for Medicare and Medicaid Services, February 22, 2008

April 7, 2014

NOTE TO: All Medicare Advantage Organizations, Prescription Drug Plan Sponsors, and Other Interested Parties

SUBJECT:

Announcement of Calendar Year (CY) 2015 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter

In accordance with section 1853(b)(1) of the Social Security Act (the Act), we are notifying you of the annual Medicare Advantage (MA) capitation rate for each MA payment area for CY 2015 and the risk and other factors to be used in adjusting such rates. The capitation rate tables for 2015 are posted on the Centers for Medicare & Medicaid Services (CMS) web site at http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/index.html under Ratebooks and Supporting Data. The statutory component of the regional benchmarks, transitional phase-in periods for the Affordable Care Act rates, qualifying counties, and each county's applicable percentage are also posted at this website.

Attachment I shows the final estimates of the National Per Capita MA Growth Percentage for 2015 and the National Medicare Fee-for-Service (FFS) Growth Percentage for 2015. These growth rates will be used to calculate the 2015 capitation rates. As discussed in Attachment I, the final estimate of the National Per Capita MA Growth Percentage for combined aged and disabled beneficiaries is -4.07 percent, and the final estimate of the FFS Growth Percentage is -3.3 percent. Attachment II provides a set of tables that summarizes many of the key Medicare assumptions used in the calculation of the National Per Capita MA Growth Percentage.

Section 1853(b)(4) of the Act requires CMS to release county-specific per capita FFS expenditure information on an annual basis, beginning with March 1, 2001. In accordance with this requirement, FFS data for CY 2012 are being posted on the above website.

Attachment III presents responses to comments on the Advance Notice of Methodological Changes for CY 2015 MA Capitation Rates and Part C and Part D Payment Policies (Advance Notice). Attachment IV contains the changes in the payment methodology for Medicare Part D for CY 2015. Attachment V contains tables with the Part D benefit parameters.

Attachment VI contains details on Part D benefit parameters.

Attachment VII presents the final Call Letter. We received many submissions in response to CMS' request for comments on the Advance Notice/Call Letter, published on February 21, 2014. Comments were received from professional organizations, MA and Part D sponsors, advocacy groups, the pharmaceutical industry, pharmacy benefit managers, pharmacies, and concerned citizens.

Comment: One MAO noted that since its risk scores are below average, it does not feel the adjustment should be applied across the board.

Response: While CMS understands the commenter's concern, we have determined that the optimal way to apply the adjustment is to do so uniformly and industry wide.

Section J. Normalization Factors

Comment: The majority of commenters supported CMS' proposal to calculate the normalization factors for the CMS-HCC and RxHCC risk scores using a methodology to better capture the increased proportion of younger beneficiaries known as the "baby boomers." Several commenters recommended that CMS make retroactive adjustments to the normalization factors.

Response: We appreciate the support for modifying the normalization factor methodology to account for the influx of baby boomers to the Medicare population. CMS uses historical data to develop normalization factors prior to a payment year in order to promote stability for bidding purposes. Given this policy, CMS will not retroactively change the normalization factors for prior years. However, we did consider whether using more historical data could better inform the calculation of the 2015 normalization factors (in the Advance Notice we proposed using 2012 and 2013 risk scores to estimate annual trends for the CMS-HCC models). By using a quadratic functional form fit to risk scores from 2010 through 2013, the normalization factors will better reflect more recent changes in the population trends. Thus, we are finalizing the 2015 normalization factors for the CMS-HCC and RxHCC models as shown in Table III-2:

Table III-2. 2015 Normalization Factors

CMS-HCC or RxHCC Model	2015 Normalization Factor
CMS-HCC model implemented in 2013	0.992
Clinically revised CMS-HCC model implemented in 2014	0.978
CMS-HCC model for PACE plans	1.028
ESRD Dialysis/Transplant model	1.004
ESRD Functioning Graft model	1.028
RxHCC model	0.961

Comment: A commenter highlighted the difference in the years of data we used when calculating the proposed normalization factors for the CMS-HCC and RxHCC models (CY2012 and CY2013 vs. CY2011 and CY2012, respectively), suggesting that we should be consistent in the years of data we use to develop the RxHCC normalization factors.

Response: We agree with the commenter, and we have changed the data years used to calculate the 2015 RxHCC normalization factor to match those used for the CMS-HCC models, as shown in Table III-2. Please see Table III-3 for the 2015 RxHCC normalization factors.

April 5, 2010

NOTE TO: All Medicare Advantage Organizations, Prescription Drug Plan Sponsors, and Other Interested Parties

SUBJECT: Announcement of Calendar Year (CY) 2011 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter

In accordance with section 1853(b)(1) of the Social Security Act (the Act), we are notifying you of the annual Medicare Advantage (MA) capitation rate for each MA payment area for CY 2011, and the risk and other factors to be used in adjusting such rates. The capitation rate tables for 2011 are posted on the Centers for Medicare & Medicaid Services (CMS) web site at http://www.cms.gov/MedicareAdvtgSpecRateStats/ under Ratebooks and Supporting Data. The statutory component of the regional benchmarks is also posted at this website.

As required by Section 1102 of the Health Care and Education Affordability Reconciliation Act of 2010, the capitation rates for 2011 are the same as the capitation rates for 2010. In previous years' Rate Announcements, CMS included final estimates of the National Per Capita Growth Percentages (MA Growth Percentages) as well as tables summarizing the key assumptions that were used to develop the MA Growth Percentages. The final estimates of the MA Growth Percentages were used to trend the previous years' capitation rates to the payment year. Given that the capitation rates for 2011 are the same as the capitation rates for 2010, the MA Growth Percentages have no relevance for the 2011 capitation rates. Therefore, this Rate Announcement does not include final estimates of the MA growth percentages or the associated key assumptions tables.

Section 1853(b)(4) of the Act requires CMS to release county-specific per capita fee-for-service (FFS) expenditure information on an annual basis, beginning with March 1, 2001. In accordance with this requirement, FFS data for CY 2008 are being posted on the above website.

Information on deductibles for MSA standard and demonstration plans, and on the maximum out-of-pocket amount for MSA demonstrations plans, is below.

Attachment I presents responses to comments on the Advance Notice of Methodological Changes for CY 2011 MA Capitation Rates and Parts C and Part D Payment Policies (Advance Notice). Attachment IV presents the final Call Letter. We received 78 submissions in response to CMS' request for comments on the Advance Notice/Call Letter, published on February 19, 2010. Eight of the comments were from advocacy groups, 27 were from associations, 1 was from a Congressional agency, 2 were from members of the public, and 40 were from health plans.

Attachment II contains tables with the Part D benefit parameters; Attachment III contains tables with the 2011 Rx-HCC risk adjustment factors.

Response: We appreciate the support for continuing to make a coding pattern adjustment. For future years, CMS will consider updating the adjustment using later data and adjusting for coding differences that will have occurred since 2007.

Comment: Several commenters opposed the use of the national average when applying an MA coding adjustment. Some commenters felt that a national average penalizes MAOs operating in geographic areas where local FFS coding increases are greater than the national average or where MA coding trends are below the national average. Commenters also argued that a national average presumes that all MAOs are similar in their coding differences, which is unlikely to be true, particularly when comparing smaller, regional organizations with less sophisticated tools and resources to larger national organizations, and that an adjustment based on all Medicare Advantage enrollees was reflective of larger plans experience. These commenters recommended that CMS derive and apply MA coding adjustments in a more targeted manner.

Response: While the commenter is correct that MA coding trends do differ among MAOs and it is possible that FFS coding trend differ by geographic area, the MA coding adjustment is akin to the normalization factor: industry-wide and not plan-specific in nature, in order to ensure that risk scores in the aggregate are at the correct level, given the coding patterns inherent in the CMS-HCC risk adjustment model and the FFS coding trends reflected in the Part C normalization factor.

Comment: One commenter urged CMS to undertake an analysis of other factors that might influence differences in rates of disease score growth among specific subsets of the Medicare population, e.g., Medicaid eligibles, or subsets of high-cost beneficiaries including beneficiaries with multiple chronic conditions.

Response: CMS' research to date does not support the position that Medicaid eligibility or having high costs has an impact on differential coding between MA and FFS. If other factors are found that CMS believes may affect the coding differential between sectors, we will consider including it in the coding adjustment factor in future years.

Comment: A number of commenters thought that CMS should handle coding intensity as an audit issue for those payers showing the highest probability of coding activity; they felt that it was unfair to reduce payments to all MAOs, when a few might be driving the aggregate coding intensity rate for MAOs generally. Several commenters contended that the MA coding adjustment and RADV audits both were intended to address inaccurate coding and that the 2011 MA coding adjustment is duplicative of any RADV audit-related adjustments. Commenters thought that, to avoid double counting the impact of inaccurate coding, the difference factor should take into account the impact of RADV audits (reduce overall coding intensity adjustment by future expected value of RADV adjustments) or was not necessary. A couple of commenters asked CMS to discuss how the RADV results are removed from the MA coding adjustment, or at least how it will avoid both affecting payments simultaneously.

Response: As we have noted in previous Advance Notices and Rate Announcements, the MA coding adjustment factor is not intended to adjust for inaccurate coding, but for the impact on risk scores of coding patterns that differ from FFS coding, the basis of the CMS-HCC model and the Part C normalization factor. RADV audits have the purpose of validating that diagnosis codes submitted for risk adjustment are documented in the medical record and, therefore, are correctly reported for the beneficiary in question. Moreover, we have not yet conducted RADV audits for the years in which we have applied an MA coding adjustment.

Comment: One commenter complained about the lack of an appeal mechanism, and thought that the adjustment should be nullified if coding is correct.

Response: As structured, the MA coding adjustment is a methodological adjustment to risk scores to ensure payment accuracy given differential coding patterns in MA and FFS. Since the MA coding adjustment is not plan-specific, and is not intended to target plans for their individual coding patterns, an appeal mechanism is not appropriate.

Comment: A couple of commenters believed that the coding adjustment had a disproportionate impact on SNPs, with one noting that this was due to greater numerical adjustment in risk scores for a plan serving high risk special needs individuals. The commenters opined that the adjustment would likely adversely impact SNPs, given the differential between FFS and SNPs, due to the SNP mandate to serve a high risk population with complex medical needs. These commenters urged that CMS devise and implement a plan to enhance the coding practices and accuracy of fee-for-service providers to create a level playing field relative to MA and FFS incentive to code accurately.

Response: As discussed above, CMS is applying an industry-wide adjustment for coding that adjusts risk scores in the aggregate to address coding trends in MA that differ from those in FFS. However, it is important to note the MA coding adjustment reflects *differences* in the year-to-year changes in the disease score portion of the risk score, not the absolute levels of FFS and MA risk scores. Therefore, it is not clear why plans with a higher level of risk scores would experience more or less differential coding than any other plan. Although CMS currently relies on FFS data to calibrate the CMS-HCC model, we anticipate using encounter data to calibrate the model in the future. At that time, a single normalization factor will be adequate to address coding trends and a separate MA coding adjustment factor will not be needed.

Section H. IME Phase Out

Comment: One commenter asked whether, when calculating the Standardized IME cost percentage (expressed as a percentage of FFS costs), the resulting ratio is constant during the phase-out period (i.e., if the IME costs and the FFS costs trend at the same rate), or if the IME cost represents what is left for IME costs yet to be phased-out.

Response: We anticipate recalculating the IME percentage of FFS cost in rebasing years.

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Measuring Coding Intensity in the Medicare Advantage Program

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Background: In 2004, Medicare implemented a system of paying Medicare Advantage (MA) plans that gave them greater incentive than fee-for-service (FFS) providers to report diagnoses.

Data: Risk scores for all Medicare beneficiaries 2004–2013 and Medicare Current Beneficiary Survey (MCBS) data, 2006–2011.

Measures: Change in average risk score for all enrollees and for stayers (beneficiaries who were in either FFS or MA for two consecutive years). Prevalence rates by Hierarchical Condition Category (HCC).

Results: Each year the average MA risk score increased faster than the average FFS score. Using the risk adjustment model in place in 2004, the average MA score as a ratio of the average FFS score would have increased from 90% in 2004 to 109% in 2013. Using the model partially implemented in 2014, the ratio would have increased from 88% to 102%. The increase in relative MA scores appears to largely reflect changes in diagnostic coding, not real increases in the morbidity of MA enrollees. In survey-based data for 2006–2011, the MA-FFS ratio of risk scores remained roughly constant at 96%. Intensity of coding varies widely by contract, with some contracts coding very similarly to FFS and others coding much more intensely than the MA average. Underpinning this relative growth in scores is particularly rapid relative growth in a subset of HCCs.

Discussion: Medicare has taken significant steps to mitigate the effects of coding intensity in MA, including implementing a 3.4% coding intensity adjustment in 2010 and revising the risk adjustment model in 2013 and 2014. Given the continuous relative increase in the average MA risk score, further policy changes will likely be necessary.

Keywords: Medicare, payment systems, FFS, Capitation, risk adjusted payments, Managed Care Organizations

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Mission Statement

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Introduction

General

Enrollment in the Medicare Advantage Program has increased dramatically, growing from 9.3 million beneficiaries in March 2008 to 15.4 million in March 2014, an increase of 66% in just six years.

Concerns about overpayment as a result of favorable risk selection have confronted the Medicare program throughout the history of Medicare contracting with health maintenance organizations and other private plans. In the late 1980s, Medicare paid health plans using a system that adjusted for demographic factors such as age and gender, but plan enrollees were healthier than fee-for-service beneficiaries with the same demographic characteristics, and, as a result, health plans were estimated to be overpaid by approximately 11% (Brown, Bergeron, Clement, Hill, & Retchin, 1993).[1]

In order to reward health plans for attracting sicker-than-average enrollees, and to discourage plans from constructing business models designed to avoid risk, Medicare and other payers have increasingly turned to diagnosis-based risk-adjusted payment systems in which health plans are paid more for enrollees expected to need more care. While mitigating the incentive to enroll only healthy people, diagnosis-based risk adjustment creates another set of incentives: to find and report as many diagnoses as possible. Risk-adjusted payment using plan-reported diagnostic information creates a dilemma—there are strong policy reasons to pay plans more if they enroll sicker people,

[1] Systems in which payment is based, at least in part, on patient diagnoses create an incentive for providers or plans to report all appropriate diagnoses. Most notably, after the advent of the inpatient prospective payment system, which used diagnosis related groups (DRGs), hospital case-mix increased.

but measuring morbidity using plan-reported diagnostic data provides strong incentives for plans to increase the reported morbidity of enrollees (Government Accountability Office, 2012).

Medicare Risk Adjustment

The first Medicare risk program was established under the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982. From 1982 to 1999, this program paid health plans (known as TEFRA health maintenance organizations [HMOs]) a monthly amount per enrollee based on 95 percent of the estimated costs of treating an average beneficiary in the traditional fee-for-service (FFS) program. This amount was adjusted for demographic factors such as age and gender (Hellinger & Wong, 2000; Lichtenstein, Thomas, Adams-Watson, Lepkowski, & Simone, 1991).

The Balanced Budget Act of 1997 made significant changes under the Medicare+Choice (M+C) program, including requiring the development of a new risk adjustment system that incorporated morbidity information. Medicare began using diagnoses from inpatient hospitalizations in 2000 to adjust payments to health plans. The Benefits Improvement Protection Act of 2000 required the use of ambulatory diagnoses in Medicare risk-adjustment, and Medicare implemented the CMS-HCC (Centers for Medicare & Medicaid Services-Hierarchical Condition Categories) risk adjustment model in 2004 and fully phased it in by 2007. The CMS-HCC incorporated both inpatient and ambulatory diagnoses that were categorized into 70 HCCs that were determined to be predictive of costs (Pope, *et al.*, 2004). In 2003 the Medicare Modernization Act (MMA) renamed the program "Medicare Advantage (MA)."

The MA payment system uses diagnostic information to assign a risk score to each beneficiary, where the average beneficiary in fee-for-service has a risk score of 1.0. MA plans are paid the product of their bid multiplied by the enrollee's risk score—that is, if an MA plan bids $1,000/month for an enrollee with a risk score of 1.0, and then enrolls a beneficiary with a risk score of 1.2, the plan gets paid $1,200/month for that enrollee (1.2 * $1,000/month).

