STATE OF MARYLAND
DHMH

Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201
Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Joshua M. Sharfstein, M.D., Secretary

October 23, 2013

The Honorable Edward J. Kasemeyer
Chair
Senate Budget & Taxation Committee
3 West Miller Senate Office Bldg.
Annapolis, MD 21401-1991

The Honorable Norman H. Conway
Chair
House Appropriations Committee
121 House Office Bldg.
Annapolis, MD 21401-1991

Re: 2013 Joint Chairmen's Report (p. 75) – Report on Pediatric Restorative Dental Surgery and Analysis of Rates for Anesthesia Services

Dear Chairmen Kasemeyer and Conway:

In keeping with the requirements of the 2013 Joint Chairmen's Report (p. 75), enclosed is the Department of Health and Mental Hygiene's (DHMH) report on pediatric dental surgery and payment rates for related anesthesia services. The committees requested that DHMH report to the budget committees on (1) the utilization of pediatric restorative dental surgery for fiscal years 2006-2013 by facility; (2) an analysis of the rates for anesthesia services performed in connection to pediatric restorative dental surgery compared to rates paid by Medicare and commercial payors; and (3) a justification for why Medicare rates should be considered the benchmark for Medicaid anesthesia rates. The language requesting the report withholds a $100,000 appropriation made for the purpose of administration pending submission of this report.

Thank you for your consideration of this information. I respectfully request that the funds withheld pending submission of this report be released. If you have questions or need more information on the subjects included in this report, please contact Marie Grant, Director of Governmental Affairs at (410) 767-6481.

Sincerely,

Joshua M. Sharfstein, M.D.
Secretary

Enclosure

cc: Chuck Milligan
Tricia Roddy
Marie Grant
Patrick Dooley
Simon Powell

Report on Pediatric Restorative Dental Surgery and Analysis of Rates for Anesthesia Services

Submitted by

The Maryland Department of Health and Mental Hygiene

2013 Joint Chairmen's Report, p. 75

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Executive Summary

Promoting the health and well-being of all children in Medicaid is one of the primary goals of the Maryland Department of Health and Mental Hygiene (the Department). The Department recognizes that high-quality dental care is an important contributor to children's overall well-being. Under Medicaid Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) requirements, dental care is a mandated health benefit for children under 21 years of age. DentaQuest, an administrative services organization (ASO), provides dental coverage in the Maryland Medicaid program. DentaQuest began administering the dental benefit package in July 2009.

One of the mandated dental services under EPSDT is restorative dental surgery. The goal of pediatric restorative dental surgery is "to repair or limit the damage from caries, protect and preserve the tooth structure, reestablish adequate function, restore esthetics (where applicable), and provide ease in maintaining good oral hygiene."[1] Although this procedure is preventable, children need to be able to access this in a timely manner, if warranted, in order to maintain good health.

At the conclusion of the 2013 legislative session, the Senate Budget and Taxation Committee and the House Appropriations Committee requested that the Department provide a report on the utilization of pediatric dental surgery. Data were requested for fiscal year (FY) 2006 through FY 2013[2] by both facility and payer source, as well as the reimbursement rates for anesthesia services for pediatric restorative dental surgery, compared with rates paid by Medicare and commercial payers. The committees also requested that the Department justify why Medicare rates are the benchmark for Medicaid anesthesia rates (as they are for other physician service rates in Medicaid) given that Medicare uses a different methodology to reimburse anesthesia services than it does to reimburse other physician services. The Committees requested that the Department detail the advantages and disadvantages of using a different benchmark.

In addition to performing the requested analyses, the Department also compared Maryland Medicaid's reimbursement rate for anesthesia to that of surrounding states' Medicaid programs. To provide the reader with a framework for the consideration of increasing rates or retaining the current Maryland Medicaid rates, this report describes background information on coverage and payment of dental services by Medicare and Medicaid in Maryland as well as the neighboring Medicaid programs of Delaware, Pennsylvania, Virginia, West Virginia, and the District of Columbia. This report discusses practitioners' concerns with these methodologies and presents a trend analysis of findings relative to the utilization of pediatric dental surgery for FYs 2006 through 2012.

The Maryland Society of Anesthesiologists has expressed concern that anesthesiologists are not being fairly compensated when they provide services to Medicaid enrollees receiving dental services in hospital operating rooms (ORs), and that access is compromised as a result. Other stakeholders have suggested that hospitals are limiting operating space for these Medicaid dental

[1] American Academy of Pediatric Denistry. (2012). *Guideline on pediatric restorative dentistry*. p. 214-221.
[2] Not all FY 2013 claims and encounters have been received; managed care organizations are allowed up to six months to submit an encounter or claim.

cases, thereby creating an additional access challenge. Changing anesthesiologist payment rates or the methodology, however, will not impact the Medicaid facility fee paid to hospitals. The Department, based on the facility rates set and regulated by the Health Services Cost Review Commission (HSCRC), reimburses hospitals separately. Some dentists have suggested that Medicaid should begin paying a facility rate at freestanding ambulatory surgery centers (ASCs) for dental procedures in order to open a new source of access. Currently, Medicaid reimburses ASCs for other medical procedures but not for dental procedures. As a matter of emphasis, paying a facility rate at ASCs for dental procedures does not impact the rate at which anesthesiologists are compensated; again, the facility fee paid to the site and the professional fee paid to the anesthesiologist are two distinct fees.

Interviews were conducted with neighboring Medicaid programs to determine rates for the anesthesia services for dentistry in hospital settings. While Maryland's rate is about 76 percent of Medicare rates, it is higher than the Medicaid rates in all of the neighboring jurisdictions that responded to the Department's request for information (the District of Columbia, Pennsylvania, and Virginia).

The Department conducted an analysis of the overall volume of the dental anesthesia procedures by year. The number of Medicaid enrollees using this service increased the most for enrollees younger than six years, meaning that the number of Medicaid children using oral anesthesia for restorative dentistry has increased. The number of minutes of anesthesia per user also increased, which indicates that patients are undergoing longer dental procedures under anesthesia. Both the number of Medicaid enrollees receiving this service and the number of units per user peaked in FY 2009 and FY 2011, respectively, and the number of units per user declined somewhat in FY 2012. Nonetheless, the number of Medicaid enrollees receiving this service increased over 9 percent annually since FY 2006. The number of units per user increased 4.8 percent per year over the utilization rate in FY 2006.

The decline in the number of recipients and the number of units in FY 2012 may reflect a reduced demand for dental surgery due to increased access to preventive dental care. The Department made a number of changes to the Medicaid program in FY 2009 with the goal of increasing access to dentists. Specifically, $14 million in total funds were used to increase reimbursement for some dental procedures—mainly preventive ones. [3] The Department's initiatives resulted in more dentists seeing Medicaid patients. In 2009, only 893 dentists billed Medicaid for any service, whereas in 2012, 1,293 dentists billed Medicaid for any service. Still, although this marks a significant increase, fewer than half of the dentists in Maryland see Medicaid enrollees.

Prior research suggests that better insurance coverage for preventive care may lead to a reduced need for dental surgery. A study of Medicare patients[4] found that participants who visited the dentist for regular preventive care were less likely to visit the dentist for non-preventive procedures. They also mentioned that those who use preventive care were far more likely to have

[3] In 2004, 12 restorative codes were targeted for a fee increase as well. The Department also made incremental improvements prior to 2009.

[4] Moeller, J. F., Chen, H., & Manski, R. J. (2010). Is preventive dental care a good investment for the Medicare population? A preliminary analysis. *American Journal of Public Health, 100*(11), 2262-2269.

dental insurance coverage than those who do not. One study[5] found that preventive dental visits reduced subsequent use of non-preventive dental services among children enrolled in the Children's Health Insurance Plan (CHIP), and another study[6] found that having preventive dental visits by age 1 reduced the future use of non-preventive or emergency dental services. Meyerhoefer and colleagues[7] found that having dental insurance coverage increases the probability of using both preventive and restorative dental care, but the increase in preventive care use (19 percent) is larger than that of basic (11 percent) and major (16 percent) restorative care use.[8]

The overall medical acuity of the population using this service, as measured by the distribution of beneficiaries by their Adjusted Clinical Group (ACG) scores,[9] remained approximately constant, and the percentage of users who are enrollees in either long-term services and supports (LTSS) waivers or the Rare and Expensive Case Management (REM) program declined slightly. This means that participants receiving this procedure were not appreciably sicker, medically, in 2011 than they were in 2006. However, the ACG system is not meant to measure the acuity of enrollees' dental needs.

While the growth in volume and intensity of pediatric dental surgery is apparent, the Department was not able to conclusively determine whether actual, previously unmet dental needs are driving this increased utilization.

Key Findings

Highlights from this report include:

1. **Fees**. Maryland Medicaid's fee-for-service (FFS) anesthesia rates are higher than all neighboring state Medicaid programs that responded to the Department, but are below Medicare and commercial rates. The Maryland Medicaid FFS program reimburses about 76 percent of Medicare rates for Current Procedural Terminology (CPT) code 00170. All HealthChoice managed care organizations except for Priority Partners pay the same as FFS Medicaid; Priority Partners pays only slightly more than Medicaid FFS. Commercial insurance anesthesia rates may be as much as twice as high as Medicare rates.
2. **Utilization**. The number of Medicaid recipients receiving this procedure grew at an average annual rate of 9.2 percent from FY 2006 to FY 2012, so if the rates are considered to be below other payers, there have been more services at this rate. Looking at growth in

[5] Sen, B., Blackburn, J., Morrisey, M. J., Kligore, M. L., Becker, D. L., Caldwell, C., & Menachemi, N. (2013). Effectiveness of preventive dental visits in reducing nonpreventive dental visits and expenditures. *Pediatrics, 131*, 1107-1113.

[6] Savage, M., F., Yee, J., Kotch, J. B., & Vann, W. F. (2004). Early preventive dental visits: Effects on subsequent utilization and costs. *Pediatrics, 114*(4), e418-423.

[7] Meyerhoefer, C. D., Zuvekas, S. H., & Manski, R. (2013). The demand for preventive and restorative dental services. *Health Economics*, DOI: 10.1002/hec.2899.

[8] Basic restorative services include fillings and extractions. Major restorative services include crowns and root canals.

[9] ACG scores are a measure of medical severity used to set rates for HealthChoice enrollees and used to prospectively predict utilization of medical services for all enrollees. The Hilltop Institute performed this analysis for HealthChoice, Primary Adult Care, and FFS users of the procedure.

utilization by age, children aged one to five years were the fastest growing group and represent more than half of the total users of CPT code 00170. As the utilization rates by REM and LTSS waiver populations have grown more slowly than the general population, growth in the volume of anesthesia services is not being driven by populations that are often more difficult to treat. Volume grew in each year from FY 2006 to FY 2011 and declined slightly in FY 2012. The volume of commercial insurance claims for this CPT code declined slightly from FY 2009 to FY 2011, a period during which Medicaid volume was increasing.

3. **Intensity**. The average number of minutes per claim has grown significantly. This could indicate that enrollees are receiving more complex dental services in ORs. For CY 2011, private claims had an average duration of 52.9 minutes, compared to 64.8 minutes for Medicaid enrollees in FY 2011. The number of units per Medicaid claim grew significantly from FY 2006 to FY 2010; it declined in FYs 2011 and 2012.

4. **Hospital variation**. The volume of claims differs among individual hospitals. Shady Grove Adventist Hospital, the top biller in FY 2012, increased its volume of claims for CPT code 00170 much faster than the University of Maryland, which has historically maintained a high volume. The University of Maryland (less James Kernan hospital) was the second-largest biller for CPT code 00170 in FY 2012, and Kernan was the third largest. Users of CPT code 00170 are more medically complex than the average Medicaid enrollee. However, users of CPT code 00170 have maintained approximately the same level of medical complexity from FY 2006 to FY 2012 (i.e., the increase in utilization does not appear to be driven by increasing medical complexity).

5. **Literature**. A review of academic literature indicated that preventive dental visits did reduce the subsequent use of restorative and emergency dental services among children enrolled in Medicaid and CHIP. Maryland had an increase in enrollees receiving preventive/diagnostic dental services over the study period.

6. **Hospital OR restrictions**. Dentists believe that hospital restrictions on OR time may limit access to restorative oral surgery. Some dentists have been told that hospitals would prefer to book higher-revenue services in the OR. But some anesthesiologists claim that the hospital fees are not the issue; rather, these anesthesiologists suggest that anesthesiologists have argued against scheduling time for dental procedures because they result in lower fees for anesthesiologists. The HSCRC regulates the rates charged for hospital clinic services. Hospitals are assigned a per-minute clinic OR rate for all surgical procedures that occur in the clinic. A complex surgical procedure, therefore, is assigned more minutes, which translates to greater revenue. A similar methodology is applied to outpatient surgeries performed in hospital operating rooms. All outpatient surgeries are assigned a single OR rate. The rate will vary based on the amount of time required to perform the surgery. Complex surgical procedures that take the same amount of time to perform would not vary by compensation.

7. **Anesthesiologist input**. Anesthesiologists interviewed by the Department believe that low Medicaid anesthesia rates, when compared to other payers in Maryland, limits access. Raising these rates would support the notion of participation by anesthesiologists, but because facilities are reimbursed separately, changes in anesthesia rates by themselves are unlikely to encourage hospitals to schedule more OR time for dental surgery.

8. **Dentist input**. Some dentists expressed a desire to operate on patients who needed oral surgery under anesthesia in ASCs. They feel that doing this would reduce their backlog. Presently, ASCs do not receive a facility fee from Medicaid, and they have not been willing to take Medicaid patients for these procedures. Of the 233 ASCs currently participating in Medicaid, currently seven perform dental cases for other payers who reimburse for dental procedures in ASCs.

Recommendations

The issues surrounding dental cases in the hospital ORs are complex and require more than one solution. The Department's multi-pronged recommendations are outlined below.

