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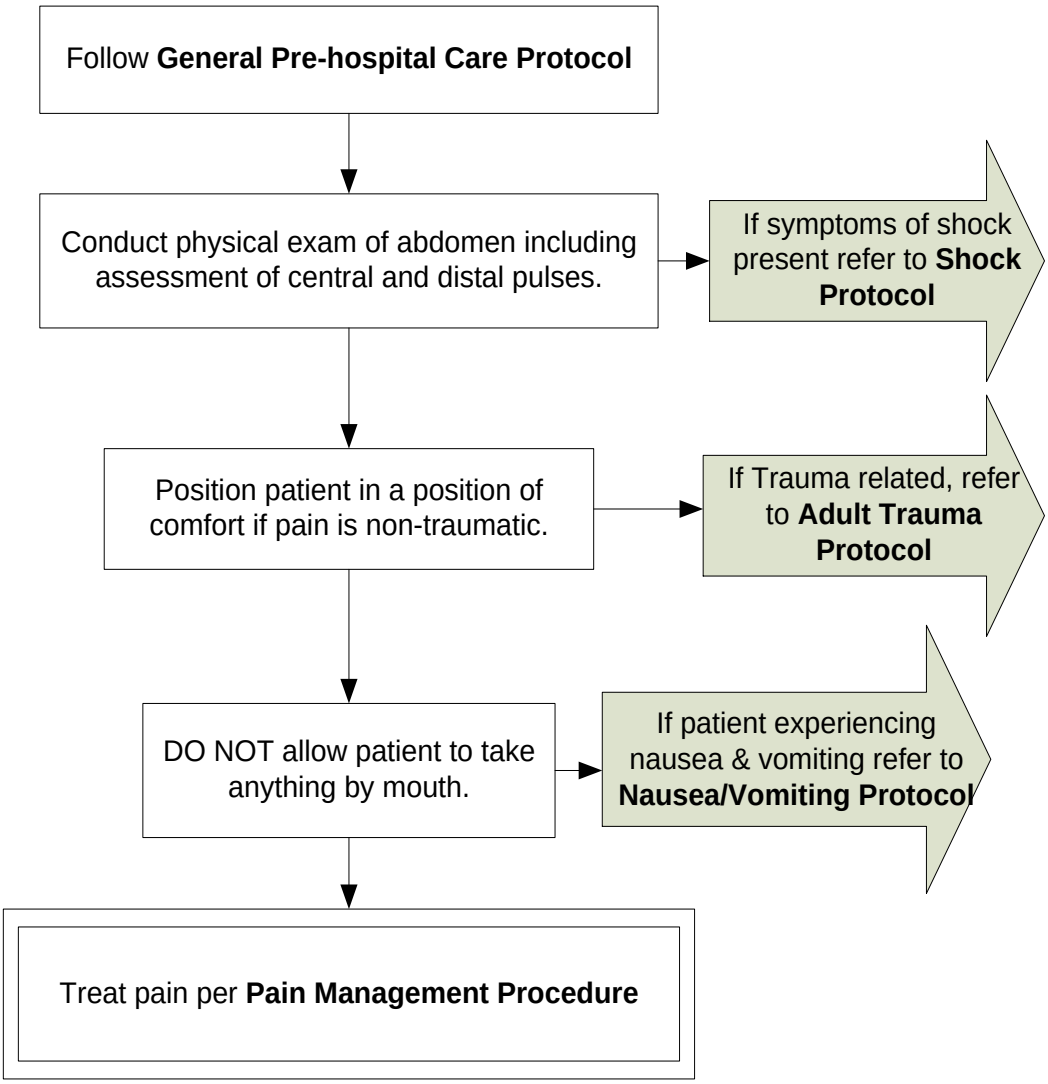
Abdominal Pain (Non-traumatic)

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. Treat pain per **Pain Management Procedure**.


Follow **General Pre-hospital Care Protocol**
Conduct physical exam of abdomen including assessment of central and distal pulses.
If symptoms of shock present refer to **Shock Protocol**
Position patient in a position of comfort if pain is non-traumatic.
If Trauma related, refer to **Adult Trauma Protocol**
DO NOT allow patient to take anything by mouth.
If patient experiencing nausea & vomiting refer to **Nausea/Vomiting Protocol**
Treat pain per **Pain Management Procedure**

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.

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. Consider tourniquet use when applicable (refer to **Tourniquet Application Procedure)**
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 a NS IV/IO fluid bolus up to 1 liter, wide open. 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, or FDA **and** MCA approved commercial device. Release dressing if worsened shortness of breath, or signs of tension pneumothorax.

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

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.

Follow **General Pre-hospital Care Protocol**
Consider Rapid Extrication

- Stabilize spinal column while opening airway, determine level of consciousness. Refer to **Spinal Injury Assessment Protocol.**
- Manage airway ventilation per **Emergency Airway Procedure.**
- DO NOT HYPERVENTILATE
- Control major external bleeding
- Consider tourniquet use when applicable (refer to **Tourniquet Application Procedure)**.
- If shock present, refer to **Shock Protocol**
- Initiate transport.
- Alert receiving hospital; note mechanism of injury.
- Consider vascular access
- If hypotensive, administer a NS IV/IO fluid bolus up to 1 liter, wide open, repeat as indicated.

→ Refer to **Mass Casualty Incidents Protocol** if appropriate

→ Refer to **Pain Management Procedure**

Chest Injury

- Control hemorrhage
- Diminished or absent breath sounds:
  - Closely monitor airway & provide for early maintenance.
  - Provide high concentration of oxygen, and early assistance of ventilation if, indicated.
  - Look for life threatening respiratory problems & stabilize.
  - For sucking chest wounds cover wound with occlusive dressing sealed on 3 sides or FDA **and** MCA approved commercial device. Release dressing if worsened shortness of breath or tension pneumothorax.
  - Tension pneumothorax suspected, needle decompression, control external bleeding and complete spinal immobilization. Refer to **Pleural Decompression Procedure**.

Abdominal Injury

- 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

- Follow appropriate protocols

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 **Patient Restraint Procedure**.

MFR/EMT/SPECIALIST

3. For a known diabetic, consider small amounts of oral glucose paste, buccal or sublingual.

EMT/SPECIALIST/PARAMEDIC

4. **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.
5. **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.

SPECIALIST/PARAMEDIC

6. If glucose is less than 60 mg/dl, and patient is demonstrating signs of hypoglycemia:
    A. Administer Dextrose 50%, 25 grams (50 ml) IV or small amounts of oral glucose paste, buccal or sublingual.
    B. Per MCA selection, if unable to start IV, when Dextrose 50% is indicated, administer glucagon.

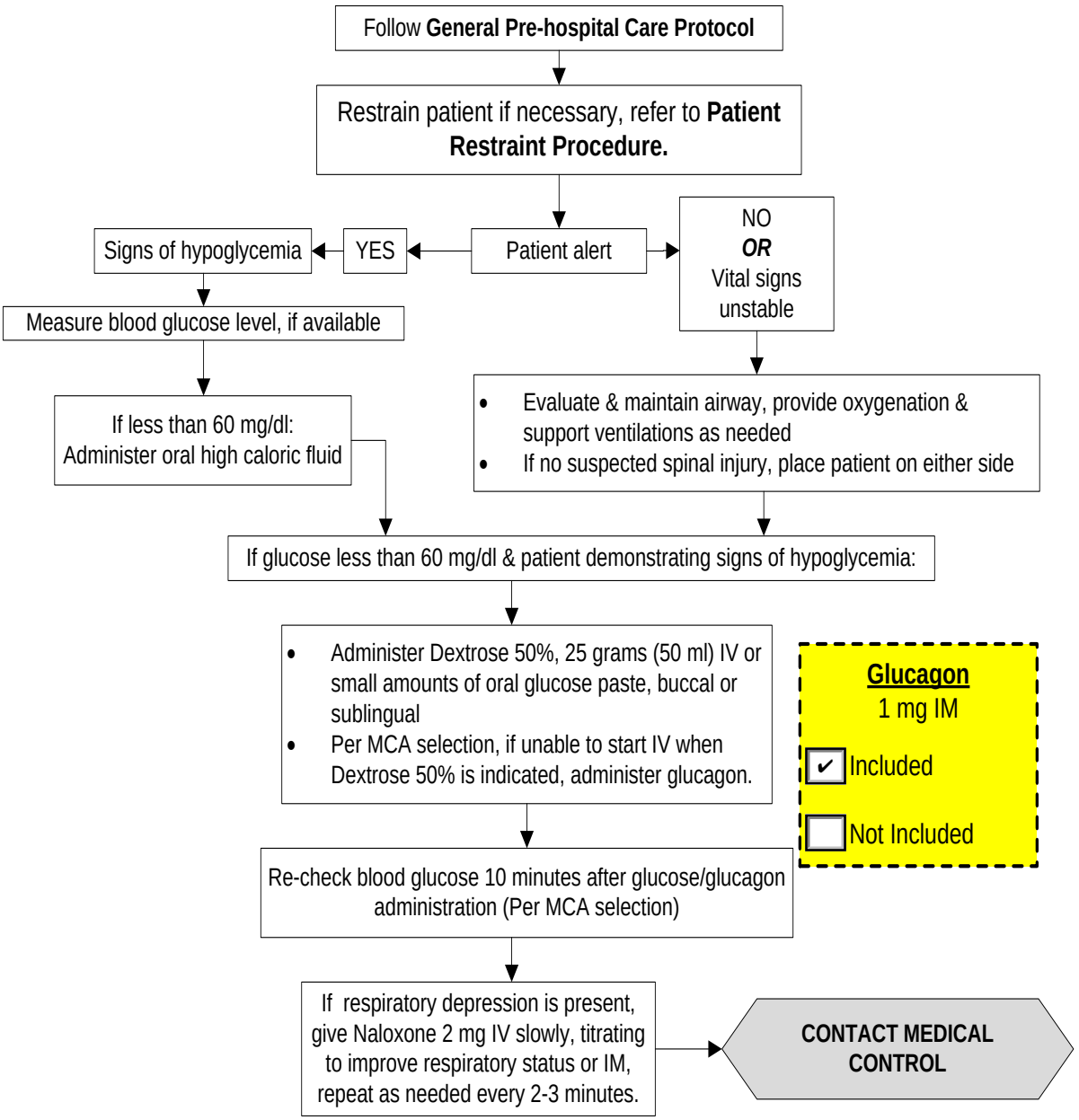
Glucagon
1 mg IM
☑ Included
☐ Not Included

7. Recheck the blood glucose 10 minutes after glucose/glucagon administration (Per MCA selection).

8. If respiratory depression is present, administer Naloxone up to 2 mg IV slowly, titrating to improve respiratory status or IM , repeat as needed every 2-3 minutes.

9. Contact Medical Control.

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.



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.
5. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.

SPECIALIST/PARAMEDIC

6. Administer a NS IV/IO fluid bolus up to 1 liter, wide open as indicated.

PARAMEDIC

7. If patient is symptomatic, administer diphenhydramine 50 mg IM or IV/IO.
8. In cases of severe allergic reaction, wheezing or hypotension:
    A. Administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via auto-injector.
9. In cases of profound anaphylactic shock (near cardiac arrest):
    A. Administer Epinephrine 1:10,000, 0.3 mg (3 ml) slow IV/IO.
10. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**.
11. Per MCA Selection, administer Prednisone **OR** Methylprednisolone.

Medication Options:

Prednisone
50 mg tablet PO

☐ YES ☑ NO

Methylprednisolone
125 mg IV

☑ YES ☐ NO

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; or Epinephrine 1:10,000 0.3 mg (3ml) slow IV/IO if critically ill (near cardiac arrest).

Follow **General Pre-hospital Care Protocol**

↓

Determine substance or source of exposure, remove patient from source if known and able.
Assist patient in administration of their own epinephrine auto-injector, if available.

↓

In cases of severe allergic reaction, wheezing or hypotension: Administer Epinephrine via auto-injector

Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**

↓

Administer a NS IV/IO fluid bolus up to 1 liter, wide open as indicated.

↓

- If patient is sympotmatic, administer Diphenhydramine 50 mg IM or IV/IO
- In cases of severe allergic reaction, wheezing or hypotension:
  - Administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via auto-injector.
- In cases of profound anaphylactic shock (near cardiac arrest):
  - Administer Epinephrine 1:10,000, 0.3 mg (3 ml) slow IV/IO.

↓

Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**

↓

Per MCA selection, administer Prednisone OR Methylprednisolone

↓

Contact Medical Control

↓

Additional Epinephrine 1:1,000, 0.3 mg (0.3 ml) IM or Epinephrine 1:10,000, 0.3 mg (3 ml) slow IV/IO if critically ill (near cardiac arrest.)

Medication Options:

Prednisone
50 mg tablet PO

☐ YES ☑ NO

Methylprednisolone
125 mg IV

☑ YES ☐ NO

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 ECG 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. Administer NS IV/IO fluid bolus up to 1 liter wide open for hypotension or severe burn greater that 15% BSA. Repeat as indicated.
3. Follow local MCA transport protocol.

PARAMEDIC

4. Administer Analgesic Medication. Refer to **Pain Management Procedure**.

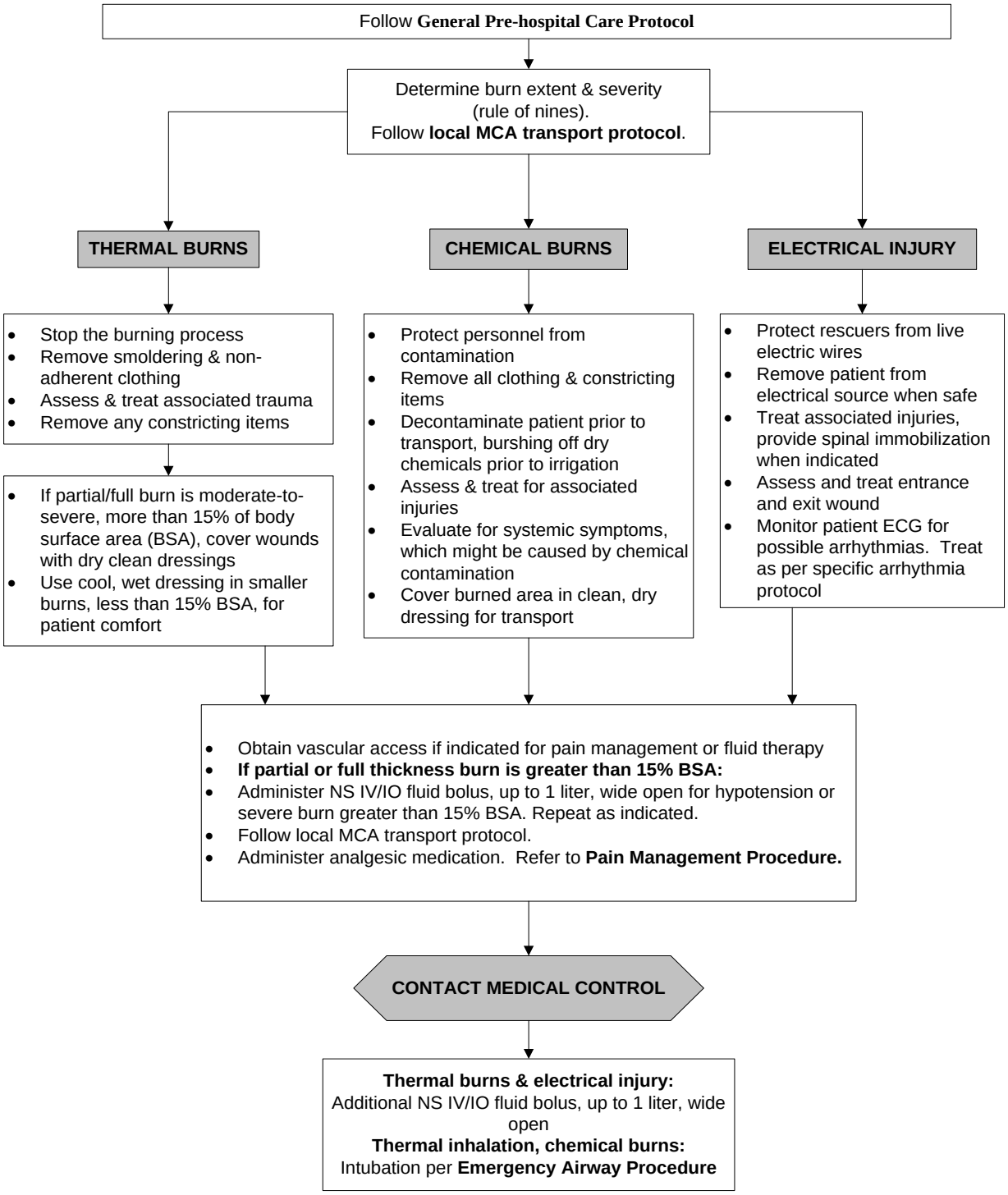
Post-Medical Control

Thermal Burns and Electrical Injury:

1. Additional NS IV/IO fluid bolus, up to 1 liter, wide open.

Thermal inhalation, chemical burns:

2. Intubation per **Emergency Airway Procedure**.


Follow **General Pre-hospital Care Protocol**
Determine burn extent & severity (rule of nines). Follow **local MCA transport protocol**.
THERMAL BURNS
CHEMICAL BURNS
ELECTRICAL INJURY
• Stop the burning process
• Remove smoldering & non-adherent clothing
• Assess & treat associated trauma
• Remove any constricting items
• If partial/full burn is moderate-to-severe, more than 15% of body surface area (BSA), cover wounds with dry clean dressings
• Use cool, wet dressing in smaller burns, less than 15% BSA, for patient comfort
• Protect personnel from contamination
• Remove all clothing & constricting items
• Decontaminate patient prior to transport, burshing off dry chemicals prior to irrigation
• Assess & treat for associated injuries
• Evaluate for systemic symptoms, which might be caused by chemical contamination
• Cover burned area in clean, dry dressing for transport
• Protect rescuers from live electric wires
• Remove patient from electrical source when safe
• Treat associated injuries, provide spinal immobilization when indicated
• Assess and treat entrance and exit wound
• Monitor patient ECG for possible arrhythmias. Treat as per specific arrhythmia protocol
• Obtain vascular access if indicated for pain management or fluid therapy
• **If partial or full thickness burn is greater than 15% BSA:**
• Administer NS IV/IO fluid bolus, up to 1 liter, wide open for hypotension or severe burn greater than 15% BSA. Repeat as indicated.
• Follow local MCA transport protocol.
• Administer analgesic medication. Refer to **Pain Management Procedure.**
CONTACT MEDICAL CONTROL
Thermal burns & electrical injury:
Additional NS IV/IO fluid bolus, up to 1 liter, wide open
Thermal inhalation, chemical burns:
Intubation per **Emergency Airway Procedure**

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 **Seizures 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.

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

SPECIALIST/PARAMEDIC

8. Initiate vascular access.

PARAMEDIC

9. Monitor ECG. (**DO NOT** delay scene time for IV and ECG monitoring.)

Follow **General Pre-hospital Care Protocol**

Measure blood glucose
If blood glucose is less than 60 mg/dl

YES → Follow **Altered Mental Status Protocol**

NO

Current Seizure Activity

YES → Follow **Seizure Protocol**

NO

Utilize the Cincinnati Pre-hospital Stroke Scale. Try to elicit the following signs:

Face - facial droop present (have patient show teeth or smile)

Arm - arm drift present (have patient close eyes and hold arms straight out for 10 seconds)

Abnormal Speech – (have patient say the sky is blue in Michigan)

Document time last seen normal (for patient)

- Minimize scene time and begin transport.
- Make contact with destination hospital, notify as soon as possible.
- Initiate vascular access.
- Monitor ECG. (**DO NOT** delay scene time for IV and ECG monitoring.)

Drowning/Near Drowning/Submersion

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

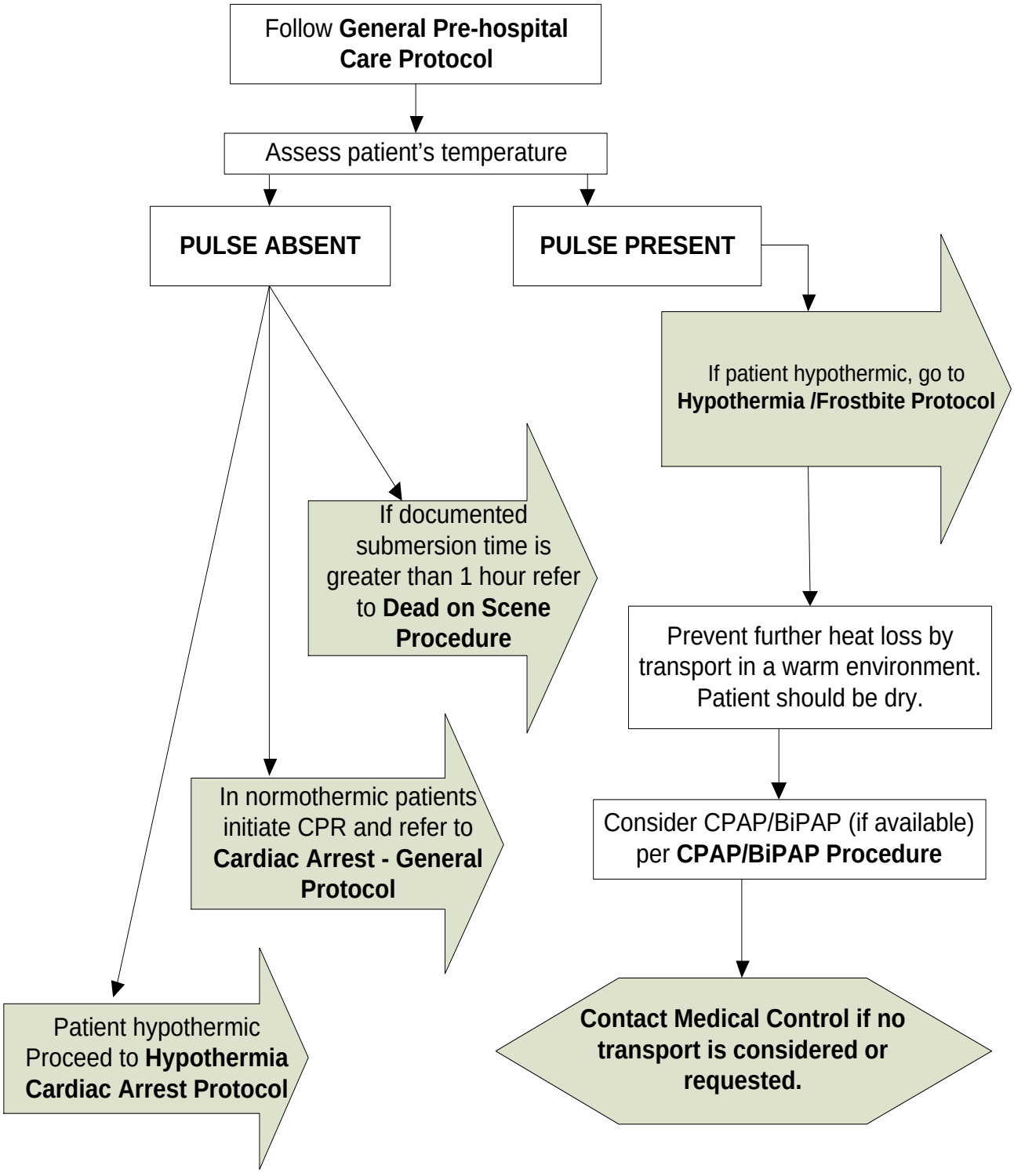
1. Follow **General Pre-hospital Care Protocol.**
    a. Assess patient's temperature.

