From Concept to CPT Code to Compensation: How the Payment System Works

William T. Thorwarth, Jr., MD[a]

All radiologists and radiation oncologists provide medical services to patients every day with the full anticipation that these services will be appropriately reimbursed. Yet most take this process for granted. Few have even a rudimentary idea how the system works by which a coding mechanism and reimbursement schedule are developed and maintained for the vast array of services they provide. Clearly, this is not good business. You need not stay in the dark any longer! This article describes (1) the fundamental structure of reimbursement for radiology and radiation oncology services; (2) the multiple steps required as a new procedure advances from a research concept to the assignment of a code in the American Medical Association's Current Procedural Terminology; (3) the process by which the new procedure and code are assigned a reimbursement value in the Medicare Fee Schedule, which acts as the base for over 75% of current medical reimbursement; and (4) the maintenance of this system for existing procedures.

Key Words: Coding, economics, Medicare

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INTRODUCTION AND THE BASICS

First, some of what is to follow may seem a bit dry (even including a few formulas), but it is well worth your while to get a tall, cool drink and read on! This is, after all, the basis for the financial viability of your practice. Also, the abbreviations and acronyms are numerous and can initially seem overwhelming, so a glossary has been included at the conclusion of the article.

Though all long for the days when payment for medical services was actually based on charges determined by providers, the vast majority of current reimbursement is based on a fairly complex system [1-3] that, by congressional mandate [4], is intended to reflect the work performed and the resources consumed in the delivery of that care. Each medical procedure must first be identifiable by a code that is listed in a schedule and is recognized by the various payers. In that schedule, each procedure is assigned "relative value units" (RVUs) for the physician work, the practice expense (pe) and the malpractice (malp) elements of the total reimbursement:

$$\text{Total RVU} = \text{RVU}_{\text{work}} + \text{RVU}_{\text{pe}} + \text{RVU}_{\text{malp}}$$

These "relative values" had to be determined for each procedure code for the fee schedule to be established. Thus, any new procedure must first undergo a process of code development followed by valuation of the physician work and the practice expenses involved in performing that procedure. Finally, because of geographic differences in labor, supply, and malpractice costs, each of the three elements is adjusted by a "geographic practice cost index" (GPCI) for each Medicare locality.

It is important to recognize that the vast majority of radiology and radiation oncology codes have both a "professional component" (PC), representing the physician's service, and a "technical component" (TC), representing the facility's service. In a hospital setting, the radiologist bills the PC and the hospital bills the TC. Note that only the PC includes the physician work (the TC includes no physician work), whereas both the PC and the TC include practice expense and malpractice elements. In a radiologist's or radiation oncologist's office, when both components are delivered by the same billing entity, a "global" fee is submitted that equals the sum of the PC and TC:

$$\text{Global RVU} = \text{RVU}_{\text{PC}} + \text{RVU}_{\text{TC}}$$

For Medicare reimbursement, these RVU values must be multiplied by a "conversion factor" (CF) (in dollars per RVU), resulting in the actual dollar-and-cents payment rate for each procedure. This CF is adjusted each year depending on a number of factors. Actual Medicare payments to providers are made by local health care insurers ("Medicare carriers") who contract for this privilege with the federal government. Each carrier then uses the national RVU values, the national CF, and their locality GPCI values to construct their payment schedules for each code for the year.

CODING: A BRIEF HISTORY

The American Medical Association (AMA) in 1966 recognized the need for an organized method that would be compatible with developing computer technology for describing medical procedures. With input from multiple medical specialties, including radiology, the Current Procedural Terminology

[a]Catawba Radiological Associates, Hickory, NC.

Corresponding author and reprints: William T. Thorwarth, Jr., MD, Catawba Radiological Associates, P.O. Box 308, Hickory, NC 28603; e-mail: billt@twave.net

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(CPT) was developed. Initially a three-digit coding system, this subsequently evolved into the five-digit version (CPT-4) [5] in use today. Currently consisting of over 8000 codes, this system acts as a fundamental building block in medical reimbursement and record keeping. Each procedure performed is described by a code or series of codes within CPT. These codes are then used for filing claims for reimbursement, as well as for tracking procedures for research, utilization analysis, and many other purposes.

