

Anesthesia Medicare Trend Analysis Shows Increased Utilization of CRNA Services

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Total Medicare Part B payments for anesthesia procedures were \$2.03 billion in 2014, accounting for roughly 3% of total Medicare spending. The top 25 anesthesia procedure codes accounted for 75% of all allowed Medicare services or \$1.34 billion in Medicare anesthesia payments. An analysis of Medicare Part B anesthesia services from 2000 to 2014 revealed an average increase of 3.3% per year. In terms of use of anesthesia billing modifiers, the 15-year trend analysis demonstrated that the least used billing modifier was the AD modifier (medical supervision rate), ranging from 0.5% to 0.9% 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 16.0% to 30.9%. Services performed by CRNAs represented the largest percent increase of all the modifiers, with an average 8.3% increase per year for allowed services. In comparison, billing for anesthesiologist-only services (AA modifier) decreased from 48.6% to 36.7% over the study period. The increased trend of the use of the QZ modifier indicates a change in billing practices over this 15-year period.

Keywords: Billing, Medicare Part B, nurse anesthesia.

Anesthesia services are often not fully appreciated with regard to total Medicare Part B spending and may be overlooked in terms of cost in perioperative care. Given the relatively fixed nature of the anesthesia billing formula (ie, Anesthesia Base Units + Anesthesia Time Units * Conversion Factor), the way Medicare Part B is billed may influence the anesthesia workforce and ultimately 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, according to the number of anesthesia providers with a National Provider Identifier in the Medicare provider tracking system (known as the National Plan & Provider Enumeration System), 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 its own Centers for Medicare and Medicaid Services (CMS) anesthesia fee schedule and billing modifiers dictate the level of involvement by an anesthesiologist for the purpose of reimbursement. For Medicare billing, the *Medicare Claims*

Processing Manual explicitly describes how CRNAs and anesthesiologists should bill.² Although the manual does refer to other qualified nonphysician anesthetists such as anesthesiologist assistants, this article refers only to CRNAs and anesthesiologists as primary anesthesia providers given the limited share these other providers contribute to total Medicare spending and the fact that anesthesiologist assistants cannot use the QZ modifier (explained in the Methods section), 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),¹ which 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.

Obviously, consistent compliance with the TEFRA requirements has proved to be problematic for anesthesiologists given that meeting the TEFRA requirements is tied to case concurrency at the time of service for billing.^{3,4} The method used to indicate to Medicare whether the requirements for medical direction were met is through the use of specific anesthesia billing modifiers (specifically

¹The 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.

QK and QY); alternatively, other modifiers can be used when medical direction is not met.²

The purpose of this analysis was to use the Medicare Part B National Summary Data Files to first look at overall anesthesia billing trends over a 15-year period (2000-2014) and then, using the most recent data year available at the time (2014), to more closely examine the type and volume of anesthesia procedures performed and their estimated average anesthesia payments. Information from this analysis will serve to inform healthcare administrators and executives about national trends in anesthesia billing practices, provide a snapshot year of Medicare anesthesia volume, and suggest a rationale for why these trends are occurring as a reflection of changes to billing practice or provider utilization. Further discussion regarding anesthesia billing myths will follow.

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. One hundred percent of the allowed charges is the amount Medicare deems a *reasonable* payment for a Medicare Part B provider. The Medicare payment is 80% of the allowed charge, and the beneficiary pays 20% of the allowed charge. The dataset is designed so that one can identify total allowed charges and total allowed Medicare payments by a Healthcare Common Procedure Coding System/*Current Procedural Terminology* (HCPCS/CPT) code in relation to prominent CMS billing identifiers. Therefore, the key variables used in this analysis were anesthesia procedures as identified by anesthesia codes (HCPCS/CPT 00100-01999) and CMS billing modifiers (ie, QZ, AA, QK, AD, OTHER) as identified in the data files. The OTHER category consists of the QX and QY modifiers but is not further specified in the data files. Below are the descriptions of the prominent yet complex anesthesia modifiers used for billing as identified in the data source.