- **Increase the Medicaid rate for CPT code 00710 to 100 percent of Medicare.** The rate for anesthesia should be raised to promote fairness and access. Therefore, Medicaid recommends raising the rate to 100 percent of Medicare. The estimated cost to increase the rate for CPT code 00710 is $475,818 (Total Funds). The Department does not recommend exceeding the Medicare payment rates for many reasons: CMS regulates Medicaid payments to certain institutional providers using Medicare payment principles, MedPAC reports annually on the adequacy of the Medicare payment rates to Congress, and even Congress uses Medicare as the benchmark when targeting Medicaid physician fee increases. Additionally, the GAO did not find a correlation between the variance in Medicare's rates and commercial payer rates and the supply of anesthesiologists. Based on these reasons, the Department recommends increasing the rate paid for CPT code 00710 to the Medicare rate.
- **Recommend that hospitals offer OR block times for dental cases**. According to providers, hospitals do not block time for dental cases. As a result, dentists are struggling to find OR time. Some suggest that hospitals are not scheduling dental services because other procedures that generate more revenue. The HSCRC regulates the rates charged for hospital clinic services. Hospitals are assigned a per-minute clinic OR rate for all surgical procedures that occur in the clinic. A complex surgical procedure, therefore, is assigned more minutes, which translates to greater revenue. A similar methodology is applied to outpatient surgeries performed in hospital operating rooms. All outpatient surgeries are assigned a single OR rate. The rate will vary based on the amount of time required to perform the surgery. Complex surgical procedures that take the same amount of time to perform would not vary by compensation. Given how the HSCRC regulates OR rates, the Department recommends that hospitals start blocking time for dental OR cases. This will provide dentists with set operating times and reduce the need to scramble to find OR times that are not regularly available.
- **Establish a facility rate to pay ASCs for dental cases**. By establishing a facility rate to pay ASCs for dental cases, the number of sites where dentists may perform OR procedures will increase, which reduces pressure on hospitals. The Department will implement this recommendation in a budget neutral way -- the facility rate will be set lower than the hospital facility rate in order to offset an increase in utilization. Of the 233 ASCs currently participating in Medicaid, 7 perform dental cases for other payers who reimburse the ASC for performing dental procedures. Combined with the recommendation that hospitals block OR time for dentists, this recommendation should

shorten the existing wait time for dental OR cases. It should be noted, however, that most ASCs would need to purchase and install the necessary equipment for dental surgical procedures; simply establishing a rate by itself is not the only access issue to address regarding ASCs.

- **Continue to improve access to dental care**. Research shows that improving access to preventive dental care reduces the need for non-preventive procedures. Based on this research, the downward utilization trend in FY 2012 for CPT code 00170 might be caused by the result of additional enrollees receiving access to preventive dental care rather than an inability to access services. The Department recommends continuing to make investments that result in overall improvement in access to preventive dental care.
- **Require hospitals to report stipends paid to hospital-based physicians**. The Department is working with the HSCRC to determine the amount of stipends paid by hospitals to anesthesiologists primarily for the larger billers of dental OR cases. The results of this survey are not complete and, as a result, it is not possible to draw any definitive conclusions at this time. The Department recommends that the HSCRC reiterate its request and also expand the data requested from the hospitals to include all physicians and not just anesthesiologists. Further, the Department recommends that the HSCRC request this data annually as part of a standard reporting requirement. Although the HSCRC does not regulate physician services, it does consider the overall financial health of the hospitals—including unregulated services—when determining rate increases. All payers should be aware of these subsidies because such subsidies affect the analysis of the proper reimbursement rates for providers.

Background

In 2007, the Secretary of the Maryland Department of Health and Mental Hygiene (the Department) convened the Dental Action Committee (DAC), a broad-based group of stakeholders, to develop strategies to improve children's access to dental services. Dental care providers believe that Medicaid faces barriers to access, such as low reimbursement rates causing few providers to participate in Medicaid, enrollees missing appointments, and lack of enrollee awareness of the benefits of basic oral hygiene.

Prior research suggests that better insurance coverage for preventive care may lead to a reduced need for dental surgery. One study[10] found that preventive dental visits reduced subsequent use of non-preventive dental services among children enrolled in the Children's Health Insurance Plan (CHIP), and another study[11] found that having preventive dental visits by age one reduced the future use of non-preventive or emergency dental services. Meyerhoefer and colleagues[12] found that having dental insurance coverage increases the probability of using both preventive and restorative dental care, but the increase in preventive care use (19 percent) is larger than that of basic (11 percent) and major (16 percent) restorative care use.[13] Therefore, it is in Maryland's interest to ensure that children have dental insurance and that they receive regular preventive dental care early.

The DAC recommended that dental homes be established for all eligible children, which would connect children to a dentist who would provide comprehensive and ongoing dental services. The DAC also recommended enhancements to education, outreach, dental public health infrastructure, provider participation, and provider scope of practice. The DAC was originally established by the Department, but it has since secured independent funding, transitioned to 501c (3) status, established numerous external partnerships, and renamed itself the Maryland Dental Action Coalition (MDAC).[14]

One major MDAC recommendation was to initiate a single, statewide dental administrative services organization (ASO) from a single vendor. This would enable smooth claims processing and give dental providers a single point of contact. The Department awarded a contract to DentaQuest, which began managing services and processing claims in July 2009. The Medicaid dental program has been renamed Maryland Healthy Smiles. Dentists report general satisfaction with the new ASO and that the pre-authorization process is easier to navigate.

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[10] Sen, B., Blackburn, J., Morrisey, M. J., Kligore, M. L., Becker, D. L., Caldwell, C., & Menachemi, N. (2013). Effectiveness of preventive dental visits in reducing nonpreventive dental visits and expenditures. *Pediatrics, 131*, 1107-1113.

[11] Savage, M., F., Yee, J., Kotch, J. B., & Vann, W. F. (2004). Early preventive dental visits: Effects on subsequent utilization and costs. *Pediatrics, 114*(4), e418-423.

[12] Meyerhoefer, C. D., Zuvekas, S. H., & Manski, R. (2013). The demand for preventive and restorative dental services. *Health Economics*, DOI: 10.1002/hec.2899.

[13] Basic restorative services include fillings and extractions. Major restorative services include crowns and root canals.

[14] Report on the Fiscal 2014 State Operating Budget (HB 100) and the State Capital Budget (HB 101) and Related Recommendations, §M00Q01.01

The DAC also recommended that the State increase its dental reimbursement rates to the 50th percentile of the American Dental Association (ADA) South Atlantic regional charges, indexed to inflation, for all dental codes. In the absence of Medicare rates for dental services, the Department determined that the ADA survey represents a reasonable proxy for benchmark rates and agreed to the recommended charges at the 50th percentile. Previously, the State's rates were generally at or below the 25th percentile of the ADA South Atlantic regional charges, with a number of procedures falling below the 10th percentile.[15] The Governor's fiscal year (FY) 2009 budget included $7 million in general funds ($14 million in total funds) for this rate increase effective July 2008. Subsequent planned rounds of rate increases have been delayed due to budget cuts.

These and other improvements have been effective at increasing enrollee access and enhancing provider experience with the Medicaid dental program. In 2010 and 2011, the Pew Center on the States named Maryland a national leader in improving dental care access for Marylanders with low income—especially those who are Medicaid-eligible or uninsured. As the only state to meet seven of the eight dental policy benchmarks, Maryland was ranked first in the nation for oral health.[16] Most of these indicators are measures of preventive dental services. Table 1 shows the number of Medicaid enrollees aged 0 to 20 years by region, the number of dentists billing Medicaid by region, and the ratio of enrollees per dentist from calendar year (CY) 2008 to CY 2012. As the number of enrollees has increased, so too has the number of dentists participating, resulting in a gradual decrease in the number of enrollees per dentist from CY 2008 to CY 2012. The number of enrollees per dentist has increased in the Eastern Shore, however.

Table 1. Number of Medicaid Enrollees Aged 0-20 Years, Number of Dentists Billing Medicaid, and Number of Enrollees per Dentist, by Maryland Region, CY 2008-CY 2012

	Region	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012
Enrollees	Western Maryland	41,793	44,147	47,291	48,836	49,968
	Baltimore Metro	254,243	267,676	282,794	293,445	300,394
	Southern Maryland	24,743	26,742	28,477	29,906	30,744
	Eastern Shore	51,022	53,867	56,359	58,280	59,301
	Montgomery/Prince George's	154,306	168,530	181,762	194,380	204,020
	Other (e.g., out-of-state)	863	1,057	1,354	1,360	1,135
	Total	526,970	562,019	598,037	626,207	645,562
Dentists Billing Medicaid	Western Maryland	84	81	101	119	126
	Baltimore Metro	346	362	437	450	465
	Southern Maryland	34	35	47	49	52
	Eastern Shore	71	68	69	72	72
	Montgomery/Prince George's	286	288	356	413	451
	Other (e.g., out-of-state)	10	59	111	122	125
	Total	**831**	**893**	**1,121**	**1,225**	**1,291**

[15] Centers for Medicare and Medicaid Services. (2010). *State of Maryland: Dental program review*.
[16] Pew Center on the States. (2011). *The state of children's dental health*. Retrieved July 15, 2013, from http://www.pewstates.org/uploadedFiles/PCS_Assets/2011/The_State_of_Childrens_Dental_health.pdf

	Region	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012
Enrollees per Dentist	Western Maryland	497.5	545.0	468.2	410.4	396.6
	Baltimore Metro	734.8	739.4	647.1	652.1	646.0
	Southern Maryland	727.7	764.1	605.9	610.3	591.2
	Eastern Shore	718.6	792.2	816.8	809.4	823.6
	Montgomery/Prince George's	539.5	585.2	510.6	470.7	452.4
	Other (e.g., out-of-state)	86.3	17.9	12.2	11.1	9.1
	Total	**634.1**	**629.4**	**533.5**	**511.2**	**500.0**

Even with these improvements, concerns about access do remain, and one of the concerns that stakeholders have raised is the low reimbursement rate for anesthesiologists providing services during dental procedures. Anesthesia is usually applied during restorative dental procedures.

Restorative dental surgery is surgery performed to restore diseased, injured, or abnormal teeth to normal function. The objectives of restorative treatment are to "repair or limit the damage from caries, protect and preserve the tooth structure, reestablish adequate function, restore esthetics (where applicable), provide ease in maintaining good oral hygiene, and maintain pulp vitality whenever possible."[17] Children who are from families with low income, who live in rural areas, who are of minority ethnicity, or who have poor access to dental care are at increased risk for dental caries that require restorative dental procedures. These children are also more likely to have diets that are high in sugar, which also places them at increased risk.

In addition, many children with special health care needs require restorative dentistry. The American Academy of Pediatric Dentistry (AAPD) defines special health care needs as "any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs."[18] Individuals with special health care needs may be at increased risk for oral disease throughout their lifetime. The Maryland Family Access Initiative Report, published in 2007,[19] estimated that 15.2 percent of children in Maryland had special needs, which was higher than the national average of 12.8 percent. It can be difficult for families with children with special needs to find dental services equipped to care for them. Because these children often do not understand how to cooperate with the practitioner or because they require extensive dental work, they frequently require some sort of sedation. The AAPD recommends that general anesthesia, deep sedation, or conscious sedation be considered when patient mental status or age precludes cooperation or when the procedure is complex.[20]

As noted earlier, Maryland Medicaid reimbursement rates for 12 dental codes were increased to the ADA's 50th percentile of charges by dentists in the South Atlantic region for 2007. The targeted dental codes were mostly preventive codes, and the rate increase went into effect in FY

[17] American Academy of Pediatric Denistry. (2012). *Guideline on pediatric restorative dentistry*. p. 214-221.
[18] American Academy of Pediatric Dentistry. (2012). *Guideline on management of dental patients with special health care needs*. 152-157.
[19] Bronheim, S., Thomas, J., & McKay, K. (2007). *Families report on the state of the state*. Maryland Consortium for Children with Special Health Care Needs. Retrieved from http://marylandcoc.com/uploads/SOS.pdf
[20] Glassman, P. (2009). A review of guidelines for sedation, anesthesia, and alternative interventions for people with special needs. *Specialty Care Dentist*, *29*(1), 9-16.

2009. Since the rate increase, the percentage of enrollees receiving preventive visits increased from 50.1 percent in CY 2008 to 60.8 percent in CY 2011. The percentage of enrollees receiving restorative services increased from 21.3 percent in CY 2008 to 25.1 percent in CY 2011.

Nonetheless, stakeholders have raised concern that barriers to access to dental care in hospital operating rooms (ORs) remain.[21] Anesthesiologists claim that low Medicaid reimbursements create the barrier to hospital care. The Department generally uses the Medicare fee schedule to establish its fees. Anesthesiologists claim that Medicare has historically undervalued anesthesia, reimbursing anesthesiologists at only 33 percent of private insurance rates.[22]

On the other hand, dentists interviewed by the Department said that the barrier to hospital care is that hospitals are limiting OR availability for Medicaid patients. Interviewees felt that dentists are experiencing long wait times to access hospital ORs for both privately insured and Medicaid patients. Dentists have been told that hospitals do not want to offer block time for dental cases, regardless of payer, because there are other surgeries that bring in more profit for the hospitals. But some anesthesiologists claim that the hospital fees are not the issue; rather, these anesthesiologists suggest that anesthesiologists have argued against scheduling time for dental procedures because they result in lower fees for anesthesiologists. Referring patients to ambulatory surgery centers (ASCs), however, will not solve the problem. First, doing so does not address the anesthesiologist reimbursement concerns. Similarly, the long wait times for Medicaid patients cannot be alleviated by taking them to ambulatory surgery centers (ASCs), unlike with privately insured patients. Unlike with commercial payers, ASCs do not receive a facility fee for Medicaid dental cases and therefore are unwilling to accept patients with this coverage. There is also a concern that ASCs do not currently have the proper equipment for dental surgeries and that they may not want to make the investment. Of the 233 ASCs currently participating in Medicaid, seven perform dental cases for other payers who cover the ASC site for dental procedures.[23]

How Medicare and Maryland Medicaid Formulate Reimbursement Rates for Medical Anesthesia Services

Maryland's Medicaid anesthesia reimbursement is based on the Medicare reimbursement methodology, although its calculation is slightly different. Medicare anesthesia payments are determined by four variables:

[21] Maryland Department of Health and Mental Hygiene. (2012). 2012 Annual Oral Health Legislative Report as Required by Health-General Article, Sections 13-2504(b) and 13-2506 and HB 70 (Ch. 656 of the Acts of 2009). Retrieved from http://phpa.dhmh.maryland.gov/oralhealth/Documents/Maryland's%202012%20Annual%20Oral%20Health%20Legislative%20Report.pdf

[22] T. Sophocleus, Letter to Charles J. Milligan, Jr., May 21, 2013.

[23] The Department conducted a phone survey. Approximately 25 ACSs did not respond or call back.

- The time required to provide anesthesia is converted to time units. In Medicare and in most state Medicaid programs, one time unit represents 15 minutes of anesthesia, although providers can bill for fractional units.[24]
- Each service also has an associated number of base units, which reflect the difficulty of each procedure. The American Society of Anesthesiologists determines base units.
- Medicare sets regional rates, called conversion factors, for anesthesia services. These account for regional differences in the cost of providing services.
- Each procedure may also have one or more modifiers that may affect payment (e.g., for medical direction of a certified registered nurse anesthetist (CRNA)). Modifiers can be cumulative.

