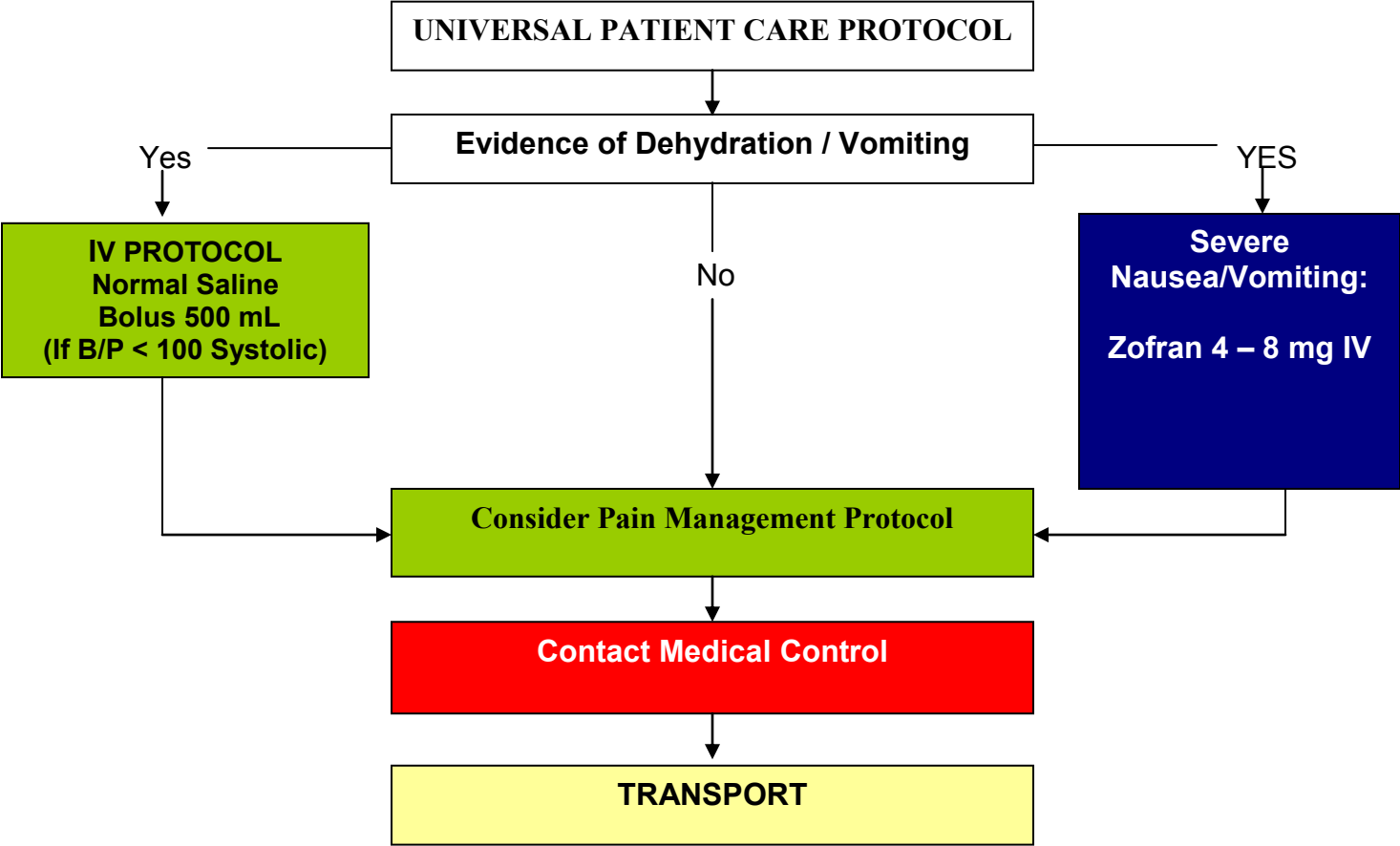


MEDICAL EMERGENCIES PROTOCOLS

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MEDICAL EMERGENCIES
ABDOMINAL PAIN

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES**ABDOMINAL PAIN**

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Age • Past medical / surgical history • Medications • Onset • Palliation / Provocation • 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) 	<ul style="list-style-type: none"> • Pain (location / migration) • Tenderness • Nausea • Vomiting • Diarrhea • Dysuria • Constipation • Vaginal bleeding / discharge • Pregnancy <p>Associated symptoms: (Helpful to localize source)</p> <ul style="list-style-type: none"> • Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash 	<ul style="list-style-type: none"> • Pneumonia or pulmonary embolus • Liver (hepatitis, CHF) • Peptic ulcer disease / gastritis • Gallbladder • Myocardial infarction • Pancreatitis • Kidney stone • Abdominal aortic aneurysm • Appendicitis • Bladder / Prostate disorder • Pelvic (PID, Ectopic pregnancy, Ovarian cyst) • Spleen enlargement • Diverticulitis • Bowel obstruction • Gastroenteritis (infectious) • DKA

KEY POINTS

- 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 acute abdominal aneurysm should be considered with abdominal pain and hypotension in patients over 50.
- DKA may present with abdominal pain and vomiting. Check blood glucose level.
- 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.
- In some patients, cardiac chest pain may manifest as abdominal pain. Consider this in all patients with abdominal pain, especially patients with diabetes and in women.
- If the abdominal pain may be of cardiac origin, perform cardiac monitoring and a 12-Lead EKG.

