

# Universal Emergency Steps

**C:**

- ✓ CALL 911
- ✓ CAROTID PULSE- IF NOT CERTAIN ALIVE WITHIN 10 SECONDS START CPR AND GET AED TO PATIENT
- ✓ CIRCULATION: IF PULSE PRESENT TAKE FULL SET OF VITAL SIGNS
- ✓ CONSIDER EARLY IV/IO ACCESS
- ✓ CONSCIOUSNESS (AVPU)
- ✓ CONSIDER CARDIAC MONITORING IF AVAILABLE

**A:**

- ✓ AIRWAY: ARE THEY KEEPING AND OPEN AIRWAY OR DO YOU NEED TO PERFORM A JAW THRUST OR HEAD-TILT-CHIN-LIFT
- ✓ ADD ORAL PHARYNGEAL AIRWAY
- ✓ IF SERIOUS SITUATION CHECK IF ANYTHING LEFT IN THE MOUTH- THROAT PACK, GAUZE. ENSURE NO FOREIGN BODY AIRWAY OBSTRUCTION INCLUDING VISUALIZATION FROM TEETH TO THE VOCAL CORDS.

**B:**

- ✓ BREATHING-YES, NO, WELL ENOUGH?
- ✓ IF NO OR MINIMAL BREATHING, BREATHE FOR THEM WITH POCKET MASK OR BAG-VALVE-MASK DEVICE (O2 FLOW 15 LPM)
- ✓ IF BREATHING ADEQUATE CONSIDER
  - NASAL PRONGS AT 4 LPM OXYGEN
  - OXYGEN MASK AT 10 LPM OXYGEN

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# COLLAPSE, NO SIGN OF LIFE

If no pulse/no signs of life found within 10 seconds



Call 911, AED TO PATIENT'S SIDE



## Start Chest Compressions

- ✓ Push 2-2.4 inches or 5-6 cm at rate of 100-120/minute
- ✓ Allow for full natural chest recoil
- ✓ Switch staff person doing chest compressions every 2 minutes



After each set of 30 compressions give 2 breaths using a pocket mask or using two staff and a Bag-Valve-Mask (AMBUBAG)



Once AED at patient's side turn on, apply pads and follow prompts



Resume CPR, give epinephrine 1mg IV/IO every 3 minutes if you have vascular access and follow appropriate ACLS algorithm. Consider placement of an I-Gel or similar airway

# CHOKING

## Signs and Symptoms

(Inability to speak or weak and ineffective cough combined with panic and respiratory distress)



Call 911, If patient standing Perform Heimlich maneuver repeatedly until airway cleared or loss of consciousness



If in dental chair, consider forceful sternal compressions from front

(concept is to create thoracic positive pressure- like a forceful cough)



If losing consciousness undertake direct visualization and attempt to remove foreign body with McGill forceps



Evidence of laryngospasm go to laryngospasm protocol



Consider use of cricothyroidotomy kit if trained in the procedure

# LARYNGOSPASM

Often associated with light planes of anaesthesia such as emergence from GA, can occur during sedation. Higher incidence in pediatric patients, in patients with reactive airway diseases, and in patients with upper respiratory infection. Can be greater than a 10-fold risk increase. BEWARE



## Signs and Symptoms

Inspiratory stridor which may progress to complete obstruction, increased respiratory effort, tracheal tug, oxygen desaturation with or without bradycardia, or airway obstruction which does not respond to positioning and an oral pharyngeal airway



- ✓ Remove any known trigger such as instruments and dental materials
- ✓ Gently suction the larynx clear of secretions, blood, or gastric contents



- ✓ Vigorous jaw thrust and place oral pharyngeal airway
- ✓ Apply a firm mask seal with Bag-Valve-Mask and exert continuous gentle positive pressure with 100% oxygen until spasm breaks



If Unsuccessful Call 911, If available and staff trained consider succinylcholine IV, IO, or IM if severe spasm still unrelieved. Be prepared to manage airway and breathing. IV/IO: 0.1-2.0 mg/kg. IM: 4.0 mg/kg

# ANAPHYLAXIS

## Signs and Symptoms

Onset of signs and symptoms may be minutes to approximately two hours after exposure. Patient restless and anxious, most often rapid onset.

