

CHAPTER

2

**Improving payment accuracy
and appropriate use of
ancillary services**

R E C O M M E N D A T I O N S

- 2-1** The Secretary should accelerate and expand efforts to package discrete services in the physician fee schedule into larger units for payment.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

- 2-2** The Congress should direct the Secretary to apply a multiple procedure payment reduction to the professional component of diagnostic imaging services provided by the same practitioner in the same session.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

- 2-3** The Congress should direct the Secretary to reduce the physician work component of imaging and other diagnostic tests that are ordered and performed by the same practitioner.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

- 2-4** The Congress should direct the Secretary to establish a prior authorization program for practitioners who order substantially more advanced diagnostic imaging services than their peers.

COMMISSIONER VOTES: YES 15 • NO 1 • NOT VOTING 0 • ABSENT 1

CHAPTER 2

Improving payment accuracy and appropriate use of ancillary services

Chapter summary

Many physicians have expanded their practices in recent years to provide diagnostic imaging, clinical laboratory testing, physical therapy, and radiation therapy. Ancillary services—particularly diagnostic imaging—account for a significant share of Part B revenue for certain specialties. In addition, a survey of physicians conducted in 2008 by the Center for Studying Health System Change found that 29 percent of physicians were in practices that owned or leased equipment for noninvasive testing procedures (e.g., echocardiograms and nuclear medicine studies), 25 percent were in practices that owned or leased clinical lab testing equipment, 23 percent owned or leased X-ray equipment, and 17 percent owned or leased MRI or computed tomography machines. An exception to the Ethics in Patient Referrals Act, also known as the Stark law, allows physicians to provide ancillary services such as diagnostic imaging, radiation therapy, clinical laboratory tests, and physical therapy to patients in their offices. This provision is known as the in-office ancillary services (IOAS) exception.

Physician investment in diagnostic testing equipment has contributed to rapid growth of imaging and other tests under the physician fee schedule and has resulted in a high level of utilization that likely includes unnecessary services. The Commission recognizes that many of these services enable physicians to diagnose and treat illness with greater speed and precision and, in some cases, with greater convenience for patients. On the other hand, physician ownership

In this chapter

- Improving payment accuracy for imaging and other diagnostic tests
- Require high-use practitioners to participate in a prior authorization program for advanced diagnostic imaging
- Conclusion

is associated with higher volume; studies by the Commission and other researchers have found that physicians who furnish imaging services in their offices order more imaging than other physicians (Baker 2010, Hughes et al. 2010, Medicare Payment Advisory Commission 2009a). In addition, several types of imaging are usually not provided on the same day as an office visit, which raises questions about patient convenience. Rapid volume growth contributes to Medicare's growing financial burden on taxpayers and beneficiaries, leads to concerns about the accuracy of physician fee schedule payment rates, and raises questions about inappropriate use.

Physician self-referral of ancillary services leads to higher volume when combined with fee-for-service payment systems, which reward higher volume, and the mispricing of individual services, which makes some services more profitable than others. However, under an alternative payment structure in which providers are rewarded for constraining volume growth while improving the quality of care, the volume-increasing effects of self-referral would be mitigated. Therefore, the preferred long-term approach to address self-referral is to develop new payment systems. Because it will take several years to establish new payment models and delivery systems, we have explored a range of interim approaches to address concerns raised about self-referral. One such option is to narrow the types of services or physician groups covered by the IOAS exception. However, the Commission is concerned that limiting the IOAS exception could have unintended consequences, such as inhibiting the development of organizations that integrate and coordinate care within a physician practice. In addition, it could be difficult to craft a more limited IOAS exception that distinguishes between group practices that improve quality and coordination and those that use additional services of marginal clinical value. Therefore, we do not currently recommend that the exception be changed.

Instead, our recommendations are designed to improve payment accuracy for imaging and other diagnostic tests and ensure the appropriate use of advanced imaging studies. These recommendations recognize that mispricing and inappropriate use are problems that go beyond self-referral. The first three recommendations, which address mispricing, would improve the overall accuracy and equity of the physician fee schedule and reduce the financial incentives for physicians to invest in ancillary services. The savings from these three recommendations should be redistributed to other physician fee schedule services. However, pricing accuracy is not sufficient to ensure the optimal use of imaging. Therefore, the fourth recommendation is to create a prior authorization program for practitioners who order a substantially larger number of advanced imaging services than other physicians who treat similar patients. Although our recommendations do not directly address self-referral of physical therapy, radiation therapy, and anatomic

pathology tests, we will continue to track the growth of these services and may consider policy options to specifically address them in the future.

The Commission remains concerned about the expansion of physician investment in imaging, other diagnostic tests, and therapeutic services (e.g., physical therapy and radiation therapy) and the potential for self-referral to lead to higher volume. Therefore, if the recommendations in this chapter are adopted and—together with delivery system reform—are not successful at stemming the growth of ancillary services and their inappropriate use, we may revisit options to narrow the IOAS exception. CMS has proposed criteria for an accountable care organization (ACO) model that include financial penalties for rapid growth in spending. One option would be to have a broader IOAS exception for physicians in ACOs that are at risk for expenditure growth and a narrower exception for physicians outside such ACOs. ■

Background

Many physicians have expanded their practices in recent years to provide diagnostic imaging, clinical laboratory testing, physical therapy, and radiation therapy (Anscher et al. 2010, Armstrong 2005, Carreyrou and Tamman 2010, Centers for Medicare & Medicaid Services 2007, Medicare Payment Advisory Commission 2006a, Pham et al. 2004, Pham and Ginsburg 2007, Saul 2006, Stein 2011). Ancillary services—particularly diagnostic imaging—account for a significant share of Part B revenue for certain specialties (Medicare Payment Advisory Commission 2010a). For example, imaging accounted for 38 percent of cardiology's Part B revenue in 2008, up from 35 percent in 2003, and it represented 23 percent of vascular surgery's Part B payments in 2008, compared with 20 percent in 2003. According to a survey of physicians conducted in 2008 by the Center for Studying Health System Change, 29 percent of physicians were in practices that owned or leased equipment for noninvasive testing procedures (e.g., echocardiograms and nuclear medicine studies) (Reschovsky et al. 2010). In addition, 25 percent were in practices that owned or leased clinical lab testing equipment, 23 percent owned or leased X-ray equipment, and 17 percent owned or leased MRI or computed tomography (CT) machines.

Physician investment in diagnostic testing equipment has contributed to rapid growth of imaging and other diagnostic tests under the physician fee schedule (see p. 35 for more information on volume growth). The Commission recognizes that many of these services enable physicians to diagnose and treat illness with greater speed and precision and, in some cases, with greater convenience for patients. On the other hand, physician ownership is associated with higher volume; studies by the Commission and other researchers have found that physicians who furnish imaging services in their offices order more imaging than other physicians (Baker 2010, Gazelle et al. 2007, Government Accountability Office 1994, Hillman et al. 1990, Hillman et al. 1992, Hughes et al. 2010, Kouri et al. 2002, Litt et al. 2005, Medicare Payment Advisory Commission 2009a). (See text box, p. 32, for further detail on two of these studies.) In addition, several types of imaging are usually not provided on the same day as an office visit, which raises questions about the link between self-referral and patient convenience (Medicare Payment Advisory Commission 2010a). Rapid volume growth contributes to Medicare's rising financial burden on taxpayers and beneficiaries, leads to concerns about

the accuracy of physician fee schedule payment rates, and raises questions about inappropriate use.

Factors other than physician investment in equipment have also played a role in the growth of ancillary services:

- technological innovation and new clinical applications,
- mispricing of services in Medicare's fee-for-service (FFS) payment systems,
- defensive medicine,
- consumer demand for diagnostic tests,
- lack of research on the impact of imaging on clinical decision making and patient outcomes,
- inconsistent adherence to clinical guidelines, and
- collaborative relationships between hospitals and physicians, such as joint ventures and hospital employment of physicians (Medicare Payment Advisory Commission 2008b).¹

The Ethics in Patient Referrals Act, also known as the Stark law, prohibits physicians from referring Medicare patients for designated health services (DHS)—such as imaging, radiation therapy, home health care, durable medical equipment, clinical laboratory tests, and physical therapy—to entities with which they have a financial relationship, unless the relationship fits within an exception. The in-office ancillary services (IOAS) exception allows physicians to provide most DHS to patients in their offices (see text box, p. 33).

Physician self-referral of ancillary services leads to higher volume when combined with FFS payment systems, which reward higher volume, and the mispricing of individual services, which makes some services more profitable than others. However, under an alternative payment structure in which providers are rewarded for constraining volume growth while improving the quality of care, the volume-increasing effects of self-referral would be mitigated. Therefore, the preferred long-term approach to address self-referral is to develop new payment systems.

Because it will take several years to establish new payment models and delivery systems, we have explored a range of interim approaches to address concerns raised by self-referral (Medicare Payment Advisory Commission 2010a). One such option is to narrow the types of services or physician groups covered by the IOAS exception. However, the Commission is concerned that limiting the

Recent studies show that physician self-referral is associated with additional use of imaging services

Two recent studies show that physician self-referral is associated with additional use of imaging services. In one study, the Commission used 2005 Medicare claims for beneficiaries in six markets to analyze whether physician self-referral affected the use of imaging within an episode of care, adjusting for differences in patients' clinical conditions and the type of imaging (Medicare Payment Advisory Commission 2009a). We examined 22 combinations of different types, or modalities, of imaging (e.g., computed tomography and MRI) and conditions (e.g., migraine headache, ischemic heart disease, and joint degeneration of the back). Our methodology allowed us to compare the observed cost of a given episode with the average cost of similar types of episodes (adjusting for severity of illness, physician specialty, and market area). There were two key results:

- Compared with episodes with no self-referring physician, a higher proportion of episodes with a self-referring physician received at least one imaging service. The magnitude of the variation ranged from 2 to 23 percentage points depending on the condition and modality; in all but one comparison, the differences were statistically significant. The magnitude of the variation was 10 percentage points or more for 14 of the 22 condition-modality pairs.
- Episodes with a self-referring physician had a higher mean ratio of observed-to-expected spending for an imaging modality than episodes with no self-referring physician. The differences between the ratios ranged from 5 percent to 104 percent, depending on the condition and modality. (For all

the comparisons, the differences were statistically significant.) For example, the mean spending ratio for nuclear medicine for ischemic heart disease was twice as high for episodes with a self-referring physician as for episodes with no self-referring physician. Across all condition-modality pairs, the mean difference between ratios was 68 percent (weighted by the number of episodes in each pair).

In addition, we found that greater use of imaging is associated with greater overall resource use for the types of episodes we examined, adjusting for patient severity and other factors. This finding supports other research suggesting that results from imaging may initiate a cascade of diagnostic tests and interventions, thereby increasing total episode costs (Deyo 2002).

In another recent study, Laurence Baker found that orthopedists and neurologists who acquired MRI machines during the early 2000s ordered substantially more MRI scans after they began billing for MRI services (Baker 2010). For example, after orthopedists began billing for MRI studies, the number of scans ordered within 30 days of the patient's first visit increased by 38 percent. Much of the increased MRI use did not take place on the day of the patient's initial visit, which undermines the argument that the convenience of having an MRI machine in the physician's office was the main driver of higher volume. In addition to higher spending on MRI services, acquisition of an MRI machine was also associated with increased spending on other services such as procedures. ■

IOAS exception could have unintended consequences, such as inhibiting the development of organizations that integrate and coordinate care within a physician practice. In addition, it could be difficult to craft a more limited IOAS exception that distinguishes between group practices that improve quality and coordination and those that create incentives to use additional services of marginal clinical value. Therefore, we do not currently recommend that the exception be changed. In the future, however, the scope of the exception could be narrowed for physicians who are not part of an accountable care organization (ACO) that

has financial incentives to improve quality and reduce the volume of unnecessary care.

