

CHAPTER

# 4

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**Keeping physicians'  
practice expense payment  
rates up to date**

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# Keeping physicians' practice expense payment rates up to date

## Chapter summary

The practice expense (PE) component of the physician fee schedule pays for the expenses incurred in operating a practice, such as office rents, nurses' salaries, and equipment. PE payments account for close to half of the \$54 billion Medicare spent under the physician fee schedule in 2004.

Ensuring the accuracy of payments under the physician fee schedule is important for several reasons. First, inaccurate payment rates can distort the market for physician services. Services that are overvalued may be overprovided because they are more profitable than other services. At the same time, undervalued services may prompt providers to increase volume in order to maintain their overall level of payment. Conversely, some providers may opt not to furnish services that are undervalued, which can threaten beneficiaries' access to care. Second, if certain types of services become undervalued relative to others, the specialties that perform those services may become less financially attractive, which can affect the supply of physicians. Finally, misvalued services mean

## In this chapter

- Medicare needs current data on each specialty's total practice expenses
- Accuracy and reliability of the direct resource data
- Estimating accurate prices for clinical staff, supplies, and equipment
- Conclusion

that Medicare is paying too much for some services and not enough for others and therefore is not spending taxpayers' and beneficiaries' money wisely.

CMS uses several data sources to derive PE payments, some of which are out of date. We recognize that updating PE data will substantially increase CMS's workload. There is a trade-off between improving the accuracy of PE payments and other demands on the agency's limited administrative resources. Therefore, we suggest that CMS focus its efforts on areas where the data are most out of date and the impact on relative payment amounts (relative weights) is likely to be greatest:

- obtaining current data on the total costs of operating a practice,
- revisiting the assumption that all medical equipment is operated half the time that a practice is open for business,
- updating the prices for the inputs (clinical labor, medical equipment, and supplies) used to provide services, and
- ensuring that the estimates of the types and quantities of inputs are accurate.

We discuss each of these issues in order of priority. Although some time lag between relative weights and actual costs is unavoidable, CMS can still develop a reasonable time frame and approach to periodically update the data sources. The Congress should provide CMS with the financial resources and administrative flexibility to undertake the effort as it will improve the accuracy of Medicare's payments and achieve better value for Medicare spending.

Medicare needs more recent data on the total costs of operating a practice for all specialties because the current source—the Socioeconomic Monitoring System (SMS) survey—is dated, reflecting costs and practice patterns from the mid- to late-1990s. Policymakers will need to consider three key issues when obtaining current practice cost data:

- Either Medicare or specialty groups could sponsor a data collection effort.
- Participation by practitioners could be voluntary or mandatory. A voluntary effort may have a low response rate.
- A publicly or privately sponsored effort could collect data from a nationally representative sample or from all practitioners. Constructing a sample might be more fiscally prudent given the substantial resources necessary to conduct an effort that includes all practitioners.

In addition to the SMS survey, CMS uses a database that contains estimates of the prices, types, and quantities of the clinical labor, medical equipment, and supplies required to provide each service paid under the physician fee schedule. CMS should revisit how it estimates the per service price of medical equipment, in particular the assumption that all equipment is operated half the time that practices are open for business. If this assumption is an underestimate, Medicare's per unit price is too high. We conducted a survey of imaging providers in six markets that indicates that providers in those markets use magnetic resonance imaging (MRI) machines more than 90 percent of the time and computed tomography (CT) machines more than 70 percent of the time. CMS also assumes that practitioners pay an interest rate of 11 percent per year when borrowing money to buy equipment, but more recent data suggest a lower interest rate may be more appropriate. Once CMS begins to value imaging services the same way it values most other physician services, increasing the equipment use assumption and lowering the interest rate estimate would reduce PE payments for CT and MRI services. Because changes to PE relative values are budget neutral, these savings would be redistributed among other physician services.

Further, the agency has not established a time frame to comprehensively review the wage rates for clinical staff or the prices of supplies and equipment. Thus, CMS could set a reasonable schedule for periodically updating this information. The agency could also review the prices of expensive supply and equipment items more frequently than other items.

Finally, to ensure that the types and quantities of inputs in the database are accurate and complete, CMS, with the assistance of the medical community, could check the consistency of values across similar services and obtain current estimates for services that have no information. It is also important for CMS to set a reasonable schedule for reviewing PE relative weights at least every five years as required and more often for services experiencing rapid changes. ■

Practice expense (PE) payments cover the direct and indirect costs incurred in operating a practice. Direct expenses include costs for nonphysician clinical labor, medical equipment, and supplies. Indirect expenses include costs for administrative labor, office expenses (e.g., rent and utilities), and all other expenses. CMS bases PE payments on the relative resources needed to provide a service, known as relative value units (RVUs). These payments account for close to half of the \$54 billion Medicare spent under the physician fee schedule in 2004.

In 2004, the Commission began to raise questions about whether the data sources and the methods that CMS uses to derive PE payments result in accurate prices (MedPAC 2004). More recently, we made a series of recommendations aimed at improving the accuracy of the work component of physician payments, which represents the time, effort, skill, stress, and risk of performing a service (MedPAC 2006).

The current method to derive PE RVUs is referred to as the “top-down” method.<sup>1</sup> Under this method, CMS estimates each specialty’s total practice costs and then allocates costs to a specific service based on the resources required to deliver the service. These resources include nonphysician clinical staff time, medical supplies, and equipment.

In 2005, CMS proposed but did not implement a new method to calculate direct PE RVUs. Instead of starting with total cost pools and then allocating practice costs to individual services, the proposed method sums the direct resources—nonphysician clinical staff time, medical supplies, and equipment—required to furnish each service. Stakeholders refer to this method as “bottom-up.” The agency did not propose changing the methods it uses to derive indirect PE RVUs.

CMS is considering this change because the current method is not easily understandable or transparent and may result in large annual fluctuations in the payment for some services. In addition, the PE payments for some services under the current method are not resource based. Most services that do not involve physician work still use pre-1998 charge-based values. CMS refers to these services as the nonphysician work pool.<sup>2</sup>

Under either a top-down or bottom-up approach to derive PE payments, CMS will need data that:

- provide current and accurate estimates of the types, quantities, and cost of labor, equipment, and supplies

that physicians and nonphysician practitioners require to run efficient practices;

- are representative of the physician and nonphysician specialties paid for under Medicare’s physician fee schedule;
- reflect the factors—such as site of care and practice size—that affect the costs of running an efficient practice; and
- can be periodically updated so that PE payments reflect current practice patterns and costs.

