

MEETING OF THE VIRGINIA BOARD OF DENTISTRY
REGULATORY LEGISLATIVE COMMITTEE

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[BOD Regulatory-Legislative Meeting](#)

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MEETING OF THE VIRGINIA BOARD OF DENTISTRY
REGULATORY LEGISLATIVE COMMITTEE

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9:30 AM	Call to Order – Dr. Sandra J. Catchings, Chair	
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ADJOURN

September 9, 2020

Virginia Board of Dentistry
Perimeter Center
9960 Mayland Drive, Suite 300
Richmond, VA 23233-1463

Ms. Reen and the Members of the Virginia Board of Dentistry:

On behalf of the Virginia Academy of Pediatric Dentistry (VAPD) and the American Academy of Pediatric Dentistry (AAPD), we are writing to voice our concerns about a motion the Virginia Board of Dentistry (VBD) adopted on March 13, 2020:

“...to consolidate the provisions for pediatric sedation into one section including setting an age range for requiring sedation and treatment of young children to be performed in a hospital setting.”

The VAPD and AAPD are deeply concerned by these well-intended actions because the unintended outcomes will lead to an increase in pediatric dental disease, abscesses, emergency room visits, hospital admissions, missed school days, and potentially, deaths. Limiting sedation and treatment of young children to hospital settings will exacerbate the ongoing issue of access to care that many pediatric patients in the state are already experiencing. Private practices and the dental safety net system throughout Virginia would be unable to address such a dramatic increase in disease. Many children and patients with special health care needs would have another barrier to treatment and a viable treatment option eliminated.

We support the use of evidence-based methods in determining regulatory measures that affect the oral health of children in our Commonwealth. The AAPD and the institutions that train pediatric dentist specialists have gathered a substantial body of scientific evidence that inform development of the *AAPD's Oral Health Policies, Best Practices, and Clinical Practice Guidelines*.¹ These materials include several relevant topics including, but not limited to, general anesthesia, sedation, hospital dentistry, delivery of care, and workforce issues — each with supporting scientific evidence.

As pediatric dentists, the safety of our young patients is paramount; concurrently we realize that in order to effectively treat some patients, sedation and general anesthesia

¹ <https://www.aapd.org/research/oral-health-policies--recommendations/>

are viable and effective options. Treating young children in an operating room is an option reserved for children with extensive dental needs, for families who travel long distances for treatment, and for children who cannot be safely treated in the traditional dental setting via moderate sedation or deep sedation. However, obtaining hospital operating room time and/or hospital privileges has historically been difficult and even more challenging in recent months. Therefore, some providers have opted to have general anesthesia administered in their office provided by a trained specialist — an anesthesiologist (MD) or a dentist anesthesiologist (DDS/DMD). These professionals are trained to provide and monitor deep sedation and general anesthesia. This differs from typical sedation cases in a pediatric dental practice where the pediatric dentist provides moderate sedation. In addition to the completion of a rigorous 24-26 month residency with comprehensive sedation and general anesthesia components, pediatric dentists who provide moderate sedation must be Pediatric Advanced Life Support (PALS) certified. In Virginia, pediatric dentists also must monitor pulse oximetry, capnography and blood pressure throughout all cases, and be prepared to rescue a child by supporting ventilation, activating EMS; and having appropriate reversal medications and rescue equipment available for immediate use.

The VAPD and AAPD agree that any fatal outcome while using general anesthesia or sedation during dental treatment is a tragic event that we should do everything in our power to eliminate. In order to ensure that children are treated in a safe manner, we urge the Regulatory Advisory Panel to please consider the AAPD's *Oral Health Policies, Best Practices, and Clinical Practice Guidelines* when developing sedation regulations; have sedation inspections and monitoring completed by board-certified dental specialists (pediatric dentists and dental anesthesiologists); and inspections that include mock scenarios ensuring appropriate equipment and procedures are implemented during an emergent situation. Steps such as these would promote optimal safety for children while not hindering access to optimal oral health care for all children.

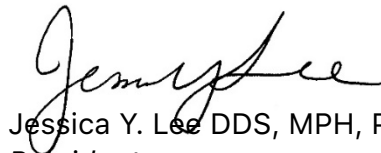
If you have any questions or concerns about this letter please feel free to contact Shannon Jacobs, Executive Director at the Virginia Academy of Pediatric Dentistry (804-523-2190 or shannon@vapd.org) and C. Scott Litch, Chief Operating Officer and General Counsel, at the American Academy of Pediatric Dentistry (312-337-2169 or slitch@aapd.org).

Sincerely,



Barrett W. R. Peters, DDS, MSD
President

Virginia Academy of Pediatric Dentistry



Jessica Y. Lee DDS, MPH, PhD
President

American Academy of Pediatric Dentistry



September 14, 2020

Ms. Sandra Reen
Executive Director
Virginia Board of Dentistry
9960 Mayland Dr., Suite 300
Henrico, VA 23233

Dear Ms. Reen and Members of the Board,

The Virginia Dental Association is greatly concerned about the motion that the Board of Dentistry approved at the March 13, 2020 business meeting to have the Regulatory-Legislative committee “develop separate regulations for pediatric sedation to include setting an age limit which requires sedation and treatment to be performed in a hospital setting.”

Our foremost concern is that many pediatric dental patients have special health care needs and/or are from lower income families who are on Medicaid or have no medical coverage and are, therefore, denied treatment at hospitals. These children would be adversely impacted if this restriction were to be imposed. If the Board were to enforce an age restriction for the delivery of anesthesia in a dental office, it would inhibit access to care for a particularly vulnerable population of children.

The VDA, along with the American Dental Association (ADA) is committed to the safe and effective use of sedation and general anesthesia by appropriately educated and trained dentists. The ADA’s *Guidelines for the Use of Sedation and General Anesthesia by Dentists* provides thorough guidance and, for children, they support the *American Academy of Pediatrics/American Academy of Pediatric Dentistry Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures*. Due to the commitment by dentists to provide quality care through safe practices, the use of sedation and anesthesia in the dental office continues to have a remarkable record of safety.

We appreciate the opportunity to comment on this matter. Thank you in advance for your consideration and please do not hesitate to reach out to us with any questions or for further insight on this important issue.

Sincerely,

Ryan Dunn
Executive Director
Virginia Dental Association



September 15, 2020

Ms. Sandra Reen
Executive Director
Virginia Board of Dentistry
9960 Mayland Dr., Suite 300
Henrico, VA 23233

Dear Ms. Reen and Members of the Board,

The Virginia Society of Oral and Maxillofacial Surgeons (VSOMS) has concerns regarding the motion that the Board of Dentistry approved during the March 13, 2020 business meeting to have the Regulatory-Legislative committee “develop separate regulations for pediatric sedation to include setting an age limit which requires sedation and treatment to be performed in a hospital setting.”

Oral and Maxillofacial Surgeons (OMS) have a long history of safely administering sedation/general anesthesia in the care of their patients, including children. By completing our residency training program which includes extensive anesthesia experience both with operating room anesthesia as well as outpatient office-based, we are competent to administer safe and efficient anesthesia in the outpatient setting. The training also includes specific pediatric anesthesia experience as per the Council on Dental Accreditation (CODA). Additionally, members of the American Association of Oral and Maxillofacial Surgeons (AAOMS) are required to complete an office anesthesia evaluation every five years through VSOMS, which encompasses training and evaluation of office facilities (including equipment, personnel, monitoring, complications and emergencies). The *AAOMS Parameters of Care* includes a special section entitled “Special Considerations for Pediatric Patient Assessment.” These parameters include specific guidelines on the assessment of pediatric patients and the importance of the involvement of parents/guardians.

Many children who are treated in OMS offices with sedation and general anesthesia are from low income households and do not have dental or medical benefits to be able to afford hospital-based treatments. Of those who may have good insurance, many do not even qualify for hospital-based care due to being ASA (American Society of Anesthesiology) 1 and 2 classes of medical complexity. Pediatric patients are the most vulnerable and it is our responsibility to provide necessary and timely care for them. Need for operating room or hospital-based care is generally determined based on the medical complexity, anesthesia/airway risks and length of procedure rather than a specific age. If the Board of Dentistry were to inflict an age-specific restriction for anesthesia delivery in our offices, these children would suffer as it would inhibit them from accessing surgical treatments, which would be detrimental to their oral and overall health. It should also be noted that the volume of the cases and lack of availability of operating room times in the hospitals can also affect the access and timing to care.

Thank you very much for the opportunity to provide comments on this subject. We appreciate your consideration while framing the guidelines. Please contact me directly at srenapurkar@vcu.edu should you wish to further discuss this issue.

Sincerely,

Shravan Renapurkar, DMD FACS
President
Virginia Society of Oral and Maxillofacial Surgeons



Dear Board of Dentistry Directors:

My name is John Will. I am a Dentist Anesthesiologist practicing primarily in Charlottesville, VA and I am writing you because I am concerned about the proposed development of regulatory procedures that intend to set an age restriction on pediatric patients in the dental setting.

Adverse and serious complications due to deep sedation or general anesthesia are a tragic, but rare, outcome in the field of dental anesthesiology. Unfortunately, when these awful outcomes do occur, the entire field of dental anesthesiology routinely gets called into question.

I have been practicing in the field of dental anesthesiology in the Commonwealth of Virginia since 2010. During my practice I have treated over 6,600 patients with deep sedation or general anesthesia all without any serious adverse outcomes. The vast majority of these patients are under the age of 6 years old. Most of these patients are from socially and economically disadvantaged backgrounds. Many of my patients have medical conditions including, but not limited to, intellectual and developmental delays, behavioral issues, Autism, seizure disorders. These medical conditions preclude seeking dental treatment in a conventional setting without sedation or general anesthesia and therefore make it very hard for patients to obtain the dental treatment that they need.

My primary practice is located in Charlottesville, VA, however I do travel occasionally to remote locations throughout the Commonwealth to help improve access to care. I have patients that travel to my dental practice from locations as remote as Bristol, Danville, Fredericksburg, and Harrisonburg because they are unable to meet their dental needs in their local communities.

Dental anesthesiology is a field that exists primarily to improve access to care for patients that are unable to obtain dental treatment through conventional means. The ADA finally recognized the field as a dental specialty in 2019. Our training and our skills make us competent and capable of providing high quality anesthesia with very few serious adverse complications. Dentist anesthesiologists are able to treat patients with significantly shorter waiting periods and in a cheaper, more economic fashion than hospitals. If the board wants to seriously address potential serious outcomes due to deep sedation and general anesthesia it needs to consult with one of the many dentist anesthesiologists in the Commonwealth of Virginia. We perform the vast majority of our procedures safely and with the utmost caution and competence. I urge you to consult with us when considering future regulations that concern our patient population and our practice. I will gladly make myself available to consult with the board as I'm sure all of my other colleagues would do as well.

If the board elects to impose age restrictions for anesthesia in the dental office it will severely impact the ability of people of disadvantaged socioeconomic status to obtain dental treatment for their children and will adversely impact the Commonwealth's financial responsibility in helping to provide care for these children.

My contact info is 931-212-3197 or drwill@cvillechildren.dental. Please don't hesitate to reach out.

John T. Will, DDS

Concerned Virginia Dentist Anesthesiologists
C/O Jonathan L Wong, DMD
6161 Kempsville Circle # 345
Norfolk, VA 23502
jonwongDMD@gmail.com

Virginia Board of Dentistry
Perimeter Center
9960 Mayland Drive, Suite 300
Henrico, VA 23233-1463

Delivered via E-mail transmission to Sandra Reen, Executive Director, at denbd@dhp.virginia.gov

Dear Ms. Reen, Dr. Catchings, and the Virginia Dental Board:

We are writing this letter in response to the August 2020 Virginia Dental Board Briefs, which announced Dr. Catchings's request that the Board staff prepare language to restrict pediatric sedation and treatment to the hospital for a specified age range. A review of the March minutes shows that this motion was adopted. Although specifics of this proposed regulation have not yet been released, it appears that the intent is to introduce a minimum age for treatment of children in the dental office. While it is understandable that the Board would like to end tragedies such as the recent death of a child in Abingdon, VA and the death of a child in Chantilly, VA, there are concerns with the manner in which this may be undertaken. Before voicing these concerns, we believe it prudent to also commend the Board for taking action to protect the children of our Commonwealth. We too wish to see an environment in which no child is harmed by sedation and anesthesia in the dental office.

One way to achieve this ideal, of course, would be to eliminate sedation and anesthesia for children in the dental office and relegate such treatments to the hospital. Doing so has several major concerns in our opinion. These concerns are that it restricts access to care, it places a large economic burden on certain patients and their families as well as the tax payer, it removes the ability of the licensed expert to make appropriate decisions for their patient, and it does not promote patient safety—it simply eliminates a service to a certain patient population. We will elucidate the rationale behind each of these concerns below:

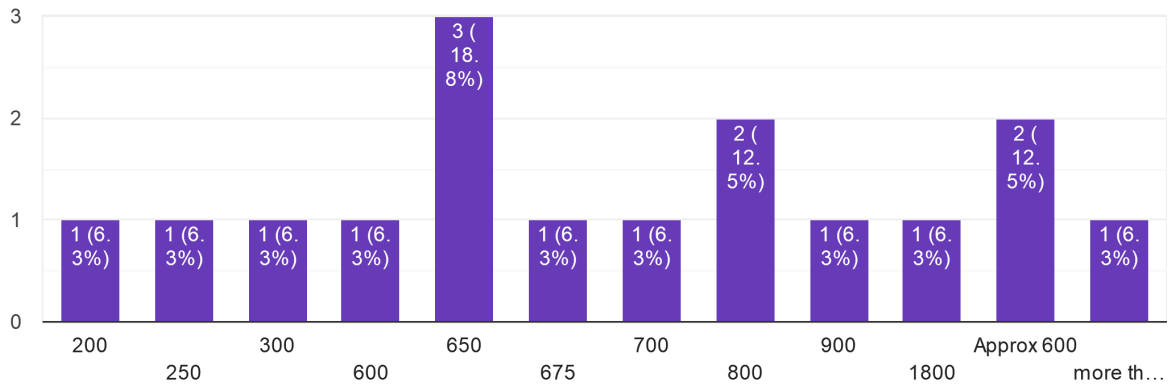
[Access to Care](#)

Relegating pediatric sedation and anesthesia to the inpatient hospital will severely hamper the ability for dentists in the Commonwealth to see pediatric patients. Today's environment is far different from the past. We are seeing a rising rate of dental caries among children. This may be due to the general public's concern over fluoridation, an increase in access to refined sugars in the diet, increasing income inequality and erosion of the socioeconomic status of the middle class, and cultural changes in regards to ad lib feeding for infants and toddlers as well as changes in child rearing. All these factors are increasing the need for full mouth dental rehabilitations and the need for pharmacologic means of managing behavior.

A preliminary survey (the survey is ongoing with 16 respondents currently) of dentist anesthesiologists who are currently licensed or were recently licensed in Virginia reveals that the average dentist anesthesiologist is seeing about 700 children each year. A vast majority of these children are under the age of 7, receiving full mouth dental rehabilitations due to extensive dental caries and generalized severe early childhood caries. By comparison, many dentists, especially in rural Virginia, are having difficulty maintaining scheduled operating room time at their local hospitals. To use an example, Coastal Pediatric Dental & Anesthesia has two pediatric dentists with privileges at both the hospital and two ambulatory surgical centers affiliated with that hospital. Together they can see, at most, 70 patients (if every case is treated as planned, which is rarely true) a year with their assigned block times.

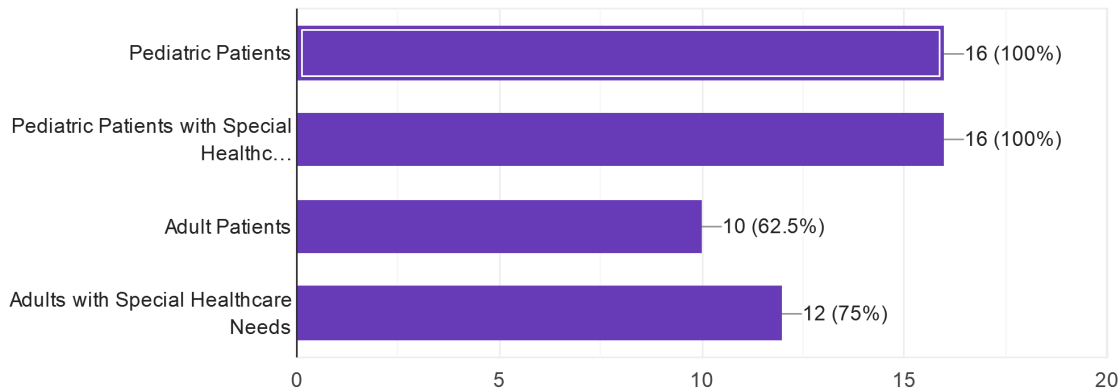
Approximately how many pediatric patients do you see each year for sedation or anesthesia services?

16 responses



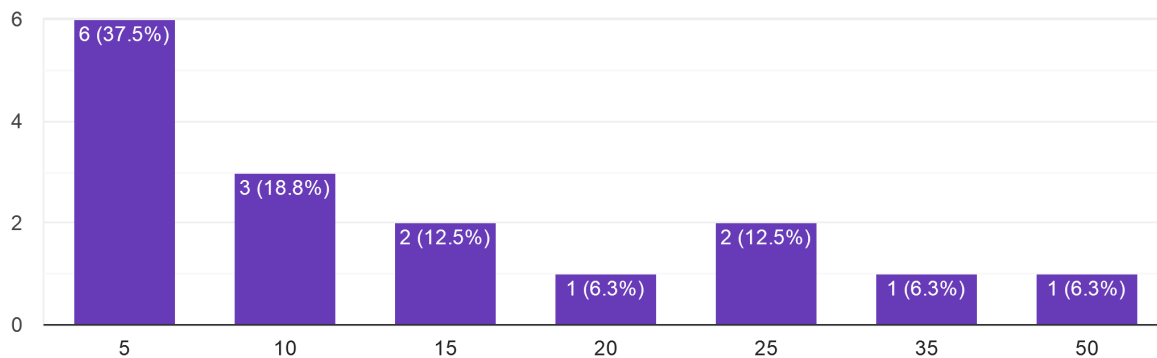
For which of the following patient demographics do you provide anesthesia or sedation?

16 responses



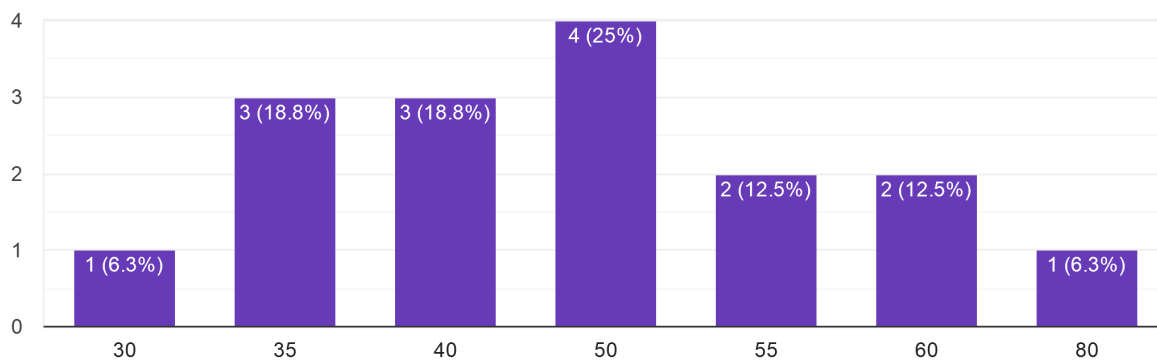
Approximately what percentage of your pediatric patient population (for sedation and anesthesia) is under the age of 3?

16 responses



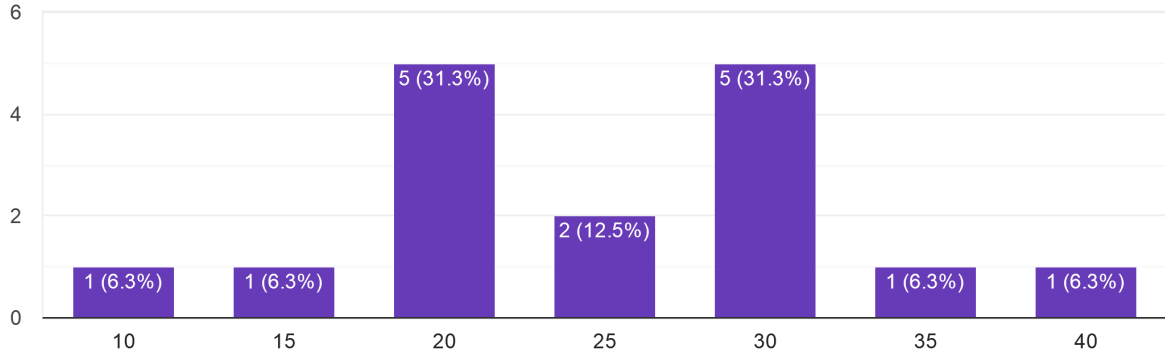
Approximately what percentage of your pediatric patient population (for sedation and anesthesia) is age 3 - 5?

16 responses



Approximately what percentage of your pediatric patient population (for sedation and anesthesia) is age 5-7?

16 responses



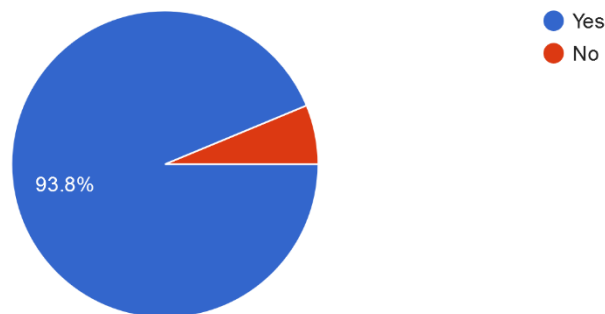
Limiting pediatric sedation and anesthesia to the inpatient hospital will cause severe constraints on the number of patients that can be seen. Even limiting such procedures to hospitals and ambulatory surgical centers would mean significantly increased waiting times for treatment and many children simply not getting care.

