

Michigan
Adult Treatment Protocols

Date: August 1, 2010

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ABDOMINAL PAIN

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Abdominal Pain (Non-traumatic)

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Conduct physical exam of abdomen including assessment of central and distal pulses.
3. If symptoms of shock present refer to **Shock Protocol**.
4. Position patient in a position of comfort if pain is non-traumatic. If trauma related, refer to **Adult Trauma Protocol**.
5. Do not allow patient to take anything by mouth.
6. If patient is experiencing nausea and vomiting refer to **Nausea/Vomiting Protocol**.

PARAMEDIC

7. Per MCA selection, administer narcotic analgesic.

PAIN MEDICATION OPTION
(Choose One)

Pre-Medical Control Order

OR

Post-Medical Control Order

NARCOTIC ANALGESIC OPTIONS
(Select Options)

Fentanyl 50 – 100 mcg (1 mcg/kg) IV, may repeat every 5 minutes until maximum of 3 mcg/kg.

Morphine Sulfate 2 – 5 mg (0.05 mg/kg) IV, may repeat dose every 5 minutes until maximum of 20 mg.

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ADULT TRAUMA

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Adult Trauma

This protocol should be followed for severely injured patients meeting trauma triage guidelines and methodology; including chest injuries, and patients with symptoms of spinal cord injury, along with extremity weakness, numbness or sensory loss. It consists of assessment, stabilization, extrication, initiation of resuscitation, and rapid transportation to the closest appropriate facility. **Minimize scene time.**

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**. Consider rapid extrication
2. Stabilize spinal column while opening the airway, determine level of consciousness. Refer to **Spinal Injury Assessment Protocol**.
3. Manage airway ventilation per **Emergency Airway Procedure**. **DO NOT HYPERVENTILATE**.
4. Control major external bleeding
5. If shock present, refer to **Shock Protocol**.
6. Refer to **Mass Casualty Incidents Protocol** if appropriate.

EMT/SPECIALIST/PARAMEDIC

7. Initiate transport.
8. Alert receiving hospital as soon as appropriate. Note mechanism of injury.

SPECIALIST/PARAMEDIC

9. Consider vascular access.
10. If hypotensive, administer 250 ml NS fluid bolus. Repeat as indicated.

PARAMEDIC

11. Refer to **Pain Management Procedure**.

CHEST INJURY

MFR/EMT/SPECIALIST/PARAMEDIC

1. Control hemorrhage. For patient with diminished or absent breath sounds:
 - A. Closely monitor airway and provide for early maintenance.
 - B. Provide high concentration of oxygen, and early assistance of ventilation, if indicated.
 - C. Look for life threatening respiratory problems and stabilize.
 - D. If sucking chest wound, cover wound with occlusive dressing sealed on 3 sides. Release dressing if worsened shortness of breath, or signs of tension pneumothorax.

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ADULT TRAUMA

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PARAMEDIC

- E. If tension pneumothorax suspected, needle decompression, control external bleeding and complete spinal immobilization, if indicated. Refer to **Pleural Decompression Procedure**.

ABDOMINAL INJURY

MFR/EMT/SPECIALIST/PARAMEDIC

1. Cover intestinal eviscerations with a sterile dressing moistened with sterile saline or water; cover the area with an occlusive material (aluminum foil or plastic wrap). Cover the area with a towel or blanket to keep it warm. Transport with knees slightly bent, if possible. **DO NOT PUSH VISCERA BACK INTO ABDOMEN**, unless prolonged extrication.

INJURY SPECIFIC TREATMENTS

1. Follow appropriate protocols

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ALTERED MENTAL STATUS

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Altered Mental Status

The purpose of this protocol is to provide for the assessment and treatment of patients with altered mental status of unknown etiology such as alcohol, trauma, poisonings, seizures, behavioral problems, stroke, environmental causes, infection, etc.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Restrain patient if necessary, refer to **Physical Patient Restraint Procedure**.

EMT/SPECIALIST

3. **If the patient is alert** but demonstrating signs of hypoglycemia, measure blood glucose level, if available.
 - A. If less than 60 mg/dl administer oral high caloric fluid.
4. **If patient is not alert or vital signs are unstable:**
 - A. Evaluate and maintain airway, provide oxygenation and support ventilations as needed.
 - B. If no suspected spinal injury, place the patient on either side.
 - C. Administer small amounts of oral glucose paste, buccal or sublingual.

PARAMEDIC

5. If glucose is less than 60 mg/dl.
 - A. Administer Dextrose 50%, 25 grams (50 ml) IV or small amounts of oral glucose paste, buccal or sublingual.
6. Per MCA selection, if unable to start IV, when Dextrose 50% is indicated, administer glucagon.
7. Recheck the blood glucose 10 minutes after glucose/glucagon administration (Per MCA selection).

Glucagon 1 mg IM
<input type="checkbox"/> Included
<input checked="" type="checkbox"/> Not Included

8. If no response to the Dextrose 50%, or if Dextrose 50% is not indicated and respiratory depression is present, give Naloxone 2 mg IV or IM, titrating to improve respiratory status, repeat as needed.

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ANAPHYLAXIS/ALLERGIC REACTION

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Anaphylaxis/Allergic Reaction

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Determine substance or source of exposure, remove patient from source if known and able.
3. Assist the patient in administration of their own epinephrine auto-injector, if available.

EMT/SPECIALIST

4. In cases of severe allergic reaction, wheezing or hypotension, administer epinephrine via auto-injector.

PARAMEDIC

5. If patient is symptomatic, administer diphenhydramine 50 mg IM or IV/IO.
6. In cases of severe allergic reaction, wheezing or hypotension:
 - A. Administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM.
7. In cases of profound anaphylactic shock (near cardiac arrest):
 - A. Administer Epinephrine 1:10,000, 0.3 mg (3 ml) slow IV/IO.

