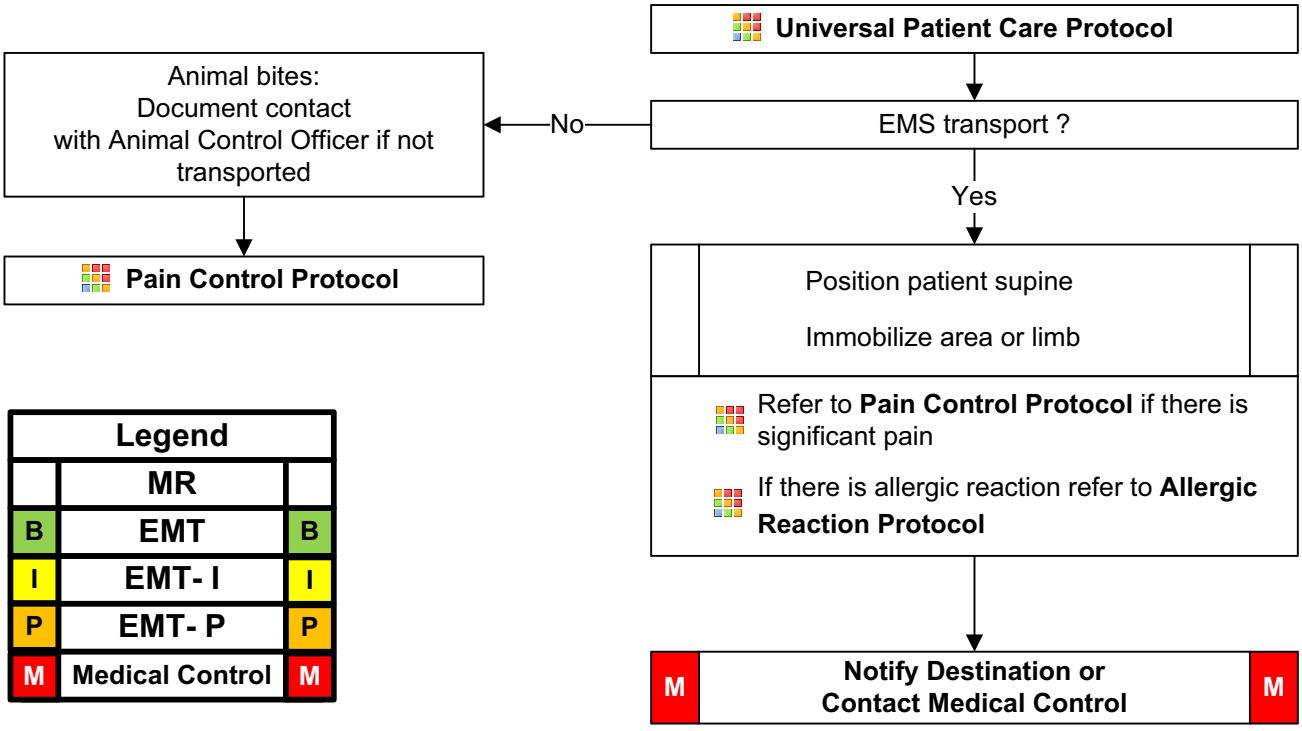
Bites and Envenomations

History
- Type of bite / sting
- Description or bring creature / photo with patient for identification
- Time, location, size of bite / sting
- Previous reaction to bite / sting
- Domestic vs. Wild
- Tetanus and Rabies risk
- Immunocompromised patient

Signs and Symptoms
- Rash, skin break, wound
- Pain, soft tissue swelling, redness
- Blood oozing from the bite wound
- Evidence of infection
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension or shock

Differential
- **Animal bite**
- **Human bite**
- **Snake bite (poisonous)**
- **Spider bite (poisonous)**
- **Insect sting / bite (bee, wasp, ant, tick)**
- **Infection risk**
- **Rabies risk**
- **Tetanus risk**