The Medicare payment is calculated as follows: (Time units + Base units) * Medicare conversion factor * Modifiers = Anesthesia payment.

Maryland Medicaid anesthesia time units are measured in 1-minute increments; Medicare anesthesia units are measured in 15-minute increments. Maryland also has a single, statewide conversion rate for anesthesia services (slightly different rates are provided for some anesthesia services). Because Medicare units are in 15-minute increments, the value of the base units is multiplied by 15 prior to adding the time units to calculate payments in fee-for-service (FFS) Medicaid claims. Otherwise the Maryland Medicaid anesthesia payment methodology is calculated identically to Medicare.[25]

More complex cases that require additional time are increased at a higher rate under the methodology because the reimbursement methodology accounts for minutes the patient spends under the anesthesiologist's care. Additionally, the Department pays anesthesiologists less if they are medically directing two to four cases at once. The anesthesiologists claim, however, that these dental cases require more of their attention, and that they should be paid commensurate to the additional effort required.

The hospitals are compensated separately based on the facility rates established and regulated by the Health Services Cost Review Commission (HSCRC). The Department does not currently allow dentists and anesthesiologists to perform dental procedures in ASCs. In order to do this, the Department needs to develop the rates to pay ASCs for these procedures.

How Maryland Medicaid Reimbursement Compares with Surrounding States' Medicaid Programs and Medicare

During the period covered by this study, anesthesia for pediatric oral surgery rendered in a hospital was covered by FFS Medicaid through a carve-out (i.e., anesthesiology services for HealthChoice and FFS enrollees were all covered by FFS Medicaid). DentaQuest was only responsible for the dentists' own services. Managed care organizations (MCOs), in turn, made contracted payments to physicians providing these anesthesia services outside of the dental

[24] Government Accountability Office. (2007). Medicare physician payments: Medicare and private payment differences for anesthesia services. Retrieved from http://www.gao.gov/new.items/d07463.pdf
[25] COMAR 10.9.02

health carve-out, which is funded from the MCO's capitation payments. (As of January 1, 2013, however, payment for anesthesia services related to dental procedures became included in the dental health carve-out and is paid for under the FFS program.[26])

The Current Procedural Terminology (CPT) code 00170 covers anesthesia for intraoral procedures, including biopsy. It cannot be rendered by a dentist; it must be delivered by either a physician anesthesiologist or a CRNA.

The American Society of Anesthesiologists has assigned base units to most CPT anesthesia codes. The base units reflect the difficulty of providing the anesthesia service and of pre- and post-operative care.[27] The Centers for Medicare and Medicaid Services (CMS) generally uses these base units and has assigned CPT code 00170 five anesthesia base units.[28] Maryland Medicaid FFS reimburses the CPT code 00170 at a rate of $1.1486 per unit regardless of facility. MCO reimbursements for this code were as follows:

- Amerigroup Community Care reimbursed at a rate of $1.1486 per unit and had been doing so from 2008 until January 1, 2013. Amerigroup uses one minute per time unit.
- Jai Medical Systems reimbursed at $1.21 for dates of service July 1, 2006, and June 30, 2009, and $1.15 for dates of service between July 1, 2009, and January 1, 2013. Jai uses one minute per time unit.
- Maryland Physicians Care reimbursed at $1.2027 per unit for dates of service between January 1, 2008, and June 30, 2009, and at $1.1486 per unit for dates of service from July 1, 2009, to January 1, 2013. Maryland Physicians Care uses one minute per time unit.
- MedStar Family Choice reimbursed according to Medicaid's methodology and rates.
- Priority Partners reimbursed participating providers at a rate of $13.85 per unit for dates of service between May 1, 2004, and June 30, 2006; $18.00 per unit for dates of service between July 1, 2006, and June 30, 2008; and $18.04 per unit for dates of services between July 1, 2008, and January 1, 2013. This works out to $1.203 per unit when denominated into one-minute increments. Priority Partners uses 15 minutes per time unit.
- United Healthcare reimbursed at a rate of $1.15 per unit from July 1, 2008, until January 1, 2013. United uses one minute per time unit.

State Medicaid officials in the District of Columbia, Delaware, Pennsylvania, Virginia, and West Virginia were surveyed to determine their anesthesia rates. The Hilltop Institute calculated Medicare and other state payments for a 60-minute anesthesia session without modifiers to demonstrate the variances in anesthesia reimbursement amounts across the neighboring states and the Medicare program. Although West Virginia responded, it did not provide a fee for CPT

[26] Maryland Department of Health and Mental Hygiene, Maryland Medical Assistance Program, Dental Transmittal #45, December 20, 2012.
[27] American Society of Anesthesiologists. (2013). *Aetna anesthesia updates*. Retrieved from http://www.asahq.org/For-Members/Advocacy/Office-of-Governmental-and-Legal-Affairs/Aetna-Anesthesia-Updates.aspx
[28] Centers for Medicare and Medicaid Services. (2013). *2013 Anesthesia base units by CPT code*. Retrieved from http://www.cms.gov/Center/Provider-Type/Anesthesiologists-Center.html

code 00170. In Delaware, anesthesia services are packaged under a prospective payment system and cannot be individually priced.

Table 2A shows the conversion rates for each state compared to the Medicare conversion rates for each state (or the most expensive area of the state in Maryland and Pennsylvania) using a 15-minute unit. In 2012, the average anesthesia claim for CPT code 00170 was 63 minutes. Table 2B shows the total payment for a 60-minute anesthesia session with no modifiers. Based on the formula used to calculate modifiers—(Time units + Base units) * Medicaid fee = Anesthesia payment—a 60-minute visit without any modifier would cost $155.06 (i.e., (60+75)*$1.1486=$155.06).

Table 2A. Anesthesia Conversion Factor Comparison for CPT Code 00170 (Does Not Include Base Units)

State	Medicaid Conversion Rate for 15-Minute Unit	State Medicare Conversion Factor	Percentage of Medicare
MD	$17.23	$23.10 (Baltimore City and surrounding counties)	74.6%
DC	$5.00	$23.68	21.2%
DE	Anesthesia services packaged under DE Outpatient Prospective Payment System	$21.66	N/A
PA	$15.66	$23.54 (Philadelphia)	66.5%
VA	$12.84	$21.34	66.2%
WV	State unable to release rate	$21.74	N/A

Table 2B. Anesthesia Payment Comparison for CPT Code 00170

State	Medicaid Payment for 60-Minute Session	Medicare Payment for 60-Minute Session
MD	$155.06	$207.90
DC	$45.00	$213.12
DE	N/A	$194.94
PA	$140.94	$211.86
VA	$115.56	$192.06
WV	NA	$195.66

Maryland's anesthesia rate is lower than the Medicare rate but greater than the Medicaid rates in other states that responded to the Department's survey.

In FY 2012, Maryland spent an estimated $1,396,652 in total funds on anesthesia services for CPT code 00170. Raising the base rate to Medicare's base rate would increase Medicaid's spending by about 25.4 percent. The total spending on CPT code 00170 would become $1,872,470, an increase of $475,818.

How Maryland Medicaid Reimbursement Compares to Private Insurance Reimbursement

Stakeholders suggested that the Department contact FAIR Health as part of the data analyses. FAIR Health maintains a large data base of commercial claim transactions amounting to over 17 billion medical services. The data are available to various interest groups and is broken down into several modules. Each module offers providers billing charges by CPT code and geozip, which is arrayed in percentiles. FAIR Health advised the Department that typically its anesthesia module sells for $30,000 to $50,000. FAIR Health offered to sell the Department a custom data set at a reduced rate, although the custom data cost was quoted at roughly $10,000. Unfortunately even the reduced price of FAIR Health's product is cost prohibitive for the Department. The Department did, however, work with the Maryland Health Care Commission (MHCC) to understand the amount reimbursed by commercial payers to anesthesiologists in Maryland for restorative dental surgery cases.

According to the MHCC and the Government Accountability Office (GAO),[29] private payers calculate anesthesia reimbursements using broadly similar methods as Medicare and Maryland Medicaid. Commercial insurers may negotiate rates with individual anesthesiologists and practices in response to market forces, such as the prevalence of managed care in the area and how many competing anesthesiologists there are in an area. Some private insurers do allow higher payments for certain factors, like extremes in patient age. According to the MHCC, payers in the commercial market paid an estimated average of $52.86 per unit for CPT code 00170 in 2011, using 15-minute increments to measure time units. This estimate was derived by dividing the total reported reimbursement for all procedures with the above code by the number of total time and base units reported. Because some of these procedures would have been delivered under medical direction or by CRNAs, the actual average unit rate could be somewhat higher.

Table 3. Estimated Payment per Unit of Anesthesia, CY 2009-CY 2011

	CY 2009	CY 2010	CY 2011
Estimated Average Payment per Unit	$46.10	$48.88	$52.86

Private payers reimbursing for CPT code 00170 also include 75 base units if measuring in 1-minute increments or 5 base units if measuring time in 15-minute increments. For a 60-minute session, commercial payers reimburse anesthesiologists approximately $476 ($52.86 * 5 base

[29] Government Accountability Office. (2007). *Medicare and private payment differences for anesthesia services.*

units * 4 time units). As previously shown, Medicaid's reimbursement is roughly $155, whereas Medicare's reimbursement is roughly $208.

The GAO found that, in 2004, average Medicare payments to anesthesiologists for a set of seven services were 67 percent lower than average private insurance payments in 41 Medicare payment localities.[30] The GAO also determined that there was no correlation between the overall supply of anesthesia practitioners (that is, the total number of both anesthesiologists and CRNAs per 100,000 people). In reaching this conclusion, the GAO included in its analysis both the difference between Medicare and private insurance payments for anesthesia services as well as the concentration of Medicare beneficiaries in the Medicare payment localities.[31]

Provider Concerns with Medicaid Payments and Coverage Criteria

Different stakeholder groups have raised concern with the Department about access issues for pediatric restorative dental surgery. The Department first learned about the stakeholders' concerns during the 2013 legislative session. Two meetings were held between the Department and key stakeholders. Delegates Szeliga and Sophocleus attended as well as representatives from First Colonies Anesthesia Associates and others. The MHCC also contacted First Colonies Anesthesia to discuss the reimbursement issues, and the Department informally surveyed a number of dentists, who serve the Medicaid population.

Some anesthesiologists who corresponded with the Department have stated that reimbursement rates in the Maryland Medicaid program—combined with the complex nature of restorative dental surgery—limit their revenue. In their opinion, the low reimbursement rates they receive are compounded by their inability to oversee multiple simultaneous procedures.

Medicaid's coverage criteria (not the payment rates) are also supported by the Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations), the American Society of Anesthesiologists, and the AAPD. Private insurance guidelines for coverage of anesthesia for dental procedures may vary substantially. One article found that two national insurers, Aetna and Cigna, had slightly different coverage guidelines in 2008.[32] For example, Aetna covered deep sedation or general anesthesia for children up to age 6 requiring complex dental repairs, while Cigna covered deep sedation or general anesthesia for all children aged 3 or younger. Cigna, but not Aetna, specifically covered individuals with developmental disabilities. The article also noted that some states specifically mandated coverage of anesthesia associated with dental services for children; at the time, Maryland mandated such coverage up to age 7. The Appendix details the coverage guidelines.

[30] Ibid.
[31] Ibid.
[32] Glassman, P. (2009). A review of guidelines for sedation, anesthesia, and alternative interventions for people with special needs. *Specialty Care Dentist*, *29*(1), 9-16.

The American Association of Oral and Maxillofacial Surgeons (AAOMS) recommends moderate to deep sedation or general anesthesia in the following circumstances:

- The mental status, age, or level of maturity of the patient precludes cooperation or prevents the oral and maxillofacial surgeon from performing the planned procedure in an optimal fashion.
- Reduction of pain and anxiety is required or recommended due to an underlying medical condition.
- The type, complexity, and expected duration of surgical procedures require anesthesia.
- The individual has conditions (e.g., inflammation and infection) in which regional (local) anesthesia may not achieve adequate pain control due to anxiety/fear.
- Understanding that pain may accompany the surgical procedure, the individual requests sedation or general anesthesia services to be provided to them during the surgical procedure.

In contrast to anesthesiologists (some of whom believe that low Medicaid reimbursement rates are limiting access), dentists interviewed by the Department believe that limited access is related to hospitals restricting OR time because of low revenue generated from these procedures. In an informal survey conducted by the Department's Office of Oral Health, several dentists and practice managers responded that they face long wait times for OR access. This situation results, in part, from hospitals assigning OR "block time" to practitioners who guarantee that they will supply a full schedule of patients during fixed blocks of time during the week. The dentists feel that dental patients must compete with other patients for any OR time that remains unscheduled after block times are filled.

One respondent reported that OR time for Medicaid patients was reduced by the hospital at which the dentists typically work. Another respondent also reported difficulty obtaining OR time. Others reported facing long waits at hospitals regardless of the insurer; two dentists reported a wait time of approximately six to eight weeks, while another dentist said he had a wait time of about four months. Some of the respondents speculated that their OR time has been reduced because dental cases are not very lucrative for hospitals, which would prefer to book more expensive procedures.

Multiple dentists surveyed expressed a desire to operate on Medicaid patients in ASCs. They—particularly those who already have established relationships with surgery centers for their privately insured patients—believe that having another venue for operating would help alleviate some of the backlog of procedures for Medicaid patients. The limiting factor for these dentists is that ASCs would need to be paid a facility fee by Medicaid for these dental procedures. However, even with this facility fee, some dentists expressed concern that ASCs will not invest in the proper equipment. On the contrary, another dentist said that equipping an ASC to do dental surgery may not be expensive.

In addition, the dentists with whom the Department corresponded suggested that it is not practical to provide deep sedation for pediatric patients in a dentist office instead of general anesthesia in a hospital. The AAPD 2012 practice guidelines recommend that at least three

individuals be present during deep sedation, including the dentist. The AAPD recommended that one of these individuals be solely responsible for monitoring the patient's airway and vital signs, and that the other be trained in and capable of providing advanced pediatric life support and cardiopulmonary resuscitation in emergencies.[33] Maryland has codified these requirements with slight differences, specifying that there must be at least one individual trained in basic life support to assist the dentist and another individual trained in basic life support who is in close proximity to the surgery site.[34] The dentists suggested that staffing a dental office at this level is not practical.