- ✓ **Airway:** swelling of lips, tongue, throat, changes in sound of voice, stridor
- ✓ **Breathing:** difficulty breathing, wheezes, rapid breathing, nasal congestion, runny nose, tight throat
- ✓ **Circulation:** increasing heart rate, decreasing blood pressure, altered LOC
- ✓ **Disability:** decreasing level of consciousness if shock state severe, agitation, combative
- ✓ **Exposure:** skin and or mucosal changes such as a red skin rash, hives, itchiness, edema most common findings
- ✓ **Gastrointestinal:** vomiting, diarrhea, abdominal distention

Notes: varying severity to allergic reactions, many patients have skin symptoms which do not progress further, some initially asthma respiratory symptoms only (children more common), some have severe hypotension with cardiovascular collapse without skin manifestations

**TREATMENT, NEXT PAGE**

# ANAPHYLAXIS

If serious allergic reaction probable Call 911. Remove any suspected antigen

Place patient supine in dental chair if tolerated

Support Airway, Breathing and Circulation:

Oxygen by mask 10 LPM, assist ventilations with Bag-Valve-Mask and oral airway as needed, obtain IV/IO access

Monitor patient's vital signs (ECG, BP, Oxygen Saturation, Resps, Heart rate)

DO NOT DELAY. Deliver anterolateral aspect of the middle third of the thigh.

0.5 ml epinephrine 1:1000 IM > 12-year-old

0.3 ml epinephrine 1:1000 IM 6- 12-year-old

0.15 ml epinephrine 1:1000 IM < 6 year-old

1ml=1mg 1:1000 ampule and use a 1 cc syringe and IM needle  
(epi-auto injector can be used)

- ✓ Benadryl 25-50 mg IM or IV,
- ✓ Ventolin inhaler if bronchospasm (wheezes)
- ✓ If severe hypotension and have IV/IO access give 500-1000 ml (Peds 20 ml/kg) wide open boluses of NS

# OVERSEDATION

Evidence of inadequate breathing or apnea

(Visual, waveform ETCO<sub>2</sub>, pretracheal stethoscope, dropping oxygen saturation, bradycardia)



- ✓ Provide strong verbal and tactile stimulus
- ✓ If not responding add painful stimuli
- ✓ If not responding with adequate breathing add jaw thrust



Bag-Valve-Mask ventilate with oral airway as needed with oxygen running at 15 LPM to return oxygen saturation to > 95%, consider use of i-gel airway or LMA



Give reversal agents as appropriate:

- ✓ Flumazenil 0.2 mg IV/IM *q1min, increase to 0.5mg up to 3mg/hr*
- ✓ Naloxone 0.4 mg IV/IM (for opioids given or suspected self-medication)
- ✓ Assist A, B, C's until easily self-maintained by patient *0.4 - 4.0mg q2-3min up to 10mg/hr.*



Monitor patient for two hours postop to avoid re-sedation issues



# SYNCOPE/BRADYCARDIA

## Signs and Symptoms

- ✓ Sudden brief loss of consciousness (syncope) or sensations of impending loss of consciousness (presyncope) such as being lightheaded and having visual changes
- ✓ Vasovagal syncope: associated with certain triggers such as anxiety, fear, pain, or the sight of blood or needles
- ✓ Orthostatic syncope: occurs after going suddenly from a laying or sitting position to standing



Assist patient immediately into supine or trendelenburg position (head at same height or lower than heart)



Assess consciousness along with Circulation, Airway, Breathing (CAB) and assist as needed



If persistent bradycardia noted with signs of poor perfusion (low BP, weak pulses, altered LOC) consider IV access and Atropine 0.5 mg IV every 2 minutes to a maximum of 3 mg



Call 911 for:

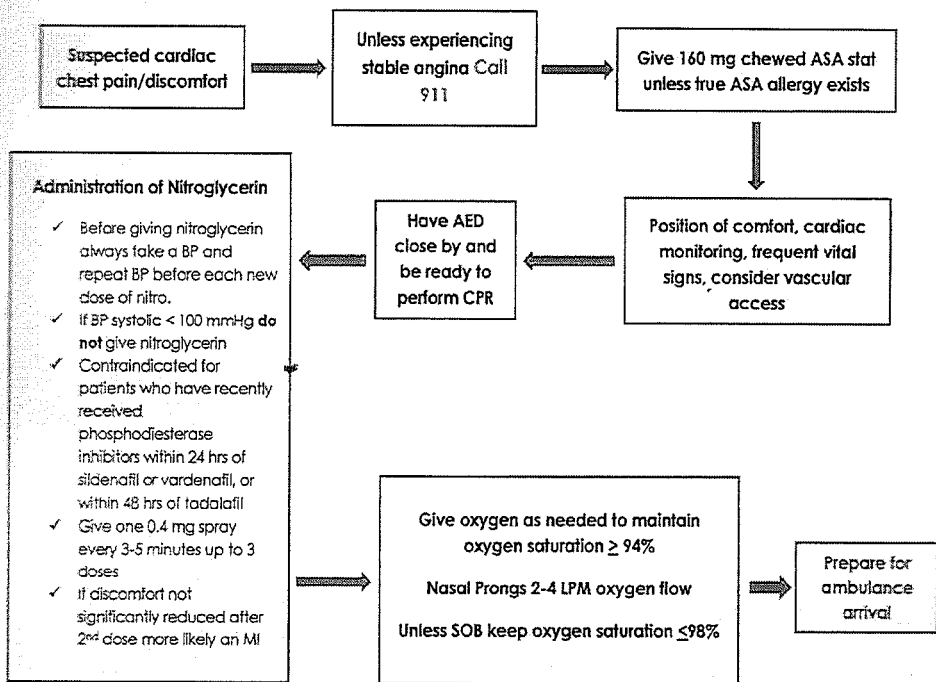
- ✓ Syncope which is sudden with no prodromal signs or symptoms
- ✓ If syncope persists beyond five minutes or full recovery takes greater than 20 minutes

