



The Six Links of Survival™ Reference Guide

Background: The average response time for medical emergency services (EMS) to respond to a 911 call can be 11 minutes in an urban setting and 15 minutes in a rural setting. These times were based

on the primary EMS unit being available and not already responding to another call, necessitating an alternate squad being dispatched. Consequently, dental offices should be prepared to manage a medical crisis for up to 30 minutes without outside assistance. The ***Six Links of Survival***[™] is a checklist of the educational needs and physical items necessary to fulfill the needs of a dental patient in that time period between the identification of a medical problem and the arrival of outside assistance.

FRONT OFFICE:

The Dental Office Manager along with Front Office Personnel will be critical for the successful outcome of a medical/sedation emergency. Front Office Personnel will be designated as Rover #1 and Rover #2 during a crisis in your dental office.

The Dental Office Manager will be held responsible for making sure the entire dental team is ready for that unthinkable, not planned Medical Emergency.

Every dentist AND their staff can expect to be involved in the diagnosis and treatment of medical emergencies during your practice lifetime. Dentists perform daily clinical procedures that could lead to a medical emergency, or they may occur by chance in the office. Any one of many medical emergencies can

occur during dental treatment, it is best practices that dictates dental offices must be rescue ready with a medical emergency preparedness program. It is critical to provide effective basic life support (BLS), Call 911 and activate an emergency response plan in a timely manner. Dentists AND their Staff must be able to diagnose and treat common emergencies such as syncope, but also respond effectively & competently to potentially life-threatening emergencies like anaphylaxis. Some medical emergencies can be treated properly without drugs, but every dental office must have a basic emergency drug kit that contains drugs and equipment ready to treat that unannounced medical emergency. Mock drills cannot be ignored by the dentist and their staff because by doing so, your performance during an emergency will be poor. Proper Preparation Prevents Poor Performance!

No emergency drug or piece of emergency equipment can take the place of a properly trained Dental Office in responding and treating patients having a medical emergency. A Medical Emergency is a TEAM issue and needs to be handled that way! Doing this Solo could be catastrophic!

Early recognition along with Calling 911 and proper management will increase the likelihood of a successful response. Accomplishing this depends on

the dedication of the dentist and staff towards training and preparation on a regular, ongoing continual basis. This is a very comprehensive program that is dedicated to the TEAM. This MUST be done on an annual basis in order to perform properly.

Electing to have the mindset of not pursuing an active medical emergency preparedness, could lead to dire consequences for both patient and dentist.

The Dental Office Manager is THAT person who can make the dental office safer and better prepared. Enacting the Six Links of Survival is critical, especially Monthly Mock Emergency Drills. Prepare BEFORE the Crisis! Make sure your dental office knows the DOMES 24 emergencies!

Here is an example of the 5R Emergency Response Plan:

EMERGENCY RESPONSE PLAN & STAFF ASSIGNMENTS CHECKLIST

Assignment	Role	Name
Reactor (typically, a Dentist)	TEAM Leader Confirms Medical Emergency & activates Emergency Response Plan (ERP) Confirms that 911 has been called Positions the patient and stays with him or her Initiates Basic Life Support as indicated Calls for appropriate treatment algorithm (Quick Reference Checklist) & provides appropriate treatment Provide pertinent information to EMS upon their arrival	
Responder (typically, a Dental Assistant)	Remains with the Reactor (dentist) and patient Takes direction from Reactor (dentist) & offers advice/suggestions Obtains appropriate treatment algorithm (Quick Reference Checklist) for ready reference Assists with Basic Life Support Monitor vital signs If required, assumes the role of TEAM LEADER	
Retriever/Recorder (typically, a Dental Assistant or Hygienist)	Retrieves Emergency Drug Kit and prepare drug (s) as directed Retrieves AED and ready for placement as directed Retrieves oxygen tank and attaches appropriate delivery system Assists with BLS as directed and provide advice/suggestions Record sequence of events with noting of blood pressure, rate and pulse Record drugs administered along with dose and time given Assumes, if required, the role of Responder, and assists with other duties as needed	
Rover (typically, front office staff)	When directed, telephones emergency medical services (9-1-1) and stays on phone with them Meets EMS at building entrance Directs EMS to patient Keeps chronological log of events Manages other patients in reception area Confirms location of hospital where patient is being taken	