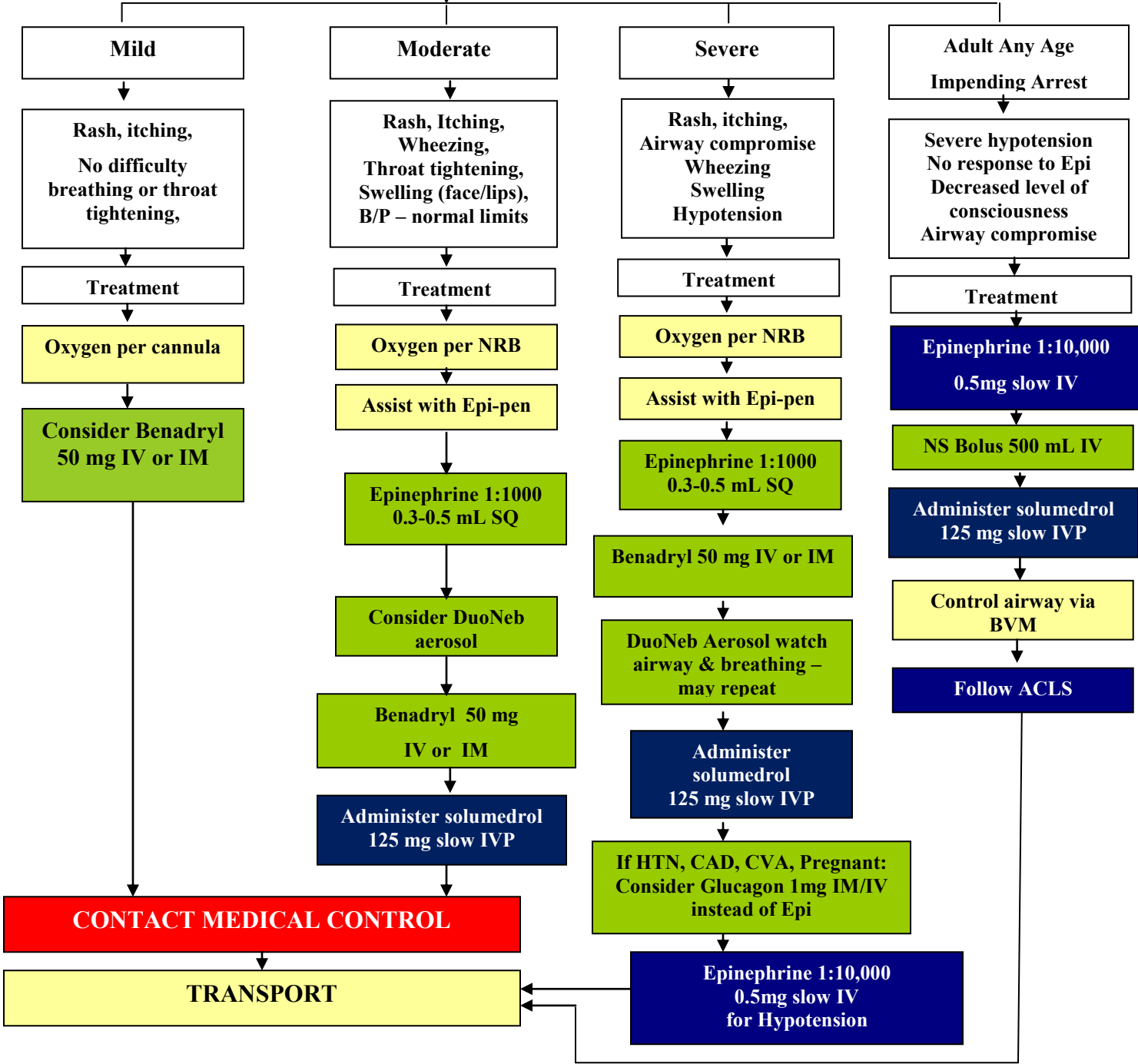
MEDICAL EMERGENCIES
ALLERGIC REACTION / ANAPHYLAXIS

UNIVERSAL PATIENT CARE PROTOCOL

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MED CONTROL	M

Apply Cardiac Monitor and Assess Vitals

IV PROTOCOL



MEDICAL EMERGENCIES**ALLERGIC REACTION**

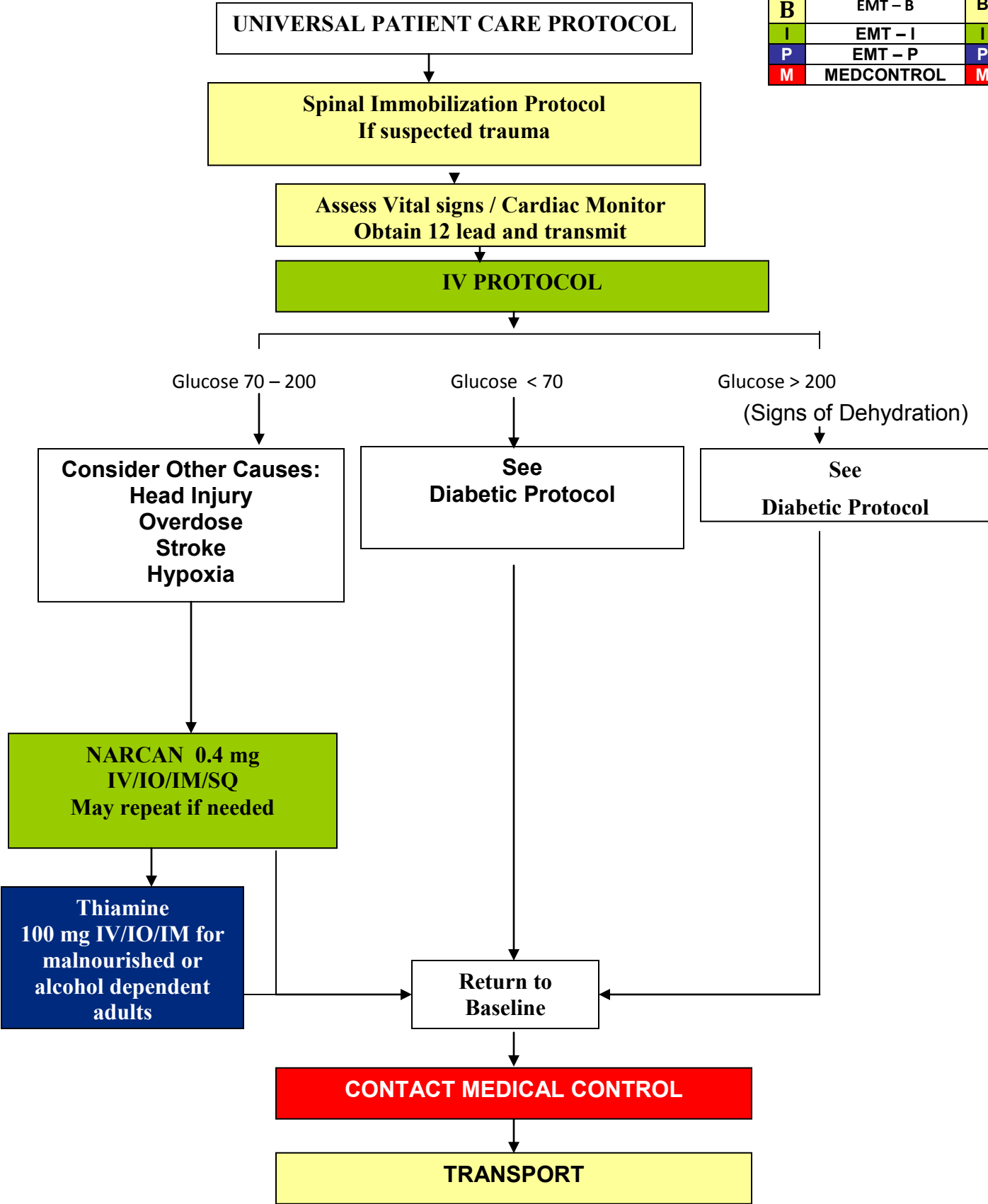
HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Onset and location • Insect sting or bite • Food allergy / exposure • Medication allergy / exposure • New clothing, soap, detergent • Past history of reactions • Past medical history • Medication history 	<ul style="list-style-type: none"> • Itching or hives • Coughing / wheezing or respiratory distress • Chest or throat constriction • Difficulty swallowing • Hypotension or shock • Edema 	<ul style="list-style-type: none"> • Urticaria (rash only) • Anaphylaxis (systemic effect) • Shock (vascular effect) • Angioedema (drug induced) • Aspiration / airway obstruction • Vasovagal event • Asthma or COPD • CHF

KEY POINTS

- Exam: Mental Status, Skin, Heart, Lungs.
- Contact Medical Control prior to administering epinephrine in patients who are >40 years of age, have a history of cardiac disease, or if the patient's heart rate is >150. Epinephrine may precipitate cardiac ischemia.
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM 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.
- When possible, remove any stingers.

MEDICAL EMERGENCIES
ALTERED LEVEL OF CONSCIOUSNESS

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES**ALTERED LEVEL OF CONSCIOUSNESS**

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Known diabetic, medic alert tag • Drugs, drug paraphernalia • Report of illicit drug use or toxic ingestion • Past medical history • Medications • History of trauma 	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 abnormality • Psychiatric disorder

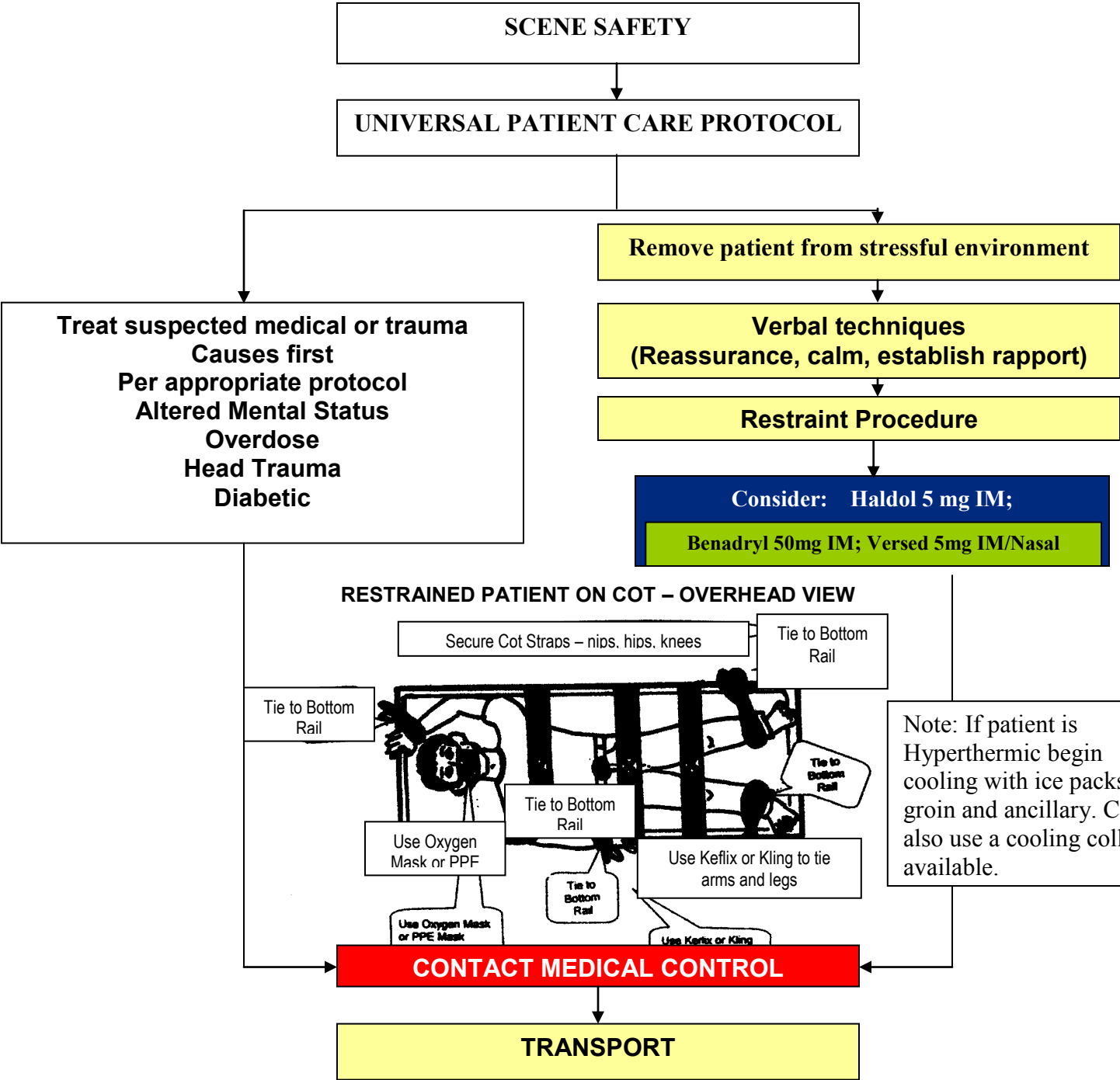
KEY POINTS

- 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.
- Do not let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia and need Thiamine before glucose.
- Low glucose (< 70), normal glucose (70 - 120), high glucose (> 250).
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Narcan administration may cause the patient to go into acute opiate withdrawal, 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.

