Management of Medical Emergencies

A guide prepared by Stanley Malamed, DDS

In this guide, Dr. Stanley Malamed summarizes a list of medical emergencies that may occur in the dental office, their signs and symptoms, and notes on managing each condition. Dr. Malamed is a Diplomate of the American Dental Board of Anesthesiology as well as a continuing education lecturer on anesthesia, sedation, and emergency medicine. He has authored more than 170 scientific papers and three textbooks that are used around the world.

Medical Emergency	Signs & Symptoms (S&S)	Management
ALLERGY **MILD** **(delayed onset: > 1 hour after exposure to allergen)**	**Delayed onset of S&S** following administration of drug(s) or ingestion of food: urticaria (Itching, hives, rash), either localized or systemic	Position comfortably Monitor & record vital signs (BP, O_2 saturation, respiratory rate) **Diphenhydramine** 50 mg (>66 lb), 25 mg (up to 66 lb) IM (vastus lateralis) or PO Observe patient for 1 hour before discharge Rx diphenhydramine 50 mg (>66 lb), 25 mg (up to 66 lb) Q6h PO for 3 days
ALLERGY **ANAPHYLAXIS** **(sudden onset: seconds to minutes after exposure to allergen)**	**Sudden onset & rapid progression** following drug administration: Urticaria, runny nose, watery eyes, flushing Abdominal cramping Angioedema (swelling of lips, common) Lightheadedness Respiratory distress: wheezing, hoarseness, difficulty speaking Hypotension (low blood pressure), tachycardia (rapid heart rate) Possible loss of consciousness	**Conscious** Position comfortably **Unconscious** Position supine, feet elevated slightly **ACTIVATE EMS** CAB, as needed **Epinephrine auto-injector** 0.3 mg IM (1:1000 >66 lb) vastus lateralis; 0.15 mg IM (1:1000 up to 66 lb) Repeat epinephrine Q5 min, until recovery or arrival of EMS Alternate left & right vastus lateralis Oxygen (15 liters/minute flow)
ALTERED CONSCIOUSNESS **CEREBROVASCULAR ACCIDENT**	**FAST:** Facial droop (ask patient to smile) Arm weakness Speech problems (slurred speech) Time to call 911 Headache (mild to severe), dizziness, vertigo Possible loss of consciousness	Position - Semi-Fowler position **ACTIVATE EMS** Oxygen (15 liters/minute flow) Nothing by mouth Monitor & record vital signs (BP, O_2 saturation, respiratory rate)
ALTERED CONSCIOUSNESS **HYPOGLYCEMIA**	**Conscious** 'Cold, sweating, shaking' Mental confusion (possible aggressive behavior) Slurred speech Pallor, blurred vision Tachycardia (rapid heart rate) Possible loss of consciousness	**Conscious** Position comfortably Administer oral carbohydrate: **InstaGlucose**, orange juice Permit recovery **Unconscious** Position supine, feet elevated slightly **ACTIVATE EMS** Oxygen (15 liters/minute flow) **Do not** put anything into unconscious victim's mouth Monitor & record vital signs (BP, O_2 saturation, respiratory rate)
CHEST "PAIN" **ANGINA**	**Conscious** *Preexisting history of angina* *Patient will make diagnosis of angina* Tightness in chest 'Usual' radiation pattern (commonly left arm, neck & mandible) **1st time chest 'pain' always assume AMI**	Position comfortably - upright usually preferred Administer **nitroglycerin sublingual tablet(s)** or translingual spray Repeat nitroglycerin Q5 min for maximum of 3 doses, as needed Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate) Allow patient to rest; determine cause of acute episode **1st time chest 'pain'** proceed to **AMI** protocol
CHEST "PAIN" **ACUTE MYOCARDIAL INFARCTION (AMI)**	Conscious Tightness in chest Commonly radiates to left arm, neck, and mandible 'Crushing' pain ('elephant standing on chest') Anginal patient 'knows' it's not angina Possible loss of consciousness **1st time chest 'pain' always assume AMI**	Position comfortably - upright usually preferred **ACTIVATE EMS** Oxygen (15 liters/minute flow) If N_2O-O_2 available - administer 50% N_2O - 50% O_2 **Aspirin** 325 mg (powdered with water or chewable), unless allergic Monitor & record vital signs (BP, O_2 saturation, respiratory rate) If loss of consciousness, proceed to **CARDIAC ARREST** protocol
UNCONSCIOUSNESS **CARDIAC ARREST**	**Unconscious** No breathing No pulse	Position supine with feet elevated - patient may remain in dental chair **ACTIVATE EMS** CAB (cycles of 30 compressions, 2 ventilations) AED retrieved, placed on victim, and activated as quickly as possible Continue CAB and AED until ROSC or EMS arrive
RESPIRATORY DISTRESS **BRONCHOSPASM**	**Conscious** Shortness of breath (dyspnea) Audible wheezing (not always present) Patient will assume upright position Possible cyanosis of mucous membranes	Position comfortably - upright usually preferred Administer **albuterol** (bronchodilator) with metered dose inhaler (1 - 2 puffs, repeated PRN), with spacer if available If patient is asthmatic: permit to medicate themselves; activate EMS if requested by patient If no relief: **ACTIVATE EMS** **Epinephrine auto-injector** 0.3 mg IM (1:1000 >66 lb) vastus lateralis; 0.15 mg IM (1:1000 up to 66 lb); repeat epinephrine Q5 min, until recovery or arrival of EMS Alternate left & right vastus lateralis No history of asthma: **ACTIVATE EMS** immediately Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate)