Instead, our recommendations are designed to improve payment accuracy for imaging and other diagnostic tests and ensure the appropriate use of advanced imaging studies. These recommendations recognize that mispricing and inappropriate use are problems that go beyond self-referral. The first three recommendations, which address mispricing, would improve the overall accuracy and equity of the physician fee schedule and reduce the financial incentives

The in-office ancillary services exception

The in-office ancillary services (IOAS) exception to the Ethics in Patient Referrals Act, also known as the Stark law, applies to diagnostic imaging, radiation therapy, clinical laboratory tests, and physical therapy.² The exception has three key criteria known as the supervision, building (or location), and billing requirements: (1) The services must be personally furnished by the referring physician, a physician who is a member of the group practice, or an individual who is supervised by the referring physician or another physician in the group (the supervision requirement). (2) The services must be furnished in the same building where the referring physician provides non-designated health services (non-DHS); alternatively, groups may furnish services in a centralized facility used by the group for ancillary services (the building requirement). (3) The services must be billed by the physician performing or supervising the service, the group practice, an entity that is wholly owned by the performing or supervising physician or by that physician's group practice, or a third-party billing company acting as an agent of the physician or group (the billing requirement) (42 CFR § 411.355 (b)).

The definition of a group practice is important because it allows physicians greater flexibility to provide ancillary services in their offices. Physicians who are in a group may order services that are furnished or supervised by other physicians in the group, and groups may also provide services in a centralized facility. The Stark law defines a group practice as one in which substantially all of the services provided by members of the group are furnished through the group and billed by the group. The Stark regulations interpreted "substantially all" as requiring that at least 75 percent of the patient care services provided by members of the group be provided and billed by the group (42 CFR § 411.352 (d)). Members include owners and employees of the group. The 75 percent rule applies to all the services collectively provided by physicians who are group members; individual members do not have to meet the 75 percent threshold. This rule can make it difficult for groups to qualify as a group practice under the Stark law if they have many part-time physician members who also work for other groups. However,

the Stark regulations created a new category called "physicians in the group" that applies to physicians who independently contract with the group. These physicians are not counted toward the 75 percent rule. Thus, groups can contract with physicians on a part-time basis to provide or supervise ancillary services without affecting their ability to comply with the 75 percent test.

In addition to group practices that provide imaging in their offices, arrangements exist in which a practice shares a facility with another practice or leases a block of time from a separate imaging provider. Under a block-of-time lease arrangement, a physician practice sends its patients to another provider for imaging and bills Medicare for the services, profiting from the difference between Medicare's payment rate and the fee paid by the practice to the provider that performs the services. According to data from a California health plan, more than 60 percent of physicians who billed the plan for MRI or computed tomography (CT) scans engaged in a block lease or similar arrangement (Mitchell 2007). Shared facility or block lease arrangements may comply with the IOAS exception as long as the supervision, building, and billing requirements are met (e.g., the imaging study is performed in the same building where the referring physician furnishes non-DHS services).³ Under a CMS rule, however, imaging providers that are enrolled in Medicare as fixed-site independent diagnostic testing facilities (IDTFs) may not lease their operations to or share testing equipment with other organizations (42 CFR § 410.33). This rule does not apply to mobile IDTFs. Although this rule prohibits leasing arrangements between group practices and fixed-site IDTFs, groups may still engage in block-of-time leases with each other.

The Patient Protection and Affordable Care Act of 2010 requires physicians who provide MRI, CT, or positron emission tomography services under the IOAS exception to inform their patients that they may obtain these services from another provider and to provide patients with a list of alternative providers in their area (Centers for Medicare & Medicaid Services 2010b). ■

Recent changes to physician fee schedule payment rates for imaging services

Between 2005 and 2010, the Congress and CMS made several changes to payment rates for diagnostic imaging services. Nevertheless, the Commission believes there are still opportunities to improve payment accuracy.

The Deficit Reduction Act of 2005 required that physician fee schedule payment rates for the technical component of imaging services could not exceed hospital outpatient rates for the same services. This provision, which became effective in 2007, reduced the fee schedule amounts for many imaging services.

In 2005, CMS adopted a policy to reduce the payment rate for the technical component of second and subsequent imaging studies by 25 percent when multiple services are performed on contiguous body parts during the same session (Centers for Medicare & Medicaid Services 2005). For example, when a patient received an MRI of the pelvis and an MRI of the abdomen in the same session, the technical component payment for the lower paid study—MRI of the pelvis—was reduced by 25 percent. This policy—which became effective in 2006—is based on a Commission recommendation and is designed to account for efficiencies in clinical labor, supplies, equipment, and indirect practice costs when multiple studies are performed in the same session (Medicare Payment Advisory Commission 2005b). The Patient Protection and Affordable Care Act of 2010 (PPACA) expanded the payment reduction for multiple technical component services from 25 percent to 50 percent, effective July 1, 2010.

In 2007, CMS made major changes to the method for calculating practice expense relative value units (RVUs) under the physician fee schedule. These changes—which were phased in over four years—shifted practice expense RVUs from imaging services and major procedures to evaluation and management services and nonmajor procedures (Medicare Payment Advisory Commission 2007b).

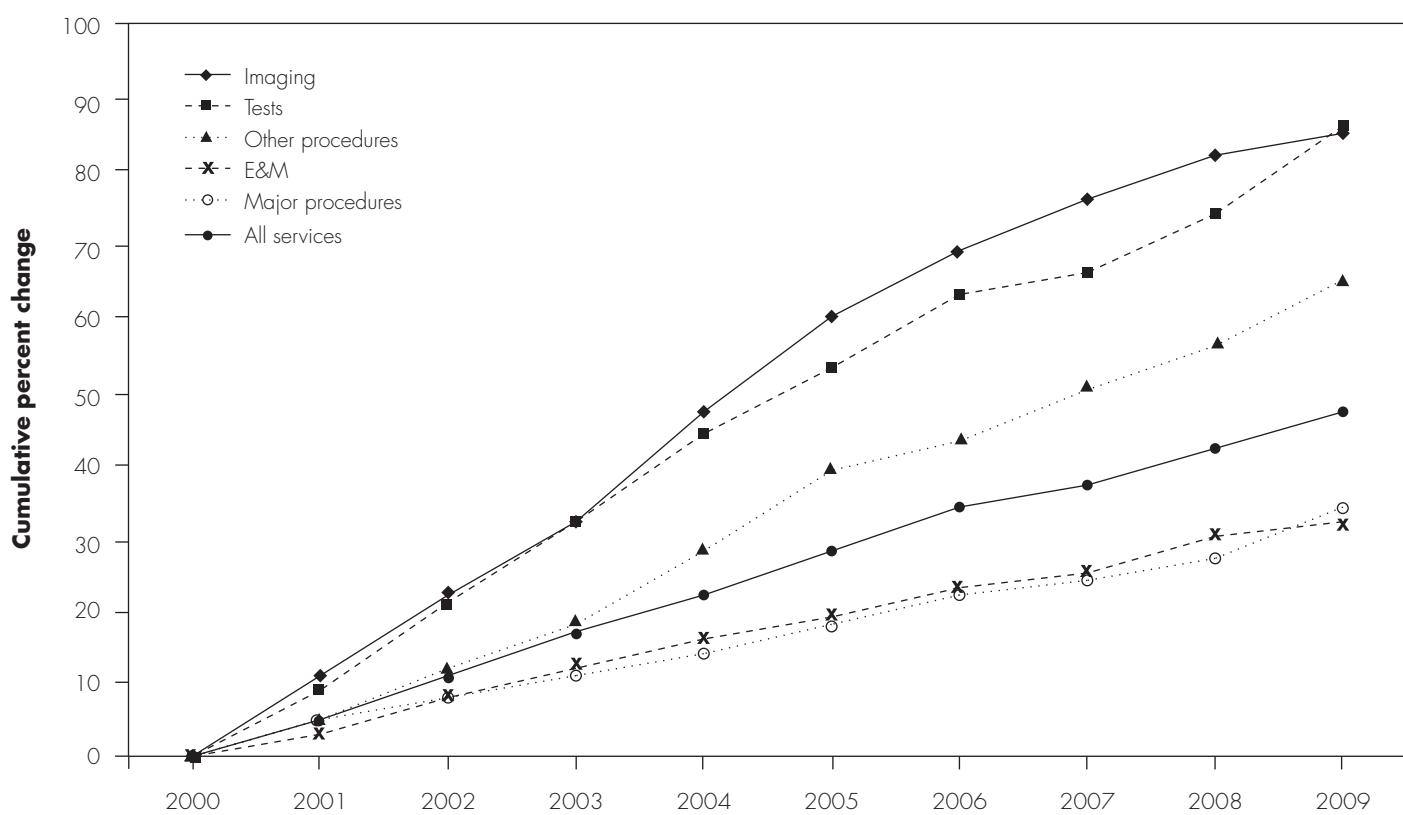
for physicians to invest in ancillary services. Although the Congress and CMS have made several changes to improve payment accuracy, there remain inaccuracies that should be addressed. (See text box for a description of recent changes to payments for imaging services.)

For 2010, CMS began using more current practice expense data from a new, privately sponsored, voluntary survey of physician and nonphysician specialties (Centers for Medicare & Medicaid Services 2009). This change is redistributing practice expense RVUs among specialties and services over a four-year period. Several of the provider groups experiencing a decline in RVUs (e.g., radiology, cardiology, and independent diagnostic testing facilities) perform many imaging services.

The Commission recommended that Medicare increase the equipment use rate assumption for expensive diagnostic imaging equipment from 25 hours to 45 hours per week, or 90 percent of the time that providers are assumed to be open for business (Medicare Payment Advisory Commission 2009b). CMS implemented this policy in 2010 with a four-year phase-in. It reduced practice expense payments for MRI, computed tomography, and positron emission tomography services. PPACA superseded this policy by setting the equipment use assumption for these types of imaging equipment at 75 percent beginning in 2011.

Some imaging services that are frequently performed together by the same practitioner on the same date have been combined into comprehensive codes under a process developed by the American Medical Association/Specialty Society Relative Value Scale Update Committee and the Current Procedural Terminology Editorial Panel. Comprehensive codes have been created for computed tomography of the abdomen and pelvis, myocardial perfusion imaging (a type of nuclear medicine study), and echocardiography (Centers for Medicare & Medicaid Services 2009, Centers for Medicare & Medicaid Services 2010b). To account for efficiencies when services are furnished at the same time, the RVUs of the new comprehensive codes are generally lower than the sum of the RVUs for the component codes they replaced. ■

However, pricing accuracy is not sufficient to ensure optimal use of imaging. Therefore, the fourth recommendation is to create a prior authorization program for practitioners (whether or not they are self-referring) who order substantially more advanced imaging services

**FIGURE
2-1****Growth in the volume of physician services per FFS beneficiary, 2000–2009**

Note: FFS (fee-for-service), E&M (evaluation and management). Volume is measured as units of service multiplied by each service's relative weight (relative value unit) from the physician fee schedule.

Source: MedPAC analysis of carrier claims data for 100 percent of Medicare beneficiaries.

than other physicians who treat similar patients. Although our recommendations do not directly address self-referral of physical therapy, radiation therapy, and anatomic pathology tests, we will continue to track the growth of these services and may consider policy options to specifically address them in the future.

Volume of ancillary services under physician fee schedule has grown rapidly

Many physician fee schedule services covered under the IOAS exception experienced rapid volume growth from 2004 to 2009.⁴ The volume of diagnostic imaging services increased from 2004 to 2008 by 6.3 percent per FFS beneficiary per year and from 2008 to 2009 by 2.0 percent (Medicare Payment Advisory Commission 2011). The volume of outpatient therapy services (which include physical therapy, occupational therapy, and speech-language pathology services) rose from 2004 to 2008 by

an average of 7.5 percent per FFS beneficiary per year; from 2008 to 2009, growth was even higher (11.2 percent). Radiation therapy services increased from 2004 to 2008 by 7.1 percent per FFS beneficiary per year and from 2008 to 2009 by 1.9 percent. By comparison, all physician services grew from 2004 to 2008 by 4.1 percent per FFS beneficiary per year and from 2008 to 2009 by 3.3 percent.

Although the volume growth of imaging services has decelerated in recent years, the growth rate has remained positive and was preceded by many years of rapid increases. As shown in Figure 2-1, cumulative volume growth of imaging per FFS beneficiary from 2000 to 2009 outpaced all other categories of physician services except tests (the category of tests includes electrocardiograms, cardiovascular stress tests, and nerve conduction tests). Imaging rose by 85 percent during this period compared with 47 percent growth in all physician services. As described below, there are reasons to be concerned that

some of these additional imaging studies may not be appropriate. This rapid growth has also raised concerns about the long-term impact of radiation exposure. Certain types of imaging (e.g., CT and nuclear medicine) expose beneficiaries to ionizing radiation, which is associated with an increased risk of developing cancer (Brenner and Hall 2007, Center for Devices and Radiological Health 2010, Smith-Bindman et al. 2009).

