Anesthesia Medicare Trend Analysis Shows Increased Utilization of CRNA Services

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Volume of anesthesia Medicare Part B services had an average increase of 3.1% per year from 2000 to 2014. In 2014, the top 25 anesthesia procedure codes accounted for 75% of all allowed Medicare services and $1.87 billion in Medicare payments. Total Medicare payments for anesthesia procedures were an adjusted $2.85 billion in 2014, accounting for roughly 4% of total Medicare spending. This 15-year trend analysis demonstrated that the least used billing modifier was the AD modifier (medical supervision rate), ranging from 0.4% to 0.6% utilization. Although the anesthesia billing modifiers for the medical direction rate were relatively constant over this period, Certified Registered Nurse Anesthetist (CRNA) services using the QZ modifier increased from 10.9% to 21.7%. CRNA services represented the largest percentage increase of all modifiers, with an average 8.3% increase per year for allowed services and an average 7.5% increase per year for Medicare payments. In comparison, billing for anesthesiologist-only services (AA modifier) decreased from 33.2% to 25.8% over the study period. When more healthcare services are undergoing scrutiny to achieve cost-efficient, value-driven care, the increased use of the QZ modifier highlights a change in how the anesthesia workforce is used while aligning with federal and state regulations.

Keywords: Billing modifiers, Medicare Part B, nurse anesthesia, reimbursement, trend analysis.

Anesthesia services are often not fully appreciated regarding total Medicare Part B spending and may be overlooked in terms of cost effectiveness in perioperative care. Given the relatively fixed nature of the anesthesia billing formula (Anesthesia base units + Anesthesia time units * Conversion factor), the way Medicare Part B is billed influences the anesthesia workforce and ultimately the total facility costs for anesthesia services. Medicare Part B billings are submitted by either a Certified Registered Nurse Anesthetist (CRNA) or an anesthesiologist, and on rare occasions by an anesthesiologist assistant. As of 2016, 49.6% (50,580) of all anesthesia providers consist of CRNAs, and 48.3% (49,201) consist of anesthesiologists.[1]

Medicare reimbursement for anesthesia is inherently unique from other service lines because of its own anesthesia fee schedule and billing modifiers that dictate the level of involvement by an anesthesiologist for reimbursement. For Medicare billing, the Centers for Medicare and Medicaid Services (CMS) *Claims Processing Manual* explicitly describes how CRNAs and anesthesiologists should bill.[2] The manual does refer to other qualified nonphysician anesthetists such as anesthesiologist assistants. However, this article refers only to CRNAs and anesthesiologists as primary anesthesia providers given the limited share that these other providers contribute to total Medicare spending and the fact that anesthesiologist assistants cannot use the QZ modifier, a common anesthesia billing modifier.

Furthermore, the manual describes the implementation of anesthesia medical direction according to the 1982 Tax Equity and Fiscal Responsibility Act (TEFRA).[a] This act led to payment at the medically directed rate, whereby the anesthesiologist would be allocated 50% of the reimbursement for the allowed service so long as the anesthesiologist attested and documented in the anesthesia record that the 7 TEFRA requirements were met. Needless to say, consistent compliance with the TEFRA requirements has proved to be problematic for anesthesiologists given that meeting the TEFRA requirements is tied to case concurrency (defined in the Methods section) at the time of service for billing.[3,4] The method to indicate to Medicare whether the requirements for medical direction were met is the use of specific anesthesia billing modifiers (specifically QK and QY); alternatively, other modifiers can be used when medical direction is not met.[2]

[a]The concept of anesthesia medical direction was derived from the 1982 Tax Equity and Fiscal Responsibility Act (TEFRA), which requires that the anesthesiologist attest and document in the anesthesia record that the following TEFRA requirements for billing have been met: (1) performed a preanesthetic examination and evaluation; (2) prescribed the anesthesia plan; (3) personally participated in the most demanding procedures in the anesthesia plan, including induction and emergence; (4) ensured that any procedures in the anesthesia plan that he or she did not perform were performed by a qualified anesthetist; (5) monitored the course of anesthesia administration at frequent intervals; (6) remained physically present and available for immediate diagnosis and treatment of emergencies; and (7) provided indicated postanesthesia care.

