Southwest General
Partnering with University Hospitals

EMS Services

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES

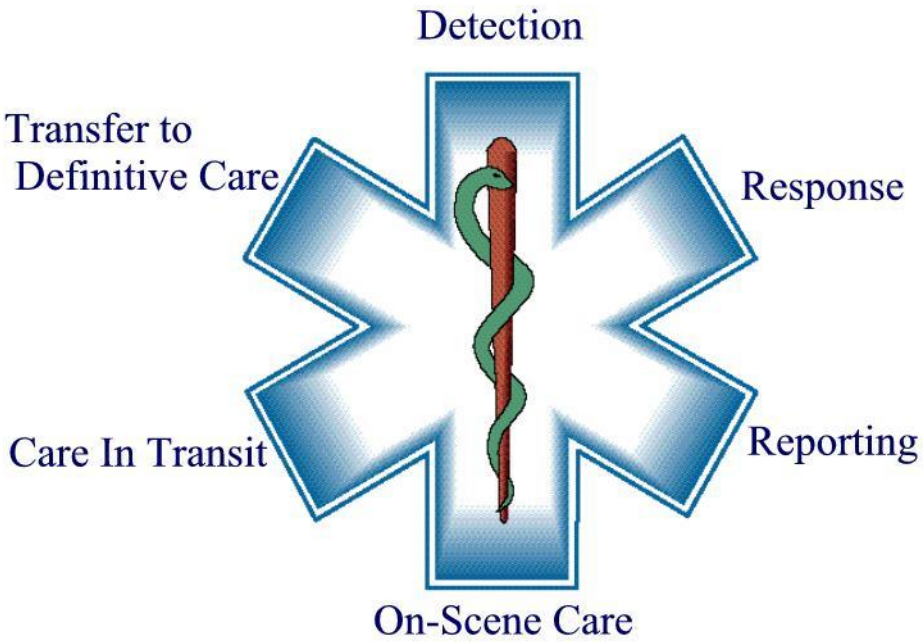


TABLE OF CONTENTS

MEDICAL EMERGENCIES

ABDOMINAL PAIN

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

↓

Hypotensive?

Yes ←

Evidence of dehydration, nausea, vomiting — **Yes** → **Consider Zofran 2 – 4 mg IM or IV over 30 seconds**

↓ **No**

IV PROTOCOL
IV Normal Saline wide open to maintain systolic BP of 90

Consider Acute Coronary Syndrome Protocol

↓

Consider Pain Management Protocol
Contact Medical Control

↓

Do Not Administer Nitrous Oxide

↓

CONTACT MEDICAL CONTROL

↓

TRANSPORT

MEDICAL EMERGENCIES			1A
ABDOMINAL PAIN			
History	**Signs and Symptoms**	**Differential Diagnosis**	
• Age • Past medical / surgical history • Medications • Onset • Quality (crampy, constant sharp, dull, etc.) • Region / Radiation Referred • Severity (1-10) • Time (duration/repetition) • Fever • Last meal eaten • Last bowel movement / emesis • Menstrual history (pregnancy)	• Pain (location / migration) • Tenderness • Nausea • Vomiting • Diarrhea • Dysuria • Constipation • Vaginal bleeding / discharge • Pregnancy • **Associated symptoms:** (Helpful to localize source) Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash	• Pneumonia or Pulmonary embolus • Liver (hepatitis, CHF) • Peptic ulcer disease • Gastritis • Gallbladder • Myocardial infarction • Pancreatitis • Kidney stone • Abdominal aneurysm • Appendicitis • Bladder / Prostate disorder • Pelvic (PID, Ectopic, pregnancy, Ovarian cyst) • Spleen enlargement • Diverticulitis • Bowel obstruction • Gastroenteritis (infectious)	

GENERAL CONSIDERATIONS:

- Required Exam: Mental Status, Skin, HEENT, Neck, Heart, Lung, Abdomen, Back, Extremities, Neuro
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis presents with vague, peri-umbilical pain, which migrates, to the RLQ over time. It is important to remember that abdominal pain can be caused by a large number of different disease processes. The organ systems that may be involved in abdominal pain include esophagus, stomach, intestinal tract, liver, pancreas, spleen, kidneys, male and female genital organs, bladder, as well as referred pain from the chest that can involve the heart, lungs or pleura. Abdominal pain may also be caused by muscular and skeletal problems.
- Abdominal pain emergencies are likely to lead to death due to blood or fluid loss with resultant shock. There may also be severe electrolyte abnormalities that can cause arrhythmias.
- Myocardial Infarction may present as abdominal pain especially in the diabetic and elderly.
- If the abdominal pain may be of cardiac origin, perform cardiac monitoring and a 12-Lead EKG.
- DKA may present with abdominal pain and vomiting.
- Zofran (Ondansetron) may be given for nausea and vomiting. Starting dose 2 – 4 mg IV/IM give deep IM or slow through a patient IV line over 30 seconds.

MEDICAL EMERGENCIES

ALLERGIC REACTION

UNIVERSAL PATIENT CARE PROTOCOL

IV PROTOCOL

Apply Cardiac Monitor and Assess Vitals

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

Mild

Hive/Rash, itching, NO difficulty breathing or throat tightening, BP – normal limits

- Oxygen per cannula
- Benadryl 25-50 mg IV or IM
- Consider Epi if history of severe reaction

Moderate

Rash, itching, Wheezing, Throat tightening, Swelling, face lips, BP – normal limits

- Oxygen per NRB
- Assist with Epi-pen
- *For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM before EPI IN
- Epinephrine 1:1000 0.3-0.5 mL subcut.
- Benadryl 25-50 mg IV or IM
- Consider Albuterol aerosol tx.

Severe

Rash, itching, Airway compromise Wheezing, Swelling, Hypotension

- Oxygen per NRB
- Assist with Epi-pen
- *For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM before EPI IN
- Epinephrine 1:1000 0.3-0.5 mL subcut.
- Benadryl 25-50 mg IV or IM
- IV with NS-Bolus 200-400 mL
- Albuterol Aerosol watch airway & breathing
- Consider repeat Epi after 5 min. if no improvement
- Consider Dopamine if no improvement

(Adult Any Age) Impending Arrest

Severe Hypotension No response to Epi Decreased level of consciousness Airway compromise

- Epinephrine 1:10,000 0.3-0.5mg IVP
- IV NS wide open
- Control airway via BVM
- Follow ACLS

CONTACT MEDICAL CONTROL

TRANSPORT

Southwest General Health Center /EMS Services
Revised 03/2007, 06/2007, 10/2008, 1/2012