This payment system creates incentives for MA plans to find and report as many diagnoses as can be supported by the medical record. For office-based services, physicians billing FFS are paid based on the procedures performed—for example, one amount for an intermediate office visit, a different amount for a skin biopsy—but are not paid based on the number of diagnoses that are reported (provided there is at least one that supports the need for the service provided). If, for example, a FFS patient with quadriplegia and a urinary tract infection (UTI) has an office visit for treatment of the UTI, the payment to the physician will be no more if both the UTI and quadriplegia are reported on the claim than if only the UTI is reported. Coding guidelines specify that the quadriplegia can legitimately be coded if it contributes to the complexity of care, but unlike the situation for MA plans, in FFS there is no incentive to report more than one diagnosis. In contrast, MA plans have a strong incentive to do so. In addition to the incentives to report more completely, the method of collecting diagnostic information also provides MA plans additional opportunities to increase risk scores. FFS diagnoses are drawn only from health care claims submitted for payment. MA plans may also review medical records and can report all diagnoses that are supported in the record, including those that were not reported by physicians on any health care claim or encounter record. MA plans can also employ nurses to visit enrollees in their homes to conduct health assessments and report diagnoses that are found.

As noted, payment to MA plans is calibrated based on coding patterns in FFS. If, for example, Jane Doe would have a risk score of 1.0 if she were in FFS, the implicit assumption in the design of the MA payment system is that she would have the same risk score of 1.0 if she were enrolled in MA. Alternatively, if the same Jane Doe had a risk score of 1.1 if enrolled in MA, then her plan would be overpaid. As we use the phrase, 'coding intensity' is the difference between the scores that a group of beneficiaries would have if enrolled in MA and their scores in FFS.

If we find that MA plans code with high intensity, that does not provide information about whether MA plans are 'overcoding' or whether FFS providers are 'undercoding.' Similarly, one cannot infer whether MA coding is any more or less accurate than FFS. However, for the purposes of creating an equitable MA payment system, the relevant question is whether MA risk scores are systematically different than those risk scores would be in FFS, and not which set of scores is more accurate. Suppose, for example, that average expenditure per FFS beneficiary is $10,000/year, and that the average risk score for all FFS beneficiaries is 1.0. The goal of the payment system is to assure that—if all of those beneficiaries were to enroll in MA—the average payment to MA plans would be approximately $10,000 per beneficiary. If, however, FFS systematically underreports diagnoses and MA reports them more completely, then the average risk score in MA would be greater than 1.0, and MA plans would be paid more than $10,000 per beneficiary. The goal of the risk adjustment system is to assure that MA plans that enroll sicker-than-average beneficiaries are paid appropriately, but not to increase payment for an average beneficiary.

As a result of concern about the effects of incentives to increase coding intensity on MA plan payment levels, the Deficit Reduction Act of 2005 directed CMS to measure and adjust for coding intensity (Department of Health and Human Services, 2007), and in the 2010 payment year CMS adjusted risk scores by 3.41% to reflect anticipated differences between MA and FFS coding (Department of Health and Human Services, 2009). The Government Accountability Office (2012) estimated that in 2010 MA beneficiary risk scores were at least 4.8% and perhaps as much as 7.1% higher than they likely would have been if the same beneficiaries had been continuously enrolled in FFS. The Affordable Care Act directs CMS to increase the coding intensity adjustment to at least 4.71% in 2014, and further increase it to at least 5.71% by 2018 (PPACA & HCERA, 2010). The American Taxpayer's Relief Act of 2012 further increases the minimum coding intensity adjustment to 4.91% in 2014 and 5.91% in 2018.

The risk adjustment model implemented in 2004 was recalibrated in 2007, 2009, and 2013.[2] These changes slowed the growth in measured MA risk scores somewhat. Further, as described in more detail below, since 2014, CMS has adopted substantial changes to the model, particularly relating to several diagnoses that have been subject to coding intensity efforts by MA plans (Department of Health and Human Services, 2013). In 2014 the risk score is a blend, weighting the risk score calculated using the 2013 model by 25% and the risk score calculated using the 2014 model by 75%.

Concerns about coding intensity in MA plans would be minor if coding in FFS were relatively complete, because in that case there would be little opportunity for MA plans to legitimately increase risk scores through efforts at increasing diagnostic

[2] HCCs are constrained for a variety of reasons, including methodological and policy reasons. Starting in 2013, the coefficients for the four most severe diabetes HCCs were constrained to the same amount, eliminating the opportunity to increase revenue by increasing the reported severity of diabetes within these four HCCs.

reporting. However, FFS coding is known to be both incomplete and variable. Incomplete coding is evidenced by lack of persistence in coding of chronic conditions. For instance, among Medicare beneficiaries diagnosed with quadriplegia in one year, only 61% had a diagnosis of quadriplegia reported in the subsequent year (Medicare Payment Advisory Commission, 1998). Coding intensity also varies geographically; in the Hospital Referral Regions (HRRs) with the most intense practice patterns, the probability that a beneficiary is diagnosed with three or more chronic conditions is double the probability in low-intensity HRRs, with no evidence of differences in underlying prevalence (Welch, Sharp, Gottlieb, Skinner, & Wennberg, 2011).

Incomplete and variable coding provide ample opportunities for MA plans to increase risk scores of beneficiaries through coding intensity efforts, and a number of vendors actively market services that help plans to do so (Gorman Health Group, 2013; Leprechaun, 2013), often advertising high returns on investment (ROIs) for their services.

This paper uses recent data as well as improved methods to estimate the effects of coding intensity on MA risk scores, with particular attention to variation over time in coding intensity, variation in coding intensity across plans, and variation in the diagnoses most subject to coding intensity efforts. Before describing our methods, we'll review what is known about risk selection in the MA program.

Evidence on Risk Selection

Concerns about overpayment as a result of favorable risk selection have confronted the Medicare program throughout its history of contracting with HMOs and other private plans. For example, Brown *et al*. (1993) found that health plans were overpaid by approximately 11% under the Medicare risk program during the late 1980s because plans experienced favorable selection; on average, risk plan enrollees were healthier than fee-for-service beneficiaries with the same demographic characteristics, with lower prior reimbursements and fewer indicators of chronic health problems (Brown *et al*., 1993). Several studies confirmed that the favorable risk selection for early HMOs continued during the early 1990s (Mello, Stearns, Norton, & Ricketts, 2003; Call, Dowd, Feldman, & Maciejewski, 1999; Physician Payment Review Commission, 1996; Riley, Chiang, Ingber, & Tudor, 1996). For example, Mello *et al*. (2003) found that Medicare beneficiaries with a history of cancer or stroke were significantly less likely to be enrolled in HMOs.

Recent analyses suggest that the various policy changes that have been implemented over the past decade—such as the implementation of the CMS-HCC model, the addition of an open enrollment period, and additional refinements of the risk adjustment system—have reduced the degree of selection bias between Medicare Advantage (MA) and the traditional FFS program. For example, Newhouse, Price, Huang, McWilliams, & Hsu (2012) recently found that differences in risk scores for beneficiaries switching from the traditional FFS program to MA and beneficiaries remaining in the traditional program narrowed by a factor of 3 between 2004 and 2008 (with the difference between risk scores for beneficiaries switching into MA and those staying in the traditional FFS program changing from -0.113 to -0.037); and differences in adjusted mortality rates narrowed by a factor of 2 between 1988 and 2008 (with mortality among beneficiaries in MA as a percentage of mortality among beneficiaries in the traditional FFS program increasing from 85 percent to 93 percent) and were almost equal between persons enrolled in MA for five or more years and traditional FFS enrollees (Newhouse *et al*., 2012). Similarly, McWilliams,

Hsu, and Newhouse (2012) found reductions in differences between MA and FFS for self-reported health and health care use between 2001 and 2003 and between 2006 and 2007. However, there continues to be evidence of selection bias in disenrollment from MA plans (Riley, 2012; Medicare Payment Advisory Commission, 2012; Morrisey, Kilgore, Becker, Smith, & Delzell, 2012).

Methods

Ideally, we would measure coding intensity by running an experiment with a large group of beneficiaries, in which one-half of the group was randomly assigned to MA, the other half to FFS, and we observed the risk scores of each group. The difference between the average score in MA and FFS would be a good estimate of coding intensity. In the absence of performing this experiment, we use a variety of inferential approaches. As shown below, average MA risk scores increased much more rapidly than average FFS scores from 2004 to 2013. There are three potential explanations for the relative increase in MA scores. First, the composition of MA enrollment might have changed; for example, MA enrollees in 2013 might be older, relative to FFS, than MA enrollees in 2004, and, as a result have higher risk scores. Second, even if there were no change in the composition of MA enrollees, MA enrollees might have gotten sicker more quickly than FFS beneficiaries. Third, it is possible that coding intensity increased in MA. Below, we assess the plausibility of each of these three potential explanations concluding that greater coding intensity is by far the most likely explanation.

We evaluate whether changes in MA scores relative to FFS scores are due to coding intensity efforts or to changes in the composition of enrollees by analyzing the contribution of changes in risk scores for four types of beneficiaries: stayers, leavers, joiners, and switchers—where stayers are beneficiaries in either MA or FFS for two consecutive years; leavers are beneficiaries, primarily decedents, who were in one sector in the first year, but not Medicare eligible in the second year; joiners are beneficiaries, primarily those turning 65, who were not Medicare eligible in the first year; and switchers are beneficiaries who move from FFS to MA (or vice-versa) between two consecutive years. To the extent that the contribution of leavers, joiners, or switchers differed between MA and FFS, then we will have evidence that part of the differential growth in risk scores between MA and FFS is a result of differences arising from enrollment decisions or mortality of beneficiaries, or "caseload dynamics" for shorthand. However, if risk scores increase more rapidly for MA stayers than for similar FFS stayers, then we will have evidence that coding intensity accounts for part of the more rapid growth in MA scores.

Our analysis assumes that in the absence of coding intensity efforts, the risk score for a given MA beneficiary would increase, on average, at the same rate as the risk score for an otherwise similar FFS beneficiary from one year to the next. This appears to be a reasonable assumption, and would only be incorrect if MA beneficiaries were actually getting sicker more quickly than FFS beneficiaries. We analyze changes in the relative mortality rate of MA and FFS enrollees as an independent method of assessing the relative morbidity of beneficiaries in the two sectors. If MA enrollees are, in fact, getting sicker more quickly than FFS beneficiaries, we would expect to see MA mortality rates increase relative to FFS mortality.

Data

For each year from 2004 to 2013, we used three Medicare administrative files with beneficiary level data: the Enrollment Database (EDB); the

Common Medicare Environment, which contains the MA contract number; and the Risk Adjustment Processing System, which contains the risk score. For each year from 2004 to 2013, we computed the risk score using each HCC's coefficient (i.e., weight) that was used to pay plans in 2004–2006. Analyses of coding intensity based on risk scores have not appeared in the peer-reviewed literature.

We excluded beneficiaries not enrolled in both Parts A and B, because diagnostic information would be incomplete. Beneficiaries enrolled in cost contracts, hospice, or the ESRD program were also excluded, because of differences in payment methodology. Risk scores were computed prior to any normalization and MA-wide adjustment for differences in coding.

Decomposition of Risk Score Growth

To decompose the changes in risk scores, we analyze beneficiaries based on their enrollment as of July 1 of each of two consequent years (called a "cohort"). We analyze nine cohorts, from the first cohort under the new adjustment system in 2004–2005 through the most recent one in 2012–2013, estimating the contribution of each type of beneficiary—stayers, joiners, leavers, and switchers—to the overall change in risk score. The decomposition method is described in the Supplemental Appendix.

Contract-Level Analyses

To assess the extent to which coding intensity differs across contracts, we calculate the rate of increase in risk scores for stayers for contracts that continuously participated in Medicare from 2004 through 2011, had at least 10,000 enrollees in both 2004 and 2011, and whose ratio of 2011 enrollment to 2004 enrollment was between 25% and 300%. The subset of contracts account for approximately 85% of enrollment in 2004 and 42% in 2011. For each contract and cohort, we define the excess increase in risk score for stayers as the difference between the increase in risk scores for stayers in the contract and the increase in risk scores for FFS beneficiaries, controlling for age and decedent status (details are in the Supplemental Appendix).[3] The cumulative excess increase in risk score is the sum of this amount over the seven cohorts from 2004 to 2005 through 2010 to 2011. Contracts are divided into deciles (weighted by 2011 enrollment) based on the cumulative excess increase in scores for stayers.

The growth in relative prevalence of each HCC was calculated separately for the MA and FFS sector as well as by decile of coding intensity among the continuously participating contracts.

Analysis of Medicare Current Beneficiary Survey (MCBS) Data

We analyze the MCBS to provide an assessment of the relative risk of MA and FFS beneficiaries that is independent of the data reported by MA plans or FFS providers. As described more fully in the Supplemental Appendix, in the first stage of the analysis, we use MCBS data from 2004 to 2011 to estimate a regression model to predict the sum of Part A plus Part B expenditures. The regression is estimated on FFS enrollees. Independent variables are demographic characteristics (age, gender, Medicaid status, and institutional status), self-reported health status (excellent, very good, good, fair, or poor), and self-report of whether the respondent has ever been diagnosed with hypertension, heart attack, heart failure, stroke, cancer, or diabetes, and dummy variables for each year. In the second stage, we use the regression coefficients to predict expenditures for each FFS

[3] The contract-level analysis implicitly assumes that the increase in FFS risk scores for a beneficiary of a given age and decedent status is uniform geographically.

and MA respondent in the sample, and compare the average predictions for MA and FFS.

Results

Mean risk scores in MA increased faster than in FFS from 2004 to 2013—by 0.305 in MA, compared to 0.106 in FFS (Exhibit 1). As measured using the risk model in effect in 2004, MA scores grew from 90.2% of FFS scores in 2004 to 109.1% in 2013, an increase of 18.9 percentage points.[4]

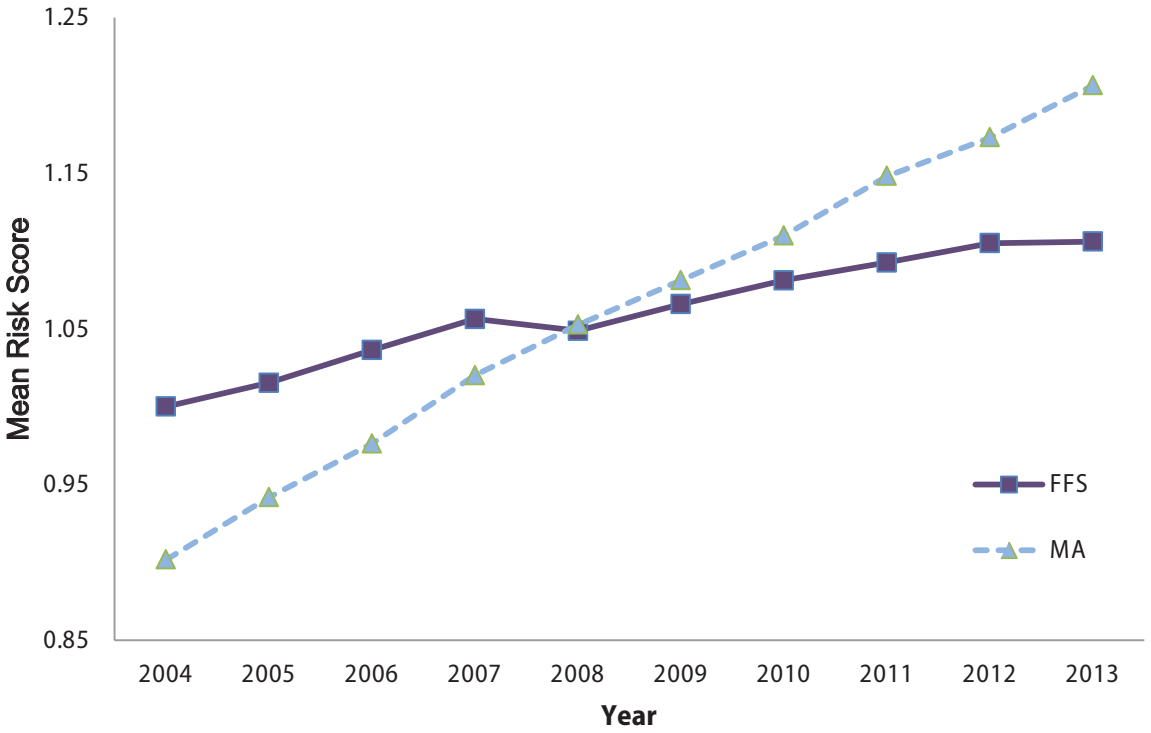
Decomposition of Risk Score Growth

Risk scores among MA stayers increased more quickly than risk scores among FFS stayers in every cohort (Exhibit 2). Across the two-year cohorts, the growth in risk scores for FFS stayers averaged 0.088. In contrast, in MA the growth in mean risk scores for stayers was 0.106 in 2004–2006, 0.119 in 2006–2010, and 0.132 in 2010–2013. The difference between the rate of growth in risk scores for MA and FFS stayers is substantial, with average MA scores increasing one-third more rapidly than FFS scores.

