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Five Year Review of Work Relative Value Units

Final Report

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Chapter 2

Executive Summary

Section 1848(c)(2)(B)(1) of the Social Security Act requires that HCFA reviews all relative value units (RVUs) for services in Medicare's Resource Based Relative Value Scale physician fee schedule (MFS) no less often than every five years.[1] Since the MFS was implemented on January 1, 1992, one 5-year review of work RVUs has been completed. Work RVUs modified during the initial 5-year review were effective for services furnished beginning January 1, 1997. HCFA is now planning to begin its second 5-year review of work RVUs, which will be effective for services furnished beginning January 1, 2002. To accomplish this task, HCFA has developed the following time line:

Fall 1999: Announce start of the 2nd 5-year review process and request public comments

Spring 2001: Propose changes to the work RVUs

Fall 2001: Finalize work RVU changes

This project grew out of a concern expressed by HCFA that its current update process lacks systematic quantitative methods by which to identify services for review, especially overvalued services. During its first 5-year review, HCFA relied upon public commenters to identify services that were misvalued. Since HCFA believed that most commenters would identify services that were undervalued, HCFA requested that its Carrier Medical Directors review the Medicare fee schedule to find services that were potentially overvalued. HCFA also relied upon the American Medical Association's Relative Value Update Committee or the RUC to identify services that were misvalued. Overall, HCFA decided to increase work for 28 percent of the codes, decrease work for 11 percent of the codes, and leave unchanged the values for 61 percent of the codes.

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[1] The five year review provision covers the relative value units for work, practice expense, and malpractice expense. However, since the malpractice and practice expense relative value units were charge based, HCFA chose not to expand its five year review to them. See Federal Register, December 8, 1994 Section B, page 63,454 for a discussion of this issue.

The purpose of this project is to provide technical assistance to HCFA to prepare for the second 5-year review of work relative value units for the Medicare physician fee schedule. There are two key components of this project. The first is the development of methods by which HCFA could identify CPT codes in the Medicare fee schedule (MFS) that may have been assigned inappropriate work RVUs, e.g., overvalued CPT codes, undervalued CPT codes, and work RVU anomalies. Additionally, we were interested in developing methods that could be used to identify services whose work RVUs may have changed since they were originally developed or last revised, or to provide quantitative data to clinicians in the development of work RVUs. As a first step, we evaluated methods used by HCFA and the RUC during the initial 5-year review. We also conducted a review of the published literature looking for methods that had been used by researchers to describe the work of physicians in providing medical care or to measure elements of work, e.g., intra-service time. Methods were explored and dismissed, if we were unable to locate representative databases or to develop reasonable primary data collection strategies to support the method.

The result of our efforts is a set of seven methods that could potentially be used by HCFA to identify misvalued services, and that focuses upon different components of the work RVU: total work; time components of total work, i.e., total service time, pre- and intra-service time, and post-operative visits; and work per unit time. Several methods allow for the evaluation of multiple components simultaneously. Briefly,

- The use of ***clinical panels*** in evaluating total physician work is proposed for identifying within clinical family rank order anomalies and cross-specialty anomalies in similar services, and recalibrating the reference set procedures. The discussion of this method concentrates on issues related to panel composition and mode of deliberation using the technique of magnitude estimation. A review of HCFA's previous use of panels to establish and/or evaluate work RVUs and recommended strategies for conducting future panels is provided.
- The ***Rasch paired comparison*** method identifies misvalued CPT codes in terms of either total or intra-service work based on a small-group panel comparison of codes within clinical families. The objective is to identify statistical outliers that appear to be either misaligned or compressed in terms of overall physician work effort employing a simpler approach than magnitude estimation.

