

Medical Emergency in Dental Office: A Review

Mariyam Mirza^{1,*}, Vishesh Gupta², Akanksha Bhatt³, Lalit C. Baruah⁴, B. Rajkumar⁵

¹MDS, ²Reader, ³Reader and PHD, ⁴Professor, ⁵Professor and HOD, ¹⁻⁵Dept. of Conservative Dentistry and Endodontics, ¹⁻⁵Babu Banarasi Das College of Dental Sciences, Lucknow, Uttar Pradesh, India

***Corresponding Author: Mariyam Mirza**

Email: Mariyammirza69@gmail.com

Abstract

A medical emergency can be stated as an acute injury or illness that poses an immediate risk to a person's life or long-term health. These emergencies may require assistance from another person, who should ideally be suitably qualified to do so, although some of these emergencies such as cardiovascular (heart), respiratory, and gastrointestinal cannot be dealt with by the victim themselves.² Dependent on the severity of the emergency, and the quality of any treatment given, it may require the involvement of multiple levels of care, from first aiders to Emergency Medical Technicians and emergency physicians.

Life threatening emergencies can and do occur in the practice of dentistry. They can happen to anyone whether a patient, a doctor, a member of the office staff, or a person who is merely accompanying patient. Although the occurrence of life-threatening emergencies in dental office is infrequent, many factors can increase the likelihood of such incidents. These include (1) the increasing number of older persons seeking dental care, (2) the therapeutic advances in the medical professions, (3) the growing trend toward longer dental appointments, and (4) the increasing use and administration of drugs in dentistry.

Keywords: Emergency kit, ADA guidelines and ABC.

Introduction

Black's Law wordbook defines emergency as sudden surprising happening' associate unforeseen incidence or condition' confusing contingency or complication of circumstances' a sudden or surprising occasion for action; exigency; pressing necessity.¹

A medical emergency are often explicit as associate acute injury or unhealthiness that poses a direct risk to somebody's life or long health., These emergencies may wish facilitate from another person, UN agency ought to ideally be fitly qualified to try to therefore, though a number of these emergencies like vas (heart), metastasis, and duct cannot be prohibited by the victim themselves.² addicted to the severity of the emergency, and therefore the quality of any treatment given, it's going to need the involvement of multiple levels of care, from initial aiders to Emergency Medical Technicians and emergency physicians.

Life threatening emergencies will and do occur within the observe of medicine. They'll happen to anyone whether or not a patient, a doctor, a member of the staff, or an individual UN agency is simply related patient.

Although the incidence of grievous emergencies in dental geographical point is rare, several factors will increase the probability of such incidents. These embrace (1) the increasing variety of older persons seeking attention, (2) the therapeutic advances within the medical professions, (3) the growing trend toward longer dental appointments, and (4) the increasing use and administration of medication in drugs.

Fortunately, alternative factors minimize the event of life threatening things. These embody a pretreatment physical analysis of each patient, consisting of a medical record form, dialogue history, and physical examination, and attainable modifications in attention to reduce medical

risks. Dental offices should be ready to promptly acknowledge and effectively manage medical emergencies. Though no 'national standard' exists for preparation, some specialty teams (e.g. American Association of Oral Surgeons; yank Academy of medicine drugs, and therefore the yankee Academy of Periodontology) have printed pointers for his or her members and alternative interested parties.

Management of medical emergencies inside the dental geographical point is restricted to supporting patients' vital functions until emergency medical services (EMS) arrives. This is very true within the case of major morbidity like infarct or stroke. Treatment got to consist minimally of basic life support and observation of serious signs. The dental practitioner ne'er ought to administer poorly understood medications.

Collapse or alternative emergencies within the dentistry unit a cause for anxiety for all concerned Atherton et al., 1999a.table 1.1

Table 1.1 Common emergencies

Collapse
Chest pain
Shortness of breath
Mental disturbances
Reactions to drugs or sedation
Bleeding

Emergencies are rare, occurring at rates of 0.7 cases per dentist per year (Girdler and Smith, 1999) or once every 3–4 years (Atherton et al., 1999b).³ A medical emergency occurring in dental practice is most likely to be the result of an acute deterioration of a known medical condition. It may pose an immediate threat to an individual's life and needs rapid intervention. It is best prevented.