As was shown in Exhibit 1, the average MA risk score increased 0.025 more rapidly than the average FFS score from 2004 to 2005. Differential changes between MA and FFS in caseload dynamics account for approximately one-half of this 0.025 difference (Exhibit 3). As was shown in Exhibit 2, risk scores for FFS stayers increase by approximately 0.088 per year. However, as was shown in Exhibit 1, the

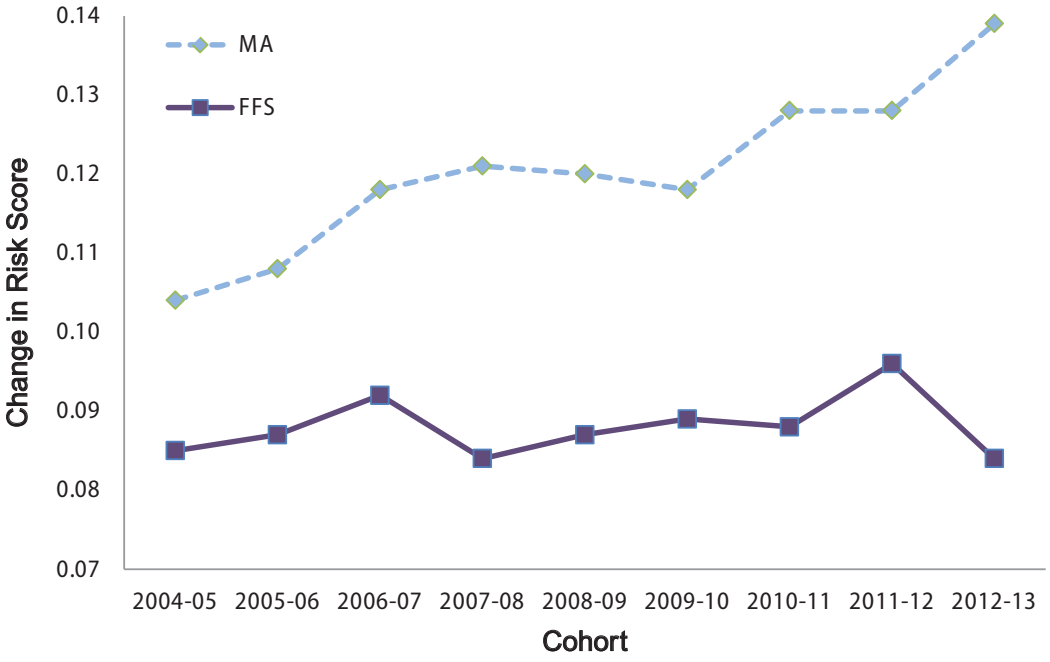
[4] As noted, the payment rules, however, did change in a variety of ways.

Exhibit 1. Mean Risk Scores, MA vs. FFS, 2004–2013 (2004 Model)



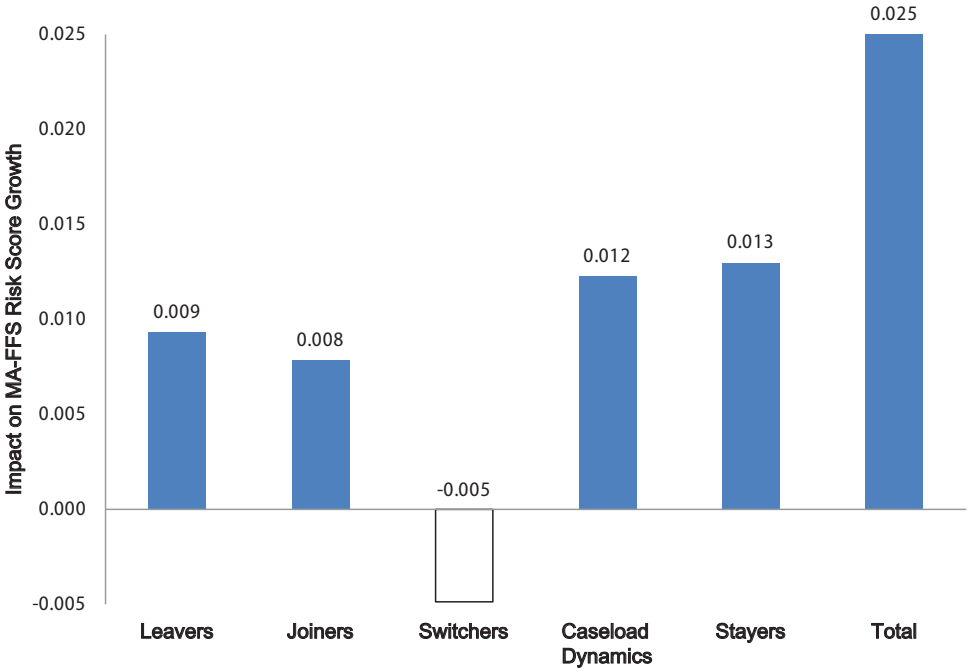
NOTE: 2004 HCC model, which here has been normalized to 1.00 for FFS in 2004. For payment purposes, this model was modified and recalibrated in 2007, 2009, 2013, and 2014. Risk scores were adjusted by -3.41%, starting in 2010. Diagnoses from FFS diagnostic radiology claims were excluded starting in 2008.
SOURCE: Authors' analysis of Medicare administrative data.

Exhibit 2. Growth in Risk Scores Among Stayers, MA vs. FFS, 2004–2013



NOTE: 2004 model. Stayers are beneficiaries who were enrolled in MA (or in FFS) on July 1 of two consecutive years.
SOURCE: Authors' analysis of Medicare administrative data.

Exhibit 3. Sources of Differential Growth in MA and FFS Risk Scores, 2004–2005



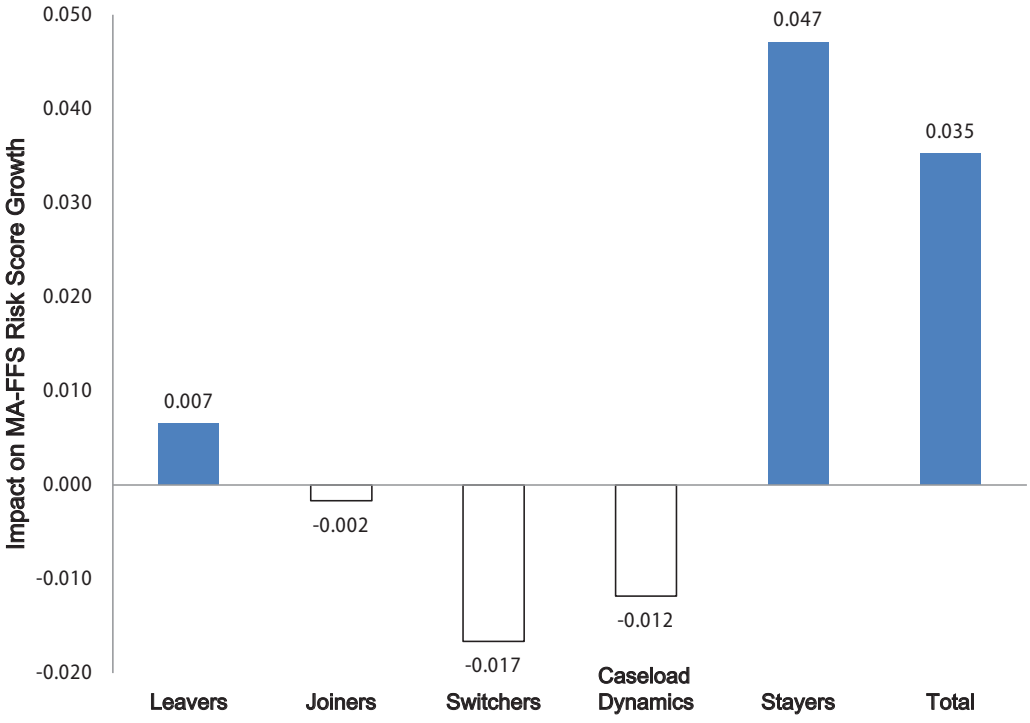
NOTE: 2004 model. Caseload dynamics is the sum of leavers (e.g., decedents), joiners (e.g., newly eligibles), and switchers. Total is the sum of caseload dynamics and stayers.
SOURCE: Authors' analysis of Medicare administrative data.

average FFS risk score increases by approximately 0.012 per year. Caseload dynamics account for the difference between the 0.088 growth for stayers and the 0.012 for all FFS beneficiaries—relatively high risk score decedents exit the caseload and are replaced by relatively low risk score 65 year olds.

From 2004 to 2005, caseload dynamics caused greater restraint in the growth of FFS risk scores than in MA (Exhibit 3). Decedents are a greater proportion of FFS beneficiaries than of MA enrollees and, similarly, 65 year olds are a greater proportion of FFS than of MA. Primarily as a result of the greater proportion of decedents in FFS, the average MA risk score in 2005 increased by 0.009 more than the average FFS score. Similarly, as a result of the greater proportion of 65 year olds in FFS, the average MA score increased by 0.008 more than the average FFS score. These effects were partially balanced by the effects of switchers—relatively low risk beneficiaries switching from FFS to MA, and relatively high risk beneficiaries switching from MA to FFS. Despite the partially counterbalancing effect of switchers, the net effect of caseload dynamics was to cause the average MA score to increase 0.012 more rapidly than the average FFS score from 2004 to 2005. The remaining 0.013 of the difference in growth rate between MA and FFS scores is accounted for by the fact that risk scores for stayers increased more rapidly in MA than in FFS.

Although caseload dynamics accounted for part of the more rapid growth in MA risk scores in 2004–2005, in 2012–2013 the effects of caseload dynamics reversed, causing the average MA risk score to grow more slowly than FFS (Exhibit 4). Decedents have a similar effect in 2012–2013 as in

Exhibit 4. Sources of Differential Growth in MA and FFS Risk Scores, 2012–2013



NOTE: 2004 model. Caseload dynamics is the sum of leavers (e.g., decedents), joiners (e.g., newly eligibles), and switchers. Total is the sum of caseload dynamics and stayers.

SOURCE: Authors' analysis of Medicare administrative data.

2004–2005, but the effects of joiners and switchers are different in the latter period than in the former. In contrast to the 2004–2005 results, in 2012–2013 the proportion of 65 year olds was similar in MA and FFS, and joiners do not have much effect on the difference between MA and FFS in risk score growth rates. Switchers had a small negative effect in 2004–2005, but a much larger negative effect in 2012–2013.[5] As was shown in Exhibit 2, the difference between MA and FFS in the rate of increase in risk scores for stayers widened in 2013, accounting for the larger effect of stayers in Exhibit 4 than in Exhibit 3.

On average over the 2004–2013 period, caseload dynamics had virtually no net effect on the difference between MA and FFS in the rate of growth of risk scores, and the greater increase in risk scores for MA stayers compared to FFS appears to account for most of the reason for the differential growth (Exhibit 5). Caseload dynamics led to more rapid increases in risk scores in MA in the early part of the period, but to slower increases in the latter part and, on balance, made very little contribution to the differential growth in scores.

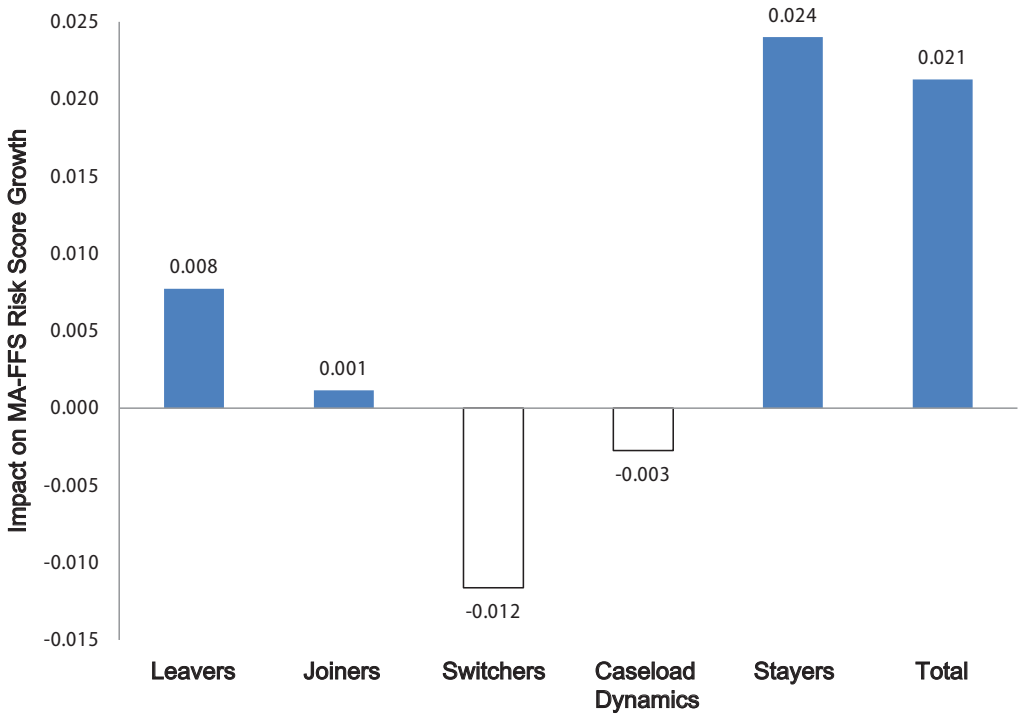
We have shown that more rapid increase in risk scores for MA stayers than for FFS stayers largely accounts for the more rapid growth in MA risk scores seen in Exhibit 1.

Relative Morbidity of MA Enrollees: Analyses of Mortality and MCBS Data

We analyze mortality rates in MA and FFS during the 2004–2012 period to test the hypothesis that

[5] The difference between 2004-05 and 2012-13 is primarily a result of the fact that disenrollees from MA to FFS had higher risk scores in the latter cohort than in the earlier one.

Exhibit 5. Sources of Differential Growth in MA and FFS Risk Scores, Average 2004–2013



NOTE: 2004 model. Caseload dynamics is the sum of leavers (e.g., decedents), joiners (e.g., newly eligibles), and switchers. Total is the sum of caseload dynamics and stayers.

SOURCE: Authors' analysis of Medicare administrative data.

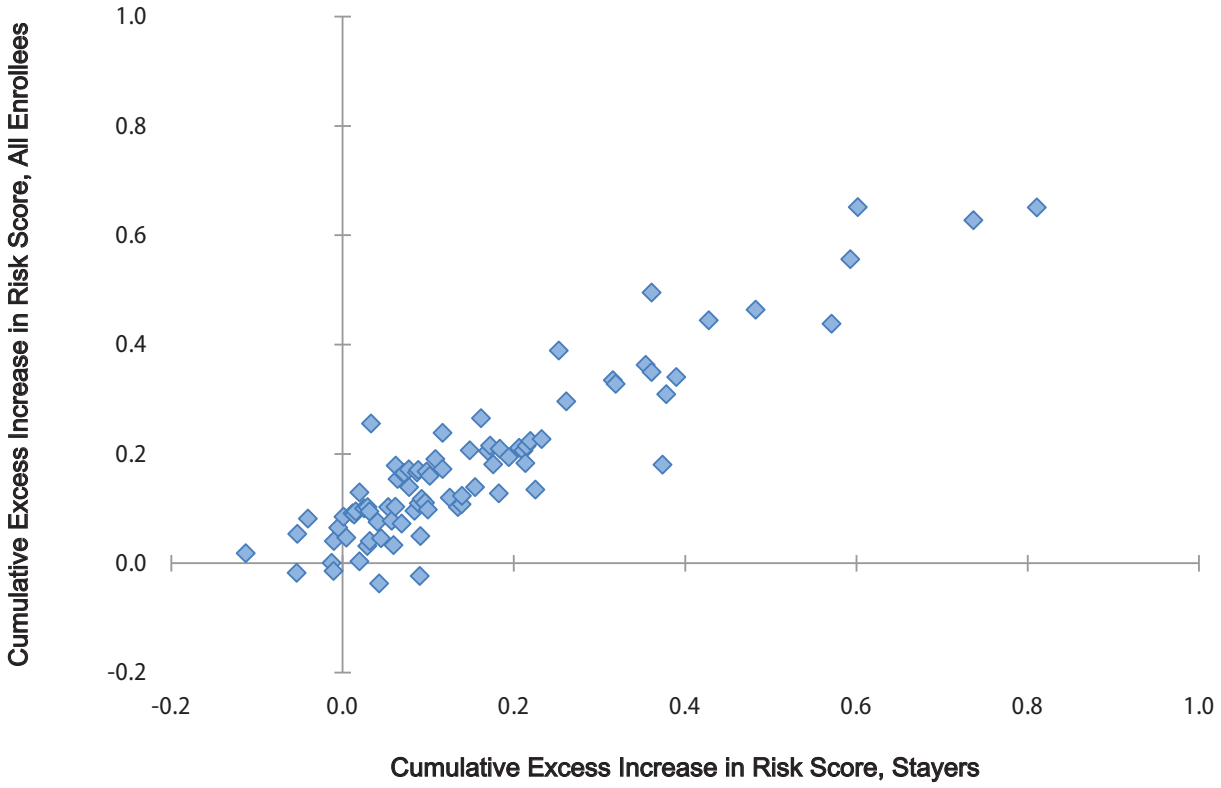
MA beneficiaries declined in health relative to FFS beneficiaries. Mortality rates declined somewhat more rapidly in MA than in FFS from 2004 to 2012, providing no support for the hypothesis that the underlying morbidity of MA beneficiaries increased relative to FFS (See Supplemental Appendix Exhibit A3 & A4). As noted earlier, mortality rates were lower in MA than in FFS.