Given that CRNAs are educated and trained to provide the full scope of anesthesia and related services, as more CRNAs are introduced into the workforce, it begs the question as to what is the best practice for billing anesthesia services. Through use of the anesthesia billing modifiers found in Medicare Part B National Summary Data over a 15-year period (2000-2014), this retrospective analysis identified trends in anesthesia services, charges, and payments by CRNAs and anesthesiologists. Information from this analysis will serve to inform healthcare administrators and executives about national trends in anesthesia billing practices and suggested rationale for why these trends are occurring.

Methods

• ***Data Source.*** Data were retrieved from the Medicare Part B National Summary Data Files from 2000 to 2014.[5] These files incorporate *all* Medicare Fee-for-service Part B Physician/Supplier data for allowed services, charges and payments for each procedure. Allowed services provide the frequency count of the number of billable encounters for a given procedure. The amount Medicare deems as a *reasonable* payment for a Medicare Part B provider is 100% of the allowed charges. The Medicare payment is 80% of the allowed charge, and the beneficiary pays 20% of the allowed charge. Payment is often less than what was charged. The dataset is designed so one can identify total allowed charges and total allowed Medicare payments by a Healthcare Common Procedure Coding System/*Current Procedural Terminology* (HCPCS/CPT) in relation to prominent CMS billing identifiers. Therefore, the key variables used to determine anesthesia services trends are anesthesia procedures and CMS billing modifiers. For identification of anesthesia procedures, anesthesia codes (HCPCS/CPT 00100-01999) were used, whereas the CMS billing modifiers (ie, QZ, AA, QK, AD, Other) were used to identify billing of the anesthesia services by procedure, charges, and payments. Based on further exploration of the data files, we determined that the Other category consisted of primarily the QY modifier; therefore, we denote the modifier as Other (QY) throughout the document.[b]

Alphanumeric T-codes (ie, CPT Category III) were incorporated into the 2000-2009 data files, but were excluded from the 2010-2014 datasets. T-codes did not constitute a large amount of anesthesia procedures and were excluded from the frequency counts in this analysis. In addition, although total number of services is reported, CMS did not report services with fewer than 11 services by modifier and procedure for the years 2009 to 2014 because of privacy considerations. Given that procedures with fewer than 11 billing encounters from a national dataset is not common, this exclusion represents a trivial fraction of allowed services by modifier and does not hinder the ability to interpret overall anesthesia trends.

• ***Anesthesia Billing Modifiers.*** Medicare anesthesia services are permitted 100% of the allowed reimbursement except for the AD modifier, which receives less. Therefore, the functions of these modifiers are to determine the following: (1) whether the allowed service can be billed at the medical direction rate based on the TEFRA requirements, (2) case concurrency, and (3) allocation of the percent of reimbursement for an allowed service based on provider type. More specifically, the QZ and AA modifiers are permitted 100% of the allowed reimbursement. However, the QY or QK modifier used by the anesthesiologists (which reflects the medical direction rate and case concurrency) is permitted 50% of the allowed reimbursement, as is the QX modifier when used by the CRNA. According to the *Medicare Claims Processing Manual*, Chapter 12, Section 50.J, *concurrency* refers "to the maximum number of procedures that the physician is medically directing within the context of a single procedure and whether these other procedures overlap each other."[2] It is often the complexity of anesthesia billing coupled with determining adequate anesthesia workforce relative to reimbursement that poses a major hurdle for billers, administrators, and providers. For example, when the QK modifier is used, it requires tracking of concurrent cases, documenting and confirming that TEFRA requirements have been met, and having an adequate number of anesthesia providers to adhere to a fixed anesthesiologist-to-CRNA provider ratio of 1:2, 1:3, or 1:4. The prominent yet complex anesthesia modi-