- To assess the appropriateness of total service time underlying current work estimates, we propose the use of a ***physician-level clinical profile database*** that contains estimates of total available clinical time as well as estimates of total volume of services provided during that time period at the CPT code level. This method uses objectively collected volume of service estimates and current work RVU time estimates to evaluate the reasonableness of the total service time estimates relative to estimates of available clinical time.
- ***Four alternative objective data sources*** are explored in detail for use in the direct identification of services whose intra-service times may be misvalued: anesthesia times estimated from Medicare claims data; operative times obtained from a data vendor; operative times collected from a panel of hospitals; and intra-service times collected through direct observation.
- A straightforward method is proposed that uses Medicare claims data to identify services whose number of pre- and post-operative hospital visits provided during the global surgical period may be misvalued given current ***lengths of stay and proportion of same day surgery cases***.
- Medicare claims data are also used to identify services with potentially misvalued work RVUs by analyzing ***changes in site-of-service, total frequency, and specialty mix of services over time.*** As such, it builds upon analyses conducted by the RUC during the initial five year review.
- The seventh method identifies services with potentially misvalued work RVUs through a direct comparison of ***work per unit time*** (WPUT). The objective of this method is the identification of statistical outliers — those services with a WPUT estimate that differs significantly from the typical value for a group of services expected to have similar levels of WPUT.

For each of the proposed methods, we provide the following information: a brief overview of the method; a background discussion highlighting the theoretical or conceptual underpinnings of the proposed method; a detailed description of necessary data; a detailed description of the method; an illustrative example of the method; the projected time frame to conduct the proposed method; strengths and weaknesses of the proposed method; and the likely response from key stakeholders.

A common requirement across all seven proposed methods is the need to assemble databases describing the work and time estimates collected as part of the RBRVS research efforts over the past decade. We conclude Chapter 2 by describing the need for a comprehensive database that includes

not only baseline information, but also information gathered from any of the proposed methods that HCFA may undertake in support of its next five year review. We describe a number of different types of databases that HCFA might wish to consider developing, the primary level of information to be included, and the types of information that would be useful to HCFA going forward in their updating activities.

The second component of the project is the development of options for the performance of the next 5-year review. We begin by reviewing the history of the development of physician work relative value units with an emphasis on the last 5-year review that concluded with the publication of a final rule on November 22, 1996. Throughout the discussion, lessons learned support the recommendations for the next 5-year review. We follow the historical review with a chronological listing of major tasks that must be accomplished for the next 5-year review and discuss steps HCFA might take to improve upon the first 5-year review. Below we summarize key recommendations that flow from our assessment of major tasks facing HCFA in the next 5-year review process.

Determine Scope of Second 5-year Review

At the top of HCFA's agenda should be a clear statement of the scope of the next review. Three primary goals are suggested: (1) identify and correct misaligned work RVUs; (2) establish a set of standard data collection methods and review procedures; and (3) review and correct flaws in the annual review process. The first of these three goals was a key focus of this project, and proposed methods were summarized above. Two other goals are also suggested. If HCFA is to preserve the credibility of its fee schedule payment system, it must establish a routine set of databases and review procedures supporting the evaluation. Also, because the accuracy of the on-going RUC-HCFA review process is so vital to the scope and effort required in the global 5-year review, improvements in the "annual" processes should be considered at the same time. Key recommendations that flow from our discussion of options available to HCFA in establishing the scope of the next 5-year review are as follows:

- *HCFA could ask the RUC to be a more active partner in the identification of "suspect" codes.*

- *HCFA could decide whether it will accept any special studies and convey that decision clearly prior to the onset of the next review.*
- *HCFA could establish a set of standard data collection methods for its own internal identification of potentially misvalued codes and final review of RUC recommendations.*
- *HCFA could also develop a workplan for the steps to be taken during the review and the assignment of responsibilities to the RUC and other contractors.*
- *HCFA might review and correct any flaws in the annual review process.*

Strengthen Overall Methods

The first step in the next 5-year review will logically require a workplan for how to proceed. Numerous technical and organizational problems emerged as part of the first 5-year review that need to be addressed. Key problems facing HCFA is (1) ensuring the accuracy of the reference set of work values, (2) developing a structure for identifying misvalued services or assessing changes in work, and (3) adjusting the current work RVUs for budget neutrality. The importance of the accuracy of the reference set of work values cannot be overemphasized. The reference set is the "glue" that holds the cross-specialty work values together. Yet, rarely is a reference set code examined during the RUC's annual reviews. And, not only is the actual work RVUs of the reference set a recurring issue, the list of reference codes is of concern as well.