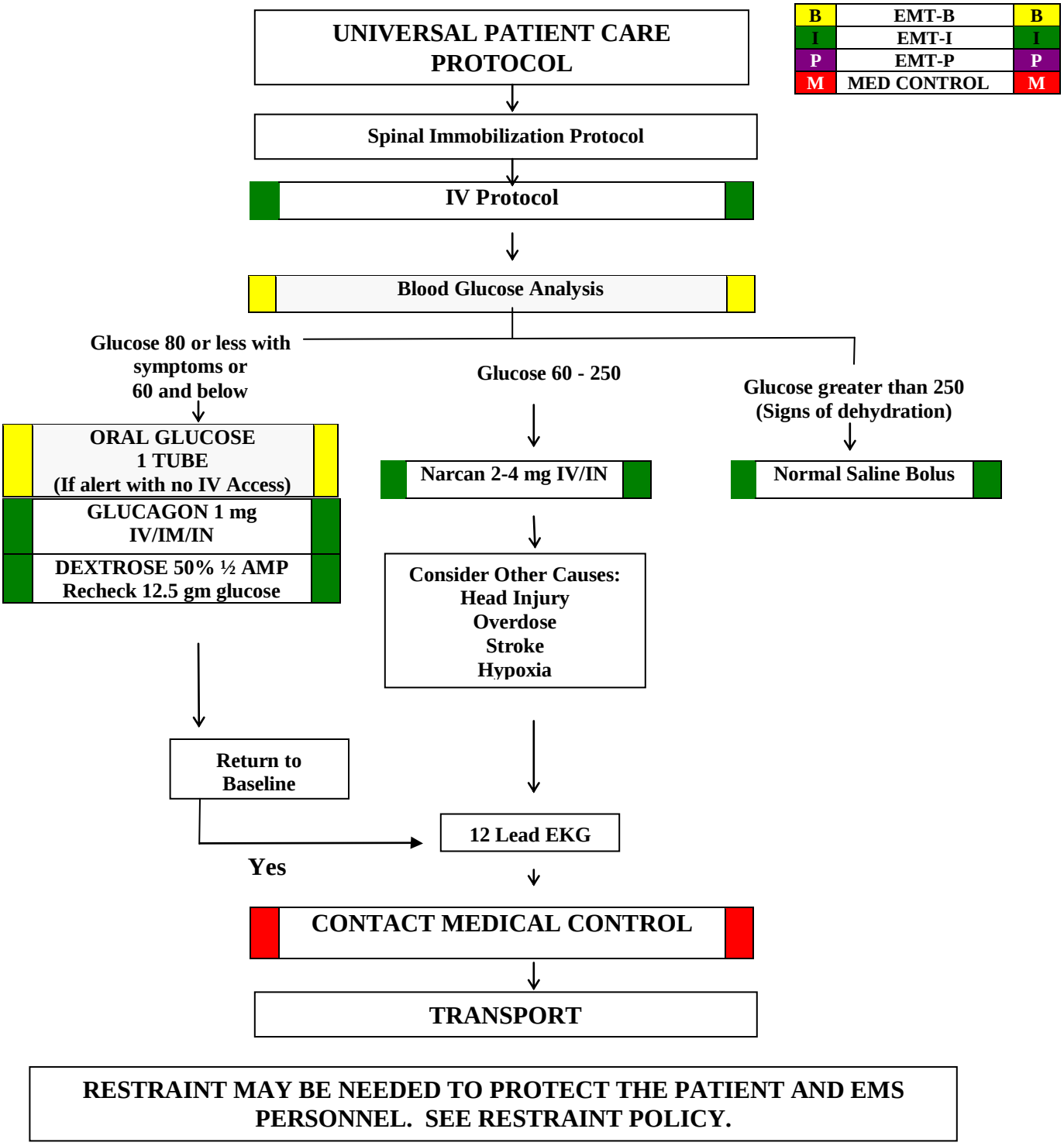
MEDICAL EMERGENCIES			2A
ALLERGIC REACTION			
History	**Signs and Symptoms**	**Differential Diagnosis**	
• Onset and location • Insect sting or bite • Food allergy / exposure • Medication allergy / exposure • New clothing, soap, detergent • Past history of reactions • Past medical history • Medication history	• Itching or hives • Coughing / wheezing or respiratory distress • Chest or throat constriction • Difficulty swallowing • Hypotension or shock • Edema	• Urticaria (rash only) • Anaphylaxis (systemic effect) • Shock (vascular effect) • Angioedema (drug induced) • Aspiration / Airway obstruction • Vasovagal event • Asthma or COPD • CHF	

GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Heart, Lungs
- Contact Medical Control prior to administering epinephrine in patients who are greater than 65 years of age, have a history of cardiac disease, or if the patient's heart rate is greater than 150. Epinephrine may precipitate cardiac ischemia.
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM Benadryl (diphenhydramine).
- The shorter the onset from symptoms to contact, the more severe the reaction.
- Routine assessment and supportive care of the patient’s respiratory and cardiovascular systems is required.
- Treat patients with a history of anaphylaxis aggressively.
- Use caution when using epinephrine for patients over fifty years of age.
- Use caution when using epinephrine for patients with a heart rate greater than 150 bpm.
- When possible, remove any stingers.

MEDICAL EMERGENCIES

ALTERED LEVEL OF CONSCIOUSNESS



RESTRAINT MAY BE NEEDED TO PROTECT THE PATIENT AND EMS PERSONNEL. SEE RESTRAINT POLICY.

MEDICAL EMERGENCIES		3A
ALTERED LEVEL OF CONSCIOUSNESS		

History	Signs and Symptoms	Differential Diagnosis
• Known diabetic, medic alert tag • Drugs, drug paraphernalia • Report of illicit drug use or toxic ingestion • Past medical history • Medications • History of trauma	• Decreased mental status • Change in baseline mental status • Bizarre behavior • Hypoglycemia (cool, diaphoretic skin) • Hyperglycemia (warm, dry skin, fruity breath, Kussmal resps; signs of dehydration)	• Head trauma • CNS (stroke, tumor, seizure, infection) • Cardiac (MI, CHF) • Infection • Thyroid (hyper / hypo) • Shock (septic, metabolic, traumatic) • Diabetes (hyper / hypoglycemia) • Toxicologic • Acidosis / Alkalosis • Environmental exposure • Pulmonary (Hypoxia) • Electrolyte abnormalility • Psychiatric disorder

GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists.
- Low glucose (less than 80), normal glucose (80 - 120), high glucose (greater than 250).
- Consider Restraints if necessary for patient's and / or personnel's protection per the restraint procedure.
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdraw, which includes vomiting, agitation, and / or combative behavior. Always be prepared for combative behavior.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedate and possibly hypoventilate. All patients receiving Naloxone (Narcan) MUST be transported.

MEDICAL EMERGENCIES

BEHAVIORAL / PSYCHIATRIC EMERGENCIES

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

SCENE SAFETY
SUMMON LAW ENFORCEMENT

UNIVERSAL PATIENT CARE PROTOCOL

Remove patient from stressful environment

Verbal techniques
(reassurance, calm, establish rapport)

Treat Suspected Problems per Appropriate Protocol
Altered Mental Status
Overdose
Head Trauma
Hypoglycemia

Restrain Where Indicated
THREAT TO SELF OR OTHERS

RESTRAINT PROCEDURE

Consider Chemical Restrain
if Aggressive, Violent, Severe Agitation in the Setting of Psychosis

For Use in ADULT Psychosis Only
Not for Medical Emergencies Such as Hypoxemia, Sepsis, Encephalitis, Hypoglycemia or Stroke

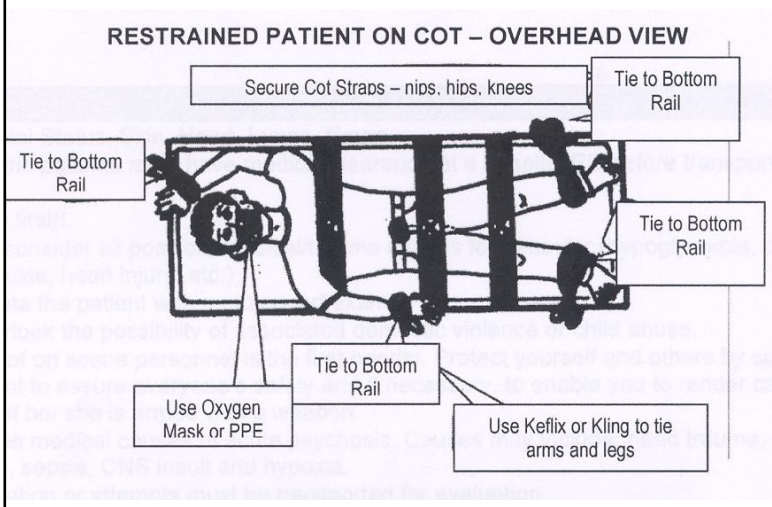
HALOPERIDOL (HALDOL)
5 mg IM Over Age 65 Give 2.5 mg IM
THIS IS IF AN IM INJECTION ONLY