Each staff member (including the dentist) should fill out a medical history form. File the forms in a convenient area. This medical record should remain confidential, except for use during an emergency. It should list any current medications and medical conditions as well as the name, phone number, and address of their personal physician. Review and update the form yearly, perhaps during the annual OSHA training meeting.⁴

Each member of the staff should be trained in Basic Life Support (CPR, Mouth to Mouth Resuscitation, and Heimlich Maneuver). Design an office meeting specifically for establishing and reviewing emergency protocol.

Prevention

Emergency management algorithms are of paramount importance and dentists are ultimately responsible for the performance of their staff in delivery. Confidence and satisfactory management of emergencies can be improved by the following.³

1. Repeatedly assessing the patient whilst undertaking treatment, noting any changes in appearance or behavior.
2. Never practicing dentistry without another competent adult in the room.
3. Always having accessible the telephone numbers for the emergency services and nearest hospital accident and emergency department. The patient's general medical practitioner details should be recorded in the notes.
4. Training staff in emergency service contact protocols and emergency procedures: this should be repeated annually. All dental clinics should have a defined protocol for how the emergency services are to be alerted. The protocol should include clear directions for

the emergency services to locate and access the clinic and, in a large building, a member of the team should meet the paramedics at the main entrance.

5. Having a readily accessible emergency drugs box and equipment checked on a weekly basis (Table 1.3 and Figs1.1–1.3).
6. Taking a careful medical history, assessment of disease severity, careful treatment scheduling and planning and, in some cases, administration of medication prior to treatment.
7. Using the simple intervention of laying the patient supine prior to giving local analgesia (LA) will prevent virtually all simple faints – the commonest emergency.
8. Ensuring diabetic patients have had their normal meals, appropriately administered medication, and are treated early in the morning session or immediately after lunch is likely to prevent hypoglycaemic collapse.

All this is particularly important when sedation is used, when there are invasive or painful procedures, or when medically complex individuals are being treated. Dental practitioners must ensure that medical and drug histories are updated at each visit prior to initiating treatment. It is suggested disease severity should be assessed using a risk stratification system, for example the American Society of Anesthesiologists (ASA) classification. The Resuscitation Council (2006) recommendations for equipment and drugs are detailed in Table 1.3.

Other agents (e.g. flumazenil) and equipment (e.g. a pulse oximeter) are needed if conscious sedation is administered. General anaesthesia (GA) must only be undertaken by anaesthetists and where advanced life support (ALS) is available.

Table 1.3 Suggested minimal equipment and drugs for emergency use in dentistry (after Resuscitation Council, 2006).

Equipment	General comments	Detail
Oxygen (O ₂) delivery	Portable apparatus for administering oxygen Oxygen face (non-rebreathe type) mask with tube Basic set of oropharyngeal airways (sizes 1, 2, 3 and 4) Pocket mask with oxygen port Self-inflating bag valve mask (BVM; 1-L size bag), where staff have been appropriately trained Variety of well-fitting adult and child face masks for attaching to self-inflating bag	Two portable oxygen cylinders (D size) with pressure reduction valves and flow meters. Cylinders should be of sufficient size to be easily portable but also allow for adequate flow rates (e.g. 10 L/min, until the arrival of an ambulance or the patient fully recovers. A full 'D' size cylinder contains 340 L of oxygen and should allow a flow rate of 10 L/min for up to 30 minutes. Two such cylinders may be necessary to ensure the oxygen supply does not fail
Portable suction	Portable suction with appropriate suction catheters and tubing (e.g. the Yankauer sucker)	
Spacer device for inhalation of bronchodilators		
Automated external	All clinical areas should have	