We use MCBS data to provide an assessment of relative risk of MA and FFS beneficiaries that is independent of data reported by MA plans or FFS providers. As described in the Supplemental Appendix, we predict spending for each MA and FFS beneficiary using demographic information, self-reported health status, and the respondent's report of whether she has ever been diagnosed with hypertension, heart attack, heart failure, stroke, cancer, or diabetes. Predicted expenditures for MA enrollees average approximately 96% of predicted expenditures for FFS beneficiaries, and the ratio does not appear to have changed systematically over the 2006 to 2011 period. Results from this analysis are shown in the Supplemental Appendix Exhibit A8.

Contract-Level Analyses

There is a striking amount of heterogeneity across MA contracts in the extent to which risk scores for stayers increased from 2004 to 2011 (Exhibit 6). The fourteen contracts accounting for 10% of MA enrollment that coded least aggressively had cumulative increases in risk scores for stayers at or below the level in FFS (i.e., cumulative excess increase at or below zero). Conversely, the four contracts in the top decile, including one with over 200,000 members, had a cumulative excess increase

Exhibit 6. Cumulative Excess Increase in Risk Scores, All Enrollees vs. Stayers Only, by Contract, 2004–2011



NOTE: 2004 model. Continuously participating contracts (N=86).
SOURCE: Authors' analysis of Medicare administrative data.

of 0.59 or more (at least 0.08 per year). Contracts in which risk scores for stayers increased more rapidly than in FFS also had overall risk scores that increased more rapidly than FFS (r=.92).

Increases in diagnostic coding are especially large in a relatively small number of largely discretionary HCCs (Exhibit 7).[6] For example, in 2012, 1.2% of FFS beneficiaries were coded with drug or alcohol dependence, compared to 8.1% of beneficiaries in the 10% of MA contracts with the highest level of coding intensity (as measured by the cumulative excess increase in risk scores for stayers shown in Exhibit 6). Similarly, polyneuropathy is recorded three times as often in the top decile of MA plans as in FFS. In addition, MA plans, particularly those in the top decile of coding intensity, both increased the rate at which diabetes was reported, and shifted the distribution towards the highest paying diabetes HCC (HCC 15). Among the top decile of plans, the prevalence of this HCC increased from 2.5% in 2004 to 20.1% in 2012. In contrast, for diagnoses such as heart attack and hip fracture, where there is little discretion in diagnosis, prevalence in the top decile of plans is similar to, or below, FFS levels (see Supplemental Appendix Exhibit A5).

In 2014 Medicare started using a revised model, which we term the "2014 model." In part as a result of the analysis shown in Exhibit 7, the polyneuropathy HCC was restructured to remove diabetic neuropathy, and the renal failure HCC was restructured to exclude chronic kidney disease stages 1–3 and was split into acute and chronic kidney conditions, among other changes. These changes build on the changes made in 2013 that constrained the payment weights for each of the four most severe diabetes HCCs to be equal, removing the ability of MA plans to generate extra revenue by increasing the reported severity of diabetes within these four HCCs.

As a result of the changes to the model in 2013 and 2014, the impact of coding effort on risk scores is smaller using the new 2014 model than with the older 2004 model. As shown in Exhibit 8, if the 2014 model had been in place in 2013, the average MA risk score in 2013 would have been slightly higher than the average FFS score. Even using the new model, the average MA score increased substantially relative to the average FFS score from 2004 to 2013, but the rate of increase was somewhat slower than when measured with the 2004 model—an increase of 2.2% per year in relative MA score using the 2004 model (Exhibit 1)—compared to approximately 1.6% per year using the 2014 model. This result suggests that some coding intensity efforts—such as increasing the reported severity of diabetes or coding chronic kidney disease more aggressively—have been neutralized by the 2014 model, but others have not.

Discussion

In the 2004–2013 period, the mean MA risk score increased 2.2 percentage points per year more quickly than the mean FFS score using the 2004 model and 1.6 percentage points more quickly using the 2014 model. Comprehensive risk adjustment was first implemented in Medicare Advantage in 2004 and was not fully phased in until 2007 when 100% of Part C payments were risk adjusted. It is possible that during this phase-in period when plans were first reporting diagnosis codes from ambulatory settings, the level of coding by MA plans was not as comprehensive

[6] An HCC is considered "discretionary" if it is based on diagnoses that providers may or may not record for patients having the diagnosis. For example, there is relatively little discretion in whether a diagnosis of 'hip fracture' should be recorded for a patient presenting with an apparent hip fracture. In contrast, there is substantial discretion about whether a patient being assessed in an annual wellness visit should be recorded as exhibiting 'alcohol or drug abuse'. Discretion might also result from either a choice of ICD-9 codes (e.g., pneumonia vs. sepsis in an inpatient setting) or underlying ambiguity of the condition (e.g., depression vs. anxiety).

Exhibit 7. Top Ten HCCs of Relative Prevalence in the Top Decile of MA Contracts, 2004 vs. 2012.

			Prevalence							
			2004				2012			
Rank	HCC	Description	FFS Mean	MA Mean	MA Top Decile	Ratio, Top Decile:FFS	FFS Mean	MA Mean	MA Top Decile	Ratio, Top Decile:FFS
1	52	Drug/Alcohol Dependence	0.6%	0.4%	0.5%	0.75	1.2%	1.7%	8.1%	6.64
2	15	Diabetes with Renal or Peripheral Circ. Manifest.	2.5%	2.5%	2.5%	0.98	4.0%	7.1%	20.1%	5.07
3	131	Renal Failure	3.5%	2.7%	2.7%	0.79	9.9%	14.6%	38.2%	3.85
4	71	Polyneuropathy	3.8%	3.1%	3.3%	0.85	6.5%	10.1%	20.1%	3.09
5	83	Angina Pectoris/Old Myocardial Infarction	5.3%	4.6%	5.0%	0.96	4.9%	7.9%	15.0%	3.03
6	55	Major Depressive, Bipolar, & Paranoid Disorders	3.9%	2.4%	3.0%	0.76	5.7%	7.5%	14.1%	2.50
7	105	Vascular Disease	11.2%	7.8%	8.1%	0.73	13.6%	15.4%	33.3%	2.44
8	108	Chronic Obstructive Pulmonary Disease	13.4%	10.7%	12.5%	0.93	13.3%	14.5%	25.3%	1.90
9	100	Hemiplegia/Hemiparesis	1.1%	0.8%	0.6%	0.57	1.2%	1.3%	2.0%	1.77
10	157	Vertebral Fractures without Spinal Cord Injury	1.1%	0.8%	0.7%	0.62	1.1%	1.0%	1.7%	1.58

NOTE: 2004 model. Low-prevalence HCCs (<1% in 2012) were excluded.

Top decile defined using 2004–2011 data.

SOURCE: Authors' analysis of Medicare administrative data.

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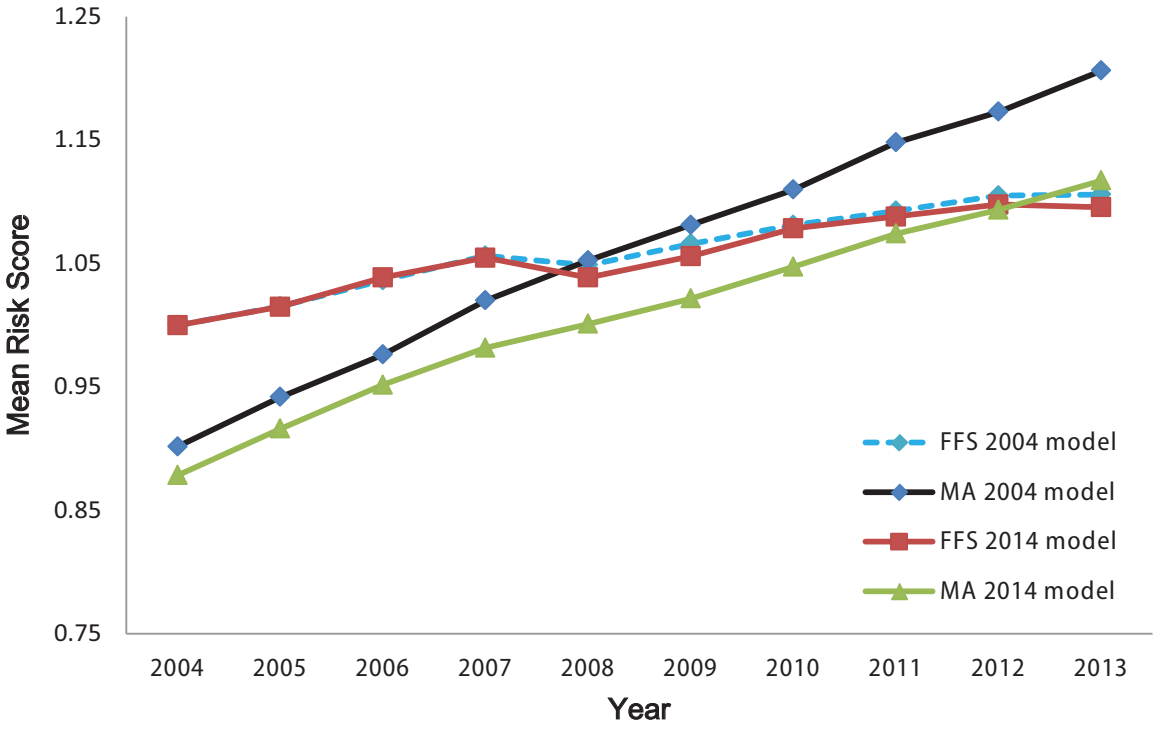
Exhibit 8. Mean Risk Scores, MA vs. FFS, 2004–2013 (2004 & 2014 Models)



NOTE: CMS will use the "2014 model" for payment purposes for the first time in 2014, when it will receive a weight of 75%. This exhibit simulates past payment assuming full implementation. Here, both models have been normalized to 1.00 of the FFS mean in 2004.
SOURCE: Authors' analysis of Medicare administrative data.

as FFS. If that were the case, the relatively faster growth in risk scores during this period could be attributable to plans "catching up" to FFS, rather than coding more intensely than FFS. The true difference in average MA and FFS risk, which is beyond the scope of this paper, is a worthy topic for future research.

It appears that most of the reason that MA risk scores increased more quickly than FFS scores is due to increases in relative coding intensity—measured as increases in risk scores for stayers—with little of it accounted for by changes in enrollment mix. There is little sign of coding intensity slowing; in fact, Exhibit 2 shows that it may be increasing (using the 2004 model).

Our conclusion is supported by several findings. Our analysis of joiners, leavers, switchers, and stayers shows clearly that changes in the composition of the MA caseload do not account for the increase in relative MA risk scores. Risk scores for stayers increased more quickly for MA enrollees than for FFS beneficiaries—by an average of 0.088 for FFS stayers, compared to 0.120 for MA stayers (Exhibit 2), and it is this difference that accounts for the relative increase in MA risk scores (Exhibit 5).

In principle, risk scores for stayers could have increased more quickly in MA because of differences in characteristics at baseline; for example, risk scores typically increase more quickly for older beneficiaries than for younger beneficiaries. If MA enrollees were older than FFS beneficiaries, then MA scores (unadjusted for age) would have increased more quickly than FFS, even if there were no change in coding intensity. However, the age distribution of MA enrollees is

relatively similar to the age distribution of FFS beneficiaries, and slight differences between the sectors in the age distribution do not account for differences in the rate of growth of risk scores. As a second example, risk scores may increase more quickly for beneficiaries with lower initial risk scores than for those with higher initial scores, because of regression toward the mean. However, baseline risk scores are higher in MA than in FFS in the later part of the analysis period, precluding aregression-toward-the-mean explanation for MA's more rapid growth in scores.

In addition, if MA enrollees were actually sicker, relative to FFS beneficiaries, in 2013 than in 2004, then we would have expected to see some reflection of this in our analysis of mortality rates and of self-reported health status information. In contrast, mortality rates in MA declined more quickly than mortality rates in FFS, and there was no evidence of a trend in self-reported illness, suggesting that MA enrollees did not actually become relatively sicker over the time period.

In an observational study such as this one, it is never possible to conclusively rule out all alternative hypotheses. MA risk scores increased more rapidly than FFS scores. We have shown that this did not result from a change in the composition of MA enrollees. And we have shown that using two independent measures of health status—self-reported health from the MCBS and information on mortality—that there is no indication that MA enrollees actually were getting any sicker than FFS beneficiaries. While it is theoretically possible that some explanation other than greater coding intensity accounts for the relative increase in MA risk scores, we are unable to suggest any plausible alternative hypotheses.

We have also shown that there is substantial heterogeneity across plans in coding intensity, with some plans coding at approximately the same level as FFS, while several others created a cumulative increase in coding intensity from 2004 to 2011 of 60% or more.

Coding more carefully may have real health benefits. Better identification of problems and better documentation of problems that have been identified could improve the quality of treatment provided and may even lower costs—or they may lead to unnecessary treatment and higher costs. In either case, however, the purpose and design of the risk-adjusted payment system is not to improve the quality of coding. It is to ensure that plans are paid according to the health of the patients they enroll. It is unlikely that the increased payments achieved by plans through increased coding intensity are related to substantial health benefits that better coding might produce.

CMS and the Congress have responded to the increase in risk scores over time in several ways. First, starting in 2010, CMS lowered payment by 3.41% by applying an across-the-board coding adjustment. The coding intensity adjustment will increase to 4.91% in 2014 and to at least 5.91% in 2018. Second, starting in 2013, CMS set the four most severe diabetes HCCs (HCC15-HCC18) to have the same payment coefficient (Department of Health and Human Services, 2012). As a result, recording diagnoses that move enrollees from HCC18 (diabetes with ophthalmologic or unspecified manifestation) into HCC15 (diabetes with renal or peripheral circulatory manifestation) will no longer increase revenue for MA plans. Third, CMS made further changes to the model in 2014, removing some of the HCCs that were the subject of MA efforts at increasing coding intensity.[7]

[7] CMS is also recovering overpayments identified by risk adjustment data validation (RADV) audits of selected MA contracts.

Relative MA risk scores have been increasing at least 1% per year (Exhibit 8) and are likely to continue to do so, even though MCBS-based risk scores have been roughly constant.[8] The legislated increase in coding intensity adjustment is 0.25% per year from 2014 through 2018. The President's Budget for 2015 proposes increasing the minimum adjustment to 0.67% per year through 2020, plateauing at 8.51% in 2020 and thereafter, much closer to the expected increase in relative risk scores. The across-the-board adjustments do not address the substantial heterogeneity in plan-level results shown in Exhibit 6.

