# The American Association of Oral and Maxillofacial Surgeons Simulation Program

David W. Todd, DMD, MD[a], John J. Schaefer III, MD[b,*]

**KEYWORDS**

• Simulation training • Patient safety • Airway management • Team training • Mastery-based practice • Cooperative learning

**KEY POINTS**

- Patient safety in office-based dental anesthesia needs to be improved so that the public, regulators, and patients can be assured that practitioners are competent.
- Simulation training offers doctors the ability to deliberately practice airway management, prepare for adverse events, and learn sedation techniques.
- Past simulation courses in dental anesthesia have not been successful because of excess cost and lack of standardization, objective grading criteria, and a database collection mechanism to support reporting across multiple sites.
- The American Association of Oral and Maxillofacial Surgeons (AAOMS) simulation program will be regionally available and offer a practical cost structure, objective grading criteria, and automatic data collection to support reporting, validation research, and quality assurance.
- The AAOMS simulation program will consist of 3 parts: a course focused primarily on basic emergency airway management, a course on preparation for office-based team crisis management, and a course on intravenous sedation.

## INTRODUCTION

Simulation training in anesthesia has been used over the past decade in an attempt to improve patient safety and better prepare clinicians to handle a variety of adverse events that can occur in an anesthetic case. Simulation offers deliberate practice of rare, potentially life-threatening events, evaluation of knowledge and skills, and development of teamwork and communication without the threat of harming real patients. At present, simulation training has developed to the point that it may be possible to assess a clinician's competency to perform treatment. This article focuses on the efforts of the American Association of Oral and Maxillofacial Surgeons (AAOMS) to improve anesthesia safety for oral and maxillofacial surgeons (OMSs) using simulation. This article describes the challenges to improving patient safety in office-based dental anesthesia, the history of the AAOMS simulation program, the current status of the program, and the future of the program as it relates to office-based anesthesia.

Disclosure Statement: Dr Schaefer receives royalties through MUSC for a obstetrical simulation patent licensed by MUSC to Laerdal Medical. Dr Schaefer is currently receiving grant support from a US Department of Defense healthcare obstetrical simulation project. Dr Schaefer received grant support to MUSC from AAOMS for this project.

[a] Private Practice, 120 Southwestern Drive, Lakewood, NY 14750, USA; [b] Department of Anesthesia and Perioperative Medicine, Medical University of South Carolina, 167 Ashley Avenue, Suite 301, MSC 912, Charleston, SC 29425-9120, USA

* Corresponding author.

*E-mail address:* jjs3md@gmail.com

Oral Maxillofacial Surg Clin N Am 30 (2018) 195–206
https://doi.org/10.1016/j.coms.2018.01.007

## THE CHALLENGE OF PATIENT SAFETY

In recent years, the safety of office-based anesthesia in the dental field has been called into question. Pediatric dentists, general dentists, OMSs, and dental anesthesiologists have had in-office deaths related to anesthesia administration. Although every death related to health care treatment is a tragedy for all involved, there is a difference in regulator, media, law makers, and general public perception of risk, rates of occurrence, and outcomes when a death occurs in an office versus hospital setting. Adverse events in hospitals are unlikely to be sensationalized in headlines the way that office-based events are, and true rates of adverse events in office settings are more difficult to determine given the emotional toll they take on involved parties. Regardless of the actual rate of occurrence of adverse events, office-based dental anesthesia needs to improve, and patient safety needs to be addressed and enhanced.

It is clear that OMS and all other fields of dentistry need to dedicate themselves to minimizing risk and improving outcomes of office-based anesthesia. As might be expected, a variety of adverse events can occur when performing office-based anesthesia, and severe morbidity and mortality outcomes often occur when the requirement for timely emergency airway management is not adequately provided. There are many challenges to improving patient safety in dentistry, one of which is that in an office environment, there are not many emergency resources readily available. Crisis team training (CTT) for all of the most common emergencies as well as familiarity with emergency drugs and equipment necessary for treatment must be performed frequently enough to maintain staff competency. The AAOMS Office Anesthesia Evaluation (OAE) program was developed more than 20 years ago and standardizes approaches for the facility, team members, emergency drugs, and emergency equipment for office anesthesia. The program has been updated regularly since its inception and provides a good foundation for patient safety; however, it cannot truly measure the competency of a clinician or team in an objective, standardized way. The AAOMS hopes to establish an anesthesia registry in the near future to study true occurrence rates for a variety of outcomes to understand trends and make educated plans for improvement. For most procedures an OMS performs, the procedural risk is low and not a determinant in the location of the procedure, office or hospital. But the first step to improving patient safety begins with proper patient selection: the responsible office anesthesia team must be able to exclude patients who are not good candidates for office-based surgery because of medical history or the results from a physical or airway examination. The competent application of patient safety principles applied to the delivery of anesthetic and sedation practices, concomitant with vigilant monitoring and patient recovery practices, can prevent or mitigate potential patient safety risks. Critical incidents can and will occur despite best practice patient safety care. Therefore, practices must maintain emergency equipment and medications, individual knowledge, and competency in the application of office-based, crisis team practices. AAOMS is committed to improving patient safety through the AAOMS OAE program, coupled with regional training opportunities for meaningful continuing education (CE). The trainings will apply simulation best practice training principles like those in use for commercial aviation simulated emergencies training.

One of the challenges to improving patient safety is the wide variety of practitioners performing office-based anesthesia in the dental field, including general dentists, pediatric dentists, OMSs, dental anesthesiologists, and other specialists. These groups have great variability in training and practitioner experience, and the states in which they practice have different anesthesia regulations and unique laws with contrasting definitions, permitting processes, and training requirements. Many states are just now defining increased requirements for treating pediatric patients under moderate sedation or general anesthetic, while most still allow treatment of pediatric patients if practitioners can satisfy the requirements for a general anesthetic permit regardless of whether the practitioner has experience with pediatric patients. The already steep challenge in standardizing patient safety is exacerbated by political division within dentistry. Some “general dentists” in the American Dental Association (ADA) believe that actions to further regulate and improve patient safety infringe on their right to practice. The goal and focus should be on patient safety, and optimizing patient safety will entail the collaboration of all dentists who provide dental anesthesia.

Concepts to improve patient safety are listed in **Box 1**, which reveals that most of these concepts can be addressed with simulation. **Box 2** describes what effective simulation can achieve.[1] Whether or not simulation is effective depends on the question asked. Simulation is a broad term that can include task trainers, human patient simulation, mannequin-based simulation, or virtual reality. It also depends on how it is structured, used, and measured.[2–6] Generally, in a variety of applications, skill transfers have been well documented. Educational outcomes (knowledge transfer) for some applications are also well