Trauma Protocols

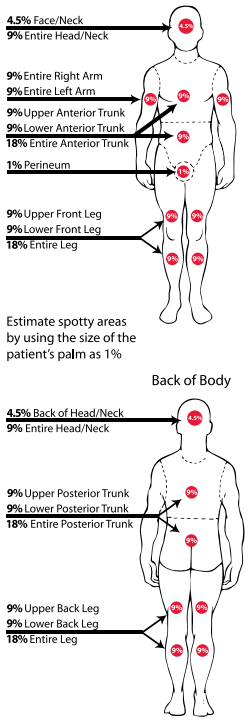
Pearls
- **Recommended Exam: Mental Status, Skin, Extremities (Location of injury), and a complete Neck, Lung, Heart, Abdomen, Back, and Neuro exam if systemic effects are noted**
- Human bites have higher infection rates than animal bites due to normal mouth bacteria.
- Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
- Cat bites may progress to infection rapidly due to a specific bacteria (Pasteurella multicoda).
- Poisonous snakes in this area are generally of the pit viper family: rattlesnake, copperhead, and water moccasin.
  - Coral snake bites are rare: Very little pain but very toxic. "Red on yellow - kill a fellow, red on black - venom lack."
  - Amount of envenomation is variable, generally worse with larger snakes and early in spring.
  - If no pain or swelling, envenomation is unlikely.
- Black Widow spider bites tend to be minimally painful, but over a few hours, muscular pain and severe abdominal pain may develop (spider is black with red hourglass on belly).
- Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially but tissue necrosis at the site of the bite develops over the next few days (brown spider with fiddle shape on back).
- Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to wound.
- Immunocompromised patients are at an increased risk for infection: diabetes, chemotherapy, transplant patients.
- Consider contacting the North Carolina Poison Control Center for guidance (1-800-84-TOXIN).

Burns: Thermal

History
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

Signs and Symptoms
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- singed facial or nasal hair
- Hoarseness / wheezing

Differential
- **Superficial (1st Degree)** red and painful
- **Partial Thickness (2nd Degree)** blistering
- **Full Thickness (3rd Degree)** painless/charred or leathery skin
- **Thermal**
- **Chemical**
- **Electrical**
- **Radiation**



Universal Patient Care Protocol

Critical (Red)	Serious (Yellow)	Minor (Green)
>15% TBSA 2nd/3rd Degree Burn Burns with Multiple Trauma Burns with definitive airway compromise (When reasonable accessible, transport to a Burn Center)	5-15% TBSA 2nd/3rd Degree Burn Suspected Inhalation injury or requiring intubation for airway stabilization Hypotension or GCS < 14 (When reasonable accessible, transport to either a Level I Burn Center or a Trauma Center)	< 5% TBSA 2nd/3rd Degree Burn No inhalation injury, Not Intubated, Normotensive GCS>14 (Transport to the Local Hospital)
Remove Rings, Bracelets, and other Constricting Items		Cool Down the Wound with Normal Saline
Airway Protocol		Cover Burn with Dry sterile sheet or dressings
Cover Burn with Dry sterile sheet or dressings		
I: IV Normal Saline, 2 large bore IVs, infuse total of 0.25 x kg body wt. x % TBSA per hour for up to the first 8 hrs. *(More info below)* :I		I: IV Normal Saline, infuse total of 0.25 x kg body wt. x % TBSA per hour for up to the first 8 hours. *(More info below)* :I
Pain Control Protocol		
M: **Notify Destination or Contact Medical Control** :M		

Legend

	MR
B	EMT
I	EMT- I
P	EMT- P
M	Medical Control

1. The IV solution should be changed to Lactated Ringers if it is available. It is preferred over Normal Saline.
2. Formula example and a rule of thumb is; an 80 kg patient with 50% TBSA will need 1000 cc of fluid per hour.