Anesthesiologists' Compensation Compared to Dentists' Compensation

One of the concerns that stakeholders have raised is the low reimbursement rate for physician services that anesthesiologists receive. They noted that the rate paid for anesthesia for dental restorative care was not increased as the result of fee increases aimed at improving pediatric access to dental care. State-level data were not available for levels of compensation, but national and regional averages were available. According to the Medical Group Management Association (MGMA) 2011 Physician Compensation and Production Survey, anesthesiologists nationally made $427,956 on average and dentists made $202,390.[35] [36] Nationally, anesthesiologists in single-specialty practices had a median income of $435,100, and those in multi-specialty practices had a median income of $382,828. For dentists, the sample size for single-specialty practices was too small to report compensation, while dentists in multi-specialty practices had a median income of $181,903. On average, anesthesiologists made more than twice as much as dentists did in 2011 nationally.

MGMA presented compensation levels based on four different regions in the United States. Maryland was included in the Eastern Region, along with Connecticut, Delaware, the District of Columbia, Maine, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. The median income for anesthesiologists was $420,155 in this region. The median income was $427,000 for anesthesiologists in single-specialty practices and $369,792 for multi-specialty practices. The median income for dentists in the Eastern Region was $153,554, which was also reported for multi-specialty practice dentists. No data were reported on compensation for single-specialty practice dentists in the Eastern Region. In this region, anesthesiologists overall and in multi-specialty practice made over 2.7 times more in annual compensation than dentists.

MGMA also reported average compensation for Health and Human Services (HHS) Region 3, which includes Maryland, Delaware, the District of Columbia, Pennsylvania, Virginia, and West Virginia. In HHS Region 3, anesthesiologists made $395,776 in 2011, and dentists made $153,554. In this region of the United States, anesthesiologists made 2.5 times more than dentists based on 2011 median income. No data were presented for Region 3 on the difference in

[33] American Academy of Pediatric Dentists. (2012). *Guideline on use of anesthesia personnel in the administration of office-based deep sedation/general anesthesia to the pediatric dental patient. Reference manual V34(6).*
[34] COMAR 10.44.12.13
[35] Medical Group Managment Association. (2012). *MGMA physician compensation and production survey: 2012 report based on 2011 data.*
[36] MGMA instructs respondents to include the following sources of compensation: salary, bonus and/or incentive payments, research stipends, honoraria, and distribution of profits.

compensation between physicians in single-specialty and multi-specialty practices.[37] (See table below for a summary of salary information.)

Table 4. Median Annual Income, 2011

Region	Anesthesiologists	Dentists
Eastern Region (Maryland Connecticut, Delaware, the District of Columbia, Maine, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia)	$420,155	$153,554
Health and Human Services Region 3 (Maryland, Delaware, the District of Columbia, Pennsylvania, Virginia, and West Virginia)	$395,776	$153,554

Source: Medical Group Managment Association. (2012).

Anesthesiologists often receive subsidies from hospitals. However, these amounts are not captured when you compare payment rates, as noted in a GAO report entitled Medicare and Private Payment Differences for Anesthesia Services.[38] There is a survey being conducted by the HSCRC concerning what subsidies are paid to physicians, if any. The results of this survey are not complete and, as a result, it is not possible to draw any definitive conclusions at this time, although the Department recommends that the HSCRC gather these data on an annual basis.

Discussion of Medicare Reimbursement Methods to Calculate Anesthesia Rates

Some providers have indicated to the Department that they are not adequately reimbursed for CPT code 00170 in particular. They have indicated that they are not being adequately compensated for the complexity of the patients they are seeing.

However, the base rates, which account for the inherent complexity of each code, are set by CMS using, with some exceptions, the Relative Value Guide from the American Society of Anesthesiologists.[39] In addition, anesthesiologists are compensated for the entire time of the procedure. Anesthesia time is defined as the period during which an anesthesia practitioner is present with the patient. It starts when the anesthesia practitioner begins to prepare the patient for anesthesia services in the OR or an equivalent area and ends when the anesthesia practitioner is no longer furnishing anesthesia services to the patient (that is, when the patient may be safely placed under postoperative care).[40] Therefore, anesthesiologists are compensated for the inherent complexity of the procedure through the base units, and they are compensated for the complexity

[37] MGMA notes that there were limitations to their data. The report was based on voluntary response primarily by MGMA-ACMPE member practices. Therefore, it may not be representative of all providers in medical practices. Additionally, state-level data were not available in the report, so no conclusions about compensation levels for anesthesiologists and dentists in Maryland can be drawn from what is presented above.
[38] Government Accountability Office. (2007). *Medicare and private payment differences for anesthesia services.*
[39] Ibid., p. 10.
[40] Centers for Medicare and Medicaid Services. (2013). *Medicare claims processing manual.* Chapter 12 - Physicians/nonphysician practitioners, section 50-G. Retrieved from http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c12.pdf

of preparing and anesthetizing the patient through the number of time units. Out of 277 anesthesia procedure codes reimbursed by Medicare in 2012, 144 have base units equal to or less than that of code 00170, and 133 have higher base units than code 00170.

Medicare's payment methodology appears to represent a standard accepted by payers and the American Society of Anesthesiologists, which participates in the development and updating of Medicare payments. Most other Medicaid programs in neighboring states use the same method based on Medicare. Commercial payers in Maryland use the same base units that Medicare uses; however, the conversion rate differs across payers.

Why Does Maryland Use Medicare Rates as a Benchmark to Pay Providers?

Federal statutory requirements state that the methods and procedures for making provider Medicaid payments must assure that such payments are "consistent with efficiency, economy, and quality of care."[41] CMS relies on this provision as a general authority to regulate state reimbursement methodologies.[42] In particular, this provision is the basis for the upper payment limit (UPL) regulations, which require that Medicaid payments for a class of institutional providers not exceed, in the aggregate, the amount that would have been paid for comparable services under Medicare principles.

Additionally, the federal government established the Medicare Payment Advisory Commission (MedPAC) through the Balanced Budget Act of 1997. MedPAC is tasked with advising Congress on issues affecting the Medicare program, including access to care. Each year, MedPAC reports on Medicare payment issues and makes recommendations to Congress. A similar commission—the Medicaid and CHIP Payment and Access Commission (MACPAC)—was created to handle Medicaid issues in the Children's Health Insurance Program Reauthorization Act of 2009. The MACPAC was later expanded and funded through the Patient Protection and Affordable Care Act (ACA). As MACPAC is fairly new, it does not have the historical, in-house data that permits the same level of deep analysis that MedPAC has been able to generate. It should also be noted that when a payment increase is targeted by the ACA for evaluation and management codes by certain providers, the ACA resorts to the Medicare rates for those codes as the benchmark. Medicaid is required to reimburse those codes and providers at 100 percent of Medicare rates for at least two years. The federal government will pay 100 percent of the increase for those codes by the specified providers. Maryland elected to reimburse all providers billing to those codes. The additional funding required to include the other providers is supported with 50 percent state funds and 50 percent federal funds. Because CMS regulates Medicaid payments to certain institutional providers using Medicare payment principles, MedPAC reports annually on the adequacy of the Medicare payment rates to Congress, and even Congress uses Medicare as the benchmark when targeting Medicaid physician fee increases, it makes sense for Maryland and other states to not exceed the payment thresholds established by Medicare.

[41] 42 CFR § 430.25(iv)
[42] Congressional Research Service. (2004). *Medicaid reimbursement policy. CRS report for Congress.*

Why Does Maryland Not Use Medicare Rates as a Benchmark to Pay Dentists?

Medicare does not offer dental benefits to its enrollees. As such, there are no established Medicare rates for dental procedure codes. Accordingly, the Department is not able to use the Medicare rates as a benchmark. So when the Department worked with the DAC in 2007, it sought to identify an alternative benchmark for rates. The American Dental Association (ADA) conducts a comprehensive survey of dental fees across the United States. The DAC recommended that we use this publication as a benchmark for Maryland Medicaid dental fees. The recommendation was to use the fees surveyed in the South Atlantic Region. Additionally, the DAC recommended the charges at the 50th percentile. In the absence of Medicare rates for dental services, the Department determined that the ADA survey represents a reasonable proxy for benchmark rates and agreed to the recommended charges at the 50th percentile.

The DAC recommended three phases to a fee increase. The Governor's fiscal year (FY) 2009 budget included $7 million in general funds ($14 million in total funds) for this rate increase effective July 2008. The other planned rounds of rate increases have been delayed due to budget cuts.

Dental Reimbursement Rates Compared to ADA Benchmark

As shown in Table 5, in FY 2009, fees for 12 targeted dental procedures were increased by an average of about 94 percent. The second-to-last column shows the median (ADA's 50th percentile)[43] of fees charged by dentists in 2007 in the South Atlantic region. The last column shows how the ADA fees have increased for these codes since 2007.

Table 5: Dental Procedures Targeted for Fee Increase in FY 2009

Proc Code	Description	MD (FY 08)	DC	PA	VA	MD (FY 09)	Bench-mark (ADA/ NDAS) 2007	Bench-mark (ADA/ NDAS) 2011
		State Medicaid Fees						
D0120	Periodic Oral Examination	$15.00	$35.00	$20.00	$20.15	$29.08	$35.00	$42.00
D0140	Oral Evaluation-Limited-Problem Focused	$24.00	$50.00	N/A	$24.83	$43.20	$52.00	$65.00
D0145	Oral Evaluation, Patient < 3 Years Old	$20.00	$0.00	N/A	$20.15	$40.00	$40.00	$53.00

[43] The median (50th percentile) of charges in the South Atlantic region means that 50 percent of dentists in this region charge this amount or less. It is important to note, however, that the South Atlantic median is based on the charges by dentists for the services performed, which may not equate to the payments received as reimbursement from insurance companies, public agencies, or private pay patients.

Proc Code	Description	MD (FY 08)	DC	PA	VA	MD (FY 09)	Bench-mark (ADA/ NDAS) 2007	Bench-mark (ADA/ NDAS) 2011
D0150	Comprehensive Oral Examination	$25.00	$77.50	$20.00	$31.31	$51.50	$62.00	$73.00
D1110	Prophylaxis Adult 14 years and Over	$36.00	$77.50	$36.00	$47.19	$58.15	$70.00	$80.00
D1120	Prophylaxis Child Up to Age 14	$24.00	$47.00	$30.00	$33.52	$42.37	$51.00	$59.00
D1203	Topical Application of Fluoride, child (Exclude Prophylaxis)	$14.00	$29.00	$18.00	$20.79	$21.60	$26.00	$30.00
D1204	Topical Application of Fluoride, adult (Exclude Prophylaxis)	$14.00	$26.00	N/A	$20.79	$23.26	$28.00	$31.00
D1206	Topical Fluoride Varnish	$20.00	$0.00	$18.00	$20.79	$24.92	$30.00	$35.00
D1351	Topical Application of Sealant per Tooth	$9.00	$38.00	$25.00	$32.28	$33.23	$40.00	$46.00
D7140	Extraction Erupted Tooth or Exposed Root	$42.00	$110.00	$60.00	$69.00	$103.01	$124.00	$150
D9248	Non- Intravenous Conscious Sedation	$0.00	$0.00	$184.00	$110.00	$186.91	$225.00	N/A

Prior to the increase in FY 2009, the last increase in dental fees occurred in 2004, when the Department increased fees for 12 restorative dental codes. This means that for many codes, rates have not increased since 2004. For instance, the Department's fee for dental code D7240 (removal of impacted tooth – completely bony) is currently $103.01. ADA's 50th percentile of charges for that code is $435.

Anesthesiologist Fee Increases and Comparison to Medicare

In 2005, the Maryland General Assembly created the Maryland Health Care Provider Rate Stabilization Fund to deal with the rising premiums of malpractice insurance and to increase Medicaid physician rates. From the Rate Stabilization Fund, the Department increased physician fees in 2006 ($30 million TF); 2007 ($25.2 million TF); 2008 ($32.8 million TF); and 2009 ($31.7 million TF). In the 2007 physician fee increase, anesthesia procedures were targeted for an increase. The Department increased the procedures from an average of 48 percent of Medicare to 100 percent of Medicare. Due to a tight budget in recent years, the Department implemented physician fee cuts – $11.5 million in FY 2010 and $6.52 million in FY 2012.

Anesthesia codes were decreased in FY 2010. Today, anesthesia codes are 76 percent of Medicare.

Anesthesia Utilization and Spending in Maryland Medicaid for Pediatric Dental Anesthesia

Methodology for Determining Pediatric Dental Surgical Anesthesia Utilization

Using the Medicaid Management Information System (MMIS2), the Department identified medical (e.g., physician) claims or encounters that contained CPT code 00170, anesthesia for intraoral procedures. The Department identified this code as the one used for pediatric dental anesthesia. This code may be billed by an anesthesiologist, a physician who has training in administering anesthesia, or a CRNA. Reimbursements to CRNAs are 100 percent of the calculated fee if the CRNA does not have medical supervision. When medical supervision is involved, the CRNA is reimbursed 50 percent of the calculated fee. CRNAs may practice without direct supervision, but an anesthesiologist, licensed physician, or dentist must be physically available to the CRNA for consultation at all times during the administration of and recovery from anesthesia.

To review the trends in the utilization of pediatric surgical anesthesia, the Department had to employ a matching methodology because CPT codes are not reliably included in the institutional records (CPT codes are always included in the medical records). If an individual had a medical service with this CPT code on the same day that he or she had an institutional service, it was assumed that the procedure was performed by that hospital.[44] This analysis was conducted for FY 2006 through FY 2012 and calculated the number of unique participants, total claims, and total units of anesthesia by the following characteristics:

- Individual hospital
- Eligibility group (i.e., families and children, Maryland Children's Health Program, aged/disabled)
- Participation in a special coverage category, which included the REM program, an LTSS waiver, or residence in an institution (these categories were used as an estimate of special health care needs)

After conducting the match, the Department tabulated total payments for each hospital. For FFS claims, the reported payment amount on the claim was counted. For managed care encounters, the payment had to be shadow-priced[45] from the Medicaid FFS physician fee schedule and the methodology for calculating anesthesia payments described above.

[44] Please note that this match is an estimate and could potentially over-count hospital services in instances where the medical record matches to more than one institutional record. It could also undercount in cases where there is a medical record but no corresponding institutional record.

[45] The analysis assumed that the MCOs paid the same rate for the service as the Medicaid FFS program did, as specified by the physician fee schedule.