## CARDIAC CHEST PAIN - ACUTE CORONARY SYNDROME

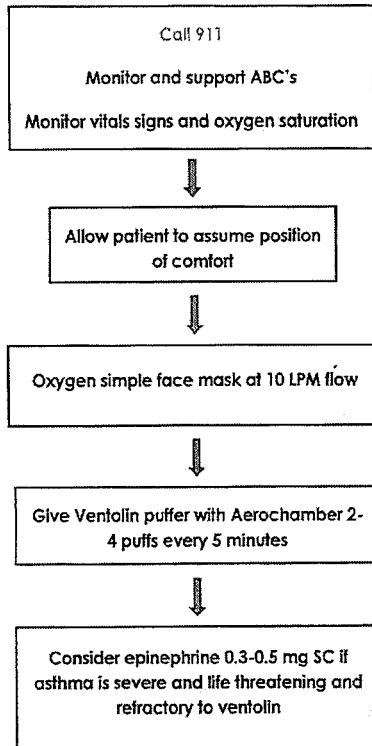
- ✓ Chest pain has many differentials so this flow chart is a general guide only
- ✓ **Stable Angina:** patient has hx of angina and what triggers the angina is generally unchanged, the severity and nature of discomfort is unchanged, and what it takes to relieve the discomfort is unchanged. The lesion in the coronary vessel is considered stable.
- ✓ **Unstable Angina:** Any first time angina signs and symptoms are considered unstable. For existing angina patients unstable if the triggers, severity, and/or treatment needed to resolve the pain is changing in pattern. The lesion in the coronary vessel is changing and the patient is at high risk for a significant ACS event
- ✓ **Myocardial Infarction:** A blockage of a coronary vessel has occurred and the death of heart tissue is underway. Typical signs and symptoms of an acute MI may include:
  - Fatigue
  - Malaise
  - Nausea
  - Vomiting
  - Sweatiness
  - Dizziness
  - Shortness of Breath
  - Chest discomfort/pressure/pain
    - Intense and continuous for 30-60 or more minutes
    - Retrosternal and often radiates up to the neck, shoulder, and jaw and down to the ulnar aspect of the left arm
    - Usually described as a substernal pressure sensation that also may be characterized as squeezing, aching, burning, or even sharp
    - In some patients, the symptom is epigastric, with a feeling of indigestion or of fullness and gas

TREATMENT, NEXT PAGE

# CARDIAC CHEST PAIN - UNSTABLE ANGINA OR POSSIBLE MI



# BRONCHOSPASM/ASTHMA



# HYPOGLYCEMIA

## Signs and Symptoms

- ✓ Mild-Moderate: cold, clammy skin, nausea, hunger, trembling, tachycardia, lethargy, irritability, anxiety, headache, confusion
- ✓ Severe: tingling/numbness to lips and finger tips, loss of consciousness, seizures, coma, hypothermia. Call 911 if Unconscious
- ✓ Glucometer:  $< 4.0$  mmol/L. Unconsciousness may occur if  $< 2.8$  mmol/L.