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

MEDICAL EMERGENCIES
BEHAVIORAL / PSYCHIATRIC EMERGENCIES

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES
BEHAVIORAL / PSYCHIATRIC EMERGENCIES

ALL RESPONDERS SHOULD HAVE A HEIGHTENED AWARENESS OF SCENE SAFETY
--

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Situational crisis • Psychiatric illness/medications • Injury to self or threats to others • Medic alert tag • Substance abuse / overdose • Diabetes 	<ul style="list-style-type: none"> • Anxiety, agitation, confusion • Affect change, hallucinations • Delusional thoughts, bizarre behavior • Combative violent • Expression of suicidal / homicidal thoughts 	<ul style="list-style-type: none"> • See Altered LOC differential • Alcohol intoxication • Toxin / substance abuse • Medication effect / overdose • Withdrawal syndromes • Depression • Bipolar (manic-depressive) • Schizophrenia • Anxiety

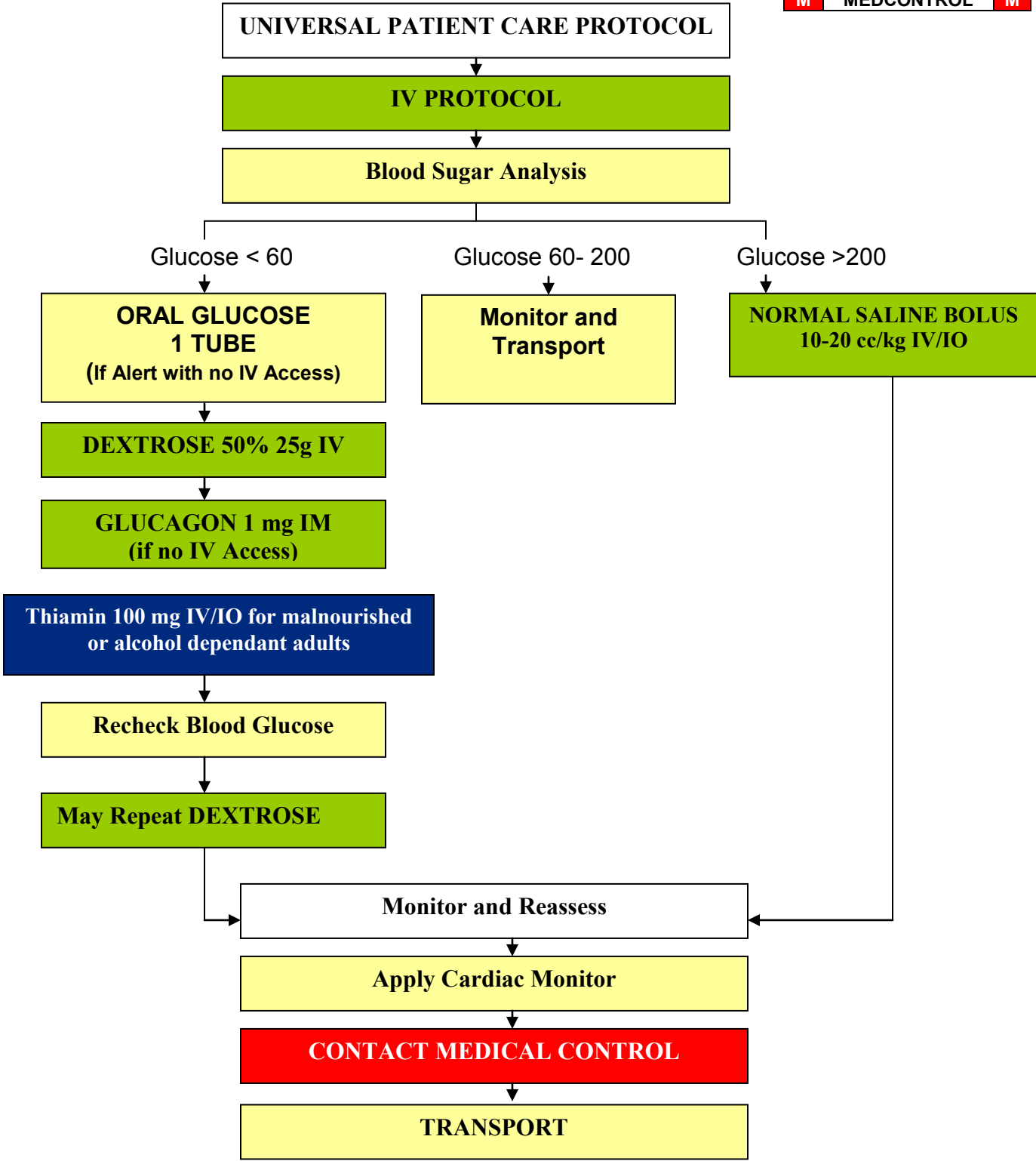
Criteria for Restraint Use:

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

KEY POINTS
<ul style="list-style-type: none"> • Your safety first!! • 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. • Be sure to consider all possible medical/trauma causes for acute psychosis (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.) Also treat hyperthermia with cooling measures. • 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. • Suicidal 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 be immediately available to adjust restraints as necessary for the patient's safety.

MEDICAL EMERGENCIES
DIABETIC EMERGENCIES

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES
DIABETIC EMERGENCIES

HYPOGLYCEMIA

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Known diabetic, medic alert tag • Past medical history • Medications • Last meal • Recent Blood Sugar Analysis 	<ul style="list-style-type: none"> • Altered level of consciousness • Dizziness • Irritability • Diaphoresis • Convulsions • Hunger • Confusion 	<ul style="list-style-type: none"> • ETOH • Toxic Overdose • Trauma • Seizure • Syncope • CNS disorder • Stroke • Pre-existing condition

HYPERGLYCEMIA

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Known diabetic, medic alert tag • Past medical history • Medications • Last meal • Recent Blood Sugar Analysis 	<ul style="list-style-type: none"> • Altered level of consciousness / coma • Abdominal pain • Nausea / vomiting • Dehydration • Frequent thirst • Frequent urination • General weakness • Malaise • Hypovolemic shock • Hyperventilation • Deep / rapid respirations 	<ul style="list-style-type: none"> • ETOH • Toxic Overdose • Trauma • Seizure • Syncope • CNS disorder • Stroke • Diabetic ketoacidoss

KEY POINTS

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:

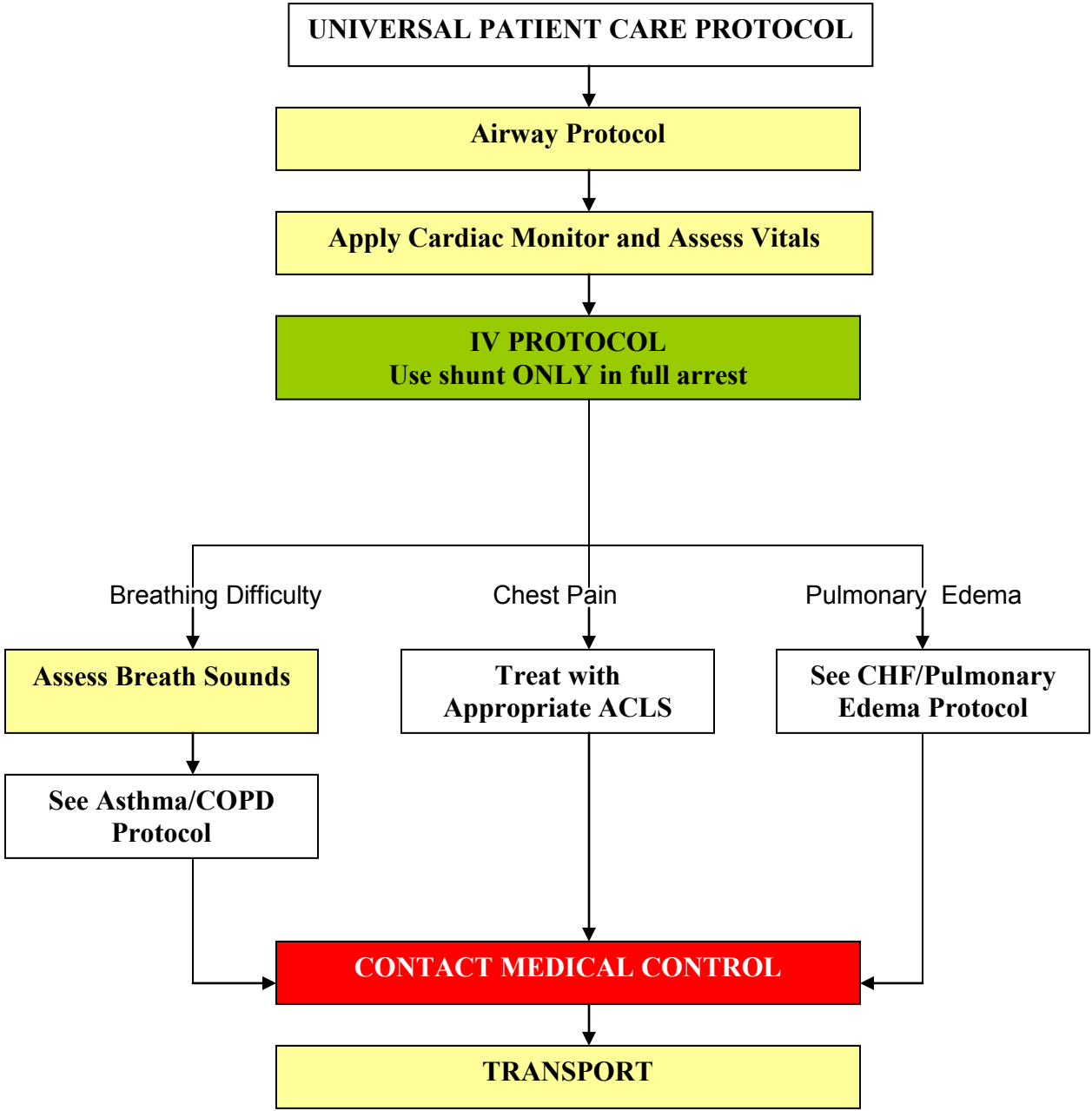
- Always suspect Hypoglycemia in patients with an altered mental status.
- If a blood glucose analysis is not available, a patient with altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.
- Dextrose is used to elevate BGL but it will not maintain 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 50 g IV can be administered.
- Consider the need for the malnourished or alcohol dependant to receive thiamine before giving glucose to avoid Wernicke's encephalopathy