Anytime after injections: if Fasciculations, Extrapyramidal Symptoms (EPS) like Dystonia
Benadryl only to counteract reaction to Haldol

DIPHENHYDRAMINE (BENADRYL)
25 – 50 mg IV / IM

Do not mix HALOPERIDOL (HALDOL) and DIPHENHYDRAMINE (BENADRYL) in the same syringe - Incompatible

Extrapyramidal Symptoms (EPS)
Involuntary Movements
Purposeless Movements
Tongue Protrusion – Rapid Eye Blinking
Facial Grimacing – Lip Smacking / Puckering



CONSTANT REASSEMENT OF ABC'S, PERSONAL, AND PATIENT SAFETY

CONTACT MEDICAL CONTROL

TRANSPORT

MEDICAL EMERGENCIES

BEHAVIORAL/ PSYCHIATRIC EMERGENCIES

ALL RESPONDERS SHOULD HAVE A HEIGHTENED AWARENESS OF SCENE SAFETY

History	Signs and Symptoms	Differential Diagnosis
• Situational crisis • Psychiatric illness / medications • Injury to self or threats to others • Medic alert tag • Substance abuse / overdose • Diabetes	• Anxiety, agitation, confusion • Affect change, hallucinations • Delusional thoughts, bizarre behavior • Combative violent • Expression of suicidal / homicidal thoughts	• See Altered Mental Status differential • Alcohol Intoxication • Toxin / Substance abuse • Medication effect / overdose • Withdrawal syndromes • Depression • Bipolar (manic-depressive) • Schizophrenia • Anxiety disorders

Criteria for Restraint Use:

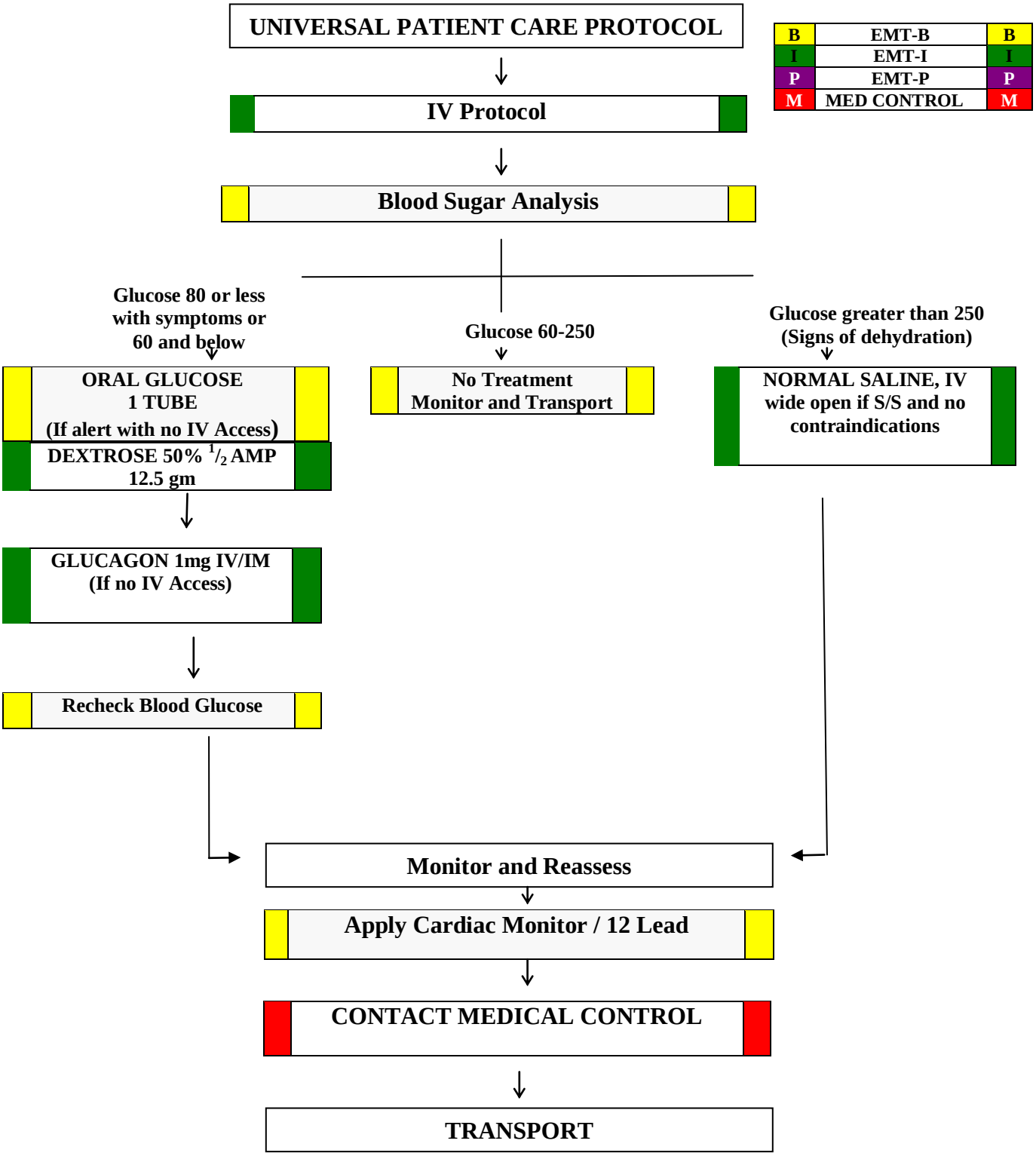
1. Patient out of control and may cause harm to self or others.
2. Necessary force required for patient control without causing harm.
3. Position of patient must not impede airway or breathing.
4. Restraints must not impede circulation.
5. Place mask on patient for body secretion protection. May use TB mask, or Non-rebreather if patient needs oxygen.
6. Use supine or lateral positioning ONLY.
7. Frequent distal neurovascular checks are required.
8. DOCUMENT methods used.

GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Heart, Lungs, Neuro
- All psychiatric patients must have medical clearance at a hospital ED before transport to a mental health facility.
- Your safety first!!
- Be sure to consider all possible medical / trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.).
- Do not irritate the patient with a prolonged exam.
- Do not overlook the possibility of associated domestic violence or child abuse.
- The safety of on scene personnel is the first priority. Protect yourself and others by summoning Law Enforcement to assure everyone's safety and if necessary, to enable you to render care. Do not approach the patient if he/she is armed with a weapon.
- Consider the medical causes of acute psychosis. Causes may include; head trauma, hypoglycemia, acute intoxication, sepsis, CNS insult and hypoxia.
- Suicide ideation or attempts must be transported for evaluation.
- Be alert for rapidly changing behaviors.
- Limit patient stimulation and use de-escalation techniques.
- If the patient has been placed in handcuffs by a law enforcement agency, then a member from that agency MUST ride with the patient in the ambulance to the hospital.