Imaging services are migrating from inpatient to ambulatory settings

Some of the volume growth of imaging services in the physician fee schedule is related to the shift of imaging from inpatient hospital settings to ambulatory settings (physicians' offices, independent diagnostic testing facilities (IDTFs), and hospital outpatient departments) from 2004 to 2009. On the basis of changes in the site of care for the professional component of imaging services (the professional component covers the physician's work involved in interpreting the study and is paid under the physician fee schedule regardless of where an imaging service is performed), we found that inpatient settings accounted for 32 percent of all imaging studies in 2004, dropping to 28 percent in 2009. By comparison, physicians' offices and IDTFs accounted for 27 percent of imaging studies in 2004, increasing to 28 percent in 2009. Hospital outpatient departments' share of imaging grew from 38 percent in 2004 to 40 percent in 2009 (outpatient departments include emergency rooms). When imaging studies shift from inpatient settings to physicians' offices and IDTFs, the technical component portion of the service (which covers the cost of the nonphysician clinical staff who perform the test, medical equipment, medical supplies, and overhead expenses) is paid under the physician fee schedule, which generates additional fee schedule spending. Some of the growth of imaging in outpatient departments could be related to the trend of hospitals purchasing physician practices and converting those practices to outpatient hospital settings. It is difficult to test this hypothesis because Medicare claims data do not identify whether physicians are employed by hospitals.

Questions about the clinical appropriateness of imaging services

There is evidence that some diagnostic imaging services ordered by physicians are not clinically appropriate and that inappropriate use occurs in both physicians' offices and hospitals. The American College of Cardiology Foundation (ACCF) and United Healthcare assessed the appropriateness of nuclear cardiology procedures performed

by six nonhospital practices using criteria developed by the ACCF and the American Society of Nuclear Cardiology (Hendel et al. 2010). The researchers found that 14 percent of the studies performed at these sites were inappropriate and 15 percent were of uncertain appropriateness. Using the same criteria, an analysis of nuclear cardiology procedures provided at the University of Chicago found that 13 percent were inappropriate and 7 percent were of uncertain appropriateness (Mehta et al. 2008). Similarly, another study examined the appropriateness of cardiac imaging stress tests conducted at the Mayo Clinic and found that between 14 percent and 18 percent of the tests were inappropriate (Gibbons et al. 2008).⁵

A significant proportion of noncardiac imaging studies may also be inappropriate. For example, one study found that nearly 30 percent of Medicare beneficiaries with uncomplicated low back pain received an imaging service within 28 days, even though imaging is rarely indicated for this condition in the absence of specific complications or comorbidities (Pham et al. 2009). According to data on CMS's Hospital Compare website, one-third of Medicare beneficiaries with low back pain who were given an MRI of the lumbar spine in hospital outpatient departments in 2008 did not receive more conservative therapy first, as is recommended by the American College of Radiology and the Agency for Healthcare Research and Quality (Centers for Medicare & Medicaid Services 2011c). Overuse of MRI scans for low back pain carries the risk of false-positive findings, increased costs for the Medicare program and beneficiaries, and the potential to induce a cascade of additional procedures, such as surgery (Baras and Baker 2009, Centers for Medicare & Medicaid Services 2011c). A recent analysis of orders from primary care physicians for outpatient, nonemergency CT and MRI scans at a large urban hospital found that 26 percent did not meet appropriateness criteria developed by a radiology benefit management program (Lehnert and Bree 2010). Inappropriate orders included CT for chronic headache, spine MRI for acute back pain, and knee and shoulder MRI for osteoarthritis.

Improving payment accuracy for imaging and other diagnostic tests

The Commission makes three recommendations to improve the accuracy of physician fee schedule payments for imaging and other diagnostic tests (e.g., electrocardiograms and cardiovascular stress tests).

- The first recommendation is that CMS should work with the American Medical Association/Specialty Society Relative Value Scale Update Committee (RUC) to accelerate and expand ongoing efforts to combine into a single payment rate multiple discrete services often furnished together during the same encounter by the same provider. The payment rates for these comprehensive codes should reflect efficiencies in physician work and practice expense that occur when two or more services are provided together.
- Because the process of creating comprehensive codes for services commonly furnished together takes several years, CMS should also implement policies to improve payment accuracy sooner. Under the second recommendation, Medicare would account for efficiencies that occur during an imaging study's professional component—the physician's work involved in interpreting the study's results and writing a report—when multiple imaging services are provided during the same session to the same patient by a single practitioner. This policy would reduce the payment rate for the second and subsequent services performed in the same session. It would be similar to an existing Medicare policy that reduces the payment rate for an imaging study's technical component—the cost of the nonphysician clinical staff who perform the test, medical equipment, medical supplies, and overhead expenses—when multiple imaging studies are performed in the same session. The goal of this recommendation is to pay more accurately for imaging services in all settings (e.g., physicians' offices, hospital outpatient departments, and IDTFs) whether or not self-referral is involved.
- The third recommendation would account for efficiencies in physician work that occur when the same practitioner orders and performs imaging and other diagnostic tests. This recommendation would apply in all settings, including physicians' offices and hospitals.

The Commission has previously expressed concerns about mispricing of services in the physician fee schedule and the inequity of a payment system that allows some physicians to generate volume and revenue more easily than others (Medicare Payment Advisory Commission 2010b). We have made several other recommendations to address mispricing of physician fee schedule services. For example, the Commission has recommended ways to improve the process through which CMS reviews the fee schedule's

relative values for accuracy (Medicare Payment Advisory Commission 2006b). Although CMS—with advice from the RUC—has improved the review process since our recommendations, certain areas remain to be addressed.

Combining discrete services into larger units of payment

CMS and the RUC should accelerate and expand efforts to combine multiple discrete services often furnished together during the same encounter into a single payment rate. The payment rate for a comprehensive bundle of services should account for duplications in physician work and practice expense that occur when multiple services are provided at the same time. This approach would improve payment accuracy and help reduce financial incentives to provide additional imaging studies, other diagnostic tests, and procedures. The Commission has expressed concern that the relatively small units of payment for many physician fee schedule services give physicians a financial incentive to increase volume (Medicare Payment Advisory Commission 2005a). The Commission has also noted that time savings are likely when services are furnished together instead of independently, and it may be appropriate to change payments to reflect these efficiencies (Medicare Payment Advisory Commission 2006b). For example, when a physician performs the professional component of two MRI studies during the same encounter, certain activities (such as reviewing the patient's records and discussing the findings with the referring physician) are likely to occur only once. However, the current valuation of physician work for each service assumes that these services are provided independently and that each activity is performed twice.

Since 2007, a RUC workgroup has been reviewing services that are frequently performed together by the same practitioner on the same date to determine whether such services should be bundled to account for efficiencies in physician work (Centers for Medicare & Medicaid Services 2010b, Government Accountability Office 2009). Under this process, the workgroup reviews pairs of services performed together more than 75 percent of the time (initially the threshold was 95 percent of the time) (American Medical Association 2010).⁶ The RUC refers some of these codes to the Current Procedural Terminology (CPT) Editorial Panel for the development of bundled, or comprehensive, codes. Once the comprehensive codes have been created, the RUC works with the relevant specialty societies to develop work RVUs and practice expense inputs for the new codes to recommend to CMS. These values should account

for efficiencies that occur when multiple services are performed together. CMS then reviews and approves the new values through its rulemaking process. Based on the review of services furnished together 95 percent of the time, the RUC referred 53 codes to CMS (American Medical Association 2011). The RUC has also identified 89 codes that are performed together more than 75 percent of the time for further examination.⁷ According to the AMA, the RUC has focused on reviewing the codes with the highest share of expenditures.

This process of creating comprehensive codes has led to the packaging of imaging guidance codes with their associated procedures as well as the development of bundled codes for several imaging and procedural services, such as CT of the abdomen and pelvis, myocardial perfusion imaging (a type of nuclear medicine study), diagnostic cardiac catheterization, endovascular revascularization, and echocardiography. Between 2009 and 2011, CMS adopted RVUs for the new comprehensive codes that reflect efficiencies associated with performing multiple services during the same encounter (Centers for Medicare & Medicaid Services 2009, Centers for Medicare & Medicaid Services 2010b). For 2011, for example, the RUC recommended—and CMS adopted—values for new comprehensive codes that include two component codes: CT of the abdomen and CT of the pelvis (Centers for Medicare & Medicaid Services 2010b).⁸ The RUC recommended using 100 percent of the work RVU for the component code with the highest RVU and reducing the work RVU for the second code by 50 percent to account for efficiencies. Consequently, the total work RVUs for the new comprehensive codes are about 25 percent less than the sum of the work RVUs for the component codes. The practice expense RVUs of the comprehensive codes are also lower than the sum of the practice expense RVUs of the component codes. For 2010, CMS adopted new values for comprehensive codes for myocardial perfusion imaging; the work RVUs for the comprehensive codes are between 29 percent and 40 percent lower than the sum of the work RVUs for the component codes.

Although this process is an important step forward in accounting for efficiencies in physician work and practice expense, we are concerned that it takes several years to develop and value comprehensive codes and that a relatively small number of comprehensive codes have been adopted to date. CMS recognizes that additional imaging and other diagnostic tests that are frequently furnished together likely involve efficiencies and plans to review

them (Centers for Medicare & Medicaid Services 2010b). CMS should also encourage the RUC and CPT Editorial Panel to expand their efforts to create comprehensive codes. For example, these entities should consider:

- reviewing and bundling codes that are provided together less than 75 percent of time but more than 50 percent of the time;
- creating bundled codes that include different types of services that are frequently performed at the same time, such as nuclear medicine studies and cardiovascular stress tests or evaluation and management services and certain diagnostic tests; and
- combining radiopharmaceuticals with their associated imaging services (e.g., packaging myocardial perfusion studies with their related radiopharmaceuticals), as is done in the outpatient prospective payment system.

In addition, for imaging services that have not yet been bundled into comprehensive codes, CMS should reduce payment rates for the professional component of these services when multiple studies are provided during the same session. This policy—which would account for efficiencies in physician work—is described in the following section.

In future work, we plan to explore opportunities for combining into a single payment those services furnished during multiple encounters by a single provider—such as diagnostic tests, office visits, and procedures. There are precedents for this type of approach in the physician fee schedule. Under the global surgical policy, for example, physicians receive a global payment rate for many surgical procedures that includes some preoperative care, the surgery, and postoperative visits in the hospital and office (for 10 days or 90 days after the surgery, depending on the type of surgery). In addition, Medicare pays physicians a monthly capitation payment for all routine outpatient dialysis care furnished to dialysis patients. For patients treated in dialysis centers, the monthly capitation payment varies according to the number of face-to-face visits the physician has with the patient during the month and the patient's age. The monthly payment increases with the number of visits and decreases with increasing age.⁹

RECOMMENDATION 2-1

The Secretary should accelerate and expand efforts to package discrete services in the physician fee schedule into larger units for payment.

RATIONALE 2-1

To account for efficiencies in physician work and practice expense that occur when multiple services are provided at the same time, CMS and the RUC should accelerate and expand efforts to combine multiple services often furnished together during the same encounter by the same provider into a single payment rate. This approach would improve payment accuracy and help reduce financial incentives to provide additional imaging studies, other diagnostic tests, and procedures. The RUC and CPT Editorial Panel have created several comprehensive codes that encompass services frequently provided together. The payment rates for these new codes reflect efficiencies associated with performing multiple services during the same encounter. CMS should work with the RUC and CPT Editorial Panel to build on these efforts.

IMPLICATIONS 2-1

Spending

- We estimate that this recommendation would not affect federal program spending because it would be implemented in a budget-neutral manner; savings from packaging discrete services into larger units of payment would be redistributed to other physician fee schedule services.

Beneficiary and provider

- We do not expect this recommendation to affect beneficiaries' access to care or providers' willingness or ability to furnish services.