Links 1, 2 and 3 are the Educational Links

Link 1 – Doctor Training

Link 2 – Staff Training

Link 3 – Mock Drills

Links 4, 5, and 6 are the Physical Links

Link 4 – Written Medical Emergency Plan

Link 5 – Medications

Link 6 – Proper Equipment

Link 1: Doctor training

- ✓ Each dentist needs to take a Basic Life Support course at the healthcare provider level equivalent to those offered by American Heart Association or American Red Cross at least every two years. The AHA believes two years is the absolute maximum between reviewing the skills of BLS and many healthcare providers would benefit from more frequent study and/or practice. Depending on the nature of the dental practice, the medical health of the anticipated clientele and complexity of services offered, more frequent review may be appropriate.

- ✓ The dentist shall take one or more courses on medical emergencies on an annual basis. The sum of the course(s) over the year should cover all of the topics in the following three areas:
 - 1) A review of normal physiology with an emphasis on the systems that play important roles during a medical emergency
 - Peripheral nervous system
 - Respiratory system
 - Cardiovascular system
 - 2) The Six “P’s” of Preparation for a medical emergency
 - Prevention: proper use of a medical history
 - Personnel: staffing requirements and task pre-assignments
 - Products: monitor, medications and airway adjuncts
 - Protocols: office manuals to develop a planned response
 - Practice: ongoing training and review
 - Pharmaceuticals: having the proper medication on hand
 - 3) Recognition and response to medical problems common to dental offices

DOMES 24:

- Allergic Reaction
- Anaphylaxis

- Angina
- Asthmatic Attack
- Emesis
- Foreign Body Obstruction
- Hypoglycemia
- Local Anesthetic Toxicity
- Myocardial Infarction
- Seizure
- Stroke
- Sudden Cardiac Arrest
- Syncope
- Hyperventilation
- Hyperglycemia
- Adrenal Crisis
- Epinephrine Overdose
- Transient Ischemic Attack
- Benzodiazepine Overdose
- Narcotic Overdose
- Tachycardia
- Hypertensive Crisis
- Hypotension
- Apnea

✓ Although not universally available, dentists should favor training that is participatory in nature with hands-on involvement.

Link 2: Staff training

- ✓ Each member of the dental team needs to take a Basic Life Support course at the healthcare provider level equivalent to those offered by American Heart Association or American Red Cross at least every two years. The AHA believes two years is the absolute maximum between reviewing the skills of BLS and many healthcare providers would benefit from more frequent study and/or practice. Depending on the nature of the dental practice, the medical health of the anticipated clientele and complexity of services offered, more frequent review may be appropriate.
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- ✓ Because a medical emergency can occur when the dentist is not physically on the premise (e.g. RDH general supervision) or the medical crisis may happen to the dentist, all staff need to be trained on how to handle an emergency with the participation of the dentist.
- ✓ Although not universally available, dentists should favor training for their staff that is participatory in nature with hands-on involvement.
- Dentists shall develop a mechanism to train newly hired staff to be competent and productive members of the entire team during a medical emergency.

Link 3: Mock Drills

- ✓ Mock drills of medical emergencies should occur monthly.
- ✓ Attendance, date of the drill and topic covered should be documented.
- ✓ Mock drills should not be a mere lecture, but an opportunity for interaction of the staff with the dentist. Equipment used in a particular scenario should be demonstrated.
- ✓ All of the following topics should be covered within your mock drills:

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- ✓ Mock drills may be developed within the office or purchased from an outside vendor.

Link 4: Written Medical Emergency Plan

- ✓ Each dental office shall have a written medical emergency response plan.
- ✓ The plan shall be kept in an easily accessed area in the clinical portion of the dental facility although multiple placement of the plan may be appropriate in some offices.
- ✓ The plan must contain all of the following
 - 1) Specific task assignments for each member of the dental team, both full and part time. Attention needs to be paid to making sure all tasks are covered even with a reduced staff.
 - 2) General instruction on calling medical emergency services (EMS), including the address and best point of entry into the office for EMS.
 - 3) A general review of CPR guidelines, airway management and patient positioning (Trandelenberg and Semi-Fowlers).

