Department of Health and Human Services

OFFICE OF INSPECTOR GENERAL

GROWTH IN ADVANCED IMAGING PAID UNDER THE MEDICARE PHYSICIAN FEE SCHEDULE

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EXECUTIVE SUMMARY

OBJECTIVE

To determine the extent and nature of growth in advanced imaging paid under the Medicare Physician Fee Schedule from 1995 to 2005.

BACKGROUND

Advanced imaging used to be the exclusive domain of hospitals; however, in the last 10 to 15 years, the Medicare program has seen the use of these services—magnetic resonance (MR), computed tomography (CT), and positron emission tomography (PET)—proliferate in ambulatory settings.

The main Medicare payment systems for advanced imaging in ambulatory settings are the Medicare Physician Fee Schedule (MPFS) and the Hospital Outpatient Prospective Payment System (OPPS). In general, the MPFS pays for services provided by noninstitutional providers, such as doctors and independent diagnostic testing facilities (IDTF), while the OPPS pays for services provided in hospital outpatient departments.

Oversight of ambulatory settings that provide advanced imaging includes accreditation and certification for hospital outpatient departments and State licensure for IDTFs and doctors' offices. IDTFs must also meet basic standards to enroll in Medicare.

A 2006 Office of Inspector General (OIG) review of IDTFs found substantial noncompliance with Medicare standards and recommended that CMS consider conducting site visits of IDTFs. In response, the Centers for Medicare & Medicaid Services (CMS) issued regulations with new IDTF performance standards.

This study relies on Medicare Part B claims and enrollment data from 1995 to 2005.

FINDINGS

From 1995 to 2005, advanced imaging paid under the Medicare Physician Fee Schedule grew more than fourfold, from 1.4 million to 6.2 million services. By 2005, advanced imaging billed under the MPFS made up nearly one-quarter of all advanced imaging covered by Medicare. Allowed charges and utilization rate per beneficiary grew by a similar magnitude, to $3.5 billion and 163 services per 1,000 beneficiaries.

Services provided by IDTFs accounted for nearly 30 percent of the total growth in advanced imaging under the MPFS. Between 1995 and 2005, the percentage of advanced imaging services paid under the MPFS that were provided by Independent Physiological Labs (IPL) and IDTFs grew from 2.6 to 23 percent. This represents a growth of nearly 1.4 million services, or 29 percent of the growth in advanced imaging from 1995 to 2005.

Growth varied widely among States, from 24 percent to over 1,000 percent. Between 1995 and 2005, the number of advanced imaging services billed per 1,000 beneficiaries grew in every State, with the median State's utilization rate increasing from 29 to 126 services per 1,000 beneficiaries. States that began the period with the lowest rates experienced the most growth. Levels of use in many of the high-growth States, however, still do not approach those of States in which advanced imaging is most frequently performed.

In every year from 1995 to 2005, a small number of procedure codes consistently accounted for over half of all advanced imaging billed under the MPFS. In each year, the 10 most frequently billed procedure codes accounted for close to 60 percent of all advanced imaging services billed under the MPFS. Top codes remained largely unchanged: four of the top five codes were the same in 1995 and in 2005.

RECOMMENDATION

The growth in advanced imaging paid under the MPFS raises questions and challenges for the Medicare program, particularly regarding the quality and appropriateness of services. Ongoing OIG work is focusing on different aspects of this growth, including a more specific examination of how advanced imaging services are provided in ambulatory settings. In light of the growth we describe in this report, we recommend that:

CMS Monitor the Growth of Advanced Imaging Performed in Ambulatory Settings

CMS should conduct such monitoring as part of its efforts to ensure that Medicare beneficiaries receive reasonable, appropriate, and high-quality imaging services in ambulatory settings. The rapid growth of IDTFs in providing advanced imaging reinforces the importance of implementing our prior recommendation that CMS consider conducting site visits to monitor IDTFs' compliance with Medicare requirements.

AGENCY COMMENTS

CMS concurred with our recommendation and shares OIG's concern about the growth of imaging services. CMS described steps it took in July 2007 to improve oversight of IDTFs. CMS commented that IDTFs receive site visits when newly enrolled and when reportable changes in their operations occur. However, it stated that it lacks funding to support unannounced site visits of IDTFs.

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OBJECTIVE

To determine the extent and nature of growth in advanced imaging paid under the Medicare Physician Fee Schedule from 1995 to 2005.

BACKGROUND

Advanced imaging used to be the exclusive domain of hospitals; however, in the last 10 to 15 years, the Medicare program has seen the use of these services proliferate in ambulatory settings. This study documents the extent and nature of this growth by analyzing services paid under the Medicare Physician Fee Schedule (MPFS), one of Medicare's main payment systems for ambulatory care. Ongoing Office of Inspector General (OIG) work will focus on how advanced imaging services are furnished in ambulatory settings.

Overview of Advanced Imaging

Advanced imaging, such as magnetic resonance (MR), computed tomography (CT), and positron emission tomography (PET), enables doctors to diagnose and treat patients by providing detailed images of tissues deep inside the body. Advances in technology are dramatically expanding the number of clinical applications for advanced imaging. MR, CT, and PET scans are used to detect and treat a growing number of conditions, including cancer, heart disease, damage to bones and organs, and brain disorders such as Alzheimer's disease and Parkinson's disease. Technological progress has also facilitated the provision of advanced imaging services in ambulatory settings, which has the potential to increase convenience and improve health outcomes for Medicare beneficiaries.

Components of Advanced Imaging

Medicare divides imaging services into two components: the technical component, which is taking an image of the patient, and the professional component, which is a doctor's interpretation of the image. Medicare may pay for the components separately if each was performed by a different provider, or it may make a global payment to one provider as payment for both components. Separate payments are common for services performed in hospitals. For such services, Medicare covers the technical component in its facility payment to the hospital and makes a separate payment to a doctor for the professional component.

Payment for Advanced Imaging in Ambulatory Settings

The main Medicare payment systems for advanced imaging in ambulatory settings are the MPFS and the Hospital Outpatient Prospective Payment System (OPPS).[1] The MPFS, effective in 1992, establishes payment rates for services furnished by providers such as doctors, group practices, independent diagnostic testing facilities (IDTFs), and certain other medical professionals.[2] Of note, the MPFS covers the professional component of imaging, even for scans performed in hospitals and hospital outpatient departments. The OPPS, effective in 2000, covers the technical component of imaging provided during visits to hospital outpatient departments.

Oversight of Ambulatory Settings That Provide Advanced Imaging

Oversight of ambulatory settings that provide advanced imaging in the Medicare program varies. Hospital outpatient departments must be part of a hospital that is enrolled in Medicare and maintains either accreditation by an approved accreditor or certification by a State survey agency.[3] To earn accreditation or certification, hospitals must demonstrate that they meet a set of minimum quality and safety standards and undergo inspections to monitor their compliance.[4] Doctors and group practices must maintain relevant professional licensure in the State where they operate.[5] IDTFs undergo an initial onsite inspection by a Medicare carrier when they enroll in the Medicare program and must remain compliant with standards covering, among other things, the proficiency of employees, the ordering of tests, and State licensure.[6]

Independent Diagnostic Testing Facilities

According to the Centers for Medicare & Medicaid Services (CMS), an IDTF is a fixed location, a mobile entity, or an individual nonphysician practitioner that performs diagnostic procedures.[7] IDTFs may provide many different types of services; however, diagnostic imaging represents the majority of their Medicare

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[1] Social Security Act § 1833(t).

[2] Social Security Act § 1848.

[3] Social Security Act § 1861(e); Social Security Act § 1865.

[4] 42 CFR § 482.

[5] Social Security Act § 1861(r).

[6] 42 CFR § 410.33; CMS, "Medicare Program Integrity Manual," Chapter 10: Healthcare Provider/Supplier Enrollment (4196), Rev. 150, June 6, 2006.

[7] 42 CFR § 410.33.

reimbursement.[8] A freestanding imaging center in a medical office park or shopping mall is one example of an IDTF.

The predecessors to IDTFs are independent physiological laboratories (IPLs). In 1998, OIG issued two reports outlining problems and vulnerabilities with IPLs, including providers out of compliance with Medicare requirements and potential fraud and abuse.[9] [10] In 1999, IDTFs effectively replaced IPLs; however, similar problems persist. A 2006 OIG review of IDTFs found substantial noncompliance with Medicare enrollment standards. That review also found claims that did not meet Medicare billing requirements, leading to estimated improper payments of $71.5 million.[11] The report recommended that CMS recover overpayments and consider performing site visits to monitor compliance with IDTFs' initial enrollment applications and subsequent updates.

In December 2006, CMS issued final regulations that established IDTF performance standards covering, among other things, liability insurance, disclosure of ownership interests, and access to IDTFs and their records through unannounced onsite inspections by CMS.[12] In the preamble to those regulations, CMS cited OIG's report and other concerns with IDTFs as the rationale for establishing performance standards. CMS's other concerns included fraud, which it had identified in several States, and the over 400-percent growth in the number of IDTFs in California billing Medicare between 2000 and 2005.

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[8] MedPAC, "A Data Book: Healthcare Spending and the Medicare Program," June 2004, p. 135.

[9] OIG, "Independent Physiological Laboratories: Vulnerabilities Confronting Medicare," OEI-05-97-00240, August 1998.