[b] According to the data files code book, "utilization for modifiers not affected by duplicative counting is collapsed into the other category".[5] Medicare did not include the QX modifier in the dataset because it was considered a duplicative modifier for the purpose of determining allowed services. For billing purposes, a QK modifier should be accompanied by a QX modifier (CRNA service with medical direction by a physician). In addition, like the QK modifier, the QX and QY modifiers represent only 50% of the reimbursement for 1 allowed service depending on the anesthesia provider. Therefore, the Other category was determined to consist mostly of the QY modifier because of the average payment for any given procedure being similar to both the QK and Other category (ie, 50% of payment). To reflect 100% of Medicare allowed charges and payments, the researchers adjusted the costs for the QK and Other (QY) by multiplying these modifiers by 2 given that they represent only 50% of the total charge or payment for the encounter. This did not affect frequency distribution for allowed services According to the data files code book, "utilization for modifiers not affected by duplicative counting is collapsed into the other category".[5] Medicare did not include the QX modifier in the dataset because it was considered a duplicative modifier for the purpose of determining allowed services. For billing purposes, a QK modifier should be accompanied by a QX modifier (CRNA service with medical direction by a physician). In addition, like the QK modifier, the QX and QY modifiers represent only 50% of the reimbursement for 1 allowed service depending on the anesthesia provider. Therefore, the Other category was determined to consist mostly of the QY modifier because of the average payment for any given procedure being similar to both the QK and Other category (ie, 50% of payment). To reflect 100% of Medicare allowed charges and payments, the researchers adjusted the costs for the QK and Other (QY) by multiplying these modifiers by 2 given that they represent only 50% of the total charge or payment for the encounter. This did not affect frequency distribution for allowed services.

fiers used for Medicare billing are described as follows:

- AA: anesthesia services performed personally by the anesthesiologist
- AD: medical supervision by a physician; more than 4 concurrent anesthesia procedures
- QK: medical direction of 2, 3, or 4 concurrent anesthesia procedures involving qualified individuals
- QY: medical direction of 1 CRNA by an anesthesiologist
- QX: CRNA service with medical direction by a physician
- QZ: CRNA service without medical direction by a physician

• ***Data Analysis.*** Total annual allowed services and payments during the years 2000 to 2014 were summarized by each modifier. We also examined year-over-year changes in the share of services by each modifier. Then, focusing on the year 2014, we took a closer examination of the top 25 procedures. The share of overall allowed reimbursement for allowed services and payments for these most common procedures were calculated within modifier and overall. All cost figures were adjusted to account for inflation using the US Bureau of Labor Statistics Consumer Price Index (CPI) inflation calculator for the 2016 US dollar.[6] Statistical software (SAS version 9.2) was used for analysis.

Although the purpose of this analysis is to identify national trends in the use of anesthesia Medicare Part B billing modifiers, the Medicare Part B National Summary Data Files cannot be used to identify geographic variation in modifier use for allowed services, charges, and payments. In addition, because the data files did not include the QX modifier, which would duplicate the total number of allowed services for both the AD and QK modifier, reimbursement for allowed payments may be underestimated even after payment adjustments were made. Finally, although the Other category was determined to mainly consist of the QY modifier, this attribution may be overestimated because the GC modifier (ie, services performed by a resident under the direction of a teaching physician) would also be included in the Other category, which is not disclosed in the data files.

Results

• ***Overall Anesthesia Trends.*** The number of Medicare Part B anesthesia services grew from 10,006,743 allowed services in 2000 to 15,123,395 in 2014, for an average increase of 3.1% allowed anesthesia services per year over the 15-year period. After adjustment for 2016 inflation for all years, total anesthesia Medicare Part B charges grew from $2,857,482,250 in 2000 to $3,683,483,517 in 2014, for an average increase of 2.1% in anesthesia charges per year. Similarly, total anesthesia Medicare Part B payments grew from $2,259,633,032 in 2000 to $2,848,568,939 in 2014, for an average payment increase of only 1.9% in anesthesia payments per year.

• ***Trends in Anesthesia Allowed Services.*** Although the ranges in the percent of total allowed services for the QK (22.3%-23.7%), AD (0.4%-0.6%), and Other (QY) (29.5%-31.7%) modifiers stayed relatively constant during 2000 to 2014, clear increasing and decreasing trends are seen in the QZ and AA modifiers, respectively (Table 1). In particular, the proportion of QZ (ie, CRNA services) increased from 10.9% (1,092,906) in 2000 to 21.7% (3,279,473) in 2014. On the contrary, the proportion of AA (ie, anesthesiologist only services) decreased from 33.2% (3,323,883) in 2000 to 25.8% (3,901,959) in 2014. Overall, QZ allowed services had the largest percent increase, of 8.3% on average per year, whereas AA allowed services had the lowest percent increase, of only 1.3% per year. The QK, Other (QY), and AD modifiers had an average percent increase per year of 2.7%, 2.6% and 3.5%, respectively.

