1845-1846
* William T.G. Morton, a Boston dentist, worked with dentist, Dr Horace Wells, to experiment with nitrous oxide as a way to relieve pain for dental procedures
* Morton & Wells demonstrated the use of nitrous oxide at Harvard Medical School, but failed to prove that it would deaden the pain of extracting teeth
* Morton began purchasing ether from a local chemist and tested it on himself and a menagerie of animals to determine safety and reliability, before using it on his dental patients
October 16, 1846

* Morton first publicly demonstrated the use of sulfuric ether to anesthetize patient Edward Gilbert Abbott, who underwent surgery to remove a vascular tumor from his neck, performed by Dr. John Warren

* The surgery took place at Massachusetts General Hospital in what became known as “The Ether Dome”

* Morton named his creation “Letheon” after the River Lethe of Greek Mythology, whose waters were supposed to “erase painful memories”

1847

* In Scotland, obstetrician Professor James Y. Simpson began administering chloroform to women during childbirth

1849

* Georgia physician, Crawford W. Long published his work with anesthesia, years after he first administered ether to some of his surgical and obstetrics patients in 1842 (prior to Morton)

1853

* England’s John Snow, the first full-time physician-anesthetist, further popularized obstetric anesthesia by administering chloroform to Queen Victoria during the birth of her children in 1853 & 1857
**Current ASA Definitions:**

1. **Deep Sedation/Analgesia** is a drug-induced depression of consciousness during which an individual cannot be easily aroused but responds purposefully* following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. The individual may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained. [Emphasis added]

2. **General anesthesia** is a drug-induced loss of consciousness during which an individual is not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. The individual often requires 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. [Emphasis added]

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**Who Is Qualified To Safely Administer General Anesthesia?**

“Health care providers trained in the delivery of general anesthesia - specifically anesthesiologists and oral and maxillofacial surgeons. The American Society of Anesthesiologists has addressed this question in a statement prescribing the use of Propofol by individuals with no training in the performance of a general anesthetic. The ASA President at the time this ASA statement was published, Roger Litwiller, wrote:

Since members of AAOMS have a long history of safely using general anesthesia in the care of their patients, it is the feeling of the American Society of Anesthesiologists that the joint ASA/AANA statement is not intended for these AAOMS members.

As this quotation indicates, it is important to specifically include oral and maxillofacial surgeons as health care providers with extensive training in the administration of general anesthesia and specific agents such as Propofol. It is the official position of the ASA that non-anesthesiologist physicians should undergo anesthesia training comparable to the OMS before providing sedation and anesthesia services to their patients.”
CODA accreditation standards in anesthesia for the OMFS

* Off-service and on-service progressive experience throughout the training program
* All aspects of pain and anxiety control
* Outpatient and inpatient anesthesia
* Minimum of 300 patients general/deep sedation
* 150 cases must be ambulatory anesthetics
* 50 cases must be pediatric (18 years and under)

Didactic program including:
  a. Patient evaluation
  b. Risk assessment
  c. Anesthesia and sedation techniques
  d. Monitoring
  e. The diagnosis and management of complications.
Advanced Cardiac Life Support (ACLS) must be obtained in the first year of residency and must be maintained throughout residency training.

Residents must be certified in Pediatric Advanced Life Support (PALS) prior to the completion of training.

* Host **Anesthesia Safety Conference** at ASA Headquarters, April 2017
* Established **AAOMS BOT Subcommittee on Anesthesia Safety in the Oral and Maxillofacial Surgery Office** (see document),
* With more **precise and specific language**, we are drawing the clear distinction between **deep sedation with local anesthesia** and **general anesthesia** in advocating for the OMS anesthesia team model,
* Aggressively glean **data** on OMS office-based anesthesia from OMSNIC, CODA Annual Survey and OMSQOR as is possible, and
* Summarize the historical and ongoing AAOMS **commitment to safe, effective and accessibly inexpensive anesthesia** in the OMS office.
Communicate with anesthesia stakeholders to protect and advance the “OMS Anesthesia Team Approach”

Highlight specifics within the ASDA specialty application

ASDA number of providers (Pathology and Radiology),

ASDA relationship with DOCS, and

Itinerant ASDA model for special needs and medically challenging patients

Emphasize the AAOMS role advancing safety in dental office-based anesthesia

ADA Guidelines for the Use of Sedation and General Anesthesia By Dentists, and

ADA Guidelines for Teaching Pain Control and Sedation To Dentists and Dental Students