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Medical Emergency	Signs & Symptoms (S&S)	Management
RESPIRATORY DISTRESS FOREIGN BODY AIRWAY OBSTRUCTION	**If complete obstruction:** Initially conscious Unable to speak - no sound Chest movement, but no air exchange Universal sign for choking (victim clutches neck) Panic Cyanosis of mucous membranes Loss of consciousness **If partial obstruction:** Conscious Cough - forceful or weak Sound - wheezing or high-pitched crowing sound Absent or altered voice sounds	**If complete obstruction:** Initially conscious Identity obstruction: "Are you choking?" or universal sign for choking Apply abdominal thrusts until foreign body expelled or consciousness is lost Loss of consciousness Lower victim to ground in supine position, head in neutral position **ACTIVATE EMS** Begin BLS with 30 chest compressions (do not check for pulse) Before starting ventilation, open victim's mouth and look for presence of foreign object If object is seen, remove with Magill intubation forceps, suction, or fingers Continue BLS until effective or EMS arrive and take over management EMS evaluate patient post-relief **If partial obstruction:** If forceful cough & good air exchange, allow victim to continue coughing without physical intervention by rescuers If weak cough & poor air exchange, apply abdominal thrusts until foreign body expelled or consciousness is lost With loss of consciousness, follow complete obstruction steps (above)
RESPIRATORY DISTRESS HYPERVENTILATION	**Conscious** Anxiousness Rapid respiratory rate, shortness of breath Rapid heart rate, palpitations Tingling or coldness of fingertips, toes & circumoral region Muscle pain and stiffness Carpopedal tetany	Position comfortably - upright usually preferred Attempt - verbally - to calm patient Have patient cup their hands over mouth & nose and rebreathe exhaled air Monitor & record vital signs (BP, O_2 saturation, respiratory rate) When episode terminates, determine cause of hyperventilation If longer than 10 minutes, **ACTIVATE EMS** Oxygen is **NOT** indicated in management of hyperventilation
SEIZURES EPILEPSY (Generalized tonic-clonic seizure [GTCS, "Grand Mal"] - most common)	GTCS **Conscious** - epileptic aura (e.g. smell, sound, vision) heralds onset of convulsions Loss of consciousness Muscle rigidity, possible cyanosis of mucous membranes Jerking movements of limbs Noisy breathing Frothing at mouth (may be pink/red if tongue bitten) Incontinence may occur when convulsions end	Position supine with feet elevated Protect victim from injury (gently hold arms & legs - do not restrain) during seizure **Do not** put anything into victim's mouth If **no history** of seizures, **ACTIVATE EMS** If **history of epilepsy**: Consult victim's escort, guardian or parent and consider EMS When convulsions cease, place victim in recovery position (turn onto right side, if possible) Assess CAB, **Airway** (head tilt - chin lift) if snoring Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate) If seizure is prolonged (>5 minutes) or repeats, **ACTIVATE EMS**