<u>Bronchodilator Options</u>
<input type="checkbox"/> Albuterol 2.5 mg/3 ml NS nebulized
OR
<input checked="" type="checkbox"/> Albuterol 2.5 mg/3 ml NS & Ipratropium 500 mcg nebulized

<u>Medication Options:</u>
<u>Prednisone</u> 50 mg tablet PO
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<u>Methylprednisolone</u> 125 mg IV
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

8. Per MCA selection, administer Albuterol nebulized **OR** Albuterol and Ipratropium nebulized if wheezing or airway constriction.
9. Administer additional Albuterol 2.5 mg/3 ml NS nebulized, as needed, if wheezing or airway constriction persists.
10. Per MCA Selection, if a second nebulized treatment is needed, administer Prednisone **OR** Methylprednisolone.

Post-Medical Control:

EMT/SPECIALIST

1. Additional Epinephrine via auto-injector.

PARAMEDIC

2. Additional Epinephrine 1:1,000, 0.3 mg (0.3 ml) IM; Epinephrine 1:10,000 0.3 mg (3ml) slow IV/IO.

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BURNS

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Burns

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Determine burn extent & severity (rule of nines).
3. Follow local MCA transport protocol.

THERMAL BURNS:

1. Stop the burning process. Remove smoldering and non-adherent clothing.
2. Assess and treat associated trauma.
3. Remove any constricting items.
4. If partial/full burn is moderate-to-severe, more than 15% of body surface area (BSA), cover wounds with dry clean dressings.
5. Use cool, wet dressings in smaller burns, less than 15% BSA, for patient comfort.

CHEMICAL BURNS:

1. Protect personnel from contamination.
2. Remove all clothing and constricting items.
3. Decontaminate patient prior to transport, brushing off dry chemicals prior to irrigation.
4. Assess and treat for associated injuries.
5. Evaluate for systemic symptoms, which might be caused by chemical contamination.
6. Cover burned area in clean, dry dressing for transport.

ELECTRICAL INJURY:

1. Protect rescuers from live electric wires.
2. Remove patient from electrical source when safe.
3. Treat associated injuries, provide spinal immobilization when indicated.
4. Assess and treat entrance and exit wound.

PARAMEDIC

5. Monitor patient EKG for possible arrhythmias. Treat as per specific arrhythmia protocol.

FOR ALL TYPES OF BURNS:

SPECIALIST/PARAMEDIC

1. Obtain vascular access if indicated for pain management or fluid therapy.
2. If partial or full thickness burn is greater than 15% BSA
 - A. Administer fluid bolus NS 250 ml.
3. Administer 250 ml NS wide open for hypotension or severe burn. Repeat as indicated.
4. Follow local MCA transport protocol.

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BURNS

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PARAMEDIC

5. Administer Analgesic Medication (see box below), if indicated.

NARCOTIC ANALGESIC OPTIONS
(Select Options)

- Fentanyl 50-100 mcg (1 mcg/kg) IV/IO, may repeat every 5 minutes until maximum of 3 mcg/kg
- Morphine Sulfate 2-5 mg (0.05 mg/kg) IV, may repeat dose every 5 minutes until maximum of 20 mg.

Medication Administration Option
(Choose one)

- Pre-radio
- Post-radio

Post-Medical Control

Thermal Burns and Electrical Injury:

1. Additional IV fluid bolus.

Thermal inhalation, chemical burns:

1. Intubation per **Emergency Airway Procedure**.

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CEREBROVASCULAR ACCIDENT (CVA, STROKE)

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Cerebrovascular Accident (CVA, Stroke)

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.

EMT/SPECIALIST/PARAMEDIC

2. Measure blood glucose
 - A. If blood glucose less than 60 mg/dl treat per **Altered Mental Status Protocol**.
3. If seizure, follow **Seizure Protocol**.
4. Utilize the Cincinnati Pre-hospital Stroke Scale. Try to elicit the following signs:
 - A. Facial droop (have patient show teeth or smile)
 - B. Arm drift (have patient close eyes and hold both arms straight out for 10 seconds)
 - C. Abnormal speech (have patient say the sky is blue in Michigan)
5. Document time last seen normal (for patient).
6. Minimize scene time and begin transport.

SPECIALIST/PARAMEDIC

7. Initiate vascular access.

PARAMEDIC

8. Monitor EKG. (**DO NOT** delay scene time for IV and EKG monitoring.)

EMT/SPECIALIST/PARAMEDIC

9. Make contact with destination hospital, notify as soon as possible.

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DROWNING / NEAR DROWNING / SUBMERSION

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Drowning/Near Drowning/Submersion

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**
2. **If pulse is absent:**
 - A. If documented submersion time is greater than 1 hour refer to the **Dead on Scene Procedure.**
 - B. In normothermic patients initiate CPR and refer to **Cardiac Arrest – General Protocol.**
 - C. If patient is hypothermic, go to **Hypothermia Cardiac Arrest Protocol.**
3. **If pulse is present:**
 - A. Assess patient's temperature.
 - B. If patient is hypothermic, go to **Hypothermia/Frostbite Protocol.**
 - C. Prevent further heat loss by transport in a warm environment. Patient should be dry.
 - D. Consider CPAP if respiratory distress.
 - E. Contact Medical Control if no transport is considered or requested.

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GENERAL PRE-HOSPITAL CARE

Date: February 24, 2010

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General Pre-Hospital Care

In most cases, the stabilization of patients presenting with medical conditions should be carried out at the patient's side prior to patient movement or transport. Before attempting the following procedures, implement appropriate bloodborne and/or airborne pathogen protective procedures. Contact medical control according to local protocol.