Use greater specificity and accuracy in terminology describing the OMS anesthesia model

Provide accurate data about OMS anesthesia model
The OMS Anesthesia Team Model

RESPONSIBILITY: Every year, millions of office-based anesthetics are safely performed by oral and maxillofacial surgeons who have unique training and education to perform such procedures. Along with negative publicity and criticism, each adverse oral and maxillofacial surgery (OMS) anesthesia outcome brings opportunities to improve the OMS anesthesia team approach. It is our responsibility to continually enhance lifelong OMS anesthesia education, and training, the requirements of our self-imposed AAOMS OME Program, and our AAOMS anesthesia assistant courses and the Dental Anesthesia Assistant’s Certification Examination (DAAE).

ANESTHESIA EDUCATION AND TRAINING: Specific AAOMS Board of Trustees actions regarding anesthesia education and training include the development of anesthetics and emergency management simulation programs (e.g., Basic Emergency Airway Management [BEAM] and Office-Based Crisis Management [OBCM]), as well as support for increased CCAOMS standards, and requirements for resident rotations on the medical anesthesia service. Meetings with experts in anesthesia delivery and education have confirmed their conviction that these changes are substantive and important (e.g., Linda Maser, MD, Andy Nejad, DMD, and Ed Adellogi, DMD).
The OMS Anesthesia Team Model

MEDICAL PER-ANESTHESIA PATIENT ASSESSMENT: Perhaps the single most important factor in the delivery of safe office-based anesthesia is patient selection. A combined seven months of OMS resident rotation on the medicine (2 months) and medical anesthesia services (5 months) have long formed an educational foundation for the delivery of safe OMS anesthesia care, and is distinctive for OMS among the providers of anesthesia care in dentistry. When the OMS resident rotates on the medicine and medical anesthesia services, pre-anesthesia patient assessment should be emphasized over the diagnosis of occult disease. Our priority given to pre-anesthesia patient assessment in either one or two months of medicine rotation combined with a respective five or four months of medical anesthesia rotation would have a direct application on the safe practice of OMs.

INTEGRAL ANESTHESIA SERVICES: Both clinically and financially, the delivery of sedation and anesthesia is integral to the success/practice of OMS. OMS residency programs have an obligation to provide training in competence in the fields of sedation and anesthesia that their graduates will perform. A large number of OMS patients require sedation/anesthesia in order to be treated, and adequate/available anesthesia availability is the key for a large percentage of referrals to the OMS. Compared to other methods of anesthesia delivery, OMS sedation/anesthesia care is cost effective for patients and society. It also accounts for more than 25% of collections for the average OMS practice.

PATIENT SAFETY AND ACCESS TO CARE: The public, the media, policy makers, legislators and other stakeholders in office-based anesthesia are scrutinizing our commitment to anesthesia safety, some with an agenda opposing our anesthesia model. Greater emphasis on anesthesia care in our residency programs is needed to advance patient safety and access to care.

Factors Contributing To A Culture Of Anesthesia Safety In The OMS Office

1. Resident Education and Training – Targeted at pre-operative risk assessment of patients across a wide spectrum of age and risk factors affecting patients, understanding anesthetic agents and techniques of administration and recognition and management of adverse events.

2. Continuing Education – Ongoing / Continuous education of the practicing OMS and his/her team, targeted toward pre-operative risk assessment, agents and techniques and recognition and management of adverse events.

   The above training must be designed for OMS to develop good judgment with an eye toward the selection of appropriate agents and techniques and encourage the ability to say “no” to any given patient when it comes to accessing who is an appropriate candidate to receive anesthesia.

3. Office Facility – The facility must be intimately familiar to the doctor and his/her team and be specifically designed to promote safety in the management and recovery of patients.

4. Team Model – Must include the entire team of individuals responsible for the care of the patient ranging from licensed assistants and nurses to the oral and maxillofacial surgeon in charge of treatment.

5. Management of Medical Emergencies – The anesthetic team and other support personnel must be trained and certified in recognition and management of emergencies. Regular mock drills must be conducted and targeted to address a wide variety of potential emergency events.