- 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 (ie, CRNA or anesthesiologist assistant)
- QZ: CRNA service; without medical direction by a physician
- OTHER category (QX or QY):
 - QX: CRNA or anesthesiologist assistant service; with medical direction by a physician (for 2, 3, or 4 concurrent anesthesia procedures)
 - QY: medical direction of 1 CRNA by an anesthesiologist

Alphanumeric T-codes (ie, CPT III) were incorporated into the 2000 to 2009 data files but were excluded from the 2010 to 2014 datasets. T-codes did not constitute a substantial amount of anesthesia procedures and were excluded from the frequency counts in this analysis. In addition, although the total number of services is reported, CMS did not report services with fewer than 11 services by modifier and procedure for 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 with the exception of the AD modifier, which receives less. Therefore, the function of these modifiers is 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 CRNA nonmedically directed (QZ) and anesthesiologist-alone (AA) modifiers are permitted 100% of the allowed reimbursement. However, the medical direction (QK) modifier used by anesthesiologists (which reflects the medical direction rate and case concurrency) is permitted 50% of the allowed reimbursement, as is the medical direction (QX or QY) modifiers used by the CRNA when being medically directed by an anesthesiologist. 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 pose 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.

Analysis

The first aim of this retrospective analysis was to use the 2000 to 2014 Medicare Part B National Summary data files to look at the overall trends by the share of anesthesia billing modifiers over the 15-year period based on number of billable anesthesia encounters (ie, allowed service). The OTHER category predominately reflects the

QX modifier given that previous research in 2011 by Byrd et al⁶ demonstrated that only 2.3% of Medicare claims were billed using the QY modifier. To accurately reflect billing modifier trends and show the percent changes of unique encounters over time we adjusted the total allowed services by excluding the OTHER category to best appreciate the number of unique anesthesia encounters, otherwise referred to as adjusted allowed services.ⁱⁱ Again, this adjustment is necessary because providers bill separately for the same encounter when billing under the medical direction rate. The total annual adjusted allowed services during the years 2000 to 2014 years are summarized by each modifier and year over year changes in the share of services by each modifier and are also examined to appreciate the overall impact of the change.

The second aim of this analysis was to review utilization of Medicare Part B anesthesia services by reviewing the most common anesthesia procedures performed and their estimated average payments using the most recent data year. Looking at the 2014 data year, we examine the frequency of the most common anesthesia procedures by highlighting the top 25 Medicare anesthesia procedures and payments regardless of anesthesia modifier. Unlike the trend analysis, to provide summary data on Medicare Part B anesthesia payments in 2014, all modifier categories and their allowed service counts were included. To descriptively show the overall shares of the anesthesia modifiers among the top 25 ranked anesthesia procedures in 2014, the share of allowed services and payments for the most common procedures are calculated within modifier relative to total allowed services, total allowed services within a given modifier, and number of services within the top 25 ranked procedures. Statistical software (SAS version 9.2, SAS Institute Inc) was used for analysis.

Although the purpose of this analysis was 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 explicitly denote the QX and QY modifier which represent 50% of the payment of an individual allowed service, it is not possible to accurately calculate year over year changes in Medicare spending for all anesthesia modifiers without explicitly denoting these modifiers in the data source. As a result, anesthesia payment amounts presented are for 2014 data year only using total allowed services. For ranked anesthesia procedures in which estimated average payments are discussed, these estimates

are based on the weighted averages across all modifiers taking into account the 50% reimbursement rate for the medical direction modifiers. Furthermore, although the OTHER category was determined to mainly consist of the QX modifier, a small share of the QY modifier would also be included in this category. Therefore, to highlight the share of the QZ and AA modifiers relative to the top anesthesia procedures by allowed services and payments, we refer to medical direction and supervision as the sum of all modifiers captured in the OTHER (ie, QX and QY), QK, and AD categories to address the overall impact of these modifiers. Finally, although this analysis is the first to show trends in utilization of anesthesia billing modifiers, this data source is unable to explicitly identify actual practice patterns at the facility level.

Results

• *Trends in Anesthesia Allowed Services.* The total Medicare Part B anesthesia allowed services grew from 10,007,543 allowed services in 2000 to 15,123,394 in 2014, for an average increase of 3.1% allowed anesthesia services per year over the 15-year period. When accounting for the duplicative modifiers to better appreciate the number of unique anesthesia encounters, the adjusted Medicare Part B allowed anesthesia services grew from 6,834,521 in 2000 to 10,618,869 in 2014, for an average increase of 3.3%. By 2014, total Medicare Part B anesthesia payments for total allowed services were \$2.03 billion dollars. Overall, the anesthesiologist-alone (AA) modifier was the most common modifier billed.