This chapter reviews the data sources that CMS uses to derive PE payments, some of which are out of date. Inaccurate data could lead to distorted payment rates. We recognize that updating PE data will substantially increase CMS’s workload. There is a trade-off between improving the accuracy of PE payments and other demands on the agency’s limited administrative resources. Therefore, we suggest that CMS focus its efforts on areas where the data are most out of date and the impact on RVUs is likely to be greatest. Although some time lag between relative weights and actual costs is unavoidable, CMS can still develop a reasonable time frame and approach to periodically update the data sources. The Congress should provide CMS with the financial resources and administrative flexibility to undertake the effort as it will improve the accuracy of Medicare’s payments and achieve better value for Medicare spending.

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## **Medicare needs current data on each specialty’s total practice expenses**

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The data source CMS uses to estimate total practice costs is dated and may not reflect current practice patterns. Up-to-date and accurate data are needed for all specialties recognized under the physician fee schedule. Policymakers will need to consider many issues when updating total practice cost data, including who will sponsor a new effort and how the information will be collected and verified.

## **CMS derives practice expense payments from outdated data that are not available for all specialties**

CMS uses an American Medical Association (AMA) survey—the Socioeconomic Monitoring System (SMS)—to estimate each specialty’s hourly total practice expenses.

## The Socioeconomic Monitoring System survey is out of date and was not designed to derive practice expense relative values

The Commission and others have raised concerns about the continued use of the Socioeconomic Monitoring System (SMS) data to derive practice expense (PE) payments. Most stakeholders agree that the survey was the best data source available at the time to estimate hourly practice expenses. The SMS survey is now dated, reflecting practice patterns from 1995 through 1999. Thus, the increased use and cost of new technologies—such as health information technology—may not be well measured.

The American Medical Association (AMA) did not design the SMS survey with the goal of developing PE relative value units (RVUs) for the physician fee schedule. As a result, CMS has adjusted the survey data in order to derive PE RVUs.

First, the SMS survey did not include all physician specialties paid for under the physician fee schedule, nor did it include nonphysician practitioners. The survey distinguished among 26 major physician specialties, while Medicare recognizes over 60 physician and nonphysician groups. The AMA drew the survey sample from its Physician Masterfile, a file of physicians practicing in the United States, and surveyed physicians who spent more than 20 hours per week engaged in patient care activities, including office- and hospital-based physicians (but not residents). This file does not include nonphysician practitioners (e.g., physician assistants, physical therapists, and optometrists) who can bill separately under the physician fee schedule.

Consequently, CMS crosswalked certain specialties to the most appropriate SMS specialty category because specialties recognized by Medicare either did not correspond to those in the SMS survey or were not included. For example, CMS used data for “all physicians” for the specialty of podiatry and crosswalked the specialties of oral surgery and maxillofacial surgery to otolaryngology.<sup>3</sup> Crosswalking data from one specialty to another would not be necessary if total cost data were available for all Medicare-recognized specialties.

Second, the survey includes the cost of services—nonphysician practitioners, drugs, and lab services—paid separately by Part B. CMS has removed the costs of some of these services (e.g., drugs) from the data.<sup>4</sup> But CMS has not removed the cost of nonphysician practitioners when they separately bill Medicare. If CMS or the AMA were to design a survey specifically to derive PE payments, this survey could exclude these services.

Third, the SMS survey measures the practice expenses of individual physicians. But CMS’s method of deriving PE payments requires data at the practice level. To translate the SMS values to the practice level, CMS’s method assumes that physician owners share practice expenses equally and that all physician owners in a practice work the same number of hours. A new survey could be designed to collect data at the practice level.

The Government Accountability Office (GAO) and others have raised a number of additional concerns about the SMS survey, including:

- The response rate for the practice expense questions was lower than that for the overall survey, which reduced the sample size for some specialty groups. GAO raised concerns that the reported practice expenses may not be representative of all physicians in some specialties because of the limited number of respondents (GAO 1999).
- The SMS survey asked physicians to report their number of direct patient care hours during a typical week. Some stakeholders are concerned about the accuracy of the reported data because the question relied on the recall of the responding physicians, and it did not clearly define the types of activities that respondent physicians should have included (Lewin Group 2000, CMS 2000). ■



**TABLE  
4-1**

**Hourly practice expenses increased for some specialties between 1995-1999 and 2001-2003**

	Hourly total practice expenses estimated from:			Percentage of total costs that are indirect, estimated from:	
	Original SMS surveys	Supplemental surveys	Percent change	Original SMS surveys	Supplemental surveys
Allergy and immunology	\$129	\$196	52%	56%	62%
Cardiology	82	184	124	66	56
Dermatology	119	179	50	66	70
Gastroenterology	62	114	84	77	70
Oncology	99	189	91	60	59
Radiation oncology	67	138	106	56	53
Radiology	68	137	101	68	61
Urology	96	137	43	55	69

Note: SMS (Socioeconomic Monitoring System). Hourly total practice expenses are reported in 1995 dollars. Column entitled "Original SMS surveys" provides the hourly practice expenses derived from 1995-1999 SMS surveys. Column entitled "Supplemental surveys" represents surveys conducted by the specialties between 2001 and 2003. CMS accepted but has not used the surveys submitted by certain specialties (radiology, cardiology, radiation oncology, dermatology, allergy/immunology, gastroenterology, and cardiology) to derive 2006 practice expense (PE) relative value units (RVUs) because the agency did not implement changes in the methods used to derive direct PE RVUs.

Source: CMS 2006a, CMS 2004, CMS 2001.

The issues surrounding continued use of this survey include:

- It is dated, reflecting practice costs and patterns from 1995 to 1999.
- It was not designed to be used to derive PE RVUs.
- It does not include all specialty groups recognized by Medicare.

The text box provides more information about the limitations of the SMS survey.

Using data obtained from the SMS, CMS calculates hourly practice expenses for the specialties included in the survey. The agency multiplies each specialty's hourly practice expenses by the number of services the specialty provided to Medicare beneficiaries to estimate each specialty's total cost pool (MedPAC 2004). CMS then allocates each specialty's total cost pool to individual services based on the estimated direct resources of each service.

Until recently, CMS permitted specialties to submit more current (supplemental) data on total practice expenses to try to keep the values up to date. The Balanced Budget Refinement Act of 1999 (BBRA) mandated that CMS establish a process to consider supplemental data submissions when updating the physician fee schedule.<sup>5</sup> Through 2006, the agency has accepted supplemental data

from 13 specialties, although it is not yet using all of the information.<sup>6</sup>

Relying on more current practice cost data submitted by some (but not all) specialties raises several issues. Supplemental submissions do not provide a recurring source of information for all specialties. Although the BBRA gave providers the option to submit more current information, they are not mandated to do so. Since the BBRA, few groups (16 out of more than 60 specialties) have submitted newer data. Groups informed the Commission that collecting PE information is costly and time consuming, and that they do so only when it is likely to increase their payment rates.