Pediatric medical defined as 8 years and under. Pediatric trauma defined as reasonably appears 14 years or under.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Assure ABCs while maintaining C-Spine precautions where indicated.
2. Do airway intervention using appropriate airway adjuncts when necessary:

	MFR	EMT	EMT-S	EMT-P
Oralpharyngeal Airway	X	X	X	X
Nasopharyngeal Airway	X	X	X	X
Bag-Valve-Mask Ventilation	X	X	X	X
Supraglottic Airway (per MCA approval)		X	X	X
Oral / Nasal Endotracheal Intubation			X	X
Needle / Surgical Cricothyroidotomy				X
X: Approved Intervention				

3. Administer oxygen and assist ventilations. As indicated refer to the **Emergency Airway Procedure**. Use 2-person BVM technique whenever possible.
4. Obtain an appropriate history and physical exam.
5. Obtain vital signs approximately every 15 minutes, or more frequently as necessary to monitor the patient's condition (minimum 2 sets suggested).

SPECIALIST/PARAMEDIC

6. For pediatric with life threatening or potentially life threatening conditions measure with Broselow Pediatric Emergency Care tape to determine color.
7. Follow specific protocol for patient condition.
8. Establish vascular access per **Vascular Access Procedure**.

PARAMEDIC

9. Apply cardiac monitor and treat rhythm according to appropriate protocol. If available and applicable, obtain 12-lead EKG. A copy of the rhythm strip or 12-lead EKG should be attached to the patient care record and should be left at the receiving facility.
10. Consider use of capnography as appropriate and if available, per **Capnography Procedure**.

NOTE: When possible, take the patient's medications to the hospital.

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HEAT EMERGENCIES

Date: December 1, 2010

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Heat Emergencies

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Determine history/evidence of heat exposure.

EMT/SPECIALIST/PARAMEDIC

3. Check blood glucose and treat hypoglycemia per **Altered Mental Status Protocol**.

HEAT CRAMPS:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Move the patient to a cool environment and attempt oral liquids.
2. Contact Medical Control.

HEAT EXHAUSTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Move the patient to a cool environment.
2. Remove Tight Clothing.
3. Cool patient, provide air conditioning/fanning. Avoid chilling/shivering.

SPECIALIST/PARAMEDIC

4. IV NS 250 ml fluid bolus, repeat as indicated.
 - A. Patient may take oral fluid replacement rather than IV if no nausea. Allow oral intake of cool fluids or water (may use commercial sport/rehydration drinks if patient is alert). Do not permit patient to drink if altered mental status, abdominal pain or nausea. Avoid carbonated, alcoholic and caffeinated beverages.

EMT/SPECIALIST/PARAMEDIC

5. Contact Medical Control.

HEAT STROKE:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Move the patient to a cool environment.
2. Remove tight clothing.
3. Immediate cooling – provide air conditioning and fanning. Avoid chilling/shivering.
4. Place patient in semi-reclining position with head elevated.

SPECIALIST/PARAMEDIC

5. IV NS 250 ml fluid bolus, repeat as indicated.

EMT/SPECIALIST/PARAMEDIC

6. Contact Medical Control.

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HEAT EMERGENCIES

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Definitions:

Heat Cramps – Painful muscle spasms of the skeletal muscles that occur following heavy work or strenuous exercise in hot environments. Thought to be caused by rapid changes in extracellular fluid osmolarity resulting from fluid and sodium loss. Signs and symptoms include:

- Alert
- Muscle cramps (normally in muscles most recently heavily exercised)
- Hot, diaphoretic skin
- Tachycardia
- Normotensive

Heat Exhaustion – Patient presents with dizziness, nausea, headache, tachycardia, and possibly syncope. Usually from exposure to high ambient temperatures accompanied by dehydration due to poor fluid intake. Temperature is less than 103° F. Rapid recovery generally follows saline administration.

Heat Stroke – Patient should be treated as heat stroke if he/she has ALL of the following

- Exposure to hot environment, and
- Hot skin, and
- Altered mental status

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HYPOTHERMIA CARDIAC ARREST

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Hypothermia Cardiac Arrest

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Assess body temperature. If temperature is greater than 30° C (86° F), follow **Cardiac Arrest – General Protocol**
3. If pulseless, begin CPR.
4. Protect against heat loss.
5. Apply heat packs, if available, to axillae, groin, and neck.
6. Administer warmed humidified oxygen, if possible.

SPECIALIST/PARAMEDIC

7. Administer warmed NS IV/IO, if possible.

PARAMEDIC

8. Follow appropriate VF/VT or Asystole/PEA Protocols EXCEPT:
 - A. Limit defibrillation to a single attempt.
 - B. Medication Administration: follow appropriate cardiac arrhythmia treatment protocol with 1 round of medication.

EMT/SPECIALIST/PARAMEDIC

9. Initiate transport and contact Medical Control.

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HYPOTHERMIA/FROSTBITE

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Hypothermia/Frostbite

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**

HYPOTHERMIA:

MFR/EMT/SPECIALIST/PARAMEDIC

2. If cardiac arrest develops follow **Hypothermia Cardiac Arrest Protocol**.
3. Move patient to a warm dry place, remove wet clothing, wrap in warm blankets and protect from wind exposure.
4. If the patient's temperature is greater than 30° C (86° F) or patient shivering & conscious:
 - A. Apply heat packs to groin, axillae, and neck if possible.

EMT/SPECIALIST/PARAMEDIC

- B. Use warmed humidified oxygen if available.
 - C. If patient is alert, administer warm non-caffeinated beverages (if available) by mouth, slowly.
5. If patient temperature is less than 30° C (86° F)
 - A. Transport immediately.
 - B. Follow local MCA transport protocol.