- **Critical or Serious Burns**
- ***> 5-15% total body surface area (TBSA); 2nd or 3rd degree burns, or***
- ***3rd degree burns > 5% TBSA for any age group, or***
- ***circumferential burns of extremities, or***
- ***electrical or lightning injuries, or***
- ***suspicion of abuse or neglect, or***
- ***inhalation injury, or***
- ***chemical burns, or***
- ***burns of face, hands, perineum, or feet, or***
- ***any burn requiring hospitalization.***

(These burns will require direct transport to a burn center, or transfer once seen at a local facility where the patient can be stabilized with interventions such as airway management or pain relief if this is not available in the field or the distance to a Burn Center is significant.)

Pearls
- Burn patients are Trauma Patients, evaluate for multisystem trauma.
- Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro
- Early intubation is required when the patient experiences significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen. (For patients with the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool burns, must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.

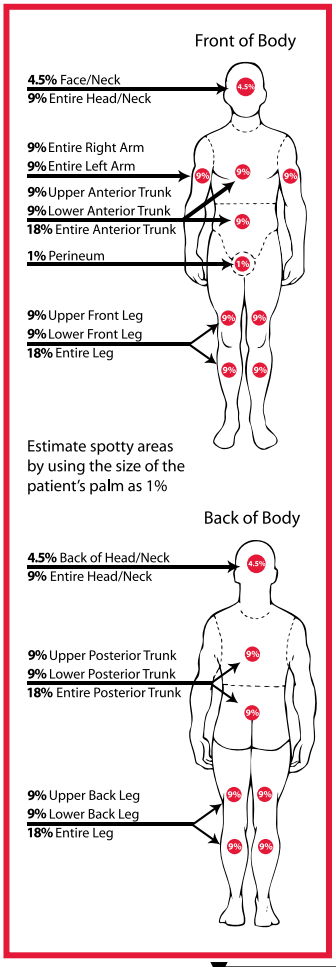
Trauma Protocols

Burns: Chemical and Electrical

History
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

Signs and Symptoms
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- singed facial or nasal hair
- Hoarseness / wheezing

Differential
- **Superficial (1st Degree)** red and painful
- **Partial Thickness (2nd Degree)** blistering
- **Full Thickness (3rd Degree)** painless/charred or leathery skin
- **Thermal**
- **Chemical**
- **Electrical**
- **Radiation**



Universal Patient Care Protocol

P — Cardiac Monitor — P

Eye Involvement? Continuous saline flush in affected eye. Flush are with water or Normal Saline for 10-15 minutes

Remove Rings, Bracelets, and other Constricting Items. Remove clothing or expose area

Identify entry and exit sites, apply sterile dressings

I — Pain Control Protocol (IV only for Burn Patients) — I

IV Protocol

Normal Saline Bolus

Chemical and Electrical Burn Patients Must be Triaged using the Guidelines below and their care must conclude in the Thermal Burn Protocol

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Critical (Red)

>15% TBSA 2nd/3rd Degree Burn
Burns with Multiple Trauma
Burns with definitive airway compromise
(When reasonable accessible, transport to a Burn Center)

Serious (Yellow)

5-15% TBSA 2nd/3rd Degree Burn
Suspected Inhalation injury or requiring intubation for airway stabilization
Hypotension or GCS < 14
(When reasonable accessible, transport to either a Level I Burn Center or a Trauma Center)

Minor (Green)

< 5% TBSA 2nd/3rd Degree Burn
No inhalation injury, Not Intubated, Normotensive
GCS>14
(Transport to the Local Hospital)

Pearls Chemical
- Refer to Decontamination Standard Procedure (Skill) WMD Page
- Certainly 0.9% NaCl Soln or Sterile Water is preferred, however if it is not readily available, do not delay, use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids.