Although the ranges in the percent of adjusted allowed anesthesia services for the medical direction (QK; 31.8%-34.8%) and supervision (AD; 0.5%-0.9%) modifiers stayed relatively constant during 2000 to 2014, clear increasing and decreasing trends are seen in the CRNA nonmedically directed (QZ) and anesthesiologist-alone (AA) modifiers, respectively (Figure 1). In particular, the proportion of QZ modifier use increased from 16.0% (1,092,955) in 2000 to 30.9% (3,279,473) in 2014. On the contrary, the proportion of AA modifier use decreased from 48.6% (3,324,082) in 2000 to 36.7% (3,901,959) in 2014. Figure 2 illustrates the average growth per year of an anesthesia billing modifier during the 15-year period. 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 and AD modifiers had an average percent increase per year of 2.7% and 3.5% respectively.

ⁱⁱ According to the data files code book, "utilization of modifiers not affected by duplicative counting is collapsed into the other category".⁵ Medicare did not include the QX or QY 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 represents 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 QX modifier because of the average payment for any given procedure being similar to both the QK and OTHER category (ie, 50% of payment).

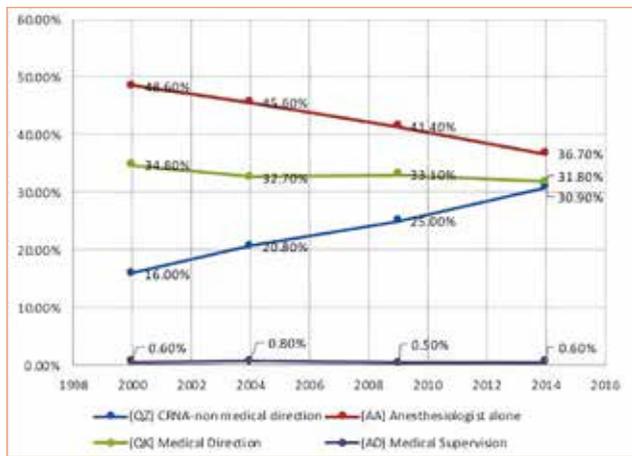


Figure 1. Percent Change in Adjusted Allowed Services Over Time by Modifier, 2000-2014 (n = 10,618,869)

Anesthesia Procedure Rankings

There are more than 270 anesthesia-specific HCPCS codes for billing. Table 1 illustrates the top 25 anesthesia procedures by HCPCS/CPT codes in 2014 according to rank by volume, followed by the sum and estimated average of charges and payments by procedure. The rankings illustrate not only high-volume anesthesia services in Medicare but also some of the highest cost procedures relative to volume. The top 25 anesthesia procedures accounted for 74.7% (11.3 million) of all Medicare anesthesia services and 66.0% (\$1.34 billion) of all Medicare Part B anesthesia payments in 2014. Anesthesia base units ranged from 3 to 13 base units (see Table 1), with an average of 5.48 anesthesia base units among the top 25 anesthesia HCPCS codes. The top 3 high-volume anesthesia procedures were intestinal endoscopic procedures (HCPCS 00810), lens [eye] surgery (HCPCS 00142); and upper gastrointestinal [tract] endoscopic procedures (HCPCS 00740), which accounted for 38.8% (5.87 million) of all Medicare anesthesia services and 26.5% (\$537 million) of all total anesthesia Medicare Part B payments (see Table 1).