• ***Trends in Anesthesia Allowed Charges and Payments.*** Medicare payment and charge trends by modifier over time are similar to those for allowed services; however, Medicare Part B payments are consistently lower than charges for every procedure within every year examined. Therefore, our focus was on payments received by Medicare as the source of revenue rather than services charged by the provider. With regard to payment growth, a greater increase in the share of total payments for QZ services and a decline in share for AA services during 2000 to 2014 were observed (Figure). The QZ payments showed a substantial increase in the proportion of Medicare payments by year after adjustment for the CPI. QZ payments increased from 8.4% ($190,445,361) of anesthesia Medicare payments in 2000 to 17.7% ($502,951,232) of payments in 2014, for an average 7.5% increase annually, whereas AA payments decreased from 34.8% ($786,051,221) to 30.4% ($783,014,255), for an average 0.2% annual decrease. The QK, Other (QY), and AD modifiers had an average percent increase per year of 1.5%, 1.8%, and 3.0%, respectively.

• ***Anesthesia Procedure Rankings.*** Table 2 illustrates the top 25 anesthesia procedures by the HCPCS codes in 2014 according to rank, followed by the sum of charges and payments and average charge and payment by procedure, which were adjusted for the 2016 CPI. The top 25 anesthesia procedures accounted for 74.7% (n = 11,290,326) of all Medicare anesthesia services, 65.6% ($2,415,980,061) of all Medicare Part B charges, and 65.5% ($1,865,024,349) of all Medicare Part B payments in 2014. Anesthesia base units ranged from 3 to 13 base units, with an average of 5.48 anesthesia base units among the top 25 anesthesia HCPCS codes. All modifiers were represented in this group of procedures. Of particular note, the top 3 ranked procedures using anesthesia services were as follows: 1) 13.6% (2,057,802) lower intestinal endoscopic procedures (HCPCS code

Year	Total		QZ modifier			AA modifier		
	Total	% increase	No.	%	% increase	No.	%	% increase
2000	10,006,743	—	1,092,906	10.9	—	3,323,833	33.2	—
2001	10,590,291	5.8	1,295,524	12.2	18.5	3,448,369	32.6	3.7
2002	12,427,903	17.4	1,578,192	12.7	21.8	4,097,497	33.0	18.8
2003	13,266,000	6.7	1,741,369	13.1	10.3	4,350,219	32.8	6.2
2004	12,293,037	–7.3	1,793,659	14.6	3.0	3,936,007	32.0	–9.5
2005	12,708,756	3.4	1,927,376	15.2	7.5	3,989,830	31.4	1.4
2006	12,644,329	–0.5	1,964,562	15.5	1.9	3,889,765	30.8	–2.5
2007	12,747,076	0.8	2,047,962	16.1	4.2	3,854,111	30.2	–0.9
2008	12,840,945	0.7	2,187,164	17.0	6.8	3,836,785	29.9	–0.4
2009	13,156,562	2.5	2,316,440	17.6	5.9	3,845,635	29.2	0.2
2010	13,618,105	3.5	2,489,262	18.3	7.5	3,998,283	29.4	4.0
2011	14,024,069	3.0	2,699,987	19.3	8.5	3,987,684	28.4	–0.3
2012	14,692,926	4.8	2,978,975	20.3	10.3	4,028,029	27.4	1.0
2013	15,076,308	2.6	3,173,909	21.1	6.5	3,995,602	26.5	–0.8
2014	15,123,395	0.3	3,279,473	21.7	3.3	3,901,959	25.8	–2.3
Average	—	3.1	—	—	8.3	—	—	1.3

Table 1. Percent Change in Allowed Services Over Time by Billing Modifier, 2000-2014

Abbreviations: AA, anesthesia services performed personally by the anesthesiologist; AD, medical supervision by a physician (more than 4 concurrent anesthesia procedures); QK, medical direction of 2, 3, or 4 concurrent anesthesia procedures involving qualified individuals; QY, medical direction of 1 CRNA by an anesthesiologist; QZ, CRNA service without medical direction by a physician. – *continues on page 379*

00810), with an average charge of $169 per procedure and an average payment of $128; 2) 13.6% (2,057,191) procedures on eye; lens surgery (HCPCS code 00142) with an average charge of $139 per procedure and an average payment of $108; and 3) 11.6% (1,752,569) upper gastrointestinal endoscopic procedures (HCPCS code 00740), with an average charge of $168 per procedure and average payment of $130.