[10] OIG, "Independent Physiological Laboratories: Carrier Perspectives," OEI-05-97-00241, August 1998.

[11] OIG, "Review of Claims Billed by Independent Diagnostic Testing Facilities for Services Provided to Medicare Beneficiaries During Calendar Year 2001," OAS-03-03-00002, June 2006.

[12] 71 FR 69,624, 69,695 (December 1, 2006) (to be codified at 42 CFR § 410).

METHODOLOGY

This study relies primarily on analysis of Medicare claims and enrollment data.

Scope

This study focuses on advanced imaging services paid under the MPFS from 1995 to 2005. In this study, we define advanced imaging as CT, MR, and PET.

Analysis

We analyzed annual summary files of MPFS claims data from CMS's Part B Extract and Summary System (BESS). For each year, we used Healthcare Common Procedure Coding System (HCPCS) procedure codes to identify BESS records representing CT, MR, and PET services. Once we identified records for advanced imaging, we used the procedure modifier codes contained on the records to categorize them as those for the technical component, the professional component, or a global service.

We calculated allowed services and charges at the HCPCS level and then summed these to create annual totals. Our count of services paid under the MPFS is the sum of technical components and global services. Our count of all advanced imaging services paid by Medicare is the sum of those paid under the MPFS and those paid outside of the MPFS. To calculate total allowed charges, we added allowed charges for global services, technical component services, and professional component services associated with technical component claims.

We used annual enrollment files published on CMS's Web site to calculate utilization rates per 1,000 Medicare beneficiaries. We subtracted beneficiaries in managed care plans from our counts because services for these beneficiaries are not contained in the BESS summary records that we used to count services.

To determine the types of providers that billed for advanced imaging, we used the provider specialty code on the BESS summary records. Of note, CMS considers an IDTF to be a provider specialty rather than a place of service.

Please see Appendix A for a full discussion of our methodology.

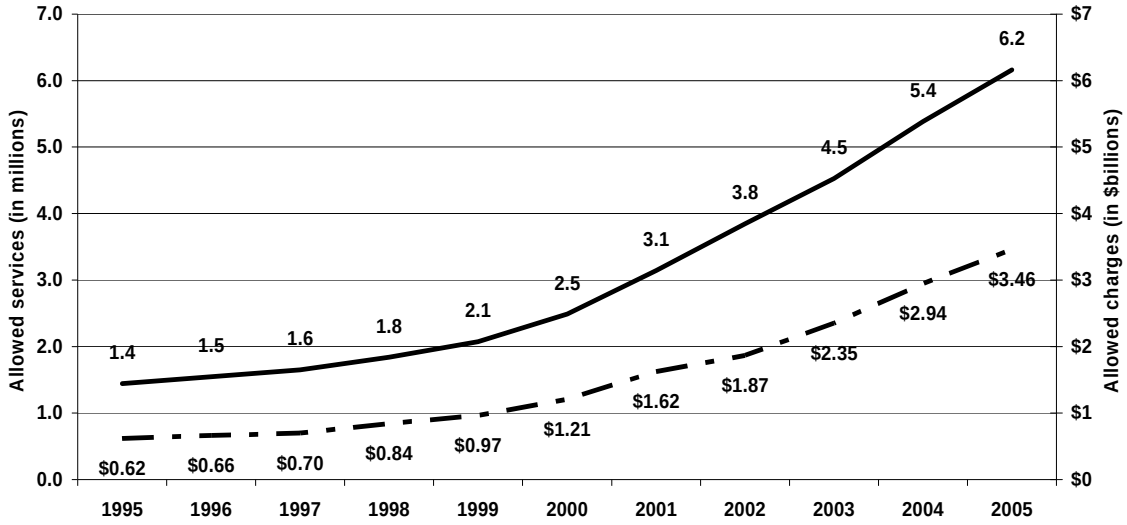
Standards

We conducted this study in accordance with the "Quality Standards for Inspections" issued by the President's Council on Integrity and Efficiency and the Executive Council on Integrity and Efficiency.

From 1995 to 2005, advanced imaging paid under the Medicare Physician Fee Schedule grew more than fourfold, from 1.4 million to 6.2 million services

By 2005, advanced imaging paid under the MPFS made up nearly one-quarter of all advanced imaging paid by Medicare, increasing from 15 percent in 1995 to 23 percent in 2005. Over the same period, advanced imaging billed by hospitals and other providers paid outside of the MPFS grew by about 2.5 times. On average, the number of allowed services paid under the MPFS grew by about 16 percent per year from 1995 to 2005. Growth was highest between 2000 and 2001, when the number of services increased 26 percent. Chart 1 shows 10-year growth of MPFS advanced imaging by total allowed services and total allowed charges. (See Tables 1 and 2 in Appendix B for annual growth in services and charges for each imaging modality.)

Chart 1: Growth in Allowed Services and Allowed Charges for Advanced Imaging Paid Under the MPFS, 1995 to 2005



Source: OIG analysis of Part B data, 2007.

From 1995 to 2005, the number of CT services grew fourfold, from just over 800,000 to 3.2 million services. Over this period, the percentage of all Medicare CT services paid under the MPFS grew from 11 to 16 percent.

The number of MR services also grew fourfold over this period, from about 630,000 to 2.7 million services. By 2005, 43 percent of all Medicare-covered MR services were paid under the MPFS, up from 36 percent in 1995.

PET was first covered by Medicare in 1996. As coverage of the technology expanded, it became the fastest growing of the three modalities, to about 228,000 services in 2005. Between 1996 and 2005, the share of all PET services that was paid under the MPFS increased from 26 to 59 percent.

From 1995 to 2005, allowed charges grew more than fivefold, to $3.5 billion

Because PET and MR are costlier than CT, their growth caused allowed charges to increase at a faster rate than allowed services.[13] For example, although PET imaging accounts for only about 5 percent of the growth in services, it accounts for more than 18 percent of the growth in allowed charges. Similarly, MR accounts for about 45 percent of the growth in services, but 53 percent of the growth in allowed charges. See Chart 1 for growth in allowed charges overall. See Charts 2a and 2b to compare each modality's share of total growth in services with its share of total growth in charges.

Chart 2a: Percentage of Total Growth in Allowed Services by Imaging Modality, 1995 to 2005

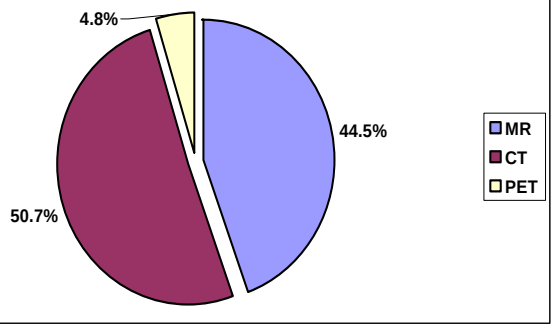
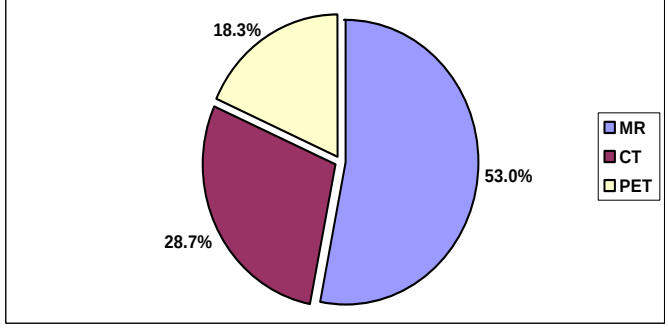


Chart 2b: Percentage of Total Growth in Allowed Charges by Imaging Modality, 1995 to 2005



Source: OIG analysis of Part B data, 2007.

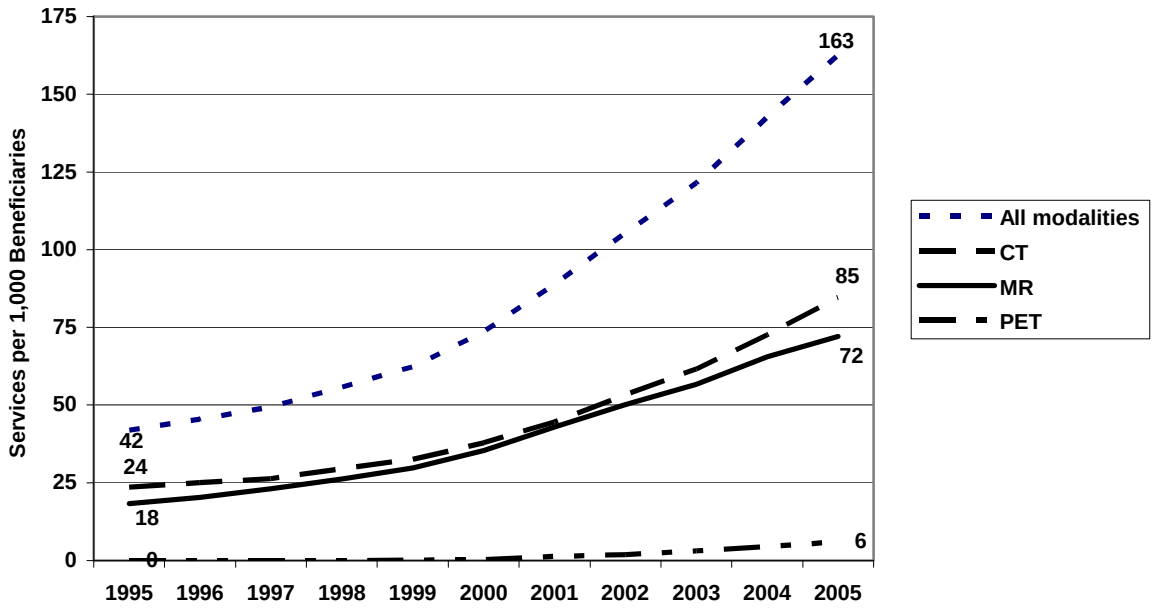
The utilization rate of advanced imaging grew from 42 services per 1,000 beneficiaries in 1995 to 163 in 2005

After trailing the annual growth in MR utilization rates from 1996 to 2001, annual growth of CT outpaced that of MR from 2002 to 2005. As of 2005, CT remained the most frequently used of the three modalities,

[13] Average allowed charges per service in 2005 for CT, MR, and PET were $351, $726, and $2,305, respectively.

with 85 services performed for every 1,000 beneficiaries. Chart 3 shows growth in utilization rates for each type of imaging and for the three modalities combined.

