# Medical Emergency Preparedness for Dental Offices

***Part One of a Two-Part Article***

**by**

**Larry J. Sangrik, D.D.S.**

Before medical emergency preparedness courses, it is not uncommon for a dentist to remark, "*After decades of practice, I've been fortunate to never to have had a medical emergency occur on one of my patients.*" When said, most dentists are not boasting. Rather, they are conveying relief that they have avoided a major catastrophe. Unfortunately, their comment demonstrates a common misunderstanding of the nature of medical problems occurring during dental care.

## Understanding Medical Emergencies in Contemporary Dentistry

On average over the last decade, about four patients die each year during dental treatment. The majority are cases related to anesthesia/sedation services and a disproportionate percentage are children. Typically, these incidents garner local media attention. Depending on the specifics of the case and the family of the deceased, sometimes these events "go viral" on the internet and/or they gain the attention of the national media.

Because these media accounts provide the primary source of information for dentists, they come to some erroneous conclusions. They perceive medical emergencies to be highly infrequent, life-threatening events. Moreover, if their dental practice is not using sedation, they view the likelihood of an emergency in their personal practice as nearly non-existent.

This assumption is incorrect on two levels. Medical emergencies during dental care occur with a reasonable degree of frequency in nearly every dental practice. Secondly, most medical emergencies are not life-threatening and many do not involve transfer to a hospital.

Dentists, by virtue of education and statute, diagnose and treat conditions of the oral cavity. They also are trained and empowered to use local and systemic anesthesia to accomplish these ends. ***If the dentist's attention must be diverted from accomplishing these goals to attend to the patient's physiological or psychological needs, a medical emergency is occurring.*** In reality, this defines an emergency.

Realize, this means that many things that dentists observe as mere "complications" are actually medical emergencies, albeit at a low level. Take for example the patient that is administered a local anesthetic injection containing a vasoconstrictor like epinephrine. Sometimes trace amounts of local anesthetic will enter the blood system and some patients are unusually sensitive to the presence of these medications. A transient tachycardia can result.

The dentist observes the patient's distress, gains a set of vital signs, administers oxygen and engages in a little "handholding" to help the patient weather the event. Within a few minutes dental care usually can resume. Sometimes the dentist will not even consider the issue significant enough to record in the patient's record.

In reality, accepting the above definition, the dental team just faced and successfully addressed a medical emergency.

While no documented study exists, multiple lecturers on medical emergency preparedness have postulated that a typical dentist (i.e. general dentist or specialist other than oral surgeon or orthodontist) probably encounters a medical emergency at least once every two years of practice.

At least half of those events will be syncope. While dental treatment may be abridged or aborted on the day of the event, these patients will not only survive, most will likely not be transferred to a hospital.

Hence, while preparing for a life-threatening crisis is *one* aspect of medical emergency preparedness, it does not represent the entire scope of preparations and it does not represent the events a dental team will most likely encounter on a somewhat routine basis.

**What Our Patients Want, Need and Expect**

In 2013, a dental patient-advocacy group conducted a survey to determine patient attitudes toward medical emergency preparedness. A demographically diverse group of over 500 individuals from across the nation responded. All indicated they had a "dental home" (i.e. they were patients-of-record at a specific general dental practice). Furthermore, they all attested they had visited their dental home for a "check-up" within the last 24 months of taking the survey.

Four important conclusions emerged.

1) Being a component of sophisticated healthcare, patients view that dental offices should be capable of addressing a medical emergency that arises during dental treatment.

2) They view comprehensive preparation of medical emergencies is composed of six separate elements.

3) They overwhelmingly believe the dental office they are personally utilize for treatment is *already* prepared in *all six* areas.

4) They (*incorrectly*) assume any dental office not already competent in these six areas would face stiff sanctions from their state dental board if discovered.

Subsequently, a questionnaire was sent to eleven nationally-known speakers that lecture to dentists on medical emergency preparedness. Of the seven that answered, all agreed they cover these six points in their standard presentation.

While no state dental board has a comprehensive approach to medical emergency preparedness, these six areas appear to reflect both what is actually being taught *and* what the public (*and hence the courts*) expect:

1) In addition to Basic Life Support, dentists need periodic training on a wide range of medical emergencies.

2) In addition to Basic Life Support, all members of the dental team should undergo periodic training to assist the dentist during a medical emergency.

3) Dental offices should hold periodic mock emergency drills in their offices.

4) Dental offices should have a written medical emergency plan.

5) Dental offices should stock a basic compliment of emergency medications.

6) Dental offices should maintain basic emergency equipment to address a crisis.

Next month's article will explore these six areas in depth.

# Medical Emergency Preparedness for Dental Offices

***Part Two of a Two-Part Article***

**by**

**Larry J. Sangrik, D.D.S.**

Last month's article discussed: ① establishing a broader definition of medical emergencies during dental care, ② recognizing that medical emergencies during dental treatment are more frequent than dentists commonly assume and ③ observing that lecturers and the public focus on six areas of preparedness. This month's article will explore those areas more in depth.

