Simulation Training for the Office-Based Anesthesia Team

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KEYWORDS

• Team • Staff • Simulation • Training • Emergency • Office roles

KEY POINTS

- In the event of a medical emergency or crisis, a successful patient outcome relies on how well the office staff work together as a team.
- It is imperative to have a means to organize and optimize the resources of the entire office to provide the best possible care in case of an emergency.
- A pragmatic hands-on team training approach for in situ dental emergencies using simulation should be used.
- The future of simulation will involve 3 different models of simulation to address cost effectiveness and clinical applications: physical reality (patient mannequins), screen-based simulation, and virtual reality with either 2-D or 3-D with or without physical tools.
- Further research is needed to clarify how to most effectively use simulation to learn and maintain clinical proficiency in both routine and rarely used emergency situations.

INTRODUCTION

An OMS office is a complex environment. Within such an environment, a diverse scope of complex surgical procedures is performed with different levels of anesthesia, ranging from local anesthesia to general anesthesia, on patients with varying comorbidities. Optimal patient outcomes require a functional surgical and anesthetic team, who are familiar with both standard operational principles and emergency recognition and management. Offices with high volume and time pressure add further stress and potential risk to the office environment. Creating and maintaining a functional surgical and anesthetic team that is competent with a culture of patient safety and risk reduction is a significant challenge that requires time, commitment, planning, and dedication. This article focuses on the role of simulation training in office training and preparation.

WHAT IS SIMULATION?

Medical simulation is an artificial representation or imitation of a real event or process. It provides a safe environment, often immersive in nature, for both doctor and staff to have unlimited exposure to various experiences, both routine treatment and infrequent emergencies, without adverse consequences to any patient (**Box 1**). It is beneficial in providing education and assessment of both individual and team performance and of system operation and functionality. Both the educational and assessment components of simulation training are essential to simulation training. The simulation experience is actually incomplete without the

Box 1
Advantages of simulation training

1. Provide education and assessment in clinical operation (both routine and emergent)
2. Repetitive practice to address performance gaps without putting patients at risk
3. Real time "deliberate" practice of infrequent medical emergencies
4. Standardized experience with most emergency scenarios
5. Safe environment for both the doctor and staff members
6. Team and crisis resource training that is specific to the environment and personnel
7. Unlimited exposure to high-risk, low-incident cases
8. Ability to organize and customize training opportunities
9. Ability to provide immediate feedback
10. Opportunity for the entire office team to participate in training[13]

assessment or debriefing session. The debriefing provides an opportunity for the team to reflect on their performance in which strengths, weaknesses, and gaps are identified, which allows for an office to optimize operations, enhance dental team performance, and ultimately improve patient outcomes.

Simulation training develops both the individual and the team. Individual development focuses on knowledge, task acquisition, and equipment and drug familiarity. Team development emphasizes leadership, role delegation, workload distribution, closed loop communication, staff member empowerment, documentation, and stress reduction.

THE NEED FOR OFFICE-BASED SIMULATION TRAINING

In the hospital, there is a team of internal medical doctors, anesthesiologists, medical specialists, nurses, respiratory therapists, and pharmacists, who can respond to a medical challenge or medical emergency. By the simple nature of the hospital environment, this team is regularly exposed to complex medical situations. Even though medical emergency intervention is routine for this team of highly trained medical staff, many hospitals have regularly scheduled simulated drills throughout the hospital for certain scenarios.

In an OMS office, the minimal staffing may consist of 1 doctor, 1 anesthetic assistant, 1 surgical assistant, and possibly 1 front office staff member. Although many states require Advanced

Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS) for anesthesia certificates and the Office Anesthesia Evaluation program recommends regular emergency drills, there may be no mandatory training for anesthetic and surgical assistants other than Basic Life Support (BLS). This environment necessitates a different team model. Additionally, an OMS office is not a critical care center and the office may never or infrequently have been involved in the management of a medical challenge or medical emergency.

TYPES OF SIMULATORS

There are a variety of simulators that can be used to improve methods/processes (Box 2) and skills (Box 3) for managing both routine care and office emergencies. Simple task trainers have been shown to teach skills that transfer well to clinical care. Simple airway manikins allow bag-valve-mask (BVM) ventilation, nasopharyngeal and oral airway placement, supraglottic airway placement, and endotracheal intubation. By definition, most of the task simulators used in BLS and ACLS are simple simulators that do not expose a trainee to complex and difficult airway management tasks and scenarios. Cardiopulmonary resuscitation (CPR) manikins can be low fidelity with compression practice or high fidelity with recording of tidal volume, respiratory rate, compression depth, and compression rate. Simulation can be software based, where participants respond to a vital signs monitor display and manipulate tasks and drugs according to options in the menu. These programs can be used

Box 2
Procedural processes

1. Patient triage
   a. Taking and documenting vital signs
   b. How to review medical history
   c. Recognizing subtle signs of medical conditions
   d. Preanesthetic questions
2. Checklist
3. Timeout
4. Communication (closed loop)
5. Teamwork
6. Equipment familiarity
7. Drug familiarity
8. Intraoperative monitoring
9. Postoperative monitoring
10. Discharge operation