6. Office Anesthesia Evaluation Program – Important tool for the OMS office to use in organizing its team in the effort to provide safe anesthesia. Also provides a standard for the public.
* The AAOMS BOT is working hard to enhance AAOMS communication with Component Societies, State BOD Members and Consultants who are AAOMS Members, and Members of State Anesthesia Committees who are AAOMS Members.

AAOMS is preparing manuals on topics including:

- State anesthesia permit process including office inspection (with discussion of facility inspection and integrating our AAOMS OAE);
- Specialty recognition and advertising that includes AAOMS model legislation (based on Colorado);
- Definitions of dentistry and dental specialties in state dental practice acts and BOD rules; and
- State specialty licensure.

* Real OMS Anesthesia Data

All surgical procedures and all forms of anesthesia in every healthcare setting carry risks. The overall estimated mortality rate from hospital-based anesthesia in the United States is approximately 1 in 100,000.\(^{5,6}\) In comparison, the overall estimated mortality rate from office-based OMS anesthetics is 1 in 648,794.\(^{7,22}\) This difference is striking, but not surprising. One would expect a lower mortality rate with the OMS Team Model. Unlike other operating room surgeries, the typical, office-based anesthetic is less deep, the surgeries are minor, short and interruptible, and the patients are relatively healthy individuals. Multiple academic papers published in peer-reviewed, scientific journals attest to this safety record.
Repeatedly, retrospective and prospective studies, individual case studies, surveys, and closed claims reports report very low morbidity and mortality rates for OMS anesthesia delivery. In a 2003, prospective, cohort study of more than 34,000 patients, Perrott et al., reported an overall complication rate of 1.3% for office-based ambulatory anesthesia by the OMS Anesthesia Team Model. Most complications were minor and self-limiting, and no complication resulted in long-term adverse sequelae. There were no deaths reported in this study of more than 34,000 patients.

Most recently, Inverso et al., 2016, published a multi-center, prospective study of 29,548 adolescent patients undergoing moderate sedation or deep sedation/general anesthesia in an outpatient setting. They reported overall complication rates for moderate sedation of 0.5% and 0.9% for deep sedation/general anesthesia. The most common complications were vomiting and prolonged emergence from anesthesia. Multivariable logistic regression analysis showed no increase in risk between deep sedation/general anesthesia and moderate sedation in an outpatient setting. As in earlier studies, Inverso reported no deaths in this large, multi-center trial. Inverso’s findings are particularly relevant to discussions surrounding AB 2235, as all of the 29,548 subjects were pediatric patients less than 21 years old.

AAOMS Needs Better Anesthesia Data

Also, AAOMS is in the final stages of β-testing a national registry to prospectively track rare anesthetic adverse events. This anesthesia registry will interface directly with OMS’ practice management systems to provide needed prospective data. Commonalities gleaned from the registry will be helpful in further reducing anesthesia morbidity and mortality.

ADA Guidelines for the Use of Sedation and General Anesthesia by Dentists and the ADA Guidelines for Teaching Pain Control and Sedation to Dentists and Dental Students

• As dental professionals, we acknowledge the major role of anesthesia in dentistry, and recognize dentistry’s outstanding contributions to the field. Patient access to safe sedation in the dental office is important, and should be promoted. Guidelines for the use of safe sedation in dentistry must take into consideration that:

1. The level of sedation (e.g., minimal sedation, moderate sedation, deep sedation/general anesthesia) is more important than the route of administration.
2. Due to the continuum of sedation and to the variation in patient response to sedative drugs, the provider must be prepared to resuscitate at a level deeper than intended, utilizing the appropriate emergency measures.
3. Appropriate sedation monitoring includes pulse oximetry, capnography and ECG monitoring in addition to direct observation by trained personnel.
4. It has been shown that the addition of capnography to monitoring protocols provides advance warning of hypoxic events, and is more reliable than pulse oximetry in the early detection of respiratory depression.
5. Capnography equipment has advanced in the past 20 years to the point that it is an accurate and dependable source of information in an open airway system (non-intubated patients), and is an important patient safety tool in the office.
6. The delivery of safe and high quality anesthesia care, as well as advanced patient monitoring is the standard of care that must be maintained to ensure patient safety.