The Department was not able to conduct an analysis on FY 2013 utilization as the claims run-out period for this fiscal year is still ongoing. The Department did not receive data on Medicare utilization for this service.

Analysis of Utilization Trends for Individual Medicaid Participants

This section presents data on utilization between FY 2006 and FY 2012. Table 6 presents the number of unique Medicaid participants who had a service with CPT code 00170 in each year of the study period, along with the average growth rate during that seven-year period. Increases in the number of participants over this period were concentrated among children aged five years and younger.

Table 6. Number of Unique Participants Using CPT Code 00170 by Age Group, FY 2006-FY 2012

Age (Years)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Under 1	22	19	15	20	27	19	31	5.9%
01 – 02	476	534	593	620	761	836	856	10.3%
03 – 05	1,899	1,959	2,097	2,678	3,367	3,852	3,726	11.9%
06 – 09	1,214	1,178	1,313	1,686	1,843	1,964	1,814	6.9%
10 – 14	521	446	468	528	599	600	610	2.7%
15 – 18	250	229	267	289	295	255	315	3.9%
19 – 39	210	213	255	280	371	427	469	14.3%
40 – 64	129	133	128	149	189	191	195	7.1%
65 and over	35	23	23	26	36	37	30	-2.5%
Total	**4,756**	**4,735**	**5,162**	**6,276**	**7,489**	**8,183**	**8,047**	**9.2%**
Percentage of Total Medicaid Population Using CPT code 00170	**0.57%**	**0.55%**	**0.59%**	**0.66%**	**0.72%**	**0.72%**	**0.67%**	**2.8%**

Table 7 shows the average number of claims/encounters per participant in each year. Older adults had more claims/encounters per recipient, while children, especially those in the younger age groups, averaged 1.4 claims/encounters or fewer per user. From FY 2006 to FY 2012, there was a small increase in the average number of claims per recipient for those aged 15 to 18 years and a decrease in the average number of claims per recipient for those aged 1 to 2 years.

Table 7. CPT Code 00170 Claims per Participant by Age Group, FY 2006-FY 2012

Age (Years)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Under 1	1.1	1.2	1.3	1.2	1.4	1.2	1.1	0.0%
01 – 02	1.2	1.2	1.3	1.3	1.3	1.2	1.1	-1.4%
03 – 05	1.2	1.2	1.3	1.4	1.3	1.2	1.2	0.0%
06 – 09	1.2	1.2	1.3	1.3	1.3	1.3	1.2	0.0%
10 – 14	1.2	1.2	1.3	1.4	1.5	1.4	1.2	0.0%
15 – 18	1.2	1.3	1.3	1.4	1.5	1.5	1.3	1.3%
19 – 39	1.2	1.2	1.3	1.5	1.5	1.5	1.3	1.3%
40 – 64	1.4	1.3	1.4	1.5	1.6	1.5	1.6	2.3%
65 and over	2.0	1.7	1.8	2.0	2.1	2.0	2.3	2.4%
Total	**1.2**	**1.2**	**1.3**	**1.4**	**1.4**	**1.3**	**1.2**	0.0%

Table 8 presents data on the number of units billed per claim/encounter based on age group. All age groups except those under age one year saw an average increase in the number of anesthesia units billed to the Medicaid program. However, the number of units per claim/encounter seems to be declining for children in most age groups from a high point in FY 2009 or FY 2010 (depending on the age group). On average throughout the program, the number of billed units per procedure peaked in FY 2009 and declined over the next three years. It is difficult to determine whether the overall increase is medically appropriate without reviewing recipients' medical charts.

Table 8. Average Units of CPT Code 00170 Services per Medicaid Claim/Encounter by Age Group, FY 2006 to FY 2012

Age Years	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Under 1	24.5	31.2	38.9	40.7	57.9	30.4	18.1	-4.9%
01 – 02	43.9	41.1	46.0	57.5	62.1	59.2	57.0	4.4%
03 – 05	54.3	54.3	63.9	77.1	77.5	73.1	71.4	4.7%
06 – 09	45.1	48.3	56.9	70.9	63.1	62.1	60.1	4.9%
10 – 14	38.7	40.2	50.4	57.7	59.4	55.2	51.8	5.0%
15 – 18	42.2	46.3	45.4	64.5	63.1	60.7	52.1	3.6%
19 – 39	58.8	54.7	65.2	69.5	61.9	57.5	64.6	1.6%
40 – 64	49.1	52.4	50.2	36.5	42.5	39.6	59.7	3.3%
65 and over	40.5	49.1	17.2	22.0	16.4	22.4	49.1	3.3%
Total	**48.3**	**49.4**	**57.2**	**69.5**	**68.0**	**64.8**	**63.9**	4.8%

Table 9 presents the number of recipients who received anesthesia services based on their coverage category. It includes all ages. Participants in the Families and Children (FAC) coverage

group had the highest use of anesthesia for restorative dental surgery and experienced the greatest amount of average growth over the seven fiscal years.

Table 9. Number of Unique Participants Using CPT Code 00170 by Coverage Group, FY 2006-FY 2012

Coverage Group	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Aged/Disabled	545	540	563	654	719	747	778	6.1%
FAC	3,003	2,959	3,320	4,249	5,517	6,134	6,038	12.3%
MCHP	1,187	1,210	1,258	1,355	1,220	1,280	1,194	0.1%
Other	21	26	21	18	33	22	37	9.9%
Total	4,756	4,735	5,162	6,276	7,489	8,183	8,047	9.2%

Table 10 presents the average number of claims/encounter per participant by coverage group. There was very little average growth in the number of claims/encounters per user between FY 2006 and FY 2012. For participants in FAC and MCHP, there was a slight increase in FY 2009 and FY 2010, followed by a decrease in FY 2011 and FY 2012.

Table 10. Average Claims per Participant Using CPT Code 00170 by Coverage Group, FY 2006-FY 2012

Coverage Group	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Aged/Disabled	1.3	1.3	1.4	1.4	1.4	1.4	1.3	0.0%
FAC	1.2	1.2	1.3	1.4	1.4	1.2	1.2	0.0%
MCHP	1.2	1.2	1.3	1.4	1.4	1.2	1.2	0.0%
Other	1.5	1.3	1.3	1.4	1.3	1.5	1.4	-1.1%
Total	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%

Table 11 presents the average number of units that were billed per claim/encounter. Over the seven-year period, both FAC and MCHP saw modest average increases. However, except for the "Other" enrollment group, which was very small, there was a high point in FY 2009 and FY 2010 across all categories followed by a decline in the subsequent two years in the number of anesthesia units billed.

Table 11. Average Units per CPT Code 00170 Claim by Coverage Category, FY 2006-FY 2012

Coverage Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Aged/Disabled	56.34	61.72	65.20	76.27	71.69	63.81	75.50	5.0%
FAC	48.53	49.90	58.39	69.42	67.98	65.53	62.86	4.4%
MCHP	44.55	43.15	50.80	67.21	66.72	63.00	60.95	5.3%
Other	16.13	23.56	17.48	18.35	27.93	30.21	62.59	25.4%
Total	48.33	49.40	57.16	69.54	67.98	64.85	63.93	4.8%

Table 12 presents the number of participants in special coverage categories using dental anesthesia services. In each of the special categories, the number of recipients who received anesthesia services grew more slowly or decreased in comparison with those who did not fall into that category. REM participants were a small proportion of the users of anesthesia services, experiencing continuous annual growth in utilization.

Those in LTSS waivers were also a small subset of the overall number of users. The number of users receiving anesthesia increased noticeably between FY 2007 and FY 2008 and increased slightly between FY 2008 and FY 2012 (with a decrease in FY 2011). Participants residing in institutions had fewer claims from FY 2006 to FY 2012, while those who were not in institutions experienced an increase in the number of anesthesia claims.

Table 12. Number of Unique Participants Using CPT Code 00170 by Special Program Status, FY 2006-FY 2012

Program Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Non-REM Participant	4,670	4,648	5,068	6,176	7,383	8,062	7,929	9.2%
REM Participant	86	87	94	100	106	121	118	5.4%
Total	4,756	4,735	5,162	6,276	7,489	8,183	8,047	9.2%
Non-LTSS Waiver Participant	4,633	4,610	5,006	6,111	7,322	8,029	7,881	9.3%
LTSS Waiver Participant	123	125	156	165	167	154	166	5.1%
Total	4,756	4,735	5,162	6,276	7,489	8,183	8,047	9.2%

Program Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Non-Institutional Resident	4,637	4,628	5,015	6,151	7,381	8,078	7,969	9.4%
Institutional Resident	119	107	147	125	108	105	78	-6.8%
Total	4,756	4,735	5,162	6,276	7,489	8,183	8,047	9.2%

Table 13 shows the number of claims/encounters for each participant in FY 2006 through FY 2012 by special coverage category. REM participants experienced little change from year-to-year and did not have more than 1.2 claims per participant, on average, during the study period. Individuals in LTSS waivers also experienced little change in the number of claims per user, though in some years they had more claims per user than those in REM. Individuals in institutions experienced an increase in the number of claims per user and, in FY 2010, had more than two claims per user on average. It is possible that this population's access to preventive dental care may be more limited by residing in an institution, which results in more need for dental surgery.

Table 13. Number of Claims/Encounters per Participant Using CPT Code 00170 by Special Program Status, FY 2006-FY 2012

Program Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Non-REM Participant	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%
REM Participant	1.2	1.2	1.1	1.1	1.1	1.2	1.2	0.0%
Total	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%
Non-LTSS Waiver Participant	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%
LTSS Waiver Participant	1.2	1.3	1.3	1.4	1.4	1.3	1.2	0.0%
Total	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%
Non-Institutional Resident	1.2	1.2	1.3	1.4	1.4	1.2	1.2	0.0%
Institutional Resident	1.7	1.3	1.4	1.9	2.1	1.9	1.9	1.9%
Total	1.2	1.2	1.3	1.4	1.4	1.3	1.2	0.0%

Table 14 presents data on the number of units of anesthesia billed per claim/encounter for those in special coverage categories, including individuals enrolled in the REM and LTSS waiver programs and individuals residing in institutions. Participants in REM experienced a small increase in the number of units billed over time, but the increase was not as large as it was for those who were not in REM. In each year studied, REM participants received a larger number of units of anesthesia than their counterparts who were not in REM. Those in LTSS waivers experienced a larger increase in the number of units billed per claim compared to those who were not in LTSS. Individuals residing in institutions experienced a decrease, on average, in the number of units billed, and they received fewer units of anesthesia than their peers who were not in institutions in FY 2009 through FY 2012. The greater number of units billed per claim for REM and LTSS patients seems to indicate that their physical status and complex medical needs are being taken into account and that anesthesiologists are being compensated more for these more complex cases.

Table 14. Number of Units per CPT Code 00170 Claim/Encounter by Special Program Status, FY 2006-FY 2012

Program Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Average Annual Growth Rate, Percentage
Non-REM Participant	47.44	48.20	56.08	68.67	67.23	64.03	63.31	4.9%
REM Participant	94.73	115.50	125.11	136.52	133.75	121.10	104.42	1.6%
Total	48.33	49.40	57.16	69.54	67.98	64.85	63.93	4.8%
Non-LTSS Waiver Participant	48.24	48.70	56.47	69.36	67.91	65.16	63.62	4.7%
LTSS Waiver Participant	51.52	74.33	79.92	75.90	70.99	49.13	78.53	7.3%
Total	48.33	49.40	57.16	69.54	67.98	64.85	63.93	4.8%
Non-Institutional Resident	47.50	48.89	56.89	70.05	68.21	65.24	64.19	5.1%
Institutional Resident	71.28	69.09	65.45	51.44	57.67	44.34	47.07	-6.7%
Total	48.33	49.40	57.16	69.54	67.98	64.85	63.93	4.8%

Table 15 highlights the types of dental procedures being performed in hospital ORs. Typically dentists perform multiple procedures or a full mouth restoration while the individual is under anesthesia. Also, the table highlights the Maryland Medicaid fee for the procedures and how the fees compare to the ADA's 2011 50th percentile of charges.

Table 15. Top Dental Procedures Performed In Hospital ORs, FY 2012

Procedure Code	Description	MD Medicaid Fee	ADA 50th percentile, 2011 South Atlantic Region Charges	Percentage of ADA 50th percentile
D2930	PREFAB STAINLESS STEEL CROWN, PRIMARY	$154.00	$241.00	64%
D7140	EXTRACTION,ERUPTED TOOTH OR EXPOSED ROOT	$103.01	$150.00	69%
D2392	RESIN-BASED COMPOSITE-TWO SURFACES,POSTE	$120.00	$195.00	62%
D2391	RESIN-BASED COMPOSITE-ONE SURFACE,PROSTE	$93.00	$152.00	61%
D3220	PULPOTOMY-THERAPEUTIC(EX FINAL RESTORA)	$60.00	$169.00	36%
D2335	RESIN, 4 OR MORE SURFACES OR INCISAL ANG	$151.00	$259.00	58%
D0240	X-RAY INTRAORAL OCCLUSAL SINGLE	$9.00	N/A	N/A
D0272	X-RAY BITEWINGS TWO FILMS	$15.00	$40.00	38%
D2330	RESTORATION COMPOSITE RESIN 1 SFC	$84.00	$140.00	60%
D3120	PULP CAP INDIRECT	$15.00	$65.00	23%
D0220	X-RAY INTRAORAL SINGLE	$9.00	$25.00	36%
D1351	SEALANT PER TOOTH	$33.23	$46.00	72%

Between FY 2006 and FY 2007, the payment rate for anesthesia increased from $0.22 per unit to $1.20 per unit. Then, in FY 2010, the payment rate per unit decreased slightly to $1.15 per unit. Table 16 shows the changes in total estimated Medicaid spending for CPT code 00170 over the seven-year study period. Spending for managed care patients is estimated because the Department does not have access to MCOs' contracted payment rates to providers. Because of the extreme change in reimbursement levels compared to FY 2006, *the growth rate shown in the last column shows the average annual percentage growth from FY 2007 to FY 2012.* For the program as a whole, spending on CPT code 00170 increased at an average annual rate of 14.6 percent between FY 2007 and FY 2012. The rate of change in spending varies by age, coverage group, and county of residence, however.