Reducing payment rates for the professional component of multiple imaging studies

Because the process of creating comprehensive codes for services commonly furnished together takes several years and a relatively small number of comprehensive codes have been adopted to date, CMS should also develop policies to improve payment accuracy that can be implemented more rapidly. The Government Accountability Office (GAO) has noted that relying solely on the RUC to account for efficiencies that occur when services are provided together would limit CMS's ability to quickly identify opportunities for addressing mispricing (Government Accountability Office 2009). Therefore, Medicare should account for efficiencies in physician work by reducing payment rates for the professional component of multiple imaging studies that are performed on the same patient in the same session by the same practitioner. This policy should apply across settings (e.g.,

physicians' offices, IDTFs, and hospitals) because there are likely to be efficiencies in physician work regardless of the setting.

GAO found that there are efficiencies in physician time when two or more imaging services are furnished together because certain activities are not done twice, such as reviewing the patient's medical history and reviewing the final report and following up with the referring physician after the service (Government Accountability Office 2009).¹⁰ With the help of medical directors from Medicare contractors and other experts, GAO examined 118 pairs of imaging studies and estimated that Medicare could save over \$175 million annually if the program accounted for efficiencies in physician work that occur when these tests are furnished together.¹¹

GAO also identified 149 pairs of other services commonly performed together—such as physical therapy, interventional radiology procedures, pulmonary tests, and pathology tests—that contain efficiencies in practice expense. GAO recommended that CMS account for these efficiencies. In 2010, CMS adopted a policy that reduces payments for multiple outpatient therapy services (physical therapy, occupational therapy, and speech-language pathology services) that are provided to the same patient on the same day (Centers for Medicare & Medicaid Services 2010b). Under this policy, Medicare reduces the practice expense portion of the payment rate for the second and subsequent outpatient therapy service by 25 percent.¹² The Physician Payment and Therapy Relief Act of 2010 changed the reduction from 25 percent to 20 percent.

Reducing payment rates for the professional component of multiple studies would align the policy for the professional component of an imaging service with the current policy for the technical component. Under Medicare's multiple procedure payment reduction (MPPR), CMS reduces the payment rate for the technical component of second and subsequent imaging studies by 50 percent when multiple services are performed in the same session. This policy is based on a previous Commission recommendation and is designed to account for efficiencies in clinical labor, supplies, equipment, and indirect practice costs when multiple studies are performed in the same session (Medicare Payment Advisory Commission 2005b). It includes CT, MRI, certain ultrasound, and certain nuclear medicine services. CMS defined the same session to be one encounter in which a patient received one or more imaging studies (Centers for Medicare & Medicaid

How CMS maintains budget neutrality in the physician fee schedule

By law, increases or decreases in the physician fee schedule's relative value units (RVUs) must be budget neutral. If the changes would cause expenditures for the year to increase or decrease by more than \$20 million, CMS must make adjustments to preserve budget neutrality. When calculating the impact of changes to RVUs on total spending, CMS uses recent volume data; the agency does not project future volume changes. For example, when estimating the impact of RVU changes for 2011, CMS used volume data from 2009 (Centers for Medicare & Medicaid Services 2010b). CMS uses slightly different methods to account for changes in physician work RVUs and practice expense RVUs.

In the case of payments for physician work RVUs, CMS adjusts the fee schedule's conversion factor (average payment amount) to account for changes in work RVUs. For example, a budget-neutrality adjustment was applied to the conversion factor

for 2011, increasing it by 0.4 percent (Centers for Medicare & Medicaid Services 2010b). Changes in the work RVUs for 2011 would have decreased overall expenditures by 0.4 percent, which would have exceeded the statute's threshold of \$20 million. Therefore, the conversion factor was increased by 0.4 percent to offset this change.

In the case of payments for practice expense RVUs, CMS adjusts all practice expense RVUs to offset changes in some practice expense RVUs. For 2011, for example, CMS expanded the multiple procedure payment reduction policy for the technical component of certain imaging studies by applying it to multiple imaging services that are performed on noncontiguous parts of the body during the same session (Centers for Medicare & Medicaid Services 2010b). To offset these reduced payments, CMS increased practice expense RVUs for all fee schedule services by about 0.1 percent. ■

Services 2005). If a patient receives two imaging services during two separate encounters on the same day for a medically necessary reason, the provider would receive the full payment amount for each service.

The MPPR policy for the technical component originally applied to services performed on contiguous body parts within the same type of imaging (such as CT scans of the abdomen and pelvis). For 2011, however, CMS expanded this policy by applying it to multiple imaging services that are performed on noncontiguous parts of the body during the same session, even if the services use different types of imaging (Centers for Medicare & Medicaid Services 2010b). For example, if CT of the head and CT of the abdomen are performed during the same session, the payment rate for the less costly service is reduced by 50 percent. CMS has also said that it plans to review possible expansions of this policy to the professional component of multiple imaging studies (Centers for Medicare & Medicaid Services 2010b).

Comprehensive codes that include multiple related imaging studies (e.g., the codes for CT of the abdomen and pelvis discussed on p. 38) are not subject to the

MPPR for the technical component because they already account for efficiencies in practice expense associated with multiple services (Centers for Medicare & Medicaid Services 2010b). Similarly, an expansion of the MPPR to the professional component should not apply to comprehensive codes that reflect efficiencies in physician work. Thus, as the RUC, CPT Editorial Panel, and CMS create and value additional comprehensive codes for multiple imaging services, these new codes should not be subject to the MPPR.

This recommendation would apply to physicians and other health professionals (e.g., nurse practitioners and physician assistants) who interpret imaging studies and bill for the professional component. According to a recent report, several states permit nurse practitioners to order and interpret diagnostic tests (Institute of Medicine 2010).

CMS should calculate the payment reduction for the second and subsequent professional component services performed in the same session by analyzing the efficiencies in physician work associated with multiple services. These efficiencies may vary by type of imaging. This policy change should be implemented in a budget-

neutral manner. In other words, CMS should redistribute savings from payment reductions to the professional component of multiple imaging studies to other services in the physician fee schedule. (The text box explains how CMS maintains budget neutrality in the physician fee schedule.) CMS applies an MPPR to surgical procedures that also is budget neutral (Centers for Medicare & Medicaid Services 2010b). By contrast, the Congress required that the MPPR that applies to the technical component of imaging studies be exempt from budget neutrality; in other words, the savings from this policy reduce aggregate Medicare spending.¹³

RECOMMENDATION 2-2

The Congress should direct the Secretary to apply a multiple procedure payment reduction to the professional component of diagnostic imaging services provided by the same practitioner in the same session.

RATIONALE 2-2

To account for efficiencies in physician work, CMS should expand the MPPR to the professional component of multiple imaging studies that are performed in the same session by the same practitioner. When two or more imaging services are furnished together, certain physician activities are probably not done twice, such as reviewing the patient's medical history and reviewing the final report and following up with the referring physician after the test. This recommendation would align the MPPR policy for the two portions of an imaging service: the technical component and the professional component. This policy should apply across settings because there are likely to be efficiencies in physician work regardless of the setting.

IMPLICATIONS 2-2

Spending

- We estimate that this recommendation would not affect federal program spending because it would be implemented in a budget-neutral manner; savings from reducing payments for the professional component of multiple imaging studies that are performed in the same session would be redistributed to other physician fee schedule services.

Beneficiary and provider

- The recommendation would reduce Medicare payments for providers who perform the professional component of multiple imaging studies in the same session to account for efficiencies in physician work.

However, we do not expect this recommendation to affect beneficiaries' access to care or to reduce providers' willingness or ability to furnish appropriate care. There is no evidence that the MPPR for the technical component of imaging studies reduced access to care.

Reducing payment rates for imaging and other diagnostic tests ordered and performed by the same practitioner

We recommend that Medicare reduce payment rates for imaging and other diagnostic tests paid under the physician fee schedule when the same practitioner orders and performs the test because some efficiencies occur in these cases. Some of the physician work involved in interpreting a test likely duplicates activities that have already been performed by the referring physician. For example, the work RVUs for a test often include activities that occur during the preservice phase of the service, such as reviewing the patient's history, medical records, symptoms, and medications as well as reviewing the indications for the test (the preservice phase describes the work involved before a specific procedure). If the physician who performs the test also ordered it, the physician should have already obtained and reviewed much of this information during an evaluation and management (E&M) service (the E&M service may have occurred on the same day as the test or before the day of the test). The payment for a test also includes postservice activities, such as discussing the findings with the referring physician; this activity is unnecessary when the referring and interpreting physician are the same (the postservice phase includes activities performed after a procedure). Therefore, it would be appropriate to remove these duplicate activities from the payment rate for tests that are ordered and performed by the same practitioner. Currently, the work RVUs for these services do not account for these efficiencies, which makes them more profitable than other services and could contribute to the increase in self-referral of imaging and other tests.

This recommendation applies to all diagnostic imaging studies (e.g., MRI, CT, nuclear medicine, and ultrasound) as well as other diagnostic tests that are paid under the physician fee schedule (e.g., electrocardiograms, cardiovascular stress tests, and anatomic pathology tests). It does not apply to tests paid under the clinical laboratory fee schedule, such as urinalysis and blood tests, because these tests do not involve physician work. This policy should apply to all settings where imaging and other diagnostic tests are provided (e.g., physicians' offices,

**TABLE
2-1****Share of imaging services ordered and performed by same practitioner, by setting and type of imaging, 2009**

Type of imaging	Nonhospital	Hospital	All
Standard imaging	40%	3%	15%
Nuclear medicine	31	9	22
Computed tomography	8	2	3
MRI	7	2	4
PET	9	1	5
Echography (ultrasound)	40	11	25
Imaging procedures	29	32	31
All imaging	35	6	16

Note: PET (positron emission tomography). The numbers represent the percent of diagnostic imaging services, by type of imaging, in which the ordering and performing practitioner have the same National Provider Identifier. Nonhospital settings include physicians' offices and independent diagnostic testing facilities. Hospital settings include inpatient settings and outpatient departments. To avoid double-counting the number of services, the data exclude claims that are only for the technical component of a study. Standard imaging includes chest, musculoskeletal, and breast X-rays. Imaging procedures include stereoscopic X-ray guidance for delivery of radiation therapy, fluoroguide for spinal injections, and other interventional radiology procedures.

Source: MedPAC analysis of 5 percent carrier Standard Analytic File from CMS, 2009.

IDTFs, and hospitals) because there are likely to be similar efficiencies in physician work across settings. It should apply whether the physician who ordered and performed the test provided an E&M service on the day of the test or before the day of the test; regardless, the practitioner should be familiar with the patient's history and prior test results.

Savings from this policy should be redistributed to other physician fee schedule services. In other words, it should be implemented in a budget-neutral manner. As with Recommendation 2-2, this recommendation would apply to physicians and other health professionals (e.g., nurse practitioners and physician assistants) who order and perform diagnostic tests.

A key issue is identifying duplicate activities and estimating their share of the total work RVUs for a service. CMS, with assistance from the RUC, could identify duplicate activities associated with tests that are ordered and performed by the same practitioner and use this information to develop a uniform percent reduction for the work RVUs of such tests. CMS could also apply different percent reductions to different types of tests (e.g., advanced imaging, all other imaging, and nonimaging tests). The Medicare administrative contractors, which pay Medicare claims, could implement this policy by matching the National

Provider Identifier (NPI) of the ordering practitioner to the NPI of the performing practitioner on claims for imaging and other diagnostic tests.

Another important policy question is whether to apply a payment reduction when the practitioner who performs the test is different from the ordering practitioner but shares the same practice as the ordering practitioner. If the policy does not apply when the ordering and performing practitioners share a practice, an incentive would exist to bill for the test in the name of a different practitioner from the one who ordered it, even if the same practitioner both ordered and performed it. If this were to occur, the bill would be considered a false claim and the provider who submitted it could be subject to repayment and penalties. On the other hand, applying this policy to practitioners who share a practice could be unfair to the practitioner who performs the test, who would need to review the patient's history, medical records, symptoms, and medications. In addition, because practitioners who share a practice may not always share the same tax number, it could be difficult for CMS to identify whether practitioners are part of the same practice. Thus, this policy should be limited to individual practitioners who order and perform imaging and other diagnostic tests. CMS should educate practitioners that they need to

**TABLE
2-2****Illustration of the impact of Recommendations 2-2 and 2-3 on professional component payments for multiple imaging services provided during the same session**

Study ordered and performed by:	Payment for:		
	First imaging study during session (reduced by 25% if same practitioner orders and performs study)	Second imaging study during session (reduced by 50%)	Third imaging study during session (reduced by 50%)
Different practitioners	\$100	\$50	\$50
Same practitioner	75	50	50

Note: In this illustration, the normal payment amount for the professional component of each imaging study performed during the session is \$100. Under Recommendation 2-2, Medicare would reduce the payment rate for the professional component of the second and subsequent services performed in the same session (for illustrative purposes only, we have assumed a 50 percent reduction). This policy would apply whether or not the study was performed by the same practitioner who ordered it. Under Recommendation 2-3, Medicare would reduce the payment rate for the professional component of the first imaging service that is ordered and performed by the same practitioner during a session but not subsequent services during the same session (for illustrative purposes only, we have assumed a 25 percent reduction in this case).

accurately report the name of the ordering and performing provider on claims for imaging and other diagnostic tests to avoid filing a false claim.