Using more current information from some but not all specialties could cause significant distortions in relative PE payments across services. When CMS uses supplemental submissions, a redistribution of PE RVUs occurs because it generally implements the changes in a budget neutral manner.<sup>7</sup> Hourly practice expenses increased substantially for those specialties that recently provided data to CMS, ranging from 43 percent for urology to 124 percent for cardiology (Table 4-1). Hourly practice expenses for other specialties remained the same. As a result, once CMS uses specialties' supplemental data, PE payments for services primarily furnished by them could increase while payments for services furnished by other specialties could decrease.

**TABLE  
4-2**

**Alternative approaches to collect practice cost data raise many issues**

Sponsor	Participation of practitioners	Issues
Privately sponsored	Voluntary	<ul style="list-style-type: none"> <li>• Low response rate</li> <li>• Depending on sponsor, effort may not include all Medicare-recognized specialties</li> <li>• CMS could purchase data from groups sponsoring survey; the Congress needs to ensure the Secretary has necessary resources</li> </ul>
Publicly sponsored	Voluntary	<ul style="list-style-type: none"> <li>• Low response rate</li> <li>• The Congress needs to ensure the Secretary has necessary resources</li> </ul>
Publicly sponsored	Nonvoluntary	<ul style="list-style-type: none"> <li>• Resistance by practitioners and specialties</li> <li>• Requires change in regulation</li> <li>• The Congress needs to ensure the Secretary has necessary resources</li> </ul>

**Updating total practice expense data**

Obtaining current total practice cost data raises a number of issues. Who would sponsor the effort and would the effort be voluntary? For illustrative purposes, Table 4-2 compares three alternatives: a voluntary privately sponsored effort, a voluntary publicly sponsored effort, and a nonvoluntary publicly sponsored effort.

Physician and nonphysician groups could jointly sponsor such an effort. CMS recently expressed interest in purchasing data from a privately sponsored survey (CMS 2006c). Of concern is whether all specialties would fund and participate in a private effort, particularly the 13 specialties with more recent practice expense data that CMS accepted.

Public or private sponsors could design a data collection effort to overcome the limitations of the SMS survey, such as the lack of PE information for all specialty groups recognized by Medicare. At issue is whether such an effort would be voluntary or nonvoluntary.

A voluntary effort, whether publicly or privately sponsored, is likely to have a low response rate if history is any guide. Fewer respondents answered the PE questions on the SMS survey than other questions (40 percent vs. 60 percent, respectively) (GAO 1999). In addition, the response rate and the number of usable responses from the 1999 SMS survey were lower than those from prior years (CMS 2001). The highest response rate to the specialty groups' surveys that CMS accepted was 27 percent (Table 4-3). CMS's contractor evaluating these newer submissions concluded that high response rates are not achievable given the sensitive nature of the data being surveyed and the burden placed on the respondents (Lewin Group 2005). Sponsors of a voluntary effort will also need to address whether respondents fairly represent all physicians and nonphysician practitioners.

CMS and specialty groups will need to consider overarching issues in designing and implementing a new data effort. They could gather information from a nationally representative sample or from all practitioners. Using a sample might be more fiscally prudent given the substantial resources necessary to conduct an effort that includes all practitioners. Alternatively, CMS and specialty groups could use a rotating panel of practitioners. The sponsor could pay participants to take part in the panel and allow the sponsor to review the supporting PE data.

The sponsor could stratify the sample by factors that affect practice costs, such as the size of the practice and site of care (office- vs. hospital-based). Average practice costs increase with size for some specialties such as cardiology (Lewin Group 2004). Across specialties, office-based practices incur higher hourly practice costs, on average, than hospital-based practices because the latter have lower direct practice costs.

CMS and specialty groups also need to consider response bias. Respondents might inaccurately report practice cost information knowing that the agency will use it to derive PE RVUs. Consequently, the sponsor will need to ensure that processes are in place to ensure the data's accuracy.

In determining how frequently to update the practice cost information, CMS will need to consider the resources necessary to obtain current data. Practice costs could increase or decrease over time with changes in medical equipment, supplies, and practice patterns (e.g., site of care and technology changes). For example, use of clinical information systems would increase the indirect practice expenses for those specialties adopting such technology.

CMS needs current data on total practice costs even if it decides to derive direct PE RVUs using a new, bottom-up approach. The agency will require total indirect costs for each specialty to derive indirect PE RVUs.

### Accuracy and reliability of the direct resource data

CMS maintains a database with detailed information about the types and quantities of nonphysician clinical labor, medical equipment, and supplies used by practitioners to furnish nearly all of the 7,600 services paid for under the physician fee schedule.<sup>8</sup> Table 4-4 shows an example of the level of detail for one service—cystourethroscopy (Current Procedural Terminology (CPT) code 52000).

In addition to the types and quantities of these inputs, CMS also estimates a price for each clinical staff category, equipment item, and supply. Using these data, the agency estimates the direct costs incurred by practitioners to furnish a service. For example, CMS estimates that the cost to provide a cystourethroscopy in 2006 is \$27.75 for nonphysician clinical staff, \$28.45 for medical supplies, and \$5.44 for medical equipment.

Currently, CMS uses these data to allocate each specialty's total practice expenses to individual services. Under the bottom-up method, CMS could sum the cost of each input to derive direct PE RVUs. At issue is the consistency,

**TABLE 4-4**

### Direct resource data provide very specific estimates of clinical labor, medical equipment, and supplies

Direct resource	Types and quantities of direct resources for a cystourethroscopy
Clinical staff	17 minutes by a nurse or assistant before the procedure begins
	58 minutes by a nurse or assistant during the procedure
Medical equipment	Power table
	Mobile instrument table
	Light source (xenon)
	Fiberscope, flexible, cystoscopy
Medical supplies	1 sterile drape towel (18 inches by 26 inches)
	1 underpad (2 feet by 3 feet)
	1 package, minimum multispecialty visit
	1 package urology cystoscopy
	1 patient education booklet

Note: Inputs are for care provided in the nonfacility setting.

Source: CMS 2006b.

reliability, and accuracy of this information and the process for periodically updating the data to reflect current practice patterns. We first discuss how CMS derives the types and quantities of inputs and ways to improve their accuracy, and then describe ways to improve the prices for each input.

**TABLE 4-3**

### Response rates to supplemental practice expense surveys are low

Specialty	Response rate	Number of usable responses
Allergy and immunology	27%	154
Dermatology	22	154
Urology	21	226
Radiology	21	171
Oncology	18	245
Gastroenterology	14	99
Independent laboratories	14	90
Physical therapy	14	134
Radiation oncology	13	86
Cardiology	13	389

Note: CMS approved the supplemental data submitted by these specialties between 2001 and 2005.