Chart 3: Growth in Advanced Imaging Utilization Rates, 1995 to 2005



Source: OIG analysis of Part B data, 2007.

Services provided by IDTFs accounted for nearly 30 percent of the total growth in advanced imaging under the MPFS

Between 1995 and 2005, the percentage of all advanced imaging services paid under the MPFS that were provided by IPLs and IDTFs grew from 2.6 to 23 percent. This represents a growth of nearly 1.4 million services. IDTFs accounted for almost 40 percent of growth in MR and PET but only 20 percent of growth in CT. Although the share of all services paid under the provider specialty category of diagnostic radiology decreased between 1995 and 2005, the specialty saw growth of more than 2.3 million services overall. See Tables 1 and 2 to compare the top five provider specialties in 1995 and 2005. (See Tables 3 through 6 of Appendix B for counts of services by provider specialty overall and for each type of imaging.)

Table 1: Concentration of MPFS Advanced Imaging Services by Five Most Common Specialties, 1995

Specialty	Number of services	Percentage of total services
Diagnostic radiology	1,203,662	83%
Neurology	39,203	3%
IDTF*	37,939	3%
Multispecialty clinic/group	33,992	2%
Interventional radiology	28,991	2%
Total Top Five	1,343,787	93%

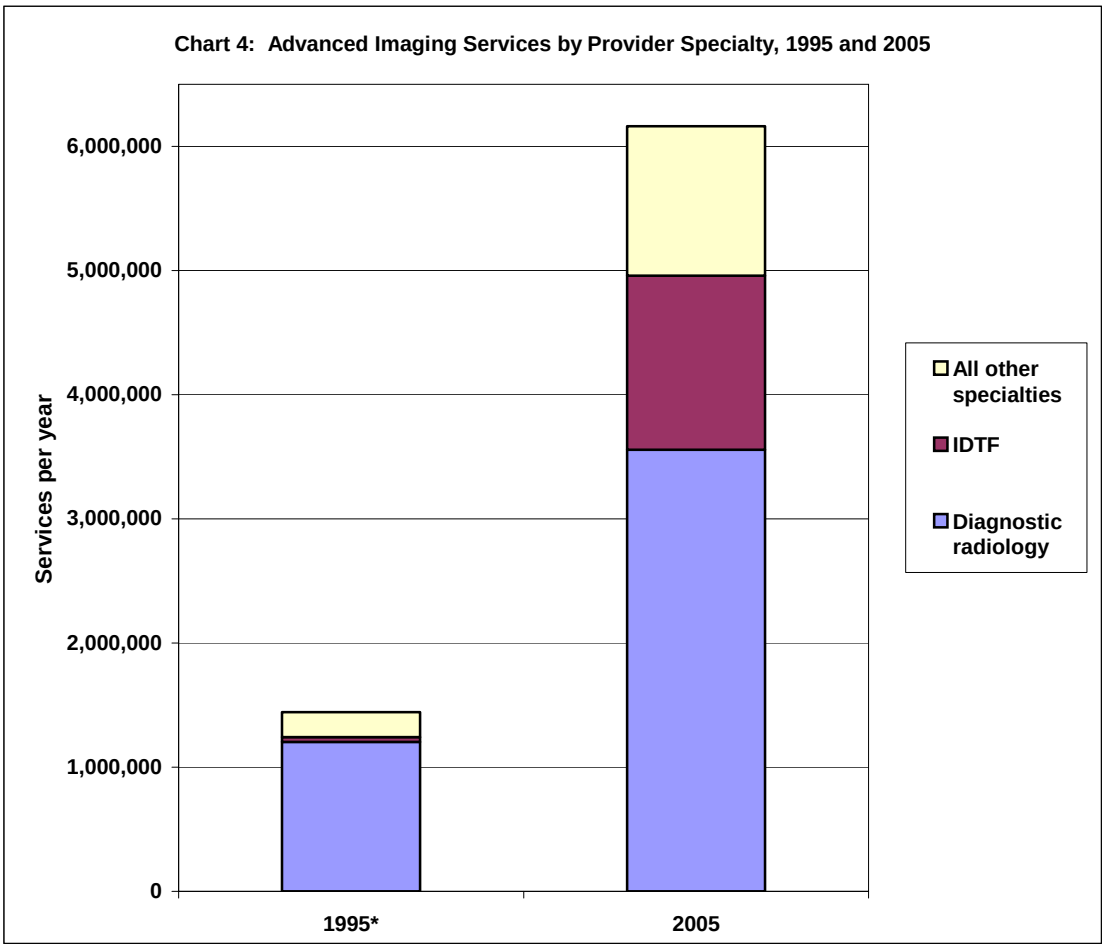
* In 1995, IDTFs were classified as IPLs.

Table 2: Concentration of MPFS Advanced Imaging Services by Five Most Common Specialties, 2005

Specialty	Number of services	Percentage of total services
Diagnostic radiology	3,556,470	58%
IDTF	1,403,156	23%
Orthopedic surgery	160,672	3%
Internal medicine	132,097	2%
Hematology/oncology	120,256	2%
Total Top Five	5,372,651	88%

Source: OIG analysis of Part B data, 2007.

Chart 4 shows that while IDTFs account for a much larger share of total services in 2005 than in 1995, diagnostic radiology is still the specialty under which most advanced imaging is billed and accounted for half of the growth between 1995 and 2005.



* In 1995, IDTFs were classified as IPLs.

Source: OIG analysis of Part B data, 2007.

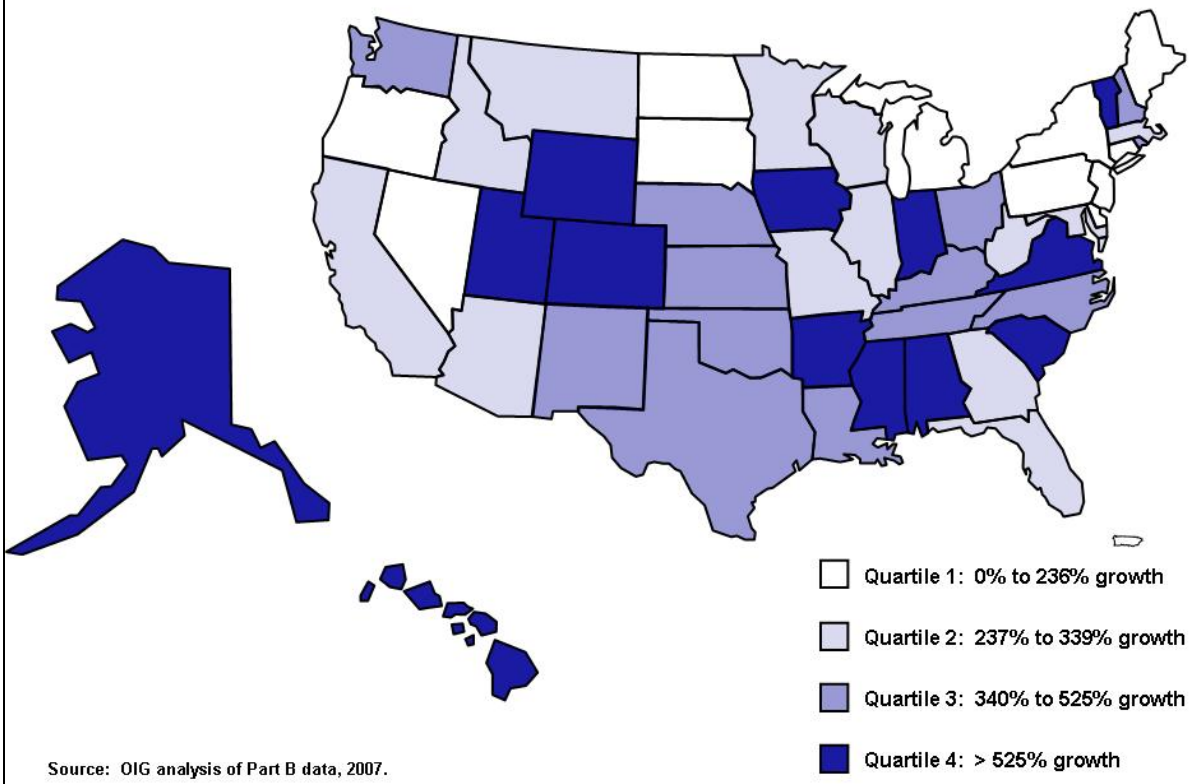
Growth varied widely among States, from 24 percent to over 1,000 percent

Between 1995 and 2005, the number of MPFS advanced imaging services paid per 1,000 beneficiaries grew in every State and in one State more than tenfold. Typical growth was about 336 percent over the 10-year period, with the median State's utilization rate increasing from 29 to 126 services per 1,000 beneficiaries.