Economic Burden

It is well established that the children that grow up in a lower socioeconomic family are at high risk for dental caries. Because of this fact, many children needing sedation and anesthesia services are often on the Smiles for Children Program (Medicaid). In addition, with the impact of the Coronavirus and the expansion of the Medicaid program, more and more children are falling into the aforementioned categories. The same survey of dental anesthesia providers revealed that all respondents currently practicing in Virginia participate as in network providers for the Smiles for Children Program.

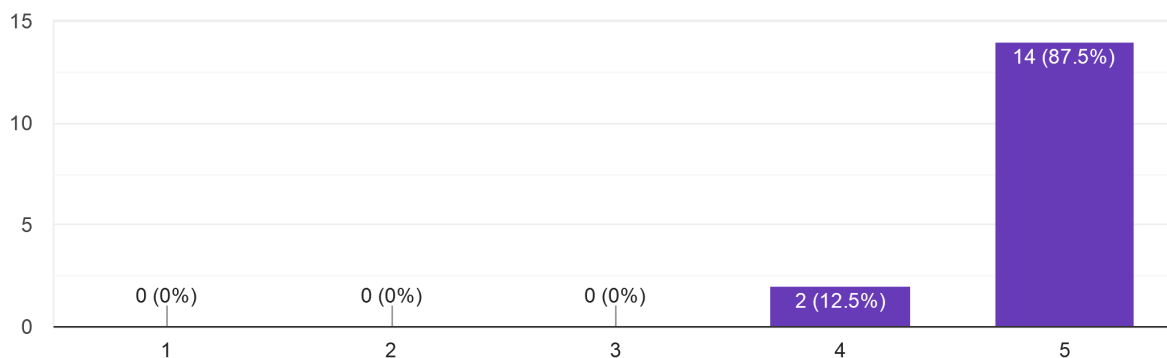
Do you participate in the Virginia Smiles for Children Program (Medicaid / Dentaquest)?

16 responses



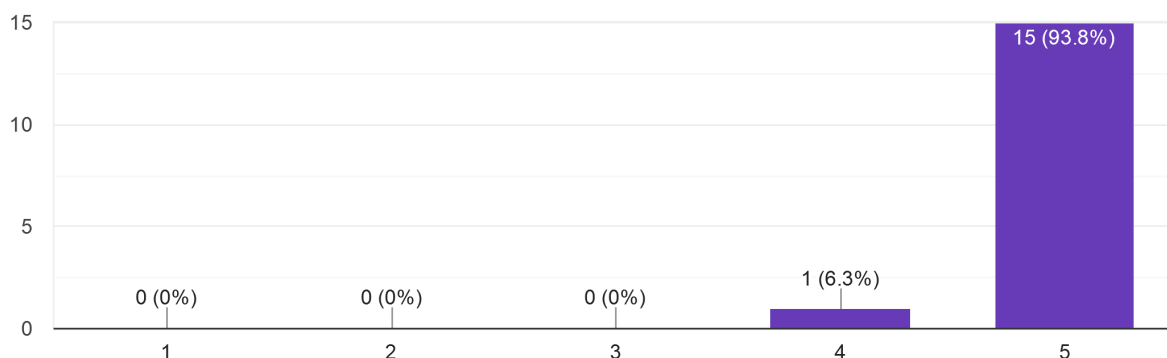
A majority of my pediatric patients are seeking full mouth dental rehabilitation for severe dental caries.

16 responses



Many of the children I treat that have severe early childhood caries / rampant caries are of low socioeconomic status.

16 responses



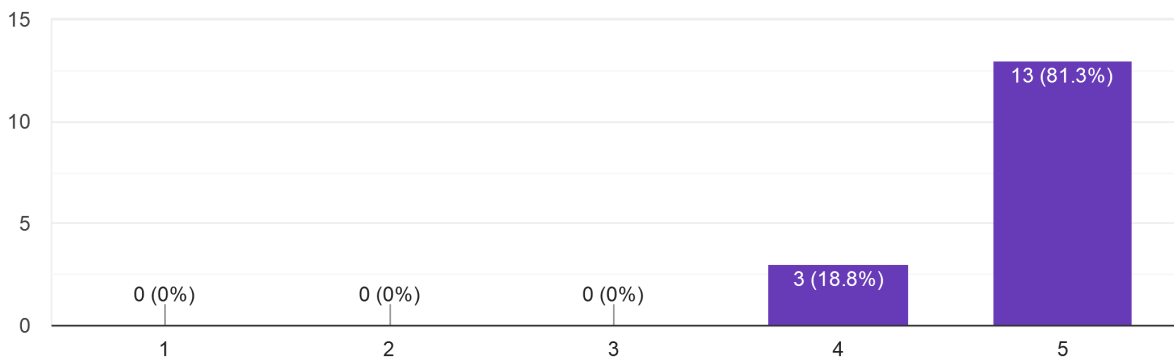
We also know that there is a tremendous cost savings to providing anesthesia outside of the hospital. Wilson et al. found that hospital facility fees were an average of \$20 per minute in 2004 (Wilson, 2004). Additionally, Rashewsky et al. found that office based general anesthesia in the ASA I preschool age child saved, on average, \$5000 per case (Rashewky, Parameswaran, Sloan, Ferguson, & Epstein, 2012). While this may not directly impact the Medicaid patient and their family, it certainly has an impact on the tax payer and Virginia Department of Medical Assistance Services (DMAS) resources.

A related issue that is not often discussed is that many medical insurances refuse to cover pediatric dental services in the hospital. While Virginia Law (38.2-3418.12) stipulates that such coverage must be provided for children under the age of 5, this often comes with the automatic denial for

children 5 and over. There is often also the argument that these procedures can medically be provided under local anesthesia only, and are therefore not medically necessary. (The counterpoint to this argument is that many medical procedures may also be performed in this fashion, such as a knee or hip replacement, but that does not mean that such a procedure, performed under anesthesia, is not medically necessary.) This often causes parents to seek care in the dental office because they can save tens of thousands of dollars on hospital facility fees and anesthesia professional services. This is without consideration to the cost of the dental care itself.

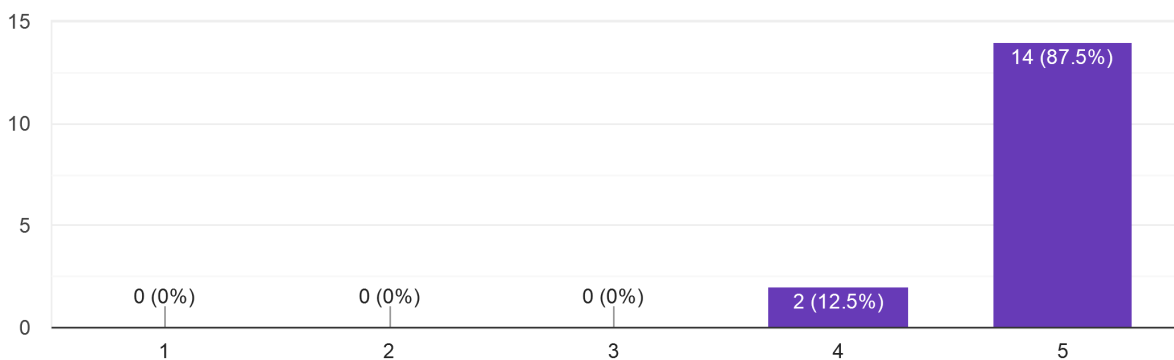
Fee for service and private insurance patients often proceed with care in the dental office because they are either denied medical coverage or it is cost prohibitive to be treated at the hospital.

16 responses



Many of the children I treat would not be able to successfully have their dental disease treated without the expertise of a anesthesia provider.

16 responses



Anesthesia Providers / General Anesthesia & Sedation Licensure

The motto of the American Society of Anesthesiologists is “Vigilance.” As anesthesia providers our responsibility is to risk stratify the patient and help the patient (or their family) determine the acceptable risk AND advocate for the patient when they are under anesthesia. Dentists in Virginia receive a special permit to be able to provide these services. This permit grants the license to make such assessments and provide the treatment based on those assessments. Simply restricting an age group to have such treatment in the hospital restricts the expert from doing so.

Allow me to use a hypothetical to illustrate this issue. Many elderly patients have comorbid conditions that may make them at risk for complications of anesthesia and sedation, including local anesthesia. Such conditions might include a history of coronary artery disease, pulmonary disease, cerebrovascular disease. Because of this, should we make a regulation that all individuals over an arbitrary age, say 70, should not have any form of sedation or anesthesia (perhaps including local anesthesia) unless they are in the hospital where equipment such as percutaneous coronary intervention or diagnostic lab tests (such as cardiac enzymes) would be immediately available. While a majority of dentists would not support such a sweeping regulation, some individuals that treat only pediatric patients might agree that this advances safety in this population. This is likely because these same individuals may not have the comfort or level of expertise in treating this population of patients.

In respect to this argument, please see the American Academy of Pediatric Dentistry’s Policy for Selecting Anesthesia Providers for the Delivery of Office-Based Deep Sedation / General Anesthesia. (The American Academy of Pediatric Dentistry, 2018) Here is a figure from the document showing the training of specific anesthesia providers.

Table. ANESTHESIA EDUCATION AND TRAINING COMPARISON

Anesthesia provider	Permitted to function independent of supervision by anesthesiologist	Minimum duration of program required for certification	Min. # of DS/GA cases	Min. # of pediatric cases	Definition of pediatric patient	Min. # of DS/GA cases involving patients with SHCN	National examination/certification organization
Certified anesthesiologist assistant ⁵	No	24 months	400 GA cases	50	0-18	N/A	National Commission for Certification of Anesthesiologist Assistants
Certified registered nurse anesthetist ⁶	In some states	24 months	25/400	< 2 yrs: 10 2-12 yrs: 30	≤12 yrs	N/A	National Board of Certification and Recertification for Nurse Anesthetists
Dentist anesthesiologist ⁷	N/A	36 months	800	125	≤7 yrs	75	American Dental Board Anesthesiology and/or National Dental Board of Anesthesiology
Medical anesthesiologist ⁸	N/A	48 months	N/A	100	≤12 yrs	N/A	American Board of Anesthesiology
Pediatric medical anesthesiologist ⁹	N/A	12 month-fellowship following medical anesthesiology residency	N/A	N/A	N/A	N/A	American Board of Anesthesiology (Pediatric Anesthesiology Examination ¹⁰)
Oral and maxillofacial surgeon ¹¹	N/A	Five months anesthesia service supplemented by OMFS service* 48 months	300	50	≤18 yrs	N/A	National Dental Board of Anesthesiology for anesthesia certification American Board of Oral and Maxillofacial Surgery for surgery certification

DS/GA= Deep sedation/General anesthesia. SHCN= Special health care needs. OMFS= Oral and maxillofacial surgery.

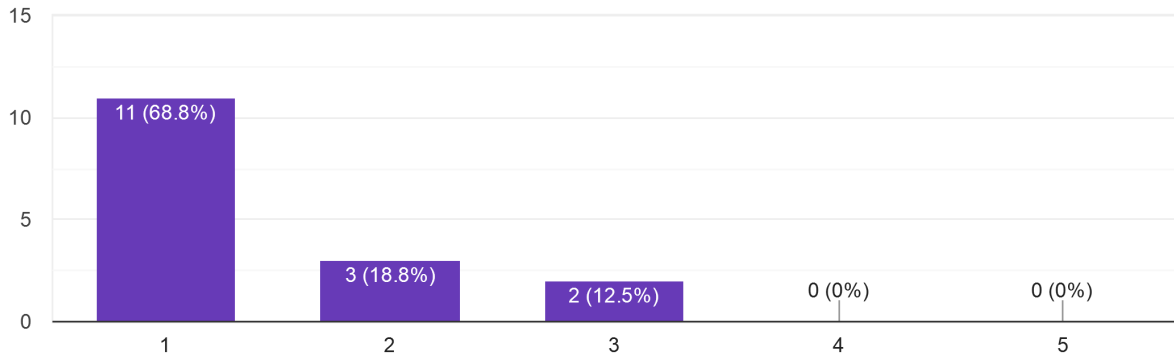
* During the oral and maxillofacial surgery training program, a resident's assignment to the department of anesthesiology "must be for a minimum of five months, should be consecutive and one of these months should be dedicated to pediatric anesthesia".¹¹ This anesthesia experience is supplemented throughout the training program to ensure competence in deep sedation/general anesthesia on adult and pediatric patients.

Promoting Patient Safety

Dr. Robert Campbell established a standard of care and a record of patient safety here in Virginia when he published "Pediatric Dental Surgery Under General Anesthesia: Uncooperative Children" in *Anesthesia Progress* (Campbell, Shetty, Shetty, Pope, & Campbell, 2018). In Campbell et al.'s review they treated 351 consecutive pediatric patients, all without any major anesthesia complications. The reported overall complication rate was 1.1%. While we agree that any mortality in the dental office is a tragedy, broad regulations regarding restrictions by age were widely regarded as ineffective by the Dentist Anesthesiologists surveyed.

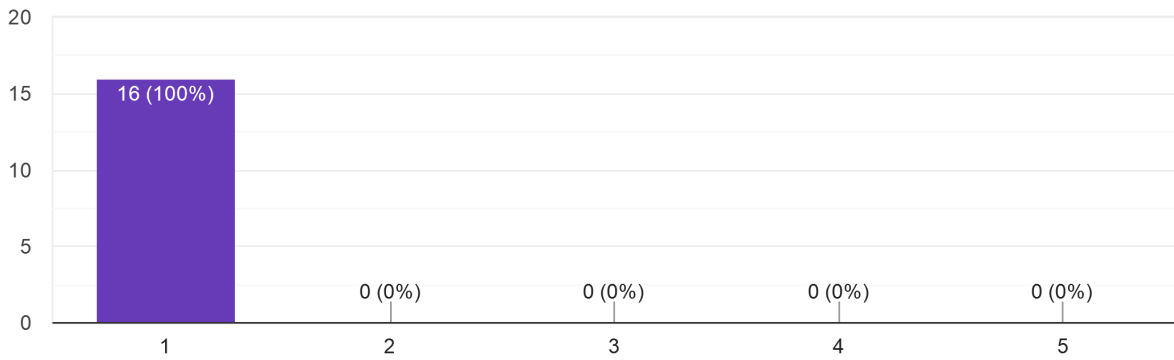
Patients under the age of 3 should not receive sedation and / or anesthesia outside of the hospital.

16 responses



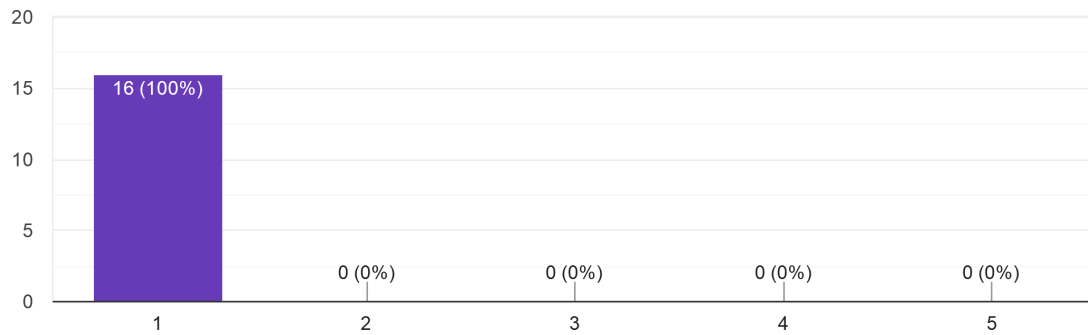
Patients under the age of 5 should not receive sedation and / or anesthesia outside of the hospital.

16 responses



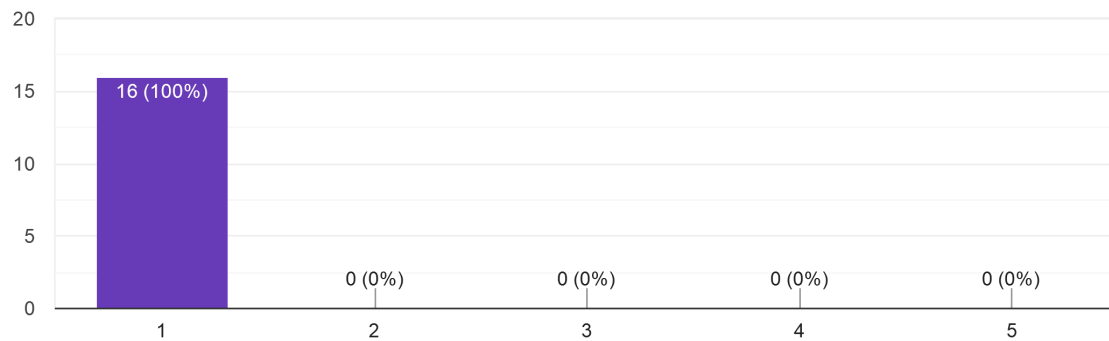
Patients under the age of 7 should not receive sedation and / or anesthesia outside of the hospital.

16 responses



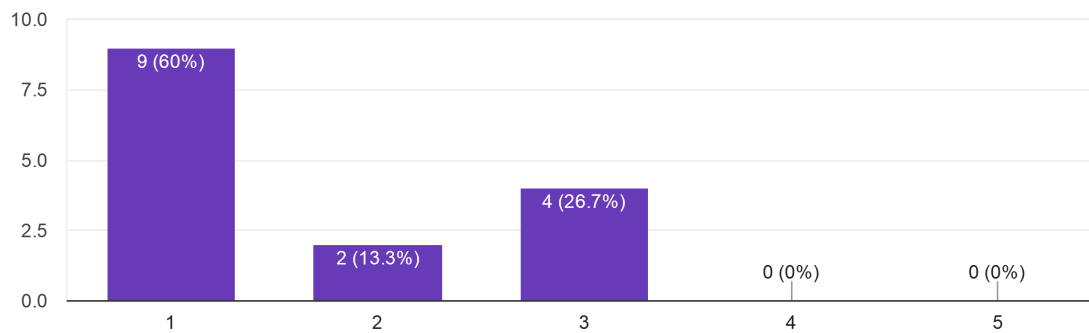
Pediatric patients for general anesthesia should be seen only in the hospital.

16 responses



I believe that a lower age limit (whatever that limit might be) will help protect patients.

15 responses



As demonstrated in the preliminary data from the survey, dentist anesthesiologists in Virginia feel that there are much more effective ways of enhancing patient safety in regard to anesthesia and sedation. Again, it cannot be downplayed that tragedies have occurred here in the Commonwealth, but the only way to improve safety for the public is to rely on data and advice from a committee of anesthesia providers who are experts in the given field—in this case, those practicing pediatric anesthesia and sedation for dental care.

Respectfully on Behalf of the Fifteen other Respondents,



Jonathan L Wong, DMD

Diplomate, American Dental Board of Anesthesiology

Diplomate, National Dental Board of Anesthesiology

Works Cited

- Campbell, R., Shetty, N. S., Shetty, K. S., Pope, H. L., & Campbell, J. R. (2018). Pediatric Dental Surgery Under General Anesthesia: Uncooperative Children. *Anesthesia Progress*, 225-230.
- Rashewky, S., Parameswaran, A., Sloan, C., Ferguson, F., & Epstein, R. (2012). Time and Cost Analysis: Pediatric Dental Rehabilitation with General Anesthesia in the Office and the Hospital Settings. *Anesthesia Progress*, 147-153.
- The American Academy of Pediatric Dentistry. (2018). Policy for Selecting Anesthesia Providers for the Delivery of Office-Based Deep Sedation/GeneralAnesthesia. In *The Reference Manual of Pediatric Dentistry* (pp. 151 - 153). Chicago.
- Wilson, S. (2004). Pharmacological management of the pediatric dental patient. *Pediatric Dentistry*, 131-136.

- TIME AND PLACE:** The meeting of the Regulatory – Legislative Committee was called to order at 9:08 a.m., on February 28, 2020, at the Department of Health Professions, 9960 Mayland Drive, Second Floor Conferencing Center, Board Room 4, Henrico, Virginia 23233.
- PRESIDING:** Tammy C. Ridout, RDH, Chair
- MEMBERS PRESENT:** Sandra J. Catchings, D.D.S., Vice-President
James D. Watkins, D.D.S.
- OTHER MEMBERS PRESENT:** Augustus A. Petticolas, Jr., D.D.S., President
Perry E. Jones, D.D.S.
- STAFF PRESENT:** Sandra K. Reen, Executive Director
Jamie C. Sacksteder, Deputy Executive Director
Elaine Yeatts, DHP Senior Policy Analyst
Kathryn Brooks, Executive Assistant
- COUNSEL PRESENT:** James E. Rutkowski, Assistant Attorney General
- ESTABLISHMENT OF A QUORUM:** With three members of the Committee present, a quorum was established.
- Ms. Reen read the emergency evacuation procedures.
- PUBLIC COMMENT:** Ms. Ridout explained the parameters for public comment and opened the public comment period.
- Tracey Martin (VDHA)** Shared support for A1c testing on behalf of the Virginia Dental Hygienist’s Association, but recommended omitting the second sentence regarding the standard of care as it does not define the type of screening.
- Lauren Bates-Rowe (Vice President of Health Policy for MSV)** shared on behalf of the Medical Society of Virginia that they would like to see any screening for A1c also include a process to refer patients to physicians or other clinicians for additional care.

**APPROVAL OF
MINUTES**

Ms. Ridout asked if there were corrections to the posted draft minutes. Hearing none, Dr. Catchings moved to accept the minutes for November 15, 2019 as presented. The motion was seconded and passed.

**LEGISLATION AND
REGULATORY
ACTIONS**

Ms. Yeatts reported that HB165/SB 122 regarding Teledentistry passed legislation with the requirement of a digital scan tech and advised that the Board will need to work on drafting regulations regarding this matter. HB115 states that if a practitioner is enrolled in a career fatigue and wellness program would not have to report; HB 299 regarding Dental Fluoride- the language changed from a Medical assistant to an authorizing agent of a doctor or dentist.

- 347 Medical Cannabis; 5 pharmaceutical processors, will allow for telemedicine, need to consider if in the future if it makes sense to be overseen by the Board of pharmacy.
- 1328 Offender medical and mental health information records would not be necessary if voluntarily admitted and stay is within 30 days- however involuntary admittance would still be required within 5 days.