Pearls Electrical
- Do not contact the patient until you are certain the source of the electric shock has been disconnected.
- Attempt to locate contact points, (entry wound where the AC source contacted the patient, an exit at the ground point) both sites will generally be full thickness.
- Cardiac monitor, anticipate ventricular or atrial irregularity, to include V-tach, V-fib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

Trauma Protocols

Drowning

History
- Submersion in water regardless of depth
- Possible trauma to C-spine
- Possible history of trauma ie: diving board
- Duration of immersion
- Temperature of water or possibility of hypothermia

Signs and Symptoms
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing
- Apnea
- Stridor
- Wheezing
- Rhales

Differential
- **Trauma**
- **Pre-existing medical problem**
- **Pressure injury (diving)**
- **Barotrauma**
- **Decompression sickness**
- **Post-immersion syndrome**

Legend	
MR	
B	EMT
I	EMT- I
P	EMT- P
M	Medical Control

Universal Patient Care Protocol

B	**Spinal Immobilization Protocol**	B
P	**Cardiac Monitor**	P
B	**Pulse Oximetry** **Capnography** if Available	B
B	**12-Lead ECG**	B
I	Consider **CPAP** if available for respiratory distress	I
I	**IV Protocol**	I
B	Consider **Albuterol or other Beta-Agonist** for respiratory distress	B

Monitor and reassess

Appropriate Protocol
based on symptoms

M	**Notify Destination or Contact Medical Control**	M

Trauma Protocols

Pearls
- **Recommended Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Pelvis, Back, Extremities, Skin, Neuro**
- Have a high index of suspicion for possible spinal injuries
- With cold water no time limit -- resuscitate all. These patients have an increased chance of survival.
- **Some patients may develop delayed respiratory distress.**
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- **Drowning is a leading cause of death among would-be rescuers.**
- **Allow appropriately trained and certified rescuers to remove victims from areas of danger.**
- With pressure injuries (decompression / barotrauma), consider transport to or availability of a hyperbaric chamber.

Extremity Trauma

History
- Type of injury
- Mechanism: crush / penetrating / amputation
- Time of injury
- Open vs. closed wound / fracture
- Wound contamination
- Medical history
- Medications

Signs and Symptoms
- Pain, swelling
- Deformity
- Altered sensation / motor function
- Diminished pulse / capillary refill
- Decreased extremity temperature

Differential
- **Abrasion**
- **Contusion**
- **Laceration**
- **Sprain**
- **Dislocation**
- **Fracture**
- **Amputation**

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Universal Patient Care Protocol

	Wound care Control Hemorrhage with Pressure Splinting as required	
B	If hemorrhage can not be controlled by direct pressure and is life threatening then consider T**ourniquet procedure and/or Hemostatic Agent** if available	B
I	**IV Protocol** if life or limb threatening event or if pain medication needed	I
	Pain Control Protocol	
	If amputation Clean amputated part Wrap part in sterile dressing soaked in normal saline and place in air tight container. Place container on ice if available	