Further analysis of total allowed services by modifier (not shown) for the top 3 anesthesia procedures show that the QZ modifier accounts for 9.7% of the of total Part B anesthesia payments, followed by 8.6% for the AA modifier and lastly 8.1% for the sum of the medical direction and supervision modifiers (ie, OTHER [QX, QY], QK, AD). There were 6 high-volume anesthesia procedures (ie, HCPCS 1402, 1480, 1214, 1400, 1230, 1630) of the musculoskeletal system that accounted for 9.5% (1.45 million) anesthesia procedures and 11.8% (\$2.40 million) in Medicare Part B anesthesia payments (see Table 1). In terms of the most costly Medicare anesthesia services based on estimated payments between \$300 and \$500 per procedure, extensive spine/spinal cord procedure (HCPCS 00670), hip arthroplasty (HCPCS 1214),

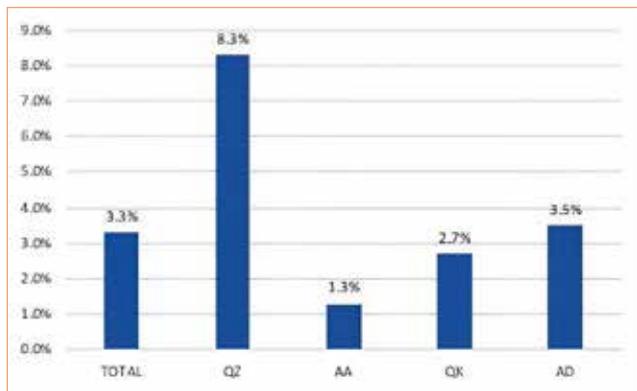


Figure 2. Average Percent Change in Adjusted Allowed Services by Anesthesia Modifier, 2000-2014^a

Abbreviations: AA, anesthesia services performed personally by the anesthesiologist; AD, medical supervision by a physician (> 4 concurrent anesthesia procedures); QK, medical direction of 2, 3, or 4 concurrent anesthesia procedures involving qualified individuals; QZ, Certified Registered Nurse Anesthetist service without medical direction by a physician.

^aAverage percent change is based on adjusted total allowed services.

and lumbar region/spine, cord surgery (HCPCS 00630) accounted for 3.7% (0.56 million) of all Medicare anesthesia services and 7.3% (\$150 million) of total anesthesia Medicare payments (see Table 1).

All modifiers were represented in the top anesthesia procedures. For a better appreciation of overall modifier use within the top 25 anesthesia procedures, Table 2 illustrates the differences between CRNA nonmedical direction (QZ), anesthesiologist-alone (AA), and the medical direction/supervision (OTHER [QX and QY], QK, and AD) modifiers by number of allowed services and payments. The medical direction and supervision modifiers were the predominant modifiers used, which accounted for 36.9% of all Part B anesthesia payments and 37.7% of all allowed anesthesia services, followed by the anesthesiologist-alone (AA) modifier (35.0%, 18.9%), and the CRNA nonmedically directed (QZ) modifier (28.1%, 18.5%). Reviewing the QZ and AA modifier more closely, we see that 83.3% of all CRNA nonmedically directed Part B anesthesia services are within the top 25 anesthesia procedures compared with 73.1% for anesthesiologist-alone Part B services. In terms of Medicare Part B anesthesia payments, 76.2% of all QZ payments fall within the top procedures compared with 61% of all AA payments.

Discussion

There were a total of 37,345,712 Medicare beneficiaries receiving Original Medicare Part A and/or Part B services,⁷ which accounted for 11.7% of the total US population in 2015.⁸ Medicare payments under the physician fee schedule reached upward of \$70 billion in 2015 total Medicare Part B spending, and the findings of our analysis suggest that anesthesia services represent roughly

3% of this figure.⁹ Over the 15-year period, anesthesia Medicare Part B encounters have increased an average of 3.3% per year. Based on future population demographic changes, it is anticipated that the number of Medicare beneficiaries will continue to grow along with a demand for certain services.

In particular, our analysis showed that the top 25 anesthesia procedures account for approximately 75% of total anesthesia procedures, of which 39% of all anesthesia procedures were for upper and lower gastrointestinal [tract] endoscopic and/or lens procedures and 9.5% were for 6 anesthesia musculoskeletal procedures for joints and bones. Based on the distribution of modifier use for the high-volume procedures, as seen in Table 2, the QZ modifier aligned more closely with the top 25 anesthesia procedures compared with the other modifiers, suggesting a wider use of the AA and medical direction modifiers among the lower volume procedures. Given the nominal increase in Medicare payments 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, with more than 83% of services aggregating around the top 25 higher volume procedures. This may be due to a change in anesthesia provider utilization, an increase of CRNA providers in the anesthesia workforce providing full scope of practice, or anesthesiologists unable to meet TEFRA rules for billing. Although the QZ modifier can be used by independent CRNAs, it may also be used by autonomous 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.⁶ 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 trend analysis, this perspective has not been widely adopted because the modifier accounted for 0.5% to 0.9% of adjusted allowed services during the study period.