We examined the potential scope of this recommendation by identifying the share of imaging services in 2009 in which the professional component of the study was performed by the same practitioner who ordered it (we did not examine the share of other diagnostic tests that were ordered and performed by the same practitioner). We separately examined imaging studies performed in nonhospital settings (physicians' offices and IDTFs) and hospitals (inpatient settings and outpatient departments). We found that 35 percent of studies provided in nonhospital settings were ordered and performed by the same practitioner (as indicated by the NPI) (Table 2-1). This proportion varied by type of service, ranging from 7 percent of MRI scans to 40 percent of standard imaging (e.g., chest X-rays) and echography. By contrast, only 6 percent of studies provided in hospital settings were ordered and performed by the same practitioner, ranging from 1 percent of positron emission tomography scans to 32 percent of imaging procedures (such as interventional radiology) (Table 2-1). The lower share in hospital settings is probably related to two factors:

- hospital privileging policies that often limit the right to interpret imaging studies to radiologists and certain other specialties, and

- referrals by community-based physicians to hospital radiology departments.

Across all settings (hospital and nonhospital), 16 percent of imaging studies were ordered and performed by the same practitioner.

Recommendation 2-3 would reduce the payment rate for the professional component of the first imaging service ordered and performed by the same practitioner during a session. If multiple imaging services were ordered and performed by the same practitioner in the same session, the payment rate for the professional component of the second and subsequent services would be reduced under the MPPR policy (Recommendation 2-2). It would not make sense to apply both policies to the same service, as they account for similar efficiencies (e.g., reviewing the patient's medical history before the test and following up with the referring physician after the service).

Table 2-2 illustrates the interaction between Recommendations 2-2 and 2-3. For illustrative purposes, we have assumed that, under Recommendation 2-2, Medicare would reduce the payment rate for the professional component of the second and subsequent services performed in the same session by 50 percent. We have also assumed for illustrative purposes that, under Recommendation 2-3, Medicare would reduce the payment rate by 25 percent for the professional component of the first imaging service ordered and performed by the same practitioner during a session.

Under both recommendations, CMS should determine the actual payment reductions based on an analysis of the efficiencies that occur. These reductions may vary from the illustrative reductions shown in Table 2-2.

RECOMMENDATION 2-3

The Congress should direct the Secretary to reduce the physician work component of imaging and other diagnostic tests that are ordered and performed by the same practitioner.

RATIONALE 2-3

Medicare should reduce payment rates for imaging and other diagnostic tests paid under the physician fee schedule when the same practitioner orders and performs the test because some efficiencies occur in these cases. The work involved in interpreting a test likely duplicates activities that have already been performed by the referring practitioner, such as reviewing the patient's history, medical records, symptoms, medications, and the indications for the test. If the practitioner who performs the test is the same provider who ordered it, the practitioner should have already obtained and reviewed much of this information during an E&M service. Accounting for these efficiencies should reduce the financial incentive for practitioners to self-refer for imaging and other tests. This policy should apply in all settings where imaging and other diagnostic tests are provided (e.g., physicians' offices, IDTFs, and hospitals) because there are likely to be similar efficiencies in physician work across settings.

IMPLICATIONS 2-3

Spending

- We estimate that this recommendation would not affect federal program spending because it would be implemented in a budget-neutral manner; savings from reducing payments to providers who both order and perform imaging and other diagnostic tests would be redistributed to other physician fee schedule services.

Beneficiary and provider

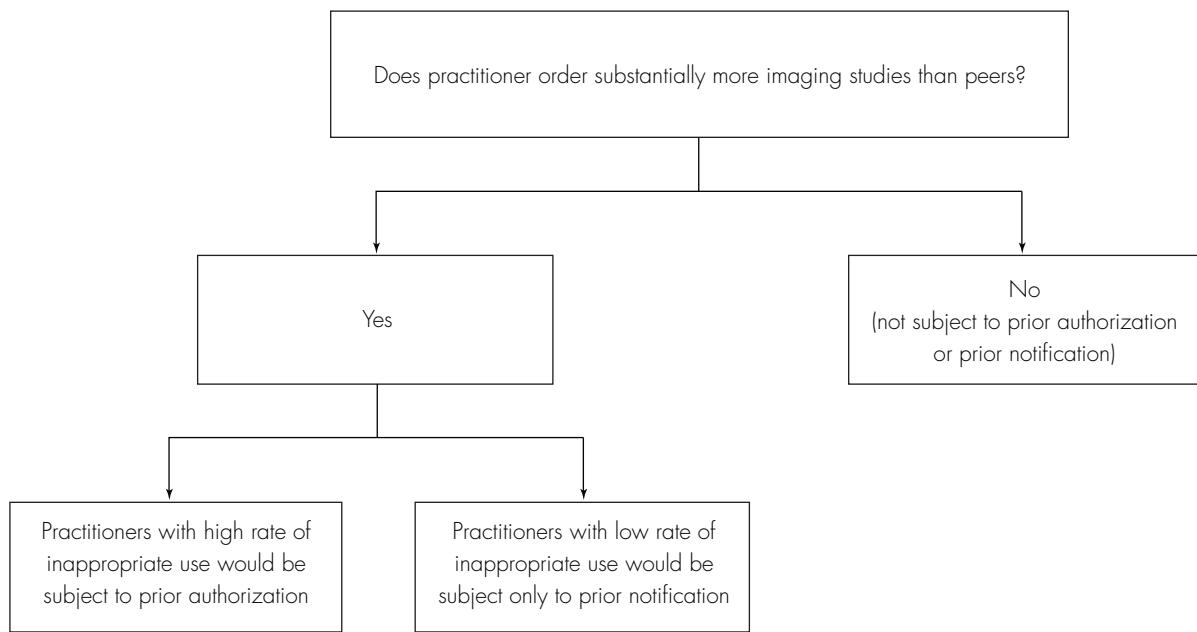
- We do not expect this recommendation to affect beneficiaries' access to care. Although the recommendation would reduce Medicare payments for providers who both order and perform imaging and other diagnostic tests to account for efficiencies that occur in these cases, we do not anticipate a decline in providers' willingness or ability to furnish appropriate care.

Require high-use practitioners to participate in a prior authorization program for advanced diagnostic imaging

In addition to policies that aim to improve payment accuracy, we also recommend that Medicare adopt a tool called prior authorization to foster more appropriate use of advanced imaging (MRI, CT, and nuclear medicine). Advanced imaging services have been growing rapidly over the last decade and there is evidence that they are sometimes used inappropriately (see pp. 35–36). Prior authorization is used widely by private payers for advanced imaging but has not been adopted by Medicare.

Under this approach, Medicare would require physician outliers—those who order a significantly greater number of advanced imaging services than other physicians who treat similar patients—to participate in a prior authorization process for advanced imaging. Such an approach would help ensure that outlier physicians use advanced imaging services appropriately without subjecting all physicians to prior authorization. It would also encourage all physicians to be more prudent in their use of imaging to avoid being subject to this requirement. The focus on outlier physicians—rather than all physicians—would reduce CMS's administrative costs and limit the burden on practitioners and beneficiaries. Because of CMS's limited resources, this program should target imaging services that account for a significant share of spending and volume, have evidence-based guidelines for appropriate use, and exhibit variations in utilization among physicians and geographic areas. Although we have tried to minimize the administrative costs for CMS, the agency would still need additional resources to develop and operate a prior authorization program. Eventually, policymakers may want to consider expanding such a program to other services that are experiencing rapid spending growth, such as physical therapy and radiation therapy. This recommendation would apply to physicians and other health professionals (e.g., nurse practitioners and physician assistants) who order advanced imaging studies.

CMS has tried to manage inappropriate use of imaging and other services primarily through retrospective claims review and other postpayment approaches, although the agency is testing whether decision support systems (DSS) can promote appropriate ordering of imaging services at the time of service (see text box, pp. 50–51) (Centers for Medicare & Medicaid Services 2010a, Government

**FIGURE
2-2****Illustration of prior authorization program for advanced imaging in Medicare**

Accountability Office 2008). In 2008, GAO recommended that CMS examine the feasibility of adopting front-end methods to managing imaging services, such as prior authorization programs used by private plans (Government Accountability Office 2008).

A prior authorization policy in Medicare would likely involve three steps (Figure 2-2). First, CMS would identify physicians and other health professionals who are outliers in terms of the number of advanced imaging studies they order, compared with practitioners in the same specialty who treat patients with similar conditions. Second, these outlier physicians would submit clinical information to CMS when they order advanced imaging, which would enable the agency to compare their use of imaging to evidence-based clinical guidelines and provide them with confidential feedback. CMS would develop these guidelines in consultation with physician specialty societies and other stakeholders. The main purpose of this stage—called prior notification—is to educate physicians about the appropriate use of imaging. It is possible that providers could use clinical DSS instead of participating in a prior notification program as long as the DSS uses the same guidelines as the prior notification process and the providers transmit data from the DSS to CMS so that CMS could track their use of imaging (see text box on pp. 50–51 for more information on DSS).¹⁴ Allowing

providers to use DSS instead of prior notification would reduce the burden on them but still allow CMS to monitor their ordering patterns. Under a pilot program conducted in Minnesota, five medical groups used DSS instead of prior notification (Institute for Clinical Systems Improvement 2010).

If some practitioners persist in ordering imaging inappropriately, despite the information they receive during prior notification or from a DSS, they would be required to participate in a prior authorization program, in which CMS or a contractor would review and approve their requests to order imaging services before they are provided. Outlier physicians with relatively low rates of inappropriate ordering would not be subject to prior authorization; they would remain in the prior notification program. They would still submit clinical data to CMS so that CMS could track their ordering patterns and provide them with feedback, but they would not be required to have their imaging requests approved. Outlier physicians whose rates of inappropriate use changed over time could switch from prior authorization to prior notification, and vice versa.

A prior authorization policy could exclude physicians and other health professionals who are part of an accountable care organization (ACO) that participates in the Medicare

program under section 3021 or 3022 of the Patient Protection and Affordable Care Act of 2010 (PPACA), as long as the ACO shares risk with Medicare for the cost growth for its patients. The rationale for excluding ACO physicians is that they would have financial incentives to control the volume of imaging and other services they provide to beneficiaries.

A prior authorization approach builds on the Commission's recommendation that Medicare measure physicians' resource use over time and share the results with physicians on a confidential basis (Medicare Payment Advisory Commission 2005b, Medicare Payment Advisory Commission 2008a). These resource use reports would allow physicians to assess their practice styles, evaluate whether they tend to use more resources than their peers or what evidence-based research recommends, and revise practice styles as appropriate. In particular, such reports could encourage physicians who refer patients for more imaging services than their peers to reconsider their ordering behavior (Medicare Payment Advisory Commission 2005b). The Medicare Improvements for Patients and Providers Act of 2008 established a Medicare Physician Feedback Program and directed the Secretary to use Medicare claims data to provide physicians with confidential reports that measure the total amount of resources involved in furnishing care to beneficiaries.¹⁵ PPACA directed the Secretary to expand and make significant changes to the Physician Feedback Program, including a requirement to provide reports to individual physicians that compare their resource use patterns with patterns of other physicians. Although resource use reports are an important step in reducing unwarranted practice variation, we do not believe that they alone are sufficient to ensure that high-use physicians order imaging appropriately. Thus, Medicare should also develop a targeted prior authorization program for advanced imaging.