Table 16. Total Spending for CPT Code 00170 Claims/Encounters by Age, Coverage Group, and County, FY 2006-FY 2012

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Avg. Pct. Annual Growth FY 2007-FY 2012
Age (Years)								
00 - <1	$673	$2,859	$2,225	$2,956	$4,563	$2,742	$3,332	3.1%
01-02	$16,536	$74,678	$98,826	$109,139	$143,153	$135,407	$139,518	13.3%
03-05	$68,863	$308,264	$374,018	$571,078	$704,609	$707,112	$687,753	17.4%
06-09	$41,331	$176,975	$222,656	$339,309	$342,938	$337,122	$311,155	11.9%
10-14	$17,989	$61,253	$73,311	$95,657	$115,373	$100,679	$96,554	9.5%
15 - 18	$9,321	$33,006	$40,881	$53,431	$52,823	$44,458	$51,923	9.5%
19 - 39	$10,988	$31,053	$41,990	$57,187	$66,511	$71,514	$76,332	19.7%
40 - 64	$6,744	$16,578	$17,463	$18,881	$25,273	$24,161	$27,836	10.9%
65 and over	$2,888	$2,885	$1,049	$1,418	$2,734	$3,359	$2,249	-4.9%
Coverage Group								
Aged/Disabled	$29,583	$83,859	$97,921	$129,079	$134,037	$129,994	$135,406	10.1%
Families and Children (FAC)	$104,923	$444,099	$567,316	$844,717	$1,080,072	$1,071,739	$1,052,981	18.8%
Maryland Children's Health Program (MCHP)	$40,001	$178,054	$206,136	$273,951	$241,170	$222,761	$205,085	2.9%
Other	$826	$1,541	$1,046	$1,309	$2,698	$2,059	$3,180	15.6%
County								
Allegany	$7,530	$39,458	$39,381	$37,496	$34,021	$38,560	$28,820	-6.1%
Anne Arundel	$11,848	$39,824	$58,368	$117,742	$114,613	$109,363	$106,239	21.7%
Baltimore City	$38,443	$128,018	$142,809	$205,929	$231,618	$223,236	$211,328	10.5%
Baltimore County	$24,398	$98,186	$115,032	$154,815	$192,157	$181,103	$180,965	13.0%
Calvert	$2,385	$9,361	$9,734	$12,316	$17,200	$18,824	$17,368	13.2%
Caroline	$2,260	$7,960	$6,223	$11,153	$7,520	$12,732	$10,123	4.9%
Carroll	$4,424	$19,330	$21,620	$34,776	$43,480	$29,301	$32,673	11.1%
Cecil	$3,330	$25,137	$26,247	$45,393	$53,123	$62,959	$45,230	12.5%
Charles	$3,607	$12,701	$13,855	$15,797	$26,777	$25,378	$35,009	22.5%

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Avg. Pct. Annual Growth FY 2007-FY 2012
Dorchester	$1,119	$6,623	$5,587	$7,737	$12,729	$13,195	$11,900	12.4%
Frederick	$7,542	$28,052	$41,819	$60,520	$62,152	$57,303	$59,704	16.3%
Garrett	$3,365	$12,113	$18,845	$20,640	$20,178	$24,138	$20,911	11.5%
Harford	$5,851	$35,452	$48,873	$44,718	$51,615	$48,045	$52,961	8.4%
Howard	$4,567	$23,937	$28,028	$51,235	$45,470	$36,329	$34,944	7.9%
Kent	$806	$3,081	$3,135	$4,111	$3,346	$4,636	$4,692	8.8%
Montgomery	$14,836	$66,166	$99,370	$145,238	$187,807	$195,079	$207,182	25.6%
Out of State	$173	$1,198	$2,883	$1,126	$1,534	$3,972	$2,103	11.9%
Prince George's	$17,653	$63,790	$87,323	$144,633	$199,032	$186,752	$189,006	24.3%
Queen Anne's	$1,418	$5,661	$6,968	$7,538	$7,599	$10,445	$7,821	6.7%
Somerset	$1,410	$4,790	$4,626	$5,795	$6,004	$4,857	$6,133	5.1%
St. Mary's	$2,491	$13,440	$12,588	$15,909	$19,985	$13,393	$19,641	7.9%
Talbot	$1,367	$3,750	$5,546	$3,408	$3,699	$8,403	$7,016	13.3%
Washington	$8,717	$39,419	$48,554	$64,457	$76,587	$84,633	$76,263	14.1%
Wicomico	$4,943	$15,441	$19,036	$29,426	$29,162	$24,190	$21,550	6.9%
Worcester	$848	$4,662	$5,970	$7,146	$10,571	$9,729	$7,072	8.7%
Total	$175,333	$707,553	$872,420	$1,249,056	$1,457,977	$1,426,554	$1,396,652	14.6%

Table 17 presents the information on spending for CPT code 00170 on a per participant basis. As with the data in Table 12, the annual growth rate is calculated from FY 2007 to FY 2012, because the large change in reimbursement during FY 2006 would distort the calculation. Spending per participant for all participants increased at an average annual rate of 3.0 percent between FY 2007 and FY 2012. The per participant growth rates were relatively similar among age groups, with the exceptions of declines in average spending for individuals younger than 1 year and for those aged 65 years and older. Spending increases were also similar for the major coverage groups of Aged and Disabled, Families and Children, and MCHP. Per participant spending changes varied more by geographic area, with some counties showing decreases in per participant spending and other counties with much higher than average rates of growth in such spending.

Table 17. Total per Participant Spending for CPT Code 00170 Claims/Encounters by Age Group, Coverage Group, and County, FY 2006-FY 2012

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Avg. Pct. Annual Growth FY 2007-FY 2012
Age (Years)								
00 - <1	$30.59	$150.47	$148.33	$147.80	$169.00	$144.32	$107.48	-6.5%
01 - 02	$34.74	$139.85	$166.65	$176.03	$188.11	$161.97	$161.85	3.0%
03 - 05	$36.26	$157.36	$178.36	$213.25	$209.27	$183.52	$184.19	3.2%
06 - 09	$34.05	$150.23	$169.58	$201.25	$186.08	$171.65	$171.34	2.7%
10 - 14	$34.53	$137.34	$156.65	$181.17	$192.61	$167.80	$157.51	2.8%
15 - 18	$37.28	$144.13	$153.11	$184.88	$179.06	$174.35	$163.79	2.6%
19 - 39	$52.32	$145.79	$164.67	$204.24	$179.27	$167.48	$162.41	2.2%
40 - 64	$52.28	$124.65	$136.43	$126.72	$133.72	$126.50	$142.75	2.7%
65 - high	$82.51	$125.43	$45.61	$54.54	$75.94	$90.78	$74.97	-9.8%
Coverage Group								
Aged/Disabled	$54.28	$155.29	$173.93	$197.37	$186.42	$174.02	$173.38	2.2%
Families and Children (FAC)	$34.94	$150.08	$170.88	$198.80	$195.77	$174.69	$173.93	3.0%
Maryland Children's Health Program (MCHP)	$33.70	$147.15	$163.86	$202.18	$197.68	$174.03	$171.33	3.1%
Other	$39.33	$61.64	$58.11	$72.72	$84.31	$102.95	$88.33	7.5%
County								
Allegany	$46.48	$228.08	$195.93	$189.37	$200.12	$198.76	$173.61	-5.3%
Anne Arundel	$36.57	$154.96	$188.28	$266.99	$233.43	$176.11	$177.66	2.8%
Baltimore City	$41.38	$148.34	$171.44	$195.94	$185.29	$175.91	$173.36	3.2%
Baltimore County	$37.71	$153.42	$172.72	$205.32	$196.68	$177.03	$176.04	2.8%
Calvert	$30.58	$148.59	$126.42	$135.34	$134.38	$136.41	$131.58	-2.4%
Caroline	$29.35	$103.38	$111.13	$125.31	$105.92	$118.99	$134.97	5.5%
Carroll	$35.97	$148.69	$162.56	$212.05	$230.05	$147.24	$168.42	2.5%
Cecil	$37.00	$186.20	$182.27	$232.78	$242.57	$226.47	$205.59	2.0%
Charles	$30.06	$145.99	$173.19	$179.51	$226.92	$162.68	$213.47	7.9%
Dorchester	$30.24	$112.25	$114.02	$128.95	$133.99	$118.87	$136.78	4.0%
Frederick	$38.09	$151.63	$170.69	$207.26	$193.62	$163.72	$169.61	2.3%
Garrett	$33.65	$208.84	$177.78	$192.90	$171.00	$185.68	$188.39	-2.0%
Harford	$31.63	$159.69	$181.68	$189.48	$199.29	$179.27	$178.32	2.2%

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Avg. Pct. Annual Growth FY 2007-FY 2012
Howard	$37.13	$162.84	$182.00	$258.76	$201.19	$168.97	$151.93	-1.4%
Kent	$38.38	$110.04	$136.30	$132.61	$115.38	$125.30	$142.18	5.3%
Montgomery	$33.95	$142.60	$168.14	$202.56	$217.62	$187.22	$187.33	5.6%
Out of State	$28.83	$171.14	$411.86	$187.67	$153.40	$209.05	$140.20	-3.9%
Prince George's	$36.85	$130.18	$174.30	$204.57	$216.81	$187.69	$179.83	6.7%
Queen Anne's	$36.36	$117.94	$139.36	$157.04	$131.02	$128.95	$137.21	3.1%
Somerset	$38.11	$129.46	$115.65	$107.31	$122.53	$118.46	$122.66	-1.1%
St. Mary's	$26.22	$111.07	$114.44	$125.27	$121.86	$107.14	$137.35	4.3%
Talbot	$36.95	$110.29	$154.06	$113.60	$115.59	$109.13	$123.09	2.2%
Washington	$37.41	$173.65	$181.85	$205.28	$191.95	$198.67	$176.94	0.4%
Wicomico	$32.74	$107.98	$114.67	$130.78	$116.18	$116.30	$114.02	1.1%
Worcester	$30.29	$119.54	$132.67	$134.83	$127.36	$135.13	$112.25	-1.3%
Total	**$36.87**	**$149.46**	**$169.11**	**$199.02**	**$194.71**	**$174.35**	**$173.11**	**3.0%**

Analysis of Service Utilization by Hospital Provider

Table 18 presents the number of claims/encounters for CPT code 00170 for the 20 hospitals that billed that code most frequently to the Medicaid program. Hospitals are presented in descending order based on the number of claims billed in FY 2012. In FY 2006, Shady Grove Adventist Hospital was the fourth highest biller of CPT code 00170. By FY 2012, Shady Grove was the most frequent biller of this service (billing for this service in FY 2012 was seven times higher than it had been in FY 2006). At its highest point, in FY 2011, Shady Grove billed 1,514 claims/encounters for that anesthesia service. However, in FY 2009, the Kernan Health System billed the most claims/encounters for this code out of all of the top twenty hospitals, with 1,544 claims.

Table 18. Top 20 Hospitals That Billed CPT Code 00170 by Number of Claims/Encounters, FY 2006-FY 2012

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims
Shady Grove Adventist Hospital	177	322	420	546	1,219	1,514	1,251
All University of Maryland, including Children's Hospital	1,052	760	922	1,245	1,106	1,027	992
All Kernan Hospital	691	998	960	1,544	1,511	1,141	808
All Johns Hopkins Hospital	315	374	432	509	582	786	689
Franklin Square Hospital	98	213	295	437	422	447	350

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims	Total Claims
All Children's DC	48	324	290	157	568	424	291
Robinwood Surgery Center	1	0	35	232	234	260	268
Anne Arundel Medical Center	74	19	19	61	158	245	238
Western Maryland Hospital Center	0	0	0	0	118	376	207
All Greater Baltimore Medical Center	94	227	272	292	321	277	196
All Howard County General	132	153	234	297	365	319	176
Southern Maryland Hospital	80	93	89	77	141	161	170
Garrett County Hospital	127	29	141	149	184	188	160
All Mercy Medical Center	55	2	111	272	261	170	157
Sinai Hospital	21	37	43	64	109	146	150
Union Hospital of Cecil County	11	9	4	59	209	303	132
Chester River Hospital Center	46	40	60	32	38	80	126
All Holy Cross Hospital Units	34	48	80	120	134	168	116
Calvert County Memorial Hospital	5	43	76	100	148	150	112
St. Mary's Hospital	44	46	74	203	279	201	102
Sum of the Top 20	3,105	3,737	4,557	6,396	8,107	8,383	6,691
All Hospitals Claims During FY	4,508	5,197	6,102	8,065	9,805	9,744	8,014
Percentage of Claims in Top 20 Hospitals	**68.9%**	**71.9%**	**74.7%**	**79.3%**	**82.7%**	**86.0%**	**83.5%**

Table 19 shows the average rate of growth, by hospital, in billing CPT code 00170 from year to year and over the seven-year period. Shady Grove Adventist Hospital experienced the most growth in the claims/encounters billed out of the top 20 hospitals. Shady Grove Adventist Hospital's growth in billing this code is reflected in an increasing share of the market for providing these services. Shady Grove went from providing just under 4.0 percent of CPT code 00170 services in FY 2006 to 15.6 percent in FY 2012. In comparison, University of Maryland, which started out as the top biller in FY 2006, experienced a small decrease overall. Kernan Health System experienced only a 2.6 percent annual growth over the seven-year period, while Johns Hopkins Health System experienced a moderate amount of growth.