defibrillator (AED)	immediate access to an AED (Collapse to shock time less than 3 minutes)	
Automated blood glucose measuring Device		
Equipment for administering drugs intramuscularly	Single-use sterile syringes (2-ml and 10-ml sizes) and needles (19 and 21 sizes)	Drugs as below
Emergency	Drugs required	Dosages for adults
Anaphylaxis	Adrenaline (epinephrine) injection 1:1000, 1 mg/ml	Intramuscular adrenaline (0.5 ml of 1 in 1000 solution) Repeat at 5 minutes if needed
Hypoglycaemia	Oral glucose solution/tablets/gel/powder [e.g. 'GlucoGel®' formerly known as 'Hypostop®' gel (40% dextrose)] Glucagon injection 1 mg (e.g. GlucaGenHypoKit)	Proprietary non-diet drink or 5 g glucose powder in water Intramuscular glucagon 1 mg
Acute exacerbation of asthma	(Beta-2 agonist) Salbutamol aerosol inhaler 100 mcg/activation	Salbutamol aerosol Activations directly or up to six into a spacer
Status epilepticus	Buccal or intranasal midazolam 10 mg/ml	Midazolam 10 mg
Angina	Glyceryltrinitrate spray 400 mcg/metered activation	Glyceryltrinitrate, two sprays
Myocardial infarct	Dispersible aspirin 300 mg	Dispersible aspirin 300 mg (chewed)



Fig. 1: Emergency kit Fig. 1.2 Automatic defibrillator.



Fig. 1.3 Automatic external defibrillator (AED)

Basic Action for Every Emergency

What should be done in every medical emergency? The goal is to manage the care of the patient till he or she recovers totally or facilitate arrives. Team members ought to position the patient and initiate the ABCs. Assess and, if needed, manage each one of A, then B and then C. This orderly approach can facilitate workers members avoid missing a step.

P: Position

If conscious, the patient should sit in any position that is comfortable. If unconscious, the patient should be supine with the legs elevated slightly to about 10° to 15°. This position facilitates blood flow to the brain, thus helping to correct any deficient oxygen delivery.

A: Airway

Practitioners must consider airway assessment. If the patient is conscious, this should not be an issue, and one typically can move quickly to breathing. If the patient is talking, then the airway is patent, but the clinician should look at the throat in cases of allergy to rule out airway compression from laryngeal edema, which is a sign of anaphylaxis. If the patient is unconscious, assessing and managing the airway becomes crucial. Practitioners and staff members must ensure patency by tilting the patient's head and lifting his or her chin immediately. By itself, this maneuver may prevent brain damage, as it moves the tongue away from the back of the pharynx, thereby eliminating the obstruction (the tongue). If the airway is not patent after this maneuver, the clinician should reposition the patient's head once more. If the airway still is not opened, the clinician should perform a jaw thrust maneuver by placing his or her thumbs posterior to the angle of the patient's mandible and advancing them (and the mandible) anteriorly.

B: Breathing

The tooth doctor and workers members ought to take into account the second step—breathing—right

away once taking care of the patient's airway. If he or she is conscious, this usually is not a problem, and the team can move on quickly to circulation. If the patient is talking, then he or she is breathing, but in cases of asthma or allergy, the dentist must rule out wheezing (bronchospasm). He or she conjointly must take into account whether or not the patient is respiration too slowly or speedily. Any team member will monitor the rate and adequacy of respiration. In adults, the normal respiratory rate is 12 to 15 breaths per minute. In children, the rate is higher, with an 8-year-old averaging 18 breaths per minute and a 3-year-old averaging 22 breaths per minute.⁷

Bradypnea is any respiratory rate significantly below the normal rate; it may result in hypoventilation and inadequate oxygenation. Tachypnea, often a sign of anxiety, is any respiratory rate significantly above the normal rate; it may lead to hyperventilation syndrome. For offices in which the clinician induces moderate or deep sedation or administers a general anesthetic, a pulse oximeter should be available and can be used to assess the adequacy of oxyhaemoglobin saturation. Monitoring the adequacy of respiration also includes observing the color of the mucosa, skin and blood to rule out signs of cyanosis. If the patient is unconscious, dealing with breathing becomes crucial. As taught in BLS, "look, listen and feel."⁸

If the patient is not breathing, administer two slow deep breaths, with each breath lasting one second. The clinician or staff member should use a barrier device, such as a pocket mask or the mask from a bag-valvemask device, if available. He or she ought to see the chest rise with every ventilation. However, he or she should not ventilate too rapidly or administer excessive volumes. The practitioner ought to administer rescue breaths at a rate of ten to twelve per minute for associate degree adult. In children younger than the age of adolescence—defined as the age just before the onset of puberty, as determined by the presence of secondary sex characteristics—the rate should be 12 to 20 breaths per minute.⁶

C: Circulation.