She also noted that the majority of actions are awaiting approval by the Secretary of Health and Human Resources or the Governor.

Petition for Rulemaking: Ms. Yeatts explained the petitioner’s request to require Dental Assistant I to obtain infection control and radiology certification through DANB or NELDA in order to practice in Virginia. Ms. Yeatts advised the Committee to decide if this should be recommended to the full Board, and to seek guidance as to whether the Board has the authority over this issue, as it could be considered a health and safety concern, thereby falling under the Board’s general authority. After a lengthy discussion, the Committee agreed that the overarching goal of the Board is to protect the public, not the practitioner, and that more research and cases are needed to present these issues. Dr. Catchings moved to accept the Committee’s recommendation; the motion was seconded and passed.

SEDATION:

Dr. Catchings provided an overview of the recommendations in the Regulatory Advisory Panel regarding sedation regulations. She highlighted requiring the intended level of sedation being documented, concerns regarding dentists utilizing a laryngoscope, the term “announced” and “unannounced” being more definitive, and the

importance of the inspection process coming across as proactive and not only reactive to complaints.

**OFFICE-BASED
ANESTHESIA FOR
PEDIATRIC
PATIENTS:**

Dr. Catchings expressed her concerns regarding pediatric sedation in dental offices, specifically of children younger than 8 years old, and asked the Committee to consider introducing regulations stipulating that certain aged children will need a hospital setting for dental procedures requiring sedation.

**A1C TESTING/
DEFINITION
OF DENTISTRY**

Dr. Catchings briefed the Committee on the proposed change to the definition of “dentistry” as recommended from the sub-committee, to which most felt it was a good compliment to include A1c testing. She then motioned to approve the proposed definition and recommend to the Board, to which the motion was quickly seconded. Ms. Yeatts advised the Committee to consider the public comment requesting that the second line of the proposed definition be omitted. After detailed discussion, Dr. Catchings amended her motion to not include “standard of care” in the proposed definition. The motion was seconded and passed.

ADJOURNMENT

With all business concluded, the meeting was adjourned at 10:25 a.m.

Tammy C. Ridout, RDH, Chair

Sandra K. Reen, Executive Director

Date

Date

Board Motion on Pediatric Sedation

The Board voted to have the Regulatory-Legislative Committee develop separate regulations for pediatric sedation to include setting an age limit which requires sedation and treatment to be performed in a hospital setting.

Current Regulations for Sedation

F. A licensee is required to verify compliance with the continuing education requirements in his annual license renewal. Following the renewal period, the board may conduct an audit of licensees to verify compliance. Licensees selected for audit must provide original documents certifying that they have fulfilled their continuing education requirements by the deadline date as specified by the board.

G. All licensees are required to maintain original documents verifying the date and subject of the program or activity, the sponsor, and the amount of time earned. Documentation shall be maintained for a period of four years following renewal.

H. A licensee who has allowed his license to lapse, or who has had his license suspended or revoked, shall submit evidence of completion of continuing education equal to the requirements for the number of years in which his license has not been active, not to exceed a total of 45 hours. Of the required hours, at least 15 must be earned in the most recent 12 months and the remainder within the 36 months preceding an application for reinstatement.

I. Continuing education hours required by board order shall not be used to satisfy the continuing education requirement for license renewal or reinstatement.

J. Failure to comply with continuing education requirements may subject the licensee to disciplinary action by the board.

Part VII. Controlled Substances, Sedation, and Anesthesia.

18VAC60-21-260. General provisions.

A. Application of Part VI. This part applies to prescribing, dispensing, and administering controlled substances in dental offices, mobile dental facilities, and portable dental operations and shall not apply to administration by a dentist practicing in (i) a licensed hospital as defined in § 32.1-123 of the Code, (ii) a state-operated hospital, or (iii) a facility directly maintained or operated by the federal government.

B. Registration required. Any dentist who prescribes, administers, or dispenses Schedules II through V controlled drugs must hold a current registration with the federal Drug Enforcement Administration.

C. Patient evaluation required.

1. The decision to administer controlled drugs for dental treatment must be based on a documented evaluation of the health history and current medical condition of the patient in accordance with the Class I through V risk category classifications of the American Society of Anesthesiologists (ASA) in effect at the time of treatment. The findings of the evaluation, the ASA risk assessment class assigned, and any special considerations must be recorded in the patient's record.

2. Any level of sedation and general anesthesia may be provided for a patient who is ASA Class I and Class II.

3. A patient in ASA Class III shall only be provided minimal sedation, moderate sedation, deep sedation, or general anesthesia by:

a. A dentist after he has documented a consultation with the patient's primary care physician or other medical specialist regarding potential risks and special monitoring requirements that may be necessary;

b. An oral and maxillofacial surgeon who has performed a physical evaluation and documented the findings and the ASA risk assessment category of the patient and any special monitoring requirements that may be necessary; or

c. A person licensed under Chapter 29 (§ 54.1-2900 et seq.) of Title 54.1 of the Code who has a specialty in anesthesia.

4. Minimal sedation may only be provided for a patient who is in ASA Class IV by:
 - a. A dentist after he has documented a consultation with the patient's primary care physician or other medical specialist regarding potential risks and special monitoring requirements that may be necessary; or
 - b. An oral and maxillofacial surgeon who has performed a physical evaluation and documented the findings and the ASA risk assessment category of the patient and any special monitoring requirements that may be necessary.
5. Moderate sedation, deep sedation, or general anesthesia shall not be provided in a dental office for patients in ASA Class IV and Class V.

D. Additional requirements for patient information and records. In addition to the record requirements in 18VAC60-21-90, when moderate sedation, deep sedation, or general anesthesia is administered, the patient record shall also include:

1. Notation of the patient's American Society of Anesthesiologists classification;
2. Review of medical history and current conditions, including the patient's weight and height or, if appropriate, the body mass index;
3. Written informed consent for administration of sedation and anesthesia and for the dental procedure to be performed;
4. Preoperative vital signs;
5. A record of the name, dose, and strength of drugs and route of administration including the administration of local anesthetics with notations of the time sedation and anesthesia were administered;
6. Monitoring records of all required vital signs and physiological measures recorded every five minutes; and
7. A list of staff participating in the administration, treatment, and monitoring including name, position, and assigned duties.

E. Pediatric patients. No sedating medication shall be prescribed for or administered to a patient 12 years of age or younger prior to his arrival at the dentist office or treatment facility.

F. Informed written consent. Prior to administration of any level of sedation or general anesthesia, the dentist shall discuss the nature and objectives of the planned level of sedation or general anesthesia along with the risks, benefits, and alternatives and shall obtain informed, written consent from the patient or other responsible party for the administration and for the treatment to be provided. The written consent must be maintained in the patient record.

G. Level of sedation. The determinant for the application of the rules for any level of sedation or for general anesthesia shall be the degree of sedation or consciousness level of a patient that should reasonably be expected to result from the type, strength, and dosage of medication, the method of administration, and the individual characteristics of the patient as documented in the patient's record. The drugs and techniques used must carry a margin of safety wide enough to render the unintended reduction of or loss of consciousness unlikely, factoring in titration and the patient's age, weight, and ability to metabolize drugs.

H. Emergency management.

1. If a patient enters a deeper level of sedation than the dentist is qualified and prepared to provide, the dentist shall stop the dental procedure until the patient returns to and is stable at the intended level of sedation.
2. A dentist in whose office sedation or anesthesia is administered shall have written basic emergency procedures established and staff trained to carry out such procedures.

I. Ancillary personnel. Dentists who employ unlicensed, ancillary personnel to assist in the administration and monitoring of any form of minimal sedation, moderate sedation, deep sedation, or general anesthesia shall maintain documentation that such personnel have:

1. Training and hold current certification in basic resuscitation techniques with hands-on airway training for health care providers, such as Basic Cardiac Life Support for Health Professionals or a clinically oriented course devoted primarily to responding to clinical emergencies offered by an approved provider of continuing education as set forth in 18VAC60-21-250 C; or
2. Current certification as a certified anesthesia assistant (CAA) by the American Association of Oral and Maxillofacial Surgeons or the American Dental Society of Anesthesiology (ADSA).

J. Assisting in administration. A dentist, consistent with the planned level of administration (i.e., local anesthesia, minimal sedation, moderate sedation, deep sedation, or general anesthesia) and appropriate to his education, training, and experience, may utilize the services of a dentist, anesthesiologist, certified registered nurse anesthetist, dental hygienist, dental assistant, or nurse to perform functions appropriate to such practitioner's education, training, and experience and consistent with that practitioner's respective scope of practice.

K. Patient monitoring.

1. A dentist may delegate monitoring of a patient to a dental hygienist, dental assistant, or nurse who is under his direction or to another dentist, anesthesiologist, or certified registered nurse anesthetist. The person assigned to monitor the patient shall be continuously in the presence of the patient in the office, operatory, and recovery area (i) before administration is initiated or immediately upon arrival if the patient self-administered a sedative agent, (ii) throughout the administration of drugs, (iii) throughout the treatment of the patient, and (iv) throughout recovery until the patient is discharged by the dentist.
2. The person monitoring the patient shall:
 - a. Have the patient's entire body in sight;
 - b. Be in close proximity so as to speak with the patient;
 - c. Converse with the patient to assess the patient's ability to respond in order to determine the patient's level of sedation;
 - d. Closely observe the patient for coloring, breathing, level of physical activity, facial expressions, eye movement, and bodily gestures in order to immediately recognize and bring any changes in the patient's condition to the attention of the treating dentist; and
 - e. Read, report, and record the patient's vital signs and physiological measures.

L. A dentist who allows the administration of general anesthesia, deep sedation, or moderate sedation in his dental office is responsible for assuring that:

1. The equipment for administration and monitoring, as required in subsection B of 18VAC60-21-291 or subsection C of 18VAC60-21-301, is readily available and in good working order prior to performing dental treatment with anesthesia or sedation. The equipment shall either be maintained by the dentist in his office or provided by the anesthesia or sedation provider; and
2. The person administering the anesthesia or sedation is appropriately licensed and the staff monitoring the patient is qualified.

18VAC60-21-270. Administration of local anesthesia.

A dentist may administer or use the services of the following personnel to administer local anesthesia:

1. A dentist;
2. An anesthesiologist;
3. A certified registered nurse anesthetist under his medical direction and indirect supervision;
4. A dental hygienist with the training required by 18VAC60-25-100 C to parenterally administer Schedule VI local anesthesia to persons 18 years of age or older under his indirect supervision;
5. A dental hygienist to administer Schedule VI topical oral anesthetics under indirect supervision or under his order for such treatment under general supervision; or
6. A dental assistant or a registered or licensed practical nurse to administer Schedule VI topical oral anesthetics under indirect supervision.

18VAC60-21-279. Administration of only inhalation analgesia (nitrous oxide).

A. Education and training requirements. A dentist who utilizes nitrous oxide shall have training in and knowledge of:

1. The appropriate use and physiological effects of nitrous oxide, the potential complications of administration, the indicators for complications, and the interventions to address the complications.
2. The use and maintenance of the equipment required in subsection D of this section.

B. No sedating medication shall be prescribed for or administered to a patient 12 years of age or younger prior to his arrival at the dental office or treatment facility.

C. Delegation of administration.

1. A qualified dentist may administer or use the services of the following personnel to administer nitrous oxide:

- a. A dentist;
- b. An anesthesiologist;
- c. A certified registered nurse anesthetist under his medical direction and indirect supervision;
- d. A dental hygienist with the training required by 18VAC60-25-100 B and under indirect supervision; or
- e. A registered nurse upon his direct instruction and under immediate supervision.

2. Preceding the administration of nitrous oxide, a dentist may use the services of the following personnel working under indirect supervision to administer local anesthesia to numb an injection or treatment site:

- a. A dental hygienist with the training required by 18VAC60-25-100 C to parenterally administer Schedule VI local anesthesia to persons 18 years of age or older; or
- b. A dental hygienist, dental assistant, registered nurse, or licensed practical nurse to administer Schedule VI topical oral anesthetics.

D. Equipment requirements. A dentist who utilizes nitrous oxide only or who directs the administration by another licensed health professional as permitted in subsection C of this section shall maintain the following equipment in working order and immediately available to the areas where patients will be sedated and treated and will recover:

1. Blood pressure monitoring equipment;
2. Source of delivery of oxygen under controlled positive pressure;
3. Mechanical (hand) respiratory bag; and
4. Suction apparatus.

E. Required staffing. When only nitrous oxide/oxygen is administered, a second person in the operatory is not required. Either the dentist or qualified dental hygienist under the indirect supervision of a dentist may administer the nitrous oxide/oxygen and treat and monitor the patient.

F. Monitoring requirements.

1. Baseline vital signs, to include blood pressure and heart rate, shall be taken and recorded prior to administration of nitrous oxide analgesia and prior to discharge, unless extenuating circumstances exist and are documented in the patient's record.
2. Continual clinical observation of the patient's responsiveness, color, respiratory rate, and depth of ventilation shall be performed.
3. Once the administration of nitrous oxide has begun, the dentist shall ensure that a licensed health care professional or a person qualified in accordance with 18VAC60-21-260 I monitors the patient at all times until discharged as required in subsection G of this section.
4. Monitoring shall include making the proper adjustments of nitrous oxide/oxygen machines at the request of or by the dentist or by another qualified licensed health professional identified in subsection C of this section. Only the dentist or another qualified licensed health professional identified in subsection C of this section may turn the nitrous oxide/oxygen machines on or off.
5. Upon completion of nitrous oxide administration, the patient shall be administered 100% oxygen for a minimum of five minutes to minimize the risk of diffusion hypoxia.

G. Discharge requirements.

1. The dentist shall not discharge a patient until he exhibits baseline responses in a post-operative evaluation of the level of consciousness. Vital signs, to include blood pressure and heart rate, shall be taken and recorded prior to discharge.
2. Post-operative instructions shall be given verbally and in writing. The written instructions shall include a 24-hour emergency telephone number.
3. Pediatric patients shall be discharged with a responsible individual who has been instructed with regard to the patient's care.

18VAC60-21-280. Administration of minimal sedation.

A. Education and training requirements. A dentist who utilizes minimal sedation shall have training in and knowledge of:

1. The medications used, the appropriate dosages, the potential complications of administration, the indicators for complications, and the interventions to address the complications.
2. The physiological effects of minimal sedation, the potential complications of administration, the indicators for complications, and the interventions to address the complications.
3. The use and maintenance of the equipment required in subsection D of this section.

B. No sedating medication shall be prescribed for or administered to a patient 12 years of age or younger prior to his arrival at the dental office or treatment facility.

C. Delegation of administration.

1. A qualified dentist may administer or use the services of the following personnel to administer minimal sedation:
 - a. A dentist;
 - b. An anesthesiologist;
 - c. A certified registered nurse anesthetist under his medical direction and indirect supervision;

- d. A dental hygienist with the training required by 18VAC60-25-100 C only for administration of nitrous oxide/oxygen with the dentist present in the operator; or
- e. A registered nurse upon his direct instruction and under immediate supervision.

2. Preceding the administration of minimal sedation, a dentist may use the services of the following personnel working under indirect supervision to administer local anesthesia to numb an injection or treatment site:

- a. A dental hygienist with the training required by 18VAC60-25-100 C to parenterally administer Schedule VI local anesthesia to persons 18 years of age or older; or
- b. A dental hygienist, dental assistant, registered nurse, or licensed practical nurse to administer Schedule VI topical oral anesthetics;

3. If minimal sedation is self-administered by or to a patient 13 years of age or older before arrival at the dental office or treatment facility, the dentist may only use the personnel listed in subdivision 1 of this subsection to administer local anesthesia.

D. Equipment requirements. A dentist who utilizes minimal sedation or who directs the administration by another licensed health professional as permitted in subsection C of this section shall maintain the following equipment in working order and immediately available to the areas where patients will be sedated and treated and will recover:

- 1. Blood pressure monitoring equipment;
- 2. Source of delivery of oxygen under controlled positive pressure;
- 3. Mechanical (hand) respiratory bag;
- 4. Suction apparatus; and
- 5. Pulse oximeter.

E. Required staffing. The treatment team for minimal sedation shall consist of the dentist and a second person in the operator with the patient to assist the dentist and monitor the patient. The second person shall be a licensed health care professional or a person qualified in accordance with 18VAC60-21-260 I.

F. Monitoring requirements.

- 1. Baseline vital signs to include blood pressure, respiratory rate, and heart rate shall be taken and recorded prior to administration of sedation and prior to discharge.
- 2. Blood pressure, oxygen saturation, respiratory rate, and pulse shall be monitored continuously during the procedure.
- 3. Once the administration of minimal sedation has begun by any route of administration, the dentist shall ensure that a licensed health care professional or a person qualified in accordance with 18VAC60-21-260 I monitors the patient at all times until discharged as required in subsection G of this section.
- 4. If nitrous oxide/oxygen is used in addition to any other pharmacological agent, monitoring shall include making the proper adjustments of nitrous oxide/oxygen machines at the request of or by the dentist or by another qualified licensed health professional identified in subsection C of this section. Only the dentist or another qualified licensed health professional identified in subsection C of this section may turn the nitrous oxide/oxygen machines on or off.
- 5. If any other pharmacological agent is used in addition to nitrous oxide/oxygen and a local anesthetic, requirements for the induced level of sedation must be met.

G. Discharge requirements.

1. The dentist shall not discharge a patient until he exhibits baseline responses in a post-operative evaluation of the level of consciousness. Vital signs, to include blood pressure, respiratory rate, and heart rate shall be taken and recorded prior to discharge.
2. Post-operative instructions shall be given verbally and in writing. The written instructions shall include a 24-hour emergency telephone number.
3. Pediatric patients shall be discharged with a responsible individual who has been instructed with regard to the patient's care.

18VAC60-21-290. Requirements for a moderate sedation permit.

A. No dentist may employ or use moderate sedation in a dental office unless he has been issued a permit by the board. The requirement for a permit shall not apply to an oral and maxillofacial surgeon who maintains membership in the American Association of Oral and Maxillofacial Surgeons (AAOMS) and who provides the board with reports that result from the periodic office examinations required by AAOMS. Such an oral and maxillofacial surgeon shall be required to post a certificate issued by AAOMS.

B. Automatic qualification. Dentists who hold a current permit to administer deep sedation and general anesthesia may administer moderate sedation.

C. To determine eligibility for a moderate sedation permit, a dentist shall submit the following:

1. A completed application form;
2. The application fee as specified in 18VAC60-21-40;
3. A copy of a transcript, certification, or other documentation of training content that meets the educational and training qualifications as specified in subsection D of this section; and
4. A copy of current certification in advanced cardiac life support (ACLS) or pediatric advanced life support (PALS) as required in subsection E of this section.

D. Education requirements for a permit to administer moderate sedation. A dentist may be issued a moderate sedation permit to administer by any method by meeting one of the following criteria:

1. Completion of training for this treatment modality according to the ADA's Guidelines for Teaching Pain Control and Sedation to Dentists and Dental Students in effect at the time the training occurred, while enrolled in an accredited dental program or while enrolled in a post-doctoral university or teaching hospital program; or
2. Completion of a continuing education course that meets the requirements of 18VAC60-21-250 and consists of (i) 60 hours of didactic instruction plus the management of at least 20 patients per participant, (ii) demonstration of competency and clinical experience in moderate sedation, and (iii) management of a compromised airway. The course content shall be consistent with the ADA's Guidelines for Teaching Pain Control and Sedation to Dentists and Dental Students in effect at the time the training occurred.

E. Additional training required. Dentists who administer moderate sedation shall:

1. Hold current certification in advanced resuscitation techniques with hands-on simulated airway and megacode training for health care providers, such as ACLS or PALS as evidenced by a certificate of completion posted with the dental license; and
2. Have current training in the use and maintenance of the equipment required in 18VAC60-21-291.

18VAC60-21-291. Requirements for administration of moderate sedation.

A. Delegation of administration.

1. A dentist who does not hold a permit to administer moderate sedation shall only use the services of a qualified dentist or an anesthesiologist to administer such sedation in a dental office. In a licensed outpatient surgery center, a dentist who does not hold a permit to administer moderate sedation shall use either a qualified dentist, an anesthesiologist, or a certified registered nurse anesthetist to administer such sedation.

2. A dentist who holds a permit may administer or use the services of the following personnel to administer moderate sedation:

- a. A dentist with the training required by 18VAC60-21-290 D to administer by any method and who holds a moderate sedation permit;
- b. An anesthesiologist;
- c. A certified registered nurse anesthetist under the medical direction and indirect supervision of a dentist who meets the training requirements of 18VAC60-21-290 D and holds a moderate sedation permit; or
- d. A registered nurse upon his direct instruction and under the immediate supervision of a dentist who meets the training requirements of 18VAC60-21-290 D and holds a moderate sedation permit.

3. If minimal sedation is self-administered by or to a patient 13 years of age or older before arrival at the dental office, the dentist may only use the personnel listed in subdivision 2 of this subsection to administer local anesthesia. No sedating medication shall be prescribed for or administered to a patient 12 years of age or younger prior to his arrival at the dentist office or treatment facility.

4. Preceding the administration of moderate sedation, a permitted dentist may use the services of the following personnel under indirect supervision to administer local anesthesia to anesthetize the injection or treatment site:

- a. A dental hygienist with the training required by 18VAC60-25-100 C to parenterally administer Schedule VI local anesthesia to persons 18 years of age or older; or
- b. A dental hygienist, dental assistant, registered nurse, or licensed practical nurse to administer Schedule VI topical oral anesthetics.

5. A dentist who delegates administration of moderate sedation shall ensure that:

- a. All equipment required in subsection B of this section is present, in good working order, and immediately available to the areas where patients will be sedated and treated and will recover; and
- b. Qualified staff is on site to monitor patients in accordance with requirements of subsection D of this section.