States that began the period with the lowest rates experienced the most growth. Levels of use in many of the high-growth States, however, still do not approach those of States in which advanced imaging is most frequently performed. For example, many Rocky Mountain States experienced high growth in the rate of services per beneficiary, but they still remain fairly low users of imaging relative to some southern and

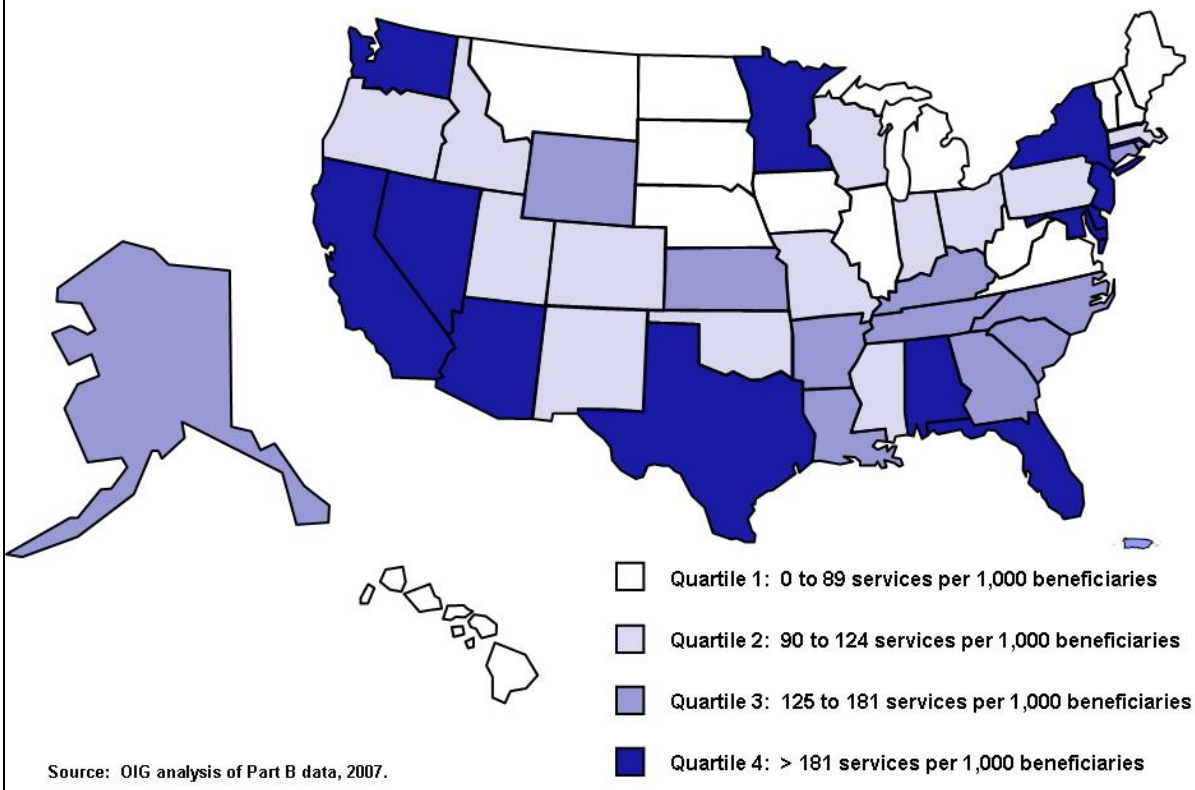
northeastern States. See Figure 1 for growth in advanced imaging services per 1,000 beneficiaries and Figure 2 for utilization rates in 2005.

Figure 1: Growth in Utilization Rate by State, 1995 to 2005



Source: OIG analysis of Part B data, 2007.

Figure 2: 2005 Advanced Imaging Utilization Rate by State



Source: OIG analysis of Part B data, 2007.

Wide variation remains in utilization rates across States

In 2005, the State with the lowest utilization rate, Vermont, had 8 advanced imaging services paid under the MPFS for every 1,000 beneficiaries. The State with the highest utilization rate in 2005, Florida, had 326 services for every 1,000 beneficiaries. (See Table 7 in Appendix B for growth in utilization rates by State.)

In every year from 1995 to 2005, a small number of procedure codes consistently accounted for over half of all advanced imaging billed under the MPFS

In 1995, the MPFS covered 77 different advanced imaging procedure codes. By 2005, this number had grown to 170, with the greatest growth occuring in 2001, when 53 new procedure codes were included. Yet the bulk of billing volume remained concentrated among a relatively small number of procedure codes. In each of the 11 years from 1995 to 2005, the 10 most frequently billed procedure codes accounted for about 60 percent of all advanced imaging paid under the MPFS. Also, the most common procedure codes remained largely unchanged. The combined list of top 10 codes for every year between 1995 and 2005 comprises only 13 different codes, and 4 of the top 5 procedure codes were the same in 1995 and in 2005. See Table 3 for a list of the top 10 codes in 2005 and the number of years each was in the top 10.

Table 3: Ten Most Frequently Billed Advanced Imaging Procedure Codes, 2005

Procedure code	Procedure description*	Number of services	Percentage of total services	Number of years in the top 10 from 1995 to 2005
72148	MRI lumbar spine w/o dye	557,646	9%	11
72193	CT pelvis w/dye	421,056	7%	11
71260	CT thorax w/dye	392,140	6%	11
70553	MRI brain w/o & w/dye	366,977	6%	11
74160	CT abdomen w/dye	351,257	6%	11
73721	MRI joint of lower extremity w/o dye	336,795	5%	10
74170	CT abdomen w/o & w/dye	307,854	5%	11
71250	CT thorax w/o dye	265,931	4%	4
73221	MRI joint upper extremity w/o dye	239,545	4%	2
72141	MRI neck spine w/o dye	225,293	4%	11
Total		3,464,494	56%	

* Procedure descriptions are copyrighted by the American Medical Association.

Source: OIG analysis of Part B data, 2007.

RECOMMENDATION

The growth of advanced imaging in ambulatory settings—those for which Medicare payment is made under the MPFS—is a trend that is likely to continue as new technology and clinical applications become available. Although this growth has the potential to increase convenience and improve health outcomes for beneficiaries, it also raises questions and challenges for the Medicare program. For example, the wide range of growth and utilization rates across States raises questions about what drives variability in the use of advanced imaging. Growth of advanced imaging in ambulatory settings poses a challenge for quality oversight of the Medicare program. Rapid growth also raises concerns about inappropriate use of services, which can be costly for both Medicare and its beneficiaries. Ongoing OIG work is focusing on different aspects of this growth, including a more specific examination of how advanced imaging services are provided in ambulatory settings.

IDTFs are increasingly prominent providers of advanced imaging services. In 2005, they provided 1.4 million services, or 23 percent of all advanced imaging paid under the MPFS. In 2006, an OIG review found numerous problems with IDTFs, including noncompliance with Medicare requirements and services that were not reasonable and necessary.[14] At that time, OIG recommended that CMS consider performing site visits to monitor compliance with IDTFs' enrollment applications and subsequent updates. In response to OIG's review, CMS issued final regulations that established IDTF performance standards.[15] In January 2007, CMS issued a transmittal giving technical direction to Medicare carriers regarding oversight of the new performance standards. CMS rescinded this transmittal in February 2007.[16]

In our draft report, we recommended that CMS monitor the growth of advanced imaging performed in ambulatory settings. As part of such monitoring, we stated that CMS should reissue technical direction to

[14] Department of Health and Human Services, OIG, "Review of Claims Billed by Independent Diagnostic Testing Facilities for Services Provided to Medicare Beneficiaries During Calendar Year 2001," OAS-03-03-00002, June 2006.

[15] 71 FR 69,624, 69,695 (December 1, 2006) (to be codified at 42 CFR part 410).

[16] CMS, Transmittal 187, January 26, 2007.

Medicare carriers regarding oversight of the new IDTF performance standards.

Subsequent to OIG's issuance of the draft report, CMS issued new technical direction to the Medicare carriers regarding the IDTF performance standards on July 13, 2007.[17] It also published a proposed rule in the Federal Register on July 12, 2007, that if adopted would revise and clarify the IDTF performance standards. Although these actions partially address our recommendation, we continue to recommend that:

CMS Monitor the Growth of Advanced Imaging Performed in Ambulatory Settings

CMS should conduct such monitoring as part of its efforts to ensure that Medicare beneficiaries receive reasonable, appropriate, and high-quality imaging services in all ambulatory settings, including IDTFs. Further, the rapid growth of IDTFs in providing advanced imaging reinforces the importance of implementing our prior recommendation that CMS consider conducting site visits to monitor IDTFs' compliance with Medicare requirements.