Source: Lewin Group 2003, Lewin Group 2004, Lewin Group 2005.

### The Relative Value Scale Update Committee refined the original resource input estimates

CMS convened 15 expert panels—the Clinical Practice Expert Panels (CPEPs)—in 1995 to estimate the direct inputs associated with providing each service to the typical patient. Using these data, CMS originally proposed a bottom-up approach to implement resource-based PE RVUs. However, CMS implemented the current top-down method in 1999 partly because of concerns about the accuracy of the CPEPs' estimates.

In 1999, the AMA/Specialty Society Relative Value Scale Update Committee (RUC) established a multispecialty committee, the Practice Expense Advisory Committee

## The process for estimating practice expense inputs

The practice expense committee established by the American Medical Association (AMA)/ Specialty Society Relative Value Scale Update Committee (RUC) relies on information from specialty groups on the resources they require to furnish services. The AMA provides the specialty societies with background materials, such as the current resource estimates for a service. Each specialty society then gives the practice expense committee its proposed resource estimate for the service, describing how the estimate was developed and listing necessary tasks (GAO 2004). The composition of the practice expense committee is similar to the RUC with additional nursing representation (AMA 2005).

The RUC submits all official recommendations on practice expense inputs to CMS. The RUC can decide to adopt the practice expense committee's recommendation, modify it before submitting it to CMS, or refer it back to the practice expense committee. The RUC has also recommended changes to the practice expense inputs when conducting its five-year reviews of work relative value units.<sup>10</sup> Official recommendations to CMS require the approval of two-thirds of the RUC. Although CMS makes all final decisions about changes to the resource estimates, it has generally accepted the RUC's recommendations. ■

(PEAC), to refine the direct inputs.<sup>9</sup> CMS has accepted nearly all of the recommendations made by PEAC for refining about 7,600 codes. As a result of the PEAC's efforts, the current direct resource inputs differ markedly from those originally recommended by the CPEPs. GAO and most other stakeholders agree that the PEAC improved resource estimates for individual services (GAO 2004).

The RUC now assigns the Practice Expense Review Committee (PERC) the task of estimating the inputs for new and revised codes and refining estimates for codes not reviewed by the PEAC. Both practice expense committees use a process that is similar to the one the RUC uses to estimate work RVUs for new and revised codes. The text box above provides more information about the review process.

### **Medicare will need to ensure that the direct input estimates are accurate**

Do the direct inputs accurately identify the nonphysician clinical labor, medical equipment, and supplies used by efficient practitioners to provide a service? This issue is important because CMS recently proposed to use only the direct inputs to derive direct PE RVUs (CMS 2005b).

CMS should address at least three issues to ensure that the direct input database is accurate and complete. First, the agency should check whether the resources of similar services are estimated using standard values of clinical staff time, supplies, and equipment, referred to as "standardized packages." In particular, CMS and

the PEAC may not have consistently applied these standardized packages to services they refined early in the process. Second, CMS, with the assistance of the medical community, should obtain estimates for services that are not currently valued (CMS 2005a). Last, CMS should ensure that the database contains no errors and anomalies. From time to time, stakeholders have informed the agency about incorrect values in the database, which CMS has corrected (CMS 2003).<sup>11</sup>

It is also important for CMS to periodically review the direct inputs because practice expenses could increase or decrease over time. They could rise if nonphysician clinical staff replaces some physician work. By contrast, practice expenses could decline if practitioners become more efficient or substitute less costly equipment and supplies for more expensive items.

The agency has stated that there needs to be an ongoing review process for the direct PE inputs to reflect changes in practice or new technology but has not proposed any specific plan for doing so (CMS 2005a). Although the statute requires the Secretary to review and make adjustments to the relative values for all physician fee schedule services at least every five years, CMS has not yet proposed a five-year review of PE RVUs. The agency fully implemented the resource-based PE RVUs in 2002, which suggests that CMS should review them by 2007. However, the refinements of the direct inputs continued through the end of 2005.

If CMS were to establish a process for reviewing PE RVUs that relies on specialties to identify misvalued services (similar to the current method for reviewing work RVUs), we are concerned that it could focus on undervalued codes rather than overvalued ones. Previous five-year reviews of the work RVUs led to substantially more increases in RVUs than decreases (MedPAC 2006). This outcome is not surprising given that the specialty societies and their members have a financial stake in the process.

Manufacturers of medical equipment and supplies sometimes recommend that CMS update values in the direct input database. Manufacturers have incentives to request that CMS substitute more costly equipment and supplies for less costly items.

It may be appropriate to review recently introduced services more frequently because the practice expenses may change over time. As early performers of a service become more familiar with a procedure, they can complete it more quickly. The service's clinical labor time, therefore, should decline. The Commission previously recommended scheduled reviews of the work RVUs for recently introduced services to ensure that Medicare's payment rates reflect changes in physician work (MedPAC 2006).

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## **Estimating accurate prices for clinical staff, supplies, and equipment**

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In addition to maintaining accurate estimates of the type and quantity of direct inputs for each service, CMS also needs to set accurate prices for each of the inputs (clinical staff, equipment, and supplies). Otherwise, the relative weights for practice expense could become distorted over time. There are two primary challenges with keeping the prices up to date: CMS's database contains more than 1,000 inputs, and there is no systematic process for identifying and correcting pricing errors.

To improve the process for maintaining accurate input prices, CMS could:

- set a reasonable schedule for periodically updating clinical staff wages;
- set a reasonable schedule for periodically updating all supply and equipment prices and more frequently reviewing the prices of expensive supplies and equipment (based on a dollar threshold); and

- revisit how it estimates the per service cost of medical equipment, in particular the assumption that all equipment is operated half the time that practices are open for business.

According to a Commission survey of imaging providers in six markets, providers in those markets use magnetic resonance imaging (MRI) machines more than 90 percent of the time and computed tomography (CT) machines more than 70 percent of the time. CMS also assumes that practitioners pay an interest rate of 11 percent per year when borrowing money to buy equipment. Recent data from the Federal Reserve Board suggest that a lower interest rate may be more appropriate. Once CMS begins using direct inputs to value imaging services, increasing the equipment use assumption and lowering the interest rate assumption would reduce payment rates for CT and MRI services. Because changes to practice expense relative values are budget neutral, these savings would be redistributed among other physician services.

## **Updating clinical staff wages**

CMS last updated nonphysician clinical staff wages for the 2002 fee schedule and has not indicated when wages will be reviewed again. Because wages for different types of clinical staff increase at different rates, PE RVUs could become less accurate over time unless wage data are kept up to date. Although reviewing wages is a time-consuming effort, CMS could set a reasonable schedule to do so periodically.