Table 19. Top 20 Hospitals That Billed CPT Code 00170 by Growth Rate, FY 2006-FY 2012

	2006 to 2007	2007 to 2008	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	2006 to 2012
	Growth Rate	Growth Rate	Growth Rate	Growth Rate	Growth Rate	Growth Rate	Average Annual Growth
Shady Grove Adventist Hospital	81.9%	30.4%	30.0%	123.3%	24.2%	-17.4%	38.5%
All University of Maryland, including Children's Hospital	-27.8%	21.3%	35.0%	-11.2%	-7.1%	-3.4%	-1.0%
All Kernan Hospital	44.4%	-3.8%	60.8%	-2.1%	-24.5%	-29.2%	2.6%
All Johns Hopkins Hospital	18.7%	15.5%	17.8%	14.3%	35.1%	-12.3%	13.9%
Franklin Square Hospital	117.3%	38.5%	48.1%	-3.4%	5.9%	-21.7%	23.6%
All Children's DC	575.0%	-10.5%	-45.9%	261.8%	-25.4%	-31.4%	35.0%
Robinwood Surgery Center	-100.0%	N/A	562.9%	0.9%	11.1%	3.1%	N/A
Anne Arundel Medical Center	-74.3%	0.0%	221.1%	159.0%	55.1%	-2.9%	21.5%
Western Maryland Hospital Center	N/A	N/A	N/A	N/A	218.6%	-44.9%	N/A
All Greater Baltimore Medical Center	141.5%	19.8%	7.4%	9.9%	-13.7%	-29.2%	13.0%
All Howard County General	15.9%	52.9%	26.9%	22.9%	-12.6%	-44.8%	4.9%
Southern Maryland Hospital	16.3%	-4.3%	-13.5%	83.1%	14.2%	5.6%	13.4%
Garrett County Hospital	-77.2%	386.2%	5.7%	23.5%	2.2%	-14.9%	3.9%
All Mercy Medical Center	-96.4%	5450.0%	145.0%	-4.0%	-34.9%	-7.6%	19.1%
Sinai Hospital	76.2%	16.2%	48.8%	70.3%	33.9%	2.7%	38.8%
Union Hospital of Cecil County	-18.2%	-55.6%	1375.0%	254.2%	45.0%	-56.4%	51.3%
Chester River Hospital Center	-13.0%	50.0%	-46.7%	18.8%	110.5%	57.5%	18.3%
All Holy Cross Hospital Units	41.2%	66.7%	50.0%	11.7%	25.4%	-31.0%	22.7%
Calvert County Memorial Hospital	760.0%	76.7%	31.6%	48.0%	1.4%	-25.3%	67.9%
St. Mary's Hospital	4.5%	60.9%	174.3%	37.4%	-28.0%	-49.3%	15.0%
Top 20 Growth Rate	20.4%	21.9%	40.4%	26.8%	3.4%	-20.2%	13.7%
All Hospitals Claims During FY	**15.3%**	**17.4%**	**32.2%**	**21.6%**	**-0.6%**	**-17.8%**	**10.1%**

Tables 20 A, B, C, and D show the historical distribution of patients by Maryland region for Shady Grove Adventist Hospital, the University of Maryland Hospital System less James Kernan Hospital, James Kernan Hospital, and the Johns Hopkins Health System. These are the four hospitals with the highest volume of CPT code 00170.

The geographic distribution of patients for these hospitals has generally remained unchanged over the last six years. The University of Maryland and the Johns Hopkins Hospital Systems

have drawn most of these patients from the Baltimore Metropolitan Area, which includes Baltimore City and Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties.

Shady Grove, which is located in Rockville, has drawn most of its patients from Montgomery and Prince George's Counties as well as from Western Maryland, which includes Allegany, Frederick, Garrett, and Washington Counties. In FYs 2006, 2008, and 2009, the Western Region accounted for the majority of Shady Grove's patients for CPT code 00170, with Prince George's and Montgomery Counties accounting for 34 to 43 percent. Since FY 2010, Prince George's and Montgomery Counties have accounted for more than 50 percent of Shady Grove's patients.

Table 20A. Percentage of CPT Code 00170 Patients from Baltimore Metro Region, FY 2006-FY 2012

Hospital	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Adventist Hospital System	6.3%	4.2%	4.9%	5.5%	8.9%	5.5%	5.7%
University of Maryland Hospital System (excl. James Kernan)	86.7%	83.9%	87.4%	90.4%	85.4%	91.3%	90.5%
James Kernan Hospital	69.6%	72.7%	67.2%	65.4%	70.9%	77.2%	76.0%
Johns Hopkins Health System	87.2%	84.9%	91.6%	88.8%	88.0%	85.5%	87.5%

Table 20B. Percentage of CPT Code 00170 Patients from Prince George's and Montgomery Counties, FY 2006-FY 2012

Hospital	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Adventist Hospital System	34.4%	53.4%	44.9%	43.0%	50.3%	57.8%	57.8%
University of Maryland Hospital System (excl. James Kernan)	4.9%	7.0%	7.1%	4.8%	7.3%	4.3%	5.7%
James Kernan Hospital	6.5%	10.6%	12.1%	13.0%	7.6%	5.8%	8.1%
Johns Hopkins Health System	1.2%	0.7%	1.2%	1.2%	1.5%	2.3%	1.6%

Table 20C. Percentage of CPT Code 00170 Patients from Western Maryland, FY 2006-FY 2012

Hospital	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Adventist Hospital System	57.5%	39.6%	49.2%	50.1%	39.2%	33.6%	34.1%
University of Maryland Hospital System (excl. James Kernan)	2.8%	2.5%	1.7%	1.2%	1.3%	0.7%	0.5%
James Kernan Hospital	16.6%	10.5%	12.0%	8.1%	7.9%	6.2%	4.7%
Johns Hopkins Health System	2.1%	1.8%	0.9%	1.2%	1.5%	3.1%	2.7%

Table 20D. Percentage of CPT Code 00170 Patients from Southern and Eastern Maryland, FY 2006-FY 2012

Hospital	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Adventist Hospital System	1.3%	4.2%	1.3%	2.2%	1.9%	2.9%	2.5%
University of Maryland Hospital System (excl. James Kernan)	10.8%	15.3%	15.1%	10.1%	16.6%	9.0%	12.8%
James Kernan Hospital	11.0%	10.4%	14.4%	23.0%	25.0%	18.0%	20.4%
Johns Hopkins Health System	12.3%	23.6%	10.5%	15.6%	14.4%	17.0%	13.9%

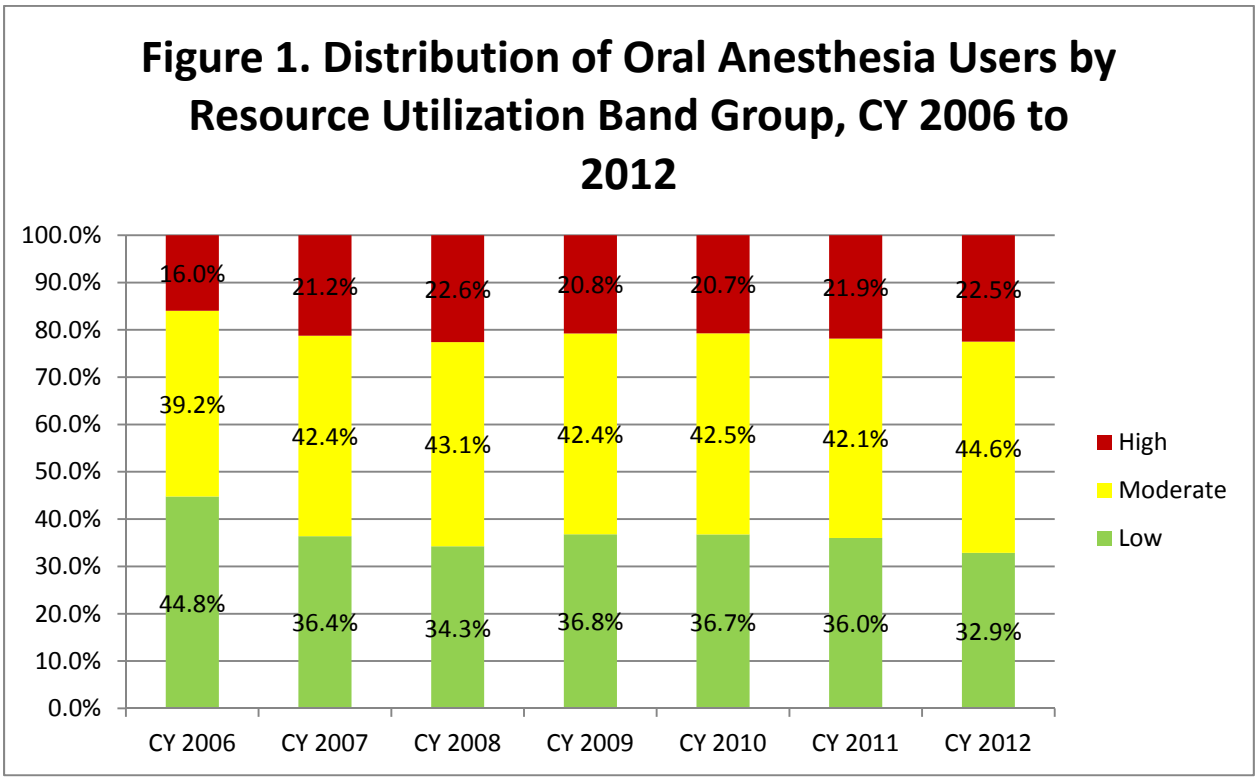
Notes: Western Maryland includes Allegany, Frederick, Garrett, and Washington Counties. Southern Maryland includes Calvert, Charles, and St. Mary's Counties. Eastern Maryland includes Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester Counties.

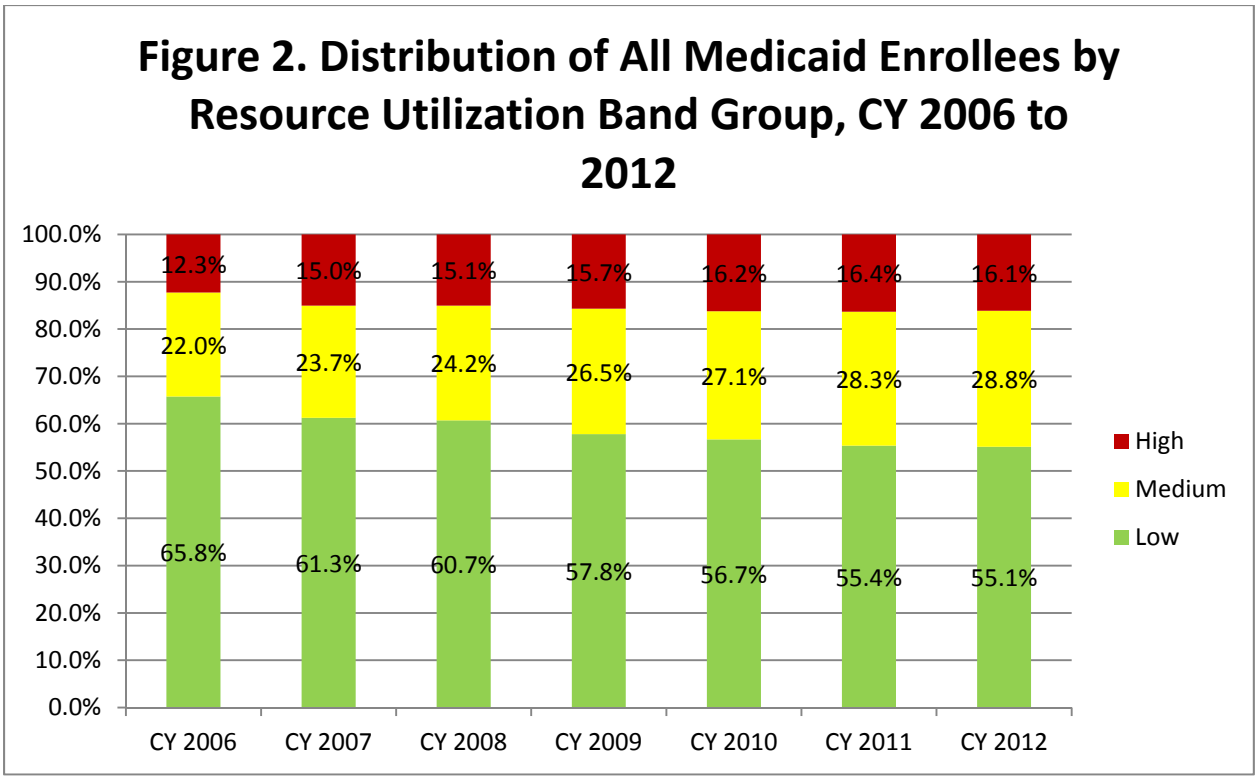
Some clinicians expressed concern to the Department that children with special health care needs may require surgery under general anesthesia, which would be consistent with some private insurance guidelines.[46] However, the growth in overall utilization of this procedure cannot be attributed to enrollees in the REM program or in LTSS waivers, as the fraction of users who are REM or LTSS waiver participants has actually decreased slightly over the study period. As noted above, recipients in these coverage categories received more units per claim, which likely takes into account their complex physical health status.

To estimate the general medical acuity of the population using these services, the Department calculated Resource Utilization Bands (RUBs) for each enrollee, as specified by the Johns Hopkins University Adjusted Clinical Group (ACG) system, based on each enrollee's previous year's utilization of medical services and diagnoses. The six RUBs describe enrollees who 1) do not use any medical services, 2) are healthy users, 3) are low-morbidity users, 4) are moderate-morbidity users, 5) are high-morbidity users, or 6) are very high-morbidity users, respectively. These users were further grouped as low morbidity (RUBs 1 through 3, corresponding to users with no previous medical utilization or low morbidity), moderate morbidity (RUB 4), and high morbidity (RUBs 5 and 6, corresponding to high and very high morbidity users).[47] A beneficiary's RUB describes his or her overall medical acuity. However, readers should keep in mind that, while the ACG system does consider gingivitis and dental caries (i.e., cavities) in assigning enrollees to a RUB, the system is not meant to make detailed predictions about an enrollee's use of dental services.

[46] Glassman, P. (2009). A review of guidelines for sedation, anesthesia, and alternative interventions for people with special needs. *Specialty Care Dentist*, *29*(1), 9-16.
[47] Johns Hopkins Bloomberg School of Public Health. (2008). *Technical user guide, version 8.2*.

Figure 1 displays the distribution of CPT 00170 users over the RUBs, and figure 2 displays the distribution of all Medicaid enrollees over the RUBs. Using these measures, oral anesthesia users have not had an appreciable increase in medical acuity over the observation period. The proportion of users that were in high-utilization RUBs in the Johns Hopkins ACG risk adjustment system remained constant for most of the observation period. As expected, CPT code 00170 users had higher average medical acuity than the general Medicaid population.





Readers should note that the ACG system is meant to predict utilization of medical services, not dental services; enrollees may have greater or lesser need for dental services than their RUB category indicates. Additionally, not all children with special needs are in the REM program or in LTSS waivers; these programs enroll children with the most severe medical conditions. Nonetheless, having a chronic condition is a risk factor for receiving dental treatment under general anesthesia.[48]

Commercial Insurer Trends

Table 21 displays the volume of claims for CPT code 00170 for private payers. MHCC data indicate that the volume of claims for CPT code 00170 has been approximately flat from 2009 to 2011, with 11,385 claims in 2011.

Table 21. Number of CPT Code 00170 Claims for Private Payers, CY 2009-CY 2011

	CY 2009	CY 2010	CY 2011	Average Annual Growth Rate, Percentage
Total Number of Claims	11,910	11,615	11,385	-2.2%

[48] Chi, D. L., Momany, E. T., Neff, J., Jones, M. P., Warren, J. J., Slayton, R. L., Weber-Gasparoni, K., & Damiano, P. G. (2010). Impact of chronic condition status and severity on dental treatment under general anesthesia for Medicaid-enrolled children in Iowa State. *Pediatric Anesthesia*, *20*(9), 856-865.