AGENCY COMMENTS

CMS concurred with our recommendation and shares OIG's concern about the growth in advanced imaging. CMS described steps it took in July 2007 to improve oversight of IDTFs, including issuing new technical direction regarding the IDTF performance standards and a proposed rule to revise and clarify the standards. CMS commented that it requires contractors to conduct site visits of IDTFs when newly enrolled and when reportable changes in their operations occur. However, it stated that it lacks funding to support unannounced site visits to IDTFs. The full text of CMS's comments is provided in Appendix C.

[17] CMS, Transmittal 216, July 13, 2007.

METHODOLOGY

This study relies primarily on analysis of Medicare claims and enrollment data.

Scope

This study focuses on advanced imaging services paid under the Medicare Physician Fee Schedule (MPFS) from 1995 to 2005 for the 50 States, the District of Columbia, and Puerto Rico. In this study, we define advanced imaging as computed tomography, magnetic resonance, and positron emission tomography. We identify imaging services using the technical portion of the service. Thus, we count a service as paid under the MPFS if its technical component was paid under the MPFS, either as a claim for the technical component only or as a claim for the global service. When only the professional component of an imaging service was paid under the MPFS, we consider it covered outside of the MPFS.

Analysis

We analyzed annual summary files of MPFS claims data from the Centers for Medicare & Medicaid Services (CMS) Part B Extract and Summary System (BESS). For each year, these files contain counts of allowed services and charges by Healthcare Common Procedure Coding System (HCPCS) procedure code, with detailed totals by procedure modifier code, Medicare carrier number, provider specialty code, and other variables.

To identify records for advanced imaging services in each annual file, we compiled a list of HCPCS codes specific to that year. We developed these lists by examining narrative descriptions of the procedure codes in CMS's annual HCPCS file, analyzing Medicare coverage policy, and reviewing printed coding manuals published by CMS and the American Medical Association.

Once we identified records for advanced imaging, we used the procedure modifier codes to determine whether the record referred to the technical component, the professional component, or a global service. We identified technical component records by checking the first and second modifier variables for the value of "TC." We identified professional component records by checking for a value of "26." We identified global services by checking for either no modifiers or for any value other than "TC" or "26." After categorizing the

records, we summed allowed services by State, HCPCS code, component of service, and provider specialty code.

To calculate the percentage of advanced imaging services paid under the MPFS, we needed to determine the number of advanced imaging services reimbursed under some payment system other than the MPFS. Since the professional component of imaging is paid under the MPFS, we used professional component services paid under the MPFS that did not have corresponding technical component services as a proxy for services provided outside of the MPFS. Thus, for each HCPCS code, we subtracted the total count of services billed as the technical component from the total count of services billed as the professional component. The remaining professional component services represent the count of services paid under some system other than the MPFS for that HCPCS code.

To calculate total allowed charges, we summed allowed charges by HCPCS code. Allowed charges for each HCPCS code include those for global services, technical component services, and professional component services associated with MPFS technical component claims. First, we summed allowed services and charges for technical component claims. Next, we calculated average allowed charges per professional component service for each HCPCS code. We then multiplied the count of technical component services by the average allowed charge for the professional component to arrive at allowed charges for the professional component services. Finally, we summed technical, professional, and global charges to calculate total charges for each HCPCS code. To reflect geographic variation in reimbursement amounts, we calculated charges by HCPCS code at the carrier pricing locality level.

We used annual enrollment files published on CMS's Web site by its Center for Beneficiary Choices to calculate utilization rates per 1,000 Medicare beneficiaries. Each annual file contains county-level counts of beneficiaries with Part A or Part B coverage and of those enrolled in managed care plans. For our analysis, we summarized these files to the State level. We subtracted beneficiaries in managed care plans from our counts because services for these beneficiaries are not contained in the BESS summary records that we used to count services.

To determine the types of providers that billed for advanced imaging, we used the provider specialty code on the BESS summary records.

Of note, because CMS identifies IDTFs as a provider specialty, we used the provider specialty code to identify services provided by IDTFs.

We used SAS software to conduct our analysis.

Limitations

This study relies on data produced by CMS; we did not attempt to independently verify these data.

Our analysis is limited by the way CMS collects and maintains the data we used for this study. Because of a limitation in the enrollment data we used, we were unable to include Railroad Retirement Board beneficiaries in our State-level counts of beneficiary populations. There were about 600,000 of these beneficiaries in 2005. Also, the annual enrollment figures we used overstate the population by 2 to 3.5 percent because they include all beneficiaries who had Part A or B coverage at any point during the year.

We base our calculations of the percentage of services paid under the MPFS and of allowed charges on the assumption that each technical component service has one professional component service. Our tests against the 100-percent Part B National Claims History file for 2004 show that, while this assumption is largely true, it is not entirely so. Therefore, we acknowledge that using the data in this way could cause us to slightly overstate these calculations.

APPENDIX ~ B

Table 1: Growth in Allowed Services for Advanced Imaging Under the MPFS, by Year, 1995 to 2005

	Three modalities combined		CT		MR		PET	
Year	Allowed services	Percentage change from previous year	Allowed services	Percentage change from previous year	Allowed services	Percentage change from previous year	Allowed services	Percentage change from previous year
1995	1,443,496		813,533		629,963		n/a	n/a
1996	1,547,568	7.2%	854,894	5.1%	692,007	9.8%	667	n/a
1997	1,649,677	6.6%	878,929	2.8%	769,989	11.3%	759	13.8%
1998	1,841,568	11.6%	974,631	10.9%	865,512	12.4%	1,425	87.7%
1999	2,073,473	12.6%	1,081,697	11.0%	987,827	14.1%	3,949	177.1%
2000	2,489,501	20.1%	1,281,810	18.5%	1,197,107	21.2%	10,584	168.0%
2001	3,143,334	26.3%	1,575,105	22.9%	1,521,171	27.1%	47,058	344.6%
2002	3,845,067	22.3%	1,944,322	23.4%	1,830,805	20.4%	69,940	48.6%
2003	4,526,251	17.7%	2,296,345	18.1%	2,115,620	15.6%	114,286	63.4%
2004	5,385,696	19.0%	2,742,063	19.4%	2,476,251	17.0%	167,382	46.5%
2005	6,161,162	14.4%	3,203,399	16.8%	2,729,321	10.2%	228,442	36.5%

Table 2: Growth in Allowed Charges for Advanced Imaging Under the MPFS, by Year, 1995 to 2005

	Three modalities combined		CT		MR		PET	
Year	Allowed charges	Percentage change from previous year	Allowed charges	Percentage change from previous year	Allowed charges	Percentage change from previous year	Allowed charges	Percentage change from previous year
1995	$617,211,512	n/a	$232,573,625	n/a	$384,637,887	n/a	n/a	n/a
1996	$661,031,293	7.1%	$240,126,894	3.2%	$419,980,806	9.2%	$923,593	n/a
1997	$699,923,303	5.9%	$242,616,653	1.0%	$456,200,175	8.6%	$1,106,475	19.8%
1998	$841,894,277	20.3%	$286,436,669	18.1%	$552,934,338	21.2%	$2,523,270	128.0%
1999	$966,552,545	14.8%	$323,285,552	12.9%	$635,363,604	14.9%	$7,903,390	213.2%
2000	$1,210,063,498	25.2%	$398,272,190	23.2%	$789,565,479	24.3%	$22,225,829	181.2%
2001	$1,624,150,492	34.2%	$505,870,196	27.0%	$1,047,661,561	32.7%	$70,618,735	217.7%
2002	$1,866,251,391	14.9%	$567,527,989	12.2%	$1,150,387,917	9.8%	$148,335,485	110.1%
2003	$2,348,112,112	25.8%	$705,542,485	24.3%	$1,393,543,032	21.1%	$249,026,596	67.9%
2004	$2,944,462,862	25.4%	$882,192,069	25.0%	$1,694,607,425	21.6%	$367,663,368	47.6%
2005	$3,461,225,352	17.6%	$1,047,959,778	18.8%	$1,893,326,580	11.7%	$519,938,995	41.4%

Note: In all tables in this appendix, MPFS refers to the Medicare Physician Fee Schedule, CT to computed tomography, MR to magnetic resonance, and PET to positron emission tomography.