Many private plans use prior authorization programs for advanced imaging

Many private plans have been using prior authorization programs for several years to control the growth of advanced imaging services and improve the appropriate use of these studies (Government Accountability Office 2008, Levin et al. 2010, Mitchell and Lagalia 2009, Tynan et al. 2008).¹⁶ In addition, some state Medicaid programs use prior authorization for advanced imaging (Smith et al. 2010). Adapting this approach to Medicare raises certain concerns, however, including the administrative burden on physicians, the strength of guidelines used to review imaging requests, and the administrative implications for CMS.

In private plans' prior authorization programs, physicians who wish to order certain studies must first obtain approval from the plan; plans will not pay for tests that are not approved. Some plans use prior notification programs in which physicians submit requests for imaging services to the plan for review but requests are not denied.

In researching these programs, we examined information from:

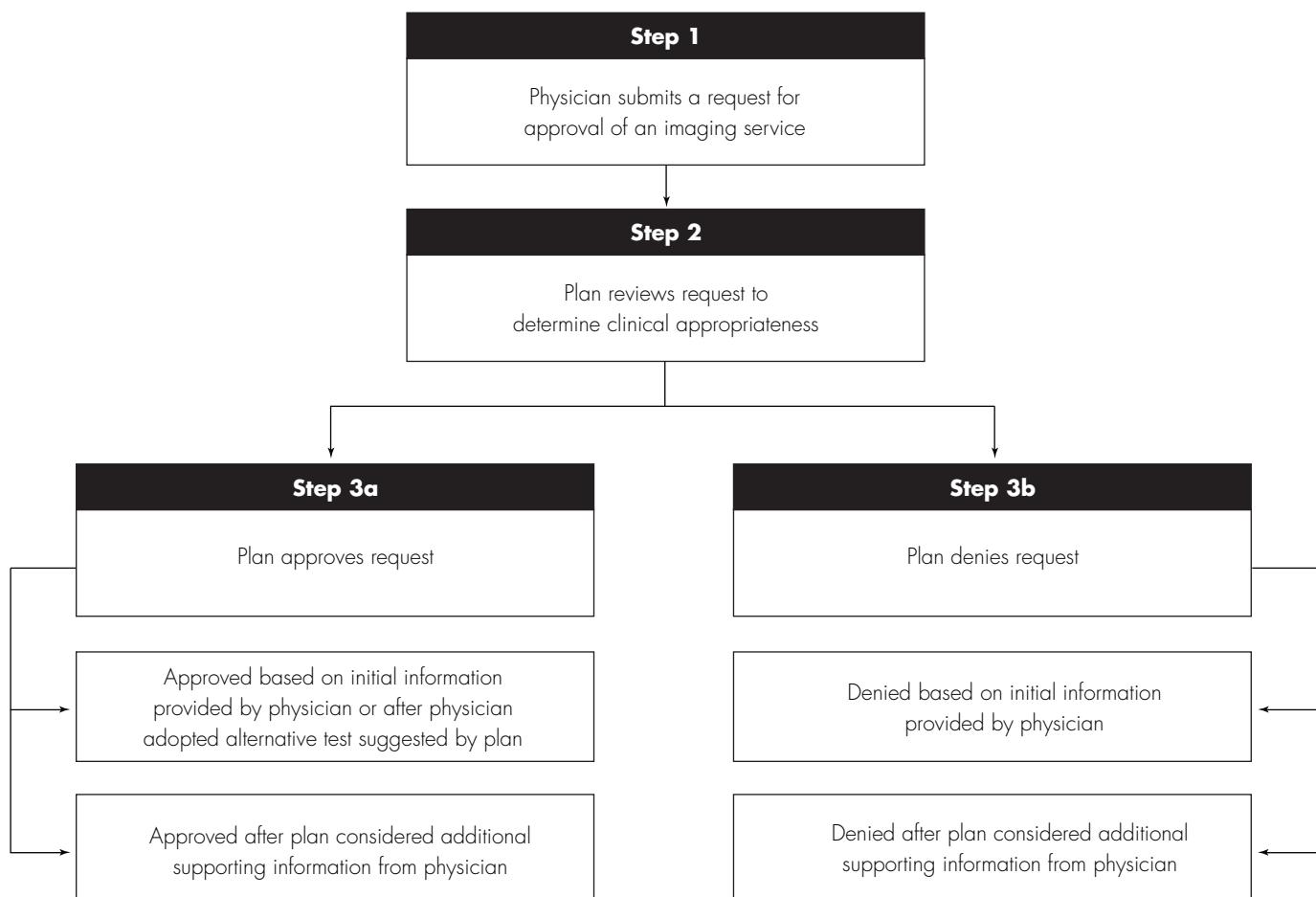
- studies published by GAO, the Center for Studying Health System Change, and other researchers (Government Accountability Office 2008, Levin et al. 2010, Mitchell and Lagalia 2009, Tynan et al. 2008);
- interviews and meetings with plans and radiology benefit managers (RBMs), the vendors who operate these programs; and
- presentations by physicians from two health plans at a public Commission meeting in 2007 (Medicare Payment Advisory Commission 2007a).

We have also met with representatives from physician specialty societies and imaging providers to discuss their concerns about prior authorization programs.

Prior authorization programs use clinical guidelines to review imaging requests

According to plans and RBMs, prior authorization programs are based on clinical guidelines developed by physician specialty groups, such as the American College of Radiology and American College of Cardiology, and supplemented by literature reviews and clinician panels.¹⁷ If appropriateness criteria do not exist for new technologies or new indications for an existing technology, the plan or RBM may convene an expert panel to develop guidelines. Plans and RBMs use these clinical guidelines to develop algorithms, or decision trees, that they use to approve or deny requests for tests. The algorithms are usually based on modality, body part, and indication. For example, the rules for MRI of the lumbar spine for low back pain would contain a list of indications for which this test is considered appropriate, such as suspicion of cancer.

Prior authorization programs vary in the types of tests they cover, their approval criteria, and their administrative processes. However, there are several similarities. These programs generally exclude tests provided in inpatient hospital settings and emergency rooms. Their processes for reviewing imaging requests, outlined in Figure 2-3, are also similar. In step 1, the ordering physician submits

**FIGURE
2-3****Steps that typically occur in prior authorization programs used by private plans**

Source: Government Accountability Office analysis of information from radiology benefit management companies and private plans (Government Accountability Office 2008).

a request to the plan or RBM that includes clinical information, such as the patient's diagnosis, signs and symptoms, prior treatments, and prior test results. The initial request may be made by phone, fax, or through a web-based interface. In step 2, the plan or RBM checks whether the request is consistent with its clinical criteria. For example, if a physician requests an MRI of the lumbar spine for a patient with symptoms of low back pain, a web-based program will guide the physician through a list of questions to determine whether the request meets the plan's clinical guidelines. If so, the plan approves the test (step 3a, Figure 2-3). Plans and RBMs told us that 60 percent to 85 percent of requests are approved at the first stage of the process, which usually takes less than 10 minutes. We were not able to independently verify this information.

If the plan does not approve the request at the first stage, the request usually goes to a nurse reviewer, who may suggest a more appropriate alternative test or ask for additional clinical information. If the request is not approved at the second stage, the physician can discuss the case with a physician reviewer employed by the plan, such as a radiologist. Sometimes, the ordering physician agrees to change the request to a more appropriate test. If the request is ultimately denied (step 3b, Figure 2-3), the physician can use the plan's formal appeals process to appeal the decision. Although 15 percent to 40 percent of requests go through additional levels of review, plans and RBMs told us that about 95 percent of all requests are resolved within 24 hours of the initial request (we were not able to independently verify these figures).

Variations of prior authorization programs

Some plans and RBMs use a variation of prior authorization called prior notification (Government Accountability Office 2008, Levin et al. 2010, Tynan et al. 2008). In these programs, ordering physicians provide clinical information to plans about studies they wish to order and receive feedback on whether the studies are appropriate. If the request does not meet guidelines set by the plan, the plan suggests an alternative approach but does not deny payment if physicians decide to order the originally requested study. The plan may use this information to create profiles of physicians' ordering patterns.

In another variation of prior authorization, some RBMs and plans have a "gold card" program in which ordering physicians who have high approval rates receive automatic approval when they order studies. These physicians must still notify the RBM or plan when they order a test and provide clinical information about the studies they order, but they do not have to receive formal approval. Although some plans and RBMs claim that gold card programs are successful because they reduce the administrative burden on physicians with high approval rates, others argue that these programs have downsides, such as the risk that physicians who are exempt from receiving prior approval will be less motivated to order imaging appropriately.

Impact of prior authorization on volume of imaging

Several plans report that prior authorization programs have significantly reduced the volume growth of expensive imaging studies, but there are no independent studies that measure the impact of these programs using a control group (Government Accountability Office 2008, Levin et al. 2010, Mitchell and Lagalia 2009, Tynan et al. 2008). Plans interviewed by GAO reported that the annual growth of imaging services declined to less than 5 percent after prior authorization was implemented; before these programs were adopted, growth rates ranged from 10 percent to 20 percent (Government Accountability Office 2008). The largest reductions in use occurred immediately after the programs were implemented. According to our interviews with plans and RBMs, the savings from prior authorization programs more than offset the administrative costs (most RBMs charge plans a per member per month fee to operate the program).

A case study of three health plans that adopted prior authorization programs in 2004 or 2005 also found that the most significant impacts occurred during the first year after the programs were established (Mitchell and Lagalia

2009). In the year preceding the programs' implementation, all three plans experienced double-digit growth in the use of advanced imaging services. One year after the programs were adopted, the number of CT scans per capita declined significantly (declines ranged from 9 percent to 14 percent) and the number of MRI scans per capita also dropped (declines ranged from 8 percent to 15 percent). However, results for the second year of the programs were mixed: The number of CT and MRI studies per capita continued to decline in one of the plans but increased in the other two plans. The authors of this study speculate that the two plans' volumes increased in the second year for several reasons: The plans began to exempt certain physicians from obtaining prior approval (e.g., conducted a gold card program), physicians increased their approval rate by learning which diagnoses lead to approval, clinical applications for advanced imaging expanded, the supply of imaging equipment continued to increase, and physician self-referral was not restricted. A weakness of this study is that it did not control for time trends and other factors that might have influenced the changes in imaging use. In addition, the study examined changes in use for only two years after the programs were implemented, and the study included only three plans.

Prior authorization programs reduce the growth of imaging by influencing physicians to withdraw or change their requests for tests, denying requests, and discouraging physicians from ordering inappropriate tests in the future. According to our interviews with plans and RBMs, a small proportion of imaging requests (less than 10 percent) are withdrawn or changed to a different test. Similarly, a published study found that 4 percent of requests submitted to a single RBM were either canceled or changed (Levin et al. 2010). Findings from our interviews and other evidence suggest that denial rates vary widely by RBM, from 1 percent to about 20 percent. This variation may be related to geographic differences in practice patterns or differences in approval criteria. Common reasons for denial include ordering multiple studies of contiguous body parts (e.g., CT of the abdomen and pelvis) when a single study is sufficient, ordering an inappropriate modality for an indication (e.g., MRI instead of CT), and not providing sufficient clinical information. According to data from an RBM that contracted with a Medicare Advantage plan, 12 percent of requests for advanced imaging were denied in a single month (Iglehart 2009). The most frequently denied requests were for nuclear cardiology studies to detect coronary artery disease and positron emission tomography scans ordered by nononcologists to monitor cancer treatment. An

investigation by the Senate Commerce Committee found that one RBM denied 22 percent of requests for nuclear cardiology studies submitted by providers in Delaware (Committee on Commerce, Science, and Transportation 2011). Plans interviewed by GAO reported that denial rates were low, primarily because requesting physicians agreed to order a more clinically appropriate test or to forgo the test (Government Accountability Office 2008). These plans also found that physicians are less likely to request inappropriate tests in the future as a result of their interaction with the program.

Developing a prior authorization program for Medicare

Several issues would be involved in developing a prior notification and prior authorization program for Medicare that would apply to physicians and other health professionals who order substantially more advanced imaging studies than their peers. Some of these challenges are also faced by prior authorization programs used by private plans. Key issues include:

- limiting the administrative burden on practitioners who are required to submit requests for prior approval;
- minimizing the additional waiting time for patients to receive imaging;
- developing transparent, high-quality clinical guidelines for approving imaging studies; and
- identifying physician outliers.