The dental team ought to assess the patient's circulation right away once the respiration step. If the patient is conscious, a team member should check the

pulse by using the radial, brachial or carotid artery. The team member will feel the arteria radialis by inserting the ends of 2 fingers on the lateral and ventral aspects of the patient's radiocarpal joint. The brachial artery can be palpated on the medial aspect of the antecubital fossa. To locate the carotid pulse, the team member palpates the patient's thyroid cartilage and moves his or her fingers laterally into the groove formed by the sternocleidomastoid muscle.

Pulse

In an unconscious patient, the carotid is the best artery for assessing the pulse. BLS training for laypeople recommends skipping the pulse check, but that rule does not apply to health care providers, including those of us in dentistry. Health care professionals are not expected to be ready to observe a pulse. If no pulse can be palpated after 10 seconds, the dentist or a staff member should assume that the patient has experienced cardiac arrest and begin chest compressions at a rate of one hundred per minute, in line with current BLS coaching.

Chest Compressions

The health care skilled ought to place his or her hands over the lower half the patient's bone between the nipples. He or she ought to pull down by victimization the heel of 1 hand with the opposite hand on prime. Each compression should depress the chest 1 1/2 to 2 inches. It is vital that the practitioner push arduous and quick and permit full chest recoil. The compression to ventilation magnitude relation for adults is 30:2.

For children older than 1 year but younger than the age of adolescence, the compressions should depress the chest by one-third to one-half its depth. The compression to ventilation ratio for one-person CPR in children is the same as that in adults, but for two-person CPR in children, the ratio should be 15:2.

Heart Rate

In addition to noting the presence or absence of a pulse, a team member should record the heart rate (in beats per minute [BPM]), its quality (weak or strong) and its rhythm (regular or irregular). A tachycardia is a rapid rate, defined in an adult as anything above 100 BPM.

A arrhythmia could be a slow rate, defined as anything below 60 BPM. Not all bradycardias need management. For example, the well-trained athlete or the patient receiving treatment with a β -blocker could have a rate below 60 BPM and not require treatment. Only when a bradycardia is accompanied by symptoms such as lightheadedness, nausea or chest pain should health care professionals act to manage it. Heart rates generally are higher in youngsters and reduce with increasing age. For example, the normal ranges are from 80 to 130 BPM in a 2-year-old and 70 to 110 BPM in a 10-year-old.[6] A full or bounding pulse often is associated with high blood pressure (BP).

A weak and thread pulse is related to cardiovascular disease. The team member ought to record Associate in nursing irregular rhythm as associate in nursing abnormality.

It is vital to notice that assessing circulation involves quite simply a pulse check.

Health care professionals ought to check BP for an improved indication of the adequacy of the patient's circulation.

Measuring BP

Blood pressure can be measured in a number of ways; I describe the auscultatory method here. A standard BP cuff, also called a sphygmomanometer, can be used along with a stethoscope. Alternatively, a team member can use an automated device. Even if an automated device is in the office, a standard cuff and stethoscope should be available to confirm any readings that the dentist may question. An automated device also may not be as accurate as a standard cuff in the event of an irregular heart rate, such as that found in atrial fibrillation.

To measure BP, a team member wraps the deflated BP cuff evenly and firmly around the patient's upper arm, about one inch above the antecubital fossa with the artery indicator resting on the patient's brachial artery, which should be palpated. With the earpieces of the stethoscope facing forward, the team member places the diaphragm firmly over the brachial artery, being careful not to touch the BP cuff. With the other hand, he or she closes the valve on the inflating bulb of the BP cuff by turning it fully clockwise. He or she inflates the cuff to concerning twenty to thirty millimeters of mercury higher than the purpose at that pulsations disappear from the palpated pulse. The staffer then reduces the pressure slowly at a rate of two to three millimeter of mercury per second by turning the valve on the inflating BP cuff counterclockwise until he or she hears the primary sound through the medical instrument. This initial sound indicates the pulsation BP made by turbulent blood flow through the part folded underlying artery. These are known as "Korotkoff sounds." The team member continues to deflate the cuff slowly until the sounds become muffled and disappear; this is the diastolic BP. The blood flow through the artery returns to a smooth (laminar) flow and, thus, no sounds are produced. At this stage, the staff member deflates the cuff fully and records the measurements obtained.