**MEDICAL EMERGENCIES
DIALYSIS / RENAL PATIENT**

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES
DIALYSIS / RENAL PATIENT

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Renal failure • Dialysis treatment • Anemia • Dialysis treatment schedule • Previous implications • Long term catheter access • Shunt access • Hyperkalemia 	<ul style="list-style-type: none"> • Hypotension • Bleeding • Fever • Electrolyte imbalances • Nausea • Vomiting • Altered mental status • Seizure • Arrhythmias 	<ul style="list-style-type: none"> • Congestive Heart Failure • Pericarditis • Diabetic Problem

KEY POINTS

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

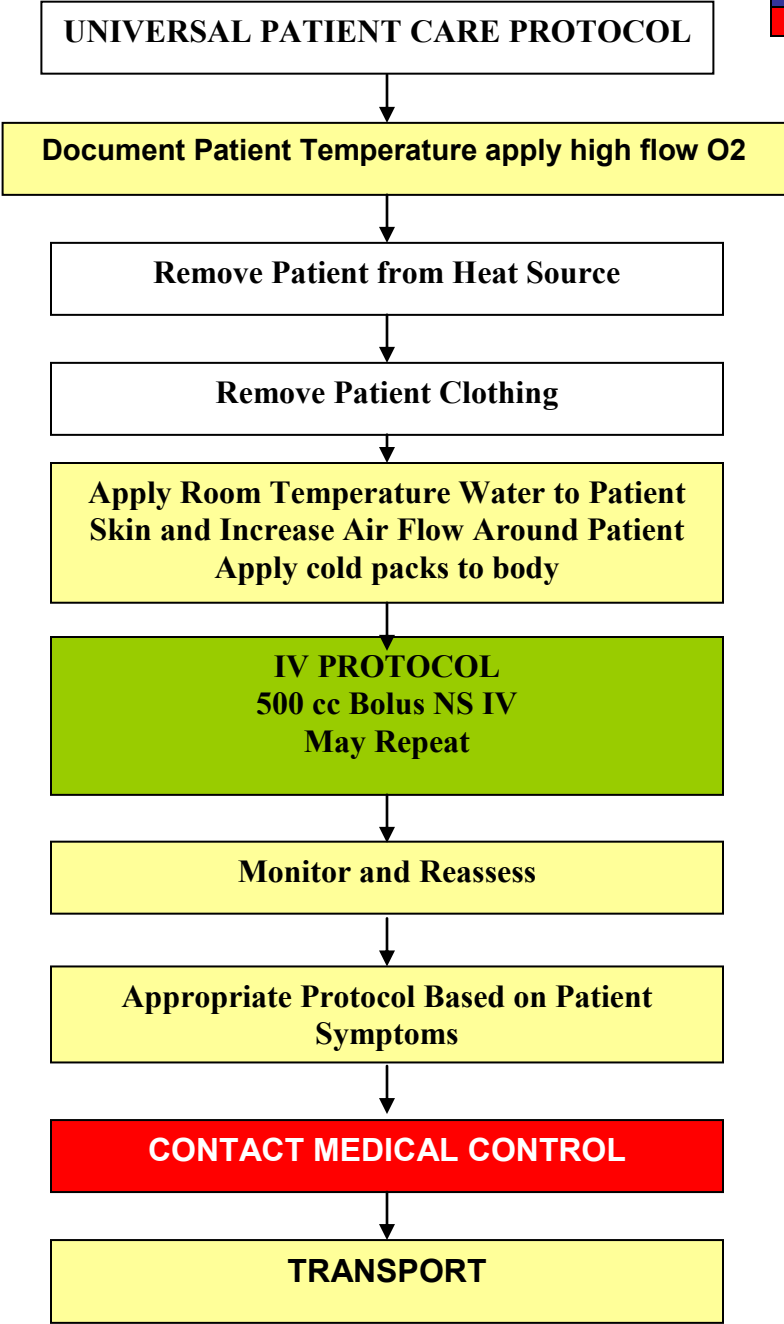
Removes toxins by directly filtering the blood using equipment that functions like an electric kidney, circulating the blood through a shunt that is connected to a vein and an artery. A permanent shunt can be surgically formed as a fistula. This process usually needs to be done every 2 - 3 days for a 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, retroperitoneal, gastrointestinal, or subdural
5. Equipment malfunctions
 - Possible air embolus
 - Possible fever or endotoxin
6. Infection
 - Do not take blood pressure in arm that has the shunt. Use shunt for IV access ONLY if full arrest. Notify Medical Control
 - 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.

MEDICAL EMERGENCIES
HEAT EXPOSURE

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES

HEAT EXPOSURE

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Altered mental status or unconsciousness • Hot, dry or sweaty skin • Hypotension or shock • Seizures • Nausea 	<ul style="list-style-type: none"> • Fever (Infection) • Dehydration • Medications • Hyperthyroidism • Delirium tremens (DT's) • Heat cramps • Heat exhaustion • Heat stroke • CNS lesions or tumors

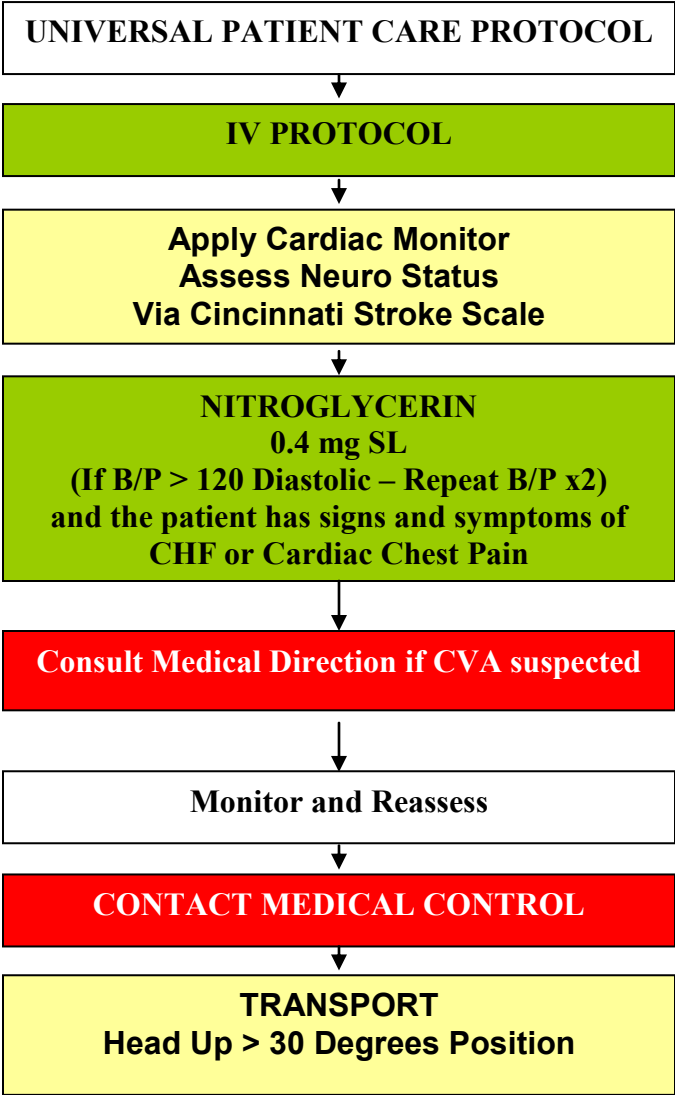
Heat Exhaustion: Dehydration	Heat Stroke: Cerebral Edema
<ul style="list-style-type: none"> • Muscular / abdominal cramping • General weakness • Diaphoresis • Febrile • Confusion • Dry mouth/ thirsty • Tachycardia • BP normal or orthostatic 	<ul style="list-style-type: none"> • Confusion • Bizarre behavior • Skin hot dry, febrile • Tachycardia • Hypotensive • Seizure • Coma

KEY POINTS

- 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, normotension, and an elevated temperature.
- Heat Stroke consists of dehydration, tachycardia, hypotension, temperature >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 > 90°F and humidity > 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 arrhythmias for the patient with heat stroke.