The CPEP and PEAC have given CMS information on the types of clinical staff and amount of staff time used for each service. CMS then estimates a wage rate for each category (e.g., nurses and radiology technicians). CMS multiplies the wage rate for each type of staff by the number of minutes to determine the total cost. For example, cystourethroscopy (CPT code 52000) performed in a physician office is estimated to involve 75 minutes of nurse time. CMS assumes a nurse wage rate of \$0.37 per minute. Thus, the cost of a nurse for this procedure is \$27.75.

CMS updated staff wages for the 2002 physician fee schedule using primarily 1999 data from the Bureau of Labor Statistics (BLS) (CMS 2001).<sup>12</sup> Because the BLS survey does not include all staff types represented in the practice expense database, CMS used supplementary data for 12 of the 38 staff categories.<sup>13</sup> CMS originally estimated wages for the 1998 physician fee schedule.

Because services vary in the types of staff used and wages for different jobs grow at varying rates, the relative values for services could become distorted if wage data are not kept current. For example, pathology services are more likely to use laboratory technicians, while vascular ultrasound services are more likely to use vascular technologists. When CMS updated wage rates for 2002, there was variation in the growth of rates for different clinical labor categories.<sup>14</sup> At the lower end, estimated wages for laboratory technicians increased by 14 percent (cumulatively) and for registered nurses by 21 percent (CMS 2001). By contrast, wages for vascular technologists grew by 54 percent and for medical and technical assistants by 63 percent. If wage data for each labor category are not updated periodically, services that use staff whose wages increase at above-average rates will become undervalued. Conversely, services that use staff whose wages grow at below-average rates will become overvalued.

### **Updating supply and equipment prices**

As complex services (like advanced imaging) that were once generally done in hospitals spread to physician offices, equipment and supplies become a more integral part of physician services. As a result, it is important that CMS value them accurately. Although CMS updated prices for all supplies and equipment in the last few years, the agency has not indicated when it will next perform a comprehensive review. Consequently, CMS should consider setting a reasonable schedule to reprice all equipment and supply items periodically. Moreover, the prices of new, high-cost supplies and equipment could be reviewed more frequently than other items to ensure that price changes are reflected in the data used to set relative values.

CMS updated all the supply prices for the 2004 physician fee schedule and revised equipment prices for the 2005 and 2006 fee schedules.<sup>15</sup> Because there are more than 1,000 individual supply and equipment items, this task was very time consuming. CMS hired a consultant who examined vendor catalogs and websites to determine a “typical” price for an item. When the consultant could not identify prices for a specific item, CMS asked specialty societies to provide information with supporting documentation, such as invoices. This review resulted in significant price changes for some items. For example, the estimated cost of an MRI room declined by half from 2004 to 2006, from \$3.1 million to \$1.6 million (CMS 2006b).<sup>16</sup> By contrast, the estimated price for a CT room increased

from \$1 million in 2004 to \$1.3 million in 2006, reflecting the diffusion of new 16-slice scanners (CMS 2006b).<sup>17</sup> In addition to CMS’s comprehensive review of all items, specialty groups and manufacturers can request that the price of an existing item be changed. These groups have a greater incentive to identify undervalued supplies and equipment than overvalued items.

To ensure that both overvalued and undervalued items are identified and corrected, CMS could periodically review the prices of all supplies and equipment, particularly new and expensive items that can account for a large share of a service’s practice expense. Prices for new items are likely to drop over time as they diffuse into the market and as other companies begin to produce them. Some new disposable supplies have very high prices. For example, CMS estimates that a probe used in radiofrequency ablation of renal tumors (CPT code 50592) costs \$1,995 per service; a new probe is used each time the service is performed (CMS 2006b). In the final rule for the 2006 physician fee schedule, CMS recognized the need to revalue high-cost, new technology supplies and said that it would discuss options for updating supply prices in the proposed rule for the 2007 fee schedule (CMS 2005a).

In contrast to disposable supplies, the cost of equipment is spread over many uses and thus usually represents a small share of a service’s direct expense (GAO 1998). However, expensive equipment can still be quite costly on a per use basis. For example, CMS assumes that MRI equipment has a purchase price of \$1.6 million and costs \$563 per service for MRI of the brain, without contrast followed by contrast (CPT code 70553).

Because CMS has limited administrative resources and there are many supply and equipment items, CMS could set a dollar threshold for items that it will examine more frequently. For example, the RUC recently encouraged CMS to review annually the prices of supplies that cost \$200 or more (Rich 2005). Only 40 supply items are priced above \$200, according to the RUC. CMS could update prices for a small number of expensive supplies and equipment using catalogs, invoices, and other documentation provided by specialties. Regular review of new equipment and supply prices is consistent with our recent recommendation calling for scheduled reviews of the work RVUs for new services (MedPAC 2006).<sup>18</sup>

Although a lower priority, it is also important to periodically reprice other supplies and equipment. Otherwise, services that use many equipment and supply inputs could become misvalued over time. Rather than

**TABLE  
4-5**

**Distribution of direct costs of select MRI and CT services, 2006**

**Share of total direct costs  
for technical component**

<b>Service</b>	<b>CPT code</b>	<b>Equipment</b>	<b>Supplies</b>	<b>Nonphysician clinical staff</b>
MRI, lumbar spine (with contrast)	72148	90.2%	2.7%	7.0%
MRI, brain (without contrast followed by contrast)	70553	88.9	4.5	6.6
CT, pelvis (with contrast)	72193	85.2	6.5	8.3

Note: MRI (magnetic resonance imaging), CT (computed tomography), CPT (Current Procedural Terminology). The technical component includes the cost of the equipment, supplies, and clinical staff, but not the physician's interpretation. Indirect costs are not shown.

Source: Physician practice expense input files from CMS 2006b.

reviewing all items in the same year, CMS could examine prices for a different subset of items each year (perhaps items used by a given specialty). Over time, the agency would eventually review prices for all supplies and equipment.

### Setting the per service price of medical equipment

To set the per service price of a unit of equipment, CMS multiplies the number of minutes it is used for that service by the equipment's cost per minute. The number of minutes the equipment is used is usually equal to the clinical staff time involved in performing the service.<sup>19</sup> The cost per minute for a unit of equipment is based on several factors:

- the equipment's purchase price,
- useful life,
- annual maintenance costs,
- the cost of capital,
- the number of hours per year a physician office treats patients, and
- how frequently the equipment is used.<sup>20</sup>

In the previous section, we discussed how CMS estimates purchase prices. In this section, we address how CMS estimates equipment use and the cost of capital.

### Estimating how frequently equipment is used

When setting the price of medical equipment associated with a specific service, such as a laser used for eye surgery, CMS assumes the equipment is used half the

time the practice is open for business.<sup>21</sup> If a machine is actually used most of the time, its cost is spread across more units of service, resulting in a lower cost per service than if it were only operated half the time. Such equipment is currently overvalued by CMS. The cost of a machine used less than half the time is spread across fewer units of service, resulting in a higher cost per service than if it were operated half the time. Such equipment is currently undervalued.