The accuracy of BP readings will depend upon some factors. Proper BP cuff size is important. The cuff's bladder should extend at least halfway around the arm, with the width of the cuff being at least 25 percent greater than the diameter of the arm. Another suggests that of crucial the suitable size is that the bladder length is eighty % of the arm's circumference and therefore the dimension is forty % of the circumference. A cuff that's too slim could end in an outsized overestimation

of pulsation BP. Conversely, a cuff that is too wide may lead to underestimation of systolic BP. Firm placement is important because a cuff that is too loose results in falsely elevated readings.

The accuracy of BP readings is plagued by what's called the "auscultatory gap." This is defined as Korotkoff sounds that cannot be heard through part of the range from systolic to diastolic pressure.⁸ It is most common in patients with hypertension and can lead to an inaccurate diastolic measurement. Fear and anxiety also can cause transient elevations in BP, primarily with systolic BP. Normal BP in Associate in nursing adult approximates 120/80 millimeter of mercury. Blood pressures generally are lower in youngsters and increase with age. These approximate from 100/60 mm Hg in a 4-year-old to 110/60 mm Hg in a 10-year-old.^{5,7}

One sign of circulation adequacy is the color of the mucosa, with pink and red indicating good peripheral circulation and pale or blue (cyanosis) indicating inadequate circulation. Capillary filling is another

indicator, which can be determined by depressing the nail bed and noting whether or not it blanches and then quickly regains color. To assess central perfusion, the dentist or a staff member notes the patient's orientation to person, place and time.

Guidelines for managing medical emergency in dental office General dental council guidelines on medical emergencies

Standards for dental professionals⁽¹⁰⁾ emphasises that all dental professionals are responsible for putting patients' interests first, and acting to protect them. Central to this responsibility is the need for dental professionals to ensure that they are able to deal with medical emergencies that may arise in their practice. Such emergencies are, fortunately, a rare occurrence, but it is important to recognize that a medical emergency could happen at any time and that all members of the dental team need to know their role in the event of one occurring.

Table 1: Preparation of the dental office & staff for medical emergencies.

<p>Basic Life Support</p> <ul style="list-style-type: none"> • Annually • BLS for Healthcare Providers • ALL dental office employees • In the dental office • Ventilate mouth-to-mask, NOT mouth-to-mouth
<p>Dental Office Emergency Team</p> <p>Member #1 1st on scene of emergency Stay with victim; yell for 'HELP'; administer BLS, as needed</p> <p>Member #2, on hearing call for HELP . . . Obtains (1) emergency drug kit; (2) portable O2 cylinder; and (3) AED and brings to site of emergency</p> <p>Members #3, #4 and on, assigned ancillary tasks such as:</p> <ul style="list-style-type: none"> • Monitoring vital signs (BP, heart rate & rhythm) • Assist with basic life support • Activate EMS (9.1.1.) • Hold elevator in lobby while waiting arrival of EMS • Prepare emergency drugs for administration • Keep written time line record during emergency
<ul style="list-style-type: none"> • Doctor remains the 'responsible' party during management of medical emergencies. • Tasks CAN be delegated. • Office personnel should be interchangeable during emergency management.
<p>Activation of EMS (Emergency Medical Services)</p> <p>WHEN: As soon as YOU, the doctor, think it is necessary. For example: (1) unable to make a diagnosis; (2) know the diagnosis but are uncomfortable with it (e.g. cardiac arrest); and (3) whenever you think EMS is warranted.</p> <p>Do not hesitate to activate EMS, if you feel it is needed.</p> <p>Whom to call: 9.1.1.; or a near-by physician or dentist IF you know beforehand that they are well trained in the management of emergency situations.</p>

Table 2: Recommended emergency drugs for adult victims (puberty and older).