MEDICAL EMERGENCIES
HYPERTENSIVE EMERGENCIES

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



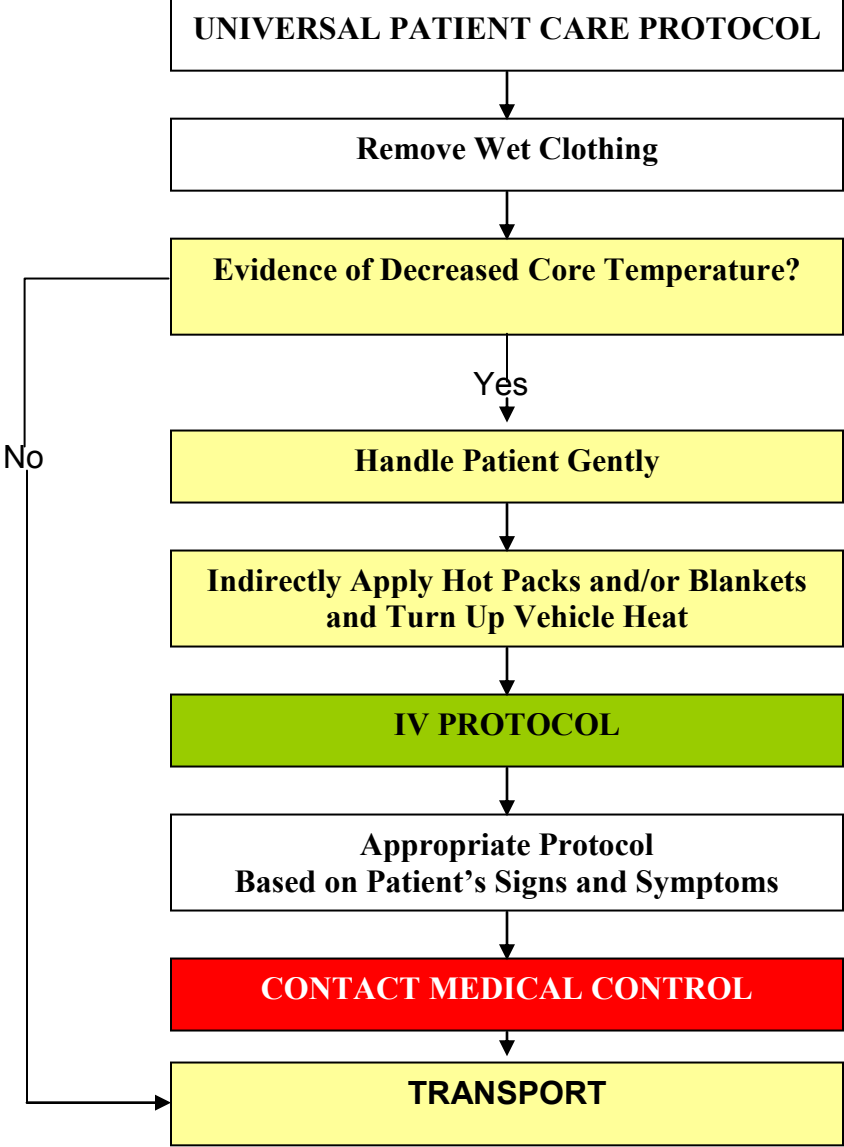
MEDICAL EMERGENCIES
HYPERTENSIVE EMERGENCIES

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Documented hypertension • Related diseases: diabetes, CVA renal failure, cardiac • Medications (compliance?) • Viagra • Pregnancy 	<p>One of these:</p> <ul style="list-style-type: none"> • Systolic BP 200 or greater • Diastolic BP 120 or greater <p>AND at least one of these:</p> <ul style="list-style-type: none"> • Headache • Nosebleed • Blurred vision • Dizziness 	<ul style="list-style-type: none"> • Hypertensive encephalopathy • Primary CNS Injury (Cushing's response = bradycardia with hypertension) • Myocardial infarction • Aortic dissection • Pre-eclampsia / Eclampsia

KEY POINTS
<ul style="list-style-type: none"> • Prehospital treatment of hypertension is very conservative because a CVA in progress may be made worse by a drop in B/P following aggressive hypertension treatment. • Consider treatment ONLY if Diastolic is >120 mm/Hg (repeat B/P x2), and patient has signs and symptoms of CHF or Cardiac Chest Pain! • 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. • Avoid Nitroglycerin in any patient who has used Viagra or similar drug in the past 24 hours due to potential severe hypotension. • Nitroglycerin may be given to lower blood pressure in patients who have an elevated diastolic BP of > 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, 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 250 mL Normal Saline bolus. • Toxic ingestion such as cocaine may present with a hypertensive 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
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES

HYPOTHERMIA / FROSTBITE

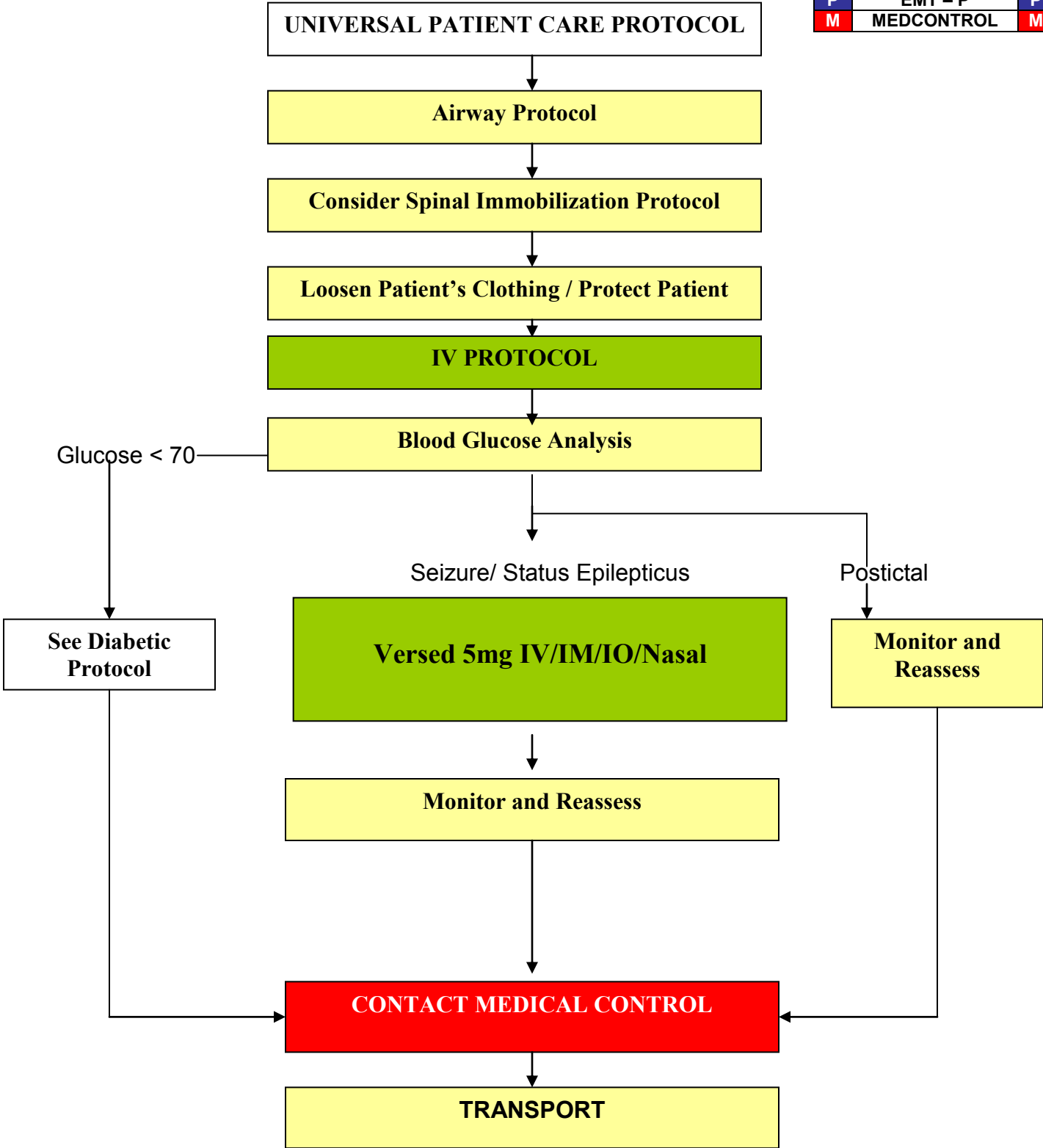
HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Past medical history • Medications • Exposure to environment even in normal temperatures • Exposure to extreme cold • Extremes of age • Drug use: alcohol, barbituates • Infections / Sepsis • Length of exposure / wetness 	<ul style="list-style-type: none"> • Cold, clammy • Shivering • Mental status changes • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock 	<ul style="list-style-type: none"> • Sepsis • Environmental exposure • Hypoglycemia • CNS dysfunction • Stroke • Head injury • Spinal cord injury

KEY POINTS

- 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 < 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- 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.
- 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 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 (rarely responds to defibrillation). Handling patients gently may prevent this.
- 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.
- 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.
- If there are signs of obvious death (putrification, traumatic injury unsustainable to life), DOA Protocol should be followed.