MEDICAL EMERGENCIES

DIABETIC EMERGENCIES



MEDICAL EMERGENCIES

DIABETIC EMERGENCIES

HYPOGLYCEMIA

History	Signs and Symptoms	Differential Diagnosis
• Known diabetic, medic alert tag • Past medical history • Medications • Last Meal • Recent Blood Sugar	• Altered Level of Consciousness • Dizziness • Irritability • Diaphoresis • Convulsions • Hunger • Confusion	• ETOH • Toxic Overdose • Trauma • Seizure • Syncope • CNS Disorder • Stroke • Pre-existing condition

HYPERGLCEMIA

History	Signs and Symptoms	Differential Diagnosis
• Known diabetic, medic alert tag • Past medical history • Medications • Last Meal • Recent Blood Sugar	• Altered Level of Consciousness / Coma • Abdominal Pain • Nausea / Vomiting • Dehydration • Frequent Thirst and Urination • General Weakness Malaise • Hypovolemic Shock • Hyperventilation • Deep / Rapid Respirations	• ETOH • Toxic Overdose • Trauma • Seizure • Syncope • CNS Disorder • Stroke • Diabetic Ketoacidosis

GENERAL CONSIDERATIONS:

Hyperglycemia:

- Diabetic Ketoacidosis (DKA) is a complication of diabetes mellitus. It can occur when insulin levels become inadequate to meet the metabolic demands of the body for a prolonged amount of time (onset can be within 12-24 hours). Without enough insulin the blood glucose increases and cellular glucose depletes. The body removes excess blood glucose by dumping it into the urine. Pediatric patients in DKA should be treated as hyperglycemic under the Pediatric Diabetic Emergency Protocol.
- Patients can have Hyperglycemia without having DKA.

Hypoglycemia:

- Always suspect Hypoglycemia in patients with an altered mental status.
- If a blood glucose analysis is not available, a patient with altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.
- Dextrose is used to elevate blood glucose but it will not maintain it. The patient will need to follow up with a meal, if not transported to a hospital.

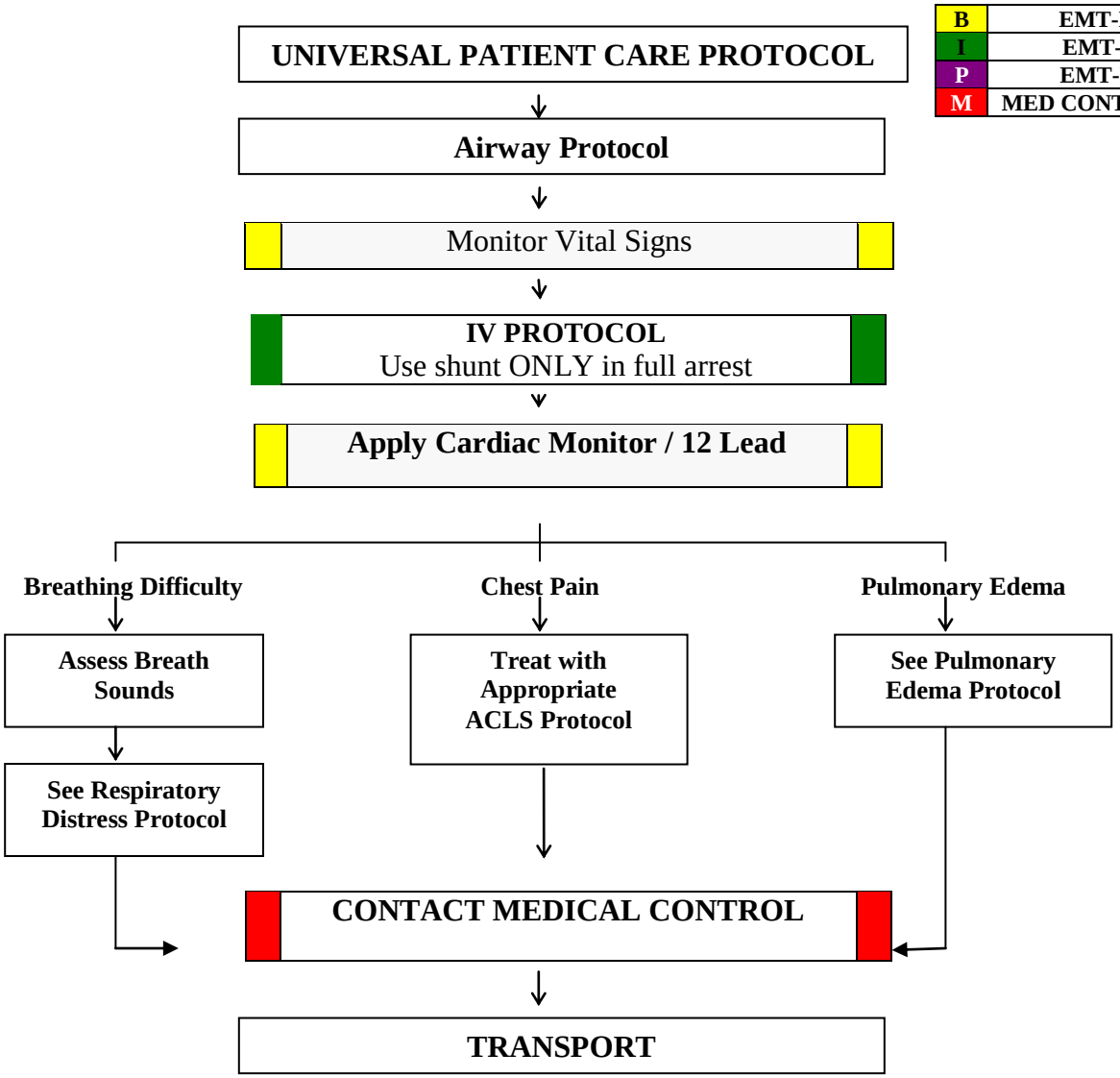
Miscellaneous:

- If IV access is successful after Glucagon IM and the patient is still symptomatic, Dextrose IV can be administered.
- Shut off wearable insulin pumps if patient is hypoglycemic.

MEDICAL EMERGENCIES

DIALYSIS / RENAL PATIENT

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M



MEDICAL EMERGENCIES		
DIALYSIS / RENAL PATIENTS		
History	**Signs and Symptoms**	**Differential Diagnosis**
• Renal Failure • Dialysis Treatment • Anemia • Dialysis treatment schedule • Previous implications • Long term catheter access • Shunt access • Hyperkalemia	• Hypotension • Bleeding • Fever • Electrolyte Imbalances • Nausea • Vomiting • Altered Mental Status • Seizure • Dysrhythmias	• Congestive Heart Failure • Pericarditis • Diabetic Problem

GENERAL CONSIDERATIONS:

The Chronic Renal Dialysis patient has numerous medical problems. The kidneys help maintain electrolyte balance, acid-base balance and rid the body of metabolic waste. Kidney Failure results in a build-up of toxins within the body, which can cause many problems. Dialysis is a process, which filters out the toxins, excess fluids and restores electrolyte balance. The process may be done in two ways:

1. Peritoneal Dialysis

Toxins are absorbed by osmosis through a solution infused into the peritoneal cavity, and then drained out. The solution is placed into the abdomen by means of a catheter, which is placed below the navel. This process must be done frequently, as much as every 12 hours for a period of 1 – 2 hours.

2. Hemodialysis

Removes toxins by directly filtering the blood using equipment that functions like an electric kidney, circulating the blood through a Shunt that is connected to a vein and an artery. A permanent Shunt can be surgically formed as a Fistula. This process usually needs to be done every 2 - 3 days for a period of 3 - 5 hours.

POSSIBLE COMPLICATIONS OF DIALYSIS TREATMENT

1. Hypotension (15-30%)

- May result in angina, MI, dysrhythmia, altered mental status, and seizure

2. Removal of therapeutic medications

- Example: Tegretol

3. Disequilibrium syndrome

- Cause: shift of urea and / or electrolytes
- Signs and symptoms: Nausea and / or vomiting, altered mentation, or seizure

4. Bleeding

- These patients are often treated with heparin and they may have a low platelet count
- Bleeding may be at the catheter site, retro peritoneal, gastrointestinal, or subdural

5. Equipment malfunctions

- Possible air embolus
- Possible fever or endotoxin
- Do not take blood pressure in arm that has the shunt. Use Shunt for IV access ONLY if Full Arrest.
- A dialysis patient may not respond to drug therapy. A renal patient in full cardiac arrest should be treated according to current ACLS guidelines. Also consider concurrent treatment as above for hyperkalemia.
- May only access patient's shunt if the patient is in full arrest or near full arrest. Notify Medical Control immediately.