Table 3: Number and Percentage of Advanced Imaging Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of advanced imaging services, 1995	Percentage of advanced imaging services, 1995	Number of advanced imaging services, 2005	Percentage of advanced imaging services, 2005
00	Carrier wide	49	0.00%	0	0.00%
01	General practice	7,125	0.49%	22,560	0.37%
02	General surgery	3,153	0.22%	7,946	0.13%
03	Allergy/immunology	130	0.01%	1,282	0.02%
04	Otolaryngology	2,402	0.17%	24,487	0.40%
05	Anesthesiology	565	0.04%	7,549	0.12%
06	Cardiology	1,954	0.14%	57,086	0.93%
07	Dermatology	45	0.00%	2,604	0.04%
08	Family practice	6,642	0.46%	75,573	1.23%
09	Gynecology	0	0.00%	1,540	0.02%
10	Gastroenterology	2,583	0.18%	13,645	0.22%
11	Internal medicine	16,599	1.15%	132,097	2.14%
12	Osteopathic therapy	9	0.00%	515	0.01%
13	Neurology	39,203	2.72%	74,805	1.21%
14	Neurosurgery	4,127	0.29%	24,256	0.39%
16	Obstetrics/gynecology	541	0.04%	2,547	0.04%
18	Ophthalmology	195	0.01%	526	0.01%
19	Oral surgery	41	0.00%	197	0.00%
20	Orthopedic surgery	4,841	0.34%	160,672	2.61%
22	Pathology	17	0.00%	240	0.00%
24	Plastic surgery	86	0.01%	630	0.01%
25	Physical medicine/rehab	198	0.01%	9,324	0.15%
26	Psychiatry	42	0.00%	265	0.00%
28	Colorectal surgery	33	0.00%	178	0.00%
29	Pulmonary disease	2,281	0.16%	18,516	0.30%
30	Diagnostic radiology	1,203,662	83.39%	3,556,470	57.72%
31	Roentgenology, radiology**	0	0.00%	0	0.00%
33	Thoracic surgery	1,398	0.10%	3,755	0.06%
34	Urology	1,572	0.11%	79,498	1.29%
36	Nuclear medicine	7,805	0.54%	32,285	0.52%
37	Pediatric medicine	124	0.01%	710	0.01%
38	Geriatric medicine	75	0.01%	479	0.01%
39	Nephrology	346	0.02%	3,058	0.05%
40	Hand surgery	2	0.00%	1,869	0.03%
41	Optometry	0	0.00%	1	0.00%
42	Cert nurse midwife**	0	0.00%	0	0.00%
43	CRNA, anesth asst**	0	0.00%	0	0.00%
44	Infectious disease	162	0.01%	2,071	0.03%
45	Mammog screening center	21	0.00%	0	0.00%
46	Endocrinology	533	0.04%	2,778	0.05%
47	IDTF	0	0.00%	1,403,150	22.77%

* As listed in the Centers for Medicare & Medicaid Services (CMS) documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 3 (continued): Number and Percentage of Advanced Imaging Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of advanced imaging services, 1995	Percentage of advanced imaging services, 1995	Number of advanced imaging services, 2005	Percentage of advanced imaging services, 2005
48	Podiatry	127	0.01%	3,174	0.05%
49	ASC	3	0.00%	6	0.00%
50	Nurse practitioner	1	0.00%	2,903	0.05%
51	Med supply w/orthotist	1,195	0.08%	0	0.00%
54	Medical supply company	56	0.00%	0	0.00%
58	Med supply w/pharmacist	1	0.00%	0	0.00%
59	Ambulance service supplier**	0	0.00%	0	0.00%
60	Public hlth/welfare agency	6	0.00%	2	0.00%
63	Portable X-ray supplier	8,408	0.58%	4,446	0.07%
65	Physical therapist	0	0.00%	4	0.00%
66	Rheumatology	2,800	0.19%	27,669	0.45%
68	Clinical psychologist**	0	0.00%	0	0.00%
69	Clinical laboratory	2,578	0.18%	170	0.00%
70	Multispec clinic/group	33,992	2.35%	3,836	0.06%
71	Diagnostic X-ray**	0	0.00%	0	0.00%
72	Diagnostic laboratory	0	0.00%	1,462	0.02%
74	Occupational therapy	0	0.00%	7,712	0.13%
75	Other medical care**	0	0.00%	0	0.00%
76	Peripheral vascular disease	51	0.00%	90	0.00%
77	Vascular surgery	219	0.02%	1,895	0.03%
78	Cardiac surgery	43	0.00%	2,004	0.03%
79	Addiction medicine**	0	0.00%	0	0.00%
80	Licensed clin social worker**	0	0.00%	0	0.00%
81	Critical care (intensivists)	32	0.00%	1,750	0.03%
82	Hematology	130	0.01%	3,043	0.05%
83	Hematology/oncology	8,196	0.57%	120,256	1.95%
84	Preventive medicine	10	0.00%	204	0.00%
85	Maxillofacial surgery	21	0.00%	36	0.00%
86	Neuropsychiatry	49	0.00%	218	0.00%
87	All other suppliers	15	0.00%	0	0.00%
88	Unkn suppl/provider spclty	1,467	0.10%	4	0.00%
89	Cert clin nurse specialist	0	0.00%	57	0.00%
90	Medical oncology	2,590	0.18%	58,253	0.95%
91	Surgical oncology	118	0.01%	1,130	0.02%
92	Radiation oncology	4,870	0.34%	107,578	1.75%
93	Emergency medicine	548	0.04%	6,700	0.11%
94	Interventional radiology	28,991	2.01%	72,359	1.17%
95	Indep physiological lab	37,939	2.63%	6	0.00%
97	Physician assistant	0	0.00%	3,775	0.06%
98	Gynecologist/oncologist	388	0.03%	4,836	0.08%
99	Unknown physician specialty	91	0.01%	420	0.01%
Total		1,443,496	100.00%	6,161,162	100.00%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 4: Number and Percentage of CT Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of CT services, 1995	Percentage of CT services, 1995	Number of CT services, 2005	Percentage of CT services, 2005
00	Carrier wide	32	0.00%	0	0.00%
01	General practice	4,826	0.59%	14,753	0.46%
02	General surgery	2,676	0.33%	6,273	0.20%
03	Allergy/immunology	84	0.01%	1,162	0.04%
04	Otolaryngology	2,208	0.27%	23,657	0.74%
05	Anesthesiology	306	0.04%	2,935	0.09%
06	Cardiology	1,812	0.22%	45,489	1.42%
07	Dermatology	43	0.01%	1,658	0.05%
08	Family practice	5,953	0.73%	53,737	1.68%
09	Gynecology	0	0.00%	783	0.02%
10	Gastroenterology	2,572	0.32%	13,273	0.41%
11	Internal medicine	14,922	1.83%	102,474	3.20%
12	Osteopathic therapy	6	0.00%	33	0.00%
13	Neurology	14,462	1.78%	9,248	0.29%
14	Neurosurgery	2,290	0.28%	3,553	0.11%
16	Obstetrics/gynecology	448	0.06%	2,440	0.08%
18	Ophthalmology	153	0.02%	210	0.01%
19	Oral surgery	33	0.00%	197	0.01%
20	Orthopedic surgery	1,225	0.15%	2,638	0.08%
22	Pathology	15	0.00%	159	0.00%
24	Plastic surgery	28	0.00%	236	0.01%
25	Physical medicine/rehab	52	0.01%	351	0.01%
26	Psychiatry	31	0.00%	32	0.00%
28	Colorectal surgery	33	0.00%	174	0.01%
29	Pulmonary disease	2,216	0.27%	17,130	0.53%
30	Diagnostic radiology	681,538	83.78%	1,985,698	61.99%
31	Roentgenology, radiology**	0	0.00%	0	0.00%
33	Thoracic surgery	1,206	0.15%	3,463	0.11%
34	Urology	1,499	0.18%	78,782	2.46%
36	Nuclear medicine	3,394	0.42%	9,819	0.31%
37	Pediatric medicine	59	0.01%	360	0.01%
38	Geriatric medicine	75	0.01%	265	0.01%
39	Nephrology	337	0.04%	767	0.02%
40	Hand surgery	1	0.00%	53	0.00%
41	Optometry	0	0.00%	1	0.00%
42	Cert nurse midwife**	0	0.00%	0	0.00%
43	CRNA, anesth asst**	0	0.00%	0	0.00%
44	Infectious disease	151	0.02%	1,374	0.04%
45	Mammog screening center	21	0.00%	0	0.00%
46	Endocrinology	514	0.06%	2,011	0.06%
47	IDTF	0	0.00%	488,306	15.24%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 4 (continued): Number and Percentage of CT Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of CT services, 1995	Percentage of CT services, 1995	Number of CT services, 2005	Percentage of CT services, 2005
48	Podiatry	16	0.00%	13	0.00%
49	ASC	2	0.00%	6	0.00%
50	Nurse practitioner	1	0.00%	2,000	0.06%
54	Medical supply company	10	0.00%	0	0.00%
58	Med supply w/pharmacist**	0	0.00%	0	0.00%
59	Ambulance service supplier**	0	0.00%	0	0.00%
60	Public hlth/welfare agency	5	0.00%	1	0.00%
63	Portable X-ray supplier	4,720	0.58%	4,132	0.13%
65	Physical therapist**	0	0.00%	0	0.00%
66	Rheumatology	2,596	0.32%	2,665	0.08%
68	Clinical psychologist**	0	0.00%	0	0.00%
69	Clinical laboratory	102	0.01%	162	0.01%
70	Multispec clinic/group	20,653	2.54%	2,014	0.06%
71	Diagnostic X-ray**	0	0.00%	0	0.00%
72	Diagnostic laboratory	0	0.00%	113	0.00%
74	Occupational therapy	0	0.00%	7,173	0.22%
75	Other medical care**	0	0.00%	0	0.00%
76	Peripheral vascular disease	51	0.01%	78	0.00%
77	Vascular surgery	210	0.03%	1,834	0.06%
78	Cardiac surgery	42	0.01%	1,989	0.06%
79	Addiction medicine**	8	0.00%	8	0.00%
81	Critical care (intensivists)	32	0.00%	1,476	0.05%
82	Hematology	116	0.01%	2,308	0.07%
83	Hematology/oncology	8,005	0.98%	103,526	3.23%
84	Preventive medicine	10	0.00%	4	0.00%
85	Maxillofacial surgery	19	0.00%	34	0.00%
86	Neuropsychiatry	49	0.01%	217	0.01%
87	All other suppliers	13	0.00%	0	0.00%
88	Unkn suppl/provider spclty	58	0.01%	3	0.00%
89	Cert clin nurse specialist	0	0.00%	57	0.00%
90	Medical oncology	2,396	0.29%	51,569	1.61%
91	Surgical oncology	118	0.01%	533	0.02%
92	Radiation oncology	4,663	0.57%	94,568	2.95%
93	Emergency medicine	456	0.06%	3,716	0.12%
94	Interventional radiology	18,171	2.23%	43,038	1.34%
95	Indep physiological lab	5,409	0.66%	4	0.00%
97	Physician assistant	0	0.00%	2,091	0.07%
98	Gynecologist/oncologist	388	0.05%	4,551	0.14%
99	Unknown physician specialty	1	0.00%	30	0.00%
Total		813,541	100.00%	3,203,407	100.00%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 5: Number and Percentage of MR Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of MR services, 1995	Percentage of MR services, 1995	Number of MR services, 2005	Percentage of MR services, 2005
00	Carrier wide	17	0.00%	0	0.00%
01	General practice	2,299	0.36%	7,634	0.28%
02	General surgery	477	0.08%	1,488	0.05%
03	Allergy/immunology	46	0.01%	118	0.00%
04	Otolaryngology	194	0.03%	814	0.03%
05	Anesthesiology	259	0.04%	4,537	0.17%
06	Cardiology	142	0.02%	5,794	0.21%
07	Dermatology	2	0.00%	919	0.03%
08	Family practice	689	0.11%	21,651	0.79%
09	Gynecology	0	0.00%	757	0.03%
10	Gastroenterology	11	0.00%	332	0.01%
11	Internal medicine	1,677	0.27%	28,191	1.03%
12	Osteopathic therapy	3	0.00%	482	0.02%
13	Neurology	24,741	3.93%	64,899	2.38%
14	Neurosurgery	1,837	0.29%	20,703	0.76%
16	Obstetrics/gynecology	93	0.01%	103	0.00%
18	Ophthalmology	42	0.01%	314	0.01%
19	Oral surgery	8	0.00%	0	0.00%
20	Orthopedic surgery	3,616	0.57%	158,034	5.79%
22	Pathology	2	0.00%	23	0.00%
24	Plastic surgery	58	0.01%	392	0.01%
25	Physical medicine/rehab	146	0.02%	8,973	0.33%
26	Psychiatry	11	0.00%	232	0.01%
28	Colorectal surgery	0	0.00%	4	0.00%
29	Pulmonary disease	65	0.01%	850	0.03%
30	Diagnostic radiology	522,124	82.88%	1,489,077	54.56%
33	Thoracic surgery	192	0.03%	279	0.01%
34	Urology	73	0.01%	678	0.02%
36	Nuclear medicine	4,411	0.70%	4,100	0.15%
37	Pediatric medicine	65	0.01%	350	0.01%
38	Geriatric medicine	0	0.00%	214	0.01%
39	Nephrology	9	0.00%	2,274	0.08%
40	Hand surgery	1	0.00%	1,816	0.07%
41	Optometry**	0	0.00%	0	0.00%
42	Cert nurse midwife**	0	0.00%	0	0.00%
43	CRNA, anesth asst**	0	0.00%	0	0.00%
44	Infectious disease	11	0.00%	695	0.03%
45	Mammog screening center**	0	0.00%	0	0.00%
46	Endocrinology	19	0.00%	711	0.03%
47	IDTF	0	0.00%	826,497	30.28%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 5 (continued): Number and Percentage of MR Services Billed Under the MPFS, by Provider Specialty, in 1995 and 2005