Critical to the use of CPT codes in reimbursement were decisions by the Health Care Financing Administration (HCFA) and the US Congress, including the following:

- 1983: include CPT in the HCFA Common Procedure Coding System;
- 1986: CPT required as part of the Medicaid Management Information System;
- 1987: CPT required by Congress to be used for reporting outpatient surgical procedures; and
- 2000: CPT designated by the US Department of Health and Human Services as the national coding standard for reporting physician and other health care professional services and procedures under the Health Insurance Portability and Accountability Act (HIPAA).

The nongovernment health care insurance companies also use CPT, virtually exclusively. At times, those companies have developed "local codes" to deal with specific procedures, but the designation of CPT under HIPAA is also resulting in the elimination of the use of local codes in an effort to truly standardize coding.

MAINTENANCE OF CPT

Clearly, with a coding system of this magnitude and the constant evolution of medical care delivery, a sophisticated process [6] must exist so that the system continues to include all currently performed procedures and reflect the practice of medicine. The oversight body charged with this task is CPT Editorial Panel. This group of 16 members consists of

- 11 practicing physicians appointed by the AMA's Board of Trustees (note that all specialties are thus not represented on the panel at all times),
- physician representatives of the Blue Cross and Blue Shield Association, the Health Insurance Association of America, the American Hospital Association, and the Center for Medicare and Medicaid Services (CMS) (formerly HCFA), and
- the co-chair of the Healthcare Professionals Advisory Committee (HCPAC).

This group meets four times a year and reviews all requests for changes in CPT (additions, revisions, deletions, etc.) The results of their decisions are incorporated into the next edition of CPT book, published annually, with new codes going into effect January 1.

The CPT Editorial Panel is assisted in this effort by members of CPT Advisory Committee, which consists of representatives of all medical specialty societies who have representation in the AMA House of Delegates, including the ACR and 10 other radiology-related organizations. These advisors are asked to review any proposed changes and submit their comments to the Panel. They may also testify during the Panel's deliberations on proposed code changes.

THE RELATIVE VALUE SYSTEM: A BRIEF HISTORY

Prior to 1992, physician's services were reimbursed on the basis of the "usual, customary, and reasonable" format, based on historical charges. There was a growing perception that the system had evolved inequitably, particularly when comparing procedural and nonprocedural services (e.g., one coronary artery bypass grafting procedure equaled approximately 35 office visits). Congress began the process of considering options to create a payment system reflecting the relative physician work of the various services. The ACR undertook a large-scale survey project [7] through which "experience-based" relativity was established for all procedures performed by radiologists and radiation oncologists. When Congress did decide to mandate a "resource-based relative value system" for physician work, the ACR relativity scale was incorporated into that system [8] for all radiology and radiation oncology codes that existed at the time. This new system was implemented in 1992, with the relativity and values in other specialties based predominantly on data generated by Dr. William Hsiao and his colleagues at Harvard University [1,2].

MAINTAINING RELATIVITY

To ensure input from organized medicine to this new system of relativity, the AMA established the Relative Value Update Committee (RUC) [9], whose charge was to advise the HCFA (now the CMS) on appropriate relative values for codes for new procedures approved by the CPT Editorial Panel and maintain accurate relativity. This committee was constructed to include representatives of all the major medical specialties as well as representation from the CMS, the AMA, and the HCPAC. The RUC is charged with analyzing data on new or revised codes and making recommendations to the CMS on the appropriate RVUs to be assigned to a given code. Like the CPT Editorial Panel, the RUC also has an advisory committee, with representation from all medical societies with representation in the AMA House of Delegates. It is the task of these advisors to present data in support of each of their specialties' recommendations for RVUs for their new codes.

In addition, Congress mandated that the entire relative value system be reassessed at least every 5 years. During the "5-year review," any procedures perceived as possibly overvalued or undervalued, creating an anomaly in the relativity scale, are evaluated by the RUC. The submission of such codes may be either by a specialty society advisor or by the CMS. Two such reviews have been successfully performed, with the resulting value changes implemented in 1997 and 2002.