SPECIALIST/PARAMEDIC

6. Administer warm NS IV fluid bolus, if available.
7. Use warmed humidified oxygen if available.

SUSPECTED FROSTBITE:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Remove wet or constricting clothing. Keep skin dry and protected from wind.
2. Do not allow the limb to thaw if there is a chance that limb may re-freeze before evacuation is complete or if patient must walk to transportation.
3. Dress injured areas lightly in clean cloth to protect from pressure, trauma or friction. Do not rub. Do not break blisters.
4. Keep patient warm.
5. Frostbitten areas should be supported and elevated during transport.

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HYPOTHERMIA/FROSTBITE

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PARAMEDIC

6. Per MCA selection, administer narcotic analgesic, as indicated.

NARCOTIC ANALGESIC OPTIONS
(Select Options)

- Fentanyl 50-100 mcg (1 mcg/kg) IV/IO, may repeat every 5 minutes until maximum of 3 mcg/kg.
- Morphine Sulfate 2-5 mg (0.05 mg/kg) IV, may repeat dose every 5 minutes until maximum of 20 mg.

Medication Administration Option
(Choose one)

- Pre- radio
- Post-radio

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Nausea & Vomiting

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Nausea & Vomiting

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.

SPECIALIST/PARAMEDIC

2. Administer NS 250 ml fluid bolus.
3. Hypotensive patients should receive additional fluid boluses, as indicated by hemodynamic state, in 250 ml increments and reassess. Continue fluid bolus to a maximum of 2 liters.

PARAMEDIC

4. Administer Ondansetron (Zofran) 4mg IV/IM.

Post-Medical Control

5. Repeat Ondansetron (Zofran) 4mg IV/IM.
6. For patients 8 years old and younger, contact Medical Control for direction.
7. Consider Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose 4 mg, for patients 8 years old and under.

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Adult Treatment Protocols
NON-CARDIAC CHEST PAIN

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Non-Cardiac Chest Pain

The purpose is to provide a process for the assessment and management of chest pain of various non-ischemic sources. This protocol may be used in conjunction with other dysrhythmia protocols.

Assessment

1. FOR CHEST PAIN SECONDARY TO **PNEUMONIA**:
 - A. Quality of pain:
 - a. May be pleuritic
 - b. Usually gradual onset
 - c. Duration usually constant
 - B. Associated symptoms and signs:
 - a. Fever
 - b. Shortness of breath
 - c. Productive cough
 - d. Rales, rhonchi, or diminished breath sounds (localized)
 - e. Nausea and/or vomiting
 - f. Associated flu-like symptoms
2. FOR CHEST PAIN SECONDARY TO **PULMONARY EMBOLUS**:
 - A. Quality of pain:
 - a. May be pleuritic
 - b. Usually sudden onset
 - c. Usually constant duration
 - B. Associated symptoms and signs:
 - a. Tachycardia
 - b. Tachypnea
 - c. Productive cough (may have blood tinged sputum)
 - d. Shortness of breath
 - e. Associated leg pain
 - C. Risk Factors:
 - a. Birth control pills
 - b. Clotting disorders
 - c. Pregnancy
 - d. Recent surgery or extended travel
 - e. Prolonged immobilization (including casts)
3. FOR CHEST PAIN SECONDARY TO **AORTIC DISSECTION**:
 - A. Quality of pain:
 - a. Usually sudden onset
 - b. Usually constant duration
 - B. History of aneurysm
 - C. Associated symptoms and signs:
 - a. Associated back pain
 - b. Associated neurological signs
 - c. Hypotension
 - d. Unequal peripheral pulses

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NON-CARDIAC CHEST PAIN

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Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow General **Pre-Hospital Care Protocol**.
2. For chest pain associated potential cardiac ischemia go to **Chest Pain / Acute Coronary Syndrome Protocol**.
3. For chest pain associated with inadequate perfusion, go to **Shock Protocol**

PARAMEDIC

4. Monitor EKG. **If a dysrhythmia** is present, go to the appropriate protocol.

Specific Management

1. Patient with CHEST PAIN SECONDARY TO PNEUMONIA:
 - A. Transport patient in position of comfort.
 - B. Refer to **Pain Management Procedure** as indicated.
 - C. Contact Medical Control
2. Patient with CHEST SECONDARY TO PULMONARY EMBOLUS:
 - A. Transport patient in position of comfort.
 - B. Refer to **Pain Management Procedure** as indicated.
 - C. Contact Medical Control
3. Patient with CHEST PAIN SECONDARY TO AORTIC DISSECTION:
 - A. Start a second IV in a manner not to delay transport. Rate to be determined by patient's clinical condition.
 - B. Refer to **Pain Management Procedure** as indicated.
 - C. Contact Medical Control.

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Adult Treatment Protocols
OBSTETRICAL EMERGENCIES

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Obstetrical Emergencies

Purpose: To provide the process for the assessment and management of the patient with an obstetrical related emergency.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**
2. Assessment Information
 - A. History:
 - a. Past Medical History: previous births, previous complications
 - b. Current History: duration of gestation (weeks), whether single or multiple births are expected.
 - B. Specific Objective Findings: vital signs, assess contractions
 - C. Determine whether to transport or remain at scene due to imminent delivery. Indications of impending imminent delivery may include:
 - a. Multiple pregnancy, strong regular contractions, every 2 minutes or less; ruptured membrane, bloody show, need to push or bear down, crowning
3. General Management
 - A. Utilize universal precautions
 - B. Evaluate and maintain airway, provide oxygen and support ventilation as needed.

SPECIALIST/PARAMEDIC

- C. Obtain vascular access, if time permits.