One potential reason for the QZ trend is that more facilities are recognizing that anesthesia personnel costs are the main cost drivers in the anesthesia service line and that strategic use of the CRNA workforce is the most cost-effective and compliant means of facilitating anesthesia services. For example, according to French et al,¹⁰ the greatest cost driver for the provision of anesthesia among 11 oncologic 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.¹¹ For example, when one takes into account revenue (based on payer mix) minus total provider cost for a procedure, the most costly anesthesia delivery model is one that predominately adheres to lower fixed anesthesia provider ratios.^{11,12} In fact, the main driver for this cost is due to TEFRA and the billing modifiers calling for fixed provider ratios (ie, 1:1, 1:2-4) relative to the cost of the anesthesia service. In this analysis, the use of the medical direction and supervision modifiers accounted for 31.8% of total allowed services and 36.9% of payments for the top 25 Medicare anesthesia procedures. Unfortunately, this finding suggests that many facilities and group practices adhere to very inefficient use of anesthesia providers, with no added benefit for doing so based on Medicare anesthesia revenue to total anesthesia provider costs.

What does the QZ modifier provide that the other modifiers do not? In a 2012 single-center study using a simulation analysis, Epstein and Dexter³ 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. 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. Some arguments made against the QZ modifier are simply that an anesthesiologist must have been involved in the care process because he or she is present in the facility but not represented in the modifier.^{13,14} 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 provider at the head of the table. If an anesthesiologist were 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 misuse⁴ of the medical direction modifiers (ie, QK and QX or QY), only CRNAs can use the QZ modifier even if the anesthesiologist provided a supportive role in the care. The benefit of the QZ modifier is that it incurs 100% of the allowable reimbursement and breaks from

HCPCS/ CPT code	Base units	Anesthesia procedure description	Rank	Allowed services, No.	Percent of services	Allowed charged, \$	Percent of total charges	Estimated			
								charge per procedure, \$	Payment	Percent of total payment	Estimated payment per procedure, \$
810	5	Low intestine scope	1	2,057,802	13.6	264,543,603	10.1	166	199,954,567	9.9	125
142	4	Lens surgery	2	2,057,191	13.6	222,472,935	8.5	136	172,345,269	8.5	105
740	5	Upper gastrointestinal [tract] visualization	3	1,752,569	11.6	213,049,631	8.1	164	164,726,305	8.1	127
790	7	Surgery upper abdomen	4	488,578	3.2	126,529,869	4.8	367	98,247,109	4.8	285
400	3	Integumentary system- chest/abdomen	5	426,666	2.8	52,516,368	2.0	178	40,573,874	2.0	137
1402	7	Knee arthroplasty	6	414,886	2.7	106,930,244	4.1	371	83,084,572	4.1	288
910	3	Transurethral bladder surgery	7	362,054	2.4	37,562,249	1.4	149	29,027,405	1.4	115
1992	5	Diagnostic/therapeutic nerve block, inject, prone	8	312,266	2.1	38,047,308	1.5	143	29,247,849	1.4	110
1480	3	Open procedure on bones- low leg, ankle, foot	9	301,883	2.0	44,762,654	1.7	207	34,533,693	1.7	160
1810	3	Procedures nerves/musc/ tend/fascia/bursae/f-arm/ wrist/hand	10	271,186	1.8	28,488,738	1.1	147	21,927,110	1.1	113
840	6	Surgery lower abdomen	11	269,284	1.8	66,042,731	2.5	351	51,126,438	2.5	272
300	5	Integumentary system of head/neck	12	253,316	1.7	43,063,909	1.6	240	33,293,984	1.6	186
1936	5	Percutaneous image therapeutic spine and spinal cord	13	239,904	1.6	33,111,036	1.3	174	25,614,390	1.3	135
670	13	Extensive spine/spinal cord procedure	14	223,901	1.5	100,048,227	3.8	644	77,746,139	3.8	500
1214	8	Hip arthroplasty	15	201,407	1.3	55,873,422	2.1	399	43,469,832	2.1	310
1400	4	Arthroscopic joint knee surgery	16	195,602	1.3	27,953,962	1.1	197	21,585,969	1.1	152
104	4	Electroconvulsive therapy	17	189,837	1.3	16,799,593	0.6	117	12,987,594	0.6	91
1844	6	Vascular shunt surgery/ shunt revision	18	179,708	1.2	39,840,239	1.5	320	30,916,701	1.5	248
1230	6	Open procedure involving upper 2/3 of femur	19	171,734	1.1	38,495,039	1.5	316	29,913,709	1.5	246

