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Financial Impact If Payers Use Medicare Rates

Anesthesiology versus *Other Specialties*

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Background: **In 1992, Medicare changed its method for calculating physician payments. The resulting fee schedules have contained low payments for anesthesiologists. Now, other third-party (insurance) payers are using these schedules. The financial impact on anesthesiologists if all payers pay Medicare rates is unknown.**

Methods: **Payments from Medicare were compared with payments from other third parties in each clinical procedural terminology (CPT) grouping used by the West Virginia University Department of Anesthesiology during 1998. Changes in total Department of Anesthesiology receipts were determined if non-Medicare third-party payers paid Medicare rates. Then, the effect of adding payments at Medicare rates from patients without insurance was determined. Finally, potential changes in receipts of the Departments of Anesthesiology, Radiology, Surgery, and Medicine were compared by considering only patients with insurance and recalculating total payments to the departments using Medicare rates.**

Results: **Medicare paid less than other third-party payers in every clinical procedural terminology group. Total Department of Anesthesiology payments would decrease by 31% if all non-Medicare third-parties paid Medicare rates. Adding payments at Medicare rates from patients without insurance still leads to a 21% decrease in total Department of Anesthesiology receipts. Considering only patients with third-party coverage, Medicare-rate payments would decrease total Department of Anesthesiology payments by 37%, whereas radiology, surgery, and medicine payments would decrease by 26, 22, and 13% respectively.**

Conclusions: **Universal payments at Medicare rates would substantially reduce revenue to anesthesiologists, proportionally more than to radiologists, surgeons, or internists. (Key words: Billings; collections; contracts; healthcare payers; insurance; Medicare; revenue.)**

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ANESTHESIOLOGISTS commonly find that Medicare pays less than other healthcare insurers for a service. Most anesthesiologists offset these small payments from Medicare with larger payments from other third-party payers. However, insurance and managed-care companies now demand substantial discounts when contracting or paying for services. Some companies are adopting elements of the low-payment schedules used by Medicare. Even at-risk contracts may use the Medicare fee schedule as a framework for dividing funds. These changes by managed-care organizations could substantially reduce anesthesia practice revenues, because 98% of anesthesiologists have at least one managed-care contract, and anesthesiologists receive 49% of their revenue from managed-care companies.[1]

Several healthcare payers have notified our academic anesthesia practice that they intend to follow Medicare rules and pay Medicare rates. These notices have come from a large in-state insurer, a federal employee insurer, and other multistate commercial payers. However, we also care for many patients with minimal or no insurance, so proposed expansions of the Medicare program to pay for various patient groups without insurance might provide additional revenues to compensate for reductions in payments from insured patients. (See, for instance, the call for Medicare coverage for displaced workers by President Clinton in his State of the Union Address of January 26, 1998, or the expansion of Medicare coverage to Americans aged 55–65 yr by Vice President Gore in his recent speeches.) Therefore, we sought to determine the overall effects on the revenue of our anesthesia practice if all third-party payers adopted Medicare rates and if all patients, including those with no insurance, paid the Medicare rates. We used data from a recent fiscal year to calculate the effects of these potential changes on the anesthesiology practice at West Virginia University.

Development and revisions of the Medicare fee schedule are changing payments differently among physician groups. From 1991 to 1997, Medicare payments to fam-

ily and general practice physicians increased by 36%, whereas those to ophthalmologists and cardiothoracic surgeons decreased by 18 and 9%, respectively.[2] Therefore, we also compared the revenue effects of all third-party payers adopting Medicare rates for our anesthesia practice *versus* the affiliated internal medicine, general surgery, and radiology practices. These three departments represented the largest medical, surgical, and hospital-based practices at West Virginia University (WVU).