MFR/EMT/SPECIALIST/PARAMEDIC

4. Management of Normal Delivery
 - A. Have oxygen and suction readily available for care of the newborn.
 - B. **If signs of newborn delivery are imminent, and there is no time to transport, prepare for delivery.**
 - a. Try to find a place for maximum privacy and cleanliness.
 - b. Position patient on back, on stretcher if time permits or on bed.
 1. Monitor patient for signs of hypotension. If signs develop, position patient so weight of uterus is to patient's left side.
 - c. Drape if possible, using clean sheets.
 - d. Encourage mother to relax and take slow deep breaths through her mouth.
 - e. Reassure her throughout procedure.
 - f. As baby's head begins to emerge from vagina, support it gently with hand and towel to prevent an explosive delivery.
 1. If practical, mouth and nose should be suctioned.
 - g. After head is delivered look and feel to see if cord is wrapped around baby's neck.
 1. **If the cord is around neck and loose, slide gently over the head DO NOT TUG.**

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OBSTETRICAL EMERGENCIES

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2. **If the cord is around neck and snug**, clamp the cord with 2 clamps and cut between the clamps.
- h. As the shoulders deliver, carefully hold and support the head and shoulders as the body delivers, usually very suddenly – and the baby is very slippery! **Note the time of delivery.**
- i. Place the baby on its side with head lower than the body and **gently** suction mouth and then nose making sure the airway is clear.
- j. Prevent heat loss.
 1. Place baby in warm environment
 2. Dry baby off and remove all wet linen.
- k. Evaluate respirations
 1. **If the baby does not breathe spontaneously**, stimulate by gently rubbing its back or slapping the soles of its feet. If still no response, initiate ventilation with 100% high flow oxygen per **Pediatric Newborn Assessment, Treatment and Resuscitation Protocol.**
 2. If spontaneous breathing begins, administer oxygen for a few minutes until baby's color is pink.
- l. When infant is delivered and breathing normally, cord should be tied or clamped 8 inches from the infant with 2 clamps (ties) placed 2 inches apart. Cut the cord between the clamps, and assure that no bleeding occurs.
 1. If child is being resuscitated or is in distress, the cord may be cut and clamped and kept moist with a small dressing. (In case Umbilical Vein IV is needed.)
- m. Score APGAR at one minute and five minutes after delivery. Refer to **Pediatric Newborn Assessment, Treatment and Resuscitation Protocol** if APGAR is less than 6.
- n. When delivery of baby is complete, prepare for immediate transport. Placenta can be delivered in route or at the hospital
- o. Delivery of placenta generally takes place within 20 minutes.
- p. Following placental delivery, massage the uterus to aid in contraction of the uterus.
- q. Place placenta in basin or plastic bag and transport with mother.

EMT/SPECIALIST/PARAMEDIC

- r. Contact Medical Control.

SPECIALIST/PARAMEDIC

5. If there is visible meconium in the airway,
 - A. The patient should be intubated and the lower airway suctioned via ET tube [with LOW PRESSURE (80-120 mmHg) suction to the tube]
 - B. Repeat suction with a new ET tube each time suctioning is performed.

MFR/EMT/SPECIALIST/PARAMEDIC

6. Abnormal Deliveries
 - A. Contact Medical Control as soon as appropriate.

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OBSTETRICAL EMERGENCIES

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B. Breech position

- a. Allow buttocks and trunk to deliver spontaneously.
- b. Once legs are clear, support body on the palm of your hand and surface of your arm, allowing head to deliver.
- c. If the head doesn't deliver immediately, transport rapidly to the hospital with mother's buttocks elevated on pillows with baby's airway maintained throughout transfer.
 1. Place **gloved** hand in the vagina with your palm towards the baby's face. Form a "V" with your fingers on either side of the baby's nose and push the vaginal wall away from baby's face until the head is delivered.

C. Prolapsed Cord – Life Threatening Condition

- a. Place mother in a supine position with hips supported on a pillow.
- b. Evaluate and maintain airway, provide oxygen.
- c. **With sterile gloved hand, gently push** the baby up the vagina several inches to release pressure on the cord.
- d. **DO NOT ATEMPT TO PUSH CORD BACK!**
- e. Transport maintaining pressure on baby's head.

D. Arm or limb presentation – Life threatening condition.

- a. Immediate transportation
- b. Delivery should not be attempted outside the hospital.
- c. Place mother in position of comfort or with hips elevated on pillow.
- d. Evaluate and maintain airway, provide oxygen.

E. Multiple births

- a. Immediate transportation
- b. Multiple birth infants are typically small birth weight and will need careful management to maintain body heat.
- c. After first infant is delivered, clamp cord and proceed through airway, drying and warming procedures while awaiting delivery of other births, (See steps 3a.)
- d. Prepare additional supplies for subsequent births.
- e. There may be time to transport between births.

7. Pre-eclampsia/Eclampsia

A. Signs of preeclampsia

- a. BP 160/110 or higher
- b. Marked peripheral edema
- c. Diminished level of consciousness
- d. Seizure (eclampsia)

B. Immediate transport

PARAMEDIC

- C. If seizure occurs, administer Magnesium sulfate, 1 gm/minute IV until seizure stops (dosage: 2-4 gm)

Post-Medical Control

PARAMEDIC

- D. If seizure persists, administer additional Magnesium sulfate 2 gms IVP.

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E. Per MCA selection administer additional Diazepam or Midazolam or Lorazepam.

<u>Benzodiazepine Options</u> (Choose One)	
<input checked="" type="checkbox"/>	Diazepam 2 - 10 mg (0.1 mg/kg) IV/IO or 2 – 10 mg (0.5 mg/kg) rectally
OR	
<input type="checkbox"/>	Midazolam 2 - 5 mg (0.05 mg/kg) IV/IO/IM
OR	
<input type="checkbox"/>	Lorazepam 1 – 4 mg (0.1 mg/kg) IV/IO

MFR/EMT/SPECIALIST/PARAMEDIC

APGAR Scoring

1. Procedure for immediately evaluating a newborn baby.
 - A. Based on:
 - a. A – appearance (color)
 - b. P – pulse (heart rate)
 - c. G – grimace (reflex irritability to slap on sole of foot)
 - d. A – activity (muscle tone)
 - e. R – respiration (respiratory effort)
2. Each parameter gets a score of 0 to 2.
3. APGAR score should be checked at 1 minute and 5 minutes post delivery.