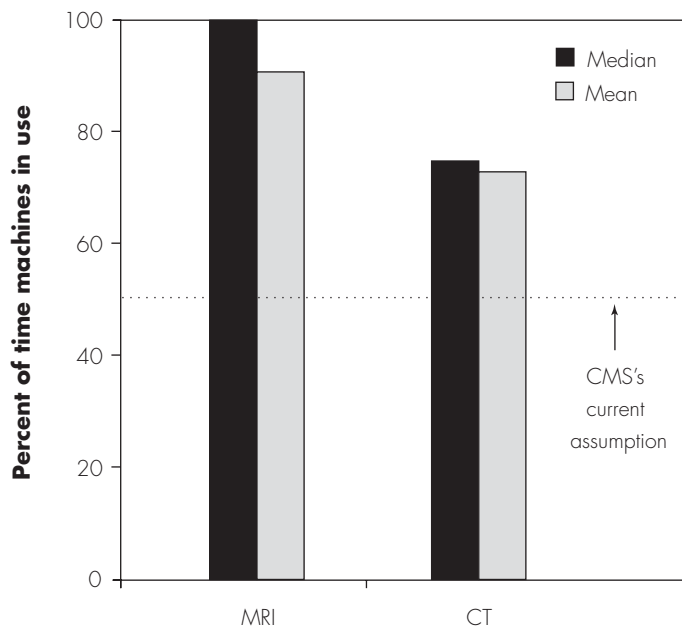
How did CMS arrive at a 50 percent assumption for equipment capacity? When CMS initially developed the resource-based practice expense RVUs, it sought—but was unable to obtain—valid information on how frequently various equipment was used across procedures and payers.<sup>22</sup> In the absence of such data, CMS decided to assume that all equipment is used 50 percent of the time (CMS 1997).

We explore whether the 50 percent utilization assumption is appropriate for imaging machines. It is important that CMS price imaging equipment accurately because the agency has expressed strong interest in using direct cost inputs—such as equipment costs—to value imaging services (CMS 2005b, CMS 2002). Currently, the practice expense payments for most imaging services are primarily based on pre-1998 charges.

Providers have a financial incentive to increase the use of expensive equipment unless it is unprofitable. Thus, it is possible that MRI or CT machines are used more than half the time. Expensive equipment accounts for a large share of the direct cost of advanced imaging studies (Table 4-5). Equipment costs are fixed; in other words, the cost does not increase as volume grows. Variable costs (supplies and

**FIGURE 4-1**

**MRI and CT machines used most of the time providers were open for business**



Note: MRI (magnetic resonance imaging), CT (computed tomography). We calculated the percent of time providers used machines by dividing the number of hours per week each machine was used by the number of hours per week the provider was open for business. The confidence interval around the mean MRI use rate is 85 percent to 97 percent. The confidence interval around the mean CT use rate is 65 percent to 81 percent.

Source: National Opinion Research Center survey of imaging providers in six markets for MedPAC (NORC 2006).

clinical staff time) account for a relatively small portion of direct costs. Most of the indirect (or overhead) costs—such as office rent, utilities, and administrative staff—are relatively fixed. Providers have an incentive to perform enough services to cover the fixed cost of the equipment. Once the fixed cost is covered, there is a greater incentive to perform more services because the marginal profitability of additional services increases significantly; the profit equals the payment rate (which does not change as volume grows) minus the variable costs.

Higher volume per machine could explain at least some of the recent rapid growth in imaging volume.<sup>23</sup> Between 1999 and 2003, per beneficiary use of CT scans (of parts of the body other than the head) grew by 16.3 percent per year on average (MedPAC 2006). During the same period, per beneficiary use of MRI studies (of parts of the body other than the brain) grew by 19.3 percent per year

on average. By comparison, use of all physician services increased by 5.4 percent per year between 1999 and 2003.

The Commission surveyed providers in six markets that performed MRI and CT services on Medicare beneficiaries to examine whether certain imaging equipment is used more than half the time. This survey indicates that providers in those markets used MRI and CT machines significantly more than 50 percent of the time they were open for business. We focused on MRI and CT equipment because of the rapid spending growth for these services and the high cost of these machines, as well as the likelihood that CMS will begin using direct cost inputs to value these services. We recognize that other types of equipment may be used more (or less) frequently than half the time.

**Survey of imaging providers** The Commission surveyed 133 physician practices and independent diagnostic testing facilities that performed MRI or CT studies. The providers were from six markets: Boston; Miami; Greenville, South Carolina; Minneapolis; Phoenix; and Orange County, California. These markets were chosen to represent a range of geographic areas and per capita Medicare spending. Boston and Miami are in the top quartile of spending, Orange County and Greenville are in the middle quartiles, and Phoenix and Minneapolis are in the bottom quartile. The survey asked about the following characteristics:

- number of hours per week the provider is open for business,
- whether the provider has a MRI or CT scanner,
- number of MRI and/or CT scanners,
- age of MRI and CT equipment, and
- hours per week that MRI and CT equipment is used.

The survey's response rate was 72 percent, achieved during a five-week field period (NORC 2006).<sup>24</sup> The text box contains more information about the survey.

We calculated use rates for each provider by dividing the number of hours per week each machine was used by the number of hours per week the provider was open for business. The median use rate across all providers for MRI machines was 100 percent; in other words, the equipment was always in operation when the median provider was open for business (Figure 4-1). The mean use rate was 91 percent (the confidence interval was 85 percent to



## Methodology for the survey of imaging providers

The sampling frame for the Commission's survey of imaging providers was based on providers who performed the technical component of a magnetic resonance imaging (MRI) or computed tomography (CT) service in 2003.<sup>25</sup> To be eligible for selection, a provider must:

- have been paid under the physician fee schedule in 2003 (this includes physicians and independent diagnostic testing facilities (IDTFs));
- have performed an MRI or CT scan on a patient whose claims appear in the 5 percent Medicare carrier file, which is based on a 5 percent random sample of beneficiaries;
- be located in one of six markets (Boston; Miami; Greenville, South Carolina; Minneapolis; Phoenix; and Orange County, California).

The Commission and our contractors—the National Opinion Research Center (NORC) and Georgetown University—created a file of physicians and IDTFs that met these conditions, then aggregated individual physicians into group practices. We grouped physicians into practices to avoid double-counting physicians who share the same equipment (NORC 2006). We did not aggregate IDTFs because they did not share the same site. Grouping physicians into practices involved the following steps:

- All physicians with the same address were considered to be in the same imaging group.