Finally, it is critical to understand that the RUC is only an advisory body. Although a very high percentage (approximately 90%) of RUC recommendations are accepted, the final decision on the RVUs to be placed in the Medicare Fee Schedule (MFS) is made by the CMS. Values for new codes are

considered "interim" for 1 year and can be appealed through the CMS.

RESOURCE-BASED PRACTICE EXPENSE

Initially in 1992, only the physician work element of the three-part reimbursement MFS was mandated to be "resource based" and subjected to this formal scrutiny. The practice expense element RVUs continued to be based on historic charge data. Congress mandated that this element also be converted to a "resource-based" system. This conversion occurred through a gradual 4-year transition from 1999 to 2002. Several methodologies for this change were examined by the CMS. Again, the AMA and medical specialty societies recognized the need for medical specialty society input to the new relativity for practice expense, resulting in the formation of a subcommittee of the RUC, the Practice Expense Advisory Committee (PEAC). The charge to this committee was to review, for all CPT codes existing in 1997, all previous data regarding nonphysician clinical labor, medical supplies, and medical equipment (termed *direct inputs* by the CMS). The membership of the PEAC is a mirror image of that of the RUC. Each major specialty society was advised to construct a practice expense committee to review its procedure codes and provide, through an advisor, recommendations for practice expense "direct inputs" for each code used by members of that specialty. The ACR formed a practice expense committee [10], chaired by the PEAC advisor. In cooperation with multiple radiology subspecialty societies, as well as other specialties that also perform some of these same procedures, recommendations for "direct inputs" have been formulated and presented. The PEAC has worked diligently at this enormous task, and the projected completion date for this refinement process is March 2004.

The "direct inputs" for practice expense for new codes approved by the CPT Editorial Panel since 1997 have been evaluated by the RUC. Unlike the physician work element evaluation by the RUC that results in an actual RVU recommendation to the CMS, the recommendations on practice expense are values or lists for each of the "direct input" categories (e.g., number of technologist minutes, number of sheets of film, amount of computed tomography [CT] scanner time consumed, etc.).

MALPRACTICE RVUs

With the implementation of the MFS, the malpractice cost element of physician reimbursement, designed to cover the cost of professional liability insurance, was estimated to be valued at 4% of overall reimbursement. It was not until 2000, again on the basis of legislation passed by Congress, that the CMS devised a system to attempt to convert the malpractice reimbursement to a resource-based system. Using data on malpractice premiums for each of the major specialties from all 50 states, the CMS calculated specialty-specific malpractice rates. There were, however, no data or code-specific methodology to distribute the malpractice funds according to the actual risk of each procedure (e.g., higher risk for mammography interpretation than for femur radiographs). The CMS elected to distribute the malpractice RVUs proportionate to the physician work RVUs, assuming that more work meant more potential risk. In those procedures with both PC and TC components (remember, most radiology and radiation oncology codes have both components), the distribution between these two components was proportional to the relative PC and TC totals. Particularly with expensive equipment in many of the TC practice expense inputs, this methodology resulted in the majority of malpractice reimbursement going to the facility rather than the physician performing the service.

OPPORTUNITIES TO EVALUATE THE FEE SCHEDULE AND COMMENT

Clearly, the MFS has evolved into a complex, multifaceted system. Moreover, because Medicare is the largest single payer and the majority of other payers use this system, continuous monitoring by all physicians, predominantly through their respective specialty societies, is critical. Fortunately, the CMS is mandated to publicly announce, through the *Federal Register,* the anticipated fee schedule for the following year. This is done first in a "proposed rule," usually distributed during the summer (June or July). A comment period follows, allowing specialty societies, individual physicians, and others to review any proposed changes in the fee schedule and the rationale behind those changes. The CMS staff must then consider these comments and construct a "final rule" that is published in November or December, which establishes the actual fee schedule for the following year. Using the RVU values in that schedule, each of the Medicare carriers and private payers can construct an actual payment schedule for the coming year.