SEIZURES LOCAL ANESTHETIC OVERDOSE (LAST - Local Anesthetic Systemic Toxicity)	GTCS Loss of consciousness Muscle rigidity, possible cyanosis of mucous membranes Jerking movements of limbs Noisy breathing Frothing at mouth (may be pink/red if tongue bitten)	Position supine with feet elevated Protect victim from injury (gently hold arms & legs - do not restrain) during seizure **Do not** put anything into victim's mouth **ACTIVATE EMS** When convulsions cease (~1 minute), place victim in recovery position (turn onto right side, if possible) Oxygen (15 liters/minute flow) Assess CAB, **Airway** (head tilt - chin lift) is critical Monitor & record vital signs (BP, O_2 saturation, respiratory rate)
UNCONSCIOUSNESS CNS-DEPRESSANT OVERDOSE - Benzodiazepine or other non-opioid	Unintended loss of consciousness following CNS-depressant administration (e.g. benzodiazepine) Airway obstruction (tongue) common Inability to maintain a patent airway Snoring	Position supine with feet elevated CAB as needed, **Airway** (head tilt - chin lift) essential Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate) If benzodiazepine, and if IV route available, **flumazenil** (0.2 mg IV, repeated Q1 minute) to a maximum of 1 mg over 5 minutes) Following **flumazenil**, monitor patient 2 hours (following IV BZD), 4 hours (following PO BZD) post recovery, before discharge, to ensure resedation does not occur **Consider EMS**
UNCONSCIOUSNESS CNS-DEPRESSANT OVERDOSE - Opioid	Unintended loss of consciousness following opioid (narcotic) administration Respiratory depression common (decreased rate of breathing) Inability to maintain a patent airway Snoring	Position supine with feet elevated CAB as needed, **Airway** (head tilt - chin lift) and **Breathing** (assisted or controlled) are essential Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate) If IV route available, **naloxone** (0.4 mg IV, every 2 to 3 minutes PRN to a total dose of 10 mg) If no IV available - IN **naloxone** (1 spray IN [4 mg], repeat every 2 to 3 minutes in alternating nostrils PRN) Consider **EMS**
UNCONSCIOUSNESS POSTURAL HYPOTENSION	Immediate loss of consciousness when standing rapidly or when rapidly repositioned upright No prodromal signs & symptoms	Normally, rapid return of consciousness when positioned supine with feet elevated CAB as needed Oxygen (15 liters/minute flow) Monitor & record vital signs (BP, O_2 saturation, respiratory rate)
UNCONSCIOUSNESS SYNCOPE	Presyncope - feels faint, dizzy, lightheaded, profuse sweating (diaphoresis), pallor Loss of consciousness Bradycardia (slow heart rate), hypotension (low blood pressure) Possible nausea, vomiting on recovery	Position supine with feet elevated Normally, rapid return of consciousness with positioning CAB, as needed Monitor & record vital signs (BP, O_2 saturation, respiratory rate) On recovery - administer sugar (e.g. **InstaGlucose** or orange juice) orally Oxygen (15 liters/minute flow) Cold compress to forehead Determine cause of faint If recovery delayed - **ACTIVATE EMS**

EMS - emergency medical services (911)
CAB - Circulation, **A**irway, **B**reathing
Semi-Fowler position - 30° upright
AMI - acute myocardial infarction

N_2O-O_2 - nitrous oxide - oxygen
AED - automated external defibrillator
ROSC - return of spontaneous circulation
BLS - basic life support

PRN - taken as needed
PO - oral administration
IN - intranasal
BZD - benzodiazepine

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