Analysis by modifier for the top 25 anesthesia procedures indicates that the Other (QY) modifier accounts for 19.6% of all Part B payments and 21.3% of all services, followed by the AA modifier (16.8%, 18.9%), QK modifier (15.5%, 16.1%), QZ modifier (13.5%, 18.1%), and AD modifier (0.1%, 0.3%; Table 3). The top 3 anesthesia allowed services accounted for 38.8% (5,867,562) of all anesthesia services and 25.1% ($713,778,611) for all Part B payments in 2014. Further analysis by modifier (not shown) for the top 3 anesthesia procedures performed in 2014 show that the QZ modifier accounts for 7.1% of the of total Part B payments, followed by Other (QY) (6.7%), AA (6.3%), QK (4.9%), and AD (0.1%).

Discussion

The CMS reported that a total of 37,345,712 Medicare beneficiaries received benefits from Original Medicare (ie, Part A and/or Part B) in 2015.[7] This group represents 11.7% of the total US population (320,090,857) that was projected by the US Census Bureau in the same year.[8] Additionally, according to the Congressional Budget Office, Medicare payments under the physician fee schedule reached upward of $70 billion in total Medicare spending.[9] Using this estimate, anesthesia accounts for roughly 4% of total Medicare spending. Our analysis illustrates that Anesthesia Medicare Part B services have increased an average of 3.1% per year relative to the 1.9% increase in payment per year after adjustment for overall inflation. Those responsible for billing and revenue management should also be aware that Medicare pays 80% of the anesthesia charge regardless of modifier. In addition, the top 25 anesthesia procedures account for approximately 75% of total anesthesia procedures. Of the top 25 anesthesia procedures, a healthy proportion of the QZ modifier was found, suggesting that most allowed services can be billed using the QZ modifier. Given the nominal increase in Medicare payments per year coupled with a greater proportion of services being billed using the QZ modifier over the study period, it appears that the anesthesia healthcare sector is responding to pressures for greater efficiency.

During the 15-year study period, a substantial rise in the use of the QZ modifier has occurred relative to the other modifiers for allowed services. This may be due to a

Year	QK modifier			Other (QY)			AD modifier		
	No.	%	% increase	No.	%	% increase	No.	%	% increase
2000	2,376,342	23.7	—	3,172,222	31.7	—	41,440	0.4	—
2001	2,495,679	23.6	5.0	3,288,424	31.1	3.7	62,295	0.6	50.3
2002	2,927,933	23.6	17.3	3,757,964	30.2	14.3	66,317	0.5	6.5
2003	3,175,981	23.9	8.5	3,928,897	29.6	4.5	69,534	0.5	4.9
2004	2,823,892	23.0	−11.1	3,670,169	29.9	−6.6	69310	0.6	−0.3
2005	2,917,340	23.0	3.3	3,803,974	29.9	3.6	70,236	0.6	1.3
2006	2,944,893	23.3	0.9	3,781,090	29.9	−0.6	64,019	0.5	−8.9
2007	2,958,979	23.2	0.5	3,828,318	30.0	1.2	57,706	0.5	−9.9
2008	2,953,967	23.0	−0.2	3,808,833	29.7	−0.5	54,196	0.4	−6.1
2009	3,069,680	23.3	3.9	3,876,515	29.5	1.8	48,292	0.4	−10.9
2010	3,046,405	22.4	−0.8	4,035,751	29.6	4.1	48,404	0.4	0.2
2011	3,130,137	22.3	2.7	4,155,308	29.6	3.0	50953	0.4	5.3
2012	3,280,045	22.3	4.8	4,354,282	29.6	4.8	51,595	0.4	1.3
2013	3,369,991	22.4	2.7	4,481,955	29.7	2.9	54,852	0.4	6.3
2014	3,377,849	22.3	0.2	4,504,525	29.8	0.5	59,588	0.4	8.6
Average	—	—	2.7	—	—	2.6	—	—	3.5