It is challenging to accurately measure the effects of coding intensity on MA risk scores and even more challenging to devise optimal policy responses. Uncertainty about the extent to which coding intensity would persist beyond the early years of using diagnostic information, uncertainty about whether some of the changes observed in MA risk scores might have been due to changes in underlying morbidity of MA enrollees, and heterogeneity across plans in coding intensity each create challenges in evaluating appropriate policy responses. In addition, it is unclear to what extent MA plans coded less completely than FFS in 2004, and how much of the increase in coding intensity reflects MA simply catching up to FFS levels, and how much represents going above and beyond. The Department of Health and Human Services is continuing its analysis of the relative risk of MA and FFS enrollees to improve the ability of the Medicare program to accurately pay for MA beneficiaries.

Disclaimer

The authors report no conflicts of interest related to this analysis. The content is solely the responsibility of the authors and does not necessarily reflect the views of the Department of Health and Human Services.

[8] Some would expect that MA plans will react to the 2013 and 2014 model changes by finding other HCCs on which to focus their efforts, and the success of coding intensity efforts may well increase in the future.

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References

Brown, R. S., Bergeron, J. W., Clement, D. G., Hill, J. W., & Retchin, S. (1993). Does Managed Care Work for Medicare? An Evaluation of the Medicare Risk Program for HMOs. Princeton, NJ: Mathematica Policy Research.

Call, K. T., Dowd, B., Feldman, R., & Maciejewski, M. (1999). Selection Experiences in Medicare HMOs: Pre-Enrollment Expenditures. *Health Care Financing Review*, *20*(4), 197–209. PubMed

Department of Health and Human Services (2007). Advance Notice of Methodological Changes for Calendar Year 2008 for Medicare Advantage (MA) Capitation Rates.

Department of Health and Human Services (2009). Advance Notice of Methodological Changes for Calendar Year 2010 for Medicare Advantage (MA) Capitation Rates.

Department of Health and Human Services (2012). Advance Notice of Methodological Changes for

Calendar Year 2013 for Medicare Advantage (MA) Capitation Rates.

Department of Health and Human Services (2013). Announcement of Calendar Year (CY) 2014 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter.

Government Accountability Office. (2012). Medicare Advantage: CMS Should Improve the Accuracy of Risk Score Adjustments for Diagnostic Coding Practices. *Report to Congressional Requesters* (GAO-12-51). Retrieved from the U.S. GAO Web site: http://www.gao.gov/products/GAO-12-51

Gorman Health Group (2013). Retrieved from https://www.gormanhealthgroup.com/#all

Hellinger, F. J., & Wong, H. (2000). Selection Bias in HMOs: A Review of the Evidence. *Medical Care Research and Review*, *57*(4), 405–439. PubMed http://dx.doi.org/10.1177/107755870005700402

Leprechaun. (2013). Retrieved from http://www.lepmed.com/retrospective_chart_review.asp

Lichtenstein, R., Thomas, J. W., Adams-Watson, J., Lepkowski, J., & Simone, B. (1991). Selection Bias in TEFRA At-Risk HMOs. *Medical Care*, *29*(4), 318–331. PubMed http://dx.doi.org/10.1097/00005650-199104000-00002

McWilliams, J. M., Hsu, J., & Newhouse, J. (2012). New Risk-Adjustment System Was Associated With Reduced Favorable Selection in Medicare Advantage. *Health Affairs*, *31*(12), 2630–2640. PubMed http://dx.doi.org/10.1377/hlthaff.2011.1344

Medicare Payment Advisory Commission (1998). Report to the Congress: Medicare Payment Policy. Washington, DC.

Medicare Payment Advisory Commission. (2012, June). Issues for Risk Adjustment in Medicare Advantage. In *Report to the Congress: Medicare and the Health Care Delivery System* (chapter 4). Washington, DC

Mello, M. M., Stearns, S. C., Norton, E. C., & Ricketts, T. C., III. (2003). Understanding Biased Selection in Medicare HMOs. *Health Services Research*, *38*(3), 961–992. PubMed http://dx.doi.org/10.1111/1475-6773.00156

Morrisey, M. A., Kilgore, M. L., Becker, D. J., Smith, W., & Delzell, E. (2012, October). Favorable Selection, Risk Adjustment, and the Medicare Advantage Program. *Health Services Research*, *48*(3), 1036–1039.

Newhouse, J. P., Price, M., Huang, J., McWilliams, J. M., & Hsu, J. (2012). Steps To Reduce Favorable Risk Selection In Medicare Advantage Largely Succeeded, Boding Well For Health Insurance Exchanges. *Health Affairs*, *31*(12), 2618–2628. PubMed http://dx.doi.org/10.1377/hlthaff.2012.0345

PPACA & HCERA (Patient Protection and Affordable Care Act & Health Care and Education Reconciliation Act). 2010.

Physician Payment Review Commission (1996). Risk Selection and Risk Adjustment in Medicare. In the *Annual Report to Congress* (chapter 15).

Pope, G. C., Kautter, J., Ellis, R. P., Ash, A. S., Ayanian, J. Z., Iezzoni, L. I., . . . Robst, J. (2004). Risk Adjustment of Medicare Capitation Payments using the CMS-HCC Model. *Health Care Financing Review*, *25*(4), 119–141. PubMed

Riley, G. F. (2012). Impact of Continued Biased Disenrollment from the Medicare Advantage Program to Fee-for-Service. *Medicare & Medicaid*

Research Review, *2*(4), E1–E17. PubMed http://dx.doi.org/10.5600/mmrr.002.04.a08

Riley, G., Chiang, Y. P., Ingber, M. J., & Tudor, C. G. (1996). Health Status of Medicare Enrollees in HMOs and Fee-For-Service in 1994. *Health Care Financing Review*, *17*(4), 65–76. PubMed

Welch, H. G., Sharp, S. M., Gottlieb, D. J., Skinner, J. S., & Wennberg, J. E. (2011). Geographic Variation in Diagnosis Frequency and Risk of Death among Medicare Beneficiaries. *Journal of the American Medical Association*, *305*(11), 1113–1118. PubMed http://dx.doi.org/10.1001/jama.2011.307

MARCH 2017

REPORT TO THE CONGRESS

Medicare Payment Policy

MEDPAC Medicare Payment Advisory Commission

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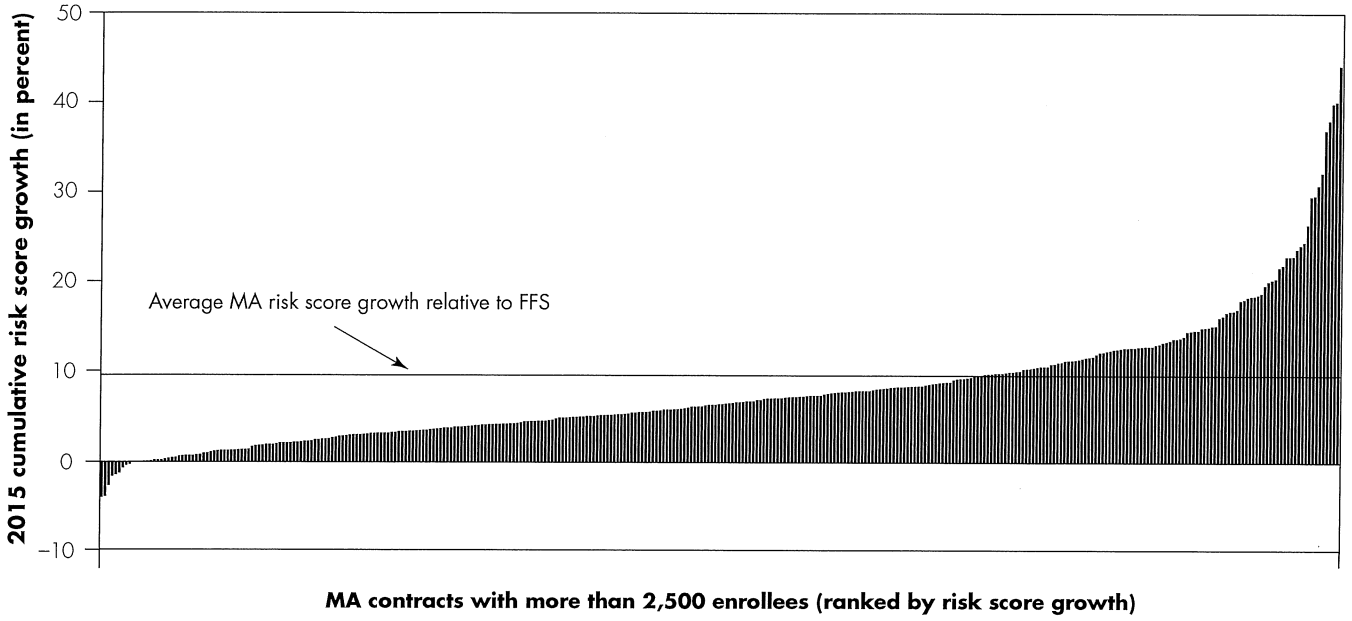
(202) 220-3700 • Fax: (202) 220-3759 • www.medpac.gov

FIGURE 13–5 **Cumulative MA risk score growth varies across contracts relative to local FFS, 2015**



Note: MA (Medicare Advantage), FFS (fee-for-service). MA contracts with enrollment below 2,500 (representing about 1 percent of total MA enrollment), contracts for the Program of All-Inclusive Care for the Elderly, and special needs plans are not included.

Source: MedPAC analysis of CMS enrollment and risk score files.

This year, the Commission analyzed coding intensity for each MA contract and found wide variation. This analysis is similar to our analysis of the overall impact of coding differences, but the change in risk score for each MA beneficiary was attributed to the contract (excluding contracts for the Program of All-Inclusive Care for the Elderly and special needs plans) in which the beneficiary was enrolled in 2015, thereby capturing the coding impact on 2015 payments to each contract. Figure 13-5 illustrates the variation across contracts with more than 2,500 enrollees in 2015 relative to FFS in their local service area. Our finding that coding intensity varies across MA contracts is consistent with other research (Geruso and Layton 2015, Kronick and Welch 2014). Given this variation, CMS's across-the-board adjustment for coding intensity, which reduces all MA risk scores by the same amount, generates inequity across contracts by disadvantaging plans with lower coding intensity and allowing other plans to retain a significant amount of revenue from higher coding intensity.

In our March 2016 report to the Congress, the Commission recommended a multipronged approach that would fully account for the impact of coding differences and would improve the equity of the adjustment across MA contracts. The recommendation had three parts:

- develop a risk adjustment model that uses two years of FFS and MA diagnostic data,
- exclude diagnoses that are only documented on health risk assessments from either FFS or MA, and then
- apply a coding adjustment that fully and equitably accounts for the remaining differences in coding between FFS Medicare and MA plans.

Using two years of diagnostic data to identify whether a beneficiary has a particular HCC would improve the accuracy of both FFS and MA diagnostic information used in risk adjustment. It would reduce year-to-year variation in documentation, focusing more on HCCs that are not coded consistently across years. The 21st Century Cures Act appears to address using two years of diagnostic data in MA risk adjustment by stating that "the Secretary may use at least two years of diagnostic data."

MARCH 2018

REPORT TO THE CONGRESS

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MEDPAC Medicare Payment Advisory Commission

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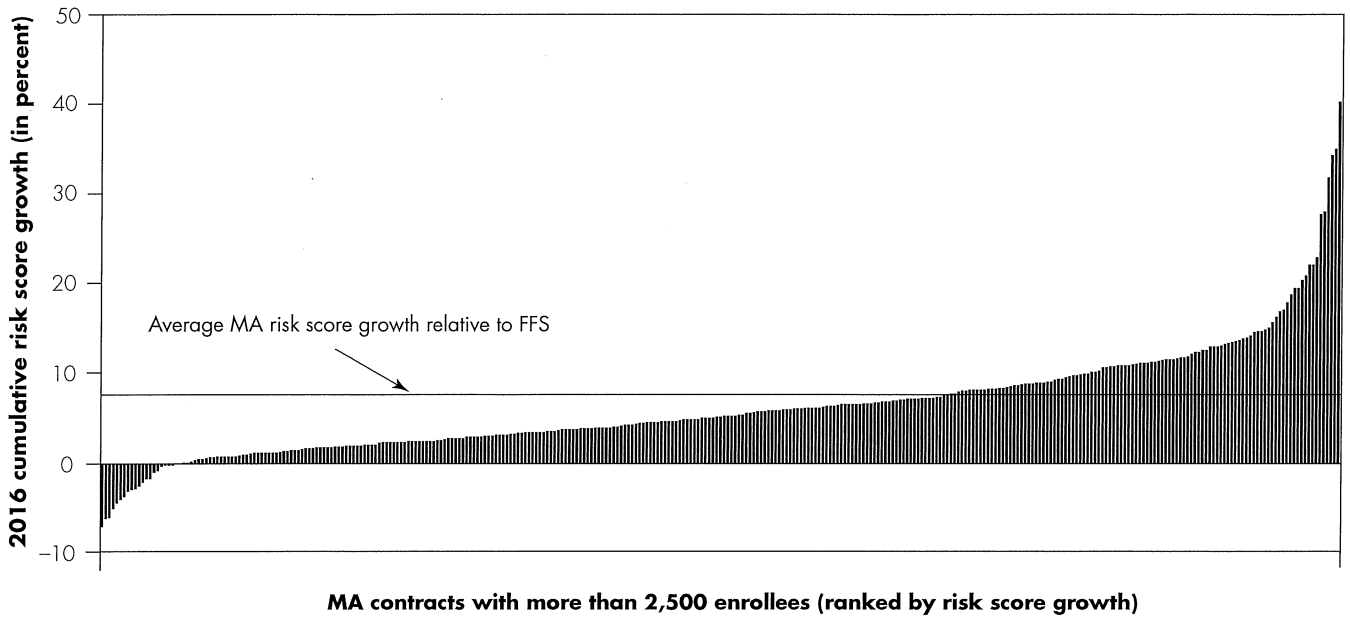
FIGURE 13–5 **Cumulative MA risk score growth varied across contracts relative to local FFS, 2016**



Note: MA (Medicare Advantage), FFS (fee-for-service). MA contracts with enrollment below 2,500 (representing about 1 percent of total MA enrollment), contracts for the Program of All-Inclusive Care for the Elderly, and special needs plans are not included.

Source: MedPAC analysis of CMS enrollment and risk score files.

In our March 2016 report to the Congress, the Commission recommended a multipronged approach that would fully account for the impact of coding differences and would improve the equity of the adjustment across MA contracts. The recommendation had three parts:

- develop a risk adjustment model that uses two years of FFS and MA diagnostic data,
- exclude diagnoses that are documented only on HRAs from either FFS or MA, and then
- apply a coding adjustment that fully and equitably accounts for the remaining differences in coding between FFS Medicare and MA plans.

Using two years of diagnostic data would improve the accuracy of both FFS and MA HCC information and would reduce year-to-year variation in documentation. The 21st Century Cures Act appears to adopt using two years of diagnostic data in MA risk adjustment by stating that, for 2019 and subsequent years, "the Secretary may use at least two years of diagnosis data." Removing diagnoses documented through only HRAs would mean that a diagnosis had to be treated in order to count in risk adjustment calculations. Diagnoses that were both documented on an assessment and treated would continue to count toward risk adjustment. However, of the HCCs documented on HRAs in MA, about 30 percent were not treated during the year. In FFS, only about 6 percent of diagnoses documented on HRAs were not treated during the year.

Implementing these two policies would result in a more equitable adjustment across MA contracts than the current across-the-board adjustment because they more effectively target coding differences. Our analysis suggests that the combined effect of using two years of diagnostic data and excluding diagnoses from HRAs would effectively reduce MA risk scores by roughly 3 percent to 5 percent relative to Medicare FFS and thus would address roughly half of the impact of coding differences, reducing the need for the coding intensity adjustment described in the third part of the Commission's 2016 recommendation.

The Commission has also discussed ways to implement the third part of the recommendation in a way that

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10 - Reporting ICD Diagnosis and Procedure Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

Proper coding is necessary on Medicare claims because codes are generally used in determining coverage and payment amounts. CMS accepts only HIPAA approved ICD-9-CM or ICD-10-CM/ICD-10-PCS codes, depending on the date of service. The official ICD-9-CM codes which were updated annually through October 1, 2013 are posted at http://www.cms.gov/Medicare/Coding/ICD9ProviderDiagnosticCodes/codes.html

The official annual updates and effective dates for any changes to ICD-10-CM and ICD-10-PCS codes are posted at http://www.cms.gov/Medicare/Coding/ICD10/index.html .

See the following sections (10.1 - 10.6) for additional instructions about coding ICD diagnoses for inpatient, outpatient, and other services.