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. If patient is hypothermic, go to **Hypothermia/Frostbite Protocol**.
    B. Prevent further heat loss by transport in a warm environment. Patient should be dry.

EMT/SPECIALIST/PARAMEDIC

C. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure.**
D. Contact Medical Control if no transport is considered or requested.


Follow **General Pre-hospital Care Protocol**
Assess patient's temperature
PULSE ABSENT
PULSE PRESENT
If patient hypothermic, go to **Hypothermia /Frostbite Protocol**
If documented submersion time is greater than 1 hour refer to **Dead on Scene Procedure**
Prevent further heat loss by transport in a warm environment. Patient should be dry.
In normothermic patients initiate CPR and refer to **Cardiac Arrest - General Protocol**
Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**
Patient hypothermic Proceed to **Hypothermia Cardiac Arrest Protocol**
Contact Medical Control if no transport is considered or requested.

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 blood borne and/or airborne pathogen protective procedures. Contact medical control according to local protocol.

Unless otherwise stated, pediatric protocols will apply to patients less than or equal to 14 years of age. If the patient's age is not known, then pediatric protocols will apply until there are physical signs that the patient has reached puberty as indicated by armpit hair in boys and breast development in girls.

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	SPECIALIST	PARAMEDIC
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/O**
Needle / Surgical Cricothyroidotomy				**O/O**
X: Approved Intervention				
O: Optional Intervention per MCA selection				

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 including pulse oximetry if available or required, 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 & IV Fluid Therapy Procedure** when fluid or medication administration may be necessary.

PARAMEDIC

9. Apply cardiac monitor and treat rhythm according to appropriate protocol. If available and applicable, obtain 12-lead ECG. A copy of the rhythm strip or 12-lead ECG 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 **Waveform Capnography Procedure**.

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

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. NS IV/IO fluid bolus up to 1 liter, wide open.
    A. Patient may take oral fluid replacement rather than IV if no nausea. Allow oral intake of cool fluids or water (may use commercial sports/rehydration drinks). 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. NS IV/IO fluid bolus up to 1 liter, wide open, repeat as indicated.

EMT/SPECIALIST/PARAMEDIC

6. Contact Medical Control.

MANAGEMENT OF PATIENT WITH EXERTIONAL HEAT STROKE

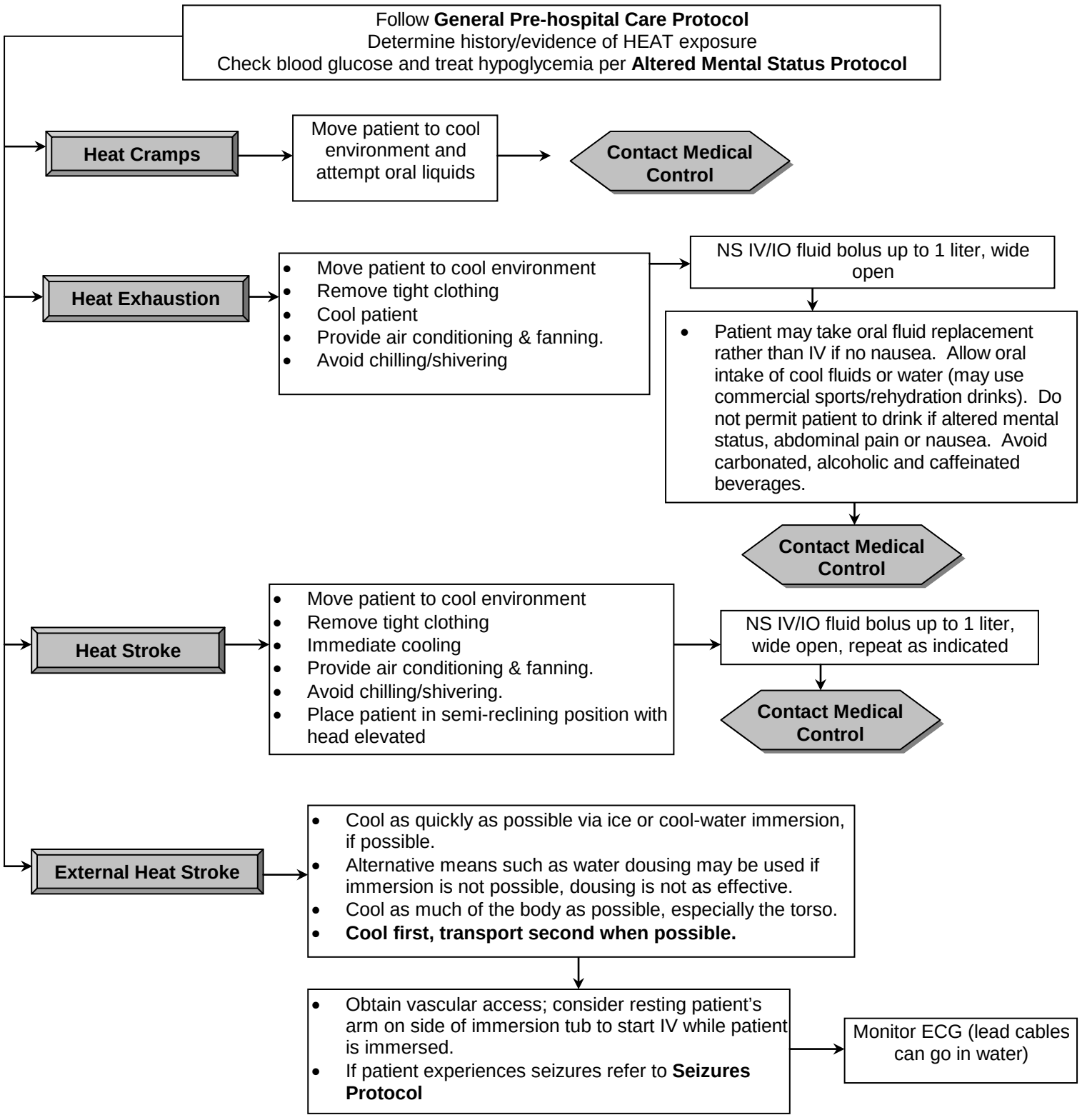
7. Cool as quickly as possible via ice or cool-water immersion, if possible. Alternative means such as water dousing may be used if immersion is not possible, dousing is not as effective.
    A. Cool as much of the body as possible, especially the torso.
8. **Cool first, transport second when possible.**

SPECIALIST/PARAMEDIC

9. Obtain vascular access; consider resting the patient's arm on the side of immersion tub to start IV while patient is still immersed.
10. If patient experiences seizures, refer to **Seizures Protocol**.

PARAMEDIC

11. Monitor ECG (lead cables can go in the water).


Follow **General Pre-hospital Care Protocol**
Determine history/evidence of HEAT exposure
Check blood glucose and treat hypoglycemia per **Altered Mental Status Protocol**
Heat Cramps
Move patient to cool environment and attempt oral liquids
Contact Medical Control
Heat Exhaustion
Move patient to cool environment
Remove tight clothing
Cool patient
Provide air conditioning & fanning.
Avoid chilling/shivering
NS IV/IO fluid bolus up to 1 liter, wide open
Patient may take oral fluid replacement rather than IV if no nausea. Allow oral intake of cool fluids or water (may use commercial sports/rehydration drinks). Do not permit patient to drink if altered mental status, abdominal pain or nausea. Avoid carbonated, alcoholic and caffeinated beverages.
Contact Medical Control
Heat Stroke
Move patient to cool environment
Remove tight clothing
Immediate cooling
Provide air conditioning & fanning.
Avoid chilling/shivering.
Place patient in semi-reclining position with head elevated
NS IV/IO fluid bolus up to 1 liter, wide open, repeat as indicated
Contact Medical Control
External Heat Stroke
Cool as quickly as possible via ice or cool-water immersion, if possible.
Alternative means such as water dousing may be used if immersion is not possible, dousing is not as effective.
Cool as much of the body as possible, especially the torso.
Cool first, transport second when possible.
Obtain vascular access; consider resting patient's arm on side of immersion tub to start IV while patient is immersed.
If patient experiences seizures refer to **Seizures Protocol**
Monitor ECG (lead cables can go in water)

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.
    B. Use warmed humidified oxygen if available

EMT/SPECIALIST/PARAMEDIC

    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/IO fluid bolus up to 1 liter, wide open, 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.

PARAMEDIC

6. Treat pain per **Pain Management Procedure**.

Follow **General Pre-hospital Care Protocol**

Hypothermia

- Move patient to warm dry place
- Remove wet clothing
- Wrap in warm blankets
- Protect from wind exposure

If cardiac arrest develops, follow **Hypothermia Cardiac Arrest Protocol**

Patient temperature is greater than 30° C (86° F)? or Patient is shivering and conscious?

YES

- Apply heat packs to groin, axillae and neck if possible
- Use warmed humidified oxygen if available
- If patient is alert, administer warm non-caffeinated beverages (if available) by mouth slowly

NO

- Transport immediately
- Follow local MCA transport protocol
- Administer warm NS IV/IO fluid bolus up to 1 liter, wide open, if available
- Use warm humidified oxygen if available

Suspected Frostbite

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

Nausea & Vomiting

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

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

SPECIALIST/PARAMEDIC

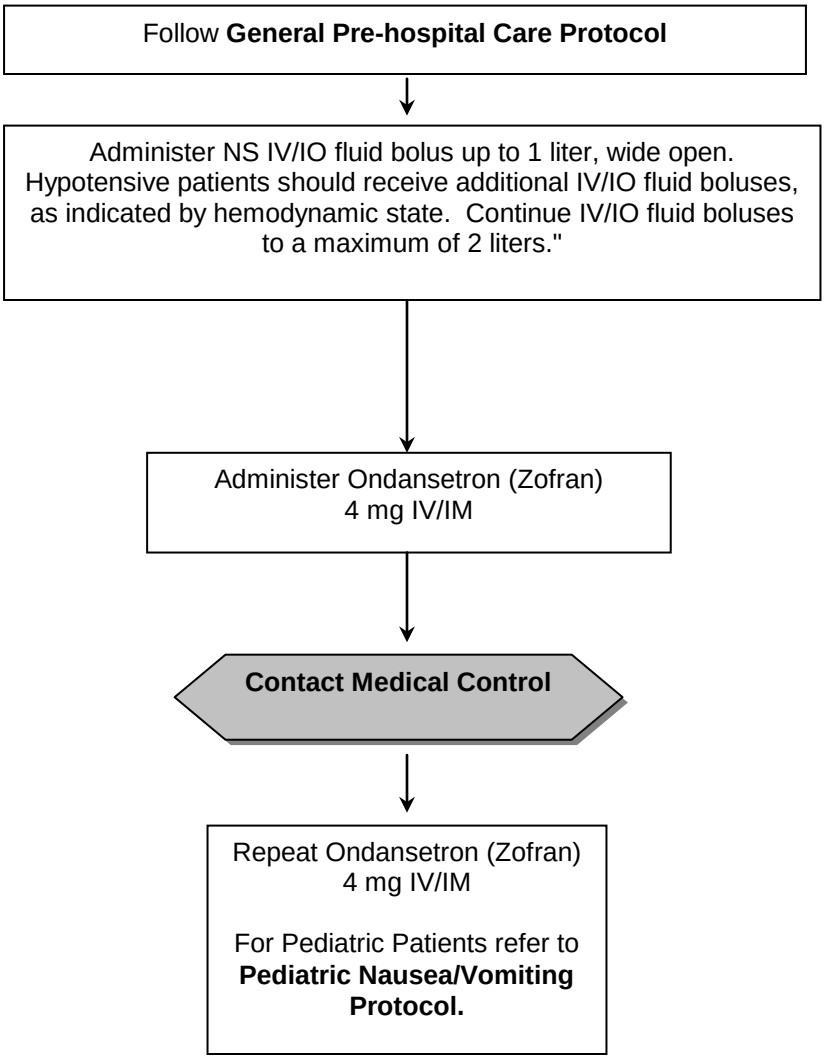
2. Administer NS IV/IO fluid bolus up to 1 liter, wide open.
3. Hypotensive patients should receive additional IV/IO fluid boluses, as indicated by hemodynamic state. Continue IV/IO fluid bolus to a maximum of 2 liters.

PARAMEDIC

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

Post-Medical Control

5. Repeat Ondansetron (Zofran) 4mg IV/IM.
6. For Pediatric Patients refer to **Pediatric Nausea/Vomiting Protocol.**


Follow **General Pre-hospital Care Protocol**
Administer NS IV/IO fluid bolus up to 1 liter, wide open. Hypotensive patients should receive additional IV/IO fluid boluses, as indicated by hemodynamic state. Continue IV/IO fluid boluses to a maximum of 2 liters."
Administer Ondansetron (Zofran) 4 mg IV/IM
Contact Medical Control
Repeat Ondansetron (Zofran) 4 mg IV/IM
For Pediatric Patients refer to **Pediatric Nausea/Vomiting Protocol.**

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.
            i. 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.
            i. 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.
            i. **If the cord is around neck and loose**, slide gently – over the head **DO NOT TUG.**
            ii. **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.
    i. Place baby in warm environment
    ii. Dry baby off and remove all wet linen.
k. Evaluate respirations
    i. **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.**
    ii. 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.
    i. 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.
    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.
i. 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 2 gm over 10 minutes IV/IO until seizure stops**.** Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 or 250 ml of NS and infusing over approximately 10 minutes.
D. If seizure does not stop after Magnesium, then administer Benzodiazepine as specified below.
E. If an IV has not been established administer Midazolam 10 mg IM, if patient is actively seizing.

F. If an IV has already been established and Midazolam IM has not been administered, administer Midazolam, Lorazepam, or Diazepam slow IV push until seizure stops, per MCA selection.

Medication Options:
(Choose One)

☑ Midazolam 5 mg IV/IO
OR
☐ Lorazepam - 4 mg IV/IO
OR
☐ Diazepam - 10 mg IV/IO or rectally

If seizure persists, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

Post-Medical Control

PARAMEDIC

G. If seizure persists, administer additional Magnesium Sulfate 2 gms IV/IO, if available.

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 minutes 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

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
☐ Not Included

SKIN ABSORPTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Brush off dry chemicals before irrigation
2. 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**.

PARAMEDIC

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

ORGANOPHOSPHATE EXPOSURE (MALATHION, PARATHION)

MFR/EMT/SPECIALIST/PARAMEDIC

1. Administer Mark I Kit/Duo Dote auto injector per **CBRNE 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.
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.**

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.

SPECIALIST/PARAMEDIC

5. In suspected narcotic overdose with respiratory compromise or hemodynamic instability, administer Naloxone 2 mg IV slowly, titrating to improve respiratory status or IM, repeat as needed.

Post Medical Control

SPECIALIST/PARAMEDIC

6. If Beta Blocker overdose is suspected AND the patient is bradycardic and hypotensive; per MCA selection administer Glucagon 1 mg IV/IM/IO. May be repeated after contact with Medical Control and if additional Glucagon is available.

Glucagon

☑ Included
☐ Not Included

PARAMEDIC

7. For symptomatic tricyclic antidepressant ingestions (tachycardia, wide complex QRS), administer sodium bicarbonate 50 mEq IV, repeat as needed.
8. For extrapyramidal dystonic reactions, administer diphenhydramine 50 mg IV.
9. For symptomatic calcium channel blocker overdose, per MCA selection administer Glucagon 1 mg IV/IM/IO. Consider calcium chloride 1 gm IV.

Follow General Pre-hospital Care **Protocol**

Toxic Exposure (including ingestion)

- Use proper equipment & prepare for decontamination if necessary
- Remove clothing exposed to chemical (dry decon)
- Identify substance (patient exposed to)
- Alert receiving hospital if patient may present HAZMAT risk
- Sample of drug or substance & any medication or poison containers should be brought in with patient if it does NOT pose a risk to rescuers
- Refer to **Pain Management Procedure**

Inhalation exposures

- Dilute noxious gas inhaled including carbon dioxide & smoke
- Ensure high concentration of oxygen is provided
- If suspected cyanide gas exposure – refer to **Cyanide Exposure Protocol** and contact Medical Control immediately

Eye contamination

- Irrigate continuously with Normal Saline or tap water 15 min (attempt to continue enroute) or as directed by Med Control
- Alkali exposure, maintain continuous irrigation
- If available, administer Tetracaine 1-2 drops per eye, to facilitate irrigation ensure patient does not rub eyes.

Tetracaine
☐ Included
☐ Not Included

Skin absorption

- Brush off dry chemicals before irrigation.
- Irrigate continuously with Normal Saline or tap water for 15 min or as directed by Med Control

Ingestion

Altered Mental Status **– refer to Pediatric Altered Mental Status Protocol**
Respiratory distress **– refer to Respiratory Distress**
Seizure **– refer to Seizure Protocol**
Cardiac dysrhythmia – refer to appropriate dysrhythmia protocol

Organophosphate exposure (Malathion, Parathion)

- Administer Mark I Kit/Duo Dote auto injector per **CBRNE Nerve Agent/Organophosphate Pesticide Exposure Treatment Protocol**
- Mild or moderate symptoms
  - 1 Mark 1 Kit/Duo Dote auto injector
- Severe signs & symptoms
  - 3 Mark I Kits/Duo Dote auto injectors
  - If 3 Mark I Kit/Duo Dote auto injectors used, administer 1st dose benzodiazepine, if available
- If Mark I Kit/Duo Dote auto injector unavailable, administer Atropine 2 mg IV/IM, if available, per Mark I Kit/Duo Dote auto injector indicated, (each Mark I Kit contains 2 mg of Atropine) repeated every 5 min. until SLUDGEM symptoms improve or as directed. (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermotility, Emsis, Muscle twitching or spasm)

Bites and Stings

Spiders, snakes & scorpions

- Protect rescuers
- Bring in if captured & contained or dead for accurate I.D.
- Ice for comfort – spiders & scorpions **ONLY**

Bees & wasps

- Remove sting mechanism (honeybees only) – scrape out
- Do not squeeze venom sac if remains on stinger
- Provide wound care
- Observe patient for systematic allergic reaction
- Treat Anaphylaxis – per to **Pediatric Anaphylaxis/Allergic Reaction Protocol**

Drug, chemical, plant, mushroom ingestion

- Use protective eye equipment
- For potential ingestion or inhalation of petroleum distillates: DO NOT induce vomiting
- Monitor respiratory & mental status very closely
- If patient is alert & oriented: prepare for emesis, recover & save emesis
- Use appropriate barriers according to universal precautions guidelines
- If suspected narcotic overdose with respiratory compromise or hemodynamic instability, administer Naloxone 2 mg IV slowly, titrating to improve respiratory status or IM, repeat as needed.

Contact Medical Control

If Beta Blocker overdose is suspected AND patient is bradycardic & hypotensive; per MCA selection, administer Glucagon 1 mg IV/IM/IO. May be repeated after contact with MCA & Glucagon is available

Glucagon
☑ Included
☐ Not Included

Symptomatic tricyclic antidepressant ingestion (tachycardia, wide complex, QRS), administer sodium bicarbonate 50 mEq IV, repeat as needed.

Extrapyramidal dystonic reactions, administer diphenhydramine 50 mg IV.

Symptomatic calcium channel blocker overdose, per MCA selection administer Glucagon 1 mg IV/IM/IO. Consider calcium chloride 1 gm IV.

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 **Patient Restraint Procedure**.
5. If medical emergency, follow appropriate protocol.