**Dentist training:** In addition to Basic Life Support (CPR), dentists should periodically take continuing education courses on a wide range of potential medical emergencies which could reasonably occur during treatment. The courses should cover identification and response to the problem. ***What constitutes an adequate course?*** There is no definitive answer. However, the American Heart Association (AHA) has decades of experience training healthcare providers to respond to full cardiac arrest (a problem infrequently faced by most healthcare providers). Although the techniques have evolved over time, the AHA has stood firm with regard to three specifics: training should be biennial, live and participatory. It is reasonable to assume that these three tenets transfer to general emergency training.

***What topics should be included?*** Likewise, there is no authoritative list upon which everyone agrees. However, the topics required by the Ohio State Dental Board for a medical emergency course to prepare dental hygienists for general supervision are reasonable. They identify ten broad topics.

- ✓ Syncope
- ✓ Cardiovascular disease: angina, infarction and arrest
- ✓ Blood pressure anomalies: hypertension and hypotension
- ✓ Asthma
- ✓ Chronic obstructive pulmonary disease
- ✓ Hyperventilation
- ✓ Allergic reactions
- ✓ Diabetes
- ✓ Epileptic disorders and seizures
- ✓ Bleeding disorders

**Staff training:** All too often, dentists take medical emergency courses but neglect to include the staff. In reality, response to any medical emergency should be a team approach. *Everyone* in the office should have a *specific* role and that requires training. Tragedy occurred in Virginia to an 8-year old girl who encountered respiratory problems during a check-up. According to the paramedic's report, upon arrival the squad found the dentist (ineffectively) administering CPR while the staff stood at the foot of the chair in a semi-circle sobbing uncontrollably. The staff's inaction during the crisis was a disservice to the patient and undoubtedly hindered the dentist's legal defense. Everyone, including the business personnel, should be involved in optimizing the quality of the dentist's response. The first stage of this training is defining specific areas of responsibility for each team member (e.g. who calls EMS, who starts oxygen, who is taking vital signs, who is keeping a written record of the event). These tasks need to be discussed, assigned *and practiced* before a crisis occurs. Currently, the American Dental Association is developing a training tool to assist dentists in this regard.

**Mock Drills:** Hospitals, shopping malls, airlines and sports stadiums train for a variety of emergencies they may reasonably encounter. Most parents would consider their children's school negligent if the school failed to hold routine fire and emergency drills. In much the same way, dental offices need to periodically practice for circumstances they reasonably may encounter. Educational experts agree, material is retained longer and more accurately if information is given in small increments and repeated periodically. Spending 5 minutes a month practicing a response to a single event (e.g. asthma) would allow the most common emergencies to be reviewed annually.

**Written Protocol:** Despite formal training and ongoing practice, memory cannot be trusted during a medical emergency. A voluminous textbook is too large and too detailed for quick reference. Experts agree a written emergency manual should be available that provides assistance in identifying the type of emergency encountered and an algorithm to respond appropriately. Commercially available models are convenient, while some

offices prefer an individualized version more customized to their unique office needs. If the office utilized the services of a hygienist under general supervision, appropriate algorithms for the hygienists also should be included.

**Medications:** Seven emergency medications constitute the core of a drug kit: aspirin, diphenhydramine, nitroglycerine, an asthma inhaler, epinephrine, ammonia inhalants and glucose. Other medications, depending on the nature of the dental practice, may also be appropriate.

**Equipment:** Equipment falls into two broad categories: monitors and therapeutic devices. Dentists should have a stethoscope and at least three sizes of sphygmomanometers. Given the low cost of glucose monitors and the frequency of diabetes in the population, it would also be prudent for dental office to invest in one.

Regarding therapeutic equipment, without question, the most important device would be oxygen equipment to support ***both*** breathing and apneic patients. Sadly, it has been observed that many dental offices prepare solely for a patient that has stopped breathing. Yet they have no preparations for a patient that needs assistance to breathe. Two items are critical. Nasal canulae must be available to offer a defined amount of supplement oxygen. This will likely be the single most used piece of therapeutic emergency equipment. Secondly, offices should be capable of delivering a high concentration of oxygen to a poorly breathing patient via a non-rebreathing mask.

Offices need oral-pharygeal airways, a pocket-mask and a bag-valve-mask to provide positive pressure oxygen to a non-breathing patient.

Most lecturers also favor having an automatic external defibrillator (AED) on the premises. While spontaneous cardiac arrest is rare in dental offices, quick use of an AED is the most important determinant of a successful outcome.

Dental procedures will continue to evolve in complexity and invasiveness. Concurrently, more patients with highly complex medical histories will seek dental treatment as medicine moves forward and the average age of Americans increases. The dental office of the twenty-first century must be a facility to address a crisis of any magnitude that can occur at any time.

## Biography

Larry J. Sangrik, DDS is a 1979 graduate of The Ohio State University College of Dentistry. In addition to a full-time general dental practice, he has lectured on medical emergency preparedness, dental fear and the use of conscious sedation in dentistry at four US dental schools and most of the nation's major dental meetings including two ADA Annual Sessions. He is currently developing a training program to assist dental offices in preparing for medical emergencies for the American Dental Association. He may be reached at info@interactivedentalseminars.com.