10.1 - General Rules for Diagnosis Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

The Official ICD-9-CM Coding Guidelines can be found at http://www.cdc.gov/nchs/icd/icd9cm_addenda_guidelines.htm

The Official ICD-10-CM and ICD-10-PCS Coding Guidelines can be found with the annual ICD-10-CM and ICD-10-PCS updates at http://www.cms.gov/Medicare/Coding/ICD10/index.html

The CMS understands that physicians may not always provide suppliers of DMEPOS with the most specific diagnosis code, and may provide only a narrative description. In those cases, suppliers may choose to utilize a variety of sources to determine the most specific diagnosis code to include on the individual line items of the claim. These sources may include, but are not limited to: coding books and resources, contact with physicians or other health professionals, documentation contained in the patient's medical record, or verbally from the patient's physician or other healthcare professional.

Beneficiaries are not required to submit diagnosis codes on beneficiary-submitted claims. Beneficiary-submitted claims are filed on Form CMS-1490S. For beneficiary-submitted claims, the A/B MAC (B) must develop the claim to determine a current and valid diagnosis code and may enter the code on the claim.

10.2 - Inpatient Claim Diagnosis Reporting

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

On inpatient claims providers must report the principal diagnosis. The principal diagnosis is the condition established after study to be chiefly responsible for the admission. Even

though another diagnosis may be more severe than the principal diagnosis, the principal diagnosis, as defined above, is entered. Entering any other diagnosis may result in incorrect assignment of a Medicare Severity - Diagnosis Related Group (MS-DRG) and an incorrect payment to a hospital under PPS. See Chapter 25, Completing and Processing the Form CMS-1450 Data Set, for instructions about completing the claim.

Other diagnoses codes are required on inpatient claims and are used in determining the appropriate MS-DRG. The provider reports the full codes for up to twenty four additional conditions if they coexisted at the time of admission or developed subsequently, and which had an effect upon the treatment or the length of stay.

The principal diagnosis should not under any circumstances be duplicated as an additional or secondary diagnosis. If the provider reports duplicate diagnoses they are eliminated in Medicare Code Editor (MCE) before GROUPER.

The Admitting Diagnosis Code is required for inpatient hospital claims subject to A/B MAC (A) review. The admitting diagnosis is the condition identified by the physician at the time of the patient's admission requiring hospitalization. For outpatient bills, the field defined as Patient's Reason for Visit is not required by Medicare but may be used by providers for nonscheduled visits for outpatient bills.

10.3 - Outpatient Claim Diagnosis Reporting

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

For outpatient claims, providers report the full diagnosis code for the diagnosis shown to be chiefly responsible for the outpatient services. For instance, if a patient is seen on an outpatient basis for an evaluation of a symptom (e.g., cough) for which a definitive diagnosis is not made, the symptom is reported. If, during the course of the outpatient evaluation and treatment, a definitive diagnosis is made (e.g., acute bronchitis), the definitive diagnosis is reported. If the patient arrives at the hospital for examination or testing without a referring diagnosis and cannot provide a complaint, symptom, or diagnosis, the hospital reports the encounter code that most accurately reflects the reason for the encounter.

Examples include:

- Z00.00 Encounter for general adult medical examination without abnormal findings
- Z00.01 Encounter for general adult medical examination with abnormal findings
- Z01.10 Encounter for examination of ears and hearing without abnormal findings
- Z01.118 Encounter for examination of ears and hearing with other abnormal findings

For outpatient claims, providers report the full diagnosis codes for up to 24 other diagnoses that coexisted in addition to the diagnosis reported as the principal diagnosis. For instance, if the patient is referred to a hospital for evaluation of hypertension and the medical record also documents diabetes, diabetes is reported as another diagnosis.

Additional information and training is available on CMS Web site:
http://www.cms.gov/Medicare/Coding/ICD10/index.html

10.4 - ICD Procedure Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

ICD procedure codes are required for inpatient hospital Part A claims only. Healthcare Common Procedure Code System (HCPCS) codes are used for reporting procedures on other claim types. Inpatient hospital claims require reporting the principal procedure if a significant procedure occurred during the hospitalization. For information of the selection of the principal procedure, see the Official ICD-10-PCS coding guidelines posted with the annual updates to ICD-10-PCS posted at
http://www.cms.gov/Medicare/Coding/ICD10/index.html

The principal procedure code and other procedure codes shown on the bill **must** be the full ICD-9-CM, Volume 3, or ICD-10-PCS procedure code, including all applicable digits, up to seven digits.

Up to twenty four significant procedures other than the principal procedure may be reported.

10.5 - Coding for Outpatient Services and Physician Offices

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

The Official ICD-10-CM Coding Guidelines include a section for Outpatient Services (hospital-based and physician office). These guidelines can be found in the annual updates to ICD-10-CM posted at http://www.cms.gov/Medicare/Coding/ICD10/index.html

A/B MACs (A), (B), (HHH), and DME MACs, physicians, hospitals, and other health care providers must comply with the Official ICD-10-CM Coding Guidelines.

10.6 - Relationship of Diagnosis Codes and Date of Service

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

Diagnosis codes must be reported based on the date of service (including, when applicable, the date of discharge) on the claim and not the date the claim is prepared or received. A/B MACs (A), (B), (HHH), and DME MACs are required to edit claims on this basis, including providing for annual updates each October.

Shared systems must maintain date parameters for diagnosis editing. Use of actual effective and end dates is required when new diagnosis codes are issued or current codes become obsolete with the annual updates.

The Health Insurance Portability and Accountability Act (HIPAA) requires that medical code sets must be date-of-service compliant. Since ICD diagnosis codes are a medical code set, effective for dates of service on and after October 1, 2004, CMS does not provide any grace period for providers to use in billing discontinued diagnosis codes on Medicare claims. The updated codes are published in the Federal Register each year as part of the Proposed Changes to the Hospital Inpatient Prospective Payment Systems in table 6 and effective each October 1.

All MACs will return claims containing a discontinued diagnosis code as unprocessable. For dates of service beginning October 1, 2004, physicians, practitioners, and suppliers must use the current and valid diagnosis code that is then in effect for the date of service. After the updated codes are published in the Federal Register, CMS places the new, revised and discontinued codes on the ICD-9 or ICD-10 Web site as applicable. http://www.cms.gov/Medicare/Coding/ICD9ProviderDiagnosticCodes/codes.html or http://www.cms.gov/Medicare/Coding/ICD10/index.html.

The CMS sends the updated codes to All MACs on an annual basis via a recurring update notification instruction. This is normally released to MACs each June, and contains the new, revised, and discontinued diagnosis codes which are effective for dates of service on and after October 1st.

20 - Description of Healthcare Common Procedure Coding System (HCPCS)

(Rev.2288, Issued: 08-26-11, Effective: 01-01-11, Implementation: 01-03-11)

HO-442, CMS HCPCS Code Web site

Background

The HCPCS has been selected as the approved coding set for entities covered under the Health Insurance Portability and Accountability Act (HIPAA), for reporting outpatient procedures.

The HCPCS is based upon the American Medical Association's (AMA) "Physicians' Current Procedural Terminology, Fourth Edition" (CPT-4). It includes three levels of codes and modifiers. Level I contains only the AMA's CPT-4 codes. This level consists of all numeric codes. Level II contains alpha-numeric codes primarily for items and nonphysician services not included in CPT-4, e.g., ambulance, DME, orthotics, and prosthetics. These are alpha-numeric codes maintained jointly by CMS, the Blue Cross and Blue Shield Association (BCBSA), and the Health Insurance Association of America (HIAA).

Normally Level I and Level II codes are updated annually, issued in October for January implementation. However, Level II codes also may be issued quarterly to provide for new or changed Medicare coverage policy for physicians' services as well as services normally

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10 - Reporting ICD Diagnosis and Procedure Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

Proper coding is necessary on Medicare claims because codes are generally used in determining coverage and payment amounts. CMS accepts only HIPAA approved ICD-9-CM or ICD-10-CM/ICD-10-PCS codes, depending on the date of service. The official ICD-9-CM codes which were updated annually through October 1, 2013 are posted at http://www.cms.gov/Medicare/Coding/ICD9ProviderDiagnosticCodes/codes.html

The official annual updates and effective dates for any changes to ICD-10-CM and ICD-10-PCS codes are posted at http://www.cms.gov/Medicare/Coding/ICD10/index.html .

See the following sections (10.1 - 10.6) for additional instructions about coding ICD diagnoses for inpatient, outpatient, and other services.

10.1 - General Rules for Diagnosis Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

The Official ICD-9-CM Coding Guidelines can be found at http://www.cdc.gov/nchs/icd/icd9cm_addenda_guidelines.htm

The Official ICD-10-CM and ICD-10-PCS Coding Guidelines can be found with the annual ICD-10-CM and ICD-10-PCS updates at http://www.cms.gov/Medicare/Coding/ICD10/index.html

The CMS understands that physicians may not always provide suppliers of DMEPOS with the most specific diagnosis code, and may provide only a narrative description. In those cases, suppliers may choose to utilize a variety of sources to determine the most specific diagnosis code to include on the individual line items of the claim. These sources may include, but are not limited to: coding books and resources, contact with physicians or other health professionals, documentation contained in the patient's medical record, or verbally from the patient's physician or other healthcare professional.

Beneficiaries are not required to submit diagnosis codes on beneficiary-submitted claims. Beneficiary-submitted claims are filed on Form CMS-1490S. For beneficiary-submitted claims, the A/B MAC (B) must develop the claim to determine a current and valid diagnosis code and may enter the code on the claim.

10.2 - Inpatient Claim Diagnosis Reporting

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

On inpatient claims providers must report the principal diagnosis. The principal diagnosis is the condition established after study to be chiefly responsible for the admission. Even

though another diagnosis may be more severe than the principal diagnosis, the principal diagnosis, as defined above, is entered. Entering any other diagnosis may result in incorrect assignment of a Medicare Severity - Diagnosis Related Group (MS-DRG) and an incorrect payment to a hospital under PPS. See Chapter 25, Completing and Processing the Form CMS-1450 Data Set, for instructions about completing the claim.

Other diagnoses codes are required on inpatient claims and are used in determining the appropriate MS-DRG. The provider reports the full codes for up to twenty four additional conditions if they coexisted at the time of admission or developed subsequently, and which had an effect upon the treatment or the length of stay.

The principal diagnosis should not under any circumstances be duplicated as an additional or secondary diagnosis. If the provider reports duplicate diagnoses they are eliminated in Medicare Code Editor (MCE) before GROUPER.

The Admitting Diagnosis Code is required for inpatient hospital claims subject to A/B MAC (A) review. The admitting diagnosis is the condition identified by the physician at the time of the patient's admission requiring hospitalization. For outpatient bills, the field defined as Patient's Reason for Visit is not required by Medicare but may be used by providers for nonscheduled visits for outpatient bills.

10.3 - Outpatient Claim Diagnosis Reporting

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

For outpatient claims, providers report the full diagnosis code for the diagnosis shown to be chiefly responsible for the outpatient services. For instance, if a patient is seen on an outpatient basis for an evaluation of a symptom (e.g., cough) for which a definitive diagnosis is not made, the symptom is reported. If, during the course of the outpatient evaluation and treatment, a definitive diagnosis is made (e.g., acute bronchitis), the definitive diagnosis is reported. If the patient arrives at the hospital for examination or testing without a referring diagnosis and cannot provide a complaint, symptom, or diagnosis, the hospital reports the encounter code that most accurately reflects the reason for the encounter.

Examples include:

- Z00.00 Encounter for general adult medical examination without abnormal findings
- Z00.01 Encounter for general adult medical examination with abnormal findings
- Z01.10 Encounter for examination of ears and hearing without abnormal findings
- Z01.118 Encounter for examination of ears and hearing with other abnormal findings

For outpatient claims, providers report the full diagnosis codes for up to 24 other diagnoses that coexisted in addition to the diagnosis reported as the principal diagnosis. For instance, if the patient is referred to a hospital for evaluation of hypertension and the medical record also documents diabetes, diabetes is reported as another diagnosis.

Additional information and training is available on CMS Web site:
http://www.cms.gov/Medicare/Coding/ICD10/index.html

10.4 - ICD Procedure Codes

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

ICD procedure codes are required for inpatient hospital Part A claims only. Healthcare Common Procedure Code System (HCPCS) codes are used for reporting procedures on other claim types. Inpatient hospital claims require reporting the principal procedure if a significant procedure occurred during the hospitalization. For information of the selection of the principal procedure, see the Official ICD-10-PCS coding guidelines posted with the annual updates to ICD-10-PCS posted at
http://www.cms.gov/Medicare/Coding/ICD10/index.html

The principal procedure code and other procedure codes shown on the bill **must** be the full ICD-9-CM, Volume 3, or ICD-10-PCS procedure code, including all applicable digits, up to seven digits.

Up to twenty four significant procedures other than the principal procedure may be reported.

10.5 - Coding for Outpatient Services and Physician Offices

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

The Official ICD-10-CM Coding Guidelines include a section for Outpatient Services (hospital-based and physician office). These guidelines can be found in the annual updates to ICD-10-CM posted at http://www.cms.gov/Medicare/Coding/ICD10/index.html

A/B MACs (A), (B), (HHH), and DME MACs, physicians, hospitals, and other health care providers must comply with the Official ICD-10-CM Coding Guidelines.

10.6 - Relationship of Diagnosis Codes and Date of Service

(Rev. 3081, Issued: 09-26-14, Effective: Upon Implementation of ICD-10, Implementation: Upon Implementation of ICD-10)

Diagnosis codes must be reported based on the date of service (including, when applicable, the date of discharge) on the claim and not the date the claim is prepared or received. A/B MACs (A), (B), (HHH), and DME MACs are required to edit claims on this basis, including providing for annual updates each October.

Shared systems must maintain date parameters for diagnosis editing. Use of actual effective and end dates is required when new diagnosis codes are issued or current codes become obsolete with the annual updates.

The Health Insurance Portability and Accountability Act (HIPAA) requires that medical code sets must be date-of-service compliant. Since ICD diagnosis codes are a medical code set, effective for dates of service on and after October 1, 2004, CMS does not provide any grace period for providers to use in billing discontinued diagnosis codes on Medicare claims. The updated codes are published in the Federal Register each year as part of the Proposed Changes to the Hospital Inpatient Prospective Payment Systems in table 6 and effective each October 1.

All MACs will return claims containing a discontinued diagnosis code as unprocessable. For dates of service beginning October 1, 2004, physicians, practitioners, and suppliers must use the current and valid diagnosis code that is then in effect for the date of service. After the updated codes are published in the Federal Register, CMS places the new, revised and discontinued codes on the ICD-9 or ICD-10 Web site as applicable. http://www.cms.gov/Medicare/Coding/ICD9ProviderDiagnosticCodes/codes.html or http://www.cms.gov/Medicare/Coding/ICD10/index.html.

The CMS sends the updated codes to All MACs on an annual basis via a recurring update notification instruction. This is normally released to MACs each June, and contains the new, revised, and discontinued diagnosis codes which are effective for dates of service on and after October 1st.

20 - Description of Healthcare Common Procedure Coding System (HCPCS)

(Rev.2288, Issued: 08-26-11, Effective: 01-01-11, Implementation: 01-03-11)

HO-442, CMS HCPCS Code Web site

Background

The HCPCS has been selected as the approved coding set for entities covered under the Health Insurance Portability and Accountability Act (HIPAA), for reporting outpatient procedures.

The HCPCS is based upon the American Medical Association's (AMA) "Physicians' Current Procedural Terminology, Fourth Edition" (CPT-4). It includes three levels of codes and modifiers. Level I contains only the AMA's CPT-4 codes. This level consists of all numeric codes. Level II contains alpha-numeric codes primarily for items and nonphysician services not included in CPT-4, e.g., ambulance, DME, orthotics, and prosthetics. These are alpha-numeric codes maintained jointly by CMS, the Blue Cross and Blue Shield Association (BCBSA), and the Health Insurance Association of America (HIAA).

Normally Level I and Level II codes are updated annually, issued in October for January implementation. However, Level II codes also may be issued quarterly to provide for new or changed Medicare coverage policy for physicians' services as well as services normally

April 4, 2011

NOTE TO: All Medicare Advantage Organizations, Prescription Drug Plan Sponsors, and Other Interested Parties

SUBJECT: Announcement of Calendar Year (CY) 2012 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter

In accordance with section 1853(b)(1) of the Social Security Act (the Act), we are notifying you of the annual Medicare Advantage (MA) capitation rate for each MA payment area for CY 2012, and the risk and other factors to be used in adjusting such rates. The capitation rate tables for 2012 are posted on the Centers for Medicare & Medicaid Services (CMS) web site at http://www.cms.gov/MedicareAdvtgSpecRateStats/ under Ratebooks and Supporting Data. The statutory component of the regional benchmarks, transitional phase-in periods for the Affordable Care Act rates, qualifying counties, and each county's applicable percentage are also posted at this website.