MEDICAL EMERGENCIES

ESOPHAGEAL FOREIGN BODY OBSTRUCTION

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

Airway Obstruction
↓
Difficulty Breathing
Coughing
Difficulty / Unable to Talk

→ To Airway Protocol

vs

Esophageal Obstruction
↓
Salivation
Unable to Swallow
Secretions

→ Patient is in Distress
↓
Evaluate Level of Obstruction

- LOW (Neck Down) → **IV PROTOCOL**
- HIGH (Neck Up) → **Support and Protect Airway**

→ Give 1mg Well Mixed Glucagon IV
If less than 16 years give ½ mg Glucagon IV
Works in 5 – 20 minutes

→ **CONTACT MEDICAL CONTROL**

→ **TRANSPORT**

MEDICAL EMERGENCIES
ESOPHAGEAL FORIGN BODY OBSTRUCTION

History	Signs and Symptoms	Differential Diagnosis
• Onset during eating or swallowing pills, etc.	• Salivation • Unable to swallow secretions • Distressed patient • Able to breathe but may feel impaired	• Airway obstruction – coughing, unable to speak, difficulty breathing

GENERAL CONSIDERATIONS:

- Rule out airway obstruction first.
- Patient may be helpful in identifying location of bolus obstruction as they can feel it, point to it.
- If bolus is located in neck area, glucagon will not work just monitor and transport.
- If bolus located from neck down, proceed with glucagon treatment.
- Treat patients less than 16 years with ½ mg dose of glucagon.
- Glucagon affect will take from 5-20 minutes.

MEDICAL EMERGENCIES

HYPERTHERMIA / HEAT EXPOSURE

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

↓

Document patient temperature

↓

Remove patient from heat source

↓

Remove patient clothing

↓

Apply room temperature water to patient

↓

IV PROTOCOL
Heat exhaustion: IV NS wide open
Heat Stroke: IV NS TKO

↓

Core body temperature > 104^{oF}
Apply ice packs to patient
(Groin, Axilla & Posterior on Neck)

↓

Monitor and Reassess

↓

Appropriate Protocol based on patient symptoms

↓

CONTACT MEDICAL CONTROL

↓

TRANSPORT

MEDICAL EMERGENCIES		
HEAT EXPOSURE		
History	**Signs and Symptoms**	**Differential Diagnosis**
• Age • Exposure to increased temperatures and humidity • Past medical history / medications • Extreme exertion • Time and length of exposure • Poor PO intake • Fatigue and / or muscle cramping	• Altered mental status or unconsciousness • Hot, dry or sweaty skin • Hypotension or shock • Seizures • Nausea	• Fever (Infection) • Dehydration • Medications • Hyperthyroidism (Storm) • Delirium tremens (DT's) • Heat cramps • Heat exhaustion • Heat stroke • CNS lesions or tumors

Heat Exhaustion: Dehydration	**Heat Stroke: Cerebral Edema**
• Muscular / abdominal cramping • General weakness • Diaphoresis • Febrile • Confusion • Dry mouth / thirsty • Tachycardia • BP normal or orthostatic	• Confusion • Bizarre behavior • Skin hot dry, febrile • Tachycardia • Hypotensive • Seizure • Coma

GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Neuro
- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Sweating generally disappears as body temperature rises above 104° F (40° C).
- Intense shivering may occur as patient is cooled.
- **Heat Cramps** consists of benign muscle cramping 2° to dehydration and is not associated with an elevated temperature.
- **Heat Exhaustion** consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.
- **Heat Stroke** consists of dehydration, tachycardia, hypotension, temperature greater than 104° F (40° C), and an altered mental status.
- Patients at risk for heat emergencies include neonates, infants, geriatric patients, and patients with mental illness. Other contributory factors may include heart medications, diuretics, cold medications and/or psychiatric medications.
- Heat exposure can occur either due to increased environmental temperatures or prolonged exercise or a combination of both. Environments with temperature greater than 90°F and humidity greater than 60% present the most risk.
- Heat stroke occurs when the cooling mechanism of the body (sweating) ceases due to temperature overload and/or electrolyte imbalances. Be alert for cardiac dysrhythmias for the patient with heat stroke.
- Heat stroke may involve cerebral edema and increase intercranial pressure, therefore requiring less IV fluid.
- Ice packs to groin, axilla and posterior on neck if Core body temperature > 104^{oF} **.**

MEDICAL EMERGENCIES

HYPERTENSIVE EMERGENCIES

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

↓

IV PROTOCOL

↓

Apply Cardiac Monitor
Assess Neuro Status - Cincinnati Stroke / Assessment
BP in <u>both</u> arms (similar? recheck, notify Medical Control if not similar)

↓

Give NITROGLYCERIN
0.4 mg SL (x 1)
<u>ONLY If</u> :
BP greater than 120 Diastolic
<u>ALONG WITH:</u>
signs and symptoms of:
CHF or cardiac ischemic chest pain,
headache, blurred vision, focal deficit or altered LOC

↓

Monitor and Reassess

↓

CONTACT MEDICAL CONTROL

↓

TRANSPORT
Head up greater than 30 Degrees Position

MEDICAL EMERGENCIES

HYPERTENSIVE EMERGENCIES

History	Signs and Symptoms	Differential Diagnosis
• Documented hypertension related diseases • Diabetes, CVA, Renal Failure, Cardiac • Medications (compliance) • Viagra • Pregnancy	• Systolic BP 200 or greater • Diastolic BP 120 or greater • Along with at least one of these: headache, nosebleed, blurred vision, dizziness	• Hypertensive Encephalopathy • Primary CNS Injury (Cushing's response = bradycardia with hypertension) • Myocardial infarction • Aortic dissection (aneurysm) • Pre-eclampsia / Eclampsia

GENERAL CONSIDERATIONS:

- Hypertensive emergencies are life-threatening emergencies characterized by an acute elevation in blood pressure AND end-organ damage to the cardiac, CNS or renal systems. These crisis situations may occur when patients have poorly controlled chronic hypertension.
- Pre-hospital treatment of hypertension is very conservative because a CVA in progress may be made worse by a drop in BP following aggressive hypertension treatment.
- Consider treatment ONLY if Diastolic is greater than 120 mm/Hg (repeat BP x 2), and patient has signs and symptoms of CHF or Cardiac Ischemic Chest Pain!
- Avoid Nitroglycerin in any patient who has used Viagra or similar drug in the past 48 hours due to potential severe hypotension.
- Nitroglycerin may be given to lower blood pressure in patients who have an elevated diastolic BP of greater than 120 and are symptomatic with chest pain, respiratory distress, syncope, headache or mental status changes.
- All symptomatic patients with hypertension should be transported with their head elevated.
- Evidence of neurological deficit includes: confusion, slurred speech, facial asymmetry and focal weakness, coma, lethargy, and seizure activity.
- Evidence of cardiac impairment includes: angina, jugular vein distention, chest discomfort and pulmonary edema.
- If the patient becomes hypotensive from Nitroglycerin administration, place the patient in the Trendelenburg position and administer a 200 - 400 mL Normal Saline bolus.
- Toxic ingestion such as cocaine, may present with a hypertension emergency.
- Hypertension can be a neuroprotective reflex in patients with increased intracranial pressure.