- Each practice was included in the sample if it appeared to be in operation when the survey was conducted (February to March 2006), based on internet searches.
- If an imaging group was no longer in operation but one or more physicians could be linked to a new location, that location was included in the sample. The contractors tracked physicians using internet yellow pages, Google searches, and physician directories.
- Groups were dropped from the sample if they were no longer in operation and their physicians could not be linked to new locations.
- Only one site was included in the survey if a group operated multiple sites.
- Providers who were located at or appeared to be owned by a hospital were excluded.

This process identified 189 imaging groups and IDTFs, which were each mailed a short questionnaire. The providers were able to respond by mail, fax, or telephone. The contractor followed up with all nonresponders by phone. After the initial mailing, the contractors determined that 56 providers were ineligible and 133 were eligible. The ineligible providers were out of business, part of a multisite group already represented in the sample, owned by or located at a hospital, or had no MRI or CT equipment. Eighty of the 133 eligible providers completed the survey.<sup>26</sup> Most surveys were completed in less than five minutes. ■

97 percent). A few providers had use rates above 100 percent (they used their equipment for more hours than the facility was normally open for business). These providers said that they operate beyond normal business hours to accommodate patients with urgent needs. The median use rate across all providers for CT equipment was 75 percent, which was very close to the mean of 73 percent (the confidence interval was 65 percent to 81 percent) (Figure 4-1).

There are some limitations to this survey. It is not nationally representative because the sample is based on six markets. Because the sample size is small, there is probably substantial random variation. Thus, the confidence intervals around the mean use rates are relatively large. However, even the low ends of the confidence intervals are above the current 50 percent equipment use assumption. In addition, the results should be unbiased because every nonhospital imaging provider in the 2003 Medicare claims file (5 percent sample of

**TABLE  
4-6**

**Illustration of how changing equipment use and interest rate assumptions affects equipment price per service**

Percent of time equipment is used	Interest rate	Estimated equipment price per service
50	11%	\$100
75	6	60
90	6	50

Note: CMS currently assumes that all equipment is used 50 percent of the time and the annual interest rate on loans to purchase equipment is 11 percent. The alternative equipment use and interest rate assumptions and the \$100 cost of equipment per service are illustrative. Equipment with different baseline prices would fall by the same proportion if the alternative assumptions are used. This table does not show the impact on overall direct practice expenses or indirect practice expenses.

beneficiaries) had the same chance of being selected for the survey (as long as they met the conditions of eligibility).<sup>27</sup>

Our survey raises questions about whether CMS underestimates how frequently providers use MRI and CT equipment. It appears that MRI and CT machines are operated significantly more than 50 percent of the time, at least in these six markets. Further, the survey demonstrates that a short questionnaire can be used to collect information on how often providers use medical equipment and achieve a high response rate.

Instead of basing the assumption of equipment use on empirical evidence, however, should it be based on an expectation of how frequently efficient providers operate equipment? To encourage more efficient use of expensive equipment, CMS could adopt an assumption that such equipment is used most of the time a provider is open for business. This standard, which would lower payment rates for services that have high equipment costs, is consistent with the Commission’s position that Medicare should pay for costs incurred by efficient providers. However, this policy might impair access to care in rural areas, if equipment is rarely used. Further, it could conflict with Medicare’s goal to set relative values for physician services that reflect typical resource use.

**Estimating the cost of capital to purchase medical equipment**

When estimating the cost of capital to purchase medical equipment, CMS assumes that providers pay an interest

rate of 11 percent per year when borrowing money to buy equipment. More recent data suggest that this interest rate assumption is too high. The current estimate is based on prevailing loan rates for small businesses, which are used as a proxy for physician practices (CMS 1997).<sup>28</sup> CMS has not updated this assumption since it was developed in 1997.

CMS could periodically revise the interest rate estimate as rates change over time. A key issue would be whether to use a rate from a single year or an average of rates from multiple years. Using an average rate from multiple years would reflect the range of rates paid by physicians who bought their equipment at different times. The number of years used to calculate the average rate could be based on the estimated useful life of equipment, such as 5 years for MRI and CT machines (AHA 1998).

Although we were not able to locate data on recent small business loan rates, the Federal Reserve Board conducts an ongoing survey that CMS could use to revise its interest rate assumption. The Board collects quarterly information on commercial and industrial loans made by commercial banks to different types of borrowers. One of the advantages of using this survey is that it is updated regularly, which would make it easier for CMS to keep its assumption up to date.

Based on the Federal Reserve surveys conducted during the last five years (from the second quarter of 2001 to the first quarter of 2006), loans of more than one year had average annual interest rates over the last five years that ranged from 5.3 percent to 6.0 percent, depending on the risk of the loan (Federal Reserve Board 2006).<sup>29</sup> The highest risk category (6.0 percent) includes loans that are considered acceptable risk. Borrowers in this category have fair credit ratings, no recent credit problems, and no access to the capital markets (Federal Reserve Board 2003).<sup>30</sup> If CMS were to adopt a lower interest rate estimate, this would reduce payment rates for services that have high equipment costs.

**Impact of changing equipment assumptions**

Once CMS begins using direct cost inputs to value the technical component of imaging services, increasing the equipment use assumption and lowering the interest rate assumption would reduce PE payment rates for services like CT and MRI studies. Because changes to PE relative values are budget neutral, these savings would be redistributed among other physician services.

Table 4-6 illustrates the impact of changing these assumptions on equipment price per service. If CMS were to use a higher assumption of equipment use and a lower interest rate assumption, estimated equipment price per service would decline significantly. For example, increasing the equipment use rate from 50 percent to 75 percent and lowering the interest rate estimate from 11 percent to 6 percent would reduce equipment price per service by 40 percent (based on CMS's formula for calculating equipment price per service).<sup>31</sup> Most of this reduction would be from changing the equipment use rate. Raising the equipment use rate from 50 to 90 percent and reducing the interest rate to 6 percent would lower equipment price per service by 50 percent. The percentage changes would be the same for all types of equipment and services, even when a procedure's length of time and equipment purchase price varies.

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## Conclusion

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This chapter suggests several ways for CMS to improve the data used to determine physicians' practice expense payments, including:

- options for collecting more recent data on practice costs for all specialties,
- methods to improve the accuracy and completeness of the database that estimates the types and quantities of direct cost inputs for each service, and
- approaches for keeping the prices of direct inputs up to date.

The Commission has also raised questions about whether the assumptions used to estimate the per service cost of certain imaging machines may overstate the cost of operating these machines.

We recognize that updating practice expense data will substantially increase CMS's workload. There is a trade-off between improving the accuracy of PE payments and other demands on the agency's limited administrative resources. Therefore, we suggest that CMS focus its efforts on areas where the data are most out of date and the impact on relative weights is likely to be greatest. Although some time lag between relative weights and actual costs is unavoidable, CMS can still develop a reasonable time frame and approach to update the data sources. The Congress should provide CMS with the financial resources and administrative flexibility to undertake the effort as it will improve the accuracy of Medicare's payments and achieve better value for Medicare spending.