Post-Medical Control

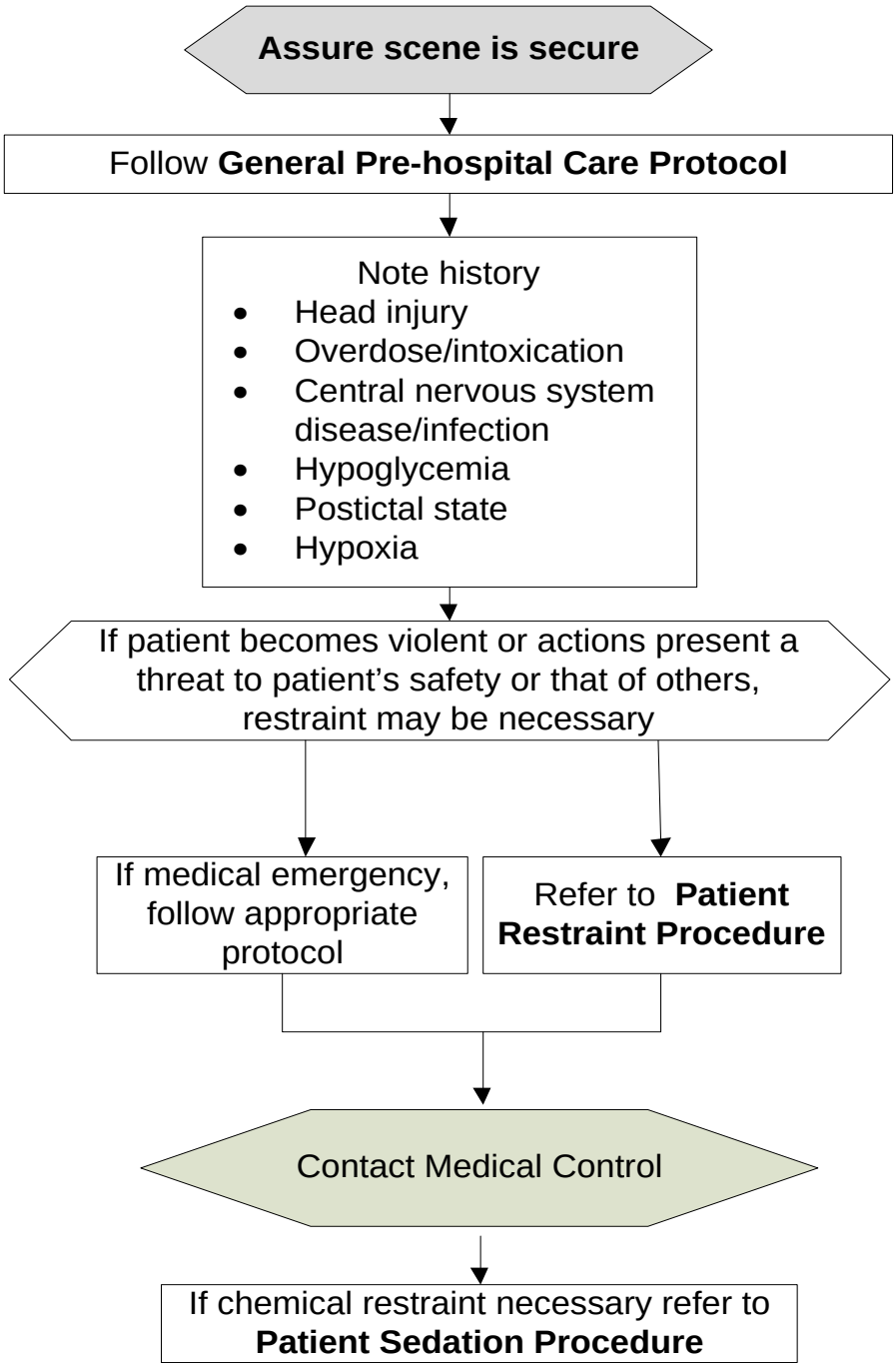
PARAMEDIC

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. (330.1100c (7), Sec. 100c, 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."*


Assure scene is secure
Follow General Pre-hospital Care Protocol
Note history
Head injury
Overdose/intoxication
Central nervous system disease/infection
Hypoglycemia
Postictal state
Hypoxia
If patient becomes violent or actions present a threat to patient's safety or that of others, restraint may be necessary
If medical emergency, follow appropriate protocol
Refer to Patient Restraint Procedure
Contact Medical Control
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. (330.1100c (7), Sec. 100c, Michigan Mental Health Code)

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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 **Emergency Airway Procedure**.
2. Partial Obstruction: epiglottitis, foreign body, anaphylaxis:
   A. Follow **Emergency 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 ECG, 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.

EMT/SPECIALIST

2. Consider CPAP per MCA selection. Refer to **CPAP/BiPAP Procedure**.

SPECIALIST/PARAMEDIC

3. Consider NS IV/IO fluid bolus up to 1 liter, wide open if tachycardia, repeat as needed.

PARAMEDIC

4. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

ASYMETRICAL BREATH SOUNDS:
PARAMEDIC

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

WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):

MFR/EMT/SPECIALIST

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

EMT/SPECIALIST

2. Administer Albuterol if available. Refer to **Nebulized Bronchodilators Procedure**.
3. Consider CPAP per MCA selection. Refer to **CPAP/BiPAP Procedure**.
4. Administer Epi-Pen (0.3 mg) in patients with impending respiratory failure unable to tolerate nebulizer therapy.

PARAMEDIC

5. Administer Bronchodilator per **Nebulized Bronchodilators Procedure**.
6. Administer Epinephrine 1:1,000, 0.3 mg (0.3 ml) IM in patients with impending respiratory failure unable to tolerate nebulizer therapy.
7. Per MCA Selection, if a second nebulized treatment is needed, administer Prednisone **OR** Methylprednisolone.

Medication Options:

Prednisone
50 mg tablet PO

☐ YES ☑ NO

Methylprednisolone
125 mg IV

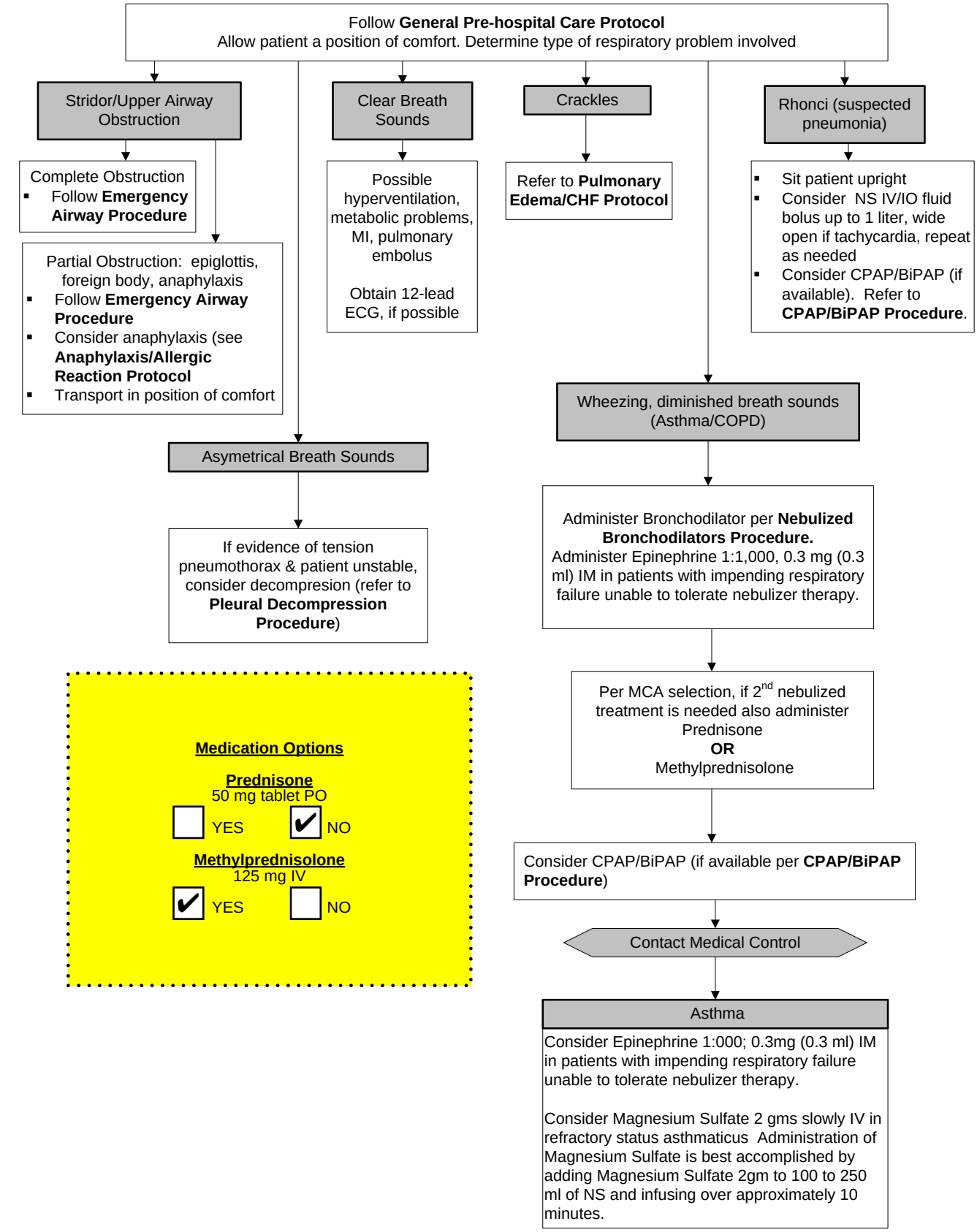
☑ YES ☐ NO

8. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

Post -Medical Control:

Asthma:

1. Consider Epinephrine 1:1000, 0.3 mg (0.3 ml) IM in patients with impending respiratory failure unable to tolerate nebulizer therapy.
2. Consider Magnesium Sulfate 2gms slowly IV in refractory Status Asthmaticus. Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 to 250 ml of NS and infusing over approximately 10 minutes.


Follow **General Pre-hospital Care Protocol**
Allow patient a position of comfort. Determine type of respiratory problem involved
Stridor/Upper Airway Obstruction
Clear Breath Sounds
Crackles
Rhonci (suspected pneumonia)
Complete Obstruction
▪ Follow **Emergency Airway Procedure**
Partial Obstruction: epiglottis, foreign body, anaphylaxis
▪ Follow **Emergency Airway Procedure**
▪ Consider anaphylaxis (see **Anaphylaxis/Allergic Reaction Protocol**
▪ Transport in position of comfort
Possible hyperventilation, metabolic problems, MI, pulmonary embolus
Obtain 12-lead ECG, if possible
Refer to **Pulmonary Edema/CHF Protocol**
▪ Sit patient upright
▪ Consider NS IV/IO fluid bolus up to 1 liter, wide open if tachycardia, repeat as needed
▪ Consider CPAP/BiPAP (if available). Refer to **CPAP/BiPAP Procedure**.
Asymetrical Breath Sounds
If evidence of tension pneumothorax & patient unstable, consider decompresion (refer to **Pleural Decompression Procedure**)
Wheezing, diminished breath sounds (Asthma/COPD)
Administer Bronchodilator per **Nebulized Bronchodilators Procedure.**
Administer Epinephrine 1:1,000, 0.3 mg (0.3 ml) IM in patients with impending respiratory failure unable to tolerate nebulizer therapy.
Per MCA selection, if 2nd nebulized treatment is needed also administer Prednisone
OR
Methylprednisolone
Consider CPAP/BiPAP (if available per **CPAP/BiPAP Procedure**)
Contact Medical Control
Asthma
Consider Epinephrine 1:000; 0.3mg (0.3 ml) IM in patients with impending respiratory failure unable to tolerate nebulizer therapy.
Consider Magnesium Sulfate 2 gms slowly IV in refractory status asthmaticus Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 to 250 ml of NS and infusing over approximately 10 minutes.
Medication Options
Prednisone
50 mg tablet PO
☐ YES ☑ NO
Methylprednisolone
125 mg IV
☑ YES ☐ NO

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.

SPECIALIST/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

PARAMEDIC

D. If patient is pregnant (eclampsia)
   a. If seizure occurs, administer Magnesium Sulfate 2 gm over 10 minutes IV/IO until seizure stops**.** Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 or 250 ml of NS and infusing over approximately 10 minutes.
   b. If eclampsia seizure does not stop after magnesium, then administer benzodiazepine as specified in E below.

E. Administer Midazolam 10 mg IM prior to IV start, if patient is actively seizing.

F. If IV already established and Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam slow IV push until seizure stops, per MCA selection.

Medication Options:
(Choose One)

- [x] Midazolam 5 mg IV/IO
- **OR**
- [ ] Lorazepam - 4 mg IV/IO
- **OR**
- [ ] Diazepam - 10 mg IV/IO or rectally

Glucagon
1 mg IM

- [x] Included
- [ ] Not Included

G. If seizures persist, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

MFR/EMT/SPECIALIST/PARAMEDIC

3. **IF PATIENT IS NOT CURRENTLY SEIZING, BUT HAS ALTERED MENTAL STATUS REFER TO ALTERED MENTAL STATUS PROTOCOL.**

IF PATIENT IS ALERT:

SPECIALIST/PARAMEDIC

4. Obtain vascular access.

Post-Medical Control

Actively seizing:

1. Additional **Dextrose** 50%, 25 gms (50 ml) IVP.

Follow **General Pre-hospital Care Protocol**

Patient actively seizing

- Protect patient from injury
- Do not force anything between teeth

Blood glucose less than 60 or hypoglycemia

- Administer dextrose 50%, 25 gms (50 ml) IVP
- If no IV access, per MCA selection, administer glucagon 1mg IM

Pregnant Patient (Eclampsia)

- If seizure occurs, administer Magnesium Sulfate 2 gm over 10 mins IV/IO until seizure stops. Administration of Magnesium Sulfate 2 gm to100 or 250 ml of NS & infusing over approx. 10 mins.
- If eclampsia seizure does not stop after magnesium, administer benzodiazepine below.

Medication Options
(Choose One)

- ☑ Midazolam 5 mg IV/IO
- ***OR***
- ☐ Lorazepam 4 mg IV/IO
- ***OR***
- ☐ Diazepam 10 mg IV/IO rectally

- Administer Midazolam 10 mg IM prior to IV start, if patient is actively seizing.
- If IV already established and Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam slow IV push until seizure stops, per MCA selection

Glucagon
1 mg IM

- ☑ Included
- ☐ Not Included

If seizures persist, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

Not currently seizing but has altered mental status

- Refer to **Altered Mental Status Protocol**

Patient is alert

- Obtain vascular access

Contact Medical Control

Actively seizing:
Additional Dextrose 50%, 25 gms (50 ml) IVP

Sepsis

It is the purpose of this policy to recognize and treat sepsis early to promote optimal care and survival of patients who may be septic. This protocol applies to patients 18 years and above with a clinical suspicion of systemic infection who have 2 or more of the inclusion criteria. These patients are defined as meeting criteria for suspicion of sepsis and should be evaluated and treated per this protocol.

INCLUSION CRITERIA

1. Clinical suspicion of systemic infection, and two or more of the following:
   A. Hyperthermia temp >38^{o} C (100.4 F)
   B. Hypothermia temp<36^{o} C (96.8 F)
   C. Heart rate >90bpm
   D. Respiratory rate <10 or >20 per min
   E. SBP <90 mmHg or evidence of hypoperfusion

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-Hospital Care** protocol.
2. Place patient in supine position.
3. Administer high flow oxygen via non-rebreather, unless contraindicated.

SPECIALIST/PARAMEDIC

4. Start 1 large bore IV catheter.
5. Start 2nd large bore IV catheter, if time permits.

PARAMEDIC

1. Place on cardiac monitor and treat rhythm according to appropriate protocol.
2. Place on continuous pulse oximetry.
3. Measure blood glucose.
4. If the patient meets inclusion criteria, administer a NS IV/IO fluid bolus up to 1 liter, wide open. Reassess the patient, repeat boluses to a maximum of 2 L NS as long as vital sign abnormalities persist.
5. **(Optional)** Measure blood Lactic Acid level. Report level to the receiving facility during patient report. If ≥ 4.0 mmol/L report this information as soon as practical.

Post Radio

PARAMEDIC

6. Consider Dopamine Drip (Inotropin) 400 mg in 250 ml of NS if the patient remains hypotensive <90 mmhg after the 2 L NS bolus. Titrate to maintain a systolic BP above 90 mmHg.

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. The standard NS IV/IO fluid bolus volume will be normal saline up to 1 liter, wide open, repeated as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated in patients with pulmonary edema.
    B. Repeat IV/IO fluid bolus as necessary.
8. For hemorrhagic conditions, IV/IO fluid bolus is indicated only when signs of poor perfusion (e.g., lack of radial pulse) are present. Patient should be closely monitored. Fluid should be slowed to TKO upon evidence of improved perfusion.
9. Consider establishing a second large bore IV of Normal Saline enroute to hospital, if possible.

PARAMEDIC

10. Obtain 12-lead ECG if available.

Post-Medical Control

SPECIALIST/PARAMEDIC

1. Additional IV/IO fluid bolus.

PARAMEDIC

2. If BP is less than100 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.

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

Follow **General Pre-hospital Care Protocol**

Control major bleeding

↓

Position patient

- Left lateral recumbent if 3rd trimester pregnancy
- Elevate legs 10-12 inches
- Remove all transdermal patches using gloves

↓

Immediate load and transport for unstable patients. Follow local MCA transport protocol.

↓

- Obtain vascular access (in a manner not to delay transport)
- The standard NS IV/IO fluid bolus volume will be normal saline up to 1 liter, wide open, repeated as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated in patients with pulmonary edema.
- Repeat IV/IO fluid bolus as necessary
- For hemorrhagic conditions, IV/IO fluid bolus is indicated only when signs of poor perfusion (e.g., lack of radial pulse) are present. Patient should be closely monitored. Fluid should be slowed to TKO upon evidence of improved perfusion.
- Consider establishing 2nd large bore IV of Normal Saline en route to hospital, if possible.
- Obtain 12-lead ECG, if available

↓

Contact Medical Control

↓

- Additional IV/IO fluid bolus
- 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 over 100 mmHg. DO NOT exceed 20 mcg/kg/min unless ordered by medical control.

Soft Tissue & 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 Injury Assessment Protocol.**
3. Assess and maintain adequacy of neurovascular function before and after immobilization.
4. Attempt to control bleeding.
    A. Utilize direct pressure.
    B. Use dressing and bandaging as needed.
    C. Elevate for additional control.
    D. Consider tourniquet use when applicable (refer to **Tourniquet Application Procedure).**
    E. Consider FDA **and** MCA approved hemostatic agents.
5. Assess pain on 1-10 scale.
6. 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.
7. **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.
    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.
    E. Continuous monitoring of circulation, sensation, and motion distal to the injury during transport.
8. Impaled objects are left in place and stabilized. Removal of impaled objects is only with approval of medical control.
9. Follow local MCA transport protocol.

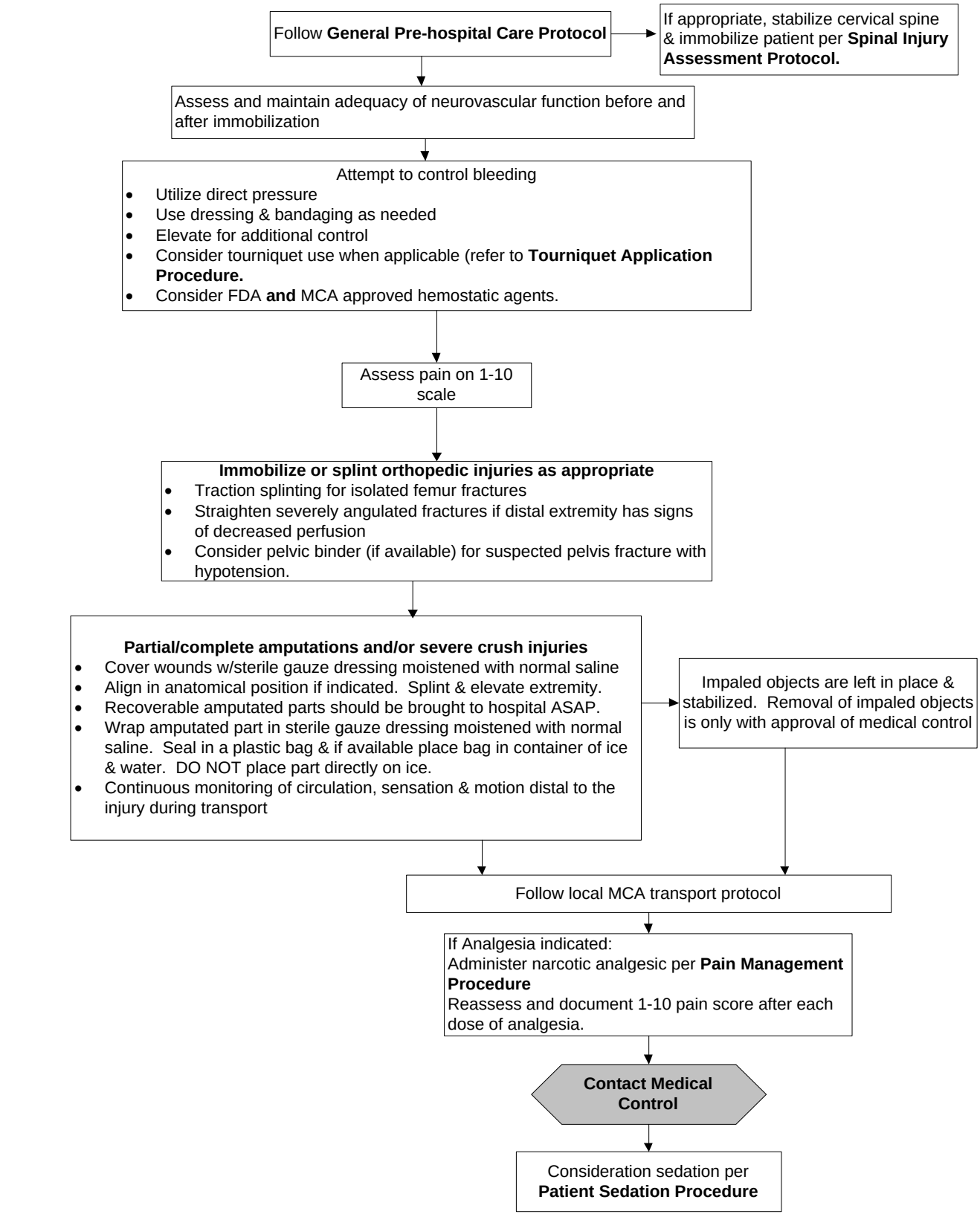
PARAMEDIC

10. If Analgesia indicated:
    A. Administer narcotic analgesic per **Pain Management Procedure**.
    B. Reassess and document 1-10 pain score after each dose of analgesia.