M	**Notify Destination or Contact Medical Control**	M

Trauma Protocols

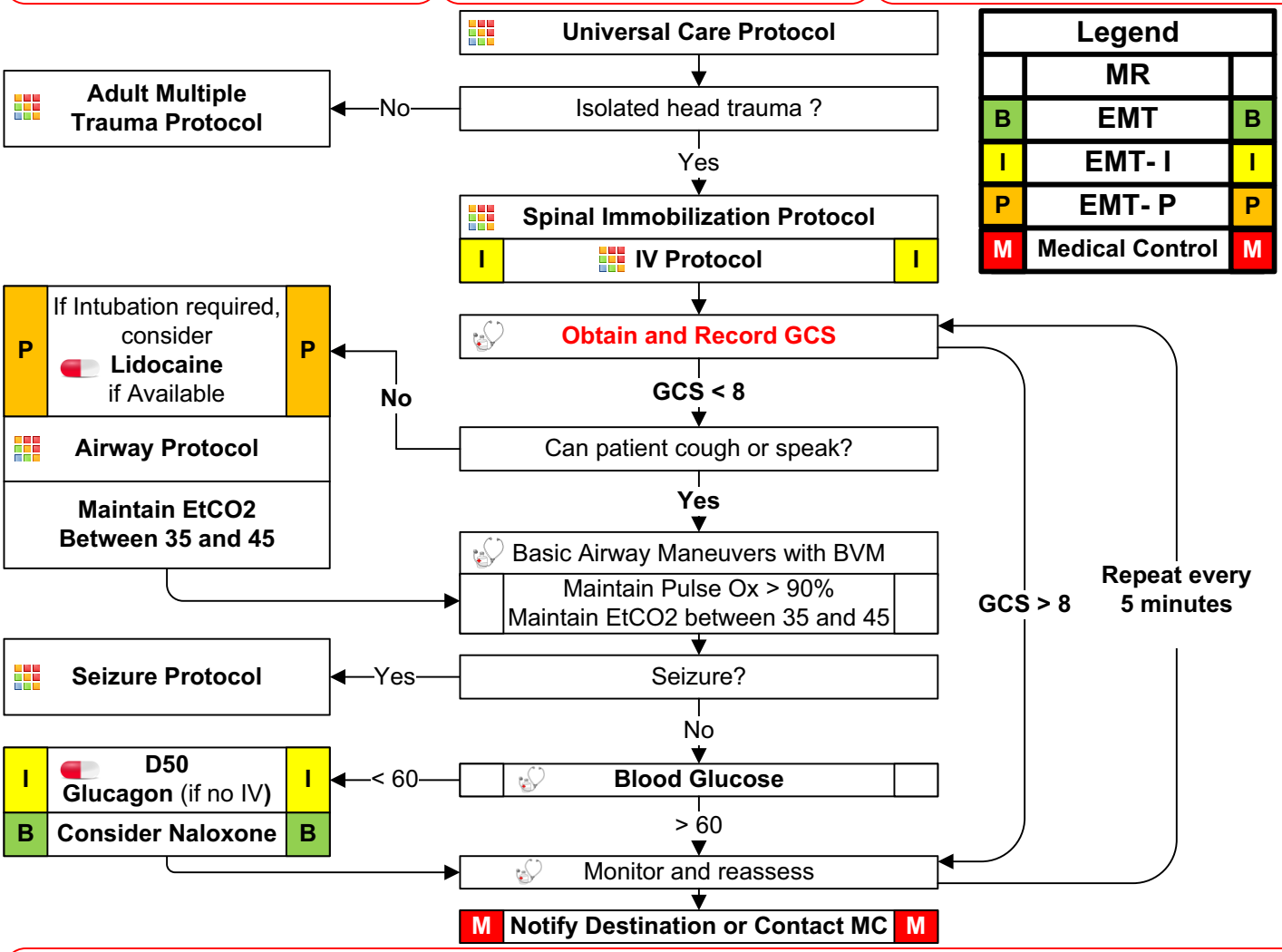
Pearls
- **Recommended Exam: Mental Status, Extremity, Neuro**
- Peripheral neurovascular status is important
- In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations must be evaluated for repair within 6 hours from the time of injury.

Head Trauma

History
- Time of injury
- Mechanism (blunt vs. penetrating)
- Loss of consciousness
- Bleeding
- Past medical history
- Medications
- Evidence for multi-trauma

Signs and Symptoms
- Pain, swelling, bleeding
- Altered mental status
- Unconscious
- Respiratory distress / failure
- Vomiting
- Major traumatic mechanism of injury
- Seizure

Differential
- **Skull fracture**
- **Brain injury (Concussion, Contusion, Hemorrhage or Laceration)**
- **Epidural hematoma**
- **Subdural hematoma**
- **Subarachnoid hemorrhage**
- **Spinal injury**
- **Abuse**



Trauma Protocols

Pearls
- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro**
- If GCS < 12 consider air / rapid transport
- In the absence of Capnography, hyperventilate the patient (adult: 20 breaths/min, child: 30, infant: 35) only if ongoing evidence of brain herniation (blown pupil, decorticate or decerebrate posturing, or bradycardia)
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
- The most important item to monitor and document is a change in the level of consciousness.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- Limit IV fluids unless patient is hypotensive.
- Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.
- In areas with short transport times, RSI/Drug-Assisted Intubation is not recommended for patients who are spontaneously breathing and who have oxygen saturations of greater than 90% with supplemental oxygen.