Table 1. *continued from page 378*

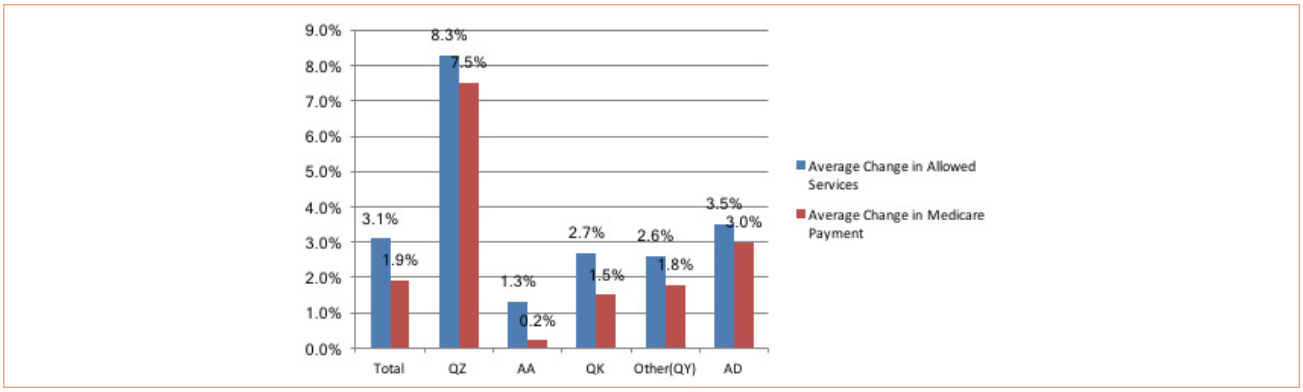

Figure. Average Percent Change in Allowed Services and Payments Over Time by Billing Modifier, 2000-2014
Abbreviations: AA, anesthesia services performed personally by the anesthesiologist; AD, medical supervision by a physician (more than 4 concurrent anesthesia procedures); QK, medical direction of 2, 3, or 4 concurrent anesthesia procedures involving qualified individuals; QY, medical direction of 1 CRNA by an anesthesiologist; QZ, CRNA service without medical direction by a physician.

change in anesthesia provider utilization or to an increase of full-scope CRNA providers in the anesthesia workforce relative to other anesthesia providers. Although the QZ modifier can be used by independent CRNAs, it may also be used by CRNAs who practice in a team with their physician colleagues, regardless of whether the physician is an anesthesiologist. Some may argue that if a CRNA is supervised, it must be by an anesthesiologist, and, therefore, the AD modifier (medical supervision rate) should be used for billing.[10] On the contrary, if using the AD modifier, the anesthesiologist would have to be involved in *more than* 4 concurrent cases and the practice would have to be willing to choose a lower reimbursement rate. Furthermore, according to our 15-year trend analysis, this perspective has not been widely adopted because the AD modifier accounted for 0.4% to 0.6% of allowed services during the study period.

One potential reason for the QZ trend is that as more facilities recognize that personnel costs are the main drivers in the anesthesia service line, use of the QZ modifier leads to the most cost-effective and compliant means of using the facility's anesthesia workforce. For example, according to French et al,[11] the greatest cost driver for the provision of anesthesia among 11 oncologic

Code	Base units	Anesthesia procedure description	Rank	No. of services	% of services	Adjusted charges ($)	% of total charges	Average charge per procedure (adjusted, $)	Adjusted payments	% of total payment	Average payment per procedure (adjusted, $)
810	5	Lower intestinal endoscopic procedure	1	2,057,802	13.6	348,280,363	9.5	$169	263,352,815	9.2	128
142	4	Lens surgery	2	2,057,191	13.6	286,852,677	7.8	139	222,213,857	7.8	108
740	5	Upper gastrointestinal endoscopic procedure	3	1,752,569	11.6	295,156,618	8.0	168	228,211,939	8.0	130
790	7	Surgery upper abdomen	4	488,578	3.2	183,544,254	5.0	376	142,509,988	5.0	292
400	3	Integumentary system-chest/ abdomen	5	426,666	2.8	77,685,573	2.1	182	60,006,079	2.1	141
1402	7	Knee arthroplasty	6	414,886	2.7	156,660,556	4.3	378	121,736,833	4.3	293
910	3	Transurethral bladder surgery	7	362,054	2.4	55,134,506	1.5	152	42,592,150	1.5	118
1992	5	Diagnostic/ therapeutic nerve block, injection, prone	8	312,266	2.1	45,374,181	1.2	145	34,896,702	1.2	112
1480	3	Open procedure on bones–low leg, ankle, foot	9	301,883	2.0	63,974,428	1.7	212	49,353,287	1.7	163
1810	3	Procedures nerves/ muscles/tendons/ fascia/bursae/ forearm/wrist/hand	10	271,186	1.8	40,508,195	1.1	149	31,172,848	1.1	115
840	6	Surgery lower abdomen	11	269,284	1.8	96,959,822	2.6	360	75,058,406	2.6	279
300	5	Integumentary system of head/ neck	12	253,316	1.7	62,584,241	1.7	247	48,377,592	1.7	191
1936	5	Percutaneous image therapeutic spine and spinal cord	13	239,904	1.6	43,458,652	1.2	181	33,625,662	1.2	140
670	13	Extensive spine/ spinal cord procedure	14	223,901	1.5	146,619,348	4.0	655	113,919,509	4.0	509
1214	8	Hip arthroplasty	15	201,407	1.3	81,839,061	2.2	406	63,666,408	2.2	316