Specialty Code	Specialty Description*	Number of MR services, 1995	Percentage of MR services, 1995	Number of MR services, 2005	Percentage of MR services, 2005
48	Podiatry	111	0.02%	3,161	0.12%
49	ASC	1	0.00%	0	0.00%
50	Nurse practitioner	0	0.00%	901	0.03%
51	Med supply w/orthotist	1,195	0.19%	0	0.00%
54	Medical supply company	46	0.01%	0	0.00%
58	Med supply w/pharmacist	1	0.00%	0	0.00%
59	Ambulance service supplier**	0	0.00%	0	0.00%
60	Public hlth/welfare agency	1	0.00%	1	0.00%
63	Portable X-ray supplier	3,688	0.59%	48	0.00%
65	Physical therapist	0	0.00%	2	0.00%
66	Rheumatology	204	0.03%	25,002	0.92%
68	Clinical psychologist**	0	0.00%	0	0.00%
69	Clinical laboratory	2,476	0.39%	8	0.00%
70	Multispec clinic/group	13,339	2.12%	1,384	0.05%
71	Diagnostic X-ray**	0	0.00%	0	0.00%
72	Diagnostic laboratory	0	0.00%	1,156	0.04%
74	Occupational therapy	0	0.00%	1	0.00%
75	Other medical care**	0	0.00%	0	0.00%
76	Peripheral vascular disease	0	0.00%	12	0.00%
77	Vascular surgery	9	0.00%	61	0.00%
78	Cardiac surgery	1	0.00%	14	0.00%
79	Addiction medicine**	0	0.00%	0	0.00%
80	Licensed clin social worker**	0	0.00%	0	0.00%
81	Critical care (intensivists)	0	0.00%	177	0.01%
82	Hematology	14	0.00%	45	0.00%
83	Hematology/oncology	191	0.03%	1,919	0.07%
84	Preventive medicine	0	0.00%	200	0.01%
85	Maxillofacial surgery	2	0.00%	2	0.00%
86	Neuropsychiatry	0	0.00%	1	0.00%
87	All other suppliers	2	0.00%	0	0.00%
88	Unkn suppl/provider spclty	1,409	0.22%	1	0.00%
89	Cert clin nurse specialist**	0	0.00%	0	0.00%
90	Medical oncology	194	0.03%	412	0.02%
91	Surgical oncology	0	0.00%	372	0.01%
92	Radiation oncology	207	0.03%	7,093	0.26%
93	Emergency medicine	92	0.01%	2,935	0.11%
94	Interventional radiology	10,820	1.72%	28,404	1.04%
95	Indep physiological lab	32,530	5.16%	2	0.00%
97	Physician assistant	0	0.00%	1,684	0.06%
98	Gynecologist/oncologist**	0	0.00%	0	0.00%
99	Unknown physician specialty	90	0.01%	388	0.01%
Total		629,963	100.00%	2,729,321	100.00%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1995 and 2005, even though counts in 1995 and 2005 were zero.

Table 6: Number and Percentage of PET Services Billed Under the MPFS, by Provider Specialty, in 1996 and 2005

Specialty Code	Specialty Description*	Number of PET services, 1996	Percentage of PET services, 1996	Number of PET services, 2005	Percentage of PET services, 2005
01	General practice	2	0.30%	173	0.08%
02	General surgery	0	0.00%	185	0.08%
03	Allergy/immunology	0	0.00%	2	0.00%
04	Otolaryngology	0	0.00%	16	0.01%
05	Anesthesiology	0	0.00%	77	0.03%
06	Cardiology	602	90.25%	5,803	2.54%
07	Dermatology	0	0.00%	27	0.01%
08	Family practice	1	0.15%	185	0.08%
10	Gastroenterology	0	0.00%	40	0.02%
11	Internal medicine	6	0.90%	1,432	0.63%
13	Neurology	0	0.00%	658	0.29%
16	Obstetrics/gynecology	0	0.00%	4	0.00%
18	Ophthalmology	0	0.00%	2	0.00%
20	Orthopedic surgery**	0	0.00%	0	0.00%
22	Pathology	0	0.00%	58	0.03%
24	Plastic surgery	0	0.00%	2	0.00%
25	Physical medicine/rehab**	0	0.00%	0	0.00%
26	Psychiatry	0	0.00%	1	0.00%
29	Pulmonary disease	0	0.00%	536	0.23%
30	Diagnostic radiology	24	3.60%	81,695	35.76%
33	Thoracic surgery	0	0.00%	13	0.01%
34	Urology	3	0.45%	38	0.02%
36	Nuclear medicine	9	1.35%	18,366	8.04%
37	Pediatric medicine	1	0.15%	0	0.00%
39	Nephrology	0	0.00%	17	0.01%
43	CRNA, anesth asst**	0	0.00%	0	0.00%
44	Infectious disease	0	0.00%	2	0.00%
45	Mammog screening center**	0	0.00%	0	0.00%
46	Endocrinology	0	0.00%	56	0.02%
47	IDTF	0	0.00%	88,347	38.67%
48	Podiatry**	0	0.00%	0	0.00%
50	Nurse practitioner	0	0.00%	2	0.00%
63	Portable X-ray supplier	0	0.00%	266	0.12%
65	Physical therapist	0	0.00%	2	0.00%
66	Rheumatology	0	0.00%	2	0.00%
69	Clinical laboratory	18	2.70%	0	0.00%
70	Multispec clinic/group	0	0.00%	438	0.19%
72	Diagnostic laboratory	0	0.00%	193	0.08%
74	Occupational therapy	0	0.00%	538	0.24%
78	Cardiac surgery	0	0.00%	1	0.00%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1996 and 2005, even though counts in 1996 and 2005 were zero.