In future work, we plan to further examine alternatives for collecting more recent data on practice costs and the process by which the direct cost inputs are developed and refined. This research will include interviews with members of the AMA's multispecialty practice expense committee and CMS staff. We also intend to study alternative methods for deriving PE relative values. ■

## Endnotes

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- 1 See MedPAC 2004 for a detailed example of how CMS calculates the practice expense payment.
- 2 The major specialties composing the nonphysician work pool are radiology, radiation oncology, and cardiology.
- 3 Because the SMS survey did not capture the costs of uncompensated care, CMS crosswalked emergency medicine's cost pools for administrative labor and other expenses to the practice expense per hour for all physicians (CMS 2001).
- 4 For example, CMS adjusted the hourly cost for medical materials and supplies for oncology and allergy/immunology because Medicare makes separate payment for the drugs furnished by these specialties. The agency also adjusted the direct patient care hours for pathologists to account for the fact that time spent performing autopsies and supervising technicians are Part A services (CMS 1998a).
- 5 In the August 2004 proposed rule, CMS extended until 2005 the period for accepting supplemental data that meet the specific criteria set forth in the November 2000 final rule. After that point, CMS has not accepted supplemental practice expense data. The deadline for submitting supplemental data to be considered in calendar year 2006 was March 1, 2005.
- 6 CMS has accepted but is not yet using the surveys submitted by certain specialties because the agency withdrew its practice expense proposals in the final rule for the 2006 fee schedule in part due to a calculation error in deriving practice expense RVUs. These specialties include: radiology, cardiology, radiation oncology, freestanding radiation oncology centers, dermatology, allergy/immunology, gastroenterology, and cardiology.
- 7 Section 303 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) required that CMS use survey data submitted by specialty groups that have at least 40 percent of their Part B payments attributable to the administration of drugs to adjust PE RVUs for drug administration services. The MMA provided an exception from budget neutrality for any additional expenditures resulting from the use of these data. Four specialty groups met this criterion (oncology, rheumatology, urology, and gynecology) and two have submitted surveys to CMS (oncology and urology).
- 8 CMS only includes equipment that costs at least \$500 in the practice expense database. The cost per use for equipment costing less than \$500 would be negligible, because the cost is spread out over many uses.
- 9 The AMA formed the RUC in 1991 to make recommendations to CMS on physician work relative values for new and revised codes.
- 10 For example, if the RUC removed a physician office visit from a surgical procedure with a 90-day global period, the RUC decreased the nonphysician clinical labor, supplies, and equipment related to that office visit.
- 11 For example, the American Society of Colon and Rectal Surgeons noted that some of the supply inputs had not been changed to match the accepted new recommendations for CPT codes 45900, 45905, 45910, 47382, 49321, 49322, 49422, and 49429 (CMS 2003).
- 12 The original clinical staff wage rates, which were initially used for the 1998 physician fee schedule, were developed by a consultant to CMS using 1994 and 1995 wage survey data from the BLS.
- 13 For example, wages for MRI and CT technologists are based on a 2001 survey conducted by the American Society of Radiologic Technologists.
- 14 CMS's wage rates for 1998 were based on data from 1993 and 1994, and the updated rates are primarily based on data from 1999 (CMS 2001).
- 15 When CMS updated the prices, it also improved the uniformity of the supply and equipment databases. For example, the agency created 14 categories of supplies and standardized how supplies are described. CMS also developed six categories for equipment and combined items that were duplicative (CMS 2003). Most of the original supply and equipment prices were developed by a CMS consultant in 1997 using pricing data from supply catalogs.
- 16 An MRI room includes a 1.5 Tesla scanner, power injector, and monitoring system (CMS 2005b).
- 17 A CT room includes a 16-slice scanner, power injector, and monitoring system (CMS 2005b).
- 18 Because the physician work required for a new service would be expected to decline over time as physicians become more efficient in furnishing it, we recommended that new services likely to experience reductions in value should be reviewed (MedPAC 2006).

- 19 For most types of equipment, CMS assumes that the equipment is in use during the entire time the procedure is performed. However, pathology services can involve many types of testing equipment, so CMS assumes that they are used sequentially rather than simultaneously.
- 20 The useful life of each equipment item is based on a publication by the American Hospital Association that lists the estimated life of equipment used by hospitals (AHA 1998). CMS assumes that all equipment items have annual maintenance costs equal to 5 percent of the equipment's purchase price. This assumption is based on information from the Medical Group Management Association (CMS 1997).
- 21 Standby equipment (e.g., a crash cart) and equipment used for many procedures at the same time (e.g., a refrigerator) are considered to be indirect practice expenses and are not priced separately.
- 22 CMS received information from some physician groups on equipment that is used less than 50 percent of the time (CMS 1998b). However, CMS did not accept these estimates because they were not based on representative surveys of physicians.
- 23 The growth of imaging services could also be related to an increase in the number of machines. There are no national data on changes in the number of MRI and CT machines used by nonhospital providers.
- 24 The response rate is calculated by dividing the number of providers who completed the survey by the number of providers who are believed to have met the survey criteria (the criteria included having an MRI or CT machine, being open for business during the survey, and being independent of a hospital). There were 80 providers who completed the survey and 111 providers who were estimated to have been eligible for the survey.
- 25 IDTFs are entities that furnish diagnostic services and are independent of a hospital or physician office. There were 78 physician practices and 55 IDTFs in the sample. The technical component of an imaging service includes the cost of the equipment, supplies, and nonphysician staff, but not the physician's interpretation.
- 26 The contractors could not confirm the eligibility of the 53 providers who did not complete the survey, but estimated that 31 of them (59 percent) were eligible for the survey based on the eligibility rate of the providers who were successfully contacted.
- 27 To be eligible for the survey, providers had to still be in operation when the survey was conducted in 2006, operate MRI or CT equipment, be paid under Medicare's physician fee schedule, and be independent of a hospital.
- 28 CMS was unable to locate data on loan rates for physician practices (CMS 1997). The length of the loan is based on the equipment's useful life.
- 29 The average prime rate during this period was 5.2 percent.
- 30 Because many physician groups do not have access to capital markets, this category seems to be a reasonable proxy for physician practices.
- 31 The alternative equipment use assumptions in this section (75 percent and 90 percent) are based on the Commission's survey of imaging providers in six markets (NORC 2006). The alternative interest rate estimate (6 percent) is based on the average annual interest rate for loans issued during the previous five years (Federal Reserve Board 2006). These alternative assumptions are meant to be illustrative.

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