MEDICAL EMERGENCIES
SEIZURES

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES**SEIZURES**

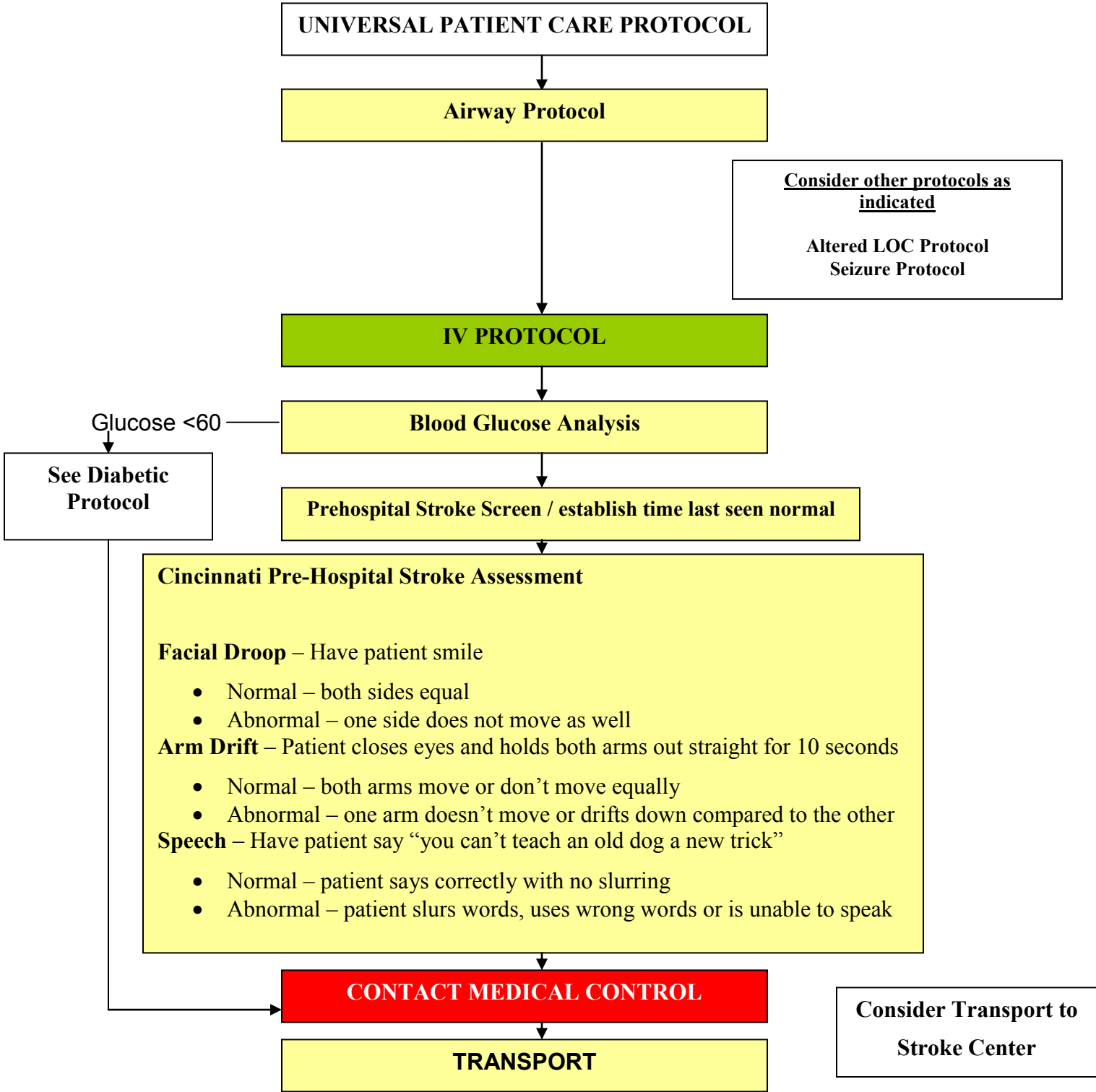
HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Reported / witnessed seizure activity • Previous seizure history • Medical alert tag information • Seizure medications • History of trauma • History of diabetes • History of pregnancy 	<ul style="list-style-type: none"> • Decreased mental status • Sleepiness • Incontinence • Observed seizure activity • Evidence of trauma 	<ul style="list-style-type: none"> • CNS (Head) trauma • Tumor • Metabolic, hepatic, or renal failure • Hypoxia • Electrolyte abnormality • Drugs, medications, non-compliance • Infection / Fever • Alcohol withdrawal • Eclampsia • Stroke • Hyperthermia

KEY POINTS

- 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) effect only a part of the body and are not usually associated with a loss of consciousness
- Be prepared for airway problems and continued seizures.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations especially if diazepam is used.
- For any seizure in a pregnant patient, follow the OB Emergencies Protocol.
- 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 postictal, 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

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MEDCONTROL	M



MEDICAL EMERGENCIES

STROKE / CVA

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Previous CVA, TIA's • Previous cardiac / vascular surgery • Associated diseases: diabetes, hypertension, CAD, atrial fibrillation • Medications (blood thinners) • History of trauma 	<ul style="list-style-type: none"> • Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope • Vertigo / Dizziness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension / hypotension 	<ul style="list-style-type: none"> • See Altered LOC • TIA (Transient ischemic attack) • Seizure • Hypoglycemia • Stroke <ul style="list-style-type: none"> • Thrombotic • Embolic • Hemorrhagic • Tumor • Trauma • Bell's Palsy