Materials and Methods

The setting for this study is WVU, where all anesthesiologists are members of an academic multispecialty practice. Twenty-two anesthesiologists at WVU account for approximately 6% of faculty physicians and 10% of group revenue. The department employs six nurse anesthetists. The hospital pays for 20 anesthesiology residents, and the residents in other departments. The business office of the multispecialty group practice contracts, bills, and collects for almost all physician services, including those of the Department of Anesthesiology. Approximately 220 payer contracts were in effect throughout 1998, with none containing capitation payments for professional anesthesiology services. WVU anesthesiologists derive approximately 90% of their revenue from surgical anesthesia, with the balance coming from critical care, pain management, and consult services.

Anesthesia charges at WVU are calculated using the base, time, and modifier units described in the annual Relative Value Guide of the American Society of Anesthesiologists (ASA-RVG).[3] Some contracts between the WVU anesthesiology group and a healthcare payer use other methods for calculating payments; however, these payers require the information contained in billing by the Relative Value Guide of the American Society of Anesthesiologists guidelines. Therefore, this information is available in the WVU financial database for all professional anesthesia charges. In addition, the billing software allows each anesthesia charge, the charge components, and nearly each payment to be associated with a specific clinical procedural terminology (CPT) code. The base and time relative value units (RVU) of anesthesia charges could be summed within each CPT group and subdivided by payer class for the 1998 fiscal year.

All charges and most payments for the professional services of WVU anesthesiologists during the 1998 WVU fiscal year (July 1, 1997 through June 30, 1998) were entered into the IDX (Burlington, VT) billing system used by the practice group, stored in its database, and included in this study. Payments excluded from this study were from individuals made subsequently to third-party or initial payments, and those involving legal actions, because the posting methods for these payments did not permit easy direct association with CPT codes. Charges and payments were sorted first by payer to determine the relative importance of each payer. Three payer categories were recognized: Medicare, non-Medicare, and uninsured. "Non-Medicare" included patients with Medicaid, workers compensation, and third-party coverage other than Medicare. "Uninsured" included patients without insurance or other contracted coverage. Charges and payments were also sorted by the CPT code for the anesthesia procedure or service charged. Each CPT group was evaluated to determine the average payment from Medicare *versus* other third-party payers. The 30 largest CPT groups, by charge, were selected for special evaluation.

Payments were recalculated in all CPT groups used by the Department of Anesthesiology, for both non-Medicare and uninsured payers, using the Medicare formulas and fee schedules. Base and time relative value units for each charge were obtained from the billing system database, summed, and then multiplied by a conversion factor to determine the allowable Medicare charge. The 1998 West Virginia Medicare conversion factor of $15.97 was used for all calculations. No modifier units (sometimes labeled additional time units) were used because Medicare does not reimburse for them. For non–units-based charges (*e.g.*, some pain management, critical care, and consult services), the number of charges in each CPT category was multiplied by the charge that Medicare allowed for WVU during 1998. We assumed that no payments would be received in four CPT groups that the 1998 Medicare fee schedule did not list. To project payments from non-Medicare payers using Medicare rates, it was also assumed that 100% of Medicare allowable charges would be paid; *i.e.*, that no 80/20 split between the payer and the patient would occur. The sums for the relative value units and non–relative value units–based payments were added to produce grand totals. Actual total payments for all professional services were compared with projected total payments if non-Medicare payers paid Medicare allowable charges and if non-Medicare payers and uninsured patients paid Medicare allowable charges.

To compare the financial effects on anesthesiologists *versus* other physician groups if all payers use the Medicare fee schedule, the largest surgical, nonsurgical, and hospital-based specialties at WVU were selected for eval-

uation. Approvals for unrestricted access to the financial databases of the Departments of General Surgery, Internal Medicine, and Radiology were obtained. All services charged in the Department of Anesthesiology and these three affiliated departments for the 1998 fiscal year were grouped by CPT code and further identified by major payer. The percent activities contributed by Medicare to the total charges and payments within each department were evaluated to determine the relative importance of this payer group. For further analysis, all charges not involving a third-party payer (*i.e.*, patients without insurance) were excluded. Special billing categories, with identified third-party payers, such as Worker's Compensation, Veteran's Affairs, or payments in litigation were included. The number of services in each CPT group for each specialty department was then multiplied by the 1998 Medicare payment for that service. A payment of 100% (*i.e.*, no 80/20 split of the Medicare allowed charge) was assumed. The time-based anesthesia procedure payments were again calculated as the sum of base plus time relative value units in each CPT group multiplied by the 1998 conversion factor. The total payments calculated for each department were then compared with the actual charges and payments for the fiscal year, less those associated with indigent patients.