A REAL EXAMPLE

Now that you have been introduced to all the steps along the way, let us follow a new procedure from new clinical concept through to inclusion in the MFS. CT angiography (CTA) will be used as a true recent example. Prior to 2001, there were no "accurate" codes for CTA procedures. Following the development of slip-ring CT scanners and, subsequently, multidetector scanners, clinical research was performed at many institutions, and a significant body of peer-reviewed literature demonstrated the effectiveness of this procedure in multiple body regions. The Coding and Nomenclature Committee of the ACR filed a coding change request form with the AMA's CPT office. That request form described the procedure, recommended an appropriate CPT code descriptor (actually one for each anatomic region), demonstrated why this was indeed clinically distinct from other CT and angiographic procedures, and indicated that current codes in CPT were not sufficient to "accurately describe" (as mandated by CPT instructions) CTA. Additional critical components of those requests were "typical patient" vignettes and a complete description of the procedure, including all work involved. Supporting US peer-reviewed literature was submitted with the request. The following process was set into motion.

Step 1: CPT Code Consideration

Once received by CPT office, the staff reviewed the application for completeness and determined that no prior request had

been addressed for CTA. If there had been a prior request, the CPT Editorial Panel action taken at the time would have been sent to the requestor. That having been determined, the staff then placed the request on the AMA CPT Web site for review by CPT Advisory Committee members. Clearly, this request for CTA would be of interest to only a limited number of advisors, and they commented on the request and its merits or shortcomings. It is required that only a single advisor comment positively on the request for it to become an issue on the next CPT Editorial Panel agenda. This points out the importance of support from any specialty society whose members may eventually perform the procedure.

When the Panel convened, the ACR CPT advisor had the opportunity to present and answer any questions Panel members may have had about the request or supporting literature. Other interested advisors also commented. During the deliberations, the panel focused on several key criteria:

- Was CTA truly new and distinct?
- Could current CPT codes be revised to incorporate CTA?
- Was there support from CPT Advisory Committee members?
- Was there sufficient supporting US peer-reviewed literature?
- Was CTA being performed by a large number of physicians at sites around the country?
- Were all drugs and devices used in CTA approved by the US Food and Drug Administration?

After a thorough discussion, the Panel voted on the proposal and approved a separate CPT category I code for CTA of each of multiple anatomic regions.

The Panel could have selected one of several other options as follows:

- Reject the request, providing a rationale.
- Postpone a decision, with a recommendation that the requestor(s) return with additional information.
- Determine that the procedure had future promise but did not satisfy the criteria for a category I code and then issued a category III code.

This last possible panel action requires further explanation. Category I CPT codes are granted to those procedures meeting all of the criteria listed above. Once approved, those codes will proceed through the RUC valuation process, with a resulting recommendation for work RVUs and practice expense "direct inputs" going to the CMS.

Acceptance as a category III code, a relatively recent addition to CPT system, requires that requestors of the coding change demonstrate that

- an active investigational protocol exists at several US institutions,
- there is some US peer-reviewed literature, and
- the procedure has support of the appropriate specialty CPT advisors.

If after consideration, the Panel believes that the procedure does not yet meet the more rigorous criteria for a category I code, but does have clinical merit and meets the category III criteria, a category III code is issued. Category III codes, once approved, are contained in a separate section of CPT book [5], are released on the AMA CPT Web site twice a year (in January and July), and are not sent to the RUC for valuation. This does not necessarily mean that Medicare or other payers do not cover them, however, and coverage and pricing decisions are up to the local carrier medical director and other individual payers.

Step 2: Collecting Data for CTA Valuation

Once the category I CPT codes were granted for CTA for each of the anatomic regions, these had to be assigned appropriate recommendations both for (1) physician work RVUs and (2) practice expense "direct inputs" (remember: nonphysician clinical labor, medical supplies, and medical equipment). Each specialty society receives from the AMA RUC office a list of the approved category I codes from the last CPT Editorial Panel meeting and must indicate its "level of interest" as follows:

- level 1: the specialty performs the procedure commonly and wishes to survey members and present specific recommendations on the appropriate values;
- level 2: the specialty rarely or occasionally performs the procedure and wishes to reserve the right to comment on proposed values but will not survey its members;
- level 3: the specialty does not perform the procedure and will not survey or comment.