Post-Medical Control:

PARAMEDIC

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

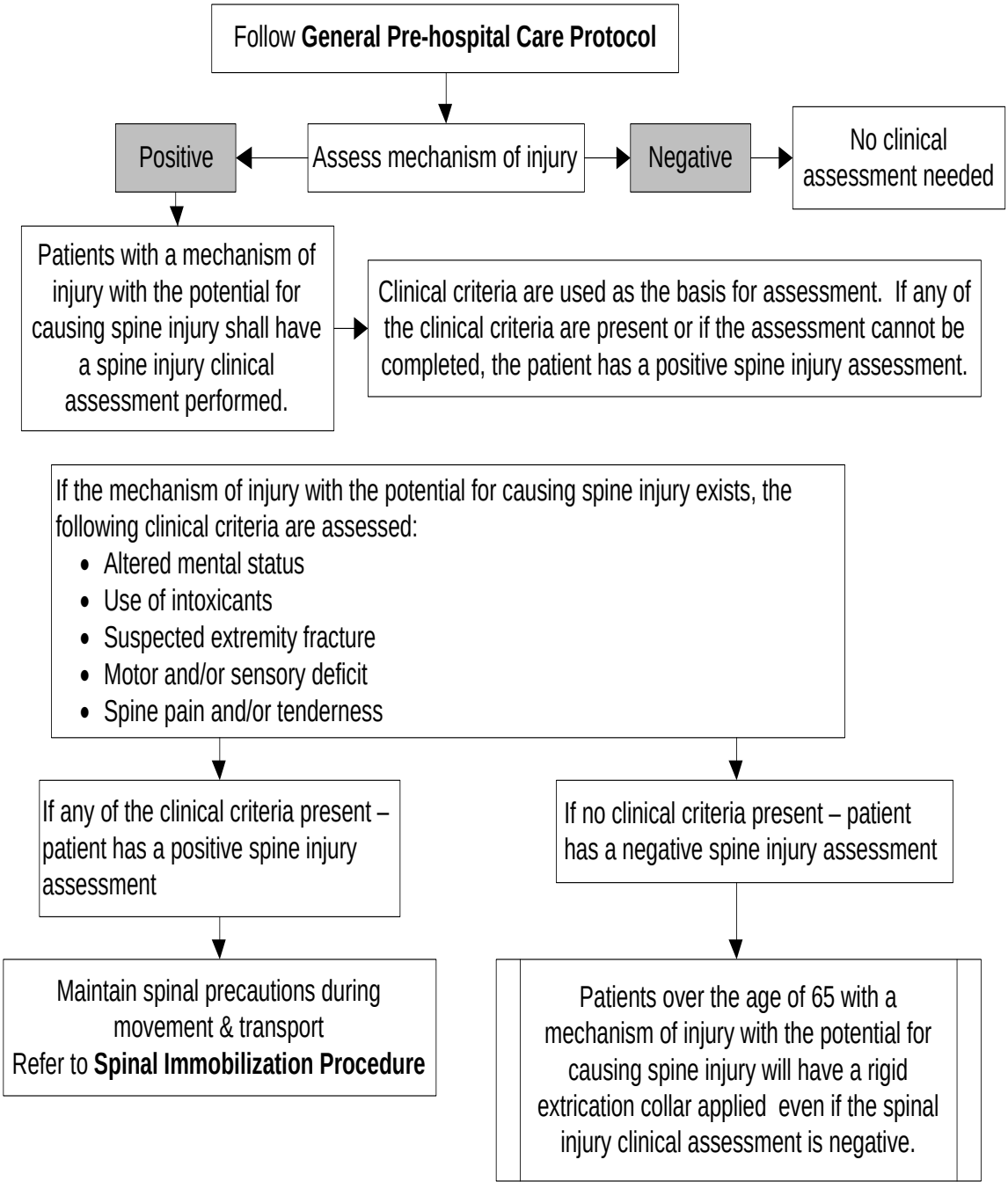

Follow **General Pre-hospital Care Protocol**
If appropriate, stabilize cervical spine & immobilize patient per **Spinal Injury Assessment Protocol.**
Assess and maintain adequacy of neurovascular function before and after immobilization
Attempt to control bleeding
• Utilize direct pressure
• Use dressing & bandaging as needed
• Elevate for additional control
• Consider tourniquet use when applicable (refer to **Tourniquet Application Procedure.**
• Consider FDA **and** MCA approved hemostatic agents.
Assess pain on 1-10 scale
Immobilize or splint orthopedic injuries as appropriate
• Traction splinting for isolated femur fractures
• Straighten severely angulated fractures if distal extremity has signs of decreased perfusion
• Consider pelvic binder (if available) for suspected pelvis fracture with hypotension.
Partial/complete amputations and/or severe crush injuries
• Cover wounds w/sterile gauze dressing moistened with normal saline
• Align in anatomical position if indicated. Splint & elevate extremity.
• Recoverable amputated parts should be brought to hospital ASAP.
• Wrap amputated part in sterile gauze dressing moistened with normal saline. Seal in a plastic bag & if available place bag in container of ice & water. DO NOT place part directly on ice.
• Continuous monitoring of circulation, sensation & motion distal to the injury during transport
Impaled objects are left in place & stabilized. Removal of impaled objects is only with approval of medical control
Follow local MCA transport protocol
If Analgesia indicated:
Administer narcotic analgesic per **Pain Management Procedure**
Reassess and document 1-10 pain score after each dose of analgesia.
Contact Medical Control
Consideration sedation per **Patient Sedation Procedure**

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.


Follow **General Pre-hospital Care Protocol**
Assess mechanism of injury
Positive
Negative
No clinical assessment needed
Patients with a mechanism of injury with the potential for causing spine injury shall have a spine injury clinical assessment performed.
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.
If the mechanism of injury with the potential for causing spine injury exists, the following clinical criteria are assessed:
• Altered mental status
• Use of intoxicants
• Suspected extremity fracture
• Motor and/or sensory deficit
• Spine pain and/or tenderness
If any of the clinical criteria present – patient has a positive spine injury assessment
If no clinical criteria present – patient has a negative spine injury assessment
Maintain spinal precautions during movement & transport
Refer to **Spinal Immobilization Procedure**
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.

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**.

SPECIALIST/PARAMEDIC

5. Administer NS IV fluid bolus up to 1 liter wide open. Repeat as indicated.

PARAMEDIC

6. Obtain 12-lead ECG, if available.

Post Medical Control

SPECIALIST/PARAMEDIC

7. Additional IV fluids as ordered.

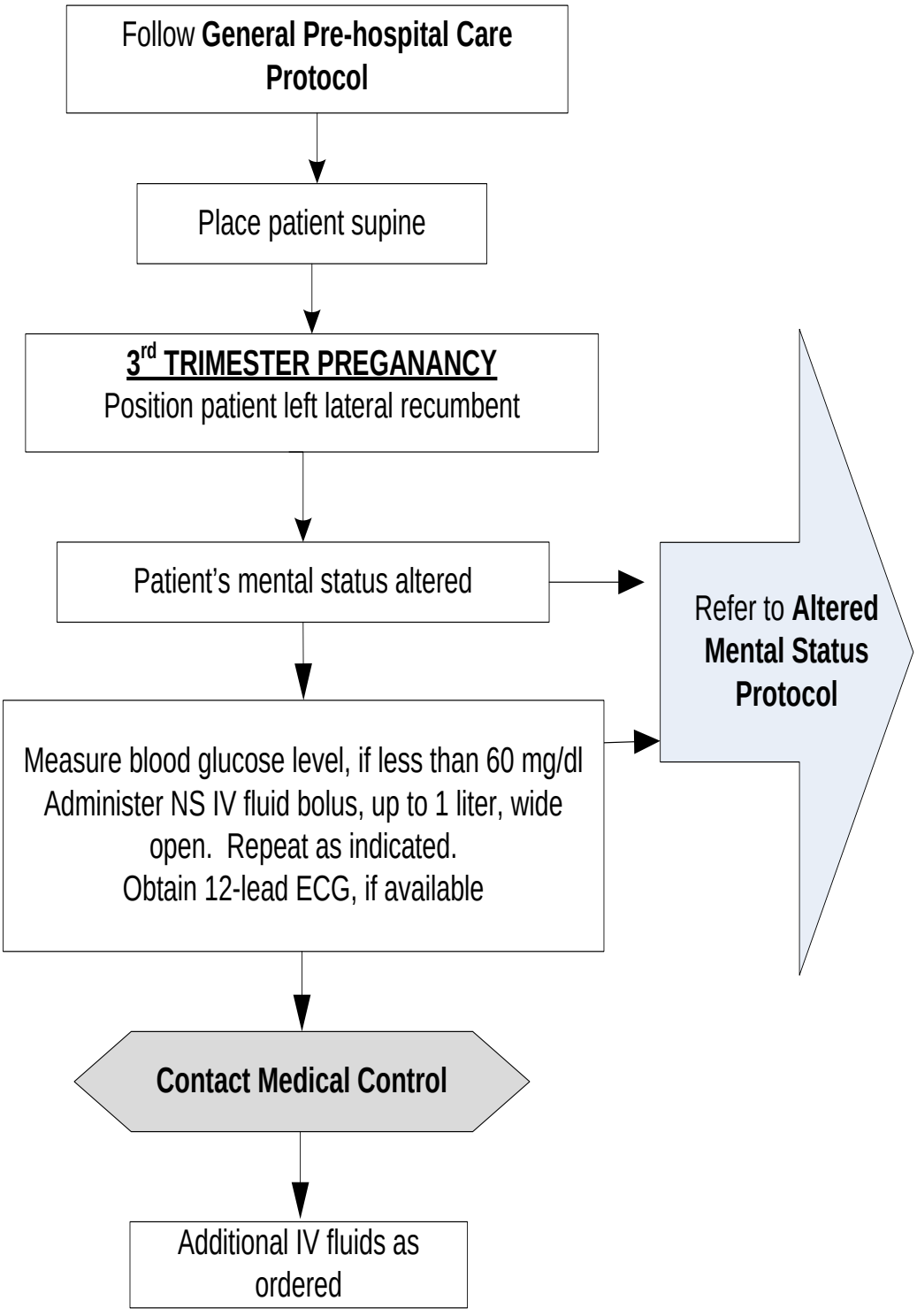

Follow **General Pre-hospital Care Protocol**
Place patient supine
3rd TRIMESTER PREGANANCY
Position patient left lateral recumbent
Patient's mental status altered
Refer to **Altered Mental Status Protocol**
Measure blood glucose level, if less than 60 mg/dl
Administer NS IV fluid bolus, up to 1 liter, wide open. Repeat as indicated.
Obtain 12-lead ECG, if available
Contact Medical Control
Additional IV fluids as ordered

TABLE OF CONTENTS

Asystole / Pulseless Electrical Activity

During CPR, consider reversible causes of Asystole/PEA and treat as indicated. Causes and efforts to correct them include but are not limited to:

Hypovolemia – give NS IV/IO fluid bolus up to 1 liter, wide open.
Hypoxia – reassess airway and ventilate with high flow oxygen
Tension pneumothorax – see **Pleural Decompression Procedure**
Hypothermia – follow **Hypothermia Cardiac Arrest Protocol** rapid transport
Hyperkalemia (history of renal failure) – see #5 below.

Pre-Medical Control

PARAMEDIC

1. Follow the **Cardiac Arrest - General Protocol**.
2. Confirm that patient is in asystole by evaluating more than one lead.
3. Administer Epinephrine 1:10,000, 1 mg (10 ml) IV/IO, repeat every 3-5 minutes.
4. Per MCA selection, administer Vasopressin 40 Units IV/IO in place of second dose of Epinephrine.

Vasopressin
40 Units IV/IO
☐ Included
☑ Not Included

5. In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 1gm IV/IO and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.
6. Continue CPR and reassess rhythm every 2 minutes.

During CPR, consider reversible causes of Asystole/PEA and treat as indicated. Causes and efforts to correct them include but are not limited to:

Hypovolemia – give NS IV/IO fluid bolus up to 1 liter, wide open.
Hypoxia – reassess airway and ventilate with high flow oxygen
Tension pneumothorax – See **Pleural Decompression Procedure**
Hypothermia – follow **Hypothermia Cardiac Arrest Protocol** rapid transport
Hyperkalemia (history of renal failure) – see below

- Follow **Cardiac Arrest – General Protocol.**
- Confirm that patient is in asystole by evaluating more than one lead.

Vasopressin
40 Units IV/IO
☐ Included
☑ Not Included

- Administer Epinephrine 1:10,000, 1 mg (10 ml) IV/IO, repeat every 3-5 minutes.
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- In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 1 gm IV/IO and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.
- Continue CPR, reassess rhythm every 2 minutes.

Contact Medical Control

Bradycardia

This is a protocol for patients with serious symptomatic bradycardia. Serious symptomatic bradycardia may be defined as patients with heart rate less than 50 bpm and hypotension, or shock. Titrate treatments to a heart rate above 50 bpm. If the patient remains hypotensive refer to the **Shock Protocol**.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow the **General Pre-Hospital Care Protocol**.

PARAMEDIC

2. Administer Atropine 0.5 mg IV/IO repeating every 3-5 minutes to a total dose of 3 mg IV/IO, until a heart rate of greater than 50 /minute is reached.
3. Transcutaneous pacing (TCP) when available may be initiated prior to establishment of IV access and/or before Atropine begins to take effect. Pacing is the treatment of choice for high degree A-V block. Follow the **Electrical Therapy Procedure.**
4. Per MCA selection, provide sedation per **Patient Sedation Procedure**.

Post-Medical Control

1. Consider Dopamine Drip 2-10 mcg/kg/min IV/IO. Mix drip by putting Dopamine 400 mg in 250 ml NS.
2. Consider Epinephrine Drip 2-10 mcg/min IV/IO. Mix drip by putting Epinephrine 1:1,000, 1 mg (1 ml) in 250 ml NS.

Notes:

1. Some patients may not tolerate the pacing stimulus to the skin and chest wall that occurs with transcutaneous pacing. In these cases, consider sedation if SBP > 100. (See box)
2. Consider possible etiologies:
   A. Hyper/hypokalemia, other metabolic disorders
   B. Hypothermia
   C. Hypovolemia (including vomiting/diarrhea)
   D. Hypoxia
   E. Toxins/ overdose (e.g. beta-blocker or calcium channel-blocker)
   F. Tamponade
   G. Tension pneumothorax
3. Transcutaneous pacemaker electrode pads may be applied to these patients without initiating pacing so that the pacemaker is ready if patient condition deteriorates.
4. For symptomatic high-degree (second-degree or third-degree) AV block, begin pacing without delay.
5. Atropine 0.5 mg should be administered by rapid IV/IO push and may be repeated every 3-5 minutes, to a maximum dose of 3 mg. Atropine is ineffective and should be avoided in heart transplant patients.

This is a protocol for patients with serious symptomatic bradycardia. Serious symptomatic bradycardia may be defined as patients with heart rate less than 50 bpm and hypotension, or shock. Titrate treatments to a heart rate above 50 bpm. If the patient remains hypotensive refer to the **Shock Protocol**.

Follow the **General Pre-Hospital Care Protocol**

↓

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↓

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↓

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↓

Contact Medical Control

↓

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Notes:

1. Some patients may not tolerate the pacing stimulus to the skin and chest wall that occurs with transcutaneous pacing. In these cases, consider sedation if SBP > 100. (See box)
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Cardiac Arrest – General

This protocol should be followed for all adult cardiac arrests. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless return of spontaneous circulation (ROSC) is achieved or transport is ordered by medical control or otherwise specified in protocol.

- If an arrest is of a known traumatic origin refer to the **Dead on Scene Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- Patients displaying a Do Not Resuscitate order or bracelet – follow **DNR Protocol**.
- When an ALS unit is present, follow this general cardiac arrest protocol in conjunction with the protocol that addresses the indentified rhythm.
- Once arrest is confirmed, emphasis should be on avoiding interruptions in CPR.
- CPR should be done in accordance with current guidelines established by the American Heart Association.

Pre-Medical Control

MFR/EMT/SPECIALIST

1. Confirm Arrest
    A. Assess for signs of normal breathing.
    B. Check a carotid pulse for not more than 10 seconds.
2. Initiate CPR or continue CPR if already in progress and apply and use AED as soon as available.
3. Ensure CPR quality
    A. Compressions at least 2” in depth for adults.
    B. Compression rate at least 100 per minute.
    C. Avoid excessive ventilation (volume and rate).
4. Continue CPR with minimal interruptions, changing the rescuer doing compressions every 2 minutes, when possible.
5. Initiate ALS response if available.
6. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**

EMT

7. Establish a patent airway with a supraglottic airway. After insertion, provide continuous CPR without pauses for ventilation. Ventilations should be delivered at 8-10 breaths per minute or 1 breath every 5 to 6 seconds. See **Emergency Airway Procedure.**
8. Verify CPR quality frequently and anytime the rescuer providing compressions or ventilations changes.
9. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and ALS is not available or delayed, contact medical control, initiate transport.

SPECIALIST

10. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and ALS is not available or delayed, contact medical control prior to initiating transport.
11. Start an IV/IO NS KVO. If IV is attempted and is unsuccessful, after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
12. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.

PARAMEDIC

13. Confirm Arrest if not previously done.
    A. Assess for signs of normal breathing.
    B. Check a carotid pulse for not more than 10 seconds.
14. Initiate CPR, or continue CPR if already in progress and apply cardiac monitor.
15. Check rhythm, shock if indicated and continue CPR.
16. Ensure CPR quality
    A. Compressions at least 2" in depth for adults.
    B. Compression rate at least 100 per minute.
    C. Avoid excessive ventilation (volume and rate).
    D. Continue CPR with minimal interruptions, changing rescuer doing compressions every 2 minutes, when possible.
    E. Apply waveform capnography, if available.
17. Start an IV/IO NS KVO. If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
18. Administer Medications consistent with appropriate protocol.
19. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.
    B. Supraglottic airways are an acceptable alternative for endotracheal intubation.
20. If quantitative waveform capnography is available and P_{ETCO_2} is < 10 mm Hg attempt to improve CPR quality.
21. Reassess ABC's as indicated by rhythm or patient condition change. Pulse checks should take no more than 10 seconds. If no pulse after 10 seconds, assume pulselessness, continue CPR.
22. Prior to advanced airway placement, utilize ventilation periods to visualize the ECG rhythm without compression artifact, this will allow you to plan ahead for the assessment period at the end of the two minute CPR cycle.
23. After insertion of advanced airway, monitor capnography to confirm appropriate tube placement and deliver continuous CPR, without pauses for ventilation. Ventilations delivered at 8-10 breaths per minute or 1 breath every 6 - 8 seconds.

Post-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

24. Additional basic and/or advanced life support care as appropriate.
25. Consider termination of resuscitation per **Termination of Resuscitation Protocol**.

Notes:

1. **Excellent CPR is a priority:**
   A. 30 compressions: 2 ventilations in groups of 5 cycles, over 2 minutes.
   B. Push hard ≥ 2 inches and fast (≥100/min) and allow full recoil of chest during compressions.
   C. Change rescuer doing compressions every 2 minutes to avoid fatigue or utilize automated mechanical CPR devices, if available.
   D. Restart CPR immediately after any defibrillation attempts.
   E. Keep pauses in CPR to a minimum by checking rhythm when rotating rescuer doing compressions and by avoiding pauses in CPR during airway management and other interventions.
2. If AED has been applied by BLS personnel, skip to appropriate place in protocol that incorporates previous care. ALS personnel should switch to manual defibrillator after initial AED shock or place AED in manual mode.
3. For Biphasic devices shock with energy levels following manufacturers' recommendations (120 – 200 J). If unknown use the maximum available. For monophasic devices use 360 J.
4. Confirm and document tube placement by physical exam, measurement of exhaled CO_2 and/or use of other MCA approved secondary confirmation device.
5. If possible, contact medical control prior to moving or transporting patient.
6. Continue resuscitation attempts and initiate transport, unle**ss** field termination is ordered by Medical Control.
7. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.
8. Treat reversible causes.

This protocol should be followed for all adult cardiac arrests. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless return of spontaneous circulation (ROSC) is achieved or transport is ordered by medical control or otherwise specified in protocol.

- If an arrest is of a known traumatic origin refer to the **Dead on Scene Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- Patients displaying a Do Not Resuscitate order or bracelet – follow **DNR Protocol**.
- When an ALS unit is present, follow this general cardiac arrest protocol in conjunction with the protocol that addresses the indentified rhythm.
- Once arrest is confirmed, emphasis should be on avoiding interruptions in CPR.
- CPR should be done in accordance with current guidelines established by the American Heart Association.

- Confirm Arrest
- Assess for normal breathing.
- Check a carotid pulse for not more than 10 seconds.
- Initiate CPR or Continue CPR if already in progress. Apply cardiac monitor.
- Check rhythm, shock if indicated and continue CPR.