APGAR SCORING

Sign	0	1	2
Appearance – skin color	Bluish or paleness	Pink or ruddy; hands or feet are blue	Pink or ruddy; entire body
Pulse – heart rate	Absent	Below 100	Over 100
Grimace – reflex irritability to foot slap	No response	Crying; some motion	Crying; vigorous
Activity – muscle tone	Limp	Some flexion of extremities	Active; good motion in extremities
Respiratory effort	Absent	Slow and Irregular	Normal; crying

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POISONING/OVERDOSE

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Poisoning/Overdose

Pre-Medical Control

GENERAL MANAGEMENT OF TOXIC EXPOSURE (INCLUDING INGESTION)
MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Use proper protective equipment and prepare for decontamination if necessary.
3. Remove clothing exposed to chemical (dry decon).
4. Identification of the substance (patient has been exposed to).

EMT/SPECIALIST/PARAMEDIC

5. Alert receiving hospital if patient may present HAZMAT risk.
6. Sample of drug or substance and any medication or poison containers should be brought in with patient if it does NOT pose a risk to rescuers.

PARAMEDIC

7. Refer to **Pain Management Procedure**

INHALATION EXPOSURES:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Dilute noxious gas inhaled (including carbon monoxide & smoke), ensure high concentration of oxygen is provided.
2. If suspected cyanide gas exposure, refer to **Cyanide Exposure Protocol** and contact medical control immediately.

EYE CONTAMINATION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Irrigate continuously with Normal Saline or tap water for 15 minutes (attempt to continue enroute) or as directed by Medical Control.
2. For alkali exposure, maintain continuous irrigation.

PARAMEDIC

3. If available, administer Tetracaine, 1-2 drops per eye to facilitate irrigation. Ensure patient does not rub eye.

Tetracaine included:

- YES
 NO

SKIN ABSORPTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Irrigate continuously with Normal Saline, or tap water for 15 minutes or as directed by Medical Control.

INGESTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. If altered mental status, refer to **Altered Mental Status Protocol**.
2. If respiratory distress, refer to **Respiratory Distress Protocol**.
3. If the patient is seizing, refer to **Seizure Protocol**.

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PARAMEDIC

4. If cardiac dysrhythmia, refer to appropriate dysrhythmia protocol.

DRUG/CHEMICAL/PLANT/MUSHROOM INGESTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Use protective eye equipment.
2. In situations of potential ingestion or inhalation of petroleum distillates, do NOT induce vomiting.
3. Monitor the patient's respiratory and mental status very closely.
4. If patient is alert and oriented, prepare for emesis; recover and save emesis. Use appropriate barriers according to universal precautions guidelines.

PARAMEDIC

5. For symptomatic tricyclic antidepressant ingestions (tachycardia, wide complex QRS), administer sodium bicarbonate 50 mEq IV, repeat as needed.
6. For extrapyramidal dystonic reactions, administer diphenhydramine 50 mg IV.
7. For symptomatic calcium channel blocker overdose, consider calcium chloride 1 gm IV.
8. For respiratory compromise or hemodynamic instability with narcotic overdose, consider naloxone 2 mg IV.

ORGANOPHOSPHATE EXPOSURE (MALATHION, PARATHION)

MFR/EMT/SPECIALIST/PARAMEDIC

1. Administer Mark I Kit/Duo Dote auto injector per **Nerve Agent/Organophosphate Pesticide Exposure Treatment Protocol**.
2. Mild or moderate symptoms
 - a. 1 Mark I Kit/Duo Dote auto injector
3. Severe signs & symptoms
 - b. 3 Mark I Kits/Duo Dote auto injectors
 - c. If 3 Mark I Kit/Duo Dote auto injectors are used, administer 1st dose of benzodiazepine, if available.

PARAMEDIC

4. If Mark I Kit/Duo Dote auto injector is not available, administer Atropine 2 mg IV/IM (if available) per each Mark I Kit/Duo Dote auto injector indicated (each Mark I Kit contains 2 mg of Atropine) repeated every 5 minutes until "SLUDGEM" symptoms improve or as directed. (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermotility, Emesis, Muscle twitching or spasm).

MANAGEMENT OF BITES AND STINGS

SPIDERS, SNAKES AND SCORPIONS :

MFR/EMT/SPECIALIST/PARAMEDIC

1. Protect rescuers. Bring in spider, snake or scorpion if captured and contained or if dead for accurate identification.

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2. Ice for comfort on spider or scorpion bite; DO NOT apply ice to snake bites.

BEES AND WASPS:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Remove sting mechanism from honey bees only by scraping out. Do not squeeze venom sac if this remains on stinger.
2. Provide wound care.
3. Observe patient for signs of systemic allergic reaction. Treat anaphylaxis per **Anaphylaxis/Allergic Reaction Protocol.**

Post-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Other specific poisonings may be managed per specific medical control protocol.

Toxic Cases	Treatment
Beta blocker OD	Glucagon, if available
Ca Channel Blockers	CaCl ₂ , Glucagon, if available
Tri-cyclic antidepressants	NaHCO ₃ , MgSO ₄
Organophosphates	Atropine, 2-PAM per CBRNE Protocol
Narcotics	Naloxone
CO poison	O ₂

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PSYCHIATRIC EMERGENCIES

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Psychiatric Emergencies

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Assure scene is secure.
2. Follow **General Pre-hospital Care Protocol**.
3. Note history.
 - A. Current history: head injury, overdose/intoxication, central nervous system disease or infection, hypoglycemia, postictal state, or hypoxia.
4. If patient becomes violent or actions present a threat to patient's safety or that of others, restraint may be necessary. Refer to **Physical Patient Restraint Procedure**.
5. If medical emergency, follow appropriate protocol.