B. Equipment requirements. A dentist who administers moderate sedation shall have available the following equipment in sizes for adults or children as appropriate for the patient being treated and shall maintain it in working order and immediately available to the areas where patients will be sedated and treated and will recover:

1. Full face mask or masks;
2. Oral and nasopharyngeal airway management adjuncts;
3. Endotracheal tubes with appropriate connectors or other appropriate airway management adjunct such as a laryngeal mask airway;
4. A laryngoscope with reserve batteries and bulbs and appropriately sized laryngoscope blades;
5. Pulse oximetry;
6. Blood pressure monitoring equipment;

7. Pharmacologic antagonist agents;
8. Source of delivery of oxygen under controlled positive pressure;
9. Mechanical (hand) respiratory bag;
10. Appropriate emergency drugs for patient resuscitation;
11. Electrocardiographic monitor if a patient is receiving parenteral administration of sedation or if the dentist is using titration;
12. Defibrillator;
13. Suction apparatus;
14. Temperature measuring device;
15. Throat pack; and
16. Precordial or pretracheal stethoscope.
17. An end-tidal carbon dioxide monitor (capnograph).

C. Required staffing. At a minimum, there shall be a two-person treatment team for conscious/moderate sedation. The team shall include the operating dentist and a second person to monitor the patient as provided in 18VAC60-21-260 K and assist the operating dentist as provided in 18VAC60-21-260 J, both of whom shall be in the operatory with the patient throughout the dental procedure. If the second person is a dentist, an anesthesiologist, or a certified registered nurse anesthetist who administers the drugs as permitted in subsection A of this section, such person may monitor the patient.

D. Monitoring requirements.

1. Baseline vital signs shall be taken and recorded prior to administration of any controlled drug at the facility and prior to discharge.
2. Blood pressure, oxygen saturation, end-tidal carbon dioxide, and pulse shall be monitored continually during the administration and recorded every five minutes.
3. Monitoring of the patient under moderate sedation is to begin prior to administration of sedation or, if pre-medication is self-administered by the patient, immediately upon the patient's arrival at the dental facility and shall take place continuously during the dental procedure and recovery from sedation. The person who administers the sedation or another licensed practitioner qualified to administer the same level of sedation must remain on the premises of the dental facility until the patient is evaluated and is discharged.

E. Discharge requirements.

1. The patient shall not be discharged until the responsible licensed practitioner determines that the patient's level of consciousness, oxygenation, ventilation, and circulation are satisfactory for discharge and vital signs have been taken and recorded.
2. Post-operative instructions shall be given verbally and in writing. The written instructions shall include a 24-hour emergency telephone number.
3. The patient shall be discharged with a responsible individual who has been instructed with regard to the patient's care.

F. Emergency management. The dentist shall be proficient in handling emergencies and complications related to pain control procedures, including the maintenance of respiration and circulation, immediate establishment of an airway, and cardiopulmonary resuscitation.

18VAC60-21-300. Requirements for a deep sedation/general anesthesia permit.

A. After March 31, 2013, no dentist may employ or use deep sedation or general anesthesia in a dental office unless he has been issued a permit by the board. The requirement for a permit shall not apply to an oral and maxillofacial surgeon who maintains membership in AAOMS and who provides the board with reports that result from the periodic office examinations required by AAOMS. Such an oral and maxillofacial surgeon shall be required to post a certificate issued by AAOMS.

B. To determine eligibility for a deep sedation/general anesthesia permit, a dentist shall submit the following:

1. A completed application form;
2. The application fee as specified in 18VAC60-21-40;
3. A copy of the certificate of completion of a CODA accredited program or other documentation of training content which meets the educational and training qualifications specified in subsection C of this section; and
4. A copy of current certification in Advanced Cardiac Life Support for Health Professionals (ACLS) or Pediatric Advanced Life Support for Health Professionals (PALS) as required in subsection C of this section.

C. Educational and training qualifications for a deep sedation/general anesthesia permit.

1. Completion of a minimum of one calendar year of advanced training in anesthesiology and related academic subjects beyond the undergraduate dental school level in a training program in conformity with the ADA's Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry in effect at the time the training occurred; or
2. Completion of an CODA accredited residency in any dental specialty that incorporates into its curriculum a minimum of one calendar year of full-time training in clinical anesthesia and related clinical medical subjects (i.e., medical evaluation and management of patients) comparable to those set forth in the ADA's Guidelines for Graduate and Postgraduate Training in Anesthesia in effect at the time the training occurred; and
3. Current certification in advanced resuscitative techniques with hands-on simulated airway and megacode training for health care providers, including basic electrocardiographic interpretations, such as courses in ACLS or PALS; and
4. Current training in the use and maintenance of the equipment required in 18VAC60-21-301.

18VAC60-21-301. Requirements for administration of deep sedation or general anesthesia.

A. Preoperative requirements. Prior to the appointment for treatment under deep sedation or general anesthesia the patient shall:

1. Be informed about the personnel and procedures used to deliver the sedative or anesthetic drugs to assure informed consent as required by 18VAC60-21-260 F.
2. Have a physical evaluation as required by 18VAC60-21-260 C.
3. Be given preoperative verbal and written instructions including any dietary or medication restrictions.

B. Delegation of administration.

1. A dentist who does not meet the requirements of 18VAC60-21-300 shall only use the services of a dentist who does meet those requirements or an anesthesiologist to administer deep sedation or general anesthesia in a dental office. In a licensed outpatient surgery center, a dentist shall use

either a dentist who meets the requirements of 18VAC60-21-300, an anesthesiologist, or a certified registered nurse anesthetist to administer deep sedation or general anesthesia.

2. A dentist who meets the requirements of 18VAC60-21-300 may administer or use the services of the following personnel to administer deep sedation or general anesthesia:

- a. A dentist with the training required by 18VAC60-21-300 C;
- b. An anesthesiologist; or
- c. A certified registered nurse anesthetist under the medical direction and indirect supervision of a dentist who meets the training requirements of 18VAC60-21-300 C.

3. Preceding the administration of deep sedation or general anesthesia, a dentist who meets the requirements of 18VAC60-21-300 may use the services of the following personnel under indirect supervision to administer local anesthesia to anesthetize the injection or treatment site:

- a. A dental hygienist with the training required by 18VAC60-25-100 C to parenterally administer Schedule VI local anesthesia to persons 18 years of age or older; or
- b. A dental hygienist, dental assistant, registered nurse, or licensed practical nurse to administer Schedule VI topical oral anesthetics.

C. Equipment requirements. A dentist who administers deep sedation or general anesthesia shall have available the following equipment in sizes appropriate for the patient being treated and shall maintain it in working order and immediately available to the areas where patients will be sedated and treated and will recover:

1. Full face mask or masks;
2. Oral and nasopharyngeal airway management adjuncts;
3. Endotracheal tubes with appropriate connectors or other appropriate airway management adjunct such as a laryngeal mask airway;
4. A laryngoscope with reserve batteries and bulbs and appropriately sized laryngoscope blades;
5. Source of delivery of oxygen under controlled positive pressure;
6. Mechanical (hand) respiratory bag;
7. Pulse oximetry and blood pressure monitoring equipment available and used in the treatment room;
8. Appropriate emergency drugs for patient resuscitation;
9. EKG monitoring equipment;
10. Temperature measuring devices;
11. Pharmacologic antagonist agents;
12. External defibrillator (manual or automatic);
13. An end-tidal carbon dioxide monitor (capnograph);
14. Suction apparatus;
15. Throat pack; and
16. Precordial or pretracheal stethoscope.

D. Required staffing. At a minimum, there shall be a three-person treatment team for deep sedation or general anesthesia. The team shall include the operating dentist, a second person to monitor the patient as provided in 18VAC60-21-260 K, and a third person to assist the operating dentist as provided in 18VAC60-21-260 J, all of whom shall be in the operatory with the patient during the dental procedure. If a second dentist, an anesthesiologist, or a certified registered nurse anesthetist

administers the drugs as permitted in subsection B of this section, such person may serve as the second person to monitor the patient.

E. Monitoring requirements.

1. Baseline vital signs shall be taken and recorded prior to administration of any controlled drug at the facility to include: temperature, blood pressure, pulse, oxygen saturation, and respiration.
2. The patient's vital signs, end-tidal carbon dioxide, and EKG readings shall be monitored, recorded every five minutes, and reported to the treating dentist throughout the administration of controlled drugs. When depolarizing medications are administered, temperature shall be monitored constantly.
3. Monitoring of the patient undergoing deep sedation or general anesthesia is to begin prior to the administration of any drugs and shall take place continuously during administration, the dental procedure, and recovery from anesthesia. The person who administers the anesthesia or another licensed practitioner qualified to administer the same level of anesthesia must remain on the premises of the dental facility until the patient has regained consciousness and is discharged.

F. Emergency management.

1. A secured intravenous line must be established and maintained throughout the procedure.
2. The dentist shall be proficient in handling emergencies and complications related to pain control procedures, including the maintenance of respiration and circulation, immediate establishment of an airway, and cardiopulmonary resuscitation.

G. Discharge requirements.

1. The patient shall not be discharged until the responsible licensed practitioner determines that the patient's level of consciousness, oxygenation, ventilation, and circulation are satisfactory for discharge and vital signs have been taken and recorded.
2. Post-operative instructions shall be given verbally and in writing. The written instructions shall include a 24-hour emergency telephone number for the dental practice.
3. The patient shall be discharged with a responsible individual who has been instructed with regard to the patient's care.

Part VIII. Oral and Maxillofacial Surgeons.

18VAC60-21-310. Registration of oral and maxillofacial surgeons.

Every licensed dentist who practices as an oral and maxillofacial surgeon, as defined in § 54.1-2700 of the Code, shall register his practice with the board.

1. After initial registration, an oral and maxillofacial surgeon shall renew his registration annually on or before December 31.
2. An oral and maxillofacial surgeon who fails to register or to renew his registration and continues to practice oral and maxillofacial surgery may be subject to disciplinary action by the board.
3. Within one year of the expiration of a registration, an oral and maxillofacial surgeon may renew by payment of the renewal fee and a late fee.
4. After one year from the expiration date, an oral and maxillofacial surgeon who wishes to reinstate his registration shall update his profile and pay the reinstatement fee.

18VAC60-21-320. Profile of information for oral and maxillofacial surgeons.

Guidelines for Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures

Charles J. Coté, MD, FAAP • Stephen Wilson, DMD, MA, PhD • American Academy of Pediatric Dentistry • American Academy of Pediatrics

Abstract: *The safe sedation of children for procedures requires a systematic approach abstract that includes the following: no administration of sedating medication without the safety net of medical/dental supervision, careful pre-sedation evaluation for underlying medical or surgical conditions that would place the child at increased risk from sedating medications, appropriate fasting for elective procedures and a balance between the depth of sedation and risk for those who are unable to fast because of the urgent nature of the procedure, a focused airway examination for large (kissing) tonsils or anatomic airway abnormalities that might increase the potential for airway obstruction, a clear understanding of the medication's pharmacokinetic and pharmacodynamic effects and drug interactions, appropriate training and skills in airway management to allow rescue of the patient, age- and size-appropriate equipment for airway management and venous access, appropriate medications and reversal agents, sufficient numbers of appropriately trained staff to both carry out the procedure and monitor the patient, appropriate physiologic monitoring during and after the procedure, a properly equipped and staffed recovery area, recovery to the pre-sedation level of consciousness before discharge from medical/dental supervision, and appropriate discharge instructions. This report was developed through a collaborative effort of the American Academy of Pediatrics and the American Academy of Pediatric Dentistry to offer pediatric providers updated information and guidance in delivering safe sedation to children. (Pediatr Dent 2019;41(4):E26-E52)*

Introduction

The number of diagnostic and minor surgical procedures performed on pediatric patients outside of the traditional operating room setting has increased in the past several decades. As a consequence of this change and the increased awareness of the importance of providing analgesia and anxiolysis, the need for sedation for procedures in physicians' offices, dental offices, subspecialty procedure suites, imaging facilities, emergency departments, other inpatient hospital settings, and ambulatory surgery centers also has increased markedly.¹⁻⁵² In recognition of this need for both elective and emergency use of sedation in nontraditional settings, the American Academy of Pediatrics (AAP) and the American Academy of Pediatric Dentistry (AAPD) have published a series of guidelines for the monitoring and management of pediatric patients during and after sedation for a procedure.⁵³⁻⁵⁸ The purpose of this updated report is to unify the guidelines for sedation used by medical and dental practitioners; to add clarifications regarding monitoring modalities, particularly regarding continuous expired carbon dioxide measurement; to provide updated information from the medical and dental literature; and to suggest methods for further improvement in safety and outcomes. This document uses the same language to define sedation categories and expected physiologic responses as The Joint Commission, the American Society of Anesthesiologists (ASA), and the AAPD.^{56,57,59-61}

This revised statement reflects the current understanding of appropriate monitoring needs of pediatric patients both during and after sedation for a procedure.^{3,4,11,18,20,21,23,24,33,39,41,44,47,51,62-73} The monitoring and care outlined may be exceeded at any time on the basis of the judgment of the responsible practitioner. Although intended to encourage high-quality patient care, adherence to the recommendations in this document cannot guarantee a specific patient outcome. However, structured sedation protocols designed to incorporate these safety principles have been widely implemented and shown to reduce morbidity.^{11,23,24,27,30-33,35,39,41,44,47,51,74-84} These practice recommendations are proffered with the awareness that, regardless of the intended level of sedation or route of drug administration, the sedation of a pediatric patient represents a continuum and may result in respiratory depression, laryngospasm, impaired airway patency, apnea, loss of the patient's protective airway reflexes, and cardiovascular instability.^{38,43,45,47,48,59,62,63,85-112}

Procedural sedation of pediatric patients has serious associated risks.^{2,5,38,43,45,47,48,62,63,71,83,85,88-105,107-138} These adverse responses during and after sedation for a diagnostic or therapeutic procedure may be minimized, but not completely eliminated, by a careful preprocedure review of the patient's underlying medical conditions and consideration of how the sedation process might affect or be affected by these conditions: for example, children with developmental disabilities have been shown to have a threefold increased incidence of

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* This is an update limited to Deep sedation/General anesthesia—Personnel.

ABBREVIATIONS

AAP: American Academy of Pediatrics. **AAPD:** American Academy of Pediatric Dentistry. **ASA:** American Society of Anesthesiologists. **BIS:** Bispectral index. **CPAP:** Continuous positive airway pressure. **ECG:** Electrocardiography. **EEG:** Electroencephalogram/electroencephalography. **EMS:** Emergency medical services. **LMA:** Laryngeal mask airway. **MRI:** Magnetic resonance imaging. **OSA:** Obstructive sleep apnea. **PALS:** Pediatric advanced life support.

desaturation compared with children without developmental disabilities.^{74,78,103} Appropriate drug selection for the intended procedure, a clear understanding of the sedating medication's pharmacokinetics and pharmacodynamics and drug interactions, as well as the presence of an individual with the skills needed to rescue a patient from an adverse response are critical.^{42,48,62,63,92,97,99,125-127,132,133,139-158} Appropriate physiologic monitoring and continuous observation by personnel not directly involved with the procedure allow for the accurate and rapid diagnosis of complications and initiation of appropriate rescue interventions.^{44,63,64,67,68,74,90,96,110,159-174} The work of the Pediatric Sedation Research Consortium has improved the sedation knowledge base, demonstrating the marked safety of sedation by highly motivated and skilled practitioners from a variety of specialties practicing the above modalities and skills that focus on a culture of sedation safety.^{45,83,95,128-138} However, these groundbreaking studies also show a low but persistent rate of potential sedation-induced life-threatening events, such as apnea, airway obstruction, laryngospasm, pulmonary aspiration, desaturation, and others, even when the sedation is provided under the direction of a motivated team of specialists.¹²⁹ These studies have helped define the skills needed to rescue children experiencing adverse sedation events. The sedation of children is different from the sedation of adults. Sedation in children is often administered to relieve pain and anxiety as well as to modify behavior (e.g., immobility) so as to allow the safe completion of a procedure. A child's ability to control his or her own behavior to cooperate for a procedure depends both on his or her chronological age and cognitive/emotional development. Many brief procedures, such as suture of a minor laceration, may be accomplished with distraction and guided imagery techniques, along with the use of topical/local anesthetics and minimal sedation, if needed.¹⁷⁵⁻¹⁸¹ However, longer procedures that require immobility involving children younger than 6 years or those with developmental delay often require an increased depth of sedation to gain control of their behavior.^{86,87,103} Children younger than 6 years (particularly those younger than 6 months) may be at greatest risk of an adverse event.¹²⁹ Children in this age group are particularly vulnerable to the sedating medication's effects on respiratory drive, airway patency, and protective airway reflexes.^{62,63} Other modalities, such as careful preparation, parental presence, hypnosis, distraction, topical local anesthetics, electronic devices with age-appropriate games or videos, guided imagery, and the techniques advised by child life specialists, may reduce the need for or the needed depth of pharmacologic sedation.^{29,46,49,182-211}

Studies have shown that it is common for children to pass from the intended level of sedation to a deeper, unintended level of sedation^{85,88,212,213} making the concept of rescue essential to safe sedation. Practitioners of sedation must have the skills to rescue the patient from a deeper level than that intended for the procedure. For example, if the intended level of sedation is "minimal," practitioners must be able to rescue from "moderate sedation"; if the intended level of sedation is "moderate," practitioners must have the skills to rescue from "deep sedation"; if the intended level of sedation is "deep," practitioners must have the skills to rescue from a state of "general anesthesia." The ability to rescue means that practitioners must be able to recognize the various levels of sedation and have the skills and age- and size-appropriate equipment necessary to provide appropriate cardiopulmonary support if needed.

These guidelines are intended for all venues in which sedation for a procedure might be performed (hospital, surgical

center, freestanding imaging facility, dental facility, or private office). Sedation and anesthesia in a nonhospital environment (e.g., private physician's or dental office, freestanding imaging facility) historically have been associated with an increased incidence of "failure to rescue" from adverse events, because these settings may lack immediately available backup. Immediate activation of emergency medical services (EMS) may be required in such settings, but the practitioner is responsible for life-support measures while awaiting EMS arrival.^{63,214} Rescue techniques require specific training and skills.^{63,74,215,216} The maintenance of the skills needed to rescue a child with apnea, laryngospasm, and/or airway obstruction include the ability to open the airway, suction secretions, provide continuous positive airway pressure (CPAP), perform successful bag-valve-mask ventilation, insert an oral airway, a nasopharyngeal airway, or a laryngeal mask airway (LMA), and, rarely, perform tracheal intubation. These skills are likely best maintained with frequent simulation and team training for the management of rare events.^{128,130,217-220} Competency with emergency airway management procedure algorithms is fundamental for safe sedation practice and successful patient rescue (see Figs. 1, 2, and 3).^{215,216,221-223}

Practitioners should have an in-depth knowledge of the agents they intend to use and their potential complications. A number of reviews and handbooks for sedating pediatric patients are available.^{30,39,65,75,171,172,201,224-233} There are specific situations that are beyond the scope of this document. Specifically, guidelines for the delivery of general anesthesia and monitored anesthesia care (sedation or analgesia), outside or within the operating room by anesthesiologists or other practitioners

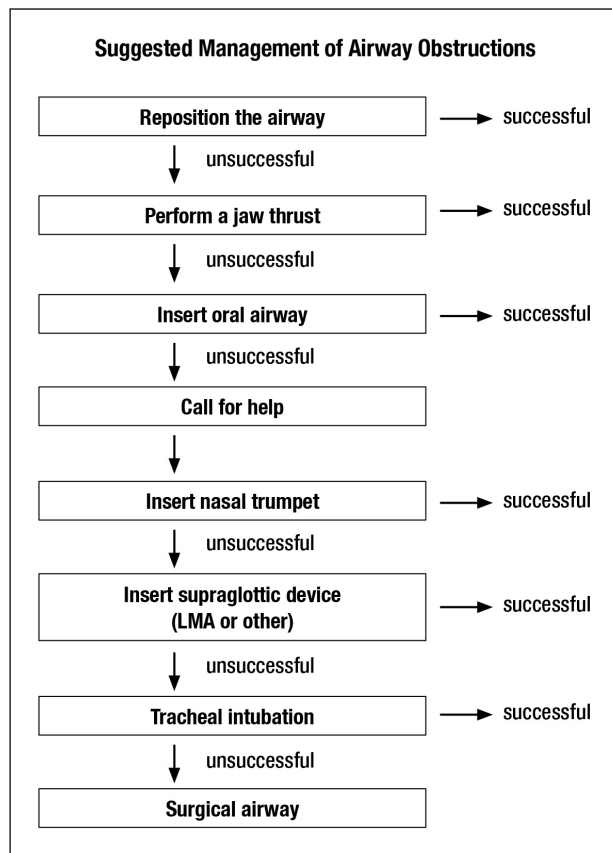


Figure 1. Suggested management of airway obstruction.

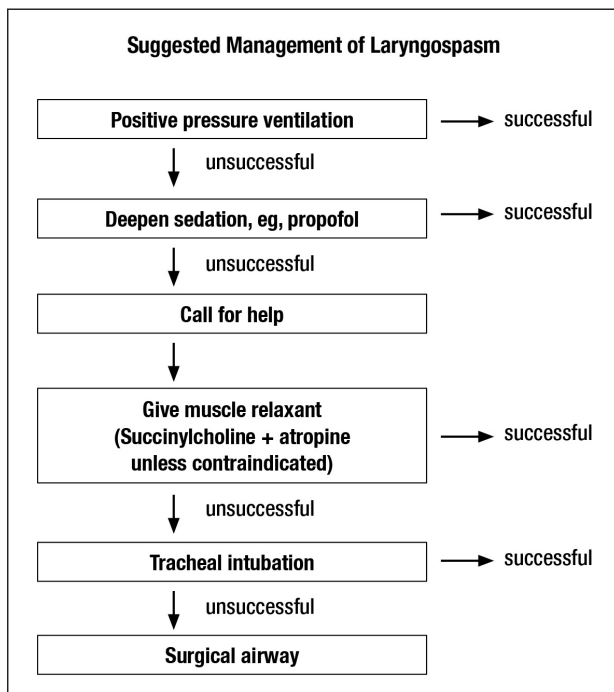


Figure 2. Suggested management of laryngospasm.