We have identified seven major sources of changes in work — in addition to any codes that remain misaligned from the first 5-year review: technology diffusion, learning-by-doing, technology substitution, personnel substitution, reengineering, patient severity, and mandatory documentation. Any of these seven factors, or all of them, may be involved in changes in physician work effort for a given code. One way to improve upon the process for identifying misvalued services is to have a clear understanding of the principal underlying sources of changes in work.

A third key problem facing HCFA is in the interpretation of relative relationships among services in work because whole families of codes, e.g., evaluation and management visits (E&M), have been raised or lowered and the RVUs renormalized to achieve budget neutrality. Furthermore,

except for totally new procedures, revised codes treated annually by the RUC are renormalized only within a narrow family of codes. Finally, lowering RVUs for a reference set code to achieve neutrality within specialty clearly undermines the cross-specialty meaning of the reference set, if the work value of the reference code has not truly changed but is only being downgraded to avoid specialty-specific overpayments.

Key recommendations that flow from our discussion of these three problems are as follows:

- *HCFA must establish and validate a reference set as the first step for the next five-year review. This process should begin immediately. In a Federal Register notice, HCFA could solicit comments on the appropriateness of the existing reference set and indicate its intentions to finalize the values of the codes on the list prior to initiating the next review.*
- *HCFA could develop a systematic approach to evaluating changes in physician work that explicitly accounts for new technologies, personnel substitution, re-engineering, and learning-by-doing.*
- *HCFA may wish to work with the CPT Editorial Board to develop guidelines for systematically evaluating requests to create new codes based on patient condition.*
- *HCFA may wish to conduct a study of the conceptual underpinnings of budget neutrality in the MFS taking into consideration changes in reference set RVUs due to within-family neutrality adjustments, the proper treatment of split codes, and the relationship between any volume performance adjustments to the conversion factor and neutrality adjustments to the work RVUs.*

Determine Roles of HCFA, the RUC, and Contractors in the 5-year Review

Section 1848(c)(2)(B)(i) of the Social Security Act requires that HCFA "review *all* RVUs no less often than every 5 years." Reviewing all codes does not necessarily mean conducting quantitative or qualitative studies of each and every code; only that public comment be solicited on all codes and some initial consideration be given to misaligned codes anywhere in the MFS. A *de facto* strategy has developed whereby HCFA staff collect and collate comments and send them to the RUC. HCFA then conducts a final review to assure that any changes are reasonable and accurate. A fundamental problem with paring down the number of codes for review is the pervasiveness of technical and organizational change. We have proposed seven methods that HCFA

could use to more directly and objectively identify potentially misaligned codes. Given HCFA's current staffing levels, the use of contractors to perform many of the proposed methods would seem necessary for the next 5-year review.

An equally important issue deals with the scope of the RUC's role. In the first 5-year review, the RUC was delegated responsibility for reviewing all of the codes generated through public comment and HCFA internal reviews. Thirty-five hundred codes in all were sent to the RUC for review. Without the extraordinary efforts of the RUC, the RUC Advisory Committee, the HCPAC, the speciality societies and the staffs of these organizations in assisting HCFA, it is doubtful that the first 5-year review could have been completed in a timely manner and with such extensive clinical input. But, how does HCFA decide on the validity of the plethora of RUC recommendations? In the last 5-year review, HCFA staff and medical directors accepted the vast majority of RUC recommendations, although it rejected a large percentage of the RUC's E&M recommendations. Over time, the RUC continues to receive informal feedback from HCFA on its recommendations by observing which are accepted and which are rejected. At this time, there are no explicit criteria or methods that HCFA uses to review the RUC's recommendations.