- Ensure CPR quality
- Compressions at least 2" in depth for adults
- Compression rate at least 100 per minute
- Avoid excessive ventilations (volume & rate)
- Continue CPR with minimal interruptions, changing rescuer doing compressions every 2 minutes, when possible.
- Apply waveform capnography, if available

- Start an IV/IO NS KVO
- If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line of choice.
- Administer medications consistent with appropriate protocol

- Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
- Minimize interruptions in compressions during airway placement to less than 10 seconds.
- Supraglottic airways are an acceptable alternative for endotracheal intubation.
- If quantitative Waveform Capnography is available and PETCO2 is < 10 mm Hg, attempt to improve CPR quality.

- Reassess ABC's as indicated by rhythm or patient condition change.
- Pulse checks should take no more than 10 seconds.
- If no pulse after 10 seconds, assume pulselessness, continue CPR.
- Prior to advanced airway placement, utilize periods to visualize ECG rhythm without compression artifact, this allows you to plan ahead for assessment period at end of 2 minute CPR cycle.

- After insertion of advanced airway, monitor capnography to confirm appropriate tube placement and deliver continuous CPR.
- Ventilations delivered at 8-10 per minute or 1 breath every 6 – 8 seconds.

Contact Medical Control

- Additional basic and/or advanced life support care as appropriate
- Consider termination of resuscitation per **Termination of Resuscitation Protocol**

Notes:

1. **Excellent CPR is a priority:**
   A. 30 compressions: 2 ventilations in groups of 5 cycles, over 2 minutes.
   B. Push hard ≥ 2 inches and fast (≥100/min) and allow full recoil of chest during compressions.
   C. Change rescuer doing compressions every 2 minutes to avoid fatigue or utilize automated mechanical CPR devices, if available.
   D. Restart CPR immediately after any defibrillation attempts.
   E. Keep pauses in CPR to a minimum by checking rhythm when rotating rescuer doing compressions and by avoiding pauses in CPR during airway management and other interventions.
2. If AED has been applied by BLS personnel, skip to appropriate place in protocol that incorporates previous care. ALS personnel should switch to manual defibrillator after initial AED shock or place AED in manual mode.
3. For Biphasic devices shock with energy levels following manufacturers' recommendations (120 – 200 J). If unknown use the maximum available. For monophasic devices use 360 J.
4. Confirm and document tube placement by physical exam, measurement of exhaled CO_2 and/or use of other MCA approved secondary confirmation device.
5. If possible, contact medical control prior to moving or transporting patient.
6. Continue resuscitation attempts and initiate transport, unless field termination is ordered by Medical Control.
7. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.
8. Treat reversible causes.

Cardiac Arrest – Return of Spontaneous Circulation (ROSC)

This protocol should be followed for all adult cardiac arrests with ROSC. If an arrest is of a known traumatic origin refer to the **Trauma Protocol** and **MCA Transport Protocol**. If it is unknown whether the arrest is traumatic or medical, continue with this protocol.

Pre-Medical Control

MFR/EMT/SPECIALIST

1. If ventilation assistance is required, ventilate at 10-12 breaths per minute. Do not hyperventilate.
2. Reassess patient, if patient becomes pulseless begin CPR and follow **Adult** or **Pediatric Cardiac Arrest General Protocol**.
3. Monitor vital signs.
4. Initiate ALS response if available.

SPECIALIST

5. Start an IV/IO NS KVO**.**
6. Treat hypotension (SBP less than 90 mm/Hg) with an IV/IO fluid bolus consistent with **Shock Protocol**.

PARAMEDIC

7. Perform 12- lead ECG
8. Consider treatable causes
9. If ventilation assistance is required with an advanced airway in place and quantitative waveform capnography is available target PETCO2 of 35-40 mm Hg.
10. Transport to a facility capable of Percutaneous Coronary Intervention (PCI) and therapeutic hypothermia where available per MCA protocol.

Post-Medical Control

PARAMEDIC

11. If hypotension persists after IV/IO fluid bolus, administer Dopamine 5-20 mcg/kg/min. Mix drip by putting Dopamine 400 mg in 250 ml NS.

Notes:

If a mechanical ventilator is available or there are spontaneous respirations in the non-intubated patient titrate inspired oxygen on the basis of monitored oxyhemoglobin saturation to maintain a saturation of ≥94% but <100%.

- This protocol should be followed for all adult cardiac arrest patients with ROSC. If an arrest is if a known traumatic origin, refer to the **Trauma Protocol** and **MCA Transport Protocol.** If it is unknown whether the arrest is traumatic or medical, continue with this protocol.

- If the patient becomes pulseless, begin CPR and follow the **Adult or Pediatric Cardiac Arrest - General Protocol.**

- Perform 12 – lead ECG
- Consider treatable causes.
- If ventilation assistance is required with an advanced airway in place and quantitative waveform capnography if available, target PETCO2 of 35 – 40 mm Hg.
- Transport to a facility capable of Percutaneous Coronary Intervention (PCI) and theraputic hypothermia where available per MCA protocol.

CONTACT MEDICAL CONTROL

- If hypotension persists after IV/IO fluid bolus administer Dopamine 5-20 mcg/kg/min.
- Mix drip by putting Dopamine 400 mg in 250 ml NS

Notes:
If a mechanical ventilator is available or there are spontaneous respirations in the non-intubated patient titrate inspired oxygen on the basis of monitored oxyhemoglobin saturation to maintain a saturation of ≥94% but <100%.

Chest Pain/Acute Coronary Syndrome

The goal is to reduce cardiac workload and to maximize myocardial oxygen delivery by reducing anxiety, appropriately oxygenating and relieving pain. For non-cardiac causes of chest pain refer to appropriate protocol which may include **Pain Management Procedure.**

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-Hospital Care Protocol.**
2. Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94%. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.

MFR

3. Assist patient in the use of their own aspirin, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.

EMT

4. Assist patient in the use of their own aspirin, or administer up to 324 mg if available, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
5. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
6. Assist patient in the use of their own Nitroglycerin sublingual tabs (check expiration date), if available, and if the patient's systolic BP is above 120 mmHg, for a maximum of 3 doses.

SPECIALIST

7. Start an IV NS KVO. If the patient has a BP of less than 100 mmHg, administer an IV/IO NS fluid bolus up to 1 liter wide open, in 250 ml increments and reassess.
8. Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94%. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.
9. Administer aspirin 324 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
10. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
11. Administer nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg. Dose may be repeated at 3 to 5 minute intervals if chest pain persists and BP remains above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
12. Contact Medical Control.

PARAMEDIC

1. Start an IV NS KVO. If the patient has a BP of less than 100 mmHg, administer an IV/IO NS fluid bolus up to 1 liter wide open, in 250 ml increments and reassess.
2. Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94%. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.

3. Administer aspirin 324 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
4. Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for acute ST Elevation Myocardial Infarction (STEMI) and alert the hospital as soon as possible.
5. Do not delay transport.
6. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
7. Administer nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg. Dose may be repeated at 3 to 5 minute intervals if chest pain persists and BP remains above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
8. If pain persists after up to 3 doses of nitroglycerin, and BP is greater than 100 mmHg, administer narcotic analgesic per MCA selection per **Pain Management Procedure.**
9. Contact Medical Control.

The goal is to reduce cardiac workload and to maximize myocardial oxygen delivery by reducing anxiety, appropriately oxygenating and relieving pain. For non-cardiac causes of chest pain refer to appropriate protocol which may include **Pain Management Procedure.**

- Follow **General Pre-hospital Care Protocol**
- Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94 %. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.

- Start an IV NS KVO, if the patient has a BP is less than 100 mmHg, administer IV/IO NS fluid bolus up to 1 liter wide open, in 250 ml increments & reassess.

- Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94 %. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.
- Administer aspirin 324 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.

- Obtain 12-lead ECG, if available. Follow local MCA transport protocol if ECG is positive for acute ST Elevation Myocardial Infarction (STEMI) and alert the hospital as soon as possible.
- Do not delay transport.

- Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension within last 48 hours.

YES

DO NOT ADMINISTER NITROGLYCERIN

Contact Medical Control

NO

- Administer Nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg.
- Dose may be repeated at 3-5 minute intervals if chest pain persists and BP remains above 100 mmHg.
- Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
- If pain persists after up to 3 doses of nitroglycerin, & BP is greater than 100 mmHg, administer narcotic analgesic per MCA selection per **Pain Management Procedure**.

Contact Medical Control

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

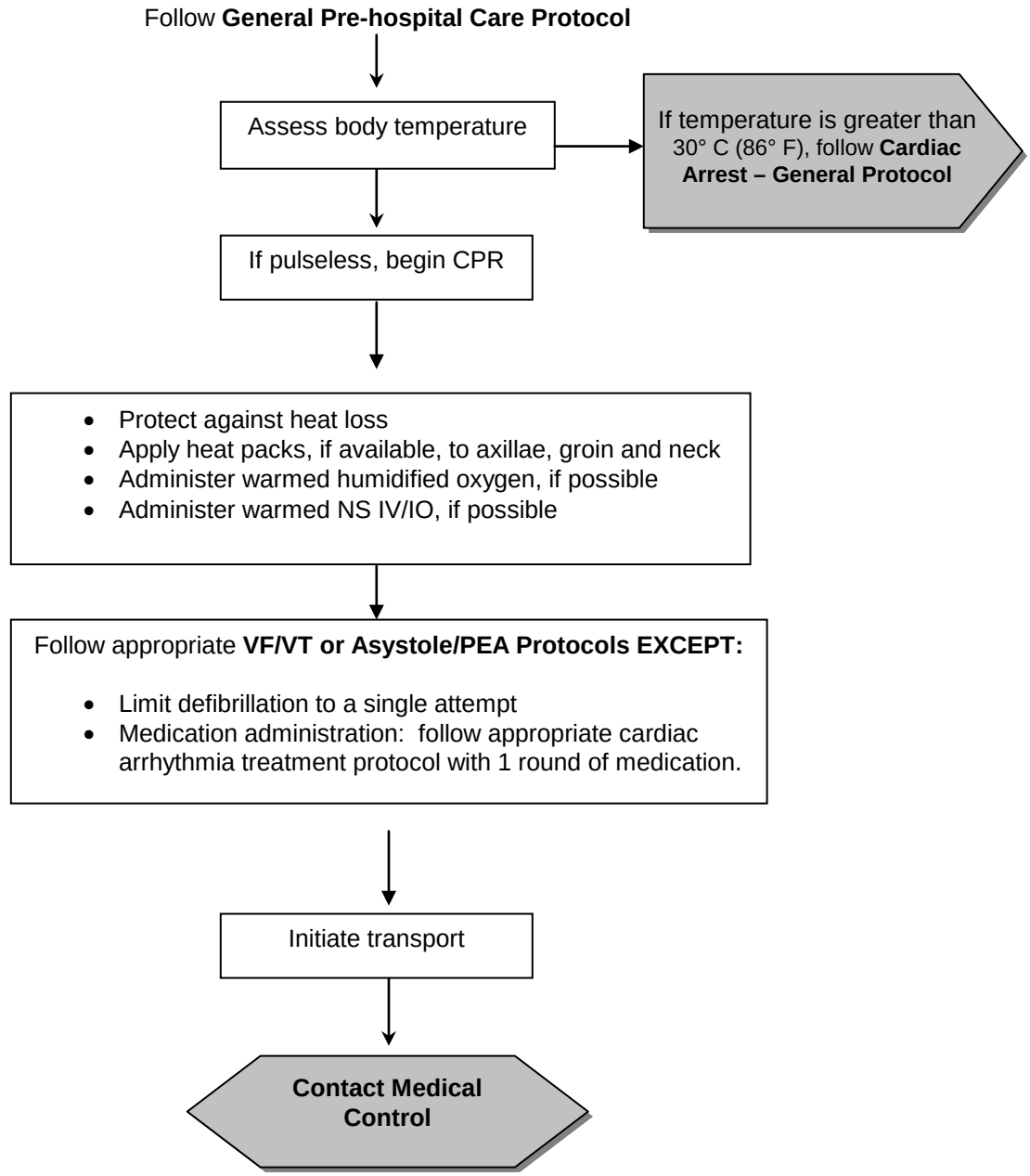
7. Administer warmed NS IV/IO, if possible.

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.


Follow **General Pre-hospital Care Protocol**
Assess body temperature
If temperature is greater than 30° C (86° F), follow **Cardiac Arrest – General Protocol**
If pulseless, begin CPR
Protect against heat loss
Apply heat packs, if available, to axillae, groin and neck
Administer warmed humidified oxygen, if possible
Administer warmed NS IV/IO, if possible
Follow appropriate **VF/VT or Asystole/PEA Protocols EXCEPT:**
Limit defibrillation to a single attempt
Medication administration: follow appropriate cardiac arrhythmia treatment protocol with 1 round of medication.
Initiate transport
Contact Medical Control

Nitroglycerin Drip Supplement to Chest Pain / Acute Coronary Syndrome

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

Post-Medical Control

This protocol provides for the use of a Nitroglycerin Drip in the pre-hospital setting for systems that can justify the use based on long transport times. Implementation of the protocol requires additional paramedic training approved by the Medical Control Authority and Department. A suggested training outline is included in this protocol.

Indications for Nitroglycerin Drip

1. Chest pain secondary to presumed cardiac ischemia, acute coronary syndrome or acute myocardial infarction. The nitroglycerin drip may be used after failure of SL nitroglycerin and narcotic administration to relieve cardiac chest pain treated using the **Chest Pain / Acute Coronary Syndrome** protocol.
2. Acute pulmonary edema / CHF. The nitroglycerin drip may be used as a supplement to SL nitroglycerin treatment using the **Acute Pulmonary Edema / CHF** protocol.
3. Continued as a maintenance drip for patients during inter-facility transfers.

Equipment

1. At least one functioning IV. A second IV preferable to allow additional IV fluid or medication administration.
2. Pump and tubing supplied by the ambulance service. The pump may also be supplied by the hospital provided the paramedics have been previously trained in the use of the hospital pump.
3. Nitroglycerin drip, supplied by the sending facility. Insure sufficient volume is taken to complete the transport.

Administrations Guidelines

1. Dosing
   A. Nitroglycerin may be mixed in D5W or NS. Dosing chart: see Table I.
   B. For pre-hospital use begin the nitroglycerin drip at 10 mcg/min and increase by 10 mcg/min at 5 minute intervals if chest pain persists and systolic blood pressure remains above 100 mmHg.
   C. If titrating nitroglycerin for Pulmonary Edema / CHF, titrate until systolic BP is 120 mmHg or below.
   D. For inter-hospital patient transfers a nitroglycerin drip may be continued at the rate begun at the transferring hospital. Titrate the drip as above to relieve chest pain or per sending facility orders.

2. Patient monitoring
   A. If pain resolves completely, maintain drip at current rate of administration.
   B. If pain continues, increase the drip rate by 10 mcg/min every 5 minutes until pain resolves or systolic BP falls below 100 mmHg.
   C. Maximum dose is 200 mcg/min.
   D. If systolic BP falls below 90 mmHg during titration, decrease the drip rate by 10 mcg/min and give a NS IV/IO fluid bolus up to 1 liter, wide open. If BP remains below 90 mmHg, discontinue drip.

Table I. Dosing Chart for Nitroglycerin

	Amount to infuse in ml/hr	
Dose (mcg/min)	50 mg/250 ml 100 mg/500 ml (200 mcg/ml)	100 mg/250 ml 200 mg/500 ml (400 mcg/ml)
10	3	1.5
20	6	3
30	9	5
40	12	6
50	15	8
60	18	9
70	21	10
80	24	12
90	27	14
100	30	15
110	33	17
120	36	18
130	39	19
140	42	21
150	45	23
160	48	24
170	51	26
180	54	27
190	57	29
200	60	30

Nitroglycerin Drip Training Guidelines

Suggested Training Requirements for Paramedics

1. Training requirements for paramedics = 2 hours
   A. Nitroglycerin training = 1 hour
   B. Pump training = 1 hour

2. Pharmacology and actions of nitroglycerin
   A. Cardiovascular effects
      a. Decreases preload: reduces venous tone, decreasing venous load on the heart.
      b. Decreases afterload: reduces peripheral vascular resistance.
      c. Increases myocardial oxygen supply: causes dilatation of coronary arteries and relief of coronary artery spasm.
   B. Generalized effect: causes generalized smooth muscle relaxation

3. Administrations Guidelines
   A. Dosing
      a. Nitroglycerin may be mixed in D5W or NS. Dosing chart: see Table I.
      b. For pre-hospital use begin the nitroglycerin drip at 10 mcg/min and increase by 10 mcg/min at 5 minute intervals if chest pain persists and systolic blood pressure remains above 100 mmHg.
      c. If titrating nitroglycerin for Pulmonary Edema / CHF, titrate until systolic BP is 120 mmHg or below.
      d. For inter-hospital patient transfers a nitroglycerin drip may be continued at the rate begun at the transferring hospital. Titrate the drip as above to relieve chest pain or per sending facility orders.

4. Patient monitoring and titration of nitroglycerin drip
   A. Patient should be have continuous cardiac rhythm monitoring and frequent blood pressure monitoring. Blood pressure should be rechecked after each dosing change.
   B. If pain resolves completely, maintain drip at current rate of administration.
   C. If pain continues, increase the drip rate by 10 mcg/min every 5 minutes until pain resolves or systolic BP falls below 100 mmHg.
   D. Maximum dose is 200 mcg/min.
   E. If systolic BP falls below 90 mmHg during titration, decrease the drip rate by 10 mcg/min and give a NS IV/IO fluid bolus up to 1 liter, wide open. If BP remains below 90 mmHg, discontinue drip.

5. Side effects and special notes
   A. Peripheral vasodilatation can cause profound hypotension and reflex tachycardia.
   B. Common side effects: throbbing headaches, flushing, dizziness

C. Less common: orthostatic hypotension, sometimes marked. Nitroglycerin does not provide controlled hypotension.
D. Because nitroglycerin causes generalized smooth muscle relaxation, it may be effective in relieving chest pain caused by esophageal spasm.

Table I. Dosing Chart for Nitroglycerin

	Amount to infuse in ml/hr	
Dose (mcg/min)	50 mg/250 ml 100 mg/500 ml (200 mcg/ml)	100 mg/250 ml 200 mg/500 ml (400 mcg/ml)
10	3	1.5
20	6	3
30	9	5
40	12	6
50	15	8
60	18	9
70	21	10
80	24	12
90	27	14
100	30	15
110	33	17
120	36	18
130	39	19
140	42	21
150	45	23
160	48	24
170	51	26
180	54	27
190	57	29
200	60	30

Pulmonary Edema / CHF

This protocol is to be followed for patients in acute respiratory distress situations, not chronic.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-Hospital Care Protocol**.
2. Initiate supplemental oxygen by non-rebreather mask.
3. Position patient upright with legs dependent, if possible.

EMT/SPECIALIST

4. Consider CPAP (if available) per **CPAP/BiPAP Procedure.**

SPECIALIST

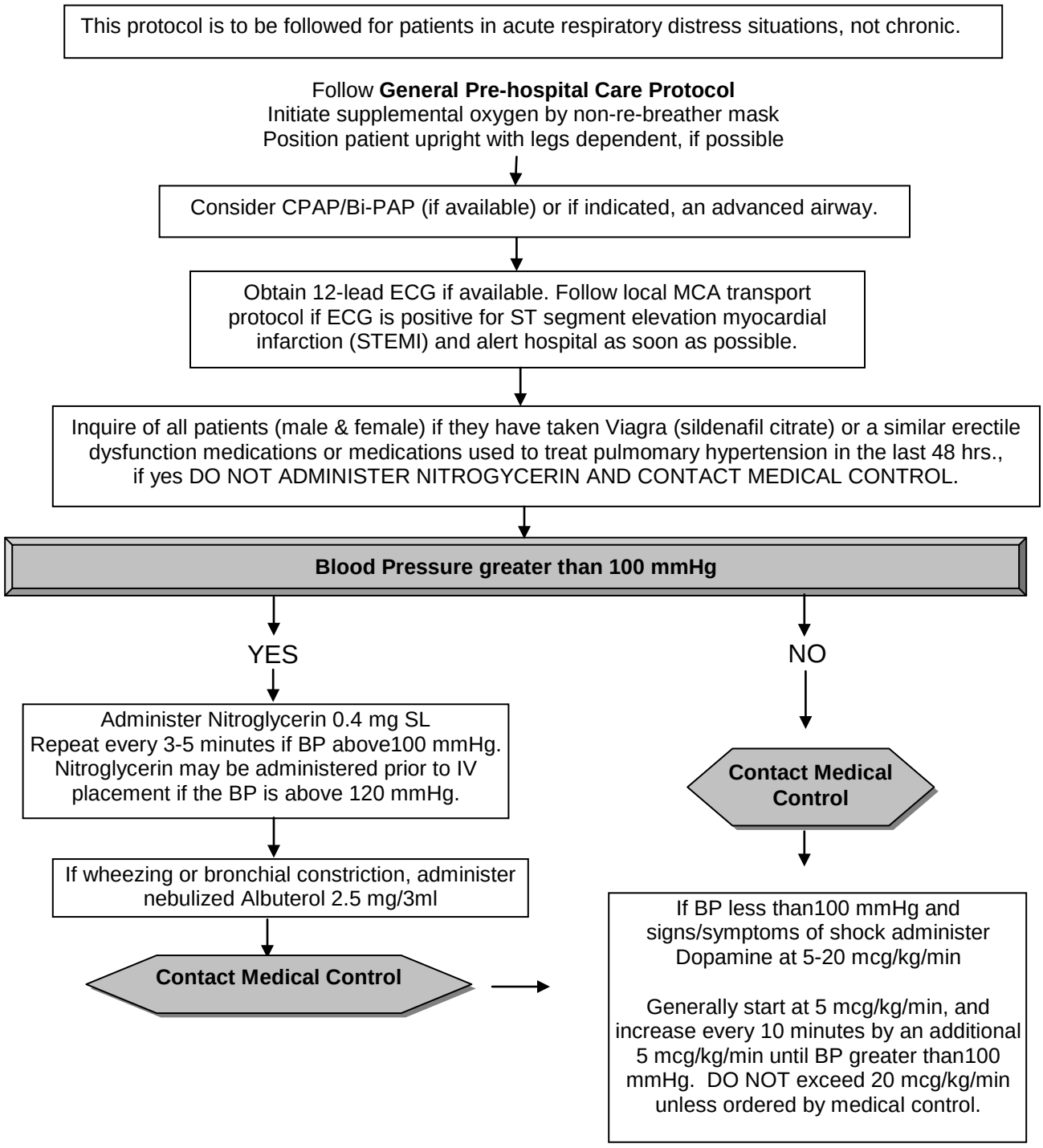
5. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
6. If BP above 100 mmHg, administer Nitroglycerin 0.4 mg SL. Repeat every 3-5 minutes if BP above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
7. If wheezing or bronchial constriction administer nebulized Albuterol 2.5 mg/3ml.