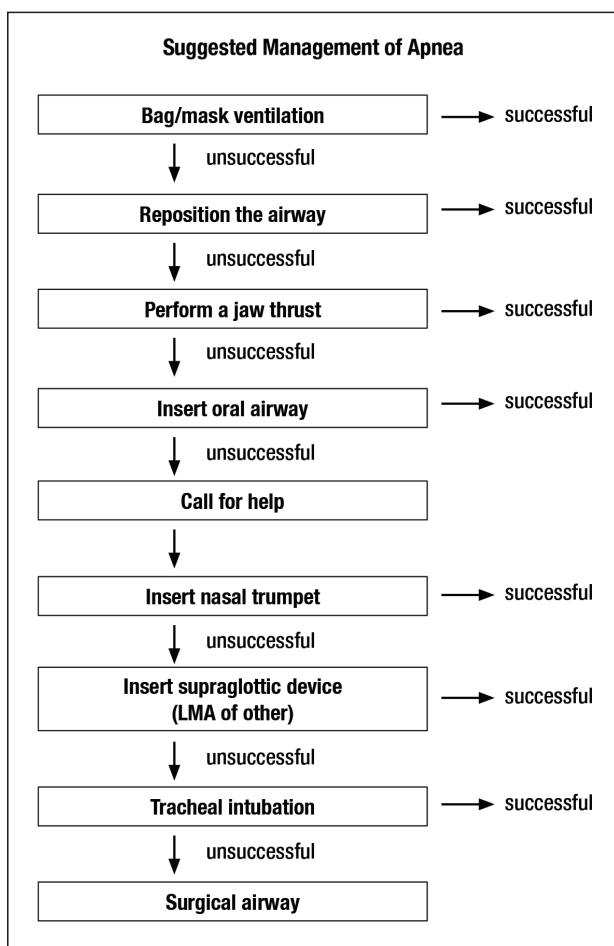


Figure 3. Suggested management of apnea.

functioning within a department of anesthesiology, are addressed by policies developed by the ASA and by individual departments of anesthesiology.²³⁴ In addition, guidelines for the sedation of patients undergoing mechanical ventilation in a critical care environment or for providing analgesia for patients postoperatively, patients with chronic painful conditions, and patients in hospice care are beyond the scope of this document.

Goals of Sedation

The goals of sedation in the pediatric patient for diagnostic and therapeutic procedures are as follows: (1) to guard the patient's safety and welfare; (2) to minimize physical discomfort and pain; (3) to control anxiety, minimize psychological trauma, and maximize the potential for amnesia; (4) to modify behavior and/or movement so as to allow the safe completion of the procedure; and (5) to return the patient to a state in which discharge from medical/dental supervision is safe, as determined by recognized criteria (see **Supplemental Appendix 1**).

These goals can best be achieved by selecting the lowest dose of drug with the highest therapeutic index for the procedure. It is beyond the scope of this document to specify which drugs are appropriate for which procedures; however, the selection of the fewest number of drugs and matching drug selection to the type and goals of the procedure are essential for safe practice. For example, analgesic medications, such as opioids or ketamine, are indicated for painful procedures. For nonpainful procedures, such as computed tomography or magnetic resonance imaging (MRI), sedatives/hypnotics are preferred. When both sedation and analgesia are desirable (eg, fracture reduction), either single agents with analgesic/sedative properties or combination regimens are commonly used. Anxiolysis and amnesia are additional goals that should be considered in the selection of agents for particular patients. However, the potential for an adverse outcome may be increased when 2 or more sedating medications are administered.^{62,127,136,173,235} Recently, there has been renewed interest in noninvasive routes of medication administration, including intranasal and inhaled routes (eg, nitrous oxide; see below).²³⁶

Knowledge of each drug's time of onset, peak response, and duration of action is important (eg, the peak electroencephalogram (EEG) effect of intravenous midazolam occurs at ~4.8 minutes, compared with that of diazepam at ~1.6 minutes²³⁷⁻²³⁹). Titration of drug to effect is an important concept; one must know whether the previous dose has taken full effect before administering additional drugs.²³⁷ Drugs that have a long duration of action (eg, intramuscular pentobarbital, phenothiazines) have fallen out of favor because of unpredictable responses and prolonged recovery. The use of these drugs requires a longer period of observation even after the child achieves currently used recovery and discharge criteria.^{62,238-241} This concept is particularly important for infants and toddlers transported in car safety seats; re-sedation after discharge attributable to residual prolonged drug effects may lead to airway obstruction.^{62,63,242} In particular, promethazine (Phenergan; Wyeth Pharmaceuticals, Philadelphia, Pa.) has a "black box warning" regarding fatal respiratory depression in children younger than 2 years.²⁴³ Although the liquid formulation of chloral hydrate is no longer commercially available, some hospital pharmacies now are compounding their own formulations. Low-dose chloral hydrate (10–25 mg/kg), in combination with other sedating medications, is used commonly in pediatric dental practice.

General Guidelines

Candidates

Patients who are in ASA classes I and II are frequently considered appropriate candidates for minimal, moderate, or deep sedation (see [Supplemental Appendix 2](#)). Children in ASA classes III and IV, children with special needs, and those with anatomic airway abnormalities or moderate to severe tonsillar hypertrophy present issues that require additional and individual consideration, particularly for moderate and deep sedation.^{68,244-249} Practitioners are encouraged to consult with appropriate subspecialists and/or an anesthesiologist for patients at increased risk of experiencing adverse sedation events because of their underlying medical/surgical conditions.

Responsible person

The pediatric patient shall be accompanied to and from the treatment facility by a parent, legal guardian, or other responsible person. It is preferable to have 2 adults accompany children who are still in car safety seats if transportation to and from a treatment facility is provided by 1 of the adults.²⁵⁰

Facilities

The practitioner who uses sedation must have immediately available facilities, personnel, and equipment to manage emergency and rescue situations. The most common serious complications of sedation involve compromise of the airway or depressed respirations resulting in airway obstruction, hypoventilation, laryngospasm, hypoxemia, and apnea. Hypotension and cardiopulmonary arrest may occur, usually from the inadequate recognition and treatment of respiratory compromise.^{42,48,92,97,99,125,132,139-155} Other rare complications also may include seizures, vomiting, and allergic reactions. Facilities providing pediatric sedation should monitor for, and be prepared to treat, such complications.

Back-up emergency services

A protocol for immediate access to back-up emergency services shall be clearly outlined. For nonhospital facilities, a protocol for the immediate activation of the EMS system for life-threatening complications must be established and maintained.⁴⁴ It should be understood that the availability of EMS does not replace the practitioner's responsibility to provide initial rescue for life-threatening complications.

On-site monitoring, rescue drugs, and equipment

An emergency cart or kit must be immediately accessible. This cart or kit must contain the necessary age- and size-appropriate equipment (oral and nasal airways, bag-valve-mask device, LMAs or other supraglottic devices, laryngoscope blades, tracheal tubes, face masks, blood pressure cuffs, intravenous catheters, etc) to resuscitate a nonbreathing and unconscious child. The contents of the kit must allow for the provision of continuous life support while the patient is being transported to a medical/dental facility or to another area within the facility. All equipment and drugs must be checked and maintained on a scheduled basis (see [Supplemental Appendices 3 and 4](#) for suggested drugs and emergency life support equipment to consider before the need for rescue occurs). Monitoring devices, such as electrocardiography (ECG) machines, pulse oximeters with size-appropriate probes, end-tidal carbon dioxide monitors, and defibrillators with size-appropriate patches/paddles, must have a safety and function check on a regular basis as required by local or state regulation. The use of emer-

gency checklists is recommended, and these should be immediately available at all sedation locations; they can be obtained from <http://www.pedsanesthesia.org/>.

Documentation

Documentation prior to sedation shall include, but not be limited to, the following recommendations:

1. Informed consent: The patient record shall document that appropriate informed consent was obtained according to local, state, and institutional requirements.^{251,252}
2. Instructions and information provided to the responsible person: The practitioner shall provide verbal and/or written instructions to the responsible person. Information shall include objectives of the sedation and anticipated changes in behavior during and after sedation.^{163,253-255} Special instructions shall be given to the adult responsible for infants and toddlers who will be transported home in a car safety seat regarding the need to carefully observe the child's head position to avoid airway obstruction. Transportation in a car safety seat poses a particular risk for infants who have received medications known to have a long half-life, such as chloral hydrate, intramuscular pentobarbital, or phenothiazine because deaths after procedural sedation have been reported.^{62,63,238,242,256,257} Consideration for a longer period of observation shall be given if the responsible person's ability to observe the child is limited (e.g., only 1 adult who also has to drive). Another indication for prolonged observation would be a child with an anatomic airway problem, an underlying medical condition such as significant obstructive sleep apnea (OSA), or a former preterm infant younger than 60 weeks' post-conceptional age. A 24-hour telephone number for the practitioner or his or her associates shall be provided to all patients and their families. Instructions shall include limitations of activities and appropriate dietary precautions.

Dietary precautions

Agents used for sedation have the potential to impair protective airway reflexes, particularly during deep sedation. Although a rare occurrence, pulmonary aspiration may occur if the child regurgitates and cannot protect his or her airway.^{95,127,258} Therefore, the practitioner should evaluate preceding food and fluid intake before administering sedation. It is likely that the risk of aspiration during procedural sedation differs from that during general anesthesia involving tracheal intubation or other airway manipulations.^{259,260} However, the absolute risk of aspiration during elective procedural sedation is not yet known; the reported incidence varies from ~1 in 825 to ~1 in 30 037.^{95,127,129,173,244,261} Therefore, standard practice for fasting before elective sedation generally follows the same guidelines as for elective general anesthesia; this requirement is particularly important for solids, because aspiration of clear gastric contents causes less pulmonary injury than aspiration of particulate gastric contents.^{262,263}

For emergency procedures in children undergoing general anesthesia, the reported incidence of pulmonary aspiration of gastric contents from 1 institution is ~1 in 373 compared with ~1 in 4544 for elective anesthetics.²⁶² Because there are few published studies with adequate statistical power to provide guidance to the practitioner regarding the safety or risk of pulmonary aspiration of gastric contents during procedural sedation,^{95,127,129,173,244,259-261,264-268} it is unknown whether the risk of aspiration is reduced when airway manipulation is not

performed/ anticipated (e.g., moderate sedation). However, if a deeply sedated child requires intervention for airway obstruction, apnea, or laryngospasm, there is concern that these rescue maneuvers could increase the risk of pulmonary aspiration of gastric contents. For children requiring urgent/emergent sedation who do not meet elective fasting guidelines, the risks of sedation and possible aspiration are as-yet unknown and must be balanced against the benefits of performing the procedure promptly. For example, a prudent practitioner would be unlikely to administer deep sedation to a child with a minor condition who just ate a large meal; conversely, it is not justifiable to withhold sedation/analgesia from the child in significant pain from a displaced fracture who had a small snack a few hours earlier. Several emergency department studies have reported a low to zero incidence of pulmonary aspiration despite variable fasting periods^{260,264,268}; however, each of these reports have, for the most part, clearly balanced the urgency of the procedure with the need for and depth of sedation.^{268,269} Although emergency medicine studies and practice guidelines generally support a less restrictive approach to fasting for brief urgent/ emergent procedures, such as care of wounds, joint dislocation, chest tube placement, etc, in healthy children, further research in many thousands of patients would be desirable to better define the relationships between various fasting intervals and sedation complications.²⁶²⁻²⁷⁰

Before elective sedation

Children undergoing sedation for elective procedures generally should follow the same fasting guidelines as those for general anesthesia (Table 1).²⁷¹ It is permissible for routine necessary medications (e.g., antiseizure medications) to be taken with a sip of clear liquid or water on the day of the procedure.

For the emergency patient

The practitioner must always balance the possible risks of sedating nonfasted patients with the benefits of and necessity for completing the procedure. In particular, patients with a history of recent oral intake or with other known risk factors, such

as trauma, decreased level of consciousness, extreme obesity (BMI ≥95% for age and sex), pregnancy, or bowel motility dysfunction, require careful evaluation before the administration of sedatives. When proper fasting has not been ensured, the increased risks of sedation must be carefully weighed against its benefits, and the lightest effective sedation should be used. In this circumstance, additional techniques for achieving analgesia and patient cooperation, such as distraction, guided imagery, video games, topical and local anesthetics, hematoma block or nerve blocks, and other techniques advised by child life specialists, are particularly helpful and should be considered.^{29,49, 182-201,274,275}

The use of agents with less risk of depressing protective airway reflexes, such as ketamine, or moderate sedation, which would also maintain protective reflexes, may be preferred.²⁷⁶ Some emergency patients requiring deep sedation (e.g., a trauma patient who just ate a full meal or a child with a bowel obstruction) may need to be intubated to protect their airway before they can be sedated.

Use of immobilization devices (Protective stabilization)

Immobilization devices, such as papoose boards, must be applied in such a way as to avoid airway obstruction or chest restriction.²⁷⁷⁻²⁸¹ The child’s head position and respiratory excursions should be checked frequently to ensure airway patency. If an immobilization device is used, a hand or foot should be kept exposed, and the child should never be left unattended. If sedating medications are administered in conjunction with an immobilization device, monitoring must be used at a level consistent with the level of sedation achieved.

Documentation at the time of sedation

1. Health evaluation: Before sedation, a health evaluation shall be performed by an appropriately licensed practitioner and reviewed by the sedation team at the time of treatment for possible interval changes.²⁸² The purpose of this evaluation is not only to document baseline status but also to determine whether the patient has specific risk factors that may warrant additional consultation before sedation. This evaluation also facilitates the identification of patients who will require more advanced airway or cardiovascular management skills or alterations in the doses or types of medications used for procedural sedation.

An important concern for the practitioner is the widespread use of medications that may interfere with drug absorption or metabolism and therefore enhance or shorten the effect time of sedating medications. Herbal medicines (eg, St John’s wort, ginkgo, ginger, ginseng, garlic) may alter drug pharmacokinetics through inhibition of the cytochrome P450 system, resulting in prolonged drug effect and altered (increased or decreased) blood drug concentrations (midazolam, cyclosporine, tacrolimus).²⁸³⁻²⁹² Kava may increase the effects of sedatives by potentiating g-aminobutyric acid inhibitory neurotransmission and may increase acetaminophen-induced liver toxicity.²⁹³⁻²⁹⁵ Valerian may itself produce sedation that apparently is mediated through the modulation of g-aminobutyric acid neurotransmission and receptor function.^{291,296-299} Drugs such as erythromycin, cimetidine, and others may also inhibit the cytochrome P450 system, resulting in prolonged sedation with midazolam as well as other medications competing for the same enzyme systems.³⁰⁰⁻³⁰⁴ Medications used to treat HIV infection, some anticonvulsants,

Table 1. APPROPRIATE INTAKE OF FOOD AND LIQUIDS BEFORE ELECTIVE SEDATION	
Ingested material	Minimum fasting period (h)
Clear liquids: water, fruit juices without pulp, carbonated beverages, clear tea, black coffee	2
Human milk	4
Infant formula	6
Nonhuman milk: because nonhuman milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period	6
Light meal: a light meal typically consists of toast and clear liquids. Meals that include fried or fatty foods or meat may prolong gastric emptying time. Both the amount and type of foods ingested must be considered when determining an appropriate fasting period.	6

Source: American Society of Anesthesiologists. Practice guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: application to healthy patients undergoing elective procedures. An updated report by the American Society of Anesthesiologists Committee on Standards and Practice Parameters. Available at: “<https://www.asahq.org/For-Members/Practice-Management/Practice-Parameters.aspx>”. For emergent sedation, the practitioner must balance the depth of sedation versus the risk of possible aspiration; see also Mace et al.²⁷² and Green et al.²⁷³

immunosuppressive drugs, and some psychotropic medications (often used to treat children with autism spectrum disorder) may also produce clinically important drug-drug interactions.³⁰⁵⁻³¹⁴ Therefore, a careful drug history is a vital part of the safe sedation of children. The practitioner should consult various sources (a pharmacist, textbooks, online services, or handheld databases) for specific information on drug interactions.³¹⁵⁻³¹⁹ The US Food and Drug Administration issued a warning in February 2013 regarding the use of codeine for postoperative pain management in children undergoing tonsillectomy, particularly those with OSA. The safety issue is that some children have duplicated cytochromes that allow greater than expected conversion of the prodrug codeine to morphine, thus resulting in potential overdose; codeine should be avoided for postprocedure analgesia.³²⁰⁻³²⁴

The health evaluation should include the following:

- age and weight (in kg) and gestational age at birth (pre-term infants may have associated sequelae such as apnea of prematurity); and
- health history, including (1) food and medication allergies and previous allergic or adverse drug reactions; (2) medication/drug history, including dosage, time, route, and site of administration for prescription, over-the-counter, herbal, or illicit drugs; (3) relevant diseases, physical abnormalities (including genetic syndromes), neurologic impairments that might increase the potential for airway obstruction, obesity, a history of snoring or OSA,³²⁵⁻³²⁸ or cervical spine instability in Down syndrome, Marfan syndrome, skeletal dysplasia, and other conditions; (4) pregnancy status (as many as 1% of menarchal females presenting for general anesthesia at children's hospitals are pregnant)³²⁹⁻³³¹ because of concerns for the potential adverse effects of most sedating and anesthetic drugs on the fetus;^{329,332-338} (5) history of prematurity (may be associated with subglottic stenosis or propensity to apnea after sedation); (6) history of any seizure disorder; (7) summary of previous relevant hospitalizations; (8) history of sedation or general anesthesia and any complications or unexpected responses; and (9) relevant family history, particularly related to anesthesia (eg, muscular dystrophy, malignant hyperthermia, pseudocholinesterase deficiency).

The review of systems should focus on abnormalities of cardiac, pulmonary, renal, or hepatic function that might alter the child's expected responses to sedating/ analgesic medications. A specific query regarding signs and symptoms of sleep-disordered breathing and OSA may be helpful. Children with severe OSA who have experienced repeated episodes of desaturation will likely have altered mu receptors and be analgesic at opioid levels one-third to one-half those of a child without OSA^{325-328,339,340}; lower titrated doses of opioids should be used in this population. Such a detailed history will help to determine which patients may benefit from a higher level of care by an appropriately skilled health care provider, such as an anesthesiologist. The health evaluation should also include:

- vital signs, including heart rate, blood pressure, respiratory rate, room air oxygen saturation, and temperature (for some children who are very upset or noncooperative, this may not be possible and a note should be written to document this circumstance);

- physical examination, including a focused evaluation of the airway (tonsillar hypertrophy, abnormal anatomy [eg, mandibular hypoplasia], high Mallampati score [ie, ability to visualize only the hard palate or tip of the uvula]) to determine whether there is an increased risk of airway obstruction^{74,341-344};
- physical status evaluation (ASA classification [see [Appendix 2](#)]); and
- name, address, and telephone number of the child's home or parent's, or caregiver's cell phone; additional information such as the patient's personal care provider or medical home is also encouraged.

For hospitalized patients, the current hospital record may suffice for adequate documentation of pre-sedation health; however, a note shall be written documenting that the chart was reviewed, positive findings were noted, and a management plan was formulated. If the clinical or emergency condition of the patient precludes acquiring complete information before sedation, this health evaluation should be obtained as soon as feasible.

2. Prescriptions. When prescriptions are used for sedation, a copy of the prescription or a note describing the content of the prescription should be in the patient's chart along with a description of the instructions that were given to the responsible person. **Prescription medications intended to accomplish procedural sedation must not be administered without the safety net of direct supervision by trained medical/dental personnel.** The administration of sedating medications at home poses an unacceptable risk, particularly for infants and preschool-aged children traveling in car safety seats because deaths as a result of this practice have been reported.^{63,257}

Documentation during treatment

The patient's chart shall contain a time-based record that includes the name, route, site, time, dosage/kilogram, and patient effect of administered drugs. Before sedation, a "time out" should be performed to confirm the patient's name, procedure to be performed, and laterality and site of the procedure.⁵⁹ During administration, the inspired concentrations of oxygen and inhalation sedation agents and the duration of their administration shall be documented. Before drug administration, special attention must be paid to the calculation of dosage (ie, mg/kg); for obese patients, most drug doses should likely be adjusted lower to ideal body weight rather than actual weight.³⁴⁵ When a programmable pump is used for the infusion of sedating medications, the dose/kilogram per minute or hour and the child's weight in kilograms should be double-checked and confirmed by a separate individual. The patient's chart shall contain documentation at the time of treatment that the patient's level of consciousness and responsiveness, heart rate, blood pressure, respiratory rate, expired carbon dioxide values, and oxygen saturation were monitored. Standard vital signs should be further documented at appropriate intervals during recovery until the patient attains predetermined discharge criteria (see [Appendix 1](#)). A variety of sedation scoring systems are available that may aid this process.^{212,238,346-348} Adverse events and their treatment shall be documented.

Documentation after treatment

A dedicated and properly equipped recovery area is recommended (see [Appendices 3 and 4](#)). The time and condition of the child at discharge from the treatment area or facility shall be documented, which should include documentation that the child's level of consciousness and oxygen saturation in room air have returned to a state that is safe for discharge by recognized criteria (see [Appendix 1](#)). Patients receiving supplemental oxygen before the procedure should have a similar oxygen need after the procedure. Because some sedation medications are known to have a long half-life and may delay a patient's complete return to baseline or pose the risk of re-sedation^{62,104,256,349,350} and because some patients will have complex multiorgan medical conditions, a longer period of observation in a less intense observation area (eg, a step-down observation area) before discharge from medical/dental supervision may be indicated.²³⁹ Several scales to evaluate recovery have been devised and validated.^{212,346-348,351,352} A simple evaluation tool may be the ability of the infant or child to remain awake for at least 20 minutes when placed in a quiet environment.²³⁸

Continuous quality improvement

The essence of medical error reduction is a careful examination of index events and root-cause analysis of how the event could be avoided in the future.³⁵³⁻³⁵⁹ Therefore, each facility should maintain records that track all adverse events and significant interventions, such as desaturation; apnea; laryngospasm; need for airway interventions, including the need for placement of supraglottic devices such as an oral airway, nasal trumpet, or LMA; positive-pressure ventilation; prolonged sedation; unanticipated use of reversal agents; unplanned or prolonged hospital admission; sedation failures; inability to complete the procedure; and unsatisfactory sedation, analgesia, or anxiolysis.³⁶⁰ Such events can then be examined for the assessment of risk reduction and improvement in patient/family satisfaction.