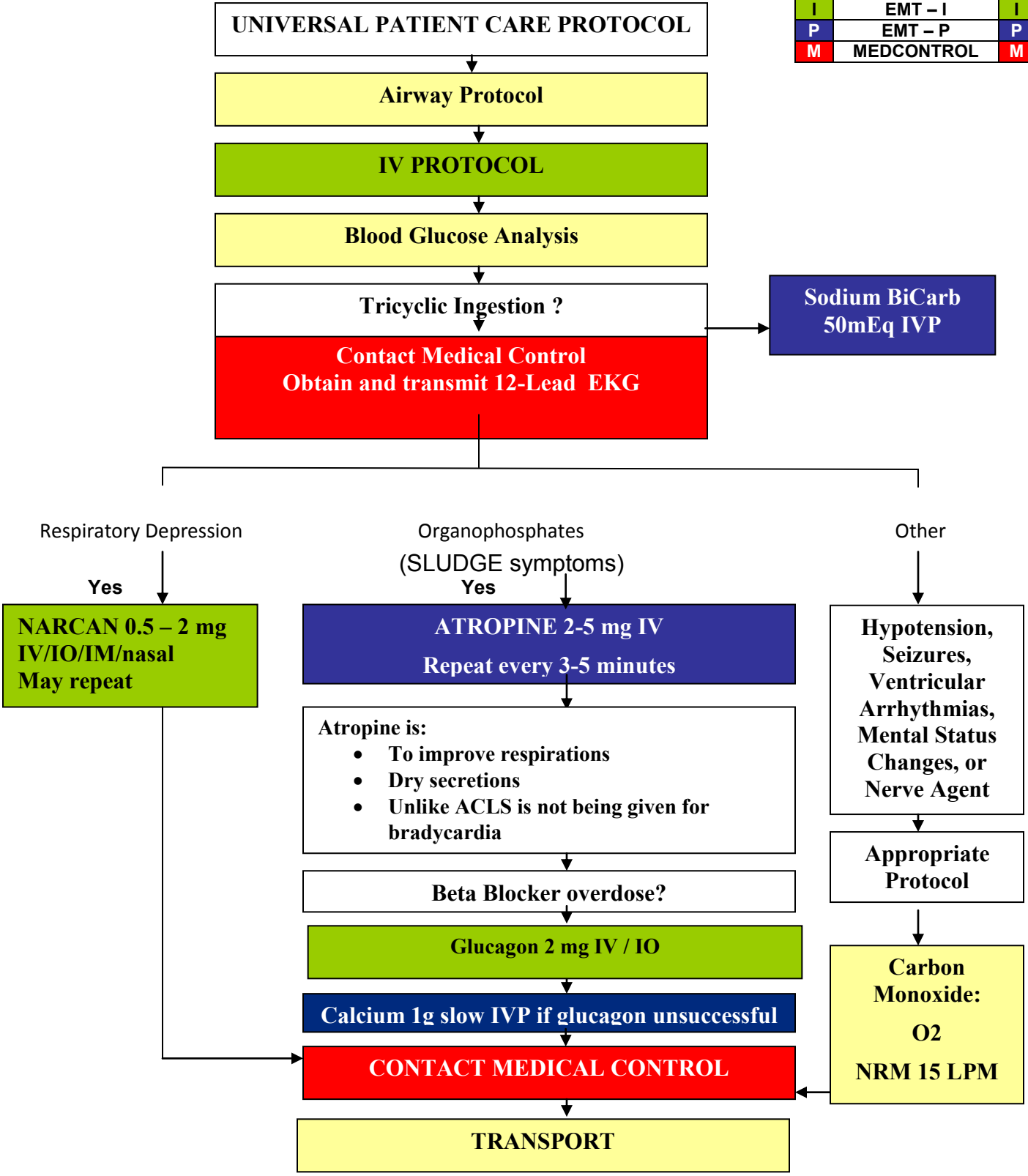
KEY POINTS

- 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).
- Elevated blood pressure is commonly present with stroke.
- Be alert for airway problems (swallowing difficulty, vomiting).
- Hypoglycemia can present as a localized neurological deficit, especially in the elderly.

- 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 prehospital 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	MEDCONTROL	M



MEDICAL EMERGENCIES

TOXIC INGESTION / EXPOSURE / OVERDOSE

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Mental status changes Hypo / Hypertension Decreased respiratory rate Tachycardia, arrhythmias Seizures 	<ul style="list-style-type: none"> Tricyclic antidepressants (TCAs) Acetaminophen (Tylenol) Depressants Stimulants Anticholinergic Cardiac medications Solvents, alcohols, cleaning agents Insecticides (organophosphates) Carbamates Carbon Monoxide poisoning

KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro.
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Tricyclic: 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, seizures
- Anticholinergic: increased HR, increased temperature, dilated pupils, mental status changes
- Cardiac Meds: dysrhythmias 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 Protocol.
- MARK 1 kits contain 2 mg of Atropine and 600 mg of pralidoxime in an autoinjector for self-administration or patient care. These kits may be available as part of the domestic preparedness for Weapons of Mass Destruction. They are for the use of first responders only.
- 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 patients that show signs and symptoms at lower CO levels include: pregnant females, infants, children and the elderly.
- Patients that demonstrate altered mental status may NOT sign refusals for treatment or transport.

MEDICATIONS

ATROPINE SULFATE

P EMT – P P

ACTIONS	Increases sinus node firing Increases conduction through the AV node by blocking vagal activity Increases cardiac output Decreases ectopic beats or fibrillation of the ventricles
INDICATIONS	Symptomatic sinus bradycardia Organophosphate poisoning/Nerve agent exposure
CONTRAINDICATIONS	Known hypersensitivity Atrial flutter/fibrillation where there is a rapid ventricular response Glaucoma – narrow angle 2 nd and 3 rd degree AV Block with wide QRS complex
PRECAUTIONS	Use with extreme caution in myocardial infarction May increase myocardial oxygen demand May trigger tachy-dysrhythmias Patient needs to be warned about side effects Doses smaller than 0.5 mg or administered too slowly may slow rather than speed up the heart rate Excessive doses in adults may precipitate ventricular tachycardia or fibrillation
SIDE EFFECTS	Dry mouth, thirst, urinary retention Blurred vision, pupillary dilation, headache Flushed skin Tachycardia
SUPPLIED	Prefilled syringes containing 1 mg in 10 mL Auto-Injector containing 2 mg (nerve agent exposure only)
ADULT DOSAGE	<u>Bradycardia</u> 0.5 mg IV/IO (1.0 mg ETT) every 5 minutes Max dose 0.04 mg/kg or 3 mg <u>Organophosphate Poisoning</u> 2 – 5mg IVP, IM, or IO every 5 min
PEDIATRIC DOSAGE	<u>Bradycardia</u> 0.02 mg/kg IV/IO, repeated X 1, 5 minutes (minimum dose 0.1 mg), Max single dose 0.5 mg CHILD / 1.0 mg ADOLESCENT, Max total dose 1.0 mg CHILD / 2.0 mg ADOLESCENT <u>Organophosphate Poisoning</u> 0.5 mg/kg IV/IO, repeat every 3-5 minutes

MEDICATIONS**BiCarbonate (Sodium BiCarbonate)****P** EMT – P **P**

<i>ACTIONS</i>	Buffers metabolic acidosis Enhances the urinary excretion of tricyclics
INDICATIONS	Metabolic Acidosis from cardiac arrest (10 minutes down time) Tricyclic Overdose Hyperkalemia
CONTRAINDICATIONS	Heart Failure Seizures
SIDE EFFECTS	Tissue necrosis if infiltration Can precipitate with Calcium
ADULT DOSAGE	50mEq IVP for tricyclic overdose 50mEq or 1mEq/kg IVP for cardiac arrest – asystole or PEA 50 mEq IVP for cardiac arrest with prolonged down time(10 minutes)

MEDICATIONS**CALCIUM CHLORIDE****P****EMT – P****P**

<i>ACTIONS</i>	Reverses overdose with magnesium sulfate or calcium channel blockers (such as verapamil)
INDICATIONS	Antidote – magnesium sulfate and calcium channel blocker toxicity Hyperkalemia Beta Blocker overdose Known dialysis patient in cardiac arrest
CONTRAINDICATIONS	Hypersensitivity to calcium chloride
PRECAUTIONS	Do not infuse with sodium bicarbonate – will combine to form an insoluble precipitate Can cause ventricular fibrillation when pushed too fast or given to a patient who has been taking digitalis
SIDE EFFECTS	
ADULT DOSAGE	1 gram (10cc) slow IVP
KEY POINTS	<ul style="list-style-type: none">• Previously, calcium was used in resuscitation because it was believed to stimulate the heart to beat in asystole and to strengthen cardiac contractions in electromechanical dissociation – careful recent studies have failed to show any benefit from using calcium in cardiac arrest, and indeed the effects of calcium may be harmful in that situation

MEDICATIONS
DEXTROSE 50 % (D50)

I	EMT – I	I
P	EMT – P	P

<i>ACTIONS</i>	Restores circulating blood sugar
INDICATIONS	Hypoglycemia Altered mental status of unknown origin Coma of unknown origin Seizures of unknown origin
CONTRAINDICATIONS	Known hyperglycemia. Head trauma – unless confirmed hypoglycemia Caution with chronic renal failure Intracranial hemorrhage
PRECAUTIONS	Use with caution for stroke patients Use a large vein to administer D50
SIDE EFFECTS	Extravasation of D50 may cause necrosis Hyperglycemia May precipitate severe neurologic symptoms in alcoholics
ADULT DOSAGE	<u>Dextrose 50% (D50)</u> 25 g IV/IO
PEDIATRIC DOSAGE	2 mL/kg D25 IV/IO

MEDICATIONS

DIPHENHYDRAMINE HCL (*Benadryl*)

I	EMT – I	I
P	EMT – P	P

<i>ACTIONS</i>	Antihistamine Sedative Inhibits motion sickness (antiemetic)
INDICATIONS	Anaphylactic shock and severe allergic reaction Acute dystonia Nausea/vomiting (contact Medical Control) Extrapyramidal reaction (Parkinson-like movement disorders)
CONTRAINDICATIONS	Known hypersensitivity / Allergy Pregnancy or lactating
PRECAUTIONS	Avoid the use of Diphenhydramine in nursing mothers May induce vomiting Carefully monitor patient while awaiting for medication to take effect (effect of medication begins 15 minutes after administration)
SIDE EFFECTS	Drowsiness, confusion Blurring of vision Dry mouth Wheezing; thickening of bronchial secretions Hypotension
ADULT DOSAGE	<u>Allergic Reaction or Anaphylaxis</u> 25-50 mg IV/IO/IM
PEDIATRIC DOSAGE	<u>Allergic Reaction or Anaphylaxis</u> 1 mg/kg (without hypotension) IV/IO/IM

MEDICATIONS
DuoNeb

I	EMT – I	I
P	EMT – P	P

ACTIONS	<p>(Albuterol) Parasympatholytic bronchodilator Dries respiratory tract secretions</p> <p>(Ipratropium – Atrovent) B₂ selective bronchodilator Increases HR</p>
INDICATIONS	<p>Asthma exacerbation COPD exacerbation Patients that have used their prescribed inhaler more than once Pulmonary edema with wheezing</p>
CONTRAINDICATIONS	<p>Known hypersensitivity /Allergy Allergy to peanuts Acute myocardial infarction Arrhythmias</p>
PRECAUTIONS	<p>Cardiovascular disease Hypertension history CHF</p>
SIDE EFFECTS	<p>Palpitations Anxiety Nausea Dizziness</p>
ADULT DOSAGE	Unit dose inhaled via nebulizer. May repeat as needed