320	6	One or more neck organ (esoph/thy/lar/trac/lymph)	20	171,548	1.1	36,162,038	1.4	305	28,081,838	1.4	237
1630	5	Open or surgical arthroscopy of shoulder joint	21	168,584	1.1	35,177,567	1.3	291	27,202,102	1.3	225
1922	7	Cat or mri scanning	22	155,917	1.0	27,705,556	1.1	246	21,495,907	1.1	191
532	4	Access to central venous circulation	23	145,975	1.0	19,395,266	0.7	189	15,058,372	0.7	147
140	5	Procedures on eye	24	140,663	0.9	21,301,339	0.8	198	16,483,143	0.8	153
630	8	Lumbar region/spine, cord surgery	25	137,865	0.9	37,837,923	1.4	387	29,349,191	1.4	300

Table 1. Top 25 Healthcare Common Procedure Coding System (HCPCS) Anesthesia Procedures by Charges and Payments for Allowed Services, 2014
Abbreviations: Cat, computed tomography; CPT, Current Procedural Terminology; mri, magnetic resonance imaging.

the TEFRA requirements associated with fixed provider ratios under medical direction, which directly drive up total costs. Furthermore, the QZ modifier enables the facility to use its anesthesia workforce (in particular CRNAs) in the most productive manner possible without worrying about adhering to fixed provider ratios and noncompliance with the 7 TEFRA rules.

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, or Medicare and/or other federal regulations; nor does it impact facilities in states that do or do not participate in federal opt-out. Therefore, there are no limitations to using the QZ modifier when a CRNA is involved in the provision of the anesthesia service.

Conclusion

Examination of anesthesia billing trend analysis 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 modifier has increased an average of 8.3% per year for 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 medical direction modifiers indicates that many facilities continue to use fixed anesthesia provider ratios.

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. Future qualitative research to appreciate local-level work patterns is needed to best understand actual autonomous and/or independent CRNA practice.

Research has shown that anesthesia care is safe when the QZ modifier is used.¹⁵⁻¹⁷ In addition, altering the local anesthesia workforce in favor of using CRNAs is more cost efficient.^{11,12} In an era of value-based reimbursement in which cost will be tied to quality for peri-operative outcomes 90 days out, 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).

Modifier	Allowed services				Payments				
	All allowed services within modifier, No.	Top 25 services within modifier, No.	Percent of top 25 services within modifier/ all allowed services	Percent of top 25 services within modifier/ all top 25 services	All payments within modifier, US \$	Payment for top 25 within modifier, US \$	Percent of payment for top 25 modifier/ all top 25 payments	Percent of payment for top 25/ all payments within modifier	Percent of payment for top 25 modifier/ all payments
CRNA nonmedical direction (QZ)	3,279,473	2,732,445	18.1	83.3	493,089,444	375,940,983	18.5	76.2	28.1
Anesthesiologist alone (AA)	3,901,959	2,852,161	18.9	73.1	767,661,034	468,603,041	23.1	61.0	35.0
Directed/supervised ^a (QY, OX, QK, AD)	7,843,586	5,705,720	37.7	71.8	767,999,732	493,449,037	24.3	64.3	36.0
Total (all allowed services or payments)	15,123,394	11,290,326	74.7	—	2,028,750,210	1,337,993,061	66.0	—	—

Table 2. Top 25 Anesthesia Procedures by Anesthesia Billing Modifier and Anesthesia Payments, 2014

Abbreviation: CRNA, Certified Registered Nurse Anesthetist.

^aDirected/supervised refers to the sum of the modifier categories in the national summary file in which medical direction or supervision (OTHER [QY, QX], QK, and AD) would be identified.

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