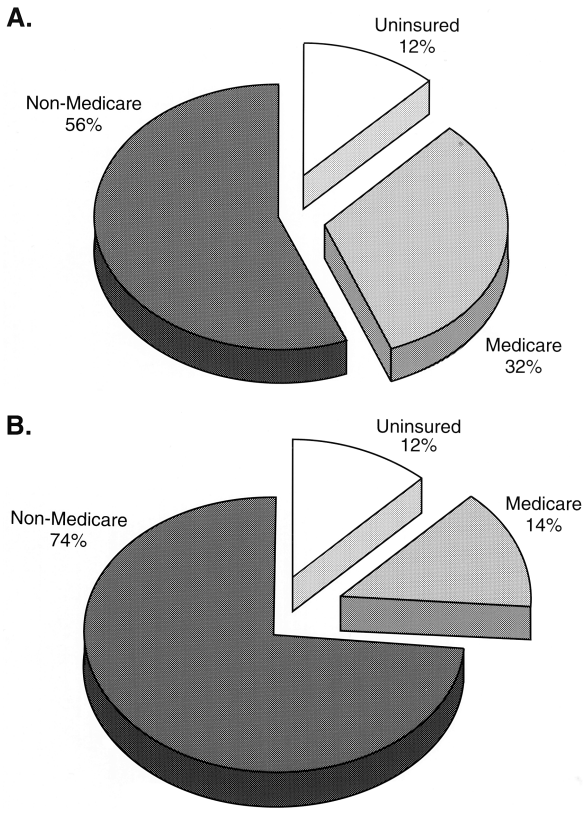

Fig. 1. (*A*) Allocation of $15.7 million of charges in 1998 among patients with Medicare, other third-party (non-Medicare), or no insurance (uninsured) coverage. (*B*) Allocation of $6.8 million of total payments in 1998, among Medicare, other third-party (non-Medicare), or individual patient (uninsured) sources.

Results

Total charges for anesthesiology services during fiscal year 1998 were $15,675,165. The division of charges among Medicare, non-Medicare, and uninsured is shown in figure 1A. Total payments were $6,837,249, with 229 separately contracted third-party payers making payments. The division of total payments among Medicare, non-Medicare, and uninsured is shown in figure 1B. Overall, Medicare represented a smaller percentage of payments than charges.

Anesthesiology charges were made in 1998 using 306 CPT codes. The average payment from non-Medicare third-party payers exceeded the payments from Medicare in each CPT group. Details for the largest CPT groups by charges are listed in table 1. Charges in these 30 CPT code groups accounted for $5,577,708. For all other CPT groups, payments from third-party payers averaged more than twice as much as from Medicare: $191 *versus* $86.

Among total payments for anesthesiology services, 88% (or $6,027,874) could be directly related to a CPT code and therefore recalculated. An evaluation of some payments not labeled with a CPT code showed that they appeared among all payer groups in approximate proportion to the size of that group. The recalculation of payments using Medicare methodology showed that if all third-party payers paid Medicare allowable charges, these payments would decrease to $4,175,827, a reduction of 31% in total department collections. If non-Medicare payers and patients without insurance both paid Medicare allowable charges, total collections would decrease to $4,777,656, a reduction of 21% in total payments. Table 2 shows the financial influence of these potential changes in payment rates as the percent reductions from actual receipts of the WVU anesthesia practice group.