The ACR indicated a level 1 interest in each of the CTA codes, requiring that surveys had to be performed for each code for both physician work and practice expense recommendations.

A complete description of the survey process is beyond the scope of this article, but several key points should be understood, remembering that the objective is to determine the appropriate value for CTA relative to values for existing procedures:

1. The survey must be performed using a clinical vignette describing the "typical patient" undergoing the procedure (not the most difficult one performed).
2. Physician work includes both physician time and intensity factors.
3. At least 30 completed surveys are required by the RUC for the survey to carry maximum credibility. The results are tabulated into a RUC summary for presentation by the specialties involved.
4. Surveys must be completed by physician members of the specialty, but assistance can come from other physicians familiar with the procedure or technologists familiar with the resources used to perform the procedure.
5. If multiple specialties survey for a given procedure, they must attempt to consolidate their data and make one consensus recommendation.

The surveys were performed for each of the CTA codes, the data collated, and results reviewed by the RUC advisor, and the summary was prepared for RUC presentation. This is where the rubber meets the road, as the RUC considers all values in light of the overriding concept of "budget neutrality."

By congressional mandate, the amount of money Medicare can spend is fixed, changing from year to year only by an amount calculated by a legislated formula. If the addition of

new procedures to CPT and the MFS (and their respective values) would increase Medicare expenditures by more than $20 million (a tiny fraction of the entire Medicare budget, estimated to be $47.9 billion in 2003), then the CF must be adjusted downward to ensure "budget neutrality." Thus, the actual reimbursement for all procedures in the fee schedule will be reduced. This must be understood as the RUC reviews these new valuation proposals, as all of the specialty RUC members recognize that their specialties' procedures will be negatively affected if they approve recommendations for inflated values for new procedures.

Step 3: RUC Presentation and Deliberations

The ACR RUC advisor presented the CTA codes to the committee, including a complete description of the procedure, the physician work involved, and a recommended work RVU for each of the codes. The RUC members evaluated those recommendations, comparing the time and intensity survey estimates relative to existing codes. A two-thirds vote of the RUC members is required to approve a recommendation to the CMS. If the proposed value fails, a "facilitation committee" is appointed to work with the specialty advisor to review and probably modify (read "reduce") the recommended values to gain RUC sanction. The facilitated value then is presented to the full RUC for reconsideration and, most commonly, approval.

Following the evaluation of the work value, the recommended practice expense "direct inputs" are discussed. Again, the RUC members scrutinize these, knowing that the acceptance and recommendation of inappropriately high inputs will potentially result in CF reduction and thus reduction in reimbursement for all codes, including those performed by their specialties. After what is often spirited negotiation and input modification (read "reduction"), the direct input list is approved.

This completed the RUC's consideration of the CTA codes, and the RUC staff forwarded the resulting recommendations to the CMS for its consideration with the complete RUC rationale for the recommendations. Remember that the CMS makes the final decision and assignment of RVUs for each code in the MFS.

Step 4: The CMS's Decision, the Final Rule, and Potential Appeals

To date, the CMS has accepted approximately 90% of the RUC's recommendations for physician work RVUs, with a similar rate for practice expense direct inputs. Each year, the CMS publishes the values for the new codes in the final rule. In those cases when they disagree with the RUC's recommendations and place different values in the fee schedule, they explain their rationale in the rule. These values are "interim" for the first year, allowing a specialty society or any individual to comment on a value and potentially appeal the decision. The CMS then may appoint a "refinement panel" to examine the filed comments, any supporting data, and even collect testimony to determine if the interim value should be modified for subsequent years. In the case of CTA, the CMS accepted the RUC's recommendations for the physician work value. Unfortunately, the CMS accepted the inputs on practice expense but assigned a very low practice expense value, which has since been significantly increased on appeal.