1400	4	Arthroscopic joint knee surgery	16	195,602	1.3	39,271,412	1.1	201	30,321,041	1.1	155
104	4	Electroconvulsive therapy	17	189,837	1.3	22,670,634	0.6	119	17,532,339	0.6	92
1844	6	Vascular shunt surgery/shunt revision	18	179,708	1.2	58,580,000	1.6	326	45,433,128	1.6	253
1230	6	Open procedure involving upper two-thirds of femur	19	171,734	1.1	55,550,628	1.5	323	43,159,716	1.5	251
320	6	One or more neck organs[a]	20	171,548	1.1	53,940,677	1.5	314	41,885,731	1.5	244
1630	5	Open or surgical arthroscopy of shoulder joint	21	168,584	1.1	50,061,331	1.4	297	38,708,241	1.4	230
1922	7	CT or MRI	22	155,917	1.0	39,298,158	1.1	252	30,484,721	1.1	196
532	4	Access to central venous circulation	23	145,975	1.0	28,123,353	0.8	193	21,830,126	0.8	150
140	5	Procedures on eye	24	140,663	0.9	28,914,977	0.8	206	22,364,879	0.8	159
630	8	Lumbar region/ spine, cord surgery	25	137,865	0.9	54,936,413	1.5	398	42,610,352	1.5	309

Table 2. Top 25 HCPCS Procedure Codes by Adjusted Charges and Payments for Services, 2014

Abbreviations: CT, computed tomography; HCPCS, Healthcare Common Procedure Coding System; MRI, magnetic resonance imaging.

[a]Esophagus, thyroid, larynx, trachea, and lymph nodes.

surgical procedures was personnel costs, representing 79% of total patient anesthesia costs. If the average anesthesiologist salary is $350,000 compared with a CRNA salary at $170,000, then a facility's practice model for delivering anesthesia care and the use of appropriate related billing modifiers have great potential to influence total anesthesia costs relative to the revenue generated.[12] For example, when one takes into account revenue minus total cost for a procedure, the most cost-*inefficient* billing modifier is the QY modifier.[12,13] In fact, the main driver for this cost inefficiency is TEFRA and the 1:1 fixed provider ratio imposed by use of the QY modifier relative to the cost of the anesthesia service. Interestingly, based on our 2014 analysis, the use of the Other (QY) modifier accounted for 31.7% of all Medicare Part B payments and 19.6% of payments for the top 25 anesthesia procedures. Unfortunately, this suggests that many facilities and group practices adhere to very cost-inefficient use of anesthesia providers based on the ratio of anesthesia revenue to total anesthesia cost.

What does the QZ modifier provide that the other modifiers do not? In a 2012 single-center study, Epstein and Dexter[3] found that lapses in a "supervision ratio" of 1 anesthesiologist to 2 CRNAs (which may be interpreted as medical direction rate using the QK modifier), occurred 35% of days or that compliance occurred only 65% of days. Interestingly, one of the recommendations made by the authors was to have more anesthesiologists present at the start of the day to offset the lapses.[3] However, unlike any other modifier, the QZ modifier provides billing flexibility to the facility that provides or facilitates anesthesia services. Use of the QZ modifier *does not* require documentation of TEFRA compliance because the modifier explicitly indicates that medical direction by the anesthesiologist did not occur. One argument made against the QZ modifier is simply that an anesthesiologist must have been involved in the care process (but is not represented in the modifier) because he or she is present in the facility.[14,15] A more compelling argument is that the anesthesiologist could not meet the *most demanding* aspects of anesthesia care for payment at the medically directed rate implied by the TEFRA requirements. This indicates that the CRNA either personally performed the entire anesthesia service alone or provided the most demanding aspects of the anesthesia service while also being the primary anesthesia pro-