We also address the administrative implications of establishing and managing a prior authorization program and CMS's statutory authority to require prior authorization.

Issues related to practitioners and patients

According to plans, RBMs, and a Senate Commerce Committee report, physicians often view prior authorization as creating new administrative burdens and challenging their clinical autonomy (Committee on Commerce, Science, and Transportation 2011, Iglehart 2009). There is also a concern that these programs delay important tests for patients. Plans and RBMs we interviewed said that they address these concerns by using web-based interfaces to streamline and shorten the approval process. A prior authorization program developed by Medicare would also need to use web-based interfaces and other tools to speed the review process. In addition, CMS would need to disseminate the approval criteria to physicians and

beneficiaries. Limiting prior authorization to the minority of physicians who use substantially more advanced imaging than their peers would reduce the administrative burden on all physicians and wait times for beneficiaries.

Transparency and quality of guidelines used for prior authorization

Providers and others have raised concerns about the quality and transparency of the clinical criteria that plans and RBMs use to review and approve imaging requests. Although these criteria are usually based on clinical guidelines developed by physician specialty societies, they may differ in some respects. For example, an investigation by the Delaware Department of Insurance found that an RBM's guidelines for cardiac stress tests agreed with criteria developed by the American College of Cardiology Foundation (ACCF) in many but not all areas; there were important differences with regard to the appropriate first test for intermediate-risk and high-risk patients (Delaware Department of Insurance 2011). If a specific request is not addressed by an RBM's protocols, a physician reviewer may have discretion to approve the study. CMS has also raised concerns that RBMs use potentially proprietary information in their clinical review protocols, which may be inconsistent with the public nature of Medicare (Government Accountability Office 2008).

Because guidelines developed by specialty societies are very important for prior authorization programs, we describe how two societies—the American College of Radiology (ACR) and the ACCF—create guidelines. Both groups have assembled expert panels composed of multiple specialties to develop appropriateness criteria for different organ systems or imaging modalities (American College of Radiology 2011, Patel et al. 2005). The panels collect evidence from the medical literature, but because there is often a lack of empirical information about the benefits of imaging for clinical decision making and patient outcomes, the panels use clinical judgment to reach consensus about whether a given study is appropriate for a specific condition (Douglas et al. 2006). Imaging studies are rated on a scoring system from one to nine, indicating the least to most appropriate examination. ACR panels have established criteria for the use of imaging for over 175 conditions, such as low back pain, acute chest pain, and acute pancreatitis. ACCF panels have developed criteria for cardiac CT, cardiac MRI, echocardiography, and myocardial perfusion imaging (a type of nuclear medicine study). One area in which the evidence is relatively strong is the use of imaging studies for patients with low back pain: A meta-analysis of six randomized trials found

Using decision support systems to improve appropriate ordering of imaging

Some health systems have adopted clinical decision support systems (DSS) to improve the appropriate use of imaging, an approach that is now being tested in a Medicare demonstration program. DSS are decision aids that provide real-time feedback to ordering physicians on the appropriateness of imaging studies based on clinical guidelines. Two providers—Virginia Mason Medical Center and Massachusetts General Hospital—have reported that implementation of DSS for imaging was followed by a decline in the rate of growth of imaging or an absolute drop in the number of studies (Blackmore et al. 2011, Sistrom et al. 2009). However, because of the unique characteristics of these organizations and the circumstances in which they adopted DSS, these results may not be generalizable to the broader health care system.

Virginia Mason—an integrated, multidisciplinary health system in the Pacific Northwest—adopted a DSS linked to a system for ordering imaging studies (Blackmore et al. 2011). The system focused on three high-cost procedures with high variability in use: lumbar MRI for low back pain, head MRI for headache, and sinus computed tomography (CT) for suspected sinus disease. Virginia Mason providers developed decision rules for these types of imaging based on evidence-based guidelines and a review of the

literature. Physicians who wished to order one of the targeted studies had to first document that the imaging request was consistent with an approved indication. If the request was not considered appropriate, the DSS would prevent the test from being ordered and suggest alternatives to imaging (such as physical therapy for lumbar back pain). Subspecialists (e.g., neurologists and spine specialists) could override the DSS if they considered the imaging test clinically indicated. Researchers compared the rate of imaging for specific conditions before and after adoption of the DSS for imaging and found a statistically significant decline in the number of targeted imaging procedures after the DSS was implemented. For example, the rate of imaging for lumbar MRI for low back pain dropped by 23 percent after implementation.

The unique characteristics of Virginia Mason likely influenced these results. Because all providers at Virginia Mason are salaried employees, they do not have a financial incentive to generate additional imaging studies. Also, the institutional culture at Virginia Mason has a strong focus on efficiency and evidence-based medicine. Another important factor is that most referrals for imaging come from within the health system, which makes it easier to influence physician ordering behavior.

(continued next page)

no difference between imaging and usual care without imaging in terms of pain, functional ability, quality of life, and overall improvement (Chou et al. 2011).

In developing criteria for prior notification and prior authorization, CMS should review existing clinical guidelines developed by specialty societies and providers such as Virginia Mason Medical Center and Massachusetts General Hospital (see text box). CMS should also consult with professional societies, RBMs, and other stakeholders. CMS could form an advisory committee to assist in developing criteria. The agency should also solicit public comments on the criteria before they are finalized. Medicare's criteria should be transparent and available to providers, beneficiaries, and the general public. In addition, CMS should:

- ensure that the criteria are kept up to date to reflect changes in practice and technology;
- use the same criteria for both prior notification and prior authorization; and
- require that its contractors use the same uniform criteria to review imaging requests, provide feedback, and approve requests.

Under an imaging demonstration program recently launched by CMS, the agency identified guidelines for 11 advanced imaging procedures (e.g., MRI of the lumbar spine and CT of the brain) developed by several specialty societies (see text box). CMS has also adopted seven outpatient imaging efficiency measures for hospital outpatient departments, such as the use of MRI of the

Using decision support systems to improve appropriate ordering of imaging (cont.)

Massachusetts General—an academic medical center—adopted a DSS for a broad range of MRI and CT procedures. The DSS provided feedback to physicians on the appropriateness of these imaging tests when they were ordered. The appropriateness scores were based on criteria developed by the American College of Radiology and criteria established by consensus panels of physicians. The DSS applied to physicians who ordered outpatient studies at Massachusetts General. Researchers found a significant decline in the growth rate of CT and MRI studies after implementation of the DSS in 2004. They attributed the results to a gatekeeper effect (the requirement to follow a new set of steps to order a test) and an educational effect (providing feedback to ordering physicians on the appropriateness of imaging requests). Because the study lacked a control group, it is possible that external factors such as changes in payment rates and greater awareness of the risks of radiation may have influenced the reduction in the growth of CT and MRI scans. In addition, the faculty practice group at Massachusetts General had an incentive to reduce the use of less appropriate imaging studies because it had contractual agreements with payers to reduce the use of high-cost imaging. This factor may have led to greater physician compliance with the feedback provided by the DSS.

A two-year demonstration program recently launched by CMS—called the Medicare Imaging Demonstration—will test whether the use of DSS can promote appropriate ordering of advanced imaging services (Centers for Medicare & Medicaid Services 2010a). This program was authorized by the Medicare Improvements for Patients and Providers Act of 2008, which prohibited the demonstration from testing the use of prior authorization. CMS selected 11 advanced imaging procedures for the demonstration based on their high spending and use and the availability of appropriateness guidelines for these services.¹⁸ For these 11 procedures, CMS identified published guidelines developed by specialty societies, such as the American College of Radiology, American College of Cardiology, American Academy of Neurology, and American College of Physicians. The agency selected five organizations—Brigham & Women's Hospital, Henry Ford Health System, Maine Medical Center–Physician Hospital Organization, the University of Wisconsin–Madison, and National Imaging Associates (a radiology benefit manager)—to recruit physicians to participate in the demonstration (Centers for Medicare & Medicaid Services 2011a). Each organization will select and use a DSS that incorporates appropriateness guidelines, collect data from the participating physicians, and distribute payments to physicians for reporting the data. ■

lumbar spine for low back pain (Centers for Medicare & Medicaid Services 2011c). The purpose of these measures is to reduce unnecessary exposure to contrast materials and radiation, improve adherence to evidence-based medicine and practice guidelines, and promote efficient use of imaging.

Identifying practitioners who order substantially more advanced imaging than their peers

In adopting a prior authorization approach for Medicare, a key issue is how CMS would define outlier physicians who order significantly more advanced imaging than their peers. The ideal approach would probably measure physicians' use of advanced imaging on both a per episode and a per capita basis. Episode measurement would examine imaging use for specific episodes of care

(e.g., ischemic heart disease or low back pain). Although measuring the use of imaging per episode would allow CMS to control for variations in the types of conditions treated, physicians who order many imaging studies across multiple episodes may not be identified as outliers if their per episode average is low. Thus, CMS should also use a per capita approach that calculates the average number of advanced imaging studies ordered by each physician per patient. Under a per capita approach, CMS would have to develop a method to attribute patients to an individual physician. For example, patients could be attributed to the physician who provided the plurality of their E&M services during the year.

Physicians who are identified as outliers with regard to overall resource use under a per episode approach

**TABLE
2-3**

Physicians who ordered substantially more advanced imaging accounted for a disproportionate share of total volume and spending for advanced imaging, 2009

Type of imaging	Percent of all imaging studies that were ordered by:	
	Physicians in the top quartile of imaging ordering	Physicians in the top decile of imaging ordering
CT		
Share of volume	77.7%	55.6%
Share of spending	75.3	52.5
MRI		
Share of volume	75.9	52.1
Share of spending	75.6	52.3
Nuclear medicine		
Share of volume	81.4	60.2
Share of spending	83.7	63.7

Note: CT (computed tomography). The data include advanced imaging studies paid under the physician fee schedule that were performed in physicians' offices, independent diagnostic testing facilities, and hospital outpatient departments; we excluded tests performed in emergency rooms and inpatient settings. The data include global and professional component services. To avoid double-counting, the data exclude claims for technical component services. Physicians in the top quartile of CT ordering accounted for 27 or more CT scans during 2009; physicians in the top decile ordered 61 or more scans. Physicians in the top quartile of MRI ordering accounted for 15 or more MRI scans; physicians in the top decile ordered 34 or more scans. Physicians in the top quartile of nuclear medicine ordering accounted for 11 or more nuclear medicine studies; physicians in the top decile ordered 28 or more studies.

Source: MedPAC analysis of carrier claims data for 100 percent of Medicare beneficiaries.

also tend to be identified as outliers under a per capita approach. Using both per episode and per capita methodologies, we found that approximately two-thirds of physicians in the top decile of resource use according to episode-based measurement were also in the top decile of resource use based on per capita measurement.

Based on an analysis of physician fee schedule claims data from 2009, we found that physicians who order substantially more advanced imaging services account for a disproportionate share of all advanced imaging studies (Table 2-3). We included advanced imaging studies performed in one of three settings: physicians' offices, IDTFs, and hospital outpatient departments; we excluded

studies performed in emergency rooms and inpatient settings because they are usually not covered by prior authorization programs.¹⁹ We ranked all physicians who ordered at least one advanced imaging service in 2009 by the number of studies they ordered within each modality (CT, MRI, and nuclear medicine are separate modalities). Physicians in the top quartile of imaging ordering for each modality accounted for three-quarters or more of all the studies ordered for that modality (Table 2-3). Physicians in the top decile of imaging ordering for each modality accounted for more than half of all the studies ordered for that modality. These results suggest that targeting prior authorization to outlier physicians would likely cover the majority of advanced imaging studies without creating a burden for most physicians who order these services. Notably, however, our analysis had certain limitations: It did not adjust for the number of patients treated by each physician, the number and type of episodes furnished by each physician, physician specialty, or geographic region. We recognize that CMS would have to consider adjusting for these factors when identifying physician outliers. These adjustments could affect whether physicians are identified as outliers and the number of studies that would be subject to prior approval.