• The Council on Dental Education and Licensure (CDE) should be commended for its effort to assist dentists in the delivery of safe and effective sedation and anesthesia. The new ADA Guidelines for the Use of Sedation and General Anesthesia by Dentists and the new ADA Guidelines for Teaching Pain Control and Sedation to Dentists and Dental Students, as recommended by the CDE, should be adopted.
**Should Kids Be Sedated for Dental Work?**

By CATHARINE SAINET-LOXH Aug. 24, 1997

In dental offices nationwide, children are increasingly sedated or treated with conscious sedation instead. Usually, it is done for the child's comfort and convenience.

They may swallow a liquid sedative or take a pill 30 minutes before the procedure. The medicine is absorbed, so the child is less uncomfortable.

But in some cases, children fall into a much deeper level of sedation than intended. If they are injected quickly, they may feel dizzy or even convulse. It is rare for this to occur, but the doctor's ability to stop the patient's vital signs and quickly recognize an unanticipated problem is a priority with the dentist or anesthetist.

In recent years, a few reports of selected children dying at dental offices have come to light, alerting interior departments and the dental profession. In an interview, University of Washington researchers found an excess of three times in which dental patients died after sedation or general anesthesia. Three were in a year total.

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**Challenges To The Dental Anesthesia Model “Caleb’s Law:” California Assembly Bill 2235**

Anesthesia/Benny Toz, 35th Assembly District

**IN BRIEF**

AB 2235 will increase the safety of administering general anesthesia and sedation to children by requiring the California Dental Board to study appropriate safety regulations for dental offices and to regulate the use of sedation. The database will include adverse events linked to dental anesthesia, using unanesthetized children for emergency sedation.

**THE ISSUE**

Dentists, including oral surgeons, are administering anesthesia, including general anesthesia and sedation, more frequently to children and are using more potent and dangerous drugs in their procedures. Dentists are also the only healthcare professionals who have found that there is a lack of hard evidence required.

**THE SOLUTION**

AB 2235 requires that the California Dental Board establish a database of adverse events related to pediatric anesthesia and sedation in the state. The database will include adverse events reported by the California Dental Board and other states. The database will be published annually and will be used to develop guidelines for the safe administration of anesthetic agents. The database will also include more frequent monitoring and clarification of adverse events.

Finally, AB 2235 will require that patients be informed by the dental board of adverse events and sedation in dental offices shall inform patients of specific risks associated with dental anesthesia, unless the patient requests otherwise and the specified safety regulations are met.
Caleb’s Law:

THE ISSUE

Dentists, including oral surgeons, are administering anesthesia, including general anesthesia and sedation, more frequently to children and are using more powerful and dangerous drugs in their procedures. Dentists are also the only healthcare professionals who perform operations while simultaneously administering anesthesia. Other healthcare professions require a separate person, trained in anesthesia, to administer anesthesia and to monitor the patient. Dentists are also less likely to use recommended monitoring technologies, such as capnography or EKG, when administering anesthesia. As a result, there are a disproportionate number of deaths, especially of children, linked to dental anesthesia. The actual number of deaths of children is not available for study. Available reports show that 55 people died in California from dental anesthesia between 2008 and 2011, and at least two young, healthy children died in California from dental anesthesia in 2015 alone.

Caleb’s Law:

In contrast, a large study of adverse events from anesthesia administered in medical outpatient facilities reported zero deaths. There is, however, no comprehensive database of adverse events linked to dental anesthesia.
**Caleb’s Law:**

**SUPPORT**

American Society of Dentist Anesthesiologists

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**Dental Board of California Recommendations:**

Dental Board of California
Subcommittee on Pediatric Dental Sedation
Preliminary Recommendations for Discussion
Published October 3, 2016

Since spring 2016, the Dental Board of California (Board) has been conducting research into whether or not California’s present laws, regulations, and policies are sufficient to provide protection of pediatric patients during dental sedation.

The Board released its working document July 21, 2016, and conducted outreach to stakeholders and the public, including a public workshop held on July 28, 2016 in Sacramento, an invitation to submit comments, and opportunity for comment at a full board meeting held in Sacramento on Friday August 19, 2016.

Since that time, the Board has received numerous comments on the issue of pediatric sedation and anaesthesia. The subcommittee has now received sufficient input to make preliminary recommendations.

After carefully weighing the available options, the subcommittee recommends the following:

1. The board should continue to research the collection of high quality pediatric outcomes data to inform decision making.