## Treatment

- ✓ There is little reason for dental patients who are rarely left unattended for long periods of time to develop severe signs and symptoms.
- ✓ Mild to moderate hypoglycemia should be treated by the oral ingestion of 15 g carbohydrate. Patients should retest blood glucose in 15 minutes and re-treat with another 15 g carbohydrate if the level remains  $< 4.0$  mmol/L. Examples of 15 g carbohydrate for treatment of mild to moderate hypoglycemia
  - Insta-glucose gel 15 g glucose (1/2 of a tube) swallowed with water
  - 15 mL (3 teaspoons) or 3 packets of table sugar dissolved in water
  - 175 mL (3/4 cup) of juice or regular soft drink
  - 6 LifeSavers (1 = 2.5 g carbohydrate)
  - 15 mL (1 tablespoon) of honey
- ✓ Once the hypoglycemia has been reversed, the person should have the usual meal or snack that is due at that time of the day to prevent repeated hypoglycemia. If a meal is  $> 1$  hour away, a snack (including 15 g carbohydrate and a protein source) should be consumed.
- ✓ Severe hypoglycemia in an unconscious individual (CALL 911)
  - With no IV access: 1 mg glucagon should be given subcutaneously or intramuscularly
  - With IV access: 10–25 g (20–50 cc of D50W) of glucose should be given intravenously over 1–3 minutes. Alternatively give 200–500 cc of D5W wide open.

## SEIZURES (GENERALIZED TONIC - CLONIC)

Consider Calling 911 depending on situation  
Monitor and support ABC's  
Monitor vital signs and oxygen saturation



### Basic Management

- ✓ Place patient in supine position, on floor if necessary
- ✓ Ensure safety (instruments clear of patient, protect limbs)
- ✓ Time seizure
- ✓ Airway and breathing cannot be managed while seizing as the patient is not breathing but prepare to ventilate post seizure (BVM and oral airway) oxygen at 15 LPM and have portable suction ready



### Advanced Management

Glucose: Check if glucose < 4mmol/L and treat as necessary

If seizure continues for > 3 minutes administer one of:

- ✓ Midazolam Intranasal 10 mg, inject 5mg (1 ml) into each nostril with atomizer. For peds give 0.2mg/kg, split between two nostrils
- ✓ Midazolam IV 2-4 mg. For peds 0.2mg/kg
- ✓ Midazolam IM 10 mg. For peds give 0.2mg/kg
- ✓ If seizures persist 5 minutes after treating, consider repeating ½ dose of midazolam either intranasally, Intramuscularly or Intravenously.



### Post Seizure Management

- ✓ Assess airway, breathing and circulation and support as needed
- ✓ Place patient in recovery position, suction airway if needed
- ✓ Monitor vital signs
- ✓ Provide oxygen by nasal prongs at 4 LPM
- ✓ Confused postictal phase normal and may exceed 10-15 minutes

# STROKE

"time is brain"

## Signs and Symptoms

- ✓ Arm drift (have patient close eyes and extend arms straight out palms up for 10 seconds). Abnormal if unable to move arm or one arm drifts downwards
- ✓ Facial droop (Have patient show teeth or smile)
- ✓ Abnormal speech (none, garbled, slurred)
- ✓ Severe headache
- ✓ Visual disturbances

CALL 911 Immediately if a stroke is suspected



## Treatment

- ✓ Reassure patient
- ✓ Oxygen by nasal prongs 2-4 LPM only if needed to maintain oxygen saturation 94%-98%
- ✓ Support airway, breathing and circulation as needed
- ✓ Record exact time of onset of symptoms
- ✓ Monitor vital signs, place on cardiac monitor
- ✓ Consider IV access

# HYPERVENTILATION

Because respiratory distress or chest pain has many potentially serious causes, the diagnosis of hyperventilation should never be made at the office.

Rebreathing into a paper bag is not recommended. Deaths have occurred in patients with acute myocardial infarction (MI), pneumothorax, and pulmonary embolism (PE) who were initially misdiagnosed with hyperventilation and treated with paper bag rebreathing.



## Signs and Symptoms

- ✓ Agitation, high anxiety
- ✓ Rapid difficult breathing
- ✓ Chest pain
- ✓ Dizziness,
- ✓ Palpitations,
- ✓ Tetanic cramps (carpopedal spasm),
- ✓ Paresthesia
- ✓ Generalized weakness



## Treatment

- ✓ Once life-threatening conditions are eliminated, simple reassurance and an explanation of how hyperventilation produces the patient's symptoms are usually sufficient to terminate the episode.
- ✓ Make eye contact and instruct patient to breathe abdominally, using the diaphragm more than the chest wall
- ✓ Diaphragmatic breathing slows the respiratory rate, gives patients a distracting maneuver to perform when attacks occur, and provides patients with a sense of self-control during episodes of hyperventilation. This technique has been shown to be very effective in a high proportion of patients.
- ✓ If these techniques do not alleviate signs and symptoms, consider a more serious cause and call 911