MHCC data indicate that recipients of CPT code 00170 in commercial plans had claims averaging 52.9 minutes per claim in 2011, down from 63.4 minutes in 2009, as shown in Table 22. Private claims were approximately 9% shorter in duration than Medicaid claims in 2009, 18% shorter in 2010, and 18% shorter in 2011. Commercial plans typically insure working adults and their children, who are healthier on average than HealthChoice enrollees. It could be expected that Medicaid beneficiaries have longer claims than privately insured patients. The average claim duration for commercial insurers declined significantly from FY 2009 to FY 2011, a period during which the average Medicaid claim duration was also declining, albeit more slowly.

Table 22. Estimated Number of Minutes of CPT Code 00170 Services per Private Claim/Encounter, CY 2009-CY 2011

	CY 2009	CY 2010	CY 2011	Average Annual Growth Rate, Percentage
Estimated Average Number of Minutes per Claim	63.4	56.1	52.9	-8.7%

Factors That May Influence Utilization of General Anesthesia for Dental Services

Researchers in Iowa determined that medical acuity was a risk factor for receiving dental services under general anesthesia in an inpatient setting.[49] The medical acuity of enrollees using CPT code 00170 has been approximately similar from CY 2006 to CY 2012, as has the medical acuity of the general Medicaid population (See Figures 1 and 2, above).

Other studies have found that preventive dental visits reduced subsequent use of non-preventive dental (i.e., restorative and emergency dental) services among children enrolled in Medicaid or CHIP.[50, 51, 52] Since CY 2008, Medicaid enrollees have also been receiving preventive and diagnostic services at an increasing rate, as shown in Table 23. Approximately 35% of enrollees received preventive/diagnostic dental services in CY 2008, compared to 51.3% in CY 2012. Furthermore, the utilization rate of preventive/diagnostic dental services for those continuously enrolled in Medicaid for at least 320 days is higher than the utilization rate for those enrolled in Medicaid for any length of time, as shown in Table 24. This may indicate that the Medicaid program has been able to successfully intervene in the care of continuously enrolled individuals.

[49] Chi, D. L., Momany, E. T., Neff, J., Jones, M. P., Warren, J. J., Slayton, R. L., Weber-Gasparoni, K., & Damiano, P. G. (2010). Impact of chronic condition status and severity on dental treatment under general anesthesia for Medicaid-enrolled children in Iowa State. *Pediatric Anesthesia, 20*(9), 856-865.
[50] Sen, B., Blackburn, J., Morrisey, M. J., Kligore, M. L., Becker, D. L., Caldwell, C., & Menachemi, N. (2013). Effectiveness of preventive dental visits in reducing nonpreventive dental visits and expenditures. *Pediatrics, 131*, 1107-1113.
[51] Meyerhoefer, C. D., Zuvekas, S. H., & Manski, R. (2013). The demand for preventive and restorative dental services. *Health Economics*, DOI: 10.1002/hec.2899.
[52] Basic restorative services include fillings and extractions. Major restorative services include crowns and root canals.

Table 23: Use of Any Preventive/Diagnostic Services by Enrollees Aged 0-20, Any Length of Enrollment, CY 2008-CY 2012, by Age Group

Age (Years)	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012
3 or Less	12.0%	18.0%	22.4%	25.0%	27.9%
4 to 5	46.0%	54.5%	59.3%	62.7%	64.3%
6 to 9	50.8%	58.7%	62.9%	65.6%	67.2%
10 to 14	45.7%	53.4%	57.3%	59.8%	61.6%
15 to 18	36.0%	42.5%	46.3%	48.9%	50.0%
19 to 20	20.8%	27.3%	30.4%	32.4%	33.3%
Total	**34.7%**	**41.8%**	**46.1%**	**49.1%**	**51.3%**

Table 24: Use of Preventive/Diagnostic Dental Services by Enrollees Aged 0-20, Enrolled 320 Days or More, CY 2008-CY 2012, by Age Group

Age (Years)	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012
3 or Less	18.7%	26.8%	32.5%	36.1%	39.9%
4 to 5	55.2%	63.1%	67.3%	70.6%	71.8%
6 to 9	60.3%	67.1%	70.8%	73.2%	74.3%
10 to 14	54.2%	61.4%	64.9%	67.2%	68.5%
15 to 18	44.0%	50.0%	53.6%	56.1%	56.9%
19 to 20	30.0%	35.9%	38.3%	40.2%	41.0%
Total	**45.0%**	**51.9%**	**56.1%**	**59.2%**	**61.1%**

Conclusion

Maryland Medicaid's FFS anesthesia rates are currently higher than the FFS rates of Pennsylvania, Virginia, and the District of Columbia. The Maryland Medicaid FFS program reimburses about 76% of Medicare rates for CPT code 00170. All HealthChoice MCOs except Priority Partners pay essentially the same as FFS Medicaid; Priority Partners pays only slightly more than Medicaid pays. As of January 1, 2013, however, payment for anesthesia services related to dental procedures became included in the dental health carve-out and is paid for under the FFS program. Commercial insurance anesthesia rates may be as much as twice as high as Medicare rates.

The number of Medicaid recipients receiving this procedure grew at an average annual rate of 9.2 percent from FY 2006 to FY 2012. Looking at growth in utilization by age, children aged 1 to 5 years have been the fastest growing group and represent more than half of the total users of this CPT code. As the utilization rates by REM and LTSS waiver populations have grown more slowly than the overall growth in utilization, growth in the volume of anesthesia services is not being driven by populations that are often more difficult to treat. Volume grew each year from FY 2006 to FY 2011 and declined slightly in FY 2012. The volume of commercial insurance claims for this CPT code declined slightly from FY 2009 to FY 2011, a period during which Medicaid volume was increasing.

However, the average number of minutes per claim has grown significantly. This could indicate that the enrollees are receiving more complex dental services in ORs. For CY 2011, private

claims had an average duration of 52.9 minutes, while Medicaid claims had an average duration of 64.8 minutes in FY 2011. The number of units per Medicaid claim grew significantly from FY 2006 to FY 2010 and declined in FYs 2011 and 2012.

There are differences in volume among individual hospitals. Shady Grove Adventist Hospital, the top biller in FY 2012, increased its volume of claims for this CPT code much faster than the University of Maryland, which has historically maintained a high volume. The University of Maryland (less James Kernan hospital) was the second-largest biller for CPT code 00170 in FY 2012, and Kernan was the third-largest provider. Users of CPT code 00170 are more medically complex than the average Medicaid enrollee. However, users of CPT code 00170 have maintained approximately the same level of medical complexity from FY 2006 to FY 2012 (i.e., the increase in utilization does not appear to be driven by increasing medical complexity).

A review of academic literature indicated that preventive dental visits did reduce the subsequent use of restorative and emergency dental services among children enrolled in Medicaid and CHIP. Maryland experienced an increase in enrollees receiving preventive/diagnostic dental services over the study period.

Dentists believe that hospital restrictions on OR time may limit access to inpatient oral surgery. Some have suggested that hospitals would prefer to book higher-revenue services in the OR. The dentists interviewed said that they had a backlog of Medicaid patients who needed oral surgery. Anesthesiologists believe that low anesthesia rates limit access, although because facilities are reimbursed separately, changes in anesthesia rates by themselves are unlikely to encourage hospitals to schedule more OR time for dental surgery.

At present, Medicaid and commercial payers appear to use reimbursement methods similar to Medicare's. Medicare does compensate anesthesiologists for the difficulty of each anesthesia procedure through the use of base units, and Medicare sets its base units per recommendations from the American Society of Anesthesiologists. In addition, anesthesiologists are compensated for the time needed to prepare a patient for anesthesia. The conversion rates, however, do vary across payers.

Recommendations

The issues surrounding dental cases in the hospital ORs are complex and require more than one solution. The Department's multi-pronged recommendations are outlined below.

- **Increase the Medicaid rate for CPT code 00710 to 100 percent of Medicare. .** The rate for anesthesia should be raised to promote fairness and access. Therefore, Medicaid recommends raising the rate to 100 percent of Medicare. The estimated cost to increase the rate for CPT code 00710 is $475,818 (Total Funds). It makes sense for Medicaid not to exceed the Medicare payment rates for many reasons: CMS regulates Medicaid payments to certain institutional providers using Medicare payment principles, MedPAC reports annually on the adequacy of the Medicare payment rates to Congress, and even Congress uses Medicare as the benchmark when targeting Medicaid physician fee increases. Additionally, the GAO did not find a correlation between the variance in Medicare's rates and commercial payer rates and the supply of anesthesiologists. Based

on these reasons, the Department recommends increasing the rate paid for CPT code 00710 to the Medicare rate.

- **Recommend that hospitals offer OR block times for dental cases**. According to providers, hospitals do not block time for dental cases. As a result, dentists are struggling to find OR time. Some suggest that hospitals are not scheduling dental services because other procedures that generate more revenue. The HSCRC regulates the rates charged for hospital clinic services. Hospitals are assigned a per-minute clinic OR rate for all surgical procedures that occur in the clinic. A complex surgical procedure, therefore, is assigned more minutes, which translates to greater revenue. A similar methodology is applied to outpatient surgeries performed in hospital operating rooms. All outpatient surgeries are assigned a single OR rate. The rate will vary based on the amount of time required to perform the surgery. Complex surgical procedures that take the same amount of time to perform would not vary by compensation. Given how the HSCRC regulates OR rates, the Department recommends that hospitals start blocking time for dental OR cases. This will provide dentists with set operating times and reduce the need to scramble to find OR times that are not regularly available.
- **Establish a facility rate to pay ASCs for dental cases**. By establishing a facility rate to pay ASCs for dental cases, the number of sites where dentists may perform OR procedures will increase, which reduces pressure on hospitals. The Department will implement this recommendation in a budget neutral way -- the facility rate will be set lower than the hospital facility rate in order to offset an increase in utilization. Of the 233 ASCs currently participating in Medicaid, seven perform dental cases for other payers who reimburse the ASC for performing dental procedures. Combined with the recommendation that hospitals block OR time for dentists, this recommendation should shorten the existing wait time for dental OR cases. It should be noted, however, that most ASCs would need to purchase and install the necessary equipment for dental surgical procedures; simply establishing a rate by itself is not the only access issue to address regarding ASCs.
- **Continue to improve access to dental care**. Research shows that improving access to preventive dental care reduces the need for non-preventive procedures. Based on this research, the downward utilization trend in FY 2012 for CPT code 00170 might be caused by the result of additional enrollees receiving access to preventive dental care rather than an inability to access services. The Department recommends continuing to make investments that result in overall improvement in access to preventive dental care.
- **Require hospitals to report stipends paid to hospital-based physicians**. The Department is working with the HSCRC to determine the amount of stipends paid by hospitals to anesthesiologists primarily for the larger billers of dental OR cases. The results of this survey are not complete and, as a result, it is not possible to draw any definitive conclusions at this time. The Department recommends that the HSCRC reiterate its request and also expand the data requested from the hospitals to include all physicians and not just anesthesiologists. Further, the Department recommends that the HSCRC request this data annually as part of a standard reporting requirement. Although the HSCRC does not regulate physician services, it does consider the overall financial health of the hospitals—including unregulated services—when determining rate

increases. All payers should be aware of these subsidies because such subsidies affect the analysis of the proper reimbursement rates for providers.

Appendix

Appendix Table 1: **Aetna Medical Plan Coverage Guidelines for Deep Sedation or Anesthesia**
1. Radical excision of lesions in excess of 1.25 cm (0.5 inches).
2. Radical resection or ostectomy with or without bone graft.
3. Patients exhibiting physical, intellectual, or medically compromising conditions for which dental treatment under local anesthesia, with or without additional adjunctive techniques and modalities, cannot be expected to provide a successful result and which, under anesthesia, can be expected to produce a superior result. The conditions include, but are not limited to, cerebral palsy, epilepsy, cardiac problems, and hyperactivity (verified by appropriate medical documentation).
4. Chronic disability that is attributable to a mental (e.g., mental retardation and Down's Syndrome) or physical impairment or a combination of both is likely to continue indefinitely and results in substantial functional limitations in one or more of the following: self-care, respective and expressive language, learning, mobility, capacity for independent living, and economic self-sufficiency (verified by appropriate medical documentation).
5. Patients who have sustained extensive orofacial and/or dental trauma, for which treatment under local anesthesia would be ineffective or compromised.
6. Local anesthesia is ineffective because of any of the following: acute infection, anatomic variation (e.g., due to previous surgery, trauma, or congenital anomaly), or allergy to local anesthesia.
7. A child up to 6 years of age, with a dental condition (such as baby bottle syndrome) requiring repairs of significant complexity (e.g., multiple amalgam and/or resin-based composite restorations, pulpal therapy, extractions, or any combinations of these noted or other dental procedures).
8. States that mandate coverage for anesthesia and/or facility charges associated with dental services. These include: California (age 6 or younger), Florida (age 7 or younger), Georgia (age 7 or younger), Kentucky (age 9 or younger), Maryland (age 7 or younger), Nebraska (age 8 or younger), North Carolina (age 8 or younger), North Dakota (age 8 or younger), Oklahoma (age 8 or younger), Tennessee (age 8 or younger), and Washington (age 8 or younger).
9. Removal of two or more impacted teeth on the same day.

Appendix Table 2: **Cigna Medical Plan Coverage Guidelines for Deep Sedation or Anesthesia**
1. Patient who is age 3 or younger.
2. Removal of two or more impacted third molars.
3. Removal or surgical exposure of one impacted maxillary canine.
4. Surgical removal of two or more teeth involving more than one quadrant.
5. Routine removal of six or more teeth involving more than one quadrant.
6. Full-arch alveoplasty.
7. Periodontal flap surgery involving more than one quadrant.
8. Radical excision of tooth related lesion greater than 1.25 cm or 0.5 inches.
9. Tooth-related radical resection or ostectomy with or without grafting.
10. Placement or removal of four or more dental implants.
11. Tooth transplantation or removal from maxillary sinus.
12. Extraction with bulbous root and/or unusual difficulty or complications noted.
13. Confirmed allergy to local anesthesia.
14. Presence of acute infection at the site of injection for local anesthesia.
15. Mental retardation (including Down's syndrome).
16. Alzheimer's disease.
17. Spastic muscle disorders (e.g., epilepsy, cerebral palsy, and Parkinson's disease, but not attention deficit disorder).
18. Documentation of attending a medical physician for renal failure, uncontrolled diabetes, or cardiac problems including hypertension.