Modifier	Allowed services			Adjusted Payments		
	Total	% within modifier	% of overall	Total ($)	% within modifier	% of overall
QZ	2,732,445	83.3	18.1	383,459,802	76.2	13.5
AA	2,852,161	73.1	18.9	477,975,101	61.0	16.8
QK	2,438,279	72.2	16.1	442,240,081	64.0	15.5
Other (QY)	3,222,694	71.5	21.3	558,302,772	64.4	19.6
AD	44,747	75.1	0.3	3,046,592	74.0	0.1
Total top 25	11,290,326	—	74.7	1,865,024,349	—	65.5
Overall total	15,123,395	—	—	2,848,568,938	—	—

Table 3. Top 25 Anesthesia Procedures by Billing Modifier and Adjusted Payments, 2014

vider at the head of the table. If an anesthesiologist was involved in a CRNA service, it would be cooperative in nature, and the anesthesiologist would not be permitted to bill via medical direction. Regardless of the interpretation, given the known fraudulent misuse[4] of the medical direction modifiers (ie, QK and QY), there is no known fraudulent use of the QZ modifier even if the anesthesiologist provided an undocumented supportive role in the care. The benefit of the QZ modifier is that it incurs 100% of the allowable reimbursement and breaks from the TEFRA requirements associated with fixed provider ratios under medical direction, which directly drive up total costs. The QZ modifier enables the facility to use its anesthesia workforce (in particular, CRNAs) in the most productive and cost-efficient manner possible without worrying about noncompliance with the 7 TEFRA rules.

Conclusion

Examining trend analysis of anesthesia billing is illuminating and can provide healthcare executives, administrators, and billers some insight as to how a facility stacks up to national trends to take corrective actions. Although the use of the QZ billing modifier has increased an average of 8.3% per year for Medicare Part B allowed services relative to the 1.3% increase for AA services per year, there is still a consistent use of the other modifiers, which has not meaningfully changed over time. The consistent use of the QK and QY modifiers indicates that some facilities have not caught on to the inherent flexibility of the QZ modifier and its potential impact on the bottom line.

Many healthcare executives, administrators, and their billers falsely presume that the TEFRA requirements and the use of the medical direction anesthesia billing modifiers are required to meet physician supervision under state scope of practice regulations. This is because many presume that state and federal regulatory language explicitly dictates that the supervising physician must be an anesthesiologist. It is important to note that the use of the QZ modifier does not obstruct *any* state scope of practice regulations, state facility regulations, Medicare, and/or other federal regulations, nor does it have an impact on facilities in states that do or do not opt out of the federal supervision requirement. Therefore, there are no limitations to using the QZ modifier. Given the perceived barriers about state and federal regulations with the QZ modifier, further research looking at geographic variation of anesthesia procedures and billing modifiers based on state or county data may help further illuminate which states are struggling with misinformation.

Research has shown that anesthesia care is safe when the QZ modifier is used.[16-18] In addition, altering the local anesthesia workforce in favor of using CRNAs is more cost efficient.[12,13] We are in an era of value-based reimbursement when cost will be tied to quality for perioperative outcomes 90 days out. It may not be apparent, but restructuring the local anesthesia workforce, especially during shortages of providers, can achieve 2 things: reduce the total personnel costs for anesthesia care and allow for the reallocation of savings to nonrevenue-generating costs associated with improved care coordination (eg, nurse navigators, nurse case managers, and care coordinators).

Ideally, all CRNAs should practice at the top of their education and certification; however, in states where physician supervision is required to meet state law, it does not mean that the supervising physician must be an anesthesiologist. Therefore, any involved physician during the perioperative event may be deemed a supervising physician to meet state regulations. All CRNAs work in a team with other perioperative professionals that may include a surgeon, proceduralist, podiatrist, dentist, anesthesiologist, and other advanced practice registered nurses. The QZ modifier not only provides needed flexibility, it does not contradict accepted practice models.

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