Preparation for sedation procedures

Part of the safety net of sedation is using a systematic approach so as to not overlook having an important drug, piece of equipment, or monitor immediately available at the time of a developing emergency. To avoid this problem, it is helpful to use an acronym that allows the same setup and checklist for every procedure. A commonly used acronym useful in planning and preparation for a procedure is SOAPME, which represents the following:

- S** = Size-appropriate suction catheters and a functioning suction apparatus (eg, Yankauer-type suction)
- O** = an adequate Oxygen supply and functioning flow meters or other devices to allow its delivery
- A** = size-appropriate Airway equipment (eg, bag-valve-mask or equivalent device [functioning]), nasopharyngeal and oropharyngeal airways, LMA, laryngoscope blades (checked and functioning), endotracheal tubes, stylets, face mask
- P** = Pharmacy: all the basic drugs needed to support life during an emergency, including antagonists as indicated
- M** = Monitors: functioning pulse oximeter with size-appropriate oximeter probes,^{361,362} end-tidal carbon dioxide monitor, and other monitors as appropriate for the procedure (eg, noninvasive blood pressure, ECG, stethoscope)
- E** = special Equipment or drugs for a particular case (eg, defibrillator)

Specific guidelines for intended level of sedation

Minimal sedation

Minimal sedation (old terminology, “anxiolysis”) is a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected. Children who have received minimal sedation generally will not require more than observation and intermittent assessment of their level of sedation. Some children will become moderately sedated despite the intended level of minimal sedation; should this occur, then the guidelines for moderate sedation apply.^{85,363}

Moderate sedation

Moderate sedation (old terminology, “conscious sedation” or “sedation/ analgesia”) is a drug-induced depression of consciousness during which patients respond purposefully to verbal commands or after light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained. The caveat that loss of consciousness should be unlikely is a particularly important aspect of the definition of moderate sedation; drugs and techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely. Because the patient who receives moderate sedation may progress into a state of deep sedation and obtundation, the practitioner should be prepared to increase the level of vigilance corresponding to what is necessary for deep sedation.⁸⁵

Personnel

The practitioner. The practitioner responsible for the treatment of the patient and/or the administration of drugs for sedation must be competent to use such techniques, to provide the level of monitoring described in these guidelines, and to manage complications of these techniques (ie, to be able to rescue the patient). Because the level of intended sedation may be exceeded, the practitioner must be sufficiently skilled to rescue a child with apnea, laryngospasm, and/or airway obstruction, including the ability to open the airway, suction secretions, provide CPAP, and perform successful bag-valve-mask ventilation should the child progress to a level of deep sedation. Training in, and maintenance of, advanced pediatric airway skills is required (eg, pediatric advanced life support [PALS]); regular skills reinforcement with simulation is strongly encouraged.^{79,80,128,130,217-220,364}

Support personnel. The use of moderate sedation shall include the provision of a person, in addition to the practitioner, whose responsibility is to monitor appropriate physiologic parameters and to assist in any supportive or resuscitation measures, if required. This individual may also be responsible for assisting with interruptible patient-related tasks of short duration, such as holding an instrument or troubleshooting equipment.⁶⁰ This individual should be trained in and capable of providing advanced airway skills (eg, PALS). The support person shall have specific assignments in the event of an emergency and current knowledge of the emergency cart inventory. The practitioner and all ancillary personnel should participate in periodic reviews, simulation of rare emergencies, and practice drills of the facility's emergency protocol to ensure proper function of the equipment and coordination of staff roles in such emergencies.^{133,365-367} It is recommended that at least 1 practitioner be skilled in obtaining vascular access in children.

Monitoring and documentation

Baseline. Before the administration of sedative medications, a baseline determination of vital signs shall be documented. For some children who are very upset or uncooperative, this may not be possible, and a note should be written to document this circumstance.

During the procedure. The physician/dentist or his or her designee shall document the name, route, site, time of administration, and dosage of all drugs administered. If sedation is being directed by a physician who is not personally administering the medications, then recommended practice is for the qualified health care provider administering the medication to confirm the dose verbally before administration. There shall be continuous monitoring of oxygensaturation and heart rate; when bidirectional verbal communication between the provider and patient is appropriate and possible (ie, patient is developmentally able and purposefully communicates), monitoring of ventilation by (1) capnography (preferred) or (2) amplified, audible pretracheal stethoscope (eg, Bluetooth technology)³⁶⁸⁻³⁷¹ or precordial stethoscope is strongly recommended. If bidirectional verbal communication is not appropriate or not possible, monitoring of ventilation by capnography (preferred), amplified, audible pretracheal stethoscope, or precordial stethoscope is required. Heart rate, respiratory rate, blood pressure, oxygen saturation, and expired carbon dioxide values should be recorded, at minimum, every 10 minutes in a time-based record. Note that the exact value of expired carbon dioxide is less important than simple assessment of continuous respiratory gas exchange. In some situations in which there is excessive patient agitation or lack of cooperation or during certain procedures such as bronchoscopy, dentistry, or repair of facial lacerations capnography may not be feasible, and this situation should be documented. For uncooperative children, it is often helpful to defer the initiation of capnography until the child becomes sedated. Similarly, the stimulation of blood pressure cuff inflation may cause arousal or agitation; in such cases, blood pressure monitoring may be counterproductive and may be documented at less frequent intervals (eg, 10–15 minutes, assuming the patient remains stable, well oxygenated, and well perfused). Immobilization devices (protective stabilization) should be checked to prevent airway obstruction or chest restriction. If a restraint device is used, a hand or foot should be kept exposed. The child's head position should be continuously assessed to ensure airway patency.

After the procedure. The child who has received moderate sedation must be observed in a suitably equipped recovery area, which must have a functioning suction apparatus as well as the capacity to deliver 90% oxygen and positive-pressure ventilation (bag-valve mask) with an adequate oxygen capacity as well as age- and size-appropriate rescue equipment and devices. The patient's vital signs should be recorded at specific intervals (eg, every 10–15 minutes). If the patient is not fully alert, oxygen saturation and heart rate monitoring shall be used continuously until appropriate discharge criteria are met (see [Appendix 1](#)). Because sedation medications with a long half-life may delay the patient's complete return to baseline or pose the risk of re-sedation, some patients might benefit from a longer period of less intense observation (eg, a step-down observation area where multiple patients can be observed simultaneously) before discharge from medical/dental supervision (see section entitled "Documentation Before Sedation" above).^{62,256,349,350} A simple evaluation tool may be the ability of the infant or child to

remain awake for at least 20 minutes when placed in a quiet environment.²³⁸ Patients who have received reversal agents, such as flumazenil or naloxone, will require a longer period of observation, because the duration of the drugs administered may exceed the duration of the antagonist, resulting in re-sedation.

Deep sedation/General anesthesia

"Deep sedation" ("deep sedation/analgesia") is a drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully after repeated verbal or painful stimulation (eg, purposefully pushing away the noxious stimuli). Reflex withdrawal from a painful stimulus is not considered a purposeful response and is more consistent with a state of general anesthesia. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained. A state of deep sedation may be accompanied by partial or complete loss of protective airway reflexes. Patients may pass from a state of deep sedation to the state of general anesthesia. In some situations, such as during MRI, one is not usually able to assess responses to stimulation, because this would defeat the purpose of sedation, and one should assume that such patients are deeply sedated.

"General anesthesia" is a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive-pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

Personnel

During deep sedation and/or general anesthesia of a pediatric patient in a dental facility, there must be at least 2 individuals present with the patient throughout the procedure. These 2 individuals must have appropriate training and up-to-date certification in patient rescue, as delineated below, including drug administration and PALS or Advanced Pediatric Life Support (APLS). One of these 2 must be an independent observer who is independent of performing or assisting with the dental procedure. This individual's sole responsibility is to administer drugs and constantly observe the patient's vital signs, depth of sedation, airway patency, and adequacy of ventilation. The independent observer must, at a minimum, be trained in PALS (or APLS) and capable of managing any airway, ventilatory, or cardiovascular emergency event resulting from the deep sedation and/or general anesthesia. The independent observer must be trained and skilled to establish intravenous access and draw up and administer rescue medications. The independent observer must have the training and skills to rescue a nonbreathing child; a child with airway obstruction; or a child with hypotension, anaphylaxis, or cardiorespiratory arrest, including the ability to open the airway, suction secretions, provide CPAP, insert supraglottic devices (oral airway, nasal trumpet, or laryngeal mask airway), and perform successful bag-valve-mask ventilation, tracheal intubation, and cardiopulmonary resuscitation. The independent observer in the dental facility, as permitted by state regulation, must be 1 of the following: a physician anesthesiologist, a certified registered nurse anesthetist, a second oral surgeon, or a dentist anesthesiologist. The second individual, who is the practitioner in the

dental facility performing the procedure, must be trained in PALS (or APLS) and capable of providing skilled assistance to the independent observer with the rescue of a child experiencing any of the adverse events described above.

During deep sedation and/or general anesthesia of a pediatric patient in a hospital or surgicenter setting, at least 2 individuals must be present with the patient throughout the procedure with skills in patient rescue and up-to-date PALS (or APLS) certification, as delineated above. One of these individuals may either administer drugs or direct their administration by the skilled independent observer. The skills of the individual directing or administering sedation and/or anesthesia medications must include those described in the previous

paragraph. Providers who may fulfill the role of the skilled independent observer in a hospital or surgicenter, as permitted by state regulation, must be a physician with sedation training and advanced airway skills, such as, but not limited to, a physician anesthesiologist, an oral surgeon, a dentist anesthesiologist, or other medical specialists with the requisite licensure, training, and competencies; a certified registered nurse anesthetist or certified anesthesiology assistant; or a nurse with advanced emergency management skills, such as several years of experience in the emergency department, pediatric recovery room, or intensive care setting (ie, nurses who are experienced with assisting the individual administering or directing sedation with patient rescue during life-threatening emergencies).

Table 2. COMPARISON OF MODERATE AND DEEP SEDATION EQUIPMENT AND PERSONNEL REQUIREMENTS

	Moderate sedation	Deep sedation
Personnel	An observer who will monitor the patient but who may also assist with interruptible tasks; should be trained in PALS	An independent observer whose only responsibility is to continuously monitor the patient; trained in PALS
Responsible practitioner	Skilled to rescue a child with apnea, laryngospasm, and/or airway obstruction including the ability to open the airway, suction secretions, provide CPAP, and perform successful bag-valve-mask ventilation; recommended that at least 1 practitioner should be skilled in obtaining vascular access in children; trained in PALS	Skilled to rescue a child with apnea, laryngospasm, and/or airway obstruction, including the ability to open the airway, suction secretions, provide CPAP, perform successful bag-valve-mask ventilation, tracheal intubation, and cardiopulmonary resuscitation; training in PALS is required; at least 1 practitioner skilled in obtaining vascular access in children immediately available
Monitoring	Pulse oximetry ECG recommended Heart rate Blood pressure Respiration Capnography recommended	Pulse oximetry ECG required Heart rate Blood pressure Respiration Capnography required
Other equipment	Suction equipment, adequate oxygen source/supply	Suction equipment, adequate oxygen source/supply, defibrillator required
Documentation	Name, route, site, time of administration, and dosage of all drugs administered Continuous oxygen saturation, heart rate, and ventilation (capnography recommended); parameters recorded every 10 minutes	Name, route, site, time of administration, and dosage of all drugs administered; continuous oxygen saturation, heart rate, and ventilation (capnography required); parameters recorded at least every 5 minutes
Emergency checklists	Recommended	Recommended
Rescue cart properly stocked with rescue drugs and age- and size-appropriate equipment (see Appendices 3 and 4)	Required	Required
Dedicated recovery area with rescue cart properly stocked with rescue drugs and age- and size-appropriate equipment (see Appendices 3 and 4) and dedicated recovery personnel; adequate oxygen supply	Recommended; initial recording of vital signs may be needed at least every 10 minutes until the child begins to awaken, then recording intervals may be increased	Recommended; initial recording of vital signs may be needed for at least 5-minute intervals until the child begins to awaken, then recording intervals may be increased to 10–15 minutes
Discharge criteria	See Appendix 1	See Appendix 1

Equipment

In addition to the equipment needed for moderate sedation, an ECG monitor and a defibrillator for use in pediatric patients should be readily available.

Vascular access

Patients receiving deep sedation should have an intravenous line placed at the start of the procedure or have a person skilled in establishing vascular access in pediatric patients immediately available.

Monitoring

A competent individual shall observe the patient continuously. Monitoring shall include all parameters described for moderate sedation. Vital signs, including heart rate, respiratory rate, blood pressure, oxygen saturation, and expired carbon dioxide, must be documented at least every 5 minutes in a time-based record. Capnography should be used for almost all deeply sedated children because of the increased risk of airway/ventilation compromise. Capnography may not be feasible if the patient is agitated or uncooperative during the initial phases of sedation or during certain procedures, such as bronchoscopy or repair of facial lacerations, and this circumstance should be documented. For uncooperative children, the capnography monitor may be placed once the child becomes sedated. Note that if supplemental oxygen is administered, the capnograph may underestimate the true expired carbon dioxide value; of more importance than the numeric reading of exhaled carbon dioxide is the assurance of continuous respiratory gas exchange (ie, continuous waveform). Capnography is particularly useful for patients who are difficult to observe (eg, during MRI or in a darkened room).^{64, 67,72,90,96,110,159-162,164-170,372-375}

The physician/dentist or his or her designee shall document the name, route, site, time of administration, and dosage of all drugs administered. If sedation is being directed by a physician who is not personally administering the medications, then recommended practice is for the nurse administering the medication to confirm the dose verbally before administration. The inspired concentrations of inhalation sedation agents and oxygen and the duration of administration shall be documented.

Postsedation care

The facility and procedures followed for postsedation care shall conform to those described under “moderate sedation.” The initial recording of vital signs should be documented at least every 5 minutes. Once the child begins to awaken, the recording intervals may be increased to 10 to 15 minutes. Table 2 summarizes the equipment, personnel, and monitoring requirements for moderate and deep sedation.

Special considerations

Neonates and former preterm infants

Neonates and former preterm infants require specific management, because immaturity of hepatic and renal function may alter the ability to metabolize and excrete sedating medications,³⁷⁶ resulting in prolonged sedation and the need for extended postsedation monitoring. Former preterm infants have an increased risk of postanesthesia apnea,³⁷⁷ but it is unclear whether a similar risk is associated with sedation, because this possibility has not been systematically investigated.³⁷⁸

Other concerns regarding the effects of anesthetic drugs and sedating medications on the developing brain are beyond the scope of this document. At this point, the research in this area is preliminary and inconclusive at best, but it would seem prudent to avoid unnecessary exposure to sedation if the procedure is unlikely to change medical/dental management (eg, a sedated MRI purely for screening purposes in preterm infants).³⁷⁹⁻³⁸²

Local anesthetic agents

All local anesthetic agents are cardiac depressants and may cause central nervous system excitation or depression. Particular weight-based attention should be paid to cumulative dosage in all children.^{118,120,125,383-386} To ensure that the patient will not receive an excessive dose, the maximum allowable safe dosage (eg, mg/kg) should be calculated before administration. There may be enhanced sedative effects when the highest recommended doses of local anesthetic drugs are used in combination with other sedatives or opioids (see Tables 3 and 4 for limits and conversion tables of commonly used

local anesthetics).^{118,125,387-400} In general, when administering local anesthetic drugs, the practitioner should aspirate frequently to minimize the likelihood that the needle is in a blood vessel; lower doses should be used when injecting into vascular tissues.⁴⁰¹ If high doses or injection of amide local anesthetics (bupivacaine and ropivacaine) into vascular tissues is anticipated, then the immediate availability of a 20% lipid emulsion for the treatment of local anesthetic toxicity is recommended (Tables 3 and 5).⁴⁰²⁻⁴⁰⁹ Topical local anesthetics are commonly used and encouraged, but the practitioner should avoid applying excessive doses to mucosal surfaces where systemic uptake and possible toxicity (seizures, methemoglobinemia)

Table 3. COMMONLY USED LOCAL ANESTHETIC AGENTS FOR NERVE BLOCK OR INFILTRATION: DOSES, DURATION, AND CALCULATIONS

Local anesthetic	Maximum dose with Epinephrine ^a (mg/kg)		Maximum dose without Epinephrine (mg/kg)		Duration of action ^b (min)
	Medical	Dental	Medical	Dental	
<i>Esters</i>					
Procaine	10.0	6	7	6	60-90
Chloroprocaine	20.0	12	15	12	30-60
Tetracaine	1.5	1	1	1	180-600
<i>Amides</i>					
Lidocaine	7.0	4.4	4	4.4	90-200
Mepivacaine	7.0	4.4	5	4.4	120-240
Bupivacaine	3.0	1.3	2.5	1.3	180-600
Levobupivacaine ^c	3.0	2	2	2	180-600
Ropivacaine	3.0	2	2	2	180-600
Articaine ^d	—	7	—	7	60-230

Maximum recommended doses and durations of action are shown. Note that lower doses should be used in very vascular areas.

^a These are maximum doses of local anesthetics combined with epinephrine; lower doses are recommended when used without epinephrine. Doses of amides should be decreased by 30% in infants younger than 6 mo. When lidocaine is being administered intravascularly (eg, during intravenous regional anesthesia), the dose should be decreased to 3 to 5 mg/kg; long-acting local anesthetic agents should not be used for intravenous regional anesthesia.

^b Duration of action is dependent on concentration, total dose, and site of administration; use of epinephrine; and the patient's age.

^c Levobupivacaine is not available in the United States.

^d Use in pediatric patients under 4 years of age is not recommended.

Table 4. LOCAL ANESTHETIC CONVERSION CHART

Concentration (%)	mg/mL
4.0	40
3.0	30
2.5	25
2.0	20
1.0	10
0.5	5
0.25	2.5
0.125	1.25

Table 5. TREATMENT OF LOCAL ANESTHETIC TOXICITY

1. Get help. Ventilate with 100% oxygen. Alert nearest facility with cardiopulmonary bypass capability.
2. Resuscitation: airway/ventilatory support, chest compressions, etc. Avoid vasopressin, calcium channel blockers, β-blockers, or additional local anesthetic. Reduce epinephrine dosages. Prolonged effort may be required.
3. Seizure management: benzodiazepines preferred (eg, intravenous midazolam 0.1–0.2 mg/kg); avoid propofol if cardiovascular instability.
4. Administer 1.5 mL/kg 20% lipid emulsion over ~1 minute to trap unbound amide local anesthetics. Repeat bolus once or twice for persistent cardiovascular collapse.
5. Initiate 20% lipid infusion (0.25 mL/kg per minute) until circulation is restored; double the infusion rate if blood pressure remains low. Continue infusion for at least 10 minutes after attaining circulatory stability. Recommended upper limit of ~10 mL/kg.
6. A fluid bolus of 10–20 mL/kg balanced salt solution and an infusion of phenylephrine (0.1 µg/kg per minute to start) may be needed to correct peripheral vasodilation.

Source: <https://www.asra.com/advisory-guidelines/article/3/checklist-for-treatment-of-local-anesthetic-systemic-toxicity>.

could result and to remain within the manufacturer's recommendations regarding allowable surface area application.⁴¹⁰⁻⁴¹⁵

Pulse oximetry

Newer pulse oximeters are less susceptible to motion artifacts and may be more useful than older oximeters that do not contain updated software.⁴¹⁶⁻⁴²⁰ Oximeters that change tone with changes in hemoglobin saturation provide immediate aural warning to everyone within hearing distance. The oximeter probe must be properly positioned; clip-on devices are easy to displace, which may produce artifactual data (under- or over-estimation of oxygen saturation).^{361,362}

Capnography

Expired carbon dioxide monitoring is valuable to diagnose the simple presence or absence of respirations, airway obstruction, or respiratory depression, particularly in patients sedated in less-accessible locations, such as in MRI machines or darkened rooms.^{64,66,67,72,90,96,110,159-162,164-170,372-375,421-427} In patients receiving supplemental oxygen, capnography facilitates the recognition of apnea or airway obstruction several minutes before the situation would be detected just by pulse oximetry. In this situation, desaturation would be delayed due to increased oxygen reserves; capnography would enable earlier intervention.¹⁶¹ One study in children sedated in the emergency department found that the use of capnography reduced the incidence of hypoventilation and desaturation (7% to 1%).¹⁷⁴ The use of expired carbon dioxide monitoring devices is now required for almost all deeply sedated children (with rare exceptions), particularly in situations in which other means of assessing the adequacy of ventilation are limited. Several manufacturers have produced nasal cannulae that allow simultaneous delivery of oxygen and measurement of expired carbon dioxide values.^{421,422,427} Although these devices can have a high degree of false-positive alarms, they are also very accurate for the detection of complete airway obstruction or apnea.^{164,168,169} Taping the sampling line under the nares under an oxygen face mask or nasal hood will provide similar information. The exact measured value is less important than the simple answer to the question: Is the child exchanging air with each breath?

Processed EEG (Bispectral Index)

Although not new to the anesthesia community, the processed EEG (bispectral index [BIS]) monitor is slowly finding its way into the sedation literature.⁴²⁸ Several studies have attempted to use BIS monitoring as a means of noninvasively assessing the depth of sedation. This technology was designed to examine EEG signals and, through a variety of algorithms, correlate a number with depth of unconsciousness: that is, the lower the number, the deeper the sedation. Unfortunately, these algorithms are based on adult patients and have not been validated in children of varying ages and varying brain development. Although the readings correspond quite well with the depth of propofol sedation, the numbers may paradoxically go up rather than down with sevoflurane and ketamine because of central excitation despite a state of general anesthesia or deep sedation.^{429,430} Opioids and benzodiazepines have minimal and variable effects on the BIS. Dexmedetomidine has minimal effect with EEG patterns, consistent with stage 2 sleep.⁴³¹ Several sedation studies have examined the utility of this device and degree of correlation with standard sedation scales.^{347,363,432-435} It appears that there is some correlation with BIS values in moderate sedation, but there is not a reliable ability to

distinguish between deep sedation and moderate sedation or deep sedation from general anesthesia.⁴³² Presently, it would appear that BIS monitoring might provide useful information only when used for sedation with propofol³⁶³; in general, it is still considered a research tool and not recommended for routine use.