PARAMEDIC

8. Consider CPAP / Bi-PAP (if available) or if indicated, an advanced airway.
9. Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for ST segment elevation myocardial infarction (STEMI) and alert hospital as soon as possible.
10. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
11. If BP above 100 mmHg, administer Nitroglycerin 0.4 mg SL. Repeat every 3-5 minutes if BP above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
12. If wheezing or bronchial constriction administer nebulized Albuterol 2.5 mg/3ml.

Post-Medical Control

13. If BP is less than 100 mmHg and signs/symptoms of 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 is greater than 100 mmHg. DO NOT exceed 20 mcg/kg/min unless ordered by medical control.


This protocol is to be followed for patients in acute respiratory distress situations, not chronic.
Follow **General Pre-hospital Care Protocol**
Initiate supplemental oxygen by non-re-breather mask
Position patient upright with legs dependent, if possible
Consider CPAP/Bi-PAP (if available) or if indicated, an advanced airway.
Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for ST segment elevation myocardial infarction (STEMI) and alert hospital as soon as possible.
Inquire of all patients (male & female) if they have taken Viagra (sildenafil citrate) or a similar erectile dysfunction medications or medications used to treat pulmomary hypertension in the last 48 hrs., if yes DO NOT ADMINISTER NITROGYCERIN AND CONTACT MEDICAL CONTROL.
Blood Pressure greater than 100 mmHg
YES
NO
Administer Nitroglycerin 0.4 mg SL
Repeat every 3-5 minutes if BP above100 mmHg.
Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
If wheezing or bronchial constriction, administer nebulized Albuterol 2.5 mg/3ml
Contact Medical Control
Contact Medical Control
If BP less than100 mmHg and signs/symptoms of shock administer Dopamine at 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 than100 mmHg. DO NOT exceed 20 mcg/kg/min unless ordered by medical control.

Tachycardia

This protocol is used for the care of patients with persistent tachycardia (ventricular rate greater than 150/minute) where the tachycardia is believed to be the primary cause of the patient's symptoms. It is not intended to treat tachycardia that is secondary to underlying conditions (i.e., dehydration, trauma toxins). Consultation with online medical control should be considered for complex patients in whom the cause of the arrhythmia is not obvious. SYNCHRONIZED CARDIOVERSION PRECEDES DRUG THERAPY FOR UNSTABLE PATIENTS. Unstable patients may be defined as those suffering a tachycardia with: hypotension, acutely altered mental status, signs of shock, significant ischemic chest discomfort, shortness of breath, or pulmonary edema that is likely due to the arrhythmia. Adenosine is only used for regular monomorphic rhythm tachycardia.

Pre-Medical Control

PARAMEDIC

1. Follow the **General Pre-Hospital Care Protocol**.
2. Identify and treat reversible causes.
3. Determine if patient is stable or unstable.

UNSTABLE

4. If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Procedure**.
5. For unstable patients with a **REGULAR NARROW OR WIDE** rhythm, cardiovert beginning at 100 J, increasing to 200 J, 300 J, 360 J. (Use manufacturers suggested biphasic energy dose, 100 J).
6. For unstable patients with an **IRREGULAR NARROW** rhythm, cardiovert beginning at 200 J, increasing to 300 J, 360 J. (Use manufacturers suggested biphasic energy dose, 120 – 200 J).
7. For patients that are unstable with an **IRREGULAR WIDE** rhythm, cardiovert beginning at 200 J, increasing to 300 J, 360 J. (Use manufacturers suggested biphasic energy dose 150 – 200 J).

STABLE

8. DO NOT USE CAROTID MASSAGE. Have the patient attempt to bear down (a valsalva maneuver).
9. Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.
10. If the rhythm is regular, consider Adenosine 6 mg rapid IV push through the most proximal injection site. This should be followed immediately with 20 ml NS flush.
11. If conversion does not occur, administer Adenosine 12 mg IV using the same technique as stated above.
12. If rhythm is stable with narrow QRS contact medical control for possible orders.
13. If rhythm is stable with wide QRS administer Amiodarone ***OR*** Lidocaine per MCA Selection

Medication Options
(Choose One)

☑ Amiodarone - 150 mg IV over 10 minutes

OR

☐ Lidocaine – 1 mg/kg IV

14. If at any point a patient becomes unstable proceed to cardioversion.
15. Administer Magnesium Sulfate 2 gm IV/IO for suspected torsades de pointes.
16. Contact Medical Control

Post-Medical Control

17. Per MCA selection, administer additional Amiodarone 150 mg IV over 10 minutes as needed to a maximum of 450 mg OR Lidocaine 0.5 -1.0 mg/kg IV push every 5 - 10 minutes to a maximum of 3 mg/kg.

NOTES:

1. Administration of Amiodarone is best accomplished by adding Amiodarone 150 mg to 100 or 250 ml of NS and infusing over approximately 10 minutes.
2. Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 or 250 ml of NS and infusing over approximately 10 minutes.

This protocol is used for the care of patients with persistent tachycardia (with a ventricular rate greater than 150/minute) where the tachycardia is believed to be the primary cause of the patient's symptoms. It is not intended to treat tachycardia that is secondary to underlying conditions (i.e., dehydration, trauma toxins). Consultation with online medical control should be considered for complex patients in whom the cause of the arrhythmia is not obvious. SYNCHRONIZED CARDIOVERSION PRECEDES DRUG THERAPY FOR UNSTABLE PATIENTS. Unstable patients may be defined as those suffering a tachycardia with: hypotension, acutely altered mental status, signs of shock, significant ischemic chest discomfort, shortness of breath, or pulmonary edema that is likely due to the arrhythmia. Adenosine is only used for regular monomorphic rhythm tachycardia.

- Follow **General Pre-hospital Care Protocol**
- Identify and treat reversible causes

DETERMINE STABILITY

STABLE

- DO NOT USE CAROTID MASSAGE. Have patient attempt to bear down (a valsalva maneuver).
- Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.

Regular Rhythm?

REGULAR RHYTHM NARROW OR WIDE

REGULAR

- Consider Adenosine 6 mg rapid IV push through the most proximal injection site, followed immediately with a 20 ml NS flush.
- If conversion does not occur, administer Adenosine 12 mg IV using same technique as stated above.

NARROW QRS

Contact Medical Control

WIDE

Administer Amiodarone or Lidocaine per MCA selection

UNSTABLE

- If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Procedure**.
- For unstable patients with a **REGULAR NARROW or WIDE** rhythm, cardiovert beginning at 100 J, increasing to 200 J, 300 J, then 360 J. (Use manufacturers' suggested biphasic energy dose, 100 J).
- For unstable patients with an **IRREGULAR NARROW** rhythm, cardiovert beginning at 200 J, increasing to 300 J then 360 J. (Use manufacturers' suggested biphasic energy dose, 120 - 200 J).
- For unstable patients with an **IRREGULAR WIDE** rhythm, cardiovert beginning at 200 J, increasing to 300 J then 360 J. (Use manufacturers' suggested biphasic energy dose, 150 - 200 J).

Medication Options:
(Choose One)

☑ Amiodarone 150 mg IV over 10 minutes

OR

☐ Lidocaine 1 mg/kg IV

If at any point a patient becomes unstable proceed to cardioversion. Administer Magnesium Sulfate 2 g IV/IO for suspected torsades de pointes.

Contact Medical Control

Per MCA selection, administer additional Amiodarone 150 mg IV over 10 minutes as needed to a max of 450 mg OR Lidocaine 0.5-1.0 mg/kg IV push every 5-10 minutes to a max of 3 mg/kg

NOTES:

1. Administration of Amiodarone is best accomplished by adding Amiodarone 150 mg to 100 or 250 ml of NS and infusing over approximately 10 minutes.
2. Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 or 250 ml of NS and infusing over approximately 10 minutes.

Ventricular Fibrillation / Pulseless Ventricular Tachycardia

If AED is applied prior to ALS arrival, perform CPR and reassess the rhythm as indicated. After each intervention resume CPR immediately and reassess the rhythm after each 2 minute or 5 cycle interval.

For Biphasic devices shock with energy levels following manufacturers' recommendations (120 – 200 J). If unknown use the maximum available. For monophasic devices use 360 J.

Pre-Medical Control

PARAMEDIC

1. Follow the **Cardiac Arrest – General Protocol**.
2. Defibrillate and then continue CPR for 2 minutes.
3. Repeat defibrillation every 2 minutes as indicated with immediate resumption of compressions. If rhythm changes go to appropriate protocol.
4. Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts, start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
5. Administer Epinephrine 1:10,000, 1 mg (10 ml) IV/IO. Repeat every 3-5 minutes. May be administered before or after defibrillations.

Vasopressin
40 Units IV/IO

☐ Included

☐ Not Included

6. Per MCA selection, administer Vasopressin 40 units IV/IO in place of the second dose of Epinephrine.
7. Establish an advanced airway. Avoid significant interruptions in CPR. See **Emergency Airway Procedure**.
8. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer Amiodarone 300 mg IV/IO. May be administered before or after defibrillations.
9. In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 1g IV/IO and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.
10. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer additional Amiodarone 150 mg IV/IO. May be administered before or after defibrillations.
11. If patient is in Torsades de Pointes administer Magnesium Sulfate 2 grams IV/IO.

- If AED is applied prior to ALS arrival, perform CPR and reassess the rhythm as indicated. After each intervention resume CPR immediately and reassess the rhythm after each 2 minute or 5 cycle interval.
- For Biphasic devices, shock with energy levels following manufacturers' recommendations (120 – 200 J). If unknown use the maximum available. For monophasic devices use 360 J.

↓

Follow **Cardiac Arrest General Protocol**

↓

- Defibrillate and then continue CPR for 2 minutes.

↓

- Repeat defibrillation every 2 minutes as indicated with immediate resumption of compressions.
- If rhythm changes go to appropriate protocol.

↓

Vasopressin
40 Units IV/IO

☐ Included

☐ Not Included

- Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
- Administer Epinephrine 1:10,000, 1 mg (10 ml) IV/IO. Repeat every 3-5 minutes. May be administered before or after defibrillations.
- Per MCA selection, administer Vasopressin 40 units IV/IO in place of the second dose of Epinephrine.
- Establish an advanced airway. Avoid significant interruptions in CPR. See **Emergency Airway Procedure**.
- For persistent or recurrent VF / Pulseless VT, administer Amiodarone 300 mg IV/IO. May be administered before or after defibrillations.
- In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 1g IV/IO and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.
- For persistent or recurrent VF/ Pulseless VT, administer additional Amiodarone 150 mg IV/IO. May be administered before or after defibrillations.
- If patient is in Torsades de Pointes administer Magnesium Sulfate 2 grams IV/IO.

TABLE OF CONTENTS

Pediatric Altered Mental Status

The purpose of this protocol is to provide for the assessment and treatment of pediatric 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 **Pediatric Assessment and Treatment Protocol**.
2. Restrain patient if necessary, refer to **Patient Restraint Procedure**.
3. **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 concern regarding spinal injury, place the patient on either side.

MFR/EMT/SPECIALIST

C. For a known diabetic, consider small amounts of oral glucose paste, buccal or sublingual.

EMT/SPECIALIST/PARAMEDIC

4. **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.

SPECIALIST/PARAMEDIC

5. If glucose is less than 60 mg/dl, administer Dextrose.
    A. Dextrose 12.5% for neonates, (under 1 month of age) 4 ml/kg IV/IO*.
    B. Dextrose 25% for children up to 12 years old, 2 ml/kg IV/IO*.

*The IO route is a last resort if IV cannot be established and Glucagon is not available with online Medical Control approval.

6. If respiratory depression is present, administer Naloxone up to 0.1 mg/kg (maximum dose 2 mg) IV slowly, titrating to improve respiratory status or IM; repeat as needed.
7. Per MCA selection, if unable to start IV, when Dextrose is indicated, administer Glucagon.

Glucagon
1 mg IM

☑ Included

☐ Not Included

Post-Medical Control

1. Repeat Dextrose as indicated.
2. Repeat Naloxone as indicated.

NOTE:

1. To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.

2. To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

3. To avoid extravasation, a patent IV must be available for IV administration of Dextrose. Dextrose should always be pushed slowly (e.g., over 1-2 minutes).

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

Follow **Pediatric Assessment & Treatment Protocol**

Restrain patient if necessary, refer to **Patient Restraint Procedure**

If patient is not alert or vital signs are unstable:

- Evaluate & maintain airway, provide oxygenation & support ventilations as needed.
- If no concern regarding spinal injury, place patient on either side.

If the patient is alert but demonstrating signs of hypoglycemia:

- Measure blood glucose level, if available
- If less than 60 mg/dl administer oral high caloric fluid

If Glucose less than 60 mg/dl, administer Dextrose

- Dextrose 12.5% for neonates (under 1 month of age) 4 ml/kg IV/IO*
- Dextrose 25% for children up to12 years old, 2 ml/kg IV/IO*

*The IO route is a last resort if IV cannot be established and Glucagon is not available with online Medical Control approval.

- If respiratory depression is present, administer Naloxone up to 0.1 mg/kg (maximum dose 2 mg) IV slowly, titrating to improve respiratory status or IM; repeat as needed.
- Per MCA selection, if unable to start IV when Dextrose is indicated, administer Glucagon.

Glucagon
1 mg IM
☑ Included
☐ Not Included

Contact Medical Control

- Repeat Dextrose as indicated
- Repeat Naloxone as indicated

NOTE:	
To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.	To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

To avoid extravasation, a patent IV must be available for IV administration of Dextrose. Dextrose should always be pushed slowly (e.g., over 1-2 minutes).

Pediatric Anaphylaxis/Allergic Reaction

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment 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:
    A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
    B. If child weighs between 10-30 kg (approx. 60 lbs.); administer Epi-Pen Jr.
    C. Child weighing greater than 30 kg; administer Epi-Pen.
5. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.

PARAMEDIC

6. If patient is symptomatic, administer diphenhydramine 1 mg/kg IM/IV/IO (maximum dose 50 mg).
7. In cases of severe allergic reaction, wheezing or hypotension:
    A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
    B. Child weighing less than 30 kg (approx. 60 lbs.); administer Epinephrine 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr., if available.
    C. Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen if available.
8. In cases of profound anaphylactic shock (near cardiac arrest):
    A. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) slow IV/IO to a maximum of 0.3 mg (3 ml).
9. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**.

10. Per MCA Selection administer Prednisone **OR** Methylprednisolone.

Medication Options:

Prednisone
50 mg tablet PO
(Children 6 and above, if tolerated)

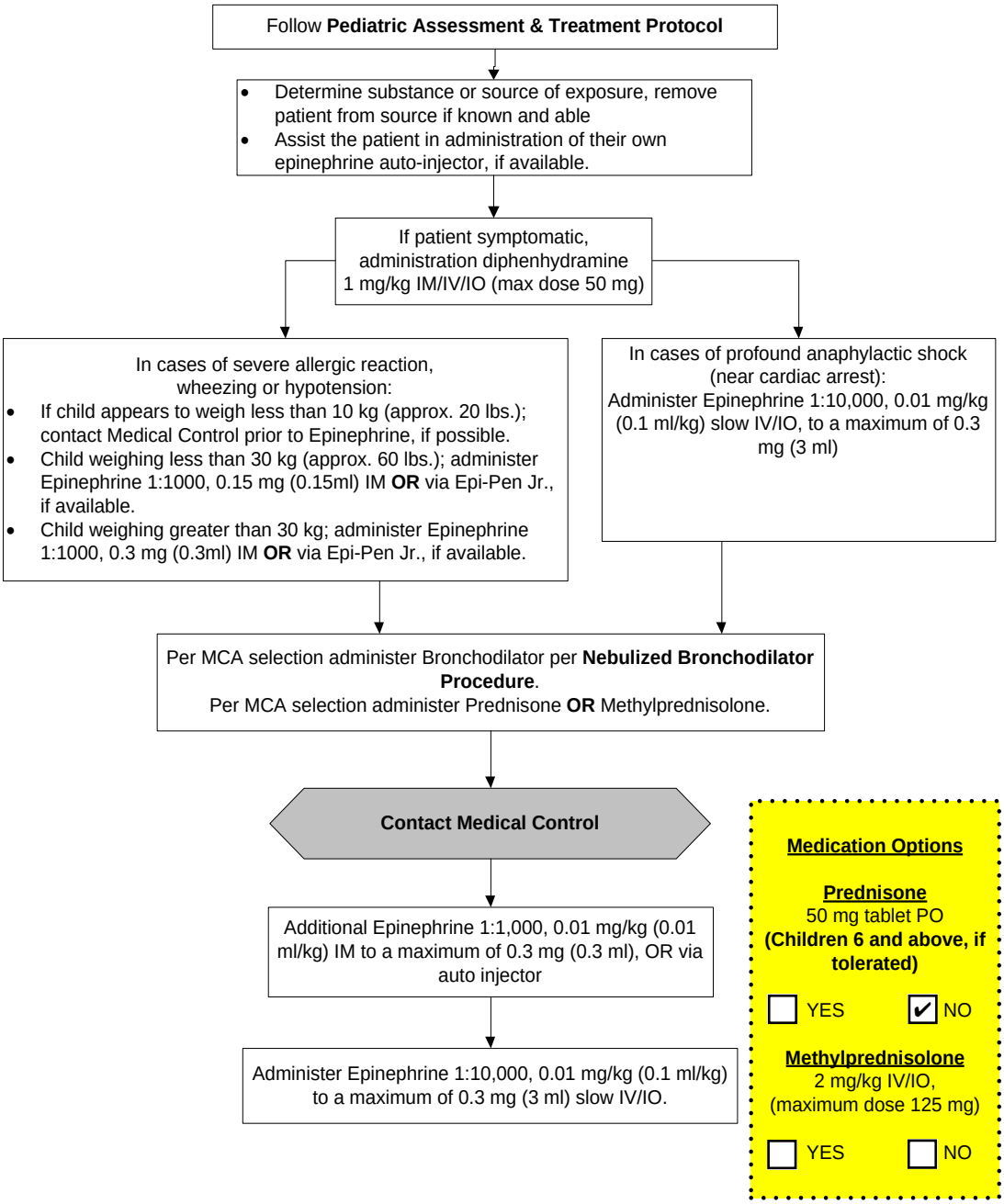
☐ YES ☑ NO

Methylprednisolone
2 mg/kg IV/IO,
(maximum dose 125 mg)

☐ YES ☐ NO

Post-Medical Control:

1. Additional Epinephrine 1:1,000, 0.01 mg/kg (0.01 ml/kg) IM to a maximum of 0.3 mg (0.3 ml), OR via auto-injector.
2. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) to a maximum of 0.3 mg (3 ml) slow IV/IO.


Follow **Pediatric Assessment & Treatment Protocol**
Determine substance or source of exposure, remove patient from source if known and able
Assist the patient in administration of their own epinephrine auto-injector, if available.
If patient symptomatic, administration diphenhydramine 1 mg/kg IM/IV/IO (max dose 50 mg)
In cases of severe allergic reaction, wheezing or hypotension:
If child appears to weigh less than 10 kg (approx. 20 lbs.); contact Medical Control prior to Epinephrine, if possible.
Child weighing less than 30 kg (approx. 60 lbs.); administer Epinephrine 1:1000, 0.15 mg (0.15ml) IM **OR** via Epi-Pen Jr., if available.
Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3ml) IM **OR** via Epi-Pen Jr., if available.
In cases of profound anaphylactic shock (near cardiac arrest):
Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) slow IV/IO, to a maximum of 0.3 mg (3 ml)
Per MCA selection administer Bronchodilator per **Nebulized Bronchodilator Procedure**.
Per MCA selection administer Prednisone **OR** Methylprednisolone.
Contact Medical Control
Additional Epinephrine 1:1,000, 0.01 mg/kg (0.01 ml/kg) IM to a maximum of 0.3 mg (0.3 ml), OR via auto injector
Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) to a maximum of 0.3 mg (3 ml) slow IV/IO.
Medication Options
Prednisone
50 mg tablet PO
(Children 6 and above, if tolerated)
☐ YES ☑ NO
Methylprednisolone
2 mg/kg IV/IO,
(maximum dose 125 mg)
☐ YES ☐ NO

Pediatric Assessment & Treatment

Purpose: This protocol provides general guidelines for pediatric patient management. Unless otherwise stated, pediatric protocols will apply to patients less than or equal to 14 years of age. If the patient's age is not known, then pediatric protocols will apply until there are physical signs that the patient has reached puberty as indicated by armpit hair in boys and breast development in girls.

Assessment

MRF/EMT/SPECIALIST/PARAMEDIC

1. Ensure scene safety.
2. Form a general impression of the patient's condition.
3. Observe standard precautions.
4. Establish patient responsiveness. If cervical spine trauma is suspected, manually stabilize the spine.