Category	Drug Generic	Drug Proprietary	Alternative	Quantity	Availability
Injectable					
Allergy – anaphylaxis	Epinephrine	Adrenalin	None	2 Twinject® syringes	1:1000 (1 mg/mL)
Allergy – Histamine-blocker	Diphenhydramine	Benadryl	Chlorpheniramine	3 x 1 mL ampules	50 mg/mL
Non-injectable					
Oxygen	Oxygen	Oxygen		1 ‘E’ cylinder	
Vasodilator	Nitroglycerin	Nitrolingual spray	NitroStat sublingual tablets	1 metered spray bottle	0.4 mg/metered dose
Bronchodilator	Albuterol	Proventil, Ventolin	Metaproterenol	1 metered dose inhaler	Metered aerosol inhaler
Antihypoglycemic	‘sugar’	Orange juice, Non-diet soft drink	Insta-Glucose gel	1 bottle	
Inhibitor of platelet aggregation	Aspirin	Many	None	2 packets	325 mg/tablet

Table 3: Recommended Emergency Equipment (Module one — critical [essential] emergency equipment)

	Recommended	Alternative	Quantity
Oxygen delivery system	(+) pressure and demand valve	O2 delivery system with bag-valve-mask device	Minimum 1 large adult, 1 child
	Pocket mask		1 per employee
Automated electronic defibrillator [AED]	1		1 AED
Syringes for drug administration	Plastic disposable syringes with needles		3 x 2 mL syringes with needles for parenteral drug administration
Suction and suction tips	High volume suction	Non-electrical suction system	Office suction system
	Large-diameter, round-ended suction tips		Minimum 2
Tourniquets	Rubber or Velcro tourniquet; rubber tubing	Sphygmomanometer	3 tourniquets and 1 Sphygmomanometer
Magill intubation forceps (for removal of foreign objects from the airway)	Magill intubation forceps		1 pediatric Magill intubation forceps

ADA Guidelines for managing medical emergencies

The ADA council on Scientific Affairs Statement and the ADA/PDR Guide to Dental Therapeutics gives the following guidelines to prepare the dentist for the inevitable emergency.^{13,14}

1. “Courses on emergency medicine management are included in the curricula of all accredited dental schools”.
2. “The Council on Scientific Affairs recommends that all dental health care professionals receive regular training in BLS, because these skills are maintained only through repetition”
3. “First and foremost in emergency management is the ability to effectively provide BLS, when appropriate”
4. “For the practicing dentist, the Council recommends that emergency medicine programs be offered as CE (dental schools, dental societies etc.)”
5. “Didactic and hands-on training in the prevention, recognition and management of common emergencies also recommended”.

A quick glance at these guidelines leaves the impression that preparation for emergencies is a continuous

process. It is fortunate that emergencies do not happen very often. However, it is difficult to become proficient at something when only encountering these situations infrequently. Therefore, as these guidelines suggest, repetitive practice with simulation is the best way to develop and train the instinct to respond when the ‘moment’ arises.

A Guide to Compliance with OSHA Standards in dental office

The mission of the Occupational Safety and Health Administration (OSHA) is to save lives, prevent injuries, and protect the health of America’s workers. As part of the Department of Labor, OSHA and the states that operate OSHA-approved state plans establish guidelines and standards to promote worker safety and health that apply to every workplace in the United States, including medical and dental offices.²¹ The following requirements include those that normally apply to medical and dental offices, whether there are 2 or 200 employees. Additional OSHA standards may apply to some offices. The complete text of the regulations can be found in Title 29 of the Code of Federal Regulations (29 CFR).

Conclusion

Medical emergencies can occur in the dental office, and it is important for the entire dental team to be prepared for them. Regardless of their specific type, they are best managed following this protocol: position the patient; assess the airway, breathing and circulation; and provide definitive treatment. Medical Emergencies can arise anytime, and it is extremely important that the dental staff can recognize the emergence of such a situation and competently fulfill their role in assisting the clinician during an emergency situation.