Attachment I shows the final estimates of the increases in the National Per Capita MA Growth Percentages for 2012 and the national Medicare fee-for-service growth percentage. These growth rates will be used to update the 2012 rates. As discussed in Attachment I, the final estimate of the increase in the National Per Capita MA Growth Percentage for combined aged and disabled beneficiaries is -0.16 percent. Attachment II provides a set of tables that summarizes many of the key Medicare assumptions used in the calculation of the National Per Capita MA Growth Percentages.

Section 1853(b)(4) of the Act requires CMS to release county-specific per capita fee-for-service (FFS) expenditure information on an annual basis, beginning with March 1, 2001. In accordance with this requirement, FFS data for CY 2009 are being posted on the above website.

Information on deductibles for MSA plans is included below.

Attachment III presents responses to comments on the Advance Notice of Methodological Changes for CY 2011 MA Capitation Rates and Parts C and Part D Payment Policies (Advance Notice). Attachment VII presents the final Call Letter. We received 96 submissions in response to CMS' request for comments on the Advance Notice/Call Letter, published on February 18, 2011. Three of the comments were from advocacy groups, 23 were from associations, 3 were from members of the public, 2 were from states, and 65 were from health plans.

Attachment IV contains tables with the Part D benefit parameters; Attachment V contains details regarding the Part D benefit parameters; Attachment VI contains tables with the frailty, 2012 revised CMS-HCC, ESRD and Rx-HCC risk adjustment factors.

characteristics and severity, and cost implications. Both the panel of clinicians and analyses of cost data informed the creation of condition categories.

Coefficients for condition categories were estimated by regressing the total expenditure for A/B benefits for each FFS ESRD beneficiary onto their demographic factors and condition categories, as indicated by their diagnoses. Resulting dollar coefficients represent the marginal (additional) cost of the condition or demographic factor (e.g., age/sex group, Medicaid status, disability status). The inclusion of condition categories is based on each category's ability to predict costs for Medicare Parts A and B benefits. Condition categories that don't predict costs well –because the coefficient is small, the t-value is low, the number of beneficiaries with a certain condition is small so the coefficient is unstable, or the condition doesn't have well specified diagnostic coding – are not included in the model. Further, the ESRD model excludes HCCs and interaction terms for kidney-related conditions.

In a final step, hierarchies were imposed on the condition categories, assuring that more advanced and costly forms of a condition are reflected in a higher coefficient.

Please note that, since there are new ICD-9 codes that map to HCCs in the revised ESRD model for 2012, these new ICD-9 codes should be submitted for dates of services in 2011.

Section K. Adjustment for MA Coding Pattern Differences

Comment: Several commenters supported CMS's decision to maintain the level of the 2011 adjustment for 2012, stating that doing so maintains stability and improved predictability in the risk adjustment methodology and MA payment rates while material revisions to the MA payment model are being implemented.

Response: We appreciate the support for maintaining the current coding pattern adjustment.

Comment: One commenter stated that the adjustment should not be applied to the "Specified" portion of the rates as this amount is a percent of FFS costs, and questions why the adjustment is applied to the risk scores.

Response: The DRA requires the Secretary, in risk adjusting payments to plans, to reflect an adjustment for differences in *coding patterns* between Medicare Advantage plans and FFS providers under Part A and B, to the extent that the Secretary has identified such differences. The reason for applying this adjustment to beneficiaries' risk scores is because these coding pattern differences influence the risk scores of beneficiaries enrolled in MA plans, and not the rates.

Comment: One commenter asked how CMS will take into account the RADV audits in developing the coding intensity adjustment for 2012 and future years.

Response: As we have noted in previous Advance Notices and Rate Announcements, the MA coding adjustment factor is not intended to adjust for inaccurate coding, but for the impact on

risk scores of coding patterns that differ from FFS coding, the basis of the CMS-HCC model and the Part C normalization factor. RADV audits, on the other hand, have the purpose of validating that diagnosis codes submitted for risk adjustment are documented in the medical record and, therefore, are correctly reported for the beneficiary in question.

Comment: One commenter expressed confusion about the amount of the adjustment and requested an explanation of the methodology used to create adjuster being applied in 2012.

Response: The methodology for creating the 3.41% coding adjustment being applied in 2012 is described in detail in the 2010 Final Rate Announcement which can be found at: http://www.cms.gov/MedicareAdvtgSpecRateStats/Downloads/Announcement2010.pdf

Section L. Frailty Adjustment

Comment: Several commenters asked that CMS pay frailty at an individual level. These commenters asked that CMS pay this frailty adjuster to the nursing home certifiable population enrolled in the plan. Some of these commenters also asked that CMS only survey those enrollees who are nursing home certifiable. Another commenter asked that CMS apply frailty for beneficiaries who qualify for the home and community based program within a state.

Response: Because ADL data are collected via survey for a subset of a plan's membership, it is not possible to pay frailty calculated at an individual level for all enrollees in a plan. In addition, because the survey is developed based on a random sample of enrollees, allowing plans to select enrollees to be surveyed would violate the principle of randomization, which would mean that the frailty score could not be generalized to the entire plan. The frailty model is calibrated using a similar methodology of a randomized sample across the FFS population. Therefore, frailty factors reflect the proper weights for this survey approach to measuring frailty in a population. As to the home and community based program, we believe that the differences in eligibility criteria by state for these programs could make comparison between FIDE SNPs difficult.

Comment: Several commenters asked that CMS pay frailty to the under 55 population that has frailty similar to PACE.

Response: When we developed the frailty model, we determined that it did not help predict unexplained costs of beneficiaries under age 55.

Comment: Several commenters asked CMS to consider collecting data from state level assessments of frailty. One commenter stated that a plan should qualify for frailty if a member has been accepted into a SNP by virtue of a State approved assessment tool.

Response: CMS will continue to evaluate alternative sources of data, including state level assessments, to determine frailty. We believe, however, that the HOS survey, because it can be sampled at the PBP level, provides our best estimate of a plan's frailty score. In addition, the

April 4, 2016

NOTE TO: Medicare Advantage Organizations, Prescription Drug Plan Sponsors, and Other Interested Parties

Subject: Announcement of Calendar Year (CY) 2017 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter

In accordance with section 1853(b)(1) of the Social Security Act, we are notifying you of the annual Medicare Advantage (MA) capitation rate for each MA payment area for CY 2017 and the risk and other factors to be used in adjusting such rates. The capitation rate tables for 2017 are posted on the Centers for Medicare & Medicaid Services (CMS) web site at http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/index.html under Ratebooks and Supporting Data. The statutory component of the regional benchmarks, transitional phase-in periods for the Affordable Care Act rates, qualifying counties, and each county's applicable percentage are also posted at this website.

Attachment I shows the final estimates of the National Per Capita MA Growth Percentage for 2017 and the National Medicare Fee-for-Service (FFS) Growth Percentage for 2017. These growth rates will be used to calculate the 2017 capitation rates. As discussed in Attachment I, the final estimate of the National Per Capita MA Growth Percentage for combined aged and disabled beneficiaries is 3.08 percent, and the final estimate of the FFS Growth Percentage is 3.12 percent. Attachment II provides a set of tables that summarizes many of the key Medicare assumptions used in the calculation of the National Per Capita MA Growth Percentage.

Section 1853(b)(4) of the Act requires CMS to release county-specific per capita FFS expenditure information on an annual basis, beginning with March 1, 2001. In accordance with this requirement, FFS data for CY 2014 are being posted on the above website.

Attachment II details the key assumptions and financial information behind the growth percentages presented in Attachment I.

Attachment III presents responses to Part C payment related comments on the Advance Notice of Methodological Changes for CY 2017 MA Capitation Rates and Part C and Part D Payment Policies (Advance Notice).

Attachment IV presents responses to Part D payment related comments on the Advance Notice.

Attachment V shows the final Part D benefit parameters and contains details on how they are updated.

Attachment VI shows the CMS-HCC and RxHCC Risk Adjustment Factors

commenter proposed a segmented approach such that a low coding factor is applied to lower coding plans while a larger factor is applied to high coding plans.

Response: CMS determines the MA coding pattern adjustment using the model to be used in the payment year so that the impact on trends in coding differences of any model change are taken into account. While CMS understands the commenters' concerns, we have extensively analyzed the MA data and determined that the optimal way to apply the adjustment is to do so uniformly and industry wide using the statutory minimum adjustment level.

Comment: One commenter suggested that the coding adjustment factor be reduced or eliminated for C-SNPs. The commenter stated that SNPs serve beneficiaries who have specified chronic conditions and are high risk, and they provide more high-touch care to their members so it is impossible to compare C-SNP coding intensity to FFS, given the concentration of chronically ill patients in these [MA] products. The commenter also believes that the flexibility afforded to CMS under the CMMI demonstration authority gives CMS the ability to test the reduction or elimination of the coding pattern adjustment for C-SNPs without modifying the adjustment factor for any other plans (i.e., in a non-budget neutral way).

Response: MA coding adjustment is a methodological adjustment to risk scores to improve payment accuracy given differential coding patterns in MA and FFS. CMS measures the differences in coding patterns between MA and FFS by observing the year-over-year growth in disease scores for beneficiaries who remain in MA or in FFS over time. Therefore, our MA coding adjustment factor reflects differences in coding patterns over time, not levels of risk scores.

Comment: A few commenters noted that CMS incorrectly implied that any observed coding differentials between the FFS and MA populations are driven by inappropriate coding on the part of MA plans and urged CMS to recognize that higher coding does not necessarily equate to wrong coding. One commenter urged CMS to consider the interaction between the adjustment for coding intensity and those that may result from RADV audits and ensure that MA plans and providers are not over-penalized.

Response: As we have noted in previous Advance Notices and Rate Announcements, we are not assuming that MA coding is inaccurate in calculating the MA coding pattern adjustment factor. Rather, we are adjusting for the impact on risk scores of coding patterns that differ from FFS coding, the basis of the CMS-HCC model and the Part C normalization factor. RADV audits, on the other hand, have the purpose of validating that diagnosis codes submitted for risk adjustment are documented in the medical record and, therefore, are correctly reported for the beneficiary in question.

Comment: A few commenters thought that it was inappropriate to apply the coding pattern adjustment to encounter data-based risk scores and that coding adjustment should apply only to the RAPS-based portion of payment.

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UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

WESTERN DIVISION

UNITED STATES OF AMERICA *ex rel*. BENJAMIN POEHLING, Plaintiffs, v. UNITEDHEALTH GROUP, INC., *et al*., Defendants.	No. CV 16-08697 MWF (SSx) NOTICE OF ERRATUM RE PLAINTIFFS' EXHIBIT 38 ON MOTION FOR PARTIAL SUMMARY JUDGMENT; EXHIBIT 38 Date: September 17, 2018 Time: 10:00 a.m. Court: 5A. Hon. Michael W. Fitzgerald

PLEASE TAKE NOTICE that Exhibit 38 to the Declaration of Martha Glover, filed on August 27, 2018 (Dkt. 272-16), inadvertently attached a duplicate copy of Exhibit 37. Attached hereto as Exhibit 38 is a true and correct copy of the correct Exhibit 38 intended to be filed by the United States of America and relator Benjamin Poehling, to wit, Section 30 of Chapter 24 of the Medicare Claims Processing Manual (April 5, 2016), available at https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c24.pdf.

Respectfully submitted,

Dated: August 27, 2018

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Medicare Claims Processing Manual

Chapter 24 – General EDI and EDI Support Requirements, Electronic Claims, and Mandatory Electronic Filing of Medicare Claims

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(Rev. 3491, 04-05-16)

request to their Medicare contractor to receive permission to submit some or all of their claims on paper.

A/B MACs and DME MACs are required to contact providers that appear to be submitting high numbers of paper claims to verify that those providers meet one or more of the exception criteria for continued submission of their claims on paper.

See Section 90 below for further details regarding ASCA requirements, or access www.cms.gov/ElectronicBillingEDITrans for further information on ASCA enforcement reviews, the self assessment, and the waiver application.

30 - EDI Enrollment and Registration (AKA Trading Partner Agreements)

(Rev. 2803, Issued: 10-28-13, Effective: 09-17-13, Implementation: 09-17-13)

Medicare FFS' Trading Partner Agreement is comprised of two forms: 1) EDI Registration and 2) EDI Enrollment. The forms are identified under CMS form 10164 and can be accessed at:
EDI Registration - https://www.cms.gov/cmsforms/downloads/CMS10164A.pdf and
EDI Enrollment - https://www.cms.gov/cmsforms/downloads/CMS10164B.pdf

A/B MACs and CEDI must use these two forms, or their own organization specific forms given they are comparable in terms of content, to transmit data files electronically between themselves and their trading partners.

EDI registration and enrollment shall be instituted by the A/B MACs and CEDI and shall accomplish the following:

1. Document the specific type of transactions and transmission methods to be utilized and secure authorizations from the provider or other trading partner requesting to exchange electronic administrative transactions, and

2. Designate the A/B MACs and CEDI with whom the provider or other trading partner agrees to engage in EDI and implements standard policies and practices to ensure the security and integrity of the information to be exchanged.

Under HIPAA, EDI applies to all covered entities transmitting the following administrative transactions: ASC X12 837 institutional claim and ASC X12 837 professional claim, ASC X12 835 remittance advice, ASC X12 270/271 eligibility, ASC X12 276/277 claim status and NCPDP claim (and others that are not used by Medicare at this time). Beginning on January 1, 2012, A/B MCs and CEDI will also use the ASC X12 TA1 interchange acknowledgment, ASC X12 999 implementation acknowledgment and ASC X12 277CA claim acknowledgment error handling transactions. In addition, CEDI and DME MACs will also use the NCPDP standard transmission response transaction. Entities who prepare and submit the CMS 1500 or CMS 1450 paper claim forms do not need to complete an EDI registration.

30.1 - EDI Enrollment

(Rev. 3346, Issued: 09-04-15, Effective: 10-06-15, Implementation: 10-06-15)

A/B MACs and CEDI are required to furnish new providers that request Medicare claim privileges information on EDI. A/B MACs and CEDI are required to assess the capability of entities to submit data electronically, establish their qualifications (see test requirements in §50), and enroll and assign submitter EDI identification numbers to those approved to use EDI. All providers are required to submit their claims electronically, per ASCA, unless they qualify for a waiver (see section 90 below).

The EDI enrollment process for the Medicare beneficiary inquiry system (HETS 270/271) is currently a separate process. Information on the EDI enrollment process for HETS can be found on the CMS HETSHelp website (http://www.cms.gov/HETSHelp/).

A provider must obtain an NPI and furnish that NPI to their A/B MAC and CEDI prior to completion of an initial EDI Enrollment Agreement and issuance of an initial EDI number and password by that contractor. The A/B MACs and CEDI are required to verify that NPI is on the NPI Crosswalk. If the NPI is not verified on the NPI Crosswalk, the EDI Enrollment Agreement is denied and the provider is encouraged to contact the A/B MAC provider enrollment department (for Medicare Part A and Part B providers) or the National Supplier Clearinghouse (for DME suppliers) to resolve the issue. Once the NPI is properly verified, the provider can reapply the EDI Enrollment Agreement.

A provider's EDI number and password serve as a provider's electronic signature and the provider would be liable if any entity with which the provider improperly shared the ID and password performed an illegal action while using that ID and password. A provider's EDI access number and password are not part of the capital property of the provider's operation, and may not be given to a new owner of the provider's operation. A new owner must obtain their own EDI access number and password. When leaving the Medicare Program, a provider must notify their MAC to deactivate the EDI number.

If providers elect to submit/receive transactions electronically using a third party such as a billing agent **or** a clearinghouse, the A/B MACs or CEDI must notify those providers that they are required to have an agreement signed by that third party. The third party must agree to meet the same Medicare security and privacy requirements that apply to the provider in regard to viewing or use of Medicare beneficiary data. (These agreements are not to be submitted to Medicare, but are to be retained by the providers.) The providers must also be informed that they are not permitted to share their personal EDI access number and password with any billing agent **or** clearinghouse. Providers must also not share their personal EDI access number to anyone on their own staff who does not need to see the data for completion of a valid electronic claim, to process a remittance advice for a claim, to verify beneficiary eligibility, or to determine the status of a claim. No other non-staff individuals or entities may be permitted to use a provider's EDI number and password to access Medicare systems. Clearinghouse and other third party representatives must obtain and use their own unique EDI access number and password

from those A/B MACs or CEDI to whom they will send or receive EDI transactions. For a complete reference to security requirements see section 40.1.2.2 below and refer to the Appendix A CMSR High Impact Level Data document (sections IA-2 and SA-9) located on the CMS website (http://www.cms.gov/informationsecurity/downloads/ARS_App_A_CMSR_HIGH.pdf.)

