

Oral Surgery Patient Safety Concepts in Anesthesia



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KEYWORDS

- Human error • Crisis resource management • Checklists • Interactive cognitive aids
- In situ simulation • Debriefings

KEY POINTS

- Rather than placing blame on an individual when errors occur, Reason's approach is to modify systems to limit the likelihood of similar errors in the future.
- Crisis resource management provides a foundation for a safe patient treatment environment through effective use of personnel, emergency equipment, medications and supplies, and communication, seeking assistance when necessary.
- An effective office emergency preparedness plan is based on well-designed checklists, use of cognitive aids, and regular in situ emergency simulations.
- Technologic advancements have made it possible to develop interactive cognitive aids that enhance training of team members and provide more rapid access to essential information, during in situ simulations as well as during an actual crisis.
- A debriefing following an in situ simulation exercise is an invaluable teaching tool and provides an opportunity to "troubleshoot" systems, which require revision or updating.

INTRODUCTION

Of all the goals laid out in setting up an oral and maxillofacial surgery (OMS) practice, assuring patient safety is undoubtedly the most important. In reaching that goal, 4 objectives must be considered, 3 of which have been addressed in previous articles of this issue. These include the following:

1. Patient selection and preoperative workup: The patient's history and clinical findings must be carefully reviewed to assure that the patient is a candidate for an office-based anesthetic. The preoperative workup may entail consultation with the patient's primary care physician or other specialists, as well as obtaining appropriate laboratory studies in some cases.
2. Appropriate choice of anesthetic agents and careful delivery: The patient's anesthetic must be catered to his or her age, gender, habitus, and state of medical compromise.
3. Adequate training of the members of the anesthetic team: All members of the surgical and anesthetic team must be well trained and participate in continuing education.
4. An emergency preparedness plan to manage all anticipated untoward events: This article delves into this latter aspect of patient safety.

Managing Human Error

The foundation of a safe patient environment is firmly based on the anticipation of human error

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and dealing with it, as well as management of the various resources available for responding to a crisis (“crisis resource management”¹). Historically, the consequences of human error have been attributed to deficiencies in an individual. He or she is looked upon as being forgetful, inattentive, unintelligent, negligent, or reckless.² However, English psychology professor James Reason at the University of Manchester has posited the now widely accepted theory that human errors are more frequently the result of deficiencies in systems as opposed to individuals.³ He has proposed the “Swiss cheese model,” illustrated in Fig. 1. In this model, slices of Swiss cheese represent the culture of the operation with the various defenses and safeguards which have been established to prevent losses. However, when holes which have developed in these defenses align, a potential hazard then becomes a loss.

Reason’s approach to managing human error is to first create systems that limit the likelihood of an individual error. In surgery, there is considerable stress, such as fatigue due to sleep deprivation, heavy workloads, long commutes, a hierarchal culture, time restraints, and often poor supervision. In this setting, some errors are inevitable and should be anticipated. Thus, systems need to be in place that can detect early on the occurrence of an error and contain its damaging effects before a catastrophic loss takes place.⁴

Crisis resource management

The elements of Crisis Resource Management are directed toward the establishment of systems that satisfy Reason’s concepts. As described by Goldhaber-Fiebert and Howard¹ at Stanford Medical Center, there are 11 key points in the implementation of effective crisis resource management. These include the following:

1. Call for help early
2. Designate leadership

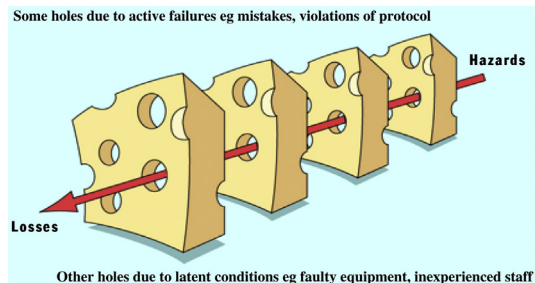


Fig. 1. Reason’s Swiss cheese model. (From Sarker SK, Vincent C. Errors in surgery. *Int J Surg* 2005;3(1):77; with permission.)

3. Establish role clarity
4. Distribute the workload
5. Communicate effectively
6. Anticipate and plan
7. Know the environment
8. Use all available information
9. Allocate attention wisely
10. Mobilize resources
11. Use cognitive aids

In the sections that follow, an emergency preparedness plan for the OMS office based on these key points is described. It was developed by the lead author of this article for the California Association of Oral and Maxillofacial Surgeons (CALAOMS) and the Department of Oral and Maxillofacial Surgery at the University of California at San Francisco. The components of the plan can be found on the CALAOMS Web site and are available to nonmembers as well as CALAOMS members. The Internet address for the folder containing these materials is: <https://www.calaoms.org/Robert>.

Implementation of the Emergency Preparedness Plan

This plan is implemented through the 3-step process outlined in later discussion. It should be designed and implemented by the surgeon and a staff member designated as the “Emergency Preparedness Coordinator.” The coordinator should ideally have experience as an anesthesia assistant and possess good organizational skills. It is his or her responsibility to monitor the various aspects of the office emergency preparedness plan and report to the surgeon on a regular basis (usually monthly) regarding the status of the plan. The process for establishing the plan includes the 3 following components:

1. Development of an office emergency preparedness plan based on well-designed checklists.
2. Incorporation of cognitive aids into the procedures and protocols for the management of anesthetic and medical emergencies.
3. Conducting regularly scheduled emergency simulations based on cognitive aids in the office setting (“in situ”) to prepare the office for potential emergencies. These in situ simulations should be augmented with simulation courses offered by professional organizations such as that described in David W. Todd and John J. Schaefer III’s article, “The American Association of Oral and Maxillofacial Surgeons (AAOMS) Simulation Program,” in this issue.

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