Hyperthermia

History
- Age
- Exposure to increased temperatures and / or humidity
- Past medical history / medications
- Extreme exertion
- Time and length of exposure
- Poor PO intake
- Fatigue and / or muscle cramping

Signs and Symptoms
- Altered mental status or unconsciousness
- Hot, dry or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

Differential
- **Fever (Infection)**
- **Dehydration**
- **Medications**
- **Hyperthyroidism (Storm)**
- **Delirium tremems (DT's)**
- **Heat cramps**
- **Heat exhaustion**
- **Heat stroke**
- **CNS lesions or tumors**

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Universal Patient Care Protocol

P	**Cardiac monitor**	P
B	**12-Lead ECG**	B
	Document patient temperature	
	Remove from heat source	
	Remove clothing	
	Apply room temperature water to skin and increase air flow around patient	
I	**IV Protocol -** Bolus (may repeat X 3)	I

↓

Monitor and reassess

↓

Appropriate Protocol
Based on patient symptoms

↓

M	**Notify Destination or Contact Medical Control**	M

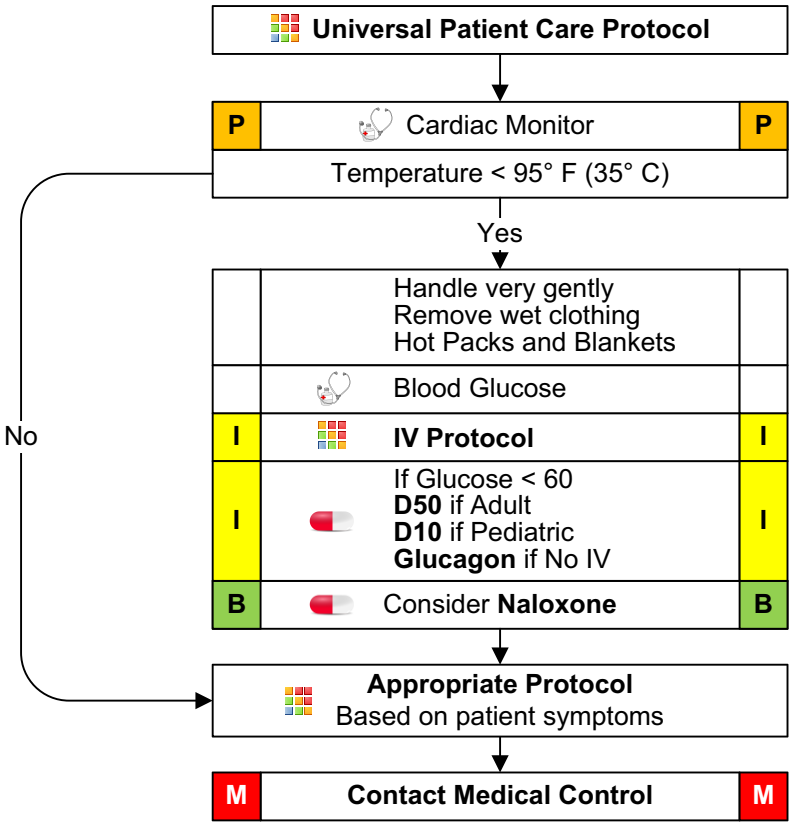
Pearls
- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lungs, Neuro**
- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates 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, dizzyness, 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 >104° F (40° C), and an altered mental status.