Key recommendations that flow from our discussion of the roles of HCFA, the RUC, and contractors in the 5-year review are as follows:

- *HCFA may decide to employ Rasch measurement methods to quickly and systematically isolate misvalued procedures.*
- *While HCFA must retain the responsibility for analyzing the comments and developing the next 5-year review, it is critical the RUC be given a central role in this process.*
- *HCFA may wish to develop a formal plan for reviewing RUC recommendations and share it in advance with committee.*

Conduct HCFA-Directed Studies to Identify Potentially Misvalued Services

A critical element in HCFA's next 5-year review is the identification of objective, systematic methods by which to identify services with misvalued work RVUs. Not all methods will produce objective data for all services; thus, HCFA will need to undertake a number of strategies in order to

implement a system-wide evaluation of work RVUs. Further, it is important to note that obtaining objective data for a particular service does not necessarily lead to an adjustment to its work RVU. While objective data would clearly play an important role in the RUC and HCFA deliberations, the RUC may consider other factors in recommending a revision to work RVUs. The time frame for completion also varies by method. While some methods can be completed within several months, others will require six to eight months of effort. HCFA will need to be cognizant of the necessary time lines for several of the methods, e.g., collection of operative data from a hospital panel, if they wish to use these data for the next 5-year review. Key recommendations that flow from our discussion of seven proposed methods are as follows:

- *HCFA needs to make an investment in the collection of reliable and valid physician time data.*
- *HCFA could conduct an analysis of Medicare claims data as a means by which to identify services whose number of pre- and post-operative hospital visits provided during the global surgical period may be misvalued given current lengths of stay and proportion of same day surgery cases.*
- *HCFA could also use Medicare claims data to identify services with potentially misvalued work RVUs by analyzing changes in site-of-service, total frequency, and specialty mix of services over time.*
- *HCFA could use existing databases to identify statistical outliers — those services with a WPUT estimate that differs significantly from the typical value for a group of services expected to have similar levels of WPUT.*

Develop Workplans for Special Targeted Studies

In the first 5-year review, HCFA stated in its final rule that it planned to conduct a few special studies in future years to further adjust misaligned procedures. Specific ones mentioned were open versus closed procedures, services requiring more than one code, services involving multiple specialists, radiation oncology, and remaining rank order anomalies within families. Studies for

several of these services have been or are being conducted by the RUC. Key recommendations that flow from our discussion of these proposed special studies are as follows:

- *HCFA could conduct a special study of services involving multiple codes.*
- *HCFA may wish to re-examine the key assumptions underlying the upward adjustments in the E&M codes.*

Solicit Public Comments on Potentially Misaligned Codes and Develop Systematic Procedures for Preparing Outside Comments and Work RVUs for RUC Review

When HCFA solicited comments for the first 5-year review, it issued a set of instructions for commenters. Within its guidelines, HCFA invited the public to comment on the reference set but not codes that had been reconsidered prior to 1995. Further, HCFA presumed that commenters would be supplying data to justify recommended changes in work RVUs. The Agency insisted that any data be nationally representative and presumably indicative of the typical patient. To guide commenters in the development of new work RVUs, HCFA provided detailed descriptions of mental effort, technical skill, and psychological stress that comprise work, and requested estimates be provided for the typical patient. The screening of the public comments proved to be a difficult and tedious process. In the last 5-year review, HCFA staff culled out comments that were not strictly directed at misaligned work values and made judgments as to whether or not codes would be forwarded to the RUC. As described earlier, we have proposed that HCFA implement a number of approaches to identify candidate services for the next 5-year review. Key recommendations that flow from our discussion of HCFA's solicitation of public comments are as follows:

- *HCFA may wish to encourage thoughtful public comments on the reference set work values by providing guidelines on inter- and within-specialty comparisons.*
- *HCFA may wish to limit the kinds of data requested in public comments to heuristic information suggestive of the direction and size of a change in work values.*
- *HCFA could document in a concise manner the general methods and data employed in identifying potentially misvalued services and make them available to the RUC and others.*

Develop Definitions and Guidelines for the RUC's Participation in the 5-year Review

As part of the 5-year review, HCFA solicits comments and input from physicians on the work involved in performing a large number of CPT codes. A key source of input is that provided by the RUC. The ongoing research on the RBRVS has underlined the importance of clear definitions regarding the measures to be studied and the methodologies used in studying them. These include definitions of physician work and time, documentation of criteria to be used to identify inappropriately valued services, and the methods used to collect primary data on physician work. In particular, the methods used to collect judgments about work from physicians must be rigorous and able to withstand scientific scrutiny, i.e., survey design, rating methodologies, sampling approach, and the statistical analysis of survey results. Key recommendations that flow from our review and comment on major issues related to defining, measuring and evaluating physician's work are as follows:

- *HCFA consider the following recommendations and establish minimum guidelines/requirements for sampling design for use by the RUC and others:*
  - *A minimum number of respondents for each survey consistent with an expected level of precision given the survey design and rating methodology;*
  - *A minimum response rate sufficient to minimize the impacts of non-response bias. The minimum response rate could be waived with sufficient evidence of no bias due to those not responding;*
  - *Guidelines for ensuring the characteristics of respondents are consistent with all physicians providing a service or services. These guidelines could involve stratification criteria based on selected characteristics (e.g., location, academic status, etc.);*
  - *A description of the characteristics of responding physicians similar to those described above (e.g., sub-specialization, geographic location, years since medical school, academic affiliation, etc.); and*
  - *To whatever extent possible, a description of the characteristics of non-respondents. (We would expect geographic location, gender, age, and board certification status to be available for sampled physicians for most specialties.)*

-- *HCFA might conduct a careful review of the design and content of the current RUC survey and other surveys being used to collect primary data on physician work and time.*

-- *HCFA or the RUC might contract with a single firm to conduct surveys by the medical societies.*

-- *HCFA establish guidelines for the construction of survey vignettes and provide oversight of the vignettes to be used in the surveys.*

-- *All vignettes could be reviewed by HCFA and CPT staff prior to their use in a survey to be certain that: 1) they are consistent with existing payment policy; 2) they do not include inappropriate cues to survey respondents; 3) they describe typical patients; and, 4) they are consistent with existing CPT interpretations.*

-- *HCFA consider playing a role in evaluating the appropriateness of new methodologies for rating work. The nature of this role could involve active participation, including funding research on the new techniques, or a more passive role such as overseeing the process.*

-- *HCFA might consider establishing a standard protocol and requiring the following information regarding data analysis methods and results:*

-- *Any methods used to "clean" or edit survey responses, including the treatment of missing data for specific questions, the treatment of outliers, and the exclusion of any surveys or individual survey question responses;*

-- *Methods used to compute group responses (In general, the RUC uses the median response as the group measure. The Harvard study used geometric means – the antilogarithm of the mean of the logged ratings of work. With a reasonably large number of responses, the median and the geometric mean should be similar.);*

-- *Statistics describing the number and distribution of responses across physicians for each service, including selected percentiles. Measures of the dispersion of ratings consistent with the use of non-parametric measures such as the median could also be reported (e.g., the inter-quartile range.)*

-- *A summary of the characteristics of the respondents and a summary of an analysis of the non-responders (as described in greater detail above).*

Conduct HCFA Review of RUC Recommendations

In reviewing the RUC's recommendations during the first 5-year review, HCFA first convened a panel composed only of HCFA staff. This panel reviewed the recommendations and set aside some recommendations that were subsequently adjusted during the meetings or after more internal analysis. At the time, some members of the RUC were dismayed that HCFA rejected some of their recommendations. To address any miscommunications, RUC members were invited to attend HCFA panel meetings reviewing later RUC recommendations. As the final arbiter, HCFA shoulders a major responsibility. Key recommendations that flow from our discussion of this responsibility and HCFA's current process for reviewing RUC recommendations are as follows:

- *In reviewing RUC recommendations, statistical rules should be reviewed with the medical community and experts in statistics.*
- *Refinement panels should not include any members whose participation is not supported by their professional society or association*

Revisions to Annual Update Methods for Work RVUs

Many of the activities performed during the next 5-year review have direct implications for the HCFA-RUC on-going review process. In addition, improvements in the annual review process can reduce the amount of work required every 5 years. A key recommendation that flows from our discussion of the annual update methods is as follows:

- *HCFA could develop and implement a revised workplan for the annual review process that provided new guidelines and suggested methods to the RUC and that formalized a routine HCFA data collection program.*