Total 1998 charges, after removing uninsured accounts, for the Departments of Medicine, Surgery, Radiology, and Anesthesiology were $19,115,261, $14,774,926, $13,739,330, and $13,734,755, respectively. Uninsured charges represented 13.3, 12.0, 14.8, and 12.4%, respectively, of total

Table 1. Anesthesia Payments in 30 Greatest* CPT Groups

CPT	Service Description	Charge ($)	Payments	
			Non-Medicare ($)	Medicare ($)
00562	Anesthesia, heart vessel repair	2,568	1,046	497
00840	Anesthesia, surgery of abdomen	785	329	145
99214	Office or outpatient evaluation	171	43	29
00790	Anesthesia, surgery of abdomen	1,019	537	161
00140	Anesthesia, procedure of eye	523	222	92
93503	Insert/place heart catheter	489	158	136
00142	Anesthesia, for lens surgery	532	199	100
00170	Anesthesia, procedure on mouth	580	276	59
00630	Anesthesia, spine, cord surgery	1,173	500	180
00320	Anesthesia, procedure esophagus	828	455	150
36620	Arterial catheterization	144	61	48
00210	Anesthesia, for intracranial procedure	1,656	704	300
00540	Anesthesia, chest surgery	1,434	398	287
00955	Continuous epidural analgesia	423	226	26
01270	Anesthesia, thigh arteries surgery	1,296	373	204
00670	Anesthesia, spine, cord surgery	1,756	1,021	308
00910	Anesthesia, transurethral procedure	464	245	70
01480	Anesthesia, lower leg bone surgery	585	265	92
01922	Anesthesia, radiology scan	649	353	151
00850	Anesthesia, cesarean section	775	400	148
00145	Anesthesia, procedure on eye	780	313	110
00160	Anesthesia, nose, sinus surgery	727	392	119
00350	Anesthesia, neck vessel surgery	1,371	345	200
00104	Anesthesia, for electroconvulsive therapy	330	144	70
00862	Anesthesia, kidney, ureter surgery	1,216	546	233
76000	Fluoroscopy, up to 1 h	343	30	4
00944	Anesthesia, vaginal hysterectomy	935	457	162
00120	Anesthesia, procedure on extremity	876	410	151
01214	Anesthesia, replacement of hip	1,389	495	202
01210	Anesthesia, hip joint surgery	986	441	159

* Table shows average charges and payments from Medicare and other third-party (non-Medicare) payers for the 30 greatest (by total charges) clinical procedure terminology (CPT) groups.

charges before their removal. Medicare activity also varied, representing 43.3, 43.3, 31.7, and 32.4% of total charges, respectively. Table 3 shows the percent of total charges and payments represented by Medicare within each department in the common scenario (used for comparing the four departments) of only including patient accounts with third-party payers. Table 4 shows the actual payments and the payments after adjusting non-Medicare accounts to Medicare rates for the four practices. The percent reductions in payments as a result of the Medicare rate adjustments are shown in the final column of table 4.

Discussion

Congress established the Medicare program in 1965 with the addition of Title XVIII to the Social Security Act.[4] This program makes payments to healthcare providers, including anesthesiologists, for their professional services to eligible elderly and disabled patients. The Medicare program has undergone many modifications of its original payment policies, and, since January 1992, has used a fee schedule for physician services. Section 1848 of the Act requires that payments be based on the resources used in furnishing a service.[4] The resource basis of the Medicare fee schedule originated with assessments of the total work performed by physicians for each service; costs of practice, including malpractice premiums; and the costs of specialty training.[5] The relative value units now used by Medicare are derived from physician work, practice expense, and malpractice premium components. They are adjusted by geographic practice cost indices. Multiplying the total relative value units by a dollar conversion factor then determines the maximum allowed charges and payments for each CPT-

Table 2. Anesthesiaesia Payments Recalculated Using Medicare Rates

Condition	Change (%)
Actual receipts*	—
Non-Medicare insurers pay Medicare rates	−31%
Non-Medicare insurers plus uninsured pay Medicare rates	−21%

* Actual receipts included in study represent 88% of total payments received during year.

coded procedure or service. Anesthesiaesia payments are calculated using unique conversion factors that vary across localities. Medicare pays physicians 80% of the allowed charge (fee schedule) for covered services in excess of an annual deductible of $100.