MEDICATIONS							
EPINEPHRINE (Adrenaline)							
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I	EMT – I	I					
P	EMT – P	P					
ACTIONS	Alpha and Beta adrenergic agonist Bronchodilation Increases heart rate and automaticity Increases cardiac contractility Increases myocardial electrical activity Increases systemic vascular resistance Increases blood pressure						
INDICATIONS	Cardiac arrest Allergic reaction/Anaphylaxis Respiratory distress Acute Asthma Pediatric Bradycardia						
CONTRAINDICATIONS	Hypersensitivity Tachycardia Hypertension Hypothyroidism Angina / Chest pain Coronary artery disease						
PRECAUTIONS	Pregnancy Blood pressure, pulse, and EKG must be routinely monitored						
SIDE EFFECTS	Palpitations, ectopic beats, tachycardia Anxiety / Tremors Hypertension VF / VT Angina						
ADULT DOSAGE	<p><u>Asthma and Anaphylaxis</u> Mild Reaction (1-1,000) 0.3-0.5mg SQ Consider 1:1000 2mg mixed with 1ml NS in nebulizer for Asthma</p> <p><u>Severe Anaphylaxis</u> (1:10,000) 0.5 mg slow IV/IO over 5 minutes - EMT-P Only</p> <p><u>Cardiac Arrest</u> 1:10,000 1 mg IV/IO every 3-5 minutes – EMT-P Only</p>						
PEDIATRIC DOSAGE	<p><u>Asthma and Anaphylaxis</u> Mild Reaction Ages 10-16 yrs (1:1,000) 0.03 mg/kg SQ Under 10 yrs (1:1,000) 0.01mg/kg SQ May use 1:1000 2mg mixed with 1ml NS in nebulizer aerosolized</p> <p><u>Severe Anaphylaxis Pending Arrest</u> Ages 10-16 yrs (1:10,000) 0.01mg/kg IV/IO over 5 minutes – EMT-P Only</p> <p><u>Cardiac Arrest</u> 1:10,000 0.01 mg/kg IV/IO push 0.1ml/kg – EMT-P Only or 0.1 mg/kg 1:1000 ETT 0.1ml/kg – EMT-P Only</p>						
KEY POINTS	<p>Administer SQ dose prior to contacting Medical Direction. IV dose in non-cardiac patient consult Medical Direction</p>						

MEDICATIONS**GLUCAGON**

I	EMT – I	I
P	EMT – P	P

ACTIONS	Accelerates the breakdown of glycogen to glucose in the liver, causing an increase in blood glucose level Relaxes smooth muscle of GI tract
INDICATIONS	Hypoglycemia when IV/IO is not able to be established and oral glucose is contraindicated Esophageal obstruction Beta Blocker overdose
CONTRAINDICATIONS	Known hypersensitivity Pheochromocytoma
PRECAUTIONS	Glucagon is only effective in patients with sufficient stores of glycogen Use caution in patients with renal or cardiovascular disease Glucagon can be administered on scene, but do not wait for it to take effect
SIDE EFFECTS	Nausea/Vomiting
ADULT DOSAGE	1mg IM for Hypoglycemia 2mg IV/IO/IM in esophageal foreign body obstruction 2 – 4mg IV/IO for hypotension / bradycardia in Betablocker overdose and Calcium Channel overdose
PEDIATRIC DOSAGE	<20kg give 0.5mg/kg IM >20kg give 1mg IM
KEY POINTS	Response is usually noticed in 5-20 minutes Glucagon is NOT a substitute for D25, or D12.5. IV must be attempted prior to administering Glucagon

MEDICATIONS
HALDOL (Haloperidol)

P	EMT – P	P
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<i>ACTIONS</i>	Antipsychotic Major tranquilizer
INDICATIONS	Combative patient Acute psychotic episodes
CONTRAINDICATIONS	Known hypersensitivity Head injury or head trauma Seizure or history of seizure Children less than 16 yes old
SIDE EFFECTS	Altered LOC/ Coma Nausea/Vomiting Hypotension Tremors Known Hypersensitivity
ADULT DOSAGE	5 mg IM/IV/IO Call Medical Direction for orders of repeat single dose after 5 minutes
KEY POINTS	The patient MUST be routinely Monitored for respiratory depression and or hypotension. The run documentation MUST clearly support the use of this medication.

MEDICATIONS
NALOXONE (<i>Narcan</i>)

I	EMT – I	I
P	EMT – P	P

<i>ACTIONS</i>	Reverses all effects from opioid agents such as respiratory depression and all central and peripheral nervous system effects
INDICATIONS	Narcotics overdoses Altered mental status of unknown origin
CONTRAINDICATIONS	Nonee
SIDE EFFECTS	Withdrawal syndrome in addiction Ventricular dysrhythmias Cerbral edema
ADULT DOSAGE	0.4 - 2 mg IV/IO, IM, SQ, or intranasal. Administer in small doses. May repeat the initial dose if the patient becomes symptomatic again
PEDIATRIC DOSAGE	0.1 mg/kg IV/IO, IM, SQ, or intranasal. May be repeated at 0.1 mg/kg
KEY POINTS	

EDICATIONS
NITROGLYCERIN

I	EMT – I	I
P	EMT – P	P

<i>ACTIONS</i>	Decreases preload and afterload Increases coronary blood flow
INDICATIONS	Cardiac chest discomfort, angina STEMI Pulmonary edema
CONTRAINDICATIONS	Known hypersensitivity Hypotension (systolic BP <110, diastolic BP <60) Increased intracranial pressure Glaucoma CVA Erectile dysfunction drugs (contact med control)
SIDE EFFECTS	Headache Hypotension Dizziness, weakness Syncope Dilated pupils
ADULT DOSAGE	<u>Cardiac Chest Discomfort</u> 0.4 mg SL or spray May repeat every 5 minutes up to 3 doses if B/P systolic > 90mmHg <u>Pulmonary Edema with systolic BP >200</u> 1.2mg SL (3 tablets simultaneously)
PEDIATRIC DOSAGE	Not recommended in the prehospital setting
KEY POINTS	

MEDICATIONS**METHYPREDNISOLONE (Solumedrol)****P** **EMT – P** **P**

<i>ACTIONS</i>	Anti-inflammatory steroid
INDICATIONS	Anaphylaxis Asthma COPD
CONTRAINDICATIONS	NONE in emergency setting
SIDE EFFECTS	GI bleeding Prolonged wound healing Suppression of natural steroids
ADULT DOSAGE	125 mg IVP
PEDIATRIC DOSAGE	1-2 mg/kg IVP
KEY POINTS	

MEDICATIONS
Thiamine / Vitamin B12

P	EMT – P	P
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<i>ACTIONS</i>	Allows normal breakdown of glucose
INDICATIONS	<p>Indicated for use in adult patients only</p> <p>Altered mental status. Given prior to D50 to avoid Wernicke Karsakoff Syndrome. (alcoholic, renal failure patients, or malnourished patients may have a Thiamine deficiency)</p> <p>Alcohol abuse</p>
CONTRAINDICATIONS	None
SIDE EFFECTS	None
ADULT DOSAGE	100 mg IVP prior to administering D50

MEDICATIONS

VERSED (Midazolam)

I	EMT – I	I
P	EMT – P	P

ACTION	Sedative and hypnotic benzodiazepine Induces amnesia
INDICATIONS	Conscious sedation Seizure Facilitate intubation Facilitate pacing / cardioversion
CONTRAINDICATIONS	Intolerance to benzodiazepines Narrow-angle glaucoma Shock Coma
SIDE EFFECTS	<p>CNS – amnesia, headache, dizziness, euphoria, confusion, agitation, anxiety, delirium, drowsiness, muscle tremor, ataxia, dysphoria, slurred speech, and paresthesia.</p> <p>Cardiovascular – hypotension, PVC’s, tachycardia, vasocagel episode</p> <p>Eye – blurred vision, diplopia, nystagmus, pinpoint pupils</p> <p>Respiratory – coughing, bronchospasms, laryngospasm, apnea, hypoventilation, wheezing, airway, obstruction, tachypnea</p> <p>Skin – swelling, burning, pain at the site of injection</p>
ADULT DOSAGE	2mg IV/IO max initial dose for sedation (may repeat as necessary) 5mg IV/IO max initial dose for seizures (may repeat as necessary) 5mg IV/IO for RSI and Violent Patients Versed may be administered IM or nasally in actively seizing or violent patients whenever IV access is not achieved.
PEDIATRIC DOSAGE	Seizures – 0.1mg/kg IV/IO/IM to a max dose of 5mg 0.2mg/kg Intranasal to a max dose of 10mg

MEDICATIONS		
ONDANSETRON (Zofran)		
	P	EMT – P

<i>ACTIONS</i>	Antiemetic
INDICATIONS	Nausea & vomiting
CONTRAINDICATIONS	Hypersensitivity
SIDE EFFECTS	Drowsiness, vertigo Blurred vision, headache Hypotension
ADULT DOSAGE	4 mg slow IV, IM
PEDIATRIC DOSAGE	Contact Medical Control
KEY POINTS	