Preparedness to acknowledge and suitably manage medical emergencies within the dental atmosphere includes the following:

1. Current BLS certification for all office staff;
2. didactic and clinical courses in emergency medicine;
3. periodic office emergency drills;
4. Telephone numbers of EMS or other appropriately trained health care providers;
5. Emergency drug kit and equipment, and the knowledge to properly use all items.

Each team member should understand the basic action plan described above to permit its effective implementation in emergencies that may arise in the dental office. Differences exist in the level of training that dentists receive in the management of medical emergencies. The final decision regarding the exact roles of each team member will be determined by a number of factors, including the dentist's and staff members' training and ability. Clearly, dentists need to do what they can to prevent emergencies in the dental office but, unfortunately, they still may arise despite dentists' best efforts.

Medical emergencies can happen anywhere. The stressful nature of a dental visit can trigger an emergency in sensitive patients. Knowledge is power. Know what to do, know your limitations, and most of all, know when to call in experts. This threefold approach that addresses prevention, preparation, and action will help medical and dental offices to develop or evaluate their emergency response plans, implement comprehensive emergency management procedures, support staff training and readiness, and reinforce a culture of safety.

Conflicts of Interest: None.

References

1. Black's Law Dictionary, ed 5, St. Paul, MN, West Publishing, 1979.
2. AAOS 10th Edition Orange Book
3. Scully :Medical Problems In Dentistry(6th edition) textbook.
4. Mary Oeding, R.D.H., M Ed. Medical Emergency in the Dental Office
5. Caroline, Nancy (2013). Emergency Care in the Streets (Seventh ed.). Jones and Bartlett Learning. pp. 96–97.

6. Malamed SF Prevention. In: Medical Emergency in dental office 6th edition St. Louis: Mosby; 2007:44-46.
7. Atherton GJ, McCaul JA, Williams SA: Medical emergencies in general dental practice in great Britain. Part 1: their prevalence over a 10-year period, *Br Dent J* 186: 72-79, 1999.
8. Mastuura H: Analysis of systemic complications and deaths during dental treatment in Japan, *AnesthProg* 1990;36:219-228.
9. Moen BD, Ogawa GY: The 1962 survey of dental practice, Chicago, American Dental Association, 1963.
10. General Dental Council. Standards for dental professionals. London: General Dental Council, 2005
11. General Dental Council. Principles of dental team working. London: General Dental Council, 2005.
12. General Dental Council. Principles of dental team working. London: General Dental Council, 2005.
13. Robertson RM. Sudden death from cardiac arrest—improving the odds. *N Engl J Med* 2000; 343: 1259–1260.
14. Page RL, Joglar JA, Kowal RC, et al. Use of automated external defibrillators by a U.S. airline. *N Engl J Med* 2000; 343:1210–1216.
15. Lytle JJ, Stamper EP: The 1988 anesthesia survey of the Southern California Society of Oral and Maxillofacial Surgeons, *Oral Surg* 1989;47:834-842.
16. Resuscitation Council UK. Medical emergencies and resuscitation - standards for clinical practice and training for dental practitioners and dental care professionals in general dental practice. London: Resuscitation Council UK, 2011.
17. Resuscitation Council UK (2008) Standards for Clinical Practice and Training for Dental Practitioners and Dental Care Professionals in General Dental Practice. Available at: [http://www.resus.org.uk/pages/MEdental.pdf#search="dental"](http://www.resus.org.uk/pages/MEdental.pdf#search=) (accessed 19th August 2010).
18. The General Dental Council Standards Guidance (2006) The Principles of Team Working. General Dental Council: London.
19. The General Dental Council (2008) Continuing Professional Development for Dental Care Professionals. General Dental Council: London
20. Resuscitation Council UK. Emergency use of buccal midazolam in the dental practice. London: Resuscitation Council UK, 2011
21. Stuart J. Oberman, *EsqDental Tribune* U.S. Edition, Vol. 6 No. 16, October 2011.

How to cite this article: Mirza M, Gupta V, Bhatt A, Baruah LC, B Rajkumar, Medical Emergency in Dental Office: A Review, *Indian J Conserv Endod* 2019;4(1):1-8