The Medicare program has financial effects beyond low payments. It limits the maximal charges of physicians to Medicare beneficiaries, even if the physicians do not accept payments directly from Medicare, and it specifies how services must be delivered and documented to qualify for payments. Managed-care organizations, which insure Medicare beneficiaries, must also follow Medicare regulations. Medicare is the single largest source of payment for medical care in the United States, which includes anesthesia services. In 1998 Medicare expended $231 billion.

The Medicare work components were derived from limited data. Hsiao *et al.*[6] and the team that developed the resource-based relative value scale, used only 82 cross-specialty links among 18 specialties. Three direct links between anesthesia and other specialty services were established, and when these linked work values were extrapolated multiple times to include all CPT-coded services, many anesthesiologists perceived that they had become undervalued. This physician work component is very important because it contributes 72% to the anesthesia conversion factor and may become even more important if the practice expense component is reduced in the future. Analyses commissioned by the American Society of Anesthesiaesiologists have documented the undervaluation of the work of anesthesiologists.[7] After reviewing these studies, especially one that assessed the relative work intensity of physicians certified by both the American Board of Anesthesiaesiologists and the American Board of Internal Medicine or similar specialty board, the Health Care Financing Administration agreed in January 1997 to a 23% increase in the anesthesia work component.[8] However, many anesthesiologists believe their professional services are disproportionally undervalued.[9] Hsiao *et al.*[10] have stated that the Medicare fee schedule yields too little net income to physicians and was incorrectly legislated, but they did not specifically include anesthesiologists in postimplementation studies. The services of anesthesiologists often are ignored in comparative studies because anesthesia fees, constructed with time units, differ from all other physician fee methodologies. The Medicare fee schedules published in the fall of 1998 and of 1999, for calendar years 1999 and 2000, again renewed the existing fee methodologies and included respective overall increases of only 2.2 and 3.1%.

Table 3. Medicare Contributions to Department Finances

Department	Charges (%)	Payments (%)
Medicine	43	38
Surgery	43	34
Radiology	31	23
Anesthesiaesiology	32	16

Table 4. Total Payments for Four Specialty Practices: Actual *versus* Calculated at Medicare Rates

Department	Actual ($)	Payment at Medicare Rates ($)	Change (%)
Medicine	10,068,449	8,804,431	−13
Surgery	6,166,003	4,831,844	−22
Radiology	7,518,297	5,531,915	−26
Anesthesiaesiology	6,668,451	4,175,827	−37*

* Differs from reductions presented in table 2 because analysis only included patients with third-party coverage.

Insurance companies and managed-care organizations desiring to reduce payments for physician services are motivated to adopt Medicare rates, which average 69% of commercial insurance rates across all specialties, but only 32% for anesthesiologists.[11] In addition to low payment rates, payers may be motivated to adopt them because of the clout of Medicare as the insurer with the largest number of insured, its widespread public acceptance, and its administrative capabilities. Newsletters of the Anesthesiaesia Administration Assembly of the Medical Group Management Association and the American Society of Anesthesiaesiologists have noted the increasing interest in Medicare rates. Consistent with this national trend, some managed-care groups have notified our anesthesiology practice that they will pay the Medicare rate, also called the allowed charge. Therefore, we undertook this study to foresee the financial influence of further adoption of Medicare payment rates.

We calculated a reduction of 31% in total anesthesiology collections, if all non-Medicare third-party payers paid Medicare allowed charges, and a 21% reduction, if Medicare allowed charges were also received for uninsured patients. These reductions would range between $1.3 and $1.9 million for our group of 22 anesthesiologists.