- 4) A list of the signs and symptoms and an algorithm outlining the appropriate response for each of the following situations.

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- ✓ Office offering dental hygiene services under general supervision should also have a set of supplemental algorithms for circumstances specialized for when the dental is not on the premises.

- ✓ The medical emergency response plan may be either made by the individual office or purchased from a vendor and supplemented with office-specific information.

Link 5: Medications

- ✓ The list of emergency medications varies in dental offices based on the nature of the dental practice, the medical health of the anticipated clientele and complexity of services offered. However, the following seven medications are needed in all dental office settings. (*Note: Oxygen, although technically a medication, is covered under equipment because of its heavy dependency on the related armamentarium.*)
 - Aspirin, 81 mg chewable tablets, 1 bottle of 25
 - Albuterol inhaler, one unit
 - Nitroglycerin, 0.4 mg, tablets or spray
 - Diphenhydramine, 50 mg/cc, 2 ampules
 - Epinephrine, 1 mg/cc (1:1000), 2 ampules * see below
 - Ammonia inhalants, 1 box of 10
 - Glucose tablets, 15 mg/tablet, 1 vial of 10 tablets **and** 1 tube of instant glucose
- ✓ Office not routinely loading syringes are encouraged to purchase epinephrine and a pre-loaded device such as a Auvi-Q or EpiPen. (Note: Some states do not permit EMS units to carry epinephrine. Epinephrine has a short half-life and may need to be re-administered. Consequently, the inventory of epinephrine may need to be increased based on the length of time it takes for EMS to respond **and** transport to a hospital emergency department.)

- ✓ An adequate number of the following syringes need to be available for the delivery of the medications via subcutaneous, intramuscular or sublingual techniques.
 - 1cc / 25 Ga X $\frac{5}{8}$ in.
 - 5cc / 22 GA X 1 in.
- ✓ A designated person shall be assigned the task of checking the inventory of medications to assure that none will expire before the next anticipated inspection. Inspections should occur at regular intervals (e.g. beginning and ending of daylight savings time).

Link 6: Equipment

- ✓ Automated External Defibrillator (AED)
- ✓ Monitors
 - Glucose monitor (Inspection is required to assure the battery is working and the test strips have not expired.)
 - A stethoscope
 - A method of taking blood pressures
 - Aneroid sphygmomanometers typically are made with the cuff permanently attached. Therefore multiple sizes are necessary. A typical dental office needs at least three sizes available: adolescent (or small adult), standard adult and large adult. The anticipated clientele of a practice (e.g., pediatric dentistry) may require different or a wide range of sizes.
 - Automatic blood pressure machines designed for home monitoring are inaccurate at low blood

pressures and should not be relied upon during an emergency.

- Hospital-grade automatic blood pressure machines may be reliably used during an emergency. However, a manual backup should be available in the event of device failure.

✓ Oxygen

- Source

- A portable oxygen source (E-tank, holding apparatus, regulator and universal oxygen port.)
- A supplemental oxygen source (This may be a second E tank of oxygen or a nitrous oxide unit.)
- A portable nitrous oxide unit with multiple oxygen tanks meets the requirement for both an oxygen source and a reserve, if it is fitted with a universal oxygen port.

- Supplies to Supplement a Breathing Patient

- Nasal cannula (3)
- Non-rebreathing masks (3)

- Supplies to Assist a Non-breathing Patient

- A set oral-pharyngeal airways in seven sizes
- A pocket mask
- A disposable bag-valve-mask (commonly called a BVM or Ambu® bag)

- Supplies to Assist a Patient with an Obstructed Airway That Cannot Be Cleared By Non-Invasive Means

- A commercially available cricothyrotomy kit

or

- 10 Ga. Angiocatheter
- 5 cc Syringe with the needle removed
- No. 7 Endotracheal tube

✓ Other Supplies

- Paper bag
- Backup Suction
- Magill Forceps
- Thermometer
- Medical tape
- Flashlight
- Penlight
- Pen and paper to record history of the event (Commercial forms are also available)