Hypothermia

History
- 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

Signs and Symptoms
- Cold, clammy
- Shivering
- Mental status changes
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

Differential
- **Sepsis**
- **Environmental exposure**
- **Hypoglycemia**
- **CNS dysfunction**
  - **Stroke**
  - **Head injury**
  - **Spinal cord injury**



Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Trauma Protocols

Pearls
- **Recommended Exam: Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro**
- **NO PATIENT IS DEAD UNTIL WARM AND DEAD.**
- Defined as core temperature < 35° C (95° F).
- Extremes of age are more susceptable (i.e. young and old).
- With temperature less than 30° C (86° F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia so take at least 45 second to palpate a pulse.
- 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 or has other signs of life. Discuss with medical control.
- Intubation can cause ventricular fibrillation so it should be done gently by most experienced person.
- Do not hyperventilate the patient as this can cause ventricular fibrillation.
- If the patient is below 30 degrees C or 86 F then only defibrillate 1 time if defibrillation is required. Normal defibrillation procedure may resume once patient reaches 30 degrees C or 86 F.
- Below 30 degrees C (86 F) antiarrythmics may not work and if given should be given at reduced intervals contact medical control before they are administered.
- Below 30 C or (86 F) pacing should not be done

Multiple Trauma

History
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / protective equipment
- Past medical history
- Medications

Signs and Symptoms
- Pain, swelling
- Deformity, lesions, bleeding
- Altered mental status or unconscious
- Hypotension or shock
- Arrest

Differential (Life threatening)
- **Chest** — **Tension pneumothorax**, **Flail chest**, **Pericardial tamponade**, **Open chest wound**, **Hemothorax**
- **Intra-abdominal bleeding**
- **Pelvis / Femur fracture**
- **Spine fracture / Cord injury**
- **Head injury (see Head Trauma)**
- **Extremity fracture / Dislocation**
- **HEENT (Airway obstruction)**
- **Hypothermia**

Universal Patient Care Protocol

Adult Assessment Procedure focusing on initial ABC and level of responsiveness

Spinal Immobilization Protocol

Airway Protocol if appropriate

Vital Signs including GCS

Abnormal

Rapid Transport to appropriate destination using
EMS System Trauma Plan
Limit Scene Time to 10 minutes
Provide Early Notification

I — **IV Protocol**
Normal Saline Bolus
May repeat for hypotension — I

Splint Suspected Fractures
Consider Pelvic Binding
Control External Hemorrhage

P — Tension Pneumothorax?
Chest Decompression — P

Consider
Head Injury Protocol

Normal

Complete Assessment

Splint Suspected Fractures
Consider Pelvic Binding
Control External Hemorrhage

Transport to appropriate destination using **EMS System Trauma Plan**

Continually Reassess

M — **Notify Destination or Contact Medical Control** — M

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Trauma Protocols

Pearls
- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro**
- **Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit**
- **Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.**
- Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly with little warning.
- Mechanism is the most reliable indicator of serious injury.
- In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility of associated domestic violence or abuse.
- Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient is the goal.
- Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 90%

WMD-Nerve Agent Protocol

History
- Exposure to chemical, biologic, radiologic, or nuclear hazard
- Potential exposure to unknown substance/hazard

Signs and Symptoms
- Visual Disturbances
- Headache
- Nausea/Vomiting
- Salivation
- Lacrimation
- Respiratory Distress
- Diaphoresis
- Seizure Activity
- Respiratory Arrest

Differential
- **Nerve agent exposure (e.g., VX, Sarin, Soman, etc.)**
- **Organophosphate exposure (pesticide)**
- **Vesicant exposure (e.g., Mustard Gas, etc.)**
- **Respiratory Irritant Exposure (e.g., Hydrogen Sulfide, Ammonia, Chlorine, etc.)**

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Ensure Scene Safety and Proper PPE

↓

Universal Patient Care Protocol

↓

Obtain history of exposure
Observe for specific toxidromes
Initiate triage and/or decontamination as indicated.

↓

Assess for presence of major or minor symptoms. There must be symptoms before treatment.