The gap between charges and payments is greater for Medicare than for other payers. In addition, Medicare rates for anesthesiologists are disproportionately less than for other specialties. We projected that total payments to the Departments of Medicine, Surgery, and Radiology at WVU would decrease by 13, 22, and 26%, respectively, compared with 37% for our the Department of Anesthesiaesiology, using the common scenario of considering only patients with third-party coverage. This analysis excluded payments from patients themselves and may represent the maximal financial influence if all payers adopt Medicare rates.

The extent to which the projected reductions in this study would apply to anesthesiologists at other institutions is unknown. The diversity, intensity, and community services of the anesthesiology practice at WVU are typical of a teaching hospital and similar to those at tertiary-care institutions. Although primary care physicians at WVU receive 5–30% of their revenue through capitation payments, the anesthesiology practice receives no capitation fees and provides relatively few anesthetics per global fee contracts. Also, the Medicaid program in West Virginia generally pays more than does Medicare, so anesthesiologists practicing in states with very low Medicaid payments and treating a large number of Medicaid patients might benefit if their Medicaid programs adopted Medicare rates.

The projections in this study represent what would happen with the further adoption of Medicare rates. The CPT grouping methodology used should allow the most accurate recalculation of expected anesthesia payments using Medicare rates because the Medicare fee schedule uses a dollar conversion factor of summed base and time relative value units for each CPT code. However, the study includes numerous simplifications that could affect the magnitude of the projections. The analysis includes charges made and payments received in the fiscal year 1998, but the charges and payments are not directly linked because some payments were received for anesthetics administered before the start of the year, and some payments for anesthetics administered during 1998 will not be received until later years. Up to 12% of payments were excluded from the analysis because special circumstances associated with their posting did not allow a direct association with a CPT code. Finally, the calculations assumed full payments of the Medicare allowed charges, which does not usually occur.

This study projects substantial decreases in total payments to an academic anesthesiology group from the adoption of Medicare rates by other payers. If all third-party payers paid Medicare rates this decrease would range from 21 to 37%, depending on payment policies for uninsured patients. Payments to anesthesiologists would decrease more than those to radiologists, general surgeons, or internists.

References

1. Kane CK, Emmons DW, Wozniak GD: Physician managed care contracting, Socioeconomic Characteristics of Medical Practice 1997–98. Edited by Gonzalez ML, Zhang P. Chicago, American Medical Association, 1998, pp 7–16

2. Iglehart JK: The American health care system: Medicare. N Engl J Med 1999; 340:327–32

3. Committee on Economics: Relative Value Guide. Park Ridge, American Society of Anesthesiaesiologists, 2000, pp 1–59

4. Department of Health and Human Services, Health Care Financing Administration: Medicare, program: Revisions to payment policies and adjustments to the relative value units under the physician fee schedule for calendar year 1999. Federal Register 1998; 63:58813–62

5. Hsiao WC, Braun P, Yntema D, Becker ER: Estimating physicians' work for a resource-based relative-value scale. N Engl J Med 1988; 319:835–41

6. Hsiao WC, Braun P, Dunn D, Becker ER, DeNicola M, Ketchan TR: Results and policy implications of the resource-based relative-value study. N Engl J Med 1988; 319:881–8

7. Committee on Economics: Why the Medicare fee schedule is the wrong benchmark for commercial anesthesia payments. American Society of Anesthesiaesiologists. Available at: www.asahq.org. Accessed August 7, 2000

8. Scott M: Anesthesiaesia conversion factor to increase 9.2 percent overall. Amer Soc Anesthesia Newsletter 1997; 61:1–5

9. Hannenberg AA: Medicare-based commercial reimbursement rates: How to fight back. Practice Management. Park Ridge, American Society of Anesthesiaesiologists, 1999; 1601–23

10. Hsiao WC, Dunn DL, Verrilli DK: Assessing the implementation of physician-payment reform. N Engl J Med 1993; 328:928–33

11. Hannenberg AA: Fixing the Medicare fee schedule. Anesthesiaesia Awakenings 1996; 3:7–9