MEDICAL EMERGENCIES

HYPOTHERMIA / FROSTBITE

B	EMT-B	B
I	EMT-I	I
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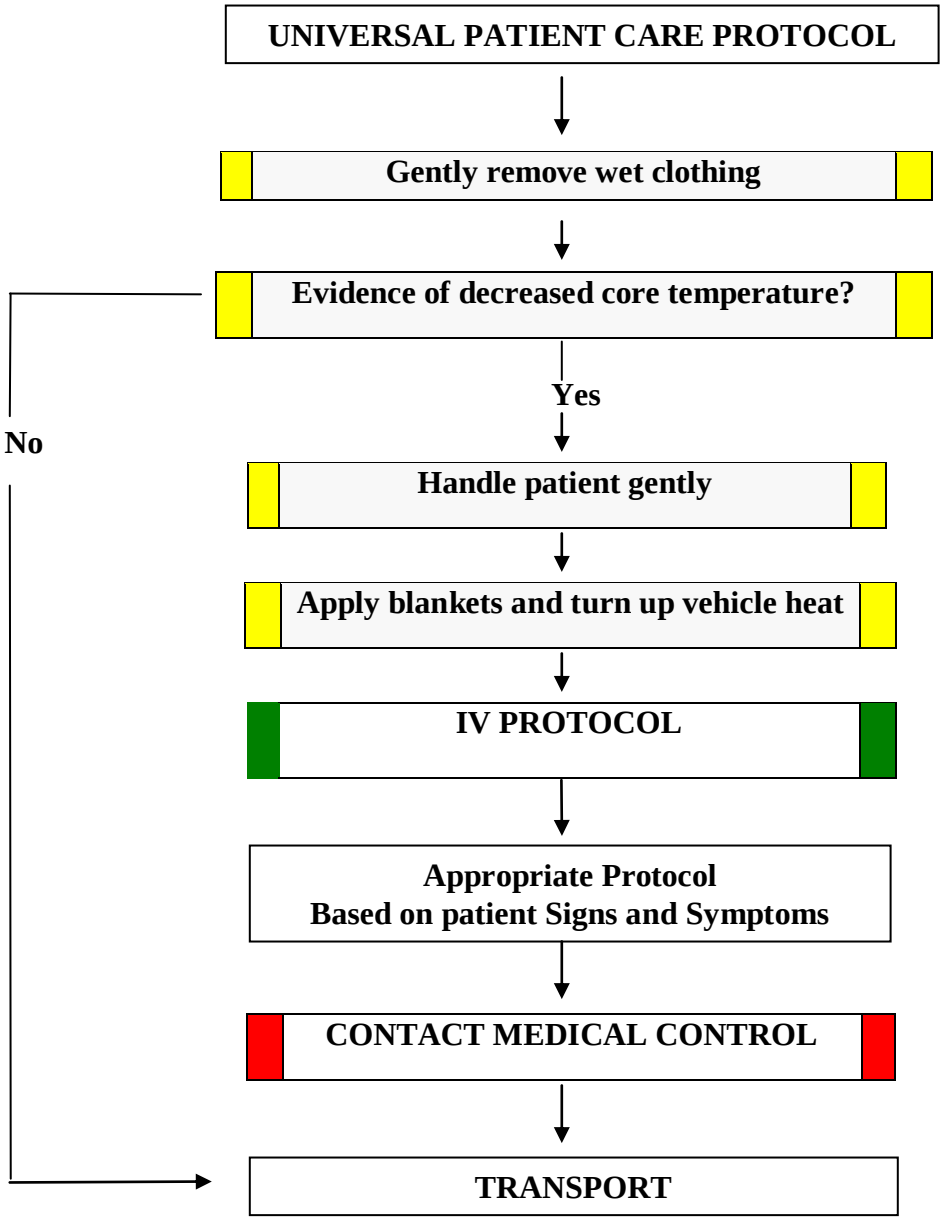

MEDICAL EMERGENCIES

HYPOTHERMIA / FROSTBITE

History	Signs and Symptoms	Differential Diagnosis
• Past medical history • Medications • Exposure to environment even in normal temperatures • Exposure to extreme cold • Extremes of age • Drug use: Alcohol, barbituates • Infections / Sepsis • Length of exposure / wetness	• Cold, clammy • Shivering • Mental status changes • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock	• Sepsis • Environmental exposure • Hypoglycemia • CNS dysfunction • Stroke • Head injury • Spinal cord injury

GENERAL CONSIDERATIONS:

- Exam: Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro
- Hypothermic/drowning/near drowning patients that appear cold and dead are NOT dead until they are warm and dead, or have other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Defined as core temperature less than 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- Do not allow patients with frozen extremities to ambulate.
- Superficial frostbite can be treated by using the patient's own body heat.
- Do not attempt to rewarm deep frostbite unless there is an extreme delay in transport, and there is a no risk that the affected body part will be refrozen. Contact Medical Control prior to rewarming a deep frostbite injury.
- With temperature less than 31° C (88° F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this (rarely responds to defibrillation).
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia.
- Shivering stops below 32° C (90° F).
- Hot packs can be activated and placed in the armpit and groin area if available.
- Care should be taken not to place the packs directly against the patient's skin.
- Consider withholding CPR if patient has organized rhythm. Discuss with Medical Control.
- All hypothermic patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Patients with low core temperatures will not respond to ALS drug interventions. Maintain warming procedure and supportive care. Warming procedures includes removing wet clothing, limiting exposure, and covering the patient with warm blankets if available.
- The most common mechanism of death in hypothermia is ventricular fibrillation. If the hypothermia victim is in ventricular fibrillation, CPR should be initiated. If V fib is not present, then all treatment and transport decisions should be tempered by the fact that V fib can be caused by rough handling, noxious stimuli or even minor mechanical disturbances. This means that respiratory support with 100% oxygen should be done gently, including intubation, avoiding hyperventilation.
- The heart is most likely to fibrillate between 85-88 degrees F (29-31 degrees C). Defibrillate VF / VT with one biphasic shock 120 or monophasic equivalent.

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MEDICAL EMERGENCIES

SEIZURES

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

↓

Airway Protocol

↓

Consider Spinal Immobilization Protocol

↓

Loosen patient clothing / Protect Patient

↓

IV PROTOCOL

↓

Blood Glucose Analysis and Treatment / See Diabetic Protocol

↓

Status Epilepticus

↓

VALIUM
2 – 5 mg slow IV

↓

DIAZEPAM (VALIUM)
2.5 – 5 mg slow IV
May repeat 5-10 minutes one time,
if seizure persists and patient
Systolic BP is greater than 90 mmHG.
OR
MIDAZOLAM (VERSED)
2-4 mg IV (2mg / 2ml)
OR
MIDAZOLAM (VERSED)
10 mg Atomized IN (5mg / 1ml)

Do not confuse MIDAZOLAM (VERSED) concentrations

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TRANSPORT

Postictal

↓

Monitor and Reassess

→ **TRANSPORT**

SEIZURES

History	Signs and Symptoms	Differential Diagnosis
• Reported / witnessed seizure activity • Previous seizure history • Medical alert tag information • Seizure medications • History of trauma • History of diabetes • History of pregnancy	• Decreased mental status • Sleepiness • Incontinence • Observed seizure activity • Evidence of trauma	• CNS (head) trauma • Tumor • Metabolic, Hepatic, or Renal failure • Hypoxia • Electrolyte abnormality (Na, Ca, Mg) • Drugs, Medications, Noncompliance • Infection / Fever • Alcohol withdrawal • Eclampsia • Stroke • Hyperthermia

GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro
- **Status epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures** (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures** (petit mal) affect only a part of the body and are not usually associated with a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared for airway problems and continued seizures.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations especially if Diazepam (Valium) is used.
- **For any seizure in a pregnant patient, follow the OB Emergencies Protocol.**
- Diazepam (Valium) is not effective when administered IM. It should be given IV or Rectally.
- The seizure has usually stopped by the time the EMS personnel arrive and the patient will be found in the postictal state.
- There are many causes for seizures including: epilepsy, head trauma, tumor, overdose, infection, hypoglycemia, and withdrawal. Be sure to consider these when doing your assessment.
- Routinely assess the patient's airway.
- If the patient is combative and postical, DO NOT refer to the Restraint Procedure before assessing for / treating hypoglycemia and hypoxia.
- If the patient is actively seizing, move any objects that may injure the patient. Protect, but do not try to restrain them.

