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What's New in the Patient Safety World

December 2023

State Struggles with Pediatric Dental Anesthesia

We've done many columns on dental patient safety, where the most pressing issue has been deaths of pediatric patients who received sedation for their dental procedure. Many states have enacted strict guidelines and regulatory requirements intended to reduce the risk of such events. But some states have been agonizingly slow to respond to the issue.

Arizona is one such state. "Nearly six years after an Arizona toddler died following a visit to the dentist, state regulators are proposing changes in how dentists treat their smallest patients" (Scripps 2023). Arizona State Senator Janae Shamp, who is also an operating room nurse, became concerned while reading a 2022 state audit of the dental board and learning that people had died after dental visits and that the dental board's Anesthesia and Sedation Committee had spent three years discussing possible changes, but there had been no rule changes. So Shamp sponsored Senate Bill 1602 which set deadlines for the dental board to act.

In Arizona, licensed dentists need a permit from Arizona's dental board to administer anesthesia and sedation. If the rule changes currently being considered are put in place, dentists who already have a permit in anesthesiology would have to:

- Apply and get an endorsement, known as a pediatric endorsement, to give anesthesia or sedation to anyone under age 8
- Be evaluated every two years
- Have to administer anesthesia to at least 20 pediatric patients within those two years

In California, following the death of a 6-year-old after general anesthesia for a tooth extraction in 2015, Caleb's Law was passed. It requires the California State Dental Board to collect and study data related to such tragedies, beginning in 2017. Helen Lee, a pediatric anesthesiologist at the University of Illinois Chicago who has published a study on trends in deaths associated with pediatric dental sedation and general anesthesia (Lee 2013), noted in an op-ed (Lee 2022) that in the five years since Caleb's Law took effect, data collection on the use of general anesthesia in dental procedures in the state has improved, an important step in safeguarding the health of California's children. But she laments the fact that such data is not widely shared and there is no systematic data

collection of pediatric dental complications in the United States. She notes that each state regulates licensing for pediatric dental sedation differently. Just 16 states require training specific to children, whose anatomy and drug responses differ from adults. Only 20 states require providers to be certified in Pediatric Life Support, a child-specific resuscitation certification. California requires basic life support training but not Pediatric Life Support. She makes a case for national standardization of accreditation and oversight for pediatric dental sedation.

Our September 2019 What's New in the Patient Safety World "New Guidelines for Pediatric Dental Sedation" discussed the 2019 update of the joint AAP (American Academy of Pediatrics) and the AAPD (American Academy of Pediatric Dentistry) "Guideline for Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures" (Cote 2019). This is a comprehensive guideline that notes how pediatric procedural sedation differs from that in adults and focuses on multiple facets of procedural sedation in pediatric patients:

- 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
- appropriate discharge instructions

That guideline was endorsed by the American Academy of Pediatrics, the American Academy of Pediatric Dentistry (AAPD), the American Society of Anesthesiologists (ASA), the Society for Pediatric Anesthesia, the American Society of Dentist Anesthesiologists, and the Society for Pediatric Sedation.

In our September 2019 What's New in the Patient Safety World "New Guidelines for Pediatric Dental Sedation" we stressed that perhaps the most important item in the guideline is a requirement that such procedures be done in the **presence of two qualified**

individuals. That means that the dentist or oral surgeon performing the dental or oral surgery procedure cannot be the individual administering and monitoring the sedation. This ensures that individuals are attending to one primary task and not involved in two different tasks simultaneously.

The guideline also clarifies that deep sedation or general anesthesia must be administered by a qualified anesthesia provider (a physician anesthesiologist, certified registered nurse anesthetist, dentist anesthesiologist or second oral surgeon). Because children commonly pass from an intended sedation level to an unintended deeper level of sedation, practitioners of sedation must have the skills to rescue the patient from a deeper level than that intended for the procedure. 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.

The guideline includes discussion on monitoring and documentation before, during, and after the procedure. There is good discussion on capnography for continuous expired carbon dioxide measurement. The guideline also emphasizes **caution**, as we have in multiple columns, regarding the use of devices such as "**papooses**" that might restrict chest movement or obstruct airways. We were also pleased to see the guideline emphasizes the need, for nonhospital facilities, for a protocol for the immediate activation of the EMS system for life threatening complications. We've previously advised that drills and simulations include even front office staff so they can facilitate such emergency responses.

The guidelines are comprehensive and go a long way to ensure the safety of pediatric patients undergoing sedation and/or anesthesia for dental procedures. But what is lacking in many states is a mechanism for ensuring that these guidelines are being followed.

Some of our previous columns on dental patient safety issues:

March 15, 2016 "Dental Patient Safety"
August 2016 "Guideline Update for Pediatric Sedation"
March 28, 2017 "More Issues with Dental Sedation/Anesthesia"
August 8, 2017 "Sedation for Pediatric MRI Rising"
November 28, 2017 "More on Dental Sedation/Anesthesia Safety"
July 2019 "Dental Prescribing Called Into Question"
September 2019 "New Guidelines for Pediatric Dental Sedation"
May 5, 2020 "COVID-19 and the Dental Office"
January 25, 2022 "More on Dental Patient Safety Issues"

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https://www.10news.com/dental-board-considers-new-rules-after-kids-die-following-anesthesia

Arizona Senate Bill 1602:dental anesthesia; requirements
https://trackbill.com/bill/arizona-senate-bill-1602-dental-anesthesia-requirements/2346303/

Lee HH, Milgrom P, Starks H, Burke W. Trends in Deaths Associated with Pediatric Dental Sedation and General Anesthesia. Pediatric Anesthesia 2013; 23(8):741-746
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