2. Update definitions of general anesthesia, conscious sedation, pediatric and adult oral sedation for consistency with the definitions of minimal sedation, moderate sedation, deep sedation, and general anesthesia.

3. Restructure the dental sedation and anesthesia permit system.
Dental Board of California Recommendations:

ii. Additional requirements for a general anesthesia permit holder to treat patients under age 7: (new)

1. Completion of an appropriate number of hours of education related to pediatric anesthesia as determined by the Board.
2. Documentation of a sufficient number of cases for children under age 7 for an initial application and for each permit renewal.
3. The holder of an age restricted (no patients under age 7) general anesthesia permit, may administer general anesthesia to patients under the age of 7 under the supervision of the holder of an unrestricted general anesthesia permit.
4. Supervised cases shall be submitted to the board as documentation to allow an age restricted anesthesia permit holder to qualify for an unrestricted general anesthesia permit.

California Legislative Update

Google's mantra is "Don't be evil," and in similar terms, organized dentistry in California could learn a lot from Google. Caleb Sears death from anesthesia at an oral surgery office sparked the family to pursue legislation in California to improve patient safety. In 2015, Caleb's Law started with the intent of banning the operator anesthesia model in dentistry. The family soon realized the power of the dental lobby. In the end, the bill was gutted and did nothing to improve safety.

In 2017 the family returned to the legislature again to ban the operator anesthesia model. There were three bills currently in the California legislature, two of which are relevant. Senate Bill 501 (S501) and Assembly Bill 224 (AB224). S501 is sponsored by the California Association of Oral & Maxillofacial Surgeons and backed by formidable funding reserves of the California Dental Association. AB224 is sponsored by the American Academy of Pediatrics and supported by the family of Caleb Sears. S501, for all intents and purposes, is just window dressing. It does nothing to improve safety and maintains business as usual by keeping the oral surgery model of operator-anesthesia, or the "team model," intact – contrary to the AAP-AAPD Guidelines. S501 requires Pediatric Advanced Life Support (PALS) and it does require a pediatric endorsement on the general anesthesia permit, but qualification for an endorsement is easy enough that almost anyone can get one. In the end it has the appearance of increasing safety, but realistically it does nothing but maintain the current practices as is. AB224 required a separate monitor for anesthesia and specifies who qualifies.

Again, the CDA lobbied against AB224 and supported S501. Assemblyman Thurmond eventually pulled his bill from the Senate committee rather than have it amended into impotence. So while AB224 is still alive with barely a pulse, nothing is expected to move on this issue until next year. Meanwhile, with CDA support and substantial funding to legislators, S501 sailed through committee. It will now go to the Assembly Floor for a vote and eventually to the Governor for his signature.

This fight has polarized medicine and dentistry regarding anesthesia modalities. The American Academy of Pediatrics and the California Society of Anesthesiologists have taken note and are working to improve safety in dental offices. The California Association of Oral and Maxillofacial Surgeons with the CDA and the California Society of Pediatric Dentistry have all taken the position that puts financial gain ahead of patient safety. The CDA with all of its power may have won this battle, but I'm afraid the war is just getting started. Dentistry could learn from Google.
Proposal Regarding Deep Sedation/General Anesthesia (Code D9223):

With most non-intubated OMS office anesthetics that we now term "deep sedation/general anesthesia," the patient would respond purposefully to the painful stimulation of the surgical procedure if local anesthesia had not been administered. For our non-intubated OMS office anesthetics, perhaps we could better protect our OMS anesthesia team approach by referring to it as "deep sedation combined with local anesthesia." Of course, we would always clearly state our understanding of the continuum of anesthesia as well as the importance of appropriately managing the patient who moves from deep sedation into general anesthesia.

Perhaps we should change our emphasis to show that we are seeking the deep sedation plane (which includes regimens using such agents as midazolam, fentanyl, ketamine and/or Propofol) combined with effective local anesthesia for such OMS office anesthetics? We could now be fighting a battle (in defending what others call "operator-anesthesia delivery") that we will ultimately lose (putting our member's practice model and our patient's access to care at risk) if we do not communicate using definitions and terminology that has greater accuracy and specificity.

Perhaps we would have better success with the ASA and other parties of interest if we were to draw such distinctions. Such an approach that specified these distinctions could give the ASA the opportunity to remain true to their guidelines, while simultaneously accepting the OMS anesthesia model.