THE TIMELINE

The amount of time it takes a new procedure to reach the stage of code request is obviously quite variable depending on how quickly the research demonstrates safety and efficacy. The CPT is published once a year, and any changes become effective January 1. The new MFS that recognizes the new and revised codes in that new edition of CPT is released just prior to that date for implementation on January 1. However, to meet all of the federal notice requirements as well as satisfy the complete CPT and RUC processes, the time from submission of a CPT code request to inclusion in the MFS is a minimum of 15 months. Thus, it is critical that any individual or institution developing a new procedure keep this time in mind and work with the appropriate specialty society coding committee(s) to determine when the new procedure has reached a level of widespread use, literature support, and demonstrated efficacy sufficient to initiate the process.

SUMMARY

Radiologists and radiation oncologists spend a tremendous amount of time developing the skills of their respective professions and continually strive to stay current with developing new medical procedures to properly care for their patients. For the health of their practices, they must be equally knowledgeable about the business of medicine, specifically the mechanisms through which the payment schedules for their important services are developed. Using CTA as an example, and the MFS as the basis for most reimbursement, this article has described

- how requests for new CPT codes describing new medical procedures are developed, evaluated, and approved;
- once approved, how the physician work and practice expense reimbursement levels are assigned;
- how this valuation converts into dollar payments; and
- at each level, how individual radiologists, radiation oncologists, and their specialty societies can influence this process.

Physicians must not assume that all they need to do is "take care of patients" and "the rest will care of itself." To sustain practices that allow physicians to be able to continue to provide optimal patient care, they must understand this critical infrastructure of the medical reimbursement system.

GLOSSARY: IMPORTANT ACRONYMS AND TITLES RELATED TO CODING AND REIMBURSEMENT

AHA. The American Hospital Association, a trade association of hospitals.

AMA. The American Medical Association, which owns the copyright for and publishes CPT book and related educational materials. The CPT Editorial Panel, RUC, and PEAC are all AMA committees.

CF. Conversion factor (in dollars per RVU), adjusted annually and used by the CMS to convert RVUs to dollars.
CMS. The Center for Medicare and Medicaid Services (formerly the HCFA), the federal governmental agency, under the US Department of Health and Human Services, that administers Medicare.
CPT. The Current Procedural Terminology, the coding system used for medical procedures. CPT-4 is the current version. The CPT is published each year by the AMA.
Direct inputs. A CMS category of practice expense elements including nonphysician clinical labor, medical supplies, and medical equipment.
FDA. The US Food and Drug Administration, the governmental agency charged with the evaluation of the safety of new medical drugs and devices.
Five-year review. A congressionally mandated review of all relative values of medical services listed in the MFS. The RUC performs a complete analysis and makes recommendations to the CMS.
Global. The total reimbursement for a procedure; sum of professional and technical components.
GPCI. The geographic practice cost index, the adjustment factors applied to each component of reimbursement (physician work, practice expense, and malpractice) to compensate for different regional costs.
HCFA. The Health Care Financing Administration, the former name of the CMS.
HCPAC. The Health Care Professional Advisory Committee, a committee of representatives of multiple nonphysician health care professional societies.
HHS. The US Department of Health and Human Services.
HIAA. The Health Insurance Association of America, a trade association of nongovernmental health care insurers.
HIPAA. The Health Insurance Portability and Accountability Act.
Indirect inputs. A CMS category of practice expense elements including administrative labor, office supplies, and miscellaneous expenses.
MFS. The Medicare Fee Schedule, the annually published national schedule of all medical procedures, with CMS-assigned RVUs.
PC. Professional component, the component of reimbursement for the provision of professional aspects of a specific medical service only.
PE. Practice expense, a reimbursement element designed to cover all costs incurred in providing a service separate from physician work and malpractice insurance.
RBRVS. The resource-based relative value system, a congressionally mandated system employed by the CMS designed to establish appropriate relativity of reimbursement for all medical services.
RUC. The Relative Value System Update Committee, a committee of the AMA composed of representatives from all major medical specialties, charged with recommending relative values for physician work and direct inputs for PE for new medical procedures and services.
RVU. Relative value unit, a numerical value assigned by the CMS for each element (physician work, practice expense, and malpractice) in the MFS.
TC. Technical component, the component of reimbursement paid to the facility for provision of the technical aspects of a specific medical service only.

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