Management

MRF/EMT/SPECIALIST/PARAMEDIC

1. Assess the patient's airway and respirations. If compromise is suspected refer to the **Pediatric Respiratory Distress, Failure or Arrest Protocol**.
2. Control hemorrhage using direct pressure or a pressure dressing.
3. Assess circulation and perfusion by measuring heart rate and observing skin color and temperature, capillary refill time, blood pressure, and the quality of central and peripheral pulses.
4. Evaluate mental status, including pupillary reaction, distal function and sensation.
5. If spinal trauma is suspected, continue manual stabilization, place a size appropriately rigid cervical collar, and observe spinal precautions. Refer to **Pediatric Trauma Protocol.**
6. Expose the child only as necessary to perform further assessments. Keep child as warm as possible.
7. Reassess the patient frequently.
8. If pulse absent, refer to **Pediatric Cardiac Arrest - General Protocol**.

EMT/SPECIALIST/PARAMEDIC

9. For pediatric patients with life threatening or potentially life threatening conditions measure the patient with Broselow Pediatric Emergency Care tape to determine color.
10. If the child's condition is critical or unstable, initiate transport as indicated. Perform focused history and detailed physical examination en route to the hospital if patient status and management of resources permit.

SPECIALIST/PARAMEDIC

11. If there is evidence of shock, obtain vascular access using an age-appropriate large-bore catheter. If intravenous access cannot be obtained, proceed with intraosseous access if indicated. Administer an IV/IO fluid bolus of normal saline at 20 ml/kg set to maximum flow rate. Reassess patient after bolus. If signs of shock persist, bolus may be repeated at the same dose for a maximum total of 40 ml/kg.

PARAMEDIC

12. Initiate cardiac monitoring.

Post-Radio

1. Contact Medical Control for additional instructions.

Purpose: This protocol provides general guidelines for pediatric patient management. Unless otherwise stated, pediatric protocols will apply to patients less than or equal to 14 years of age. If the patient's age is not known, then pediatric protocols will apply until there are physical signs that the patient has reached puberty as indicated by armpit hair in boys and breast development in girls.

Assessment

- Ensure scene safety
- Form a general impression of patient's condition
- Observe standard precautions
- Establish patient responsiveness
- If cervical spine trauma is suspected, manually stabilize the spine

Management

Assess patient's airway & respirations → If compromise suspected → Refer to **Pediatric Respiratory Distress, Failure or Arrest Protocol**

Control hemorrhage using direct pressure or a pressure dressing

Assess circulation & perfusion by:

- Measuring heart rate
- Observing skin color & temperature, capillary refill time
- Blood pressure
- Quality of central & peripheral pulses
- Evaluate mental status including pupillary reaction, distal function & sensation

Spinal trauma suspected:

- Continue manual stabilization
- Place a sized appropriately rigid cervical collar & observe spinal precautions

→ Refer to **Pediatric Trauma Protocol**

Expose child only as necessary to perform further assessments
Keep child as warm as possible

Reassess patient frequently → If pulse absent → Refer to **Pediatric Cardiac Arrest General Protocol**

For patients with life threatening or potentially life threating conditions
Measure patient with Broselow Pediatric Emergency Care tape to determine color

If child's condition is critical or unstable, initiate transport as indicated.

Perform focused history & detailed physical exam en route to hospital if patient status & management of resources permit

If evidence of Shock

- Obtain vascular access using age-appropriate large-bore catheter
- If IV access cannot be obtained, proceed with IO, if indicated.
- Administer an IV/IO fluid bolus of NS at 20 ml/kg set to max flow rate
- Reassess patient after bolus
- If signs of shock persist, bolus may be repeated at the same dose for a maximum total of 40 ml/kg

Initiate cardiac monitoring

Contact Medical Control

Pediatric Bronchospasm

Pre-Medical Control:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.

MFR/EMT/SPECIALIST

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

EMT/SPECIALIST

3. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.
4. Consider CPAP, if available, per **CPAP/BiPAP Procedure.**
5. In cases of severe respiratory distress/failure:
   A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
   B. If child weighs between 10-30 kg (approx. 60 lbs.); administer Epi-Pen Jr.
   C. Child weighing greater than 30 kg; administer Epi-Pen.

PARAMEDIC

6. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**.
7. Per MCA selection, if a second nebulized treatment is needed also administer Prednisone **OR** Methylprednisolone.

Medication Options:

Prednisone
50 mg tablet PO
(Children 6 and above, if tolerated)

☐ YES ☑ NO

Methylprednisolone
2 mg/kg IV/IO,
(maximum dose 125 mg)

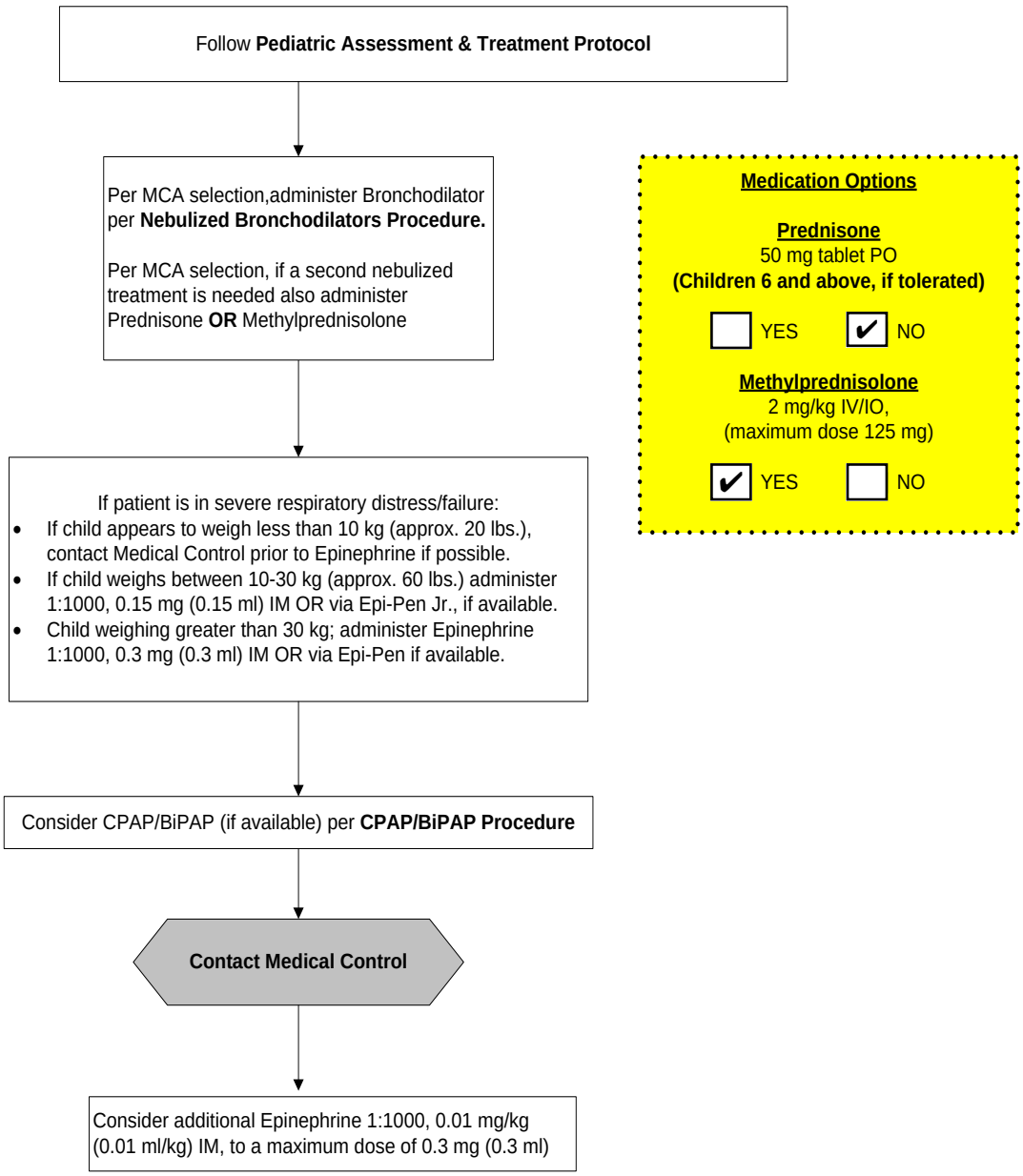
☑ YES ☐ NO

8. If patient is in severe respiratory distress/failure:
   A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
   B. If child weighs between 10- 30 kg (approx. 60 lbs.); administer Epinephrine 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr., if available.
   C. Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen if available.

9. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

Post -Medical Control:

1. Consider additional Epinephrine 1:1000, 0.01 mg/kg (0.01 ml/kg) IM, to a maximum dose of 0.3 mg (0.3 ml).


Follow **Pediatric Assessment & Treatment Protocol**
Per MCA selection,administer Bronchodilator per **Nebulized Bronchodilators Procedure.**
Per MCA selection, if a second nebulized treatment is needed also administer Prednisone **OR** Methylprednisolone
Medication Options
Prednisone
50 mg tablet PO
(Children 6 and above, if tolerated)
☐ YES ☑ NO
Methylprednisolone
2 mg/kg IV/IO,
(maximum dose 125 mg)
☑ YES ☐ NO
If patient is in severe respiratory distress/failure:
• If child appears to weigh less than 10 kg (approx. 20 lbs.), contact Medical Control prior to Epinephrine if possible.
• If child weighs between 10-30 kg (approx. 60 lbs.) administer 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr., if available.
• Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen if available.
Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**
Contact Medical Control
Consider additional Epinephrine 1:1000, 0.01 mg/kg (0.01 ml/kg) IM, to a maximum dose of 0.3 mg (0.3 ml)

Pediatric Burns

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Refer to **Pediatric Assessment and Treatment 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 ECG for possible arrhythmias. Treat as per specific arrhythmia protocol.

FOR ALL TYPES OF BURNS:

SPECIALIST/PARAMEDIC

6. Obtain vascular access if indicated for pain management or fluid therapy.
7. If partial or full thickness burn is greater than 15% BSA
   A. Administer an IV/IO fluid bolus NS 20 ml/kg set to maximum flow rate. Reassess patient after bolus.

B. If signs of shock are present, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.

8. Follow local MCA transport protocol.

PARAMEDIC

9. Administer Analgesic Medication, if indicated. Refer to **Pain Management Procedure.**

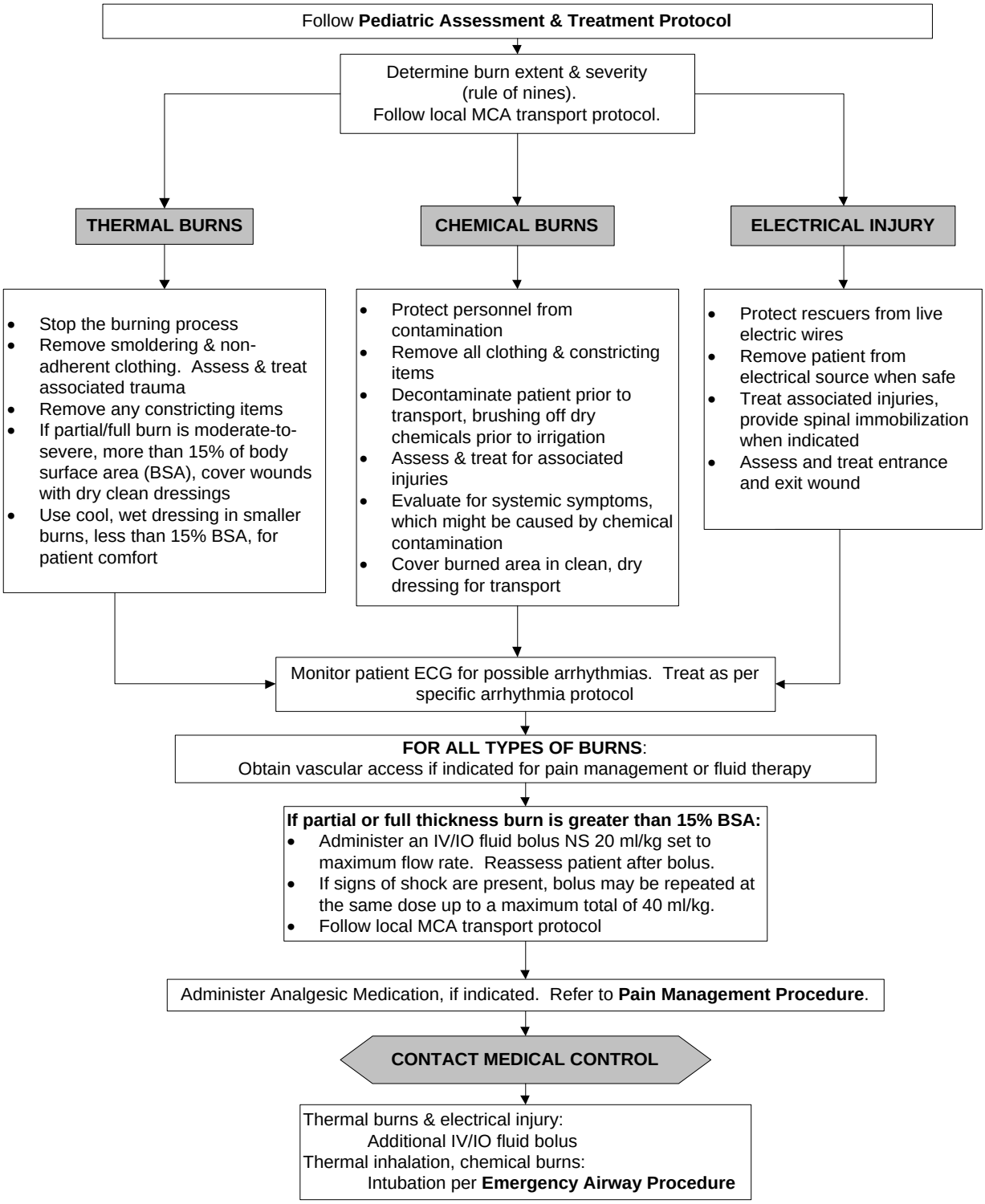
Post-Medical Control

Thermal Burns and Electrical Injury:

1. Additional IV/IO fluid bolus.

Thermal inhalation, chemical burns:

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


Follow **Pediatric Assessment & Treatment Protocol**
Determine burn extent & severity (rule of nines). Follow local MCA transport protocol.
THERMAL BURNS
CHEMICAL BURNS
ELECTRICAL INJURY
• Stop the burning process
• Remove smoldering & non-adherent clothing. Assess & treat associated trauma
• Remove any constricting items
• If partial/full burn is moderate-to-severe, more than 15% of body surface area (BSA), cover wounds with dry clean dressings
• Use cool, wet dressing in smaller burns, less than 15% BSA, for patient comfort
• Protect personnel from contamination
• Remove all clothing & constricting items
• Decontaminate patient prior to transport, brushing off dry chemicals prior to irrigation
• Assess & treat for associated injuries
• Evaluate for systemic symptoms, which might be caused by chemical contamination
• Cover burned area in clean, dry dressing for transport
• Protect rescuers from live electric wires
• Remove patient from electrical source when safe
• Treat associated injuries, provide spinal immobilization when indicated
• Assess and treat entrance and exit wound
Monitor patient ECG for possible arrhythmias. Treat as per specific arrhythmia protocol
FOR ALL TYPES OF BURNS:
Obtain vascular access if indicated for pain management or fluid therapy
If partial or full thickness burn is greater than 15% BSA:
• Administer an IV/IO fluid bolus NS 20 ml/kg set to maximum flow rate. Reassess patient after bolus.
• If signs of shock are present, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.
• Follow local MCA transport protocol
Administer Analgesic Medication, if indicated. Refer to **Pain Management Procedure**.
CONTACT MEDICAL CONTROL
Thermal burns & electrical injury:
Additional IV/IO fluid bolus
Thermal inhalation, chemical burns:
Intubation per **Emergency Airway Procedure**

Pediatric Drowning/Near Drowning/Submersion

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

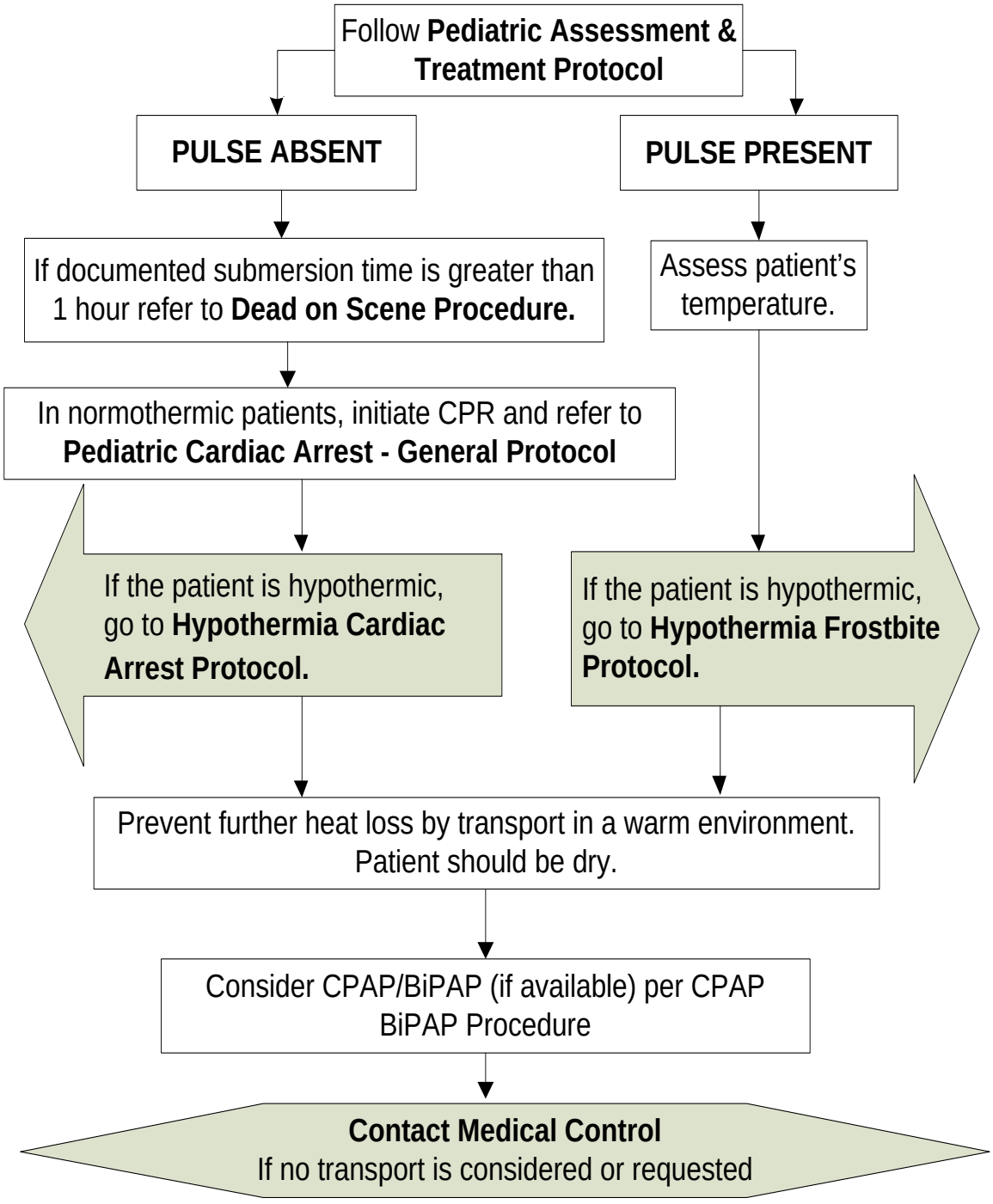
1. Follow **Pediatric Assessment and Treatment Protocol**
2. **If pulse is absent**:
   A. If documented submersion time is greater than 1 hour refer to the **Dead on Scene Procedure.**
   B. In normothermic patients, initiate CPR and refer to **Pediatric Cardiac Arrest - General Protocol**.
   C. If the patient is hypothermic, go to **Hypothermia Cardiac Arrest Protocol.**
   D. Prevent further heat loss by transport in a warm environment. Patient should be dry.

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 kept dry.

EMT/SPECIALIST/PARAMEDIC

   D. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**

4. Contact Medical Control if no transport is considered or requested.


Follow **Pediatric Assessment & Treatment Protocol**
PULSE ABSENT
PULSE PRESENT
If documented submersion time is greater than 1 hour refer to **Dead on Scene Procedure.**
Assess patient's temperature.
In normothermic patients, initiate CPR and refer to **Pediatric Cardiac Arrest - General Protocol**
If the patient is hypothermic, go to **Hypothermia Cardiac Arrest Protocol.**
If the patient is hypothermic, go to **Hypothermia Frostbite Protocol.**
Prevent further heat loss by transport in a warm environment. Patient should be dry.
Consider CPAP/BiPAP (if available) per CPAP BiPAP Procedure
Contact Medical Control
If no transport is considered or requested

Pediatric Fever

This protocol is intended to assist EMS providers in reducing fever in the pediatric patients prior to arrival to the emergency department. Fever is defined as a core temperature of 101 degrees Fahrenheit (38 degrees Celsius) or greater. Emergency management of the febrile child involves an assessment to determine if any associated problems are present which may require emergency treatment.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Obtain baseline temperature and document method used.
2. Facilitate passive cooling by removing excess clothing and blankets.