Adjuncts to airway management and resuscitation

The vast majority of sedation complications can be managed with simple maneuvers, such as supplemental oxygen, opening the airway, suctioning, placement of an oral or nasopharyngeal airway, and bag-mask-valve ventilation. Rarely, tracheal intubation is required for more prolonged ventilatory support. In addition to standard tracheal intubation techniques, a number of supraglottic devices are available for the management of patients with abnormal airway anatomy or airway obstruction. Examples include the LMA, the cuffed oropharyngeal airway, and a variety of kits to perform an emergency cricothyrotomy.^{436,437}

The largest clinical experience in pediatrics is with the LMA, which is available in multiple sizes, including those for late preterm and term neonates. The use of the LMA is now an essential addition to advanced airway training courses, and familiarity with insertion techniques can be life-saving.⁴³⁸⁻⁴⁴² The LMA can also serve as a bridge to secure airway management in children with anatomic airway abnormalities.^{443,444} Practitioners are encouraged to gain experience with these techniques as they become incorporated into PALS courses.

Another valuable emergency technique is intraosseous needle placement for vascular access. Intraosseous needles are available in several sizes; insertion can be lifesaving when rapid intravenous access is difficult. A relatively new intraosseous device (EZ-IO Vidacare, now part of Teleflex, Research Triangle Park, NC) is similar to a hand-held battery-powered drill. It allows rapid placement with minimal chance of misplacement; it also has a low-profile intravenous adapter.⁴⁴⁵⁻⁴⁵⁰ Familiarity with the use of these emergency techniques can be gained by keeping current with resuscitation courses, such as PALS and advanced pediatric life support.

Patient simulators

High-fidelity patient simulators are now available that allow physicians, dentists, and other health care providers to practice managing a variety of programmed adverse events, such as apnea, bronchospasm, and laryngospasm.^{133,220,450-452} The use of such devices is encouraged to better train medical professionals and teams to respond more effectively to rare events.^{128,131,451,453-455} One study that simulated the quality of cardiopulmonary resuscitation compared standard management of ventricular fibrillation versus rescue with the EZ-IO for the rapid establishment of intravenous access and placement of an LMA for establishing a patent airway in adults; the use of these devices resulted in more rapid establishment of vascular access and securing of the airway.⁴⁵⁶

Monitoring during MRI

The powerful magnetic field and the generation of radiofrequency emissions necessitate the use of special equipment to provide continuous patient monitoring throughout the MRI scanning procedure.⁴⁵⁷⁻⁴⁵⁹ MRI-compatible pulse oximeters and capnographs capable of continuous function during scanning should be used in any sedated or restrained pediatric patient. Thermal injuries can result if appropriate precautions are not taken; the practitioner is cautioned to avoid coiling of

all wires (oximeter, ECG) and to place the oximeter probe as far from the magnetic coil as possible to diminish the possibility of injury. ECG monitoring during MRI has been associated with thermal injury; special MRI-compatible ECG pads are essential to allow safe monitoring.⁴⁶⁰⁻⁴⁶³ If sedation is achieved by using an infusion pump, then either an MRI-compatible pump is required or the pump must be situated outside of the room with long infusion tubing so as to maintain infusion accuracy. All equipment must be MRI compatible, including laryngoscope blades and handles, oxygen tanks, and any ancillary equipment. All individuals, including parents, must be screened for ferromagnetic materials, phones, pagers, pens, credit cards, watches, surgical implants, pacemakers, etc, before entry into the MRI suite.

Nitrous oxide

Inhalation sedation/analgesia equipment that delivers nitrous oxide must have the capacity of delivering 100% and never less than 25% oxygen concentration at a flow rate appropriate to the size of the patient. Equipment that delivers variable ratios of nitrous oxide >50% to oxygen that covers the mouth and nose must be used in conjunction with a calibrated and functional oxygen analyzer. All nitrous oxide-to-oxygen inhalation devices should be calibrated in accordance with appropriate state and local requirements. Consideration should be given to the National Institute of Occupational Safety and Health Standards for the scavenging of waste gases.⁴⁶⁴ Newly constructed or reconstructed treatment facilities, especially those with piped-in nitrous oxide and oxygen, must have appropriate state or local inspections to certify proper function of inhalation sedation/analgesia systems before any delivery of patient care.

Nitrous oxide in oxygen, with varying concentrations, has been successfully used for many years to provide analgesia for a variety of painful procedures in children.^{14,36,49,98,465-493} The use of nitrous oxide for minimal sedation is defined as the administration of nitrous oxide of ≤50% with the balance as oxygen, without any other sedative, opioid, or other depressant drug before or concurrent with the nitrous oxide to an otherwise healthy patient in ASA class I or II. The patient is able to maintain verbal communication throughout the procedure. It should be noted that although local anesthetics have sedative properties, for purposes of this guideline they are not considered sedatives in this circumstance. If nitrous oxide in oxygen is combined with other sedating medications, such as chloral hydrate, midazolam, or an opioid, or if nitrous oxide is used in concentrations >50%, the likelihood for moderate or deep sedation increases.^{107,197,492,494,495} In this situation, the practitioner is advised to institute the guidelines for moderate or deep sedation, as indicated by the patient's response.⁴⁹⁶

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Supplemental Information

Appendix 1. Recommended Discharge Criteria

1. Cardiovascular function and airway patency are satisfactory and stable.
2. The patient is easily arousable, and protective airway reflexes are intact.
3. The patient can talk (if age appropriate).
4. The patient can sit up unaided (if age appropriate).
5. For a very young child or a child with disability who is incapable of the usually expected responses, the pre-sedation level of responsiveness or a level as close as possible to the normal level for that child should be achieved.
6. The state of hydration is adequate.

Appendix 2. ASA Physical Status Classification*

Class I	A normally healthy patient.
Class II	A patient with mild systemic disease (eg, controlled reactive airway disease).
Class III	A patient with severe systemic disease (eg, a child who is actively wheezing).
Class IV	A patient with severe systemic disease that is a constant threat to life (eg, a child with status asthmaticus).
Class V	A moribund patient who is not expected to survive without the operation (eg, a patient with severe cardiomyopathy requiring heart transplantation).

An "E" after the classification would indicate that this is an emergency rather than a scheduled patient.

* Modified to give common pediatric examples; full definitions are available at: "<https://www.asahq.org/clinical/physicalstatus.htm>".

Appendix 3. Drugs[†] That May Be Needed to Rescue a Sedated Patient⁴⁴

Albuterol for inhalation
 Amiodarone
 Ammonia spirits
 Atropine
 Dextrose (D₂₅, etc)
 Diphenhydramine
 Diazepam
 Epinephrine (1:1000, 1:10 000)
 Fentanyl
 Flumazenil
 Lidocaine (cardiac lidocaine, local infiltration)
 Lorazepam
 Methylprednisolone
 Midazolam
 Naloxone
 Oxygen
 Fosphenytoin
 Racemic epinephrine
 Rocuronium
 Sodium bicarbonate
 Succinylcholine
 20% Lipid emulsion for local anesthetic toxicity

[†] The choice of emergency drugs may vary according to individual or procedural needs.

Appendices continued on next page.

Appendix 4. Emergency Equipment That May Be Needed to Rescue a Sedated Patient ^{†,‡}

Intravenous Equipment

- Assorted intravenous catheters (eg, 24-, 22-, 20-, 18-, 16-gauge)
- Tourniquets
- Alcohol wipes
- Adhesive tape
- Assorted syringes (eg, 1 mL, 3 mL, 5 mL, 10 mL, 20 mL, and 60 mL)
- Intravenous tubing
 - Pediatric drip (60 drops/mL)
 - Pediatric burette
 - Adult drip (10 drops/mL)
- Extension tubing
- Three-way stopcocks
- Intravenous fluid
 - Lactated Ringer solution
 - Normal saline solution
 - D₅ 0.25 normal saline solution
- Pediatric intravenous boards
- Assorted intravenous needles: 25-, 22-, 20-, and 18-gauge
- Intraosseous needles
- Sterile gauze pads

[†] The choice of emergency drugs may vary according to individual or procedural needs.

[‡] The practitioner is referred to the SOAPME acronym described in the text in preparation for sedating a child for a procedure.

Airway Management Equipment

- Face masks (infant, child, small adult, medium adult, large adult)
- Breathing bag and valve set
- Oropharyngeal airways (infant, child, small adult, medium adult, large adult)
- Nasopharyngeal airways (small, medium, large)
- Laryngeal mask airways (1, 1.5, 2, 2.5, 3, 4, and 5)
- Laryngoscope handles (with extra batteries)
- Laryngoscope blades (with extra light bulbs)
 - Straight (Miller) No. 1, 2, and 3
 - Curved (Macintosh) No. 2 and 3
- Endotracheal tubes
 - 2.5, 3.0, and 3.5 mm internal diameter uncuffed and 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 7.0, and 8.0 mm internal diameter cuffed (a cuffed tracheal tube 0.5 size smaller than an uncuffed tube may be used in children >3 months)
- Stylettes (appropriate sizes for endotracheal tubes)
- Surgical lubricant
- Suction catheters (appropriate sizes for endotracheal tubes)
- Yankauer-type suction
- Nasogastric tubes
- Nebulizer with medication kits
- Gloves (sterile and nonsterile, latex free)

Use of Anesthesia Providers in the Administration of Office-based Deep Sedation/General Anesthesia to the Pediatric Dental Patient

Latest Revision

2019*

Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that there are pediatric dental patients for whom routine dental care using non-pharmacologic behavior guidance techniques is not a viable approach.¹ The AAPD intends this guideline to assist the dental practitioner who elects to use a licensed anesthesia provider for the administration of deep sedation/general anesthesia for pediatric dental patients in a dental office or other facility outside of an accredited hospital or ambulatory surgical center. This document discusses personnel, facilities, documentation, and quality assurance mechanisms necessary to provide optimal and responsible patient care.

Methods

Recommendations on the use of anesthesia providers in the administration of office-based deep sedation/general anesthesia were developed by the Clinical Affairs Committee – Sedation and General Anesthesia Subcommittee and adopted in 2001. This document is a revision of the previous version, last revised in 2018. The modification by the Council of Clinical Affairs is limited to the section on personnel, with changes based upon a review of the recently revised *Guidelines for Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures*², a joint publication of the AAPD and the American Academy of Pediatrics. The last full revision utilized current dental and medical literature pertaining to deep sedation/general anesthesia of dental patients, including a search of the PubMed®/MEDLINE database using the terms: office-based general anesthesia, pediatric sedation, deep sedation, sleep dentistry, and dental sedation; fields: all; limits: humans, all children from birth through age 18, English, clinical trials, and literature reviews. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

Pediatric dentists seek to provide oral health care to infants, children, adolescents, and persons with special health care needs

in a manner that promotes excellence in quality of care and concurrently induces a positive attitude in the patient toward dental treatment. Behavior guidance techniques have allowed most pediatric dental patients to receive treatment in the dental office with minimal discomfort and without expressed fear. Minimal or moderate sedation has allowed others who are less compliant to receive treatment. Some children and individuals with special care needs who have extensive oral healthcare needs, acute situational anxiety, uncooperative age-appropriate behavior, immature cognitive functioning, disabilities, or medical conditions require deep sedation/general anesthesia to receive dental treatment in a safe and humane fashion.³ Access to hospital-based anesthesia services may be limited for a variety of reasons, including restriction of coverage of by third-party payors.^{3,4} Pediatric dentists and others who treat children can provide for the administration of deep sedation/general anesthesia by utilizing properly trained and currently licensed anesthesia providers in their offices or other facilities outside of the traditional surgical setting.

Office-based deep sedation/general anesthesia can provide benefits for the patient and the dental team. Such benefits may include:

- improved access to care;
- improved ease and efficiency of scheduling;
- decreased administrative procedures and facility fees when compared to a surgical center or hospital;
- minimized likelihood of patient's recall of procedures;
- decreased patient movement which may optimize quality of care; and
- use of traditional dental delivery systems with access to a full complement of dental equipment, instrumentation, supplies, and auxiliary personnel.

The use of licensed anesthesia providers to administer deep sedation/general anesthesia in the pediatric dental population

ABBREVIATIONS

AAPD: American Academy of Pediatric Dentistry. **APLS:** Advanced pediatric life support. **ASA:** American Society of Anesthesiologists. **CAA:** Certified anesthesiologist assistant. **CO₂:** Carbon dioxide. **CRNA:** Certified registered nurse anesthetist. **PALS:** Pediatric advanced life support.

* The 2019 revision was limited to section on personnel.

is an accepted treatment modality.^{2,5-8} Caution must be used in patients younger than two years of age. Practitioners must always be mindful of the increased risk associated with office-based deep sedation/general anesthesia in the infant and toddler populations. This level of pharmacologic behavioral modification should only be used when the risk of orofacial disease outweighs the benefits of monitoring, interim therapeutic restoration, or arresting medicaments to slow or stop the progression of caries. The AAPD supports the provision of deep sedation/general anesthesia when clinical indications have been met and additional properly-trained and credentialed personnel and appropriate facilities are used.¹⁻³ In many cases, the patient may be treated in an appropriate outpatient facility (including the dental office) because the extensive medical resources of a hospital may not be deemed necessary for delivering routine health care.

Recommendations

Clinicians may consider using deep sedation or general anesthesia in the office to facilitate the provision of oral health care. Practitioners choosing to use these modalities must be trained in rescue emergency procedures and be familiar with their patient's medical history, as well as the regulatory and professional liability insurance requirements needed to provide this level of pharmacologic behavior management. This guideline does not supersede, nor is it to be used in deference to, federal, state, and local credentialing and licensure laws, regulations, and codes.

Personnel

Deep sedation/general anesthesia techniques in the dental office require the presence of the following individuals throughout the procedure²:

- licensed anesthesia provider who is independent of performing or assisting with the dental procedure; and
- operating dentist.

It is the exclusive responsibility of the operating dentist, when employing anesthesia providers to administer deep sedation/general anesthesia, to verify and carefully review their credentials and experience. Significant pediatric training, including anesthesia care of the very young, and experience in a dental setting are important considerations, especially when caring for young pediatric and special needs populations.

In order to provide anesthesia services in an office-based setting:

- the licensed anesthesia provider must be a licensed dental and/or medical practitioner with current state certification to independently administer deep sedation/general anesthesia in a dental office. He/She must be in compliance with state and local laws regarding anesthesia practices. Laws vary from state to state and may supersede any portion of this document.
- if state law permits a certified registered nurse anesthetist (CRNA) or certified anesthesiologist assistant (CAA) to function under the direct supervision of a dentist, the

dentist is required to have completed training in deep sedation/general anesthesia and be licensed or permitted for that level of pharmacologic management, appropriate to state law. Furthermore, to maximize patient safety, the dentist supervising the CRNA or CAA would not simultaneously be providing dental treatment. The CRNA or CAA must be licensed with current state certification to administer deep sedation/general anesthesia in a dental office. He/She must be in compliance with state and local laws regarding anesthesia practices. Laws vary from state to state and may supersede any portion of this document.

The dentist and anesthesia care provider must be compliant with the American Academy of Pediatrics/AAPD's *Guideline on Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures*² or other appropriate guideline(s) of the American Dental Association, the American Society of Dental Anesthesiologists (ASDA), the American Society of Anesthesiologists (ASA), and other organizations with recognized professional expertise and stature. The recommendations in this document may be exceeded at any time if the change involves improved safety and/or is superseded by state law.

The dentist and licensed anesthesia provider must collaborate to enhance patient safety. Continuous and effective perioperative communication and appropriately timed interventions are essential in mitigating adverse events or outcomes. The dentist introduces the concept of deep sedation/general anesthesia to the parent, justifies its necessity, and provides appropriate pre-operative instructions and informational materials. The dentist or his/her designee coordinates medical consultations when necessary and conveys pertinent information to the anesthesia care provider. The anesthesia care provider explains potential risks and obtains informed consent for sedation/anesthesia. Office staff should understand their additional roles and responsibilities and special considerations (e.g., loss of protective reflexes) associated with office-based deep sedation/general anesthesia.

Both the licensed anesthesia provider and the operating dentist must, at a minimum, have appropriate training and up-to-date certification in patient rescue, including drug administration and pediatric advanced life support (PALS) or advanced pediatric life support (APLS).² The licensed anesthesia provider's sole responsibility is to administer drugs and constantly monitor and record the patient's vital signs, depth of sedation, airway patency, and adequacy of ventilation.² The anesthesia provider must be skilled to establish intravenous access and draw up and administer rescue medications. He must have the training and skills to rescue a child with apnea, laryngospasm, airway obstruction, hypotension, anaphylaxis, or cardiopulmonary arrest, including the ability to open the airway, suction secretions, provide constant positive airway pressure (CPAP), insert supraglottic devices (oral airway, nasal trumpet, or laryngeal mask airway), and perform successful bag-valve-mask ventilation, tracheal intubation, and cardiopulmonary

resuscitation.² As permitted by state regulation, the anesthesia provider may be one of the following:

- dentist or physician anesthesiologist;
- certified registered nurse anesthetist; or
- an oral and maxillofacial surgeon.

The anesthesia provider would assume the lead during the management of any perioperative emergencies. The dentist must be capable of providing skilled assistance with the rescue of a child experiencing any of the adverse events described above.² It is the responsibility of the anesthesia provider to ensure that the operating dentist and supportive staff are capable of providing skilled support and have an established emergency and transport protocol in the event of an adverse incident.

Personnel experienced in post anesthetic recovery care and trained in advanced resuscitative techniques (e.g., PALS) must be in attendance and provide continuous respiratory and cardiovascular monitoring during the recovery period.² The supervising anesthesia provider, not the operating dentist, shall determine when the patient exhibits respiratory and cardiovascular stability and appropriate discharge criteria² have been met. The operating dentist must have up-to-date certification in PALS or APLS, and his/her clinical staff must be well-versed in emergency recognition, rescue, and emergency protocols including maintaining cardiopulmonary resuscitation certification for healthcare providers.⁶ Contact numbers for local emergency medical and ambulance services must be readily available, and a protocol for immediate access to back-up emergency services must be clearly outlined.² Emergency preparedness must be updated and practiced on a regular (e.g., semi-annual) basis to keep all staff members up to date on established protocols (see Table 1).⁹

Facilities

A continuum extends from wakefulness across all levels of sedation. Often these levels are not easily differentiated, and patients may drift among them.¹⁰ When anesthesia care providers are utilized for office-based administration of deep sedation or general anesthesia, the facilities in which the dentist practices must meet the guidelines and appropriate local, state, and federal codes for administration of the deepest possible level of sedation/anesthesia. Facilities must be in compliance with applicable laws, codes, and regulations pertaining to controlled drug storage, fire prevention, building construction and occupancy, accommodations for the disabled,

occupational safety and health, and disposal of medical waste and hazardous waste.² The treatment room must accommodate the dentist and auxiliaries, the patient, the anesthesia care provider, the dental equipment, and all necessary anesthesia delivery equipment along with appropriate monitors and emergency equipment. Expedient access to the patient, anesthesia machine (if present), and monitoring equipment should be available at all times.

It is beyond the scope of this document to dictate equipment necessary for the provision of deep sedation/general anesthesia, but equipment must be appropriate for the technique used and consistent with the guidelines for anesthesia providers, in accordance with governmental rules and regulations. Because laws and codes vary from state to state, *Guidelines for Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures*² should be followed as the minimum requirements.

For deep sedation/general anesthesia, there must be continuous monitoring of the patient's level of consciousness and responsiveness, heart rate, blood pressure, respiratory rate, expired carbon dioxide (CO₂) values, and oxygen saturation.² When adequacy of ventilation is difficult to observe using capnography, use of an amplified, audible precordial stethoscope (e.g., Bluetooth® technology) is encouraged.² In addition, an electrocardiographic monitor and a defibrillator capable of delivering an attenuated pediatric dose are required for deep sedation/general anesthesia.² Emergency equipment must be readily accessible and should include Yankauer suction, drugs necessary for rescue and resuscitation (including 100 percent oxygen capable of being delivered by positive pressure at appropriate flow rates for up to one hour), and age-/size-appropriate equipment to resuscitate and rescue a non-breathing and/or unconscious pediatric dental patient and provide continuous support while the patient is being transported to a medical facility.^{2,5} The licensed practitioners are responsible for ensuring that medications, equipment, and protocols are available to treat malignant hyperthermia when triggering agents are used.¹¹ Recovery facilities must be available and suitably equipped. Backup power sufficient to ensure patient safety should be available in case of emergency power outage.²

Documentation

Prior to delivery of deep sedation/general anesthesia, patient safety requires that appropriate documentation shall address rationale for sedation/general anesthesia, anesthesia and procedural

Table 1. CONSIDERATIONS IN FREQUENCY OF CONDUCTING EMERGENCY EXERCISES⁹

Changes in plans	Changes in the emergency response plan need to be disseminated and practiced.
Changes in personnel	New staff members need training in their emergency response roles. Emergency roles left by former staff members need to be filled.
Changes in property	Infrastructure changes can affect how the plan is implemented. New equipment may require training for their use.
Foreseen problems	Protocols for newly identified problems must be established, practiced and implemented.

Reprinted from *Guidance Materials: Hospital and Health Facility Emergency Exercises*, Emergency exercise basics, Page 4, Copyright © World Health Organization 2010. Available at: "http://www.wpro.who.int/publications/PUB_9789290614791/en/". Accessed October 10, 2019.

informed consent, instructions to parent, dietary precautions, preoperative health evaluation, and any prescriptions along with the instructions given for their use.² Because laws and codes vary from state to state, *Guidelines on Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedure*² should be followed as minimum requirements for a time-based anesthesia record.