30.2 - New Enrollments and Maintenance of Existing Enrollments

(Rev. 3404, Issued: 11-13-15, Effective: 12-14-15, Implementation: 12-14-15)

The Medicare EDI Enrollment process provides for collection of the information needed to successfully exchange EDI transactions between Medicare and EDI trading partners and also establishes the expectations for both parties in the exchange. This agreement must be executed by each provider that submits/receives EDI either directly to or from Medicare or through a third party. Each provider that will use EDI either directly or through a billing agent or clearinghouse to exchange EDI transactions with Medicare must sign the EDI Enrollment Form and submit it to the A/B MAC or CEDI with which EDI transactions will be exchanged before the A/B MAC, or CEDI will accept claims or other incoming EDI transactions from that provider, or a third party for that provider, or send outbound EDI transactions. A/B MACs and CEDI may accept a signed EDI Enrollment Form from providers via fax, email, internet portal, or hard copy and may accept electronic signature formats, "wet", or a combination of the two. The EDI Enrollment Form is effective as specified in the terms of the agreement.

Providers who will be accessing the A/B MACs Direct Data Entry (DDE) system will have access to enter and correct claims directly at the A/B MAC and must submit an EDI Enrollment Form to A/B MAC with their request for this access.

NOTES:

1. Although a type of electronic transaction, electronic funds transfers (EFTs) between an A/B MAC or DME MAC and a bank are not considered EDI for EDI Enrollment Form purposes. A provider that uses EFT but no EDI transactions should not complete an EDI Enrollment Form.

2. Medicaid state agencies are not required to complete an EDI Enrollment Form as a condition for receipt of COB claims.

In accord with a particular MAC's business processes, providers who have a signed EDI Enrollment Form on file with a particular A/B MAC or CEDI may or may not be required to submit a new signed EDI Enrollment Form to the same A/B MAC or CEDI each time they change their method of electronic billing or begin to use another type of EDI transaction, e.g., changing from direct submission to submission through a clearinghouse or changing from one billing agent to another. Additionally, providers may or may not be required to notify their A/B MAC (HHH), A/B MAC or CEDI if their existing clearinghouse begins to use alternate software; the clearinghouse is responsible for notification in that instance.

A/B MACs and CEDI must inform providers that providers are obligated to notify their A/B MAC or CEDI in writing in advance of a change that involves a change in the billing agent(s) or clearinghouse(s) used by the provider, the effective date on which the provider will discontinue using a specific billing agent and/or clearinghouse, if the provider wants to begin to use additional types of EDI transactions, or of other changes that might impact their use of EDI.

When an A/B MAC or CEDI receives a signed request from a provider or supplier to accept EDI transactions from or send EDI transactions to a third party, the A/B MAC or CEDI must verify that an EDI Enrollment Form is already on file for that provider or supplier, and that the third party has already been issued an EDI number and password to permit submission/receipt of EDI transactions. The request cannot be processed until both are submitted/issued.

The binding information in an EDI Enrollment Form does not expire if the person who signed that form for a provider is no longer employed by the provider, or that A/B MAC or CEDI is no longer associated with the Medicare program. Medicare responsibility for EDI oversight and administration is simply transferred in that case to that entity that CMS chooses to replace that A/B MAC or CEDI, and the provider as an entity retains responsibility for those requirements mentioned in the form regardless of any change in personnel on staff.

An organization comprised of multiple components that have been assigned more than one Medicare provider number, supplier number, or National Provider Identifier (NPI) may elect to execute a single EDI Enrollment Form on behalf of the organizational components to which such numbers have been assigned. The organization is responsible for the performance of its components.

The note at the end of the enrollment agreement language indicates that either party can terminate that agreement by providing 30 days advance notice. There is an exception to that requirement. In the event A/B MAC, DME MAC or CEDI detects abuse of use of an EDI system ID or password, or discovers potential fraud or abuse involving claims submitted electronically, electronic requests for beneficiary eligibility data, or other EDI transactions, that A/B MAC, DME MAC or CEDI is to immediately terminate system access for submission or receipt of EDI transactions by that individual or entity. A decision by A/B MAC, DME MAC or CEDI to terminate or suspend EDI access in such a situation is not subject to appeal by the individual or entity that loses EDI access.

Electronic Data Interchange (EDI) Enrollment Information Required for Inclusion at a Minimum in Each A/B MAC, and CEDI EDI Enrollment Form.

A. The provider agrees to the following provisions for submitting Medicare claims electronically to CMS or to CMS' A/B MACs or CEDI:

1. That it will be responsible for all Medicare claims submitted to CMS or a designated CMS contractor by itself, its employees, or its agents;

2. That it will not disclose any information concerning a Medicare beneficiary to any other person or organization, except CMS and/or its A/B MACs, DME MACs or CEDI without the express written permission of the Medicare beneficiary or his/her parent or legal guardian, or where required for the care and treatment of a beneficiary who is unable to provide written consent, or to bill insurance primary or supplementary to Medicare, or as required by State or Federal law;

3. That it will submit claims only on behalf of those Medicare beneficiaries who have given their written authorization to do so, and to certify that required beneficiary signatures, or legally authorized signatures on behalf of beneficiaries, are on file;

4. That it will ensure that every electronic entry can be readily associated and identified with an original source document. Each source document must reflect the following information:

    - Beneficiary's name;
    - Beneficiary's health insurance claim number;
    - Date(s) of service;
    - Diagnosis/nature of illness; and
    - Procedure/service performed.

5. That the Secretary of Health and Human Services or his/her designee and/or the A/B MAC, DME MAC, CEDI, or other contractor if designated by CMS has the right to audit and confirm information submitted by the provider and shall have access to all original source documents and medical records related to the provider's submissions, including the beneficiary's authorization and signature. All incorrect payments that are discovered as a result of such an audit shall be adjusted according to the applicable provisions of the Social Security Act, Federal regulations, and CMS guidelines;

6. That it will ensure that all claims for Medicare primary payment have been developed for other insurance involvement and that Medicare is the primary payer;

7. That it will submit claims that are accurate, complete, and truthful;

8. That it will retain all original source documentation and medical records pertaining to any such particular Medicare claim for a period of at least 6 years, 3 months after the bill is paid;

9. That it will affix the CMS-assigned unique identifier number (submitter ID) of the provider on each claim electronically transmitted to the A/B MAC, CEDI, or other contractor if designated by CMS;

10. That the CMS-assigned unique identifier number (submitter identifier) or NPI constitutes the provider's legal electronic signature and constitutes an assurance by the provider that services were performed as billed;

11. That it will use sufficient security procedures (including compliance with all provisions of the HIPAA security regulations) to ensure that all transmissions of documents are authorized and protect all beneficiary-specific data from improper access;

12. That it will acknowledge that all claims will be paid from Federal funds, that the submission of such claims is a claim for payment under the Medicare program, and that anyone who misrepresents or falsifies or causes to be misrepresented or falsified any record or other information relating to that claim that is required pursuant to this agreement may, upon conviction, be subject to a fine and/or imprisonment under applicable Federal law;

13. That it will establish and maintain procedures and controls so that information concerning Medicare beneficiaries, or any information obtained from CMS or its A/B MAC, DME MAC, CEDI, or other contractor if designated by CMS shall not be used by agents, officers, or employees of the billing service except as provided by the A/B MAC, DME MAC or CEDI (in accordance with §1106(a) of Social Security Act (the Act) (See section 40.1.2.2 below for a complete reference to Medicare's security requirements);

14. That it will research and correct claim discrepancies;

15. That it will notify the A/B MAC, CEDI, or other contractor if designated by CMS within 2 business days if any transmitted data are received in an unintelligible or garbled form (See section 40.1.2.2 below for a complete reference to Medicare's security requirements).

B. The Centers for Medicare & Medicaid Services (CMS) agrees to:

1. Transmit to the provider an acknowledgment of claim receipt;

2. Affix the A/B MAC, DME MAC, CEDI or other contractor if designated by CMS number, as its electronic signature, on each remittance advice sent to the provider;

3. Ensure that payments to providers are timely in accordance with CMS' policies;

4. Ensure that no A/B MAC, CEDI, or other contractor if designated by CMS may require the provider to purchase any or all electronic services from the A/B MAC, CEDI or from any subsidiary of the A/B MAC, CEDI, other contractor if designated by CMS, or from any company for which the A/B MAC, CEDI has an interest. The A/B MAC, CEDI, or other contractor if designated by CMS will make alternative means available to any electronic biller to obtain such services;

5. Ensure that all Medicare electronic billers have equal access to any services that CMS requires Medicare A/B MACs, CEDI, or other contractors if designated by CMS to make available to providers or their billing services, regardless of the electronic billing technique or service they choose. Equal access will be granted to any services sold directly, indirectly, or by arrangement by the A/B MAC, CEDI, or other contractor if designated by CMS;

6. Notify the provider within 2 business days if any transmitted data are received in an unintelligible or garbled form.

NOTE: Federal law shall govern both the interpretation of this document and the appropriate jurisdiction and venue for appealing any final decision made by CMS under this document.

This document shall become effective when signed by the provider. The responsibilities and obligations contained in this document will remain in effect as long as Medicare claims are submitted to the A/B MAC, DME MAC, CEDI, or other contractor if designated by CMS. Either party may terminate this arrangement by giving the other party thirty (30) days written notice of its intent to terminate. In the event that the notice is mailed, the written notice of termination shall be deemed to have been given upon the date of mailing, as established by the postmark or other appropriate evidence of transmittal.

C. Signature

I certify that I have been appointed an authorized individual to whom the provider has granted the legal authority to enroll it in the Medicare Program, to make changes and/or updates to the provider's status in the Medicare Program (e.g., new practice locations, change of address, etc.) and to commit the provider to abide by the laws, regulations and the program instructions of Medicare. I authorize the above listed entities to communicate electronically with (MAC name) on my behalf.

Provider’s Name

Title

Address

City/State/Zip

By _____ _____
(signature) (printed name)

Date

30.3 - Submitter Number
(Rev. 2803, Issued: 10-28-13, Effective: 09-17-13, Implementation: 09-17-13)

A/B MACs, or CEDI will assign an EDI submitter/receiver number and a periodically renewable password to each entity (provider, clearinghouse, billing agent) submitting or receiving electronic transactions. Provision must be made to return claim remittance files either to the provider or to a designated receiver (which may be the submitter or another entity, but not both). If electronic remittance advice transactions will be issued, the profile must indicate where the A/B MAC, or CEDI is to send the remittance advice transactions.

30.4 - Electronic Remittance Advice (ERA) Enrollment Form
(Rev. 3404, Issued: 11-13-15, Effective: 12-14-15, Implementation: 12-14-15)

The Medicare Electronic Remittance Advice (ERA) Enrollment process provides for collection of the information needed to successfully receive ERA transactions from Medicare and EDI trading partners. This agreement must be executed by each provider that receives ERA either directly to or from Medicare or through a third party. Each provider that will use ERA either directly or through a billing agent or clearinghouse with Medicare must sign the ERA Enrollment Form and submit it to the A/B MAC or CEDI with which ERA transactions will be received before the A/B MAC or CEDI will transmit ERA. A/B MACs or CEDI may accept a signed ERA Enrollment Form for providers via fax, email, internet portal, or hard copy and may accept electronic signature formats, “wet”, or a combination of the two. The ERA Enrollment Form is effective as specified in the terms of the agreement.

In accord with a particular MAC’s business processes, providers who have a signed ERA Enrollment Form on file with a particular A/B MAC, or CEDI may or may not be required to submit a new signed ERA Enrollment Form to the same A/B MAC, or CEDI each time they change their method of electronic billing or begin to use another type of EDI transaction, e.g., changing from direct submission to submission through a clearinghouse or changing from one billing agent to another. Additionally, providers may or may not be required to notify their A/B MAC, or CEDI if their existing clearinghouse begins to use alternate software; the clearinghouse is responsible for notification in that instance.

A/B MACs and CEDI must inform providers that providers are obligated to notify their A/B MAC or CEDI in writing in advance of a change that involves a change in the billing

agent(s) or clearinghouse(s) used by the provider, the effective date on which the provider will discontinue using a specific billing agent and/or clearinghouse, if the provider wants to begin to use additional types of EDI transactions, or of other changes that might impact their use of ERA.

A/B MAC, or CEDI receives a signed request from a provider or supplier to accept ERA transactions from or send ERA transactions to a third party, the A/B MAC, or CEDI must verify that an ERA Enrollment Form is already on file for that provider or supplier.

The binding information in an ERA Enrollment Form does not expire if the person who signed that form for a provider is no longer employed by the provider, or that A/B MAC, or CEDI is no longer associated with the Medicare program. Medicare responsibility for ERA oversight and administration is simply transferred in that case to that entity that CMS chooses to replace that A/B MAC, or CEDI, and the provider as an entity retains responsibility for those requirements mentioned in the form regardless of any change in personnel on staff.

The note at the end of the enrollment agreement language indicates that either party can terminate that agreement by providing 30 days advance notice. There is an exception to that requirement. In the event an A/B MAC, DME MAC or CEDI detects abuse of use of an ERA system, or discovers potential fraud or abuse, that A/B MAC, DME MAC or CEDI is to immediately terminate system access for receipt of ERA transactions by that individual or entity. A decision by an A/B MAC, DME MAC or CEDI to terminate or suspend ERA access in such a situation is not subject to appeal by the individual or entity that loses ERA access.

NOTE: Federal law shall govern both the interpretation of this document and the appropriate jurisdiction and venue for appealing any final decision made by CMS under this document.

This document shall become effective when signed by the provider. The responsibilities and obligations contained in this document will remain in effect as long as Medicare claims are submitted to the A/B MAC, DME MAC, CEDI, or other contractor if designated by CMS. Either party may terminate this arrangement by giving the other party thirty (30) days written notice of its intent to terminate. In the event that the notice is mailed, the written notice of termination shall be deemed to have been given upon the date of mailing, as established by the postmark or other appropriate evidence of transmittal.

Signature

I certify that I have been appointed an authorized individual to whom the provider has granted the legal authority to enroll it in the Medicare Program, to make changes and/or updates to the provider's status in the Medicare Program (e.g., new practice locations, change of address, etc.) and to commit the provider to abide by the laws, regulations and

the program instructions of Medicare. I authorize the above listed entities to communicate electronically with (MAC name) on my behalf.

Provider's Name

Title

Address

City/State/Zip

By _____ _____
(Signature) (Printed Name)

Date

40 - Medicare FFS EDI Users Roles and Responsibilities in an EDI Environment

(Rev. 2803, Issued: 10-28-13, Effective: 09-17-13, Implementation: 09-17-13)

Medicare FFS supports EDI as exchanged between all covered entities and Medicare FFS contractors. This chapter provides guidance on how these relationships and the transactions generated by them shall be established, maintained and managed.

40.1 - Centers for Medicare and Medicaid Services - Medicare Fee-For-Service

(Rev. 2803, Issued: 10-28-13, Effective: 09-17-13, Implementation: 09-17-13)

A/B MACs, DME MACs along with the Common Electric Data Interchange (CEDI) contractor must transact versions of the institutional and professional claim (ASC X12 837 claim, institutional and professional), the remittance advice (ASC X12 835 remittance advice), the claim status request and response (ASC X12 276/277 claim status request and response), the eligibility inquiry and response (ASC X12 270/271 eligibility), and the newly adopted error handling transactions (the ASC X12 277 CA claim acknowledgment, the ASC X12 999 implementation acknowledgment and the ASC X12 TA1 interchange acknowledgment) within national standards developed by ASC X12. CEDI must transact versions of the National Council for Prescription Drug Programs (NCPDP) claims transactions.

Medicare FFS supports EDI as exchanged between all covered entities and Medicare FFS contractors. This chapter provides guidance on how these relationships and the transactions generated by them shall be established, maintained and managed.

40.1.1 - HIPAA Transaction Standards as Designated by CMS

(Rev. 2803, Issued: 10-28-13, Effective: 09-17-13, Implementation: 09-17-13)