Post-Medical Control

PARAMEDIC

1. If chemical restraint necessary, refer to **Patient Sedation Procedure**.

Definitions:

1. **Protective Custody** - The temporary custody of an individual by a law enforcement officer with or without the individual's consent for the purpose of protecting that individual's health and safety, or the health and safety of the public and for the purpose of transporting the individual if the individual appears, in the judgment of the law enforcement officer, to be a person requiring treatment. Protective custody is civil in nature and is not to be construed as an arrest. (330.401, Sec. 410, Michigan Mental Health Code)
2. **Authority to Restrain** - EMS personnel are able to restrain and treat and transport an individual under authority of Sec 20969 of Public Act 368 which states: *"This part and the rules promulgated under this part do not authorize medical treatment for or transportation to a hospital of an individual who objects to the treatment or transportation. However, if emergency medical services personnel, exercising professional judgment, determine that the individual's condition makes the individual incapable of competently objecting to treatment or transportation, emergency medical services may provide treatment or transportation despite the individual's objections unless the objection is expressly based on the individual's religious beliefs."*

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RESPIRATORY DISTRESS

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Respiratory Distress

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**
2. Allow patient a position of comfort.
3. **Determine the type of respiratory problem involved:**

STRIDOR/UPPER AIRWAY OBSTRUCTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Complete Obstruction:
 - a. Follow **Obstructed Airway Procedure**.
2. Partial Obstruction: epiglottitis, foreign body, anaphylaxis:
 - a. Follow **Obstructed Airway Procedure**.
 - b. Consider anaphylaxis (see **Anaphylaxis/Allergic Reaction Protocol**).
 - c. Transport in position of comfort.

CLEAR BREATH SOUNDS:

PARAMEDIC

1. Possible hyperventilation, metabolic problems, MI, pulmonary embolus
 - a. Obtain 12-lead EKG, if available.

CRACKLES (CHF/PULMONARY EDEMA):

MFR/EMT/SPECIALIST/PARAMEDIC

1. Refer to the **Pulmonary Edema/CHF** protocol in the adult cardiac protocols.

RHONCHI (SUSPECTED PNEUMONIA):

MFR/EMT/SPECIALIST/PARAMEDIC

1. Sit patient upright.

SPECIALIST/PARAMEDIC

2. Consider 250 ml NS fluid bolus if tachycardia, repeat as needed.

PARAMEDIC

3. Consider CPAP/BiPAP per procedure.

ASYMETRICAL BREATH SOUNDS:

PARAMEDIC

1. If evidence of tension pneumothorax and patient unstable, consider decompression (refer to **Pleural Decompression Procedure**)

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RESPIRATORY DISTRESS

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WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):

Bronchodilator Options

Albuterol 2.5 mg/3 ml NS nebulized

OR

Albuterol 2.5 mg/3 ml NS & Ipratropium 500 mcg

Medication Options:

Prednisone
50 mg tablet PO

YES NO

Methylprednisolone
125 mg IV

YES NO

MFR/EMT/SPECIALIST

1. Assist the patient in using their own Albuterol Inhaler, if available.

EMT/SPECIALIST

2. Administer Albuterol 2.5 mg/3ml nebulized if available, repeat as indicated.

PARAMEDIC

11. Per MCA selection, administer Albuterol nebulized **OR** Albuterol and Ipratropium nebulized if wheezing or airway constriction.
12. Administer additional Albuterol 2.5 mg/3 ml NS nebulized, as needed, if wheezing or airway constriction persists.
13. Per MCA Selection, if a second nebulized treatment is needed, administer Prednisone **OR** Methylprednisolone.
14. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

Post -Medical Control:

Asthma:

1. Consider Epinephrine 1:1,000, 0.3 mg (0.3 ml) IM.
2. Consider Magnesium sulfate 2gms slow IVP in refractory Status Asthmaticus.

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SEIZURES

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Seizures

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. **IF PATIENT IS ACTIVELY SEIZING:**
 - A. Protect patient from injury.
 - B. Do not force anything between teeth.

PARAMEDIC

- C. If patient is pregnant (eclampsia)
 - a. Administer Magnesium sulfate, 1 gm/minute IV until seizure stops (dosage: 2-4 gm)
 - b. If eclampsia seizure does not stop after magnesium, then administer benzodiazepine per MCA selection.

<u>Benzodiazepine Options</u> (Choose One)	
<input checked="" type="checkbox"/>	Diazepam 2 - 10 mg (0.1 mg/kg) IV/IO or 2 – 10 mg (0.5 mg/kg) rectally
OR	
<input type="checkbox"/>	Midazolam 2 - 5 mg (0.05 mg/kg) IV/IO/IM
OR	
<input type="checkbox"/>	Lorazepam 1 – 4 mg (0.1 mg/kg) IV/IO

<u>Glucagon</u> 1 mg IM	
<input type="checkbox"/>	Included
<input checked="" type="checkbox"/>	Not Included

- D. Per MCA selection, administer Diazepam, Midazolam or Lorazepam.
- E. If blood glucose is found to be less than 60 mg/dl or hypoglycemia is suspected:
 - a. Administer dextrose 50%, 25 gms (50 ml) IVP.
 - b. If no IV access, per MCA selection, administer glucagon 1 mg IM.

EMT/SPECIALIST/PARAMEDIC

3. **IF PATIENT IS NOT CURRENTLY SEIZING, BUT HAS ALTERED MENTAL STATUS**
 - A. Measure blood glucose level.

EMT/SPECIALIST

- B. If glucose is less than 60 mg/dl and awake, administer oral glucose or oral high caloric fluid if available.