- Vital signs: Pulse and respiratory rates, blood pressure, heart rhythm, oxygen saturation, and expired CO₂ must be continuously monitored and recorded on a time-based record throughout the procedure, initially every five minutes and then, as the patient awakens, at 10-15 minute intervals until the patient has met documented discharge criteria.²
- Drugs: Name, dose, route, site, time of administration, and patient effects (e.g., level of consciousness, patient responsiveness) of all drugs, including local anesthesia, must be documented.² When anesthetic gases are administered, inspired concentration and duration of inhalation agents and oxygen shall be documented.²
- Recovery: The condition of the patient, that discharge criteria have been met, time of discharge, and into whose care the discharge occurred must be documented. Requiring the signature of the responsible adult to whom the child has been discharged, verifying that he/she has received and understands the post-operative instructions, is encouraged.²

Various business/legal arrangements may exist between the treating dentist and the anesthesia provider. Regardless, because services were provided in the dental facility, the dental staff must maintain all patient records, including time-based anesthesia records, so that they may be readily available for emergency or other needs. The dentist must assure that the anesthesia provider also maintains patient records and that they are readily available.

Risk management and quality assurance

Dentists who utilize office-based anesthesia care providers must take all necessary measures to minimize risk to patients. The dentist must be familiar with the ASA physical status classification.¹² Knowledge, preparation, and communication between professionals are essential. Prior to subjecting a patient to deep sedation/general anesthesia, the patient must undergo a pre-operative health evaluation by an appropriate and currently licensed medical or anesthesia provider.^{2,6} High-risk patients should be treated in a facility properly equipped and staffed to provide for their care.^{2,6} The dentist and anesthesia care provider must communicate during treatment to share concerns about the airway or other details of patient safety. Furthermore, they must work together to develop and document mechanisms of quality assurance.

Untoward and unexpected outcomes must be documented and reviewed to monitor the quality of services provided. This will decrease risk, allow for open and frank discussions, document risk analysis and intervention, and improve the quality of care for the pediatric dental patient.^{2,5}

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Board Motion on Pulp Capping by DAIIs

Dr. Bryant questioned the regulation which allows pulp capping by a DAI, stating that pulp capping should be removed from the scope of practice of DAIIs. He then made a subsidiary motion to remove this procedure. Following further discussion, the Board assigned this topic to the Regulatory-Legislative Committee for further review and for public comment.

Pulp Capping Procedure

dentistry / 28 May, 2014 / [Leave a Comment](#)

Pulp capping is a technique used in dental restorations to prevent the dental pulp from dying, after being exposed, or nearly exposed during a cavity preparation.

Direct and indirect pulp capping

When [dental caries](#) are removed from a tooth, the affected and softened enamel and dentin are removed. This can lead to the pulp of the tooth either being exposed or nearly exposed which causes pulpitis.

Pulpitis, in turn, can become irreversible, **leading to pain and pulp necrosis**, and necessitating either root canal treatment or extraction. The ultimate goal of pulp capping or stepwise caries removal is to protect a healthy dental pulp and avoid the need for root canal therapy.

An indirect pulp cap is usually done to [take the place of a root canal](#) in very decayed teeth. It is made when most of the decay on the permanent tooth is removed.

When a dentist finds extensive decay very close to the pulp, the **risk of the pulp exposition** by the infected decay is high. This infection will result in the need for a root canal. In this case dentists leave the last little bit of decay in there and place a sedative temporary filling.

After a few months, the temporary filling and the decay are removed. If the tooth has no signs or symptoms of pulpal necrosis or abscess and has a good blood supply, the pulp may repair itself.

This dental procedure is not always effective, but in some cases the dentist should attempt it. Either way, it is more likely to work in a younger patient.

Unlike an indirect pulp cap, during a direct one, an actual exposure of the pulp takes place. For the stimulation of the secondary dentin formation a medicament like calcium hydroxide or mineral trioxide aggregate is placed inside. With a direct pulp cap no evident decay is left, but it leads to **small mechanical or traumatic exposures**.

The procedure for pulp capping requires several steps. First, the dental cavity is drilled until the dentist reaches the pulp. Then, the dentist will clean the area and cover the pulp with medicine to protect it from becoming infected.

Once the pulp is capped, the dentist will place a temporary or permanent dental filling in the tooth. If it works, dentin should regenerate over the pulp cap. The procedure usually requires a follow-up [visit to the clinic](#) after several weeks to see if the dentin is developing correctly.

About author:



Doctor Dario Vieira Pereira

Dr. Dario Vieira Pereira is the medical director of our Pro dental centers located in Barcelona, Madrid and Badalona.

Dr. Dario Vieira Pereira is an expert in aesthetic dental treatments. He ensures patients recover a bright and natural smile and maintain a healthy hygiene daily to prevent future oral issues.

He has passed a Master in surgery and implantology at Facultad de Odontología, at the Universidad de Barcelona

Current Regulations for Dental Assistant II

1. Patient's name on each page in the patient record;
2. Radiographs, digital images, and photographs clearly labeled with the patient name, date taken, and teeth identified; and
3. Notation of each treatment rendered, date of treatment and the identity of the dentist, the dental hygienist, or the dental assistant providing service.

B. A dental assistant shall comply with the provisions of § 32.1-127.1:03 of the Code related to the confidentiality and disclosure of patient records. A dental assistant shall not willfully or negligently breach the confidentiality between a practitioner and a patient. A breach of confidentiality that is required or permitted by applicable law or beyond the control of the assistant shall not be considered negligent or willful.

18VAC60-30-110. Acts constituting unprofessional conduct.

The following practices shall constitute unprofessional conduct within the meaning of § 54.1-2706 of the Code:

1. Fraudulently obtaining, attempting to obtain, or cooperating with others in obtaining payment for services.
2. Performing services for a patient under terms or conditions that are unconscionable. The board shall not consider terms unconscionable where there has been a full and fair disclosure of all terms and where the patient entered the agreement without fraud or duress.
3. Misrepresenting to a patient and the public the materials or methods and techniques used or intended to be used.
4. Committing any act in violation of the Code reasonably related to dental practice.
5. Delegating any service or operation that requires the professional competence of a dentist, dental hygienist, or dental assistant II to any person who is not authorized by this chapter.
6. Certifying completion of a dental procedure that has not actually been completed.
7. Violating or cooperating with others in violating provisions of Chapter 1 (§ 54.1-100 et seq.) or 24 (§ 54.1-2400 et seq.) of Title 54.1 of the Code or the Drug Control Act (§ 54.1-3400 et seq. of the Code).

Part IV. Entry Requirements for Dental Assistants II.

18VAC60-30-115. General application requirements.

A. All applications for registration as a dental assistant II shall include:

1. Evidence of a current credential as a Certified Dental Assistant (CDA) conferred by the Dental Assisting National Board or another certification from a credentialing organization recognized by the American Dental Association and acceptable to the board, which was granted following passage of an examination on general chairside assisting, radiation health and safety, and infection control;
2. Verification of completion of educational requirements set forth in 18VAC60-30-120; and
3. Attestation of having read and understood the laws and regulations governing the practice of dentistry and dental assisting in Virginia and of the applicant's intent to remain current with such laws and regulations.

18VAC60-30-120. Educational requirements for dental assistants II.

A. A prerequisite for entry into an educational program preparing a person for registration as a dental assistant II shall be current certification as a Certified Dental Assistant (CDA) conferred by the Dental Assisting National Board.

B. To be registered as a dental assistant II, a person shall complete the following requirements from an educational institution that maintains a program in dental assisting, dental hygiene or dentistry accredited by CODA:

1. At least 50 hours of didactic course work in dental anatomy and operative dentistry that may be completed online.

2. Laboratory training that may be completed in the following modules with no more than 20% of the specified instruction to be completed as homework in a dental office:

a. At least 40 hours of placing, packing, carving, and polishing of amalgam restorations and pulp capping procedures;

b. At least 60 hours of placing and shaping composite resin restorations and pulp capping procedures;

c. At least 20 hours of taking final impressions and use of a non-epinephrine retraction cord; and

d. At least 30 hours of final cementation of crowns and bridges after adjustment and fitting by the dentist.

3. Clinical experience applying the techniques learned in the preclinical coursework and laboratory training that may be completed in a dental office in the following modules:

a. At least 80 hours of placing, packing, carving, and polishing of amalgam restorations;

b. At least 120 hours of placing and shaping composite resin restorations;

c. At least 40 hours of taking final impressions and use of a non-epinephrine retraction cord; and

d. At least 60 hours of final cementation of crowns and bridges after adjustment and fitting by the dentist.

4. Successful completion of the following competency examinations given by the accredited educational programs:

a. A written examination at the conclusion of the 50 hours of didactic coursework;

b. A practical examination at the conclusion of each module of laboratory training; and

c. A comprehensive written examination at the conclusion of all required coursework, training, and experience for each of the corresponding modules.

C. All treatment of patients shall be under the direct and immediate supervision of a licensed dentist who is responsible for the performance of duties by the student. The dentist shall attest to successful completion of the clinical competencies and restorative experiences.

18VAC60-30-130. Reserved.

18VAC60-30-140. Registration by endorsement as a dental assistant II.

A. An applicant for registration by endorsement as a dental assistant II shall provide evidence of the following:

1. Hold current certification as a Certified Dental Assistant (CDA) conferred by the Dental Assisting National Board or another national credentialing organization recognized by the American Dental Association;

2. Be currently authorized to perform expanded duties as a dental assistant in each jurisdiction of the United States;

3. Hold a credential, registration, or certificate with qualifications substantially equivalent in hours of instruction and course content to those set forth in 18VAC60-30-120 or if the qualifications were not substantially equivalent the dental assistant can document experience in the restorative and prosthetic expanded duties set forth in 18VAC60-30-60 for at least 24 of the past 48 months preceding application for registration in Virginia.

B. An applicant shall also:

1. Be certified to be in good standing from each jurisdiction of the United States in which he is currently registered, certified, or credentialed or in which he has ever held a registration, certificate, or credential;

2. Not have committed any act that would constitute a violation of § 54.1-2706 of the Code; and

3. Attest to having read and understand and to remain current with the laws and the regulations governing dental practice in Virginia.

Part V. Requirements for Renewal and Reinstatement.

18VAC60-30-150. Registration renewal requirements.

A. Prior to 2022, every person holding an active or inactive registration shall annually, on or before March 31, renew his registration. Beginning in January of 2022, every person holding an active or inactive registration shall annually renew his registration in his birth month. Any person who does not return the completed form and fee by the deadline shall be required to pay an additional late fee.

B. The registration of any person who does not return the completed renewal form and fees by the deadline shall automatically expire and become invalid and his practice as a dental assistant II shall be illegal. Practicing in Virginia with an expired registration may subject the registrant to disciplinary action by the board.

C. In order to renew registration, a dental assistant II shall be required to maintain and attest to current certification from the Dental Assisting National Board or another national credentialing organization recognized by the American Dental Association.

D. A dental assistant II shall also be required to maintain evidence of successful completion of training in basic cardiopulmonary resuscitation.

E. Following the renewal period, the board may conduct an audit of registrants to verify compliance. Registrants selected for audit shall provide original documents certifying current certification.

18VAC60-30-160. Inactive registration.

A. Any dental assistant II who holds a current, unrestricted registration in Virginia may upon a request on the renewal application and submission of the required fee be issued an inactive registration. The holder of an inactive registration shall not be entitled to perform any act requiring registration to practice as a dental assistant II in Virginia.

B. An inactive registration may be reactivated upon submission of evidence of current certification from Dental Assisting National Board or a national credentialing organization recognized by the American Dental Association. An applicant for reactivation shall also provide evidence of continuing

**VIRGINIA BOARD OF DENTISTRY
DELEGATION TO DENTAL ASSISTANTS**

<u>DUTIES THAT MAY BE DELEGATED TO DENTAL ASSISTANTS I AND II UNDER INDIRECT SUPERVISION OF A DENTIST</u>
<u>GENERAL SERVICES</u>
Prepare patients for treatment/seating/positioning chair/placing napkin
Perform health assessment
Preventive education and oral hygiene instruction
Perform mouth mirror inspection of the oral cavity
Chart existing restorations and conditions as instructed by the dentist
Take, record and monitor vital signs
Transfer dental instruments
Prepare procedural trays/armamentaria set-ups
Maintain emergency kit
Sterilization and disinfection procedures
Compliance with OSHA Regulations and Centers for Disease Control Guidelines
Prep lab forms for signature by the dentist
Maintenance of dental equipment
Select and manipulate gypsums and waxes
<u>RADIOLOGY and IMAGING</u>
Mount and label images
Place x-ray film and expose radiographs <u>ONLY WITH REQUIRED TRAINING</u>
Use intraoral camera or scanner to take images for tooth preparation and CAD CAM restorations
<u>RESTORATIVE SERVICES</u>
Provide pre- and post operative instructions
Place and remove dental dam
Maintain field of operation through use of retraction, suction, irrigation, drying
Acid Etch - Apply/wash/dry remove only when reversible
Amalgam: Place only
Amalgam: Polish only with slow-speed handpiece and prophy cup
Apply pit and fissure sealants
Apply and cure primer and bonding agents
Fabricate, cement, and remove temporary crowns/restorations
Make impressions and pour and trim study/diagnostic models and opposing models
Make impressions for athletic/night/occlusal/snore mouthguards and fluoride/bleaching trays
Matrices - place and remove
Measure instrument length
Remove excess cement from coronal surfaces of teeth
Remove sutures
Dry canals with paper points
Mix dental materials
Place and remove post-extraction dressings/monitor bleeding
Rubber Dams: Place and remove
Sterilization and disinfection procedures
Take bite and occlusal registrations
<u>HYGIENE</u>
Apply dentin desensitizing solutions
Apply fluoride varnish, gels, foams and agents
Apply pit and fissure sealant
Address risks of tobacco use
Give oral hygiene instruction
Polish coronal portion of teeth with rotary hand piece and rubber prophy cup or brush
Place and remove periodontal dressings
Clean and polish removable appliances and prostheses

**VIRGINIA BOARD OF DENTISTRY
 DELEGATION TO DENTAL ASSISTANTS**

<u>DUTIES THAT MAY BE DELEGATED TO DENTAL ASSISTANTS I AND II UNDER INDIRECT SUPERVISION OF A DENTIST CONTINUED</u>
<u>ORTHODONTICS</u>
Place and remove elastic separators
Check for loose bands and brackets
Remove arch wires and ligature ties
Place ligatures to tie in archwire
Select and fit bands and brackets for cementation by dentist
Instruct patients in placement and removal of retainers and appliances after dentist has fitted and made adjustments in the mouth
Take impressions and make study models for orthodontic treatment and retainers
<u>BLEACHING</u>
Take impressions and fabricate bleaching trays
Apply bleach/whitener
Bleach with light but not laser
Instruct pt on bleaching procedures
<u>SEDATION AND ANESTHESIA SERVICES</u>
Apply topical Schedule VI anesthetic
Monitor patient under nitrous oxide
Monitor patient under minimal sedation/anxiolysis
Monitor patient under moderate/conscious sedation <u>ONLY WITH REQUIRED TRAINING</u>
Monitor patient under deep sedation/general anesthesia <u>ONLY WITH REQUIRED TRAINING</u>
Take blood pressure, pulse and temperature
<u>DUTIES THAT MAY BE DELEGATED TO DENTAL ASSISTANTS I AND II UNDER INDIRECT SUPERVISION OF A DENTAL HYGIENIST</u>
Prepare patients for treatment/seating/positioning chair/placing napkin
Perform health assessment
Preventive education and oral hygiene instruction
Transfer dental instruments
Prepare procedural trays/armamentaria set-ups
Maintain emergency kit
Sterilization and disinfection procedures
Compliance with OSHA Regulations and Centers for Disease Control Guidelines
Maintenance of dental equipment
Polish coronal portion of teeth with rotary hand piece and rubber prophy cup or brush
Place and remove periodontal dressings
Clean and polish removable appliances and prostheses
Mount and label images
Place x-ray film and expose radiographs <u>ONLY WITH REQUIRED TRAINING</u>
<u>DUTIES THAT MAY ONLY BE DELEGATED TO DENTAL ASSISTANTS II UNDER DIRECT SUPERVISION OF A DENTIST</u>
Condense/pack and carve amalgam
Place, cure and finish composite resin restorations only with slow-speed handpiece
Apply base and cavity liners/perform pulp capping procedures
Final cementation of crowns and bridges after adjustment and fitting by the dentist
Make final impressions and fabricate master casts
Place and remove non-epinephrine retraction cord

Proposed Regulations for Dental Assistant II



Final Text

highlight

Action: Education and training for dental assistants II

Stage: Final

9/16/20 10:00 AM

18VAC60-30-60. Delegation to dental assistants II.

The following duties may only be delegated under the direction and direct supervision of a dentist to a dental assistant II who has completed the coursework, corresponding module of laboratory training, corresponding module of clinical experience, and examinations specified in 18VAC60-30-120:

- ~~1. Performing pulp capping procedures;~~
- ~~2. Packing and carving of amalgam restorations;~~
- ~~3. Placing and shaping composite resin restorations with a slow speed handpiece;~~
- ~~4. Taking final impressions;~~
- ~~5. Use of a non-epinephrine retraction cord; and~~
- ~~6. Final cementation of crowns and bridges after adjustment and fitting by the dentist.~~

18VAC60-30-116. Requirements for educational programs.

In order to train persons for registration as a dental assistant II, an educational program shall meet the following requirements:

1. The program shall be provided by an educational institution that maintains a program accredited by the Commission on Dental Accreditation of the American Dental Association.
2. The program shall have a program coordinator who is registered in Virginia as a dental assistant II or is licensed in Virginia as a dental hygienist or dentist. The program coordinator shall have administrative responsibility and accountability for operation of the program.
3. The program shall have a clinical practice advisor who is a licensed dentist in Virginia and who may also serve as the program coordinator. The clinical practice advisor shall assist in the laboratory training component of the program and conduct the program's calibration exercise for dentists who supervise the student's clinical experience.
4. A dental assistant II, registered in Virginia, who assists in teaching the laboratory training component of the program shall have a minimum of two years of clinical experience in performing duties delegable to a dental assistant II.
5. The program shall enter into a participation agreement with any dentist who agrees to supervise clinical experience. The dentist shall successfully complete the program's calibration exercise on evaluating the clinical skills of a student. The dentist supervisor may be the employer of the student.

Proposed Regulations for Dental Assistant II

6. Each program shall enroll practice sites for clinical experience, which may be a dental office, a nonprofit dental clinic, or an educational institution clinic.

7. All treatment of patients shall be under the immediate supervision of a licensed dentist who is responsible for the performance of duties by the student. The dentist shall attest to the successful completion of the clinical competencies and restorative experiences.

18VAC60-30-120. Educational requirements for dental assistants II.

A. A prerequisite for entry into an educational program preparing a person for registration as a dental assistant II shall be current certification as a Certified Dental Assistant (CDA) conferred by the Dental Assisting National Board [or active licensure as a dental hygienist].

B. To be registered as a dental assistant II, a person shall complete ~~the following requirements~~ a competency-based program from an educational institution that ~~maintains a program in dental assisting, dental hygiene or dentistry accredited by CODA~~ meets the requirements of 18VAC60-30-116 and includes all of the following:

1. ~~At least 50 hours of didactic course work~~ Didactic coursework in dental anatomy and operative dentistry ~~that may be completed online~~ that includes basic histology, understanding of the periodontium and temporal mandibular joint, pulp tissue and nerve innervation, occlusion and function, muscles of mastication, and any other item related to the restorative dental process.

2. Didactic coursework in operative dentistry to include materials used in direct and indirect restorative techniques, economy of motion, fulcrum techniques, tooth preparations, etch and bonding techniques and systems, and luting agents.

3. ~~Laboratory training that may to be completed~~ Laboratory training ~~in the following modules with no more than 20% of the specified instruction to be completed as homework in a dental office:~~

a. ~~At least 40~~ No less than 15 hours of placing, packing, carving, and polishing of amalgam restorations, placement of a non-epinephrine retraction cord, and pulp capping procedures and no less than six class I and six class II restorations completed on a manikin simulator to competency;

b. ~~At least 60~~ No less than 40 hours of placing and shaping composite resin restorations, placement of a non-epinephrine retraction cord, and pulp capping procedures, and no less than 12 class I, 12 class II, five class III, five class IV, and five class V restorations completed on a manikin simulator to competency; and

c. ~~At least 20~~ 10 hours of ~~taking~~ making final impressions ~~and use~~, placement of a non-epinephrine retraction cord; ~~and~~, final cementation of crowns and bridges after preparation, and adjustment and fitting by the dentist, and no less than four crown impressions, two placements of retraction cord, five crown cementations, and two bridge cementations on a manikin simulator to competency.

d. ~~At least 30 hours of final cementation of crowns and bridges after adjustment and fitting by the dentist.~~

3. 4. Clinical experience applying the techniques learned in the preclinical coursework and laboratory training ~~that may be completed in a dental office,~~ in the following modules:

a. ~~At least 80~~ 30 hours of placing, packing, carving, and polishing of amalgam restorations, placement of a non-epinephrine retraction cord, and no less than six class I and six class II restorations completed on a live patient to competency;

Proposed Regulations for Dental Assistant II

b. ~~At least 120~~ 60 hours of placing and shaping composite resin restorations, placement of a non-epinephrine retraction cord, and no less than six class I, six class II, five class III, three class IV, and five class V restorations completed on a live patient to competency; and

c. ~~At least 40~~ 30 hours of ~~taking~~ making final impressions ~~and use~~; placement of a non-epinephrine retraction cord; ~~and final cementation of crowns and bridges after preparation, adjustment, and fitting by the dentist; and no less than four crown impressions, two placements of retraction cord, five crown cementations, and two bridge cementations on a live patient to competency.~~

~~d. At least 60 hours of final cementation of crowns and bridges after adjustment and fitting by the dentist.~~

~~4. 5.~~ Successful completion of the following competency examinations given by the accredited educational programs:

~~a. A written examination at the conclusion of the 50 hours of didactic coursework; and~~

~~b. A practical examination at the conclusion of each module of laboratory training; and~~

~~c. A comprehensive written examination at the conclusion of all required coursework, training, and experience for each of the corresponding modules clinical competency exam.~~

~~C. All treatment of patients shall be under the direct and immediate supervision of a licensed dentist who is responsible for the performance of duties by the student. The dentist shall attest to successful completion of the clinical competencies and restorative experiences. An applicant may be registered as a dental assistant II with specified competencies set forth in subdivision a, b, or c of subdivisions B 3 and B 4 of this section.~~