Minor Symptoms:
Salivation, Lacrimation, Visual Disturbances

↓

I — **IV Protocol** — I

P — **Atropine 2 mg IV/IM q 5 min (0.02-0.05 mg/kg) until symptoms resolve** — P

↓

M — **Pralidoxime 2 grams (15-25 mg/kg for Peds) IV over 30 minutes** — M

↓

Monitor for appearance of major symptoms

Major Symptoms:
Altered Mental Status, Seizures, Respiratory Distress, Respiratory Arrest

↓

B — **Nerve Agent Kit IM X 3 rapidly** (See Pediatric Doses Below) — B

↓

I — **IV Protocol** — I

P — **If Seizures: Midazolam (IV/IM) Lorazepam (IV/IM)** — P

↓

P — **Atropine 2 mg IV/IM q 5 min (0.02-0.05 mg/kg) until symptoms resolve** — P

M — **Notify Destination or Contact MC** — M

Trauma Protocols

Pearls
- In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age, 2 Nerve Agent Kits from 8 to 14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
- If Triage/MCI issues exhaust supply of Nerve Agent Kits, use pediatric atropens (if available). Use the 0.5 mg dose if patient is less than 40 pounds (18 kg), 1 mg dose if patient weighs between 40 to 90 pounds (18 to 40 kg), and 2 mg dose for patients greater than 90 pounds (>40 kg).
- Follow local HAZMAT protocols for decontamination and use of personal protective equipment
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they not from exposure to another agent (e.g., narcotics, vesicants, etc.)
- **Each Nerve Agent Kit contains 600 mg of Pralidoxime (2-PAM) and 2 mg of Atropine**
- The main symptom that the atropine addresses is excessive secretions so atropine should be given until salivation improves.

Induced Hypothermia

History
- Non – Traumatic cardiac arrest. (post V-Tach, V-Fib and Asystole arrests are permissible in this protocol)

Signs and Symptoms
- Return of pulse

Differential
- **Continue to address specific differentials associated with the original dysrhymia**

ROSC
(Return Of Spontaneous Circulation)
For post V-Tach, V-Fib and Asystole cardiac arrests, all others contact Medical Control.

Legend
P | EMT- P | P

Criteria for Induced Hypothermia and initial temp >34C or 93F

NO → **Post resuscitation protocol**

Yes

ET Tube Placed and ETCO2 reading >20 mmHg

No → **Intubation Protocol**

Unsuccessful

Yes

Successful

Perform Neuro Exam and Record in PCR Induced Hypothermia Procedure

At Any Time loss of Spontaneous Circulation: Discontinue cooling and go to appropriate protocol

Monitor ETCO2 target 40 mmHg DO Not Hyperventilate

P

Expose patient
Apply cold packs to Axilla and Groin

Infuse Cold (4 deg. Celsius) Saline 30 ml/kg to max of 2 liters (if available)

P

P

Medication, As Needed:
Versed 0.15 mg /kg to max of 6 mg
Morphine 4mg IV/IO bolus then 2 mg increments to max of 10 mg

Dopamine 10-20 mcg/kg/min for MAP 90-100

P

P

Consider Norcurron Only if required to maintain airway

P

Pearls

Criteria for Induced Hypothermia:
- ROSC after V-Tach, V-Fib and Asystole cardiac arrest not related to trauma or hemorrhage.
- Age greater than 12
- Comatose Glasgow Coma Score < 5
- Initial temperature > 34C
- Patient is intubated and remains comatose (no purposeful response to pain)
- **Utilize Versed for sedation and Morphine as needed for shivering and pain control.**
- If patient meets other criteria for induced hypothermia and is not intubated, then intubate according to protocol before inducing cooling. If unable to intubate **DO NOT** initiate induced hypothermia.
- When exposing patient for purpose of cooling, undergarments may remain in place preserve patients modesty
- Do not delay transport for the purpose of cooling.
- Reassess airway frequently and with every patient move.
- Patients develop metabolic alkalosis with cooling. **Do not hyperventilate.**
- Pregnancy is a contraindication for Induced Hypothermia.