PARAMEDIC

3. If the child has not been given acetaminophen in last four (4) hours and is alert, give oral Tylenol (acetaminophen) 15 mg/kg.
4. If any question concerning alertness or ability to swallow, **DO NOT ADMINISTER.**

Acetaminophen Dosing Chart[1]

Child's Weight *Child's Age*	**Children's Suspension Liquid (160 mg/5ml)**
6-11 lbs *0-3 mos*	**¼ tsp or 1.25 mL (40 mg)** *PO q 4h prn; Max 75 mg/kg/day*
12-17 lbs *6-11 mos*	**½ tsp or 2.5 mL (80 mg)** *PO q 4h prn; Max 75 mg/kg/day*
18-23 lbs *12-23 mos*	**¾ tsp or 3.75 mL (120 mg)** *PO q 4h prn; Max 75 mg/kg/day*
24-35 lbs *2-3 yrs*	**1 tsp or 5 mL (160 mg)** *PO q 4h prn; Max 75 mg/kg/day*
36-47 lbs *4-5 yrs*	**1 ½ tsp or 7.5 mL (240 mg)** *PO q 4h prn; Max 75 mg/kg/day*
48-59 lbs *6-8 yrs*	**2 tsp or 10 mL (320 mg)** *PO q 4h prn; Max 75 mg/kg/day*
60-71 lbs *9-10 yrs*	**2 ½ tsp or 12.5 mL (400 mg)** *PO q 4h prn; Max 75 mg/kg/day*
72-95 lbs *11 yrs*	**3 tsp or 15 mL (480 mg)** *PO q 4h prn; Max 75 mg/kg/day*
96+ lbs *12 yrs*	**4 tsp or 20 mL (640 mg)** *PO q 4h prn; Max 75 mg/kg/day*

Safety tips for Acetaminophen

1. ***Don't give to babies under 3 mos. w/o Medical Control Approval***
2. ***Don't confuse infant drops with the new infant liquid. Avoid use of any medication not provided in EMS supply.***
3. ***Always use the measuring device that comes with the medicine.***
4. ***The proper dosage is based on weight, not age. To determine the weight of a very young child, weigh yourself and then weigh yourself while holding the child. Then subtract your weight from the combined weight. Alternately, may use a Broselow Tape, if available.***
5. ***Never give acetaminophen to a child that has been given other medicine that may contain acetaminophen until confirmed otherwise.***
6. ***Don't exceed five doses in a 24 hour period.***

1. http://assets.babycenter.com/ims/Content/first-year-health-guide_acetaminophen_chart_pdf.pdf

Pediatric Nausea & Vomiting

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

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

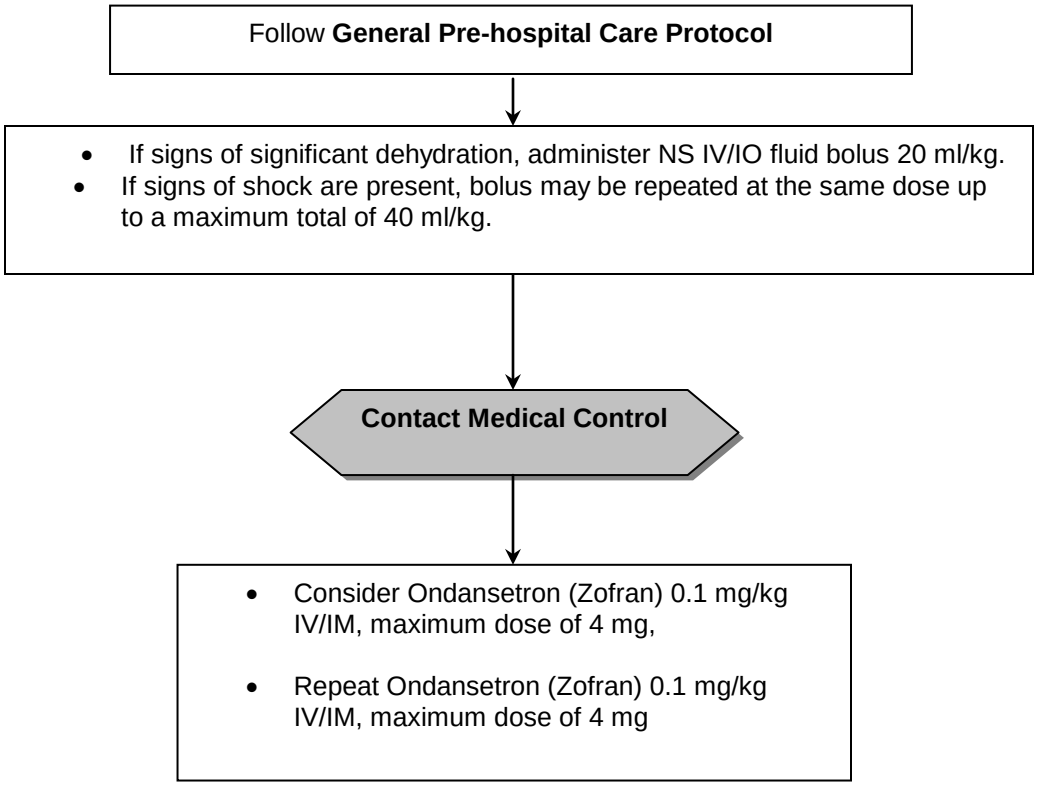
SPECIALIST/PARAMEDIC

2. If signs of significant dehydration, administer NS IV/IO fluid bolus 20 ml/kg.
3. If signs of shock are present, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.

Post-Medical Control

PARAMEDIC

1. Consider Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg.
2. Repeat Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg.


Follow **General Pre-hospital Care Protocol**
If signs of significant dehydration, administer NS IV/IO fluid bolus 20 ml/kg.
If signs of shock are present, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.
Contact Medical Control
Consider Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg,
Repeat Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg

Pediatric Newborn Assessment, Treatment and Resuscitation

This protocol should be followed for all newly born infants.

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

1. **As the infant is being born, rapidly evaluate each of these three (3) criteria:**
   A. Is this a full term delivery?
   B. Is the newborn breathing or crying
   C. Is there good muscle tone? (movement vs. flaccid)

2. **If the observation to ALL 3 criteria is YES:**
   A. Place the baby with the mother
   B. Provide warmth (See Preventing Heat Loss below)
   C. Clear the airway if necessary (See Airway Management below)
   D. Dry the baby
   E. Provide ongoing evaluation
   F. Record APGAR scores at 1, 3 and 5 minutes (see APGAR chart)
   G. Cut the umbilical cord (see Umbilical Cord Management below)

3. **If the observation to ANY of the 3 criteria is NO:**
   A. Provide warmth (See Preventing Heat Loss below)
   B. Clear the airway if necessary (see Airway Management below)
   C. Dry the baby
   D. Stimulate

4. **Check Heart Rate**
   A. 100 +, proceed to **Check Breathing**
   B. Under 100
      a. Assist ventilations with a bag valve mask (see Airway Management below)
      b. Monitor SpO2 (see Target SpO2 Goals)
5. **Check Breathing**
   A. Non-labored and no cyanosis
      a. HR 100+: go to "A" above
      b. HR below 100, continue to assist ventilations and reevaluate
   B. Labored breathing or persistent cyanosis
      a. Clear airway
      b. Monitor SpO2 (see target SpO2 goals)
      c. Assist ventilations if HR below 100 or core cyanosis

6. **Reevaluate HR**
   A. 100+: go to "A" above
   B. Below 100 but more than 60: continue to support ventilations
   C. Under 60:

a. Begin compressions at 3:1 ratio (See CPR below)
b. Coordinate compressions with ventilations

7. **Reevaluate HR**
   A. 100+: monitor closely to ensure stability
   B. Below 100 but more than 60: continue to support ventilations

SPECIALIST/PARAMEDIC
   C. If HR begins to decline or cyanosis worsens despite ventilatory support, consider intubation
   D. Establish IO or IV
   E. Reevaluate

MFR/EMT/SPECIALIST/PARAMEDIC
   A. Below 60: Continuous CPR at 3:1

SPECIALIST/PARAMEDIC
   B. Establish IO or IV

PARAMEDIC
   C. Provide epinephrine (1:10,000) 0.01mg/kg IO or IV

8. **Other considerations**

SPECIALIST/PARAMEDIC
   A. If known blood loss, consider Normal Saline bolus 10mL/kg
   B. Evaluate blood glucose, if < 60 mg/dl administer dextrose 10% (1 gm/10 ml), 0.2 gm/kg IV/IO.
   C. To obtain 10 % Dextrose mixture draw 40 ml out of one amp of D50 and discard, then add 40 ml of NS.
   D. If known or suspected narcotics use by the mother, consider naloxone 0.1mg/kg IO or IV

MFR/EMT/SPECIALIST/PARAMEDIC

9. **Preventing Heat Loss:**
   A. Dry off amniotic fluid and remove all wet linen.
   B. Maintain a warm environment for the infant
   C. Rubber gloves filled with warm water (if available) can serve as heat packs. DO NOT apply directly to skin.
   D. Extreme CAUTION should be used if chemical heat packs are used to provide warmth. Never place directly on or near the infant's skin. Keep multiple layers between to avoid burns.

10. **Airway Management**
    A. If the newborn is vigorous (strong respiratory effort, good muscle tone, and a heart rate > 100 bpm), there is no need to suction the airway, even if meconium was in the amniotic fluid or there was meconium staining.
    B. Positive pressure ventilation should use the minimum volume and pressure to achieve perceptible chest rise and/or achieve or maintain a HR>100.

PARAMEDIC

    C. If the newborn is having difficulty breathing, has poor muscle tone, has a heart rate less than 100bpm, or there is visible meconium in the airway,
        a. The patient should be intubated and the lower airway suctioned via ET tube (with LOW PRESSURE (80-120mmHg) suction to the tube)
        b. Repeat suction with new tube each time.
    D. Consider placing a gastric tube, if available, to decompress the stomach when positive pressure ventilation is required.
    E. If intubation is indicated due to ongoing and persistent central cyanosis, lack of chest rise or other complication, despite adequate ventilation:
        a. SpO2 must be measured
        b. Waveform capnography must be used if available
        c. Consider Pneumothorax

MFR/EMT/SPECIALIST/PARAMEDIC

11. **CPR**
    A. Two thumbs encircling the chest technique is preferred. Compressions and ventilations should occur in a 3:1 ratio and should be done quickly enough to provide 90 compressions and 30 ventilations per minute.
    B. Newborns who have required resuscitation are at risk for deterioration even after a return to normal vital signs, reassess frequently
    C. Avoid excessive volume or rate with ventilation.

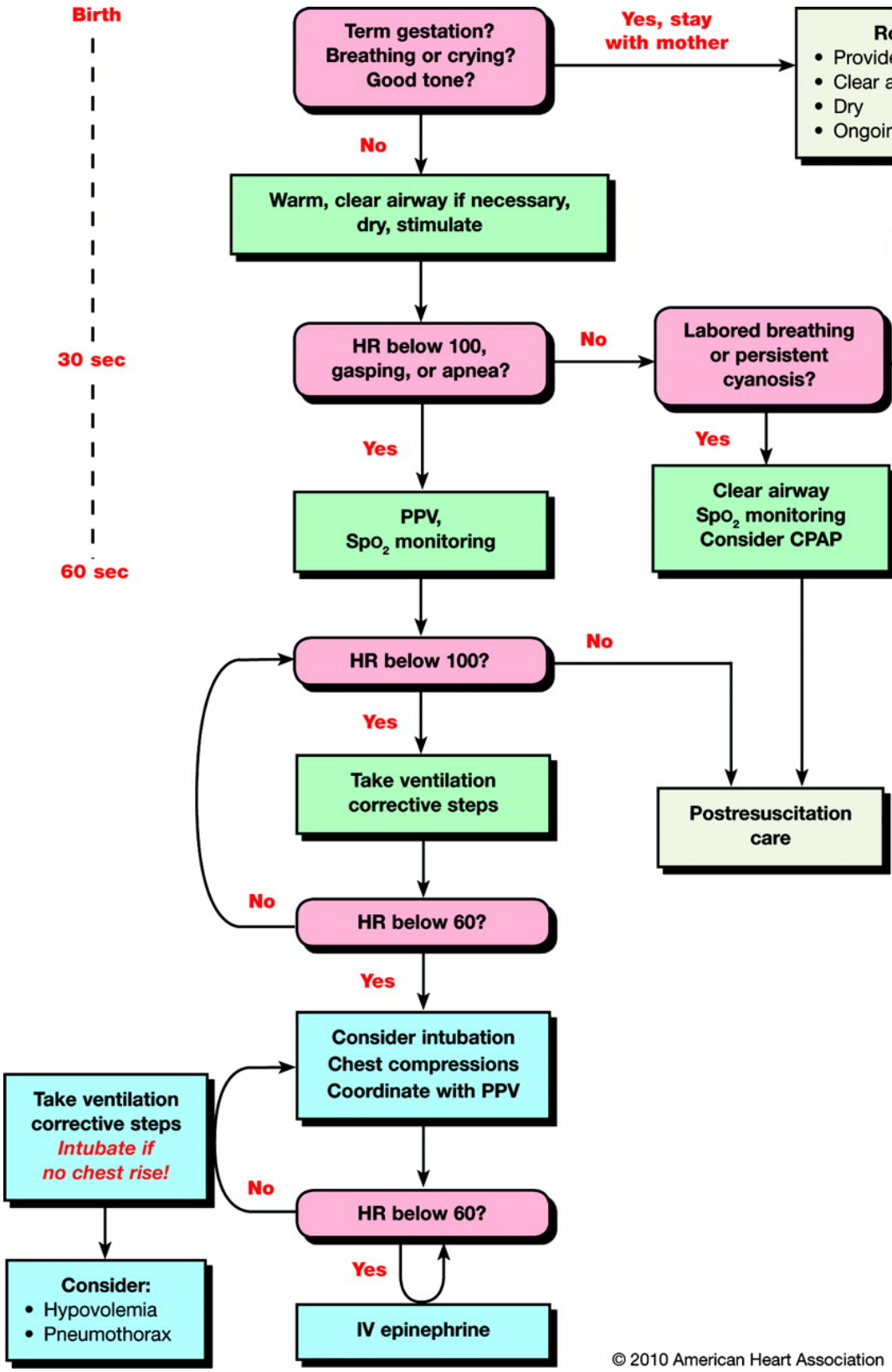
12. **Umbilical Cord Management**
    A. The umbilical cord **should not** be cut immediately; wait until the child is breathing adequately, the cord has stopped pulsating or, in the vigorous infant, two to three minutes post delivery. When prepared to cut the cord, it must be tied or clamped approximately 8" from the infant's abdominal wall with a second tie or clamp 2" further. The cord should be cut between the ties / clamps.

13. **Target SpO2 Goals**
    A. Monitor SpO2 and apply oxygen only if SpO2 goes below target of :
        - 1 minute post delivery (60-65%)
        - 3 minutes post delivery (70-75%)
        - 5 minutes post delivery (80-85%)
        - 10 minutes post delivery (85-95%)

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

NOTE: Resuscitation may not be appropriate in rare cases where gestational age (confirmed gestational age <20 weeks) or fatal birth defects (for example anencephaly or absence of skull bones and brain hemispheres) are consistently associated with certain early death. Contact Medical Control in these cases.



Targeted Preductal Spo_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Pediatric Poisoning/Overdose

Pre-Medical Control

GENERAL MANAGEMENT OF TOXIC EXPOSURE (INCLUDING INGESTION)

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment 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
☐	Not Included

SKIN ABSORPTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Brush off dry chemicals before irrigation.
2. 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 **Pediatric Altered Mental Status Protocol**.
2. If respiratory distress, refer to **Pediatric Respiratory Distress, Failure or Arrest Protocol**.
3. If the patient is seizing, refer to **Pediatric Seizure Protocol**.

PARAMEDIC

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

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 (e.g., nausea, vomiting, sweating, weakness and mild to moderate shortness of breath)
    A. 14 years old or greater – 1 Mark I Kit/Duo Dote auto injector.
    B. Between 2-14 years old: one 1 mg Atropen if available, otherwise 1 Mark 1Kit /Duo Dote auto injector. Contact Medical Control if time permits.
    C. If less than 2 years old, contact Medical Control.
3. Severe signs & symptoms (e.g. unconscious, seizing, severe respiratory distress)
    A. 14 years old or greater – 2-3 Mark I Kits/Duo Dote auto injectors.
    B. Less than 14 years old: 1-2 Mark 1 Kits/Duo Dote auto injectors.

PARAMEDIC

4. For severe symptoms administer 1 dose of benzodiazepine at appropriate weight-based dose per **Seizure Protocol** regardless of seizure activity.
5. 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.
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 **Pediatric Anaphylaxis/Allergic Reaction 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.

SPECIALIST/PARAMEDIC

5. In suspected narcotic overdose with respiratory compromise or hemodynamic instability, consider Naloxone 0.1 mg/kg IV/IM (maximum 2 mg), repeat as indicated.

Post-Medical Control

SPECIALIST/PARAMEDIC

6. If Beta Blocker overdose is suspected AND the patient is bradycardic and hypotensive;
   A. Per MCA selection administer Glucagon 1 mg IV/IM/IO. May be repeated after contact with Medical Control and if additional Glucagon is available.
   B. Consider calcium chloride 20 mg/kg IV, **(**maximum dose 1 gm). NOTE: IV Calcium Chloride should be pushed slowly through a patent IV, avoiding hand and foot IV sites.

Glucagon

☑ Included

☐ Not Included

PARAMEDIC

7. For symptomatic tricyclic antidepressant ingestions (tachycardia or arrythmia, wide complex QRS, seizures or hemodynamic instability), administer sodium bicarbonate 1 mEq/kg IV, repeat as needed.
8. For extrapyramidal dystonic reactions, administer diphenhydramine 1 mg/kg IV, (maximum dose 50 mg).
9. For symptomatic calcium channel blocker overdose, per MCA selection administer Glucagon 1 mg IV/IM/IO. Consider calcium chloride 20 mg/kg IV, **(**maximum dose 1 gm). NOTE: IV Calcium Chloride should be pushed slowly through a patent IV, avoiding hand and foot IV sites.

Follow **Pediatric Assessment & Treatment Protocol**

General Management Toxic Exposure (including ingestion)

- Use proper equipment & prepare for decontamination if necessary
- Remove clothing exposed to chemical (dry decon)
- Identify substance (patient exposed to)
- Alert receiving hospital if patient may present HAZMAT risk
- Sample of drug or substance & any medication or poison containers should be brought in with patient if it does NOT pose a risk to rescuers
- Refer to **Pain Management Procedure**

Management of Bites and Stings

Spiders, snakes & scorpions

- Protect rescuers
- Bring in if captured & contained or dead for accurate I.D.
- Ice for comfort on spider or scorpion bite
- **DO NOT** apply ice to snake bites.

Bees & wasps

- Remove sting mechanism (honeybees only) – scrape out
- Do not squeeze venom sac if this remains on stinger
- Provide wound care
- Observe patient for systematic allergic reaction
- Treat Anaphylaxis per **Pediatric Anaphylaxis/ Allergic Reaction Protocol**

Inhalation exposures

- Dilute noxious gas inhaled including carbon dioxide & smoke
- Ensure high concentration of oxygen is provided
- For suspected cyanide gas exposure – refer to **Cyanide Exposure Protocol** and contact Medical Control immediately

Eye contamination

- Irrigate continuously with Normal Saline or tap water 15 min (attempt to continue enroute) or as directed by Medical Control
- Alkali exposure, maintain continuous irrigation
- If available, administer Tetracaine 1-2 drops per eye, to facilitate irrigation. Ensure patient does not rub eyes.

Tetracaine:
☑ Included
☐ Not Included

Skin absorption

- Brush of dry chemicals before irrigation.
- Irrigate continuously with Normal Saline or tap water 15 minutes or as directed by Medical Control

Ingestion

- Altered Mental Status **– refer to Pediatric Altered Mental Status Protocol**
- Respiratory distress **– refer to Pediatric Respiratory Distress, Failure or Arrest Protocol**
- Seizure **– refer to Pediatric Seizure Protocol**
- Cardiac dysrhythmia – refer to appropriate pediatric dysrhythmia protocol

Organophosphate exposure (Malathion, Parathion)

Organophosphate exposure (Malathion, Parathion)

- Administer Mark I Kit/Duo Dote auto injector per **Nerve Agent/ Organophosphate Pesticide Exposure Treatment Protocol.**
- **Mild or moderate symptoms** (e.g., nausea, vomiting, sweating, weakness & mild to moderate shortness of breath)
  - 14 years old or greater: 1 Mark 1 Kit/Duo Dote auto injector
  - Between 2-14 years: one 1 mg Atropen if available, otherwise 1 Mark 1 Kit/Duo Dote auto injector. Contact Medical Control if time permits.
  - If less than 2 years old: contact Medical Control.
- **Severe signs & symptom**s (e.g., unconscious, seizing, severe respiratory distress)
  - 14 years old or greater: 2-3 Mark I Kits/Duo Dote auto injectors
  - Less than 14 years old: 1-2 Mark 1 Kit/Duo Dote auto injectors
- For severe symptoms administer 1 dose of benzodiazepine at appropriate weight-based dose per **Seizure Protocol** regardless of seizure activity.
- If Mark I Kit/Duo Dote auto injector is unavailable, 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 min. until SLUDGEM symptoms improve or as directed. (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermobility, Emesis, Muscle twitching or spasm)

Drug, chemical, plant, mushroom ingestion

- Use protective eye equipment
- In situations for potential ingestion or inhalation of petroleum distillates: DO NOT induce vomiting
- Monitor respiratory & mental status very closely
- If patient is alert & oriented: prepare for emesis, recover & save emesis
- Use appropriate barriers according to universal precautions guidelines

In suspected narcotic overdose with respiratory compromise or hemodynamic instability, consider Naloxone 0.1 mg/kg IV/IM (maximum 2 mg), repeat as indicated.

Contact Medical Control

If Beta Blocker overdose is suspected AND patient is bradycardic & hypotensive; per MCA selection, administer Glucagon 1 mg IV/IM/IO. May be repeated after MCA contact & if additional Glucagon available. Consider calcium chloride 20 mg/kg IV, (maximum dose 1 gm). **NOTE:