Using the same data set, we found that a significant share of physicians in the top decile of imaging ordering are also self-referring physicians (Table 2-4). We used two definitions of self-referral for this analysis: the expansive definition includes physicians who referred at least 1 percent of the imaging studies they ordered within each modality to physicians in their practice during 2009, and the restrictive definition includes physicians who referred more than 50 percent of the imaging studies they ordered within each modality to their practice. Using the expansive definition of self-referral, more than one-quarter of the physicians in the top decile of CT and MRI ordering and more than one-half of the physicians in the top decile of nuclear medicine ordering were self-referring physicians for those modalities (Table 2-4). Using the more restrictive definition, 16.6 percent of the physicians in the top decile of CT ordering, 13.7 percent of the physicians in the top decile of MRI ordering, and almost half of the physicians in the top decile of nuclear medicine ordering were self-referring physicians for those modalities (Table 2-4). Our analysis did not adjust for important factors such as the number of patients treated by each physician and the number and type of episodes furnished by each physician. These and other factors would likely influence whether a self-referring physician is classified as an outlier physician.

Administrative implications of a prior authorization program for CMS

CMS has indicated that a prior authorization approach would require significant administrative resources (Government Accountability Office 2008). CMS or its contractors would have to select or develop appropriateness criteria, identify outlier physicians, establish systems for these physicians to transmit requests for imaging, and employ staff to review and approve the requests. However, the focus on outlier physicians—rather than all physicians—would reduce CMS's administrative costs. CMS could also leverage its limited resources by focusing on imaging services that account for a significant share of spending and volume, have high-quality guidelines for appropriate use, and exhibit variations in utilization among physicians and geographic areas.

In addition, a prior authorization program would interact with beneficiaries' rights to appeal claims that are not paid by Medicare (Government Accountability Office 2008). If a high proportion of imaging requests denied under prior authorization were later appealed, more cases would be added to the appeals process, thereby increasing the costs of this process. If a high proportion of imaging requests denied during the prior authorization process were later overturned during the appeals process, aggregate savings would be reduced (Government Accountability Office 2008).

Impact of a prior authorization program on Medicare spending for advanced imaging

It is difficult to quantify the savings from a prior authorization program in Medicare, net of the administrative costs. Although our interviews with plans and RBMs indicated that the savings from prior authorization programs more than offset their administrative costs, there are no independent studies that measure the impact of these programs on spending using a control group, which is a concern expressed by CMS (Government Accountability Office 2008).

In 2008, the Congressional Budget Office (CBO) estimated that a prior authorization program for advanced imaging services would reduce spending by \$220 million over 5 years and by about \$1 billion over 10 years (Congressional Budget Office 2008). CBO assumed that such a program would apply to all physicians who order advanced imaging rather than a targeted subset of physicians. Although the administrative costs would be less for a program that applied to a smaller group of physicians, the potential savings would also be less. The President's budget request for 2010 projected that a

**TABLE
2-4**

Share of physicians in the top decile of imaging ordering who are self-referring physicians, 2009

Type of imaging	Percent of physicians in the top decile of imaging ordering who:	
	Referred at least 1 percent of the studies they ordered to their practice	Referred more than 50 percent of the studies they ordered to their practice
CT	29.8%	16.6%
MRI	27.3	13.7
Nuclear medicine	56.6	49.1

Note: CT (computed tomography). The data include advanced imaging studies paid under the physician fee schedule that were performed in physicians' offices, independent diagnostic testing facilities, and hospital outpatient departments; we excluded tests performed in emergency rooms and inpatient settings. The data include global and professional component services. To avoid double-counting, the data exclude technical component services. Physicians in the top decile of CT use ordered 61 or more scans during 2009. Physicians in the top decile of MRI use ordered 34 or more scans. Physicians in the top decile of nuclear medicine use ordered 28 or more studies.

Source: MedPAC analysis of carrier claims data for 100 percent of Medicare beneficiaries.

program in which RBMs would ensure appropriate use of imaging services would reduce spending by \$70 million over 5 years and by \$250 million over 10 years (Office of Management and Budget 2009). The scope of the program envisioned in the budget request is unclear.

Does CMS need statutory authority to require prior authorization?

It is unclear whether CMS currently has statutory authority to establish a prior authorization program. According to GAO's report on imaging services in Medicare, CMS stated that it was not aware of any statutory provision that authorized or prohibited the use of approaches such as prior authorization (Government Accountability Office 2008). GAO recommended that CMS further assess whether it has the authority to adopt strategies such as privileging and prior authorization and determine if legislation is necessary (Government Accountability Office 2008). Because of this uncertainty, we recommend that the Congress enact legislation directing CMS to implement prior authorization for advanced imaging and clarify that the agency has the authority to do so. The legislation should also allow CMS to expand prior authorization to other services that experience rapid spending growth, such as physical therapy and radiation therapy.

RECOMMENDATION 2-4

The Congress should direct the Secretary to establish a prior authorization program for practitioners who order substantially more advanced diagnostic imaging services than their peers.

RATIONALE 2-4

The rapid volume growth of advanced imaging services (MRI, CT, and nuclear medicine) over the past decade and questions about appropriate use justify the development of a prior authorization program in Medicare for physicians and other health professionals who order a significantly greater number of advanced imaging services than other practitioners who treat similar patients. Such an approach would ensure that outlier practitioners are using advanced imaging services appropriately without subjecting all providers to prior authorization. The focus on outlier practitioners—rather than all providers—would reduce CMS's administrative costs and the burden on practitioners and beneficiaries. Because of CMS's limited resources, a prior authorization program should target advanced imaging services that account for a significant share of spending and volume, have evidence-based standards for appropriate use, and exhibit variations in utilization among providers and geographic areas. Although we have tried to minimize the administrative costs for CMS, the agency would still need additional resources to develop and operate a prior authorization program.

IMPLICATIONS 2-4

Spending

- We estimate that this recommendation would reduce federal program spending relative to current law by less than \$50 million in the first year and by less than \$1 billion over 5 years. This estimate accounts for CMS's administrative costs to develop and manage a prior authorization process.

Beneficiary and provider

- We do not expect this recommendation to affect beneficiaries' access to clinically appropriate advanced imaging services. This recommendation would reduce beneficiaries' unnecessary exposure to contrast materials and radiation from inappropriate CT and nuclear medicine studies. It would also reduce beneficiaries' Part B premiums and cost sharing. Practitioners who are not subject to prior authorization would not be affected. Practitioners who are subject to prior authorization would incur some administrative costs to obtain prior approval.

Conclusion

Physician self-referral of ancillary services leads to higher volume when combined with FFS payment systems, which reward higher volume, and the mispricing of individual services, which makes some services more profitable than others. However, under an alternative payment structure in which providers were rewarded for constraining volume growth while improving the quality of care, the volume-increasing effects of self-referral would be mitigated. Therefore, the preferred long-term approach to address self-referral is to develop new payment systems. Because it will take several years to establish new payment models and delivery systems, we have explored a range of interim approaches to address concerns raised by self-referral (Medicare Payment Advisory Commission 2010a). Although the Commission examined options to narrow the types of services or physician groups covered by the IOAS exception, we are concerned that limiting the IOAS exception could have unintended consequences, such as inhibiting the development of organizations that integrate and coordinate care within the practice. Therefore, we do not currently recommend that the exception be changed. Instead, our recommendations are designed to improve payment accuracy for imaging and other diagnostic tests and ensure the appropriate use of advanced imaging studies. These recommendations recognize that mispricing and inappropriate use are problems that go beyond self-referral. Although our recommendations do not directly address self-referral of physical therapy, radiation therapy, and anatomic pathology tests, we will continue to track the growth of these services and may consider policy options to specifically address them in the future.

The Commission remains concerned about the expansion of physician investment in imaging, other diagnostic tests, and therapeutic services (e.g., physical therapy and radiation therapy) and the potential for self-referral to lead to higher volume. We will continue to monitor the growth of these services and evidence of inappropriate use. If the recommendations in this chapter are adopted and—together with delivery system reform—are not successful at stemming the growth of ancillary services and their inappropriate use, we may revisit options to narrow the IOAS exception. CMS has proposed criteria for an ACO model that include financial penalties for rapid growth in spending (Centers for Medicare & Medicaid Services 2011b). Therefore, one option would be to have a broader IOAS exception for physicians in ACOs that are at risk for expenditure growth and a narrower exception for physicians outside of such ACOs. ■

Endnotes

- 1 In a prior report, we describe the proliferation of a variety of relationships between hospitals and physicians and their contribution to volume growth (Medicare Payment Advisory Commission 2008b).
- 2 The IOAS exception does not apply to most types of durable medical equipment or parenteral and enteral nutrients, equipment, and supplies because there is no clear justification for referring physicians to offer these services.
- 3 Such arrangements would have to comply with at least two other federal requirements: (1) the anti-kickback statute, which prohibits the offer, payment, or receipt of anything of value to induce the referral of patients for services reimbursed by federal health programs; and (2) the anti-markup rules, which apply to a physician who bills Medicare for diagnostic tests that are performed (or supervised) by a physician who does not share a practice with the billing physician. In such cases, Medicare will not pay more than the performing provider's net charge to the billing physician. The anti-markup rules do not apply to tests performed or supervised by a physician in the same building where the billing physician regularly furnishes patient care (42 CFR § 414.50).
- 4 Volume is measured as the units of service multiplied by each service's relative weight (relative value units) from the physician fee schedule. Thus, volume growth accounts for changes in both the number of services and the complexity, or intensity, of those services.
- 5 Between 9 percent and 11 percent of the tests were of uncertain appropriateness.
- 6 The workgroup has also begun considering groups of related codes rather than simply pairs of related codes.
- 7 The CPT Editorial Panel deleted 5 of these codes and will consider 49 during the 2013 cycle. The RUC will submit recommendations on the work and practice expense RVUs for 32 codes to CMS for the 2012 physician fee schedule and will review 3 codes for the 2013 physician fee schedule (American Medical Association 2011).
- 8 The new comprehensive codes are 74176 (CT, abdomen and pelvis, without contrast), 74177 (CT, abdomen and pelvis, with contrast), and 74178 (CT, abdomen and pelvis, with and without contrast).
- 9 The payment for physicians who treat patients receiving home dialysis varies only by the patients' age.
- 10 The RUC estimates the amount of physician time spent on activities before, during, and after the interpretation of an imaging study. For example, the RUC estimates that the total physician time for CT of the pelvis with contrast (72193) is 18 minutes. Prior to the interpretation, the physician spends 3 minutes reviewing the reason for the study, the clinical history, and prior imaging studies, and determining the appropriate protocol for the study. The physician spends 10 minutes interpreting the images and writing the report. After the interpretation, the physician spends 5 minutes reviewing and signing the final report and discussing the findings with the referring physician.
- 11 GAO found that the extent of the efficiencies in physician work varied by service pairs. Because some imaging codes have been packaged and revalued since 2009, the level of savings (or redistribution of dollars from imaging to other services) would probably be less than \$175 million.
- 12 This 25 percent payment reduction was based on CMS's analysis of the efficiencies associated with five high-volume pairs of therapy codes.
- 13 However, CMS's recent expansion of the MPPR to the technical component of multiple imaging services (regardless of modality) that are performed on noncontiguous body parts in the same session was implemented in a budget-neutral manner. According to CMS, the statute exempts only payment reductions for multiple imaging services performed on "consecutive body parts" from budget neutrality (Centers for Medicare & Medicaid Services 2010b).
- 14 DSS may be embedded in a provider's electronic medical record system or accessed through the Internet.
- 15 In response, CMS in 2009 implemented the first phase of the Physician Feedback Program, sending approximately 310 reports to randomly selected physicians in 12 metropolitan areas across the United States. Phase two of the Physician Feedback Program was initiated in late 2010 and is expected to continue through 2011.
- 16 GAO interviewed 17 plans with a total of about 72 million covered lives that used a prior authorization or prior notification program for imaging services (Government Accountability Office 2008).
- 17 For purposes of this discussion, the terms plan and RBM are used interchangeably.

- 18 The 11 imaging procedures are myocardial perfusion imaging, MRI of the lumbar spine, CT of the lumbar spine, MRI of the brain, CT of the brain, CT of the sinus, CT of the thorax, CT of the abdomen, CT of the pelvis, MRI of the knee, and MRI of the shoulder.
- 19 Our data came from the 100 percent carrier claims file from CMS. The data include global and professional component imaging services. To avoid double-counting, the data exclude technical component services.

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