Table 6 (continued): Number and Percentage of PET Services Billed Under the MPFS, by Provider Specialty, in 1996 and 2005

Specialty Code	Specialty Description*	Number of PET services, 1996	Percentage of PET services, 1996	Number of PET services, 2005	Percentage of PET services, 2005
80	Licensed clin social worker**	0	0.00%	0	0.00%
81	Critical care (intensivists)	0	0.00%	97	0.04%
82	Hematology	0	0.00%	690	0.30%
83	Hematology/oncology	1	0.15%	14,811	6.48%
89	Cert clin nurse specialist**	0	0.00%	0	0.00%
90	Medical oncology	0	0.00%	6,272	2.75%
91	Surgical oncology	0	0.00%	225	0.10%
92	Radiation oncology	0	0.00%	5,917	2.59%
93	Emergency medicine	0	0.00%	49	0.02%
94	Interventional radiology	0	0.00%	917	0.40%
95	Indep physiological lab**	0	0.00%	0	0.00%
98	Gynecologist/oncologist	0	0.00%	285	0.12%
99	Unknown physician specialty	0	0.00%	2	0.00%
Total		667	100.00%	228,442	100.00%

* As listed in CMS documentation.

** Specialty billed at least one advanced imaging service between 1996 and 2005, even though counts in 1996 and 2005 were zero.

Table 7: Growth in Advanced Imaging Utilization Rates, 1995 to 2005, by State

State	Services per 1,000 beneficiaries, 1995	Services per 1,000 beneficiaries, 2005	Percentage growth in State utilization rate, 1995 to 2005
FL	85	326	282%
AZ	78	291	273%
NV	101	291	187%
MD	64	275	328%
NY	87	248	184%
DE	74	240	225%
NJ	74	240	226%
DC	92	222	141%
TX	45	209	368%
WA	45	207	360%
MN	57	192	237%
CA	51	190	271%
AL	29	182	526%
PR	57	181	218%
RI	40	176	344%
AR	24	172	630%
TN	32	164	408%
LA	29	158	446%
CT	52	158	205%
WY	18	151	721%
GA	34	140	317%
KY	24	138	473%
SC	17	137	682%
AK	18	135	657%
NC	27	131	391%
KS	29	128	341%
MA	32	124	287%
IN	16	120	632%
OK	23	120	420%
PA	35	116	234%
CO	17	110	536%
ID	29	108	275%
MO	25	107	331%
OR	36	106	192%
NM	19	105	459%
MS	12	102	727%
WI	29	97	238%
OH	17	95	446%
UT	8	90	1,064%
IL	22	89	306%

Table 7 (continued): Growth in Advanced Imaging Utilization Rates, 1995 to 2005, by State

State	Services per 1,000 beneficiaries, 1995	Services per 1,000 beneficiaries, 2005	Percentage growth in State utilization rate, 1995 to 2005
IA	8	77	842%
ME	31	76	143%
MT	19	76	296%
HI	9	73	689%
VA	11	72	553%
MI	22	71	229%
ND	55	67	24%
NE	14	67	364%
SD	21	59	181%
WV	10	40	297%
NH	6	33	472%
VT	1	8	597%

DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

Administrator
Washington, DC 20201

DATE: AUG 16 2007

TO: Daniel R. Levinson
Inspector General

FROM: Herb B. Kuhn
Acting Deputy Administrator

SUBJECT: Office of Inspector General (OIG) Draft Report: "Growth in Advanced Imaging Paid Under the Medicare Physician Fee Schedule" (OEI-01-06-00260)

Thank you for the opportunity to review and comment on the Office of Inspector General's (OIG) draft report entitled "Growth in Advanced Imaging Paid Under the Medicare Physician Fee Schedule." The OIG performed this study to determine the extent and nature of growth in advanced imaging paid under the Medicare physician fee schedule (MPFS) from 1995 to 2005. The OIG defined advanced imaging to include magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomography (PET).

Imaging services are divided into two components: the technical component (TC), which is the taking of the image, and the professional component (PC) which is the physician's interpretation of the image. TC and PC services furnished in non-hospital settings, such as physicians' offices and independent diagnostic testing facilities (IDTFs), are paid under the MPFS. An IDTF is a fixed location, mobile entity, or an individual nonphysician practitioner that performs diagnostic procedures.

The OIG's examination of the growth of advanced imaging paid under the MPFS between 1995 and 2005 revealed the following:

1. A fourfold increase in services, from 1.4 million to 6.2 million.

2. A fivefold increase in allowed charges, to $3.5 billion.

3. An increase in the utilization rate from 42 services per 1,000 beneficiaries to 163 per 1,000. Significant variation in utilization rates was found among States, ranging from 8 services per 1,000 beneficiaries in Vermont, to 326 per 1,000 in Florida.

4. A small number of procedure codes consistently accounted for over half of the advanced imaging services billed. The share of services provided by IDTFs grew from 2.5 percent to 23 percent.

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OIG Recommendation

The Centers for Medicare & Medicaid Services (CMS) monitor the growth of advanced imaging performed in ambulatory settings and reissue technical direction to Medicare carriers regarding oversight of the new IDTF performance standards.

CMS Response

We appreciate the work the OIG did on this study and believe it provides an accurate picture of the growth in imaging services. In our 2006 annual letter to the Medicare Payment Advisory Commission on the sustainable growth rate, we noted findings regarding the growth of imaging services similar to those reported by the OIG. Specifically, annual spending for imaging procedures increased from 2003 to 2005 at a 16 percent annual rate. This is a rate of growth significantly higher than the Medicare program overall. Annual payment increases for the subcategory of Advanced Imaging from 2003 to 2005 were found to be even higher, at 20 percent, 21 percent, and 25 percent, respectively. Preliminary analysis of 2006 claims data shows that the overall rate of growth in imaging services is declining. We intend to continue analyzing growth and utilization of imaging services, as we share the OIG's concern about the recent trends for these services.

Both CMS and the Congress have already taken steps to control spending on imaging procedures. Effective January 1, 2006, CMS implemented a multiple procedure payment reduction on the TC of certain diagnostic imaging procedures. The policy provides for a 25 percent reduction in the TC payment for second and subsequent procedures performed in the same session on contiguous body parts with a family of procedure codes.

Effective January 1, 2007, the Deficit Reduction Act of 2005 (DRA) caps the MPFS payment for TC of most imaging procedures based on the outpatient prospective payment system payment. The payment cap applies to all imaging procedures, both diagnostic and therapeutic, with the exception of diagnostic and screening mammography. Ninety percent of both MRI and PET procedures are impacted by the DRA payment cap, as are 80 percent of CT procedures. In addition, all of the 10 most frequently billed imaging procedures identified by the OIG are impacted by the cap.

We concur that CMS should reissue technical direction to Medicare carriers regarding oversight of new IDTF performance standards found at 42 CFR 410.33. We issued technical direction through our change management process on July 13, 2007. In addition, CMS expects to publish a new IDTF information collection instrument through the Paperwork Reduction Act process within the next 3 months. This information collection instrument will establish a worksheet that Medicare carriers can use to ensure compliance with the performance standards found at 42 CFR 410.33(b). Finally, on July 12, 2007, CMS proposed additional IDTF performance standards as part of a proposed rule titled, "Revisions to Payment Policies Under the Physician Fee Schedule for Calendar Year 2008." (72 FR 38122) Specifically, CMS is proposing to improve its oversight of IDTFs by:

- Limiting IDTF billing prior to filing or establishing a new practice location; and

- Prohibiting an IDTF from sharing space, equipment, or staff with another IDTF or supplier.

In addition, CMS is proposing to revise and clarify several existing performance standards including:

- Revising existing performance standard six to allow CMS to verify comprehensive liability insurance with an underwriter, rather than an insurance agent.
- Revising existing performance standard two which requires the reporting of all changes within 30 days, to requiring an IDTF to report:
    - o Certain reportable changes, including a change in ownership, a change of practice location, a change in supervising physician, or an adverse legal action, within 30 days, and;
    - o Reporting all other reportable changes within 90 days.
- Revising performance standard eight to require documentation of their complaint process similar to the durable medical equipment, prosthetics, orthotics, and supplies POS requirement.
- Removing the expanded interpretation of the role of a supervising physician published in the 2007 physician fee schedule.

The CMS will consider public comments before adopting any or all of these proposals in the final regulation. In response to the previous OIG recommendation regarding site visits, CMS requires that its contractors conduct site visits for newly enrolled IDTFs and whenever an IDTF makes a reportable change. CMS does not have funding to support unannounced site visits of IDTFs.

The CMS thanks the OIG for reviewing this issue and providing information that will be useful in developing additional policies towards controlling the escalation of both imaging services and Medicare payments for such services.

ACKNOWLEDGMENTS

This report was prepared under the direction of Joyce M. Greenleaf, Regional Inspector General for Evaluation and Inspections in the Boston regional office, and Russell W. Hereford, Deputy Regional Inspector General. Kenneth R. Price served as the team leader for this study. Other principal Office of Evaluation and Inspections staff from the Boston regional office who contributed include Eric Kim and Amanda L. Pyles, and central office staff includes Doris Jackson.