PARAMEDIC

- C. If blood glucose is found to be less than 60 mg/dl, or hypoglycemia is suspected:
 - a. Administer dextrose 50%, 25 gms (50 ml) IVP.
 - b. If no IV access, per MCA selection, administer glucagon 1 mg IM

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SEIZURES

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4. IF PATIENT IS ALERT
SPECIALIST/PARAMEDIC

A. Obtain vascular access.

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SHOCK

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Shock

Assessment: Consider multiple etiologies of shock (hypovolemic, distributive – neurogenic, septic and anaphylactic, and cardiogenic)

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Control major bleeding
3. Position patient:
 - A. Left lateral recumbent if 3rd trimester pregnancy.
 - B. Elevate legs 10-12 inches.
4. Remove all transdermal patches using gloves.
5. **Immediate load and transport for unstable patients.**
6. Follow local MCA transport protocol.

SPECIALIST/PARAMEDIC

7. Obtain vascular access (in a manner that will not delay transport).
 - A. Administer 250 ml NS fluid bolus unless patient in pulmonary edema.
 - B. Repeat bolus as necessary.
8. Establish second large bore IV of Normal Saline enroute to hospital, if possible.

PARAMEDIC

9. Obtain 12-lead EKG if available.

Post-Medical Control

SPECIALIST/PARAMEDIC

1. Additional IV fluid bolus.

PARAMEDIC

If BP is less than 100 mmHg and signs/symptoms of cardiogenic or spinal shock, administer Dopamine 5-20 mcg/kg/min. Generally start at 5 mcg/kg/min, and increase every 10 minutes by an additional 5 mcg/kg/min until BP greater than 100 mmHg. DO NOT exceed 20 mcg/kg/min unless ordered by medical control.

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SOFT TISSUE AND ORTHOPEDIC INJURIES

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SOFT TISSUE AND ORTHOPEDIC INJURIES

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. If appropriate, stabilize cervical spine and immobilize patient per **Spinal Immobilization Procedure**.
3. Assess and maintain adequacy of neurovascular function before and after immobilization.
4. Attempt to control all bleeding.
 - A. Utilize direct pressure.
 - B. Use dressing and bandaging as needed.
 - C. Elevate and immobilize for additional control.
 - D. Utilize pressure points if direct pressure fails to control hemorrhage.
 - E. Use of tourniquet as indicated according to procedure.
5. Assess pain on 1-10 scale.

PARAMEDIC

PAIN MEDICATION OPTION
(Choose One)

- Pre-Medical Control Order
OR
 Post-Medical Control Order

NARCOTIC ANALGESIC OPTIONS
(Select Options)

- Fentanyl 50 – 100 mcg (1 mcg/kg) IV/IO, may repeat every 5 minutes until maximum of 3 mcg/kg
- Morphine Sulfate 2-5 mg (0.05 mg/kg) IV, may repeat dose every 5 minutes until maximum of 20 mg.

6. If Analgesia indicated:
 - A. Administer narcotic analgesic per MCA selection.
 - B. Reassess and document 1-10 pain score after each dose of analgesia.

MFR/EMT/SPECIALIST/PARAMEDIC

7. Immobilize or splint orthopedic injuries as appropriate
 - A. Traction splinting is for isolated femur fractures.
 - B. Straighten severely angulated fractures if distal extremity has signs of decreased perfusion.
 - C. Consider pelvic binder (if available) for suspected pelvis fracture with hypotension.
8. **Partial/complete amputations and/or severe crush injuries**
 - A. Cover wounds with sterile gauze dressings moistened with normal saline.
 - B. Align in anatomical position if indicated. Splint and elevate extremity.
 - C. Recoverable amputated parts should be brought to hospital as soon as possible.

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- D. Wrap amputated part in sterile gauze dressing moistened with normal saline. Seal in a plastic bag and, if available, place bag in container of ice and water. DO NOT place part directly on ice or dry ice.
- E. Continuous monitoring of circulation, sensation, and motion distal to the injury during transport.
9. Impaled objects are left in place and stabilized. Removal of impaled objects is only with approval of medical control.

10. Follow local MCA transport protocol.

Post-Medical Control:

PARAMEDIC

1. Consideration sedation per **Patient Sedation Procedure**.

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SPINAL INJURY ASSESSMENT

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Spinal Injury Assessment

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care protocol**.
2. Assess the mechanism of injury
3. Negative mechanism does not need a spine injury clinical assessment
4. Patients with mechanism of injury with the potential for causing spine injury shall have a spine injury clinical assessment performed.
5. Clinical criteria are used as the basis for assessment. If any of the clinical criteria are present or if the assessment cannot be completed, the patient has a positive spine injury assessment.
6. If the mechanism of injury with the potential for causing spine injury exists, the following clinical criteria are assessed:
 - A. Altered mental status
 - B. Use of intoxicants
 - C. Suspected extremity fracture
 - D. Motor and/or sensory deficit
 - E. Spine pain and/or tenderness
7. If any of the clinical criteria are present the patient has a positive spine injury assessment. If none of the clinical criteria are present the patient has a negative spine injury assessment.
8. Patients with a positive spine injury assessment should have spinal precautions maintained during movement and transport. Refer to **Spinal Immobilization Procedure**.
9. Patients over the age of 65 with a mechanism of injury with the potential for causing spine injury will have a rigid extrication collar applied even if the spinal injury clinical assessment is negative.

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SYNCOPE

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Syncope

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.
2. Place patient supine
 - A. If third trimester pregnancy, position patient left lateral recumbent.
3. If patient's mental status remains altered, refer to **Altered Mental Status Protocol**.

EMT/SPECIALIST/PARAMEDIC

4. Measure blood glucose if less than 60 mg/dl, refer to **Altered Mental Status Protocol**.

PARAMEDIC

5. Obtain 12-lead EKG, if available.

Post Medical Control

SPECIALIST/PARAMEDIC

1. Additional IV fluids as ordered.