MEDICAL EMERGENCIES

STROKE / CVA

UNIVERSAL PATIENT CARE PROTOCOL

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

Airway Protocol
Protect airway HOB < 30° if possible
Nothing by mouth

IV PROTOCOL

Blood Glucose Analysis and Treatment / See Diabetic Protocol

Pre-hospital Stroke Screen

Cincinnati Pre-Hospital Stroke Assessment

Facial Droop – Have patient smile
- **Normal – both sides equal**
- **Abnormal – one side does not move as well**

Arm Drift – Patient closes eyes and holds both arms out straight for 10 seconds
- **Normal – both arms move equally or not at all**
- **Abnormal – one arm doesn't move or drifts down compared to the other**

Speech - Have patient say "you can't teach an old dog a new trick"
- **Normal – patient says correctly with no slurring**
- **Abnormal – patient slurs words, used wrong words or is unable to speak**

Last time known well? 6 hours or less, notify Medical Control

CONTACT MEDICAL CONTROL

TRANSPORT

Consider other protocols as indicated

Altered Mental Status Protocol
Seizure Protocol

MEDICAL EMERGENCIES

STROKE/CVA

History	Signs and Symptoms	Differential Diagnosis
• Previous CVA, TIA's • Previous cardiac / vascular surgery • Associated diseases: diabetes, hypertension • CAD • Atrial fibrillation • Medications (blood thinners) • History of trauma	• Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope • Vertigo / Dizziness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension / hypotension	• See Altered Mental Status • TIA (Transient Ischemic Attack) • Seizure • Hypoglycemia • Stroke • Thrombotic • Embolic • Hemorrhagic • Tumor • Trauma

GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Onset of symptoms is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free).
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Elevated blood pressure is commonly present with stroke. Consider treatment if diastolic is greater than 120 mmHg and signs and symptoms of cardiac ischemic chest pain, or CHF are present.
- Be alert for airway problems (swallowing difficulty, vomiting). Suction and position head if necessary.
- Hypoglycemia can present as a localized neurological deficit, especially in the elderly.

CINCINNATI STROKE SCALE:

Facial Droop

- *Normal:* Both sides of the face move equally
- *Abnormal:* One side of the face does not move at all

Arm Drift

- *Normal*: Both arms move equally or not at all
- *Abnormal:* One arm drifts more than the other

Speech

- *Normal:* Patient uses correct words with no slurring
- *Abnormal:* Slurred or inappropriate words, or mute
- Patients who experience Transient Ischemic Attack (TIA) develop most of the same signs and symptoms as those who are experiencing a stroke. The signs and symptoms of TIA's can last from minutes up to one day. Thus the patient may initially present with typical signs and symptoms of a stroke, but those findings may progressively resolve. The patient needs to be transported, without delay, to the most appropriate hospital for further evaluation.
- Hypertension in stroke patients routinely should not be treated in the pre-hospital setting. It is not uncommon for blood pressures to be as high as 220/140 and not require intervention. Nitroglycerin should not be used unless signs and symptoms consistent with AMI or APE are present.
- Document the time of onset for the symptoms, or the last time the patient was seen "normal" for them.
- Reassess neurological deficit every 10 minutes and document the findings.

MEDICAL EMERGENCIES

TOXIC INGESTION / EXPOSURE / OVERDOSE

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

AIRWAY PROTOCOL

IV PROTOCOL

Check Blood Glucose Level

12 Lead EKG Procedure

CAUSE?

Cyanide or Carbon Monoxide

Refer to Toxic Inhalation / Ingestion / Cyanide Protocol or Toxic Inhalation Carbon Monoxide Protocol

Hypotension
Seizures
Dysrhythmias
Mental Status Changes
Respiratory Depression

TREAT PER APPROPRIATE Protocol

Beta Blocker or Calcium Channel Blocker Overdose (Bradycardic)

Immediate Transcutaneous Pacing for Severe Cases Hypotension / AMS

GLUCOGAN (GLUCAGEN) 1 mg IV / IN For mild / moderate Beta Blocker Bradycardia Cases Only

NORMAL SALINE
Bolus to Maintain BP 90 Systolic

DOPAMINE (INTROPIN) 2 – 20 mcg/kg/min IV Drip For Severe Cases or Not R Responding to Treatment

Tricylcic Ingestion (Wide QRS)

Patient noted to be on any TRICYCLIC listed below and QRS complex wider than 12 msec

Brand Name	Generic Name
Adapin	doxepin
Anafranil	clomipramine
Elavil	amitriptyline
Endep	amitriptyline
Ludiomil	maprotine
Norpramin	desipramine
Pamelor	nortyrptyline
Pertofrane	desipramine
Sinequan	doxepin
Surmontil	trimipramine
Tofranil	imipramine
Vivactil	protriptyline

SODIUM BICARBONATE 1 amp IV 50mEq (until the QRS complex narrows to less than .12msec and the patient condition improves)

Organophosphates or Carbamates (SLUDGE)

Duo Dote up to 3 auto-injectors maybe used for one patient based on signs.

ATROPINE 1 mg IV
Repeat every 3 – 5 minutes

Atropine is Given to:
- Dry Secretions
- Improve respirations

NO MAX DOSE – Give as needed to maintain Airway and Breathing

CONTACT MEDICAL CONTROL

TRANSPORT

TOXIC INGESTION / EXPOSURE / OVERDOSE

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
• Ingestion or suspected ingestion of a potentially toxic substance • Substance ingested route, quantity • Time of ingestion • Reason (suicidal, accidental, criminal) • Available medications in home • Past medical history, medications	• Mental status changes • Hypo / hypertension • Decreased respiratory rate • Tachycardia, dysrhythmias • Seizures	• Tricyclic antidepressants (TCAs) • Acetaminophen (Tylenol) • Depressants • Stimulants • Anticholinergic • Cardiac medications • Solvents, alcohols, cleaning agents • Insecticides (organophosphates) • Respiratory depression • Other organophosphates • Carbamates

Common Beta Blockers			
Acebutolol	Carvedilol	Labetolol	Propranolol
Atenolol	Coreg	Levatol	Sectral
Betapace	Corgard	Lopressor	Sotalol
Betoxolol	Esmolol	Metoprolol	Tenormin
Bisoprolol	Inderal	Nadolol	Timolol
Brevibloc	Innopran XL	Nebivolol	Trandate
Bystolic	Kerlone	Pindolol	Zabeta
Common Calcium Channel Blockers			
Acalas	Cardene	Lacidipine	Nitrepin
Adalat	Cardif	Lacipil	Nivadil
Amlodipine	Cardizem	Landel	Norvasc
Aranidipine	Cilnidipine	Lercanidipine	Plendil
Atelec	Cinalong	Madipine	Pranidipine
Azelnipine	Clevidipine	Manidipine	Procardia
Barnidipine	Cleviprex	Motens	Procorum
Baylotensin	Coniel	Nicardipine	Sapresta
Baymycard	Diltiazem	Nifedipine	Siscard
Benidipine	Efondipine	Nilvadipine	Sular
Calan	Felodipine	Nimpodipine	Syscor
Cadblock	Gallopamil	Nimotop	Verapmil
Calslot	HypoCa	Nisoldipine	Zanidip
Carden SR	Isoptin	Nitrendipine	

GREATER CLEVELAND POISON CONTROL 1-800-222-1222

KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Bring bottles, contents, and emesis to ED.
- **Tricylcic**: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
- **Acetaminophen:** initially normal or nausea / vomiting. If not detected and treated, causes irreversible liver failure.
- **Depressants:** decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
- **Stimulants:** increased HR, increased BP, increased temperature, dilated pupils, and seizures.
- **Anticholinergics:** increased HR, increased temperature, dilated pupils, and mental status changes.
- **Cardiac Medications:** dysrhthmias and mental status changes
- **Solvents:** nausea, vomiting, and mental status changes.
- **Insecticides:** increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Consider restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- If it can be done safely, take whatever container the substance came from to the hospital along with readily obtainable samples of medication unless this results in an unreasonable delay of transport.
- If applicable, DO NOT transport a patient to the hospital until properly decontaminated.

CARBON MONOXIDE POISONING OR CYANIDE POISONING – SEE SPECIFIC PROTOCOL

MEDICAL EMERGENCIES

TOXIC INHALATION / INGESTION CYANIDE

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

POTENTIAL EXPOSURES

Smoke Inhalation

Intentional or unintentional poisoning or ingestion of Laetril (vitamin B17) or multiple fruit pits.

Industrial exposure such as metal plating and recovery, plastics, industrial uses of hydrogen cyanide or medical complications from the use of sodium nitroprusside.

UNIVERSAL PATIENT CARE PROTOCOL

Cyanide Ingestion or Inhalation

Immediately Remove
From Continued Exposure
Avoid Exertion to Limit
Tissue Oxygen Demand
Determine Exposure Time

APPLY HIGH FLOW OXYGEN

Aggressive airway management with delivery of 100% oxygen can be lifesaving. Supportive care with administration of oxygen alone has proven effective in a number of poisonings. It can also treat potential simultaneous CO exposure.

Secure Airway if Comatose or Compromised Airway

INTUBATION PROCEDURE

KING AIRWAY or LMA

CARDIAC MONITORING PROCEDURE

PULSE OXIMETRY
PULSE CO-OXIMETRY (If Available)

IV / IO PROCEDURE
MAINTAIN PB 90 SYSTOLIC – 2 IV's

DOPAMINE (INTROPIN)
2 – 20 mcg / kg / min
If Hypotension Continues

If Seizures, Treat Per Siezure Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

MEDICAL EMERGENCIES		
TOXIC INHALATION / INGESTION CYANIDE		
HISTORY	**SIGNS AND SYMPTOMS**	**DIFFERENTIAL DIAGNOSIS**
• Inhalation or ingestion of cyanides • Duration of exposure • Reason (suicidal, accidental, criminal) • Past medical history, medications	• Malaise, fatigue, drowsiness • Reddened skin • Dyspnea • Chest Pain • Nausea / vomiting • Abdominal pain • Dizziness / vertigo • Memory disturbances • Syncope • Seizures • Coma	• Flue / severe cold • Chronic fatigue • Migraine • Myocardial infarction / ACS • Encephalitis • Anaphylaxis • Other ingested toxins • Pulmonary embolism

GREATER CLEVELAND POISON CONTROL 1-800-222-1222

KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Cyanide is generally considered to be a rare source of poisoning.
- Cyanide exposure occurs relatively frequently in patients with smoke inhalation from fires.
- Numerous forms of cyanide exist, including gaseous hydrogen cyanide (HCN), water-soluble potassium and sodium cyanide salts, and poorly water-soluble mercury, copper, gold, and silver cyanide salts.
- A number of synthesized (polyacrylonitrile, polyurethane, polyamide, urea-formaldehyde, melamine) and natural (wool, silk) compounds produce HCN when burned.
- Industry widely uses nitriles as solvents and in the manufacturing of plastics. Nitriles may release HCN during burning or when metabolized following absorption by the skin or gastrointestinal tract.
- Cyanide poisoning also may occur in other industries, particularly in the metal trades, mining, electroplating, jewelry manufacturing, and x-ray film recovery.
- Depending on its form, cyanide may cause toxicity through parenteral administration, inhalation, ingestion, or dermal absorption.
- Rapid aggressive therapy, consisting of supportive care and antidote administration, is lifesaving.
- The delay between exposure and onset of symptoms depends on type of cyanide involved, route of entry, and dose. Rapidity of symptom onset, depending on the type of cyanide exposure, occurs in the following order (most rapid to least rapid): gas, soluble salt, insoluble salt, and cyanogens.

MEDICAL EMERGENCIES

TOXIC INHALATION / CARBON MONOXIDE

B	EMT-B	B
I	EMT-I	I
P	EMT-P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

↓

Known or Suspected Carbon Monoxide Poisoning

↓

Immediately Remove
From Continued Exposure
Avoid Exertion to Limit
Tissue Oxygen Demand
Determine Exposure Time

↓

APPLY HIGH FLOW OXYGEN

↓

Secure Airway if Comatose or
Compromised Airway

INTUBATION PROCEDURE
or
KING AIRWAY

↓

CARDIAC MONITORING PROCEDURE

↓

PULSE OXIMETRY
PULSE CO-OXIMETRY (If Available)

↓

IV / IO PROCEDURE

↓

CONTACT MEDICAL CONTROL

↓

TRANSPORT

For Use in ADULT Psychosis Only
Not for

MEDICAL EMERGENCIES

TOXIC INHALATION / CARBON MONOXIDE

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
• Inhalation or ingestion of cyanides • Duration of exposure • Reason (suicidal, accidental, criminal) • Past medical history, medications	• Malaise, fatigue, drowsiness • Flu like symptoms • Headache • Dyspnea • Nausea / vomiting • Diarrhea • Abdominal Pain • Dizziness • Visual disturbances • Memory disturbances • Syncope • Siezures • Coma • Incontinence	• Flu / severe cold • Chronic fatigue • Migraine • Myocardial infarction • Diabetic emergencies • Altitude sickness • Ingested toxins • Meningitis • Hypothyroidism

CO Levels

< 10% Mild
10% - 20% Moderate
> 20 % Severe
Special Considerations for Pregnant Females and Children

KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Consider CO poisoning with any patient exposed to products of combustion.
- Causes and exposure may include malfunctioning gas appliances, vehicle exhaust, improper use of gas burning heaters, animal dung, environmental waste and fires.
- Normal CO levels do not necessarily mean there was not CO poisoning. This is especially true if the patient has already received extensive oxygen therapy.
- Patients that show signs and symptoms at lower CO levels include: pregnant females, infants, children and elderly.
- Vitals may be normal but could be tachycardic, hypo or hypertensive.
- Cherry red skin is rarely seen. "When you're read, your dead"!
- PREGNANT patients are special circumstances as the affinity for fetal hemoglobin to carbon monoxide is very high and therapy including hyperbaric care is considered early on.
- Patients that demonstrate altered mental status may NOT sign refusals for treatment or transport.
- Known or suspected CO poisoning patients should receive high flow oxygen despite Spo2 readings.
- The use of a pulse oximeter is not effective in the diagnosis of carbon monoxide poisoning, as patients suffering from carbon monoxide poisoning may have a normal oxygen saturation level on a pulse oximeter.
- **Pulse oximetry is still used on all CO poisonings as hypoxia in addition to the CO represents serious compounding respiratory issues possibly from other causes.**
- Pulse CO-oximeters estimate carboxyhemoglobin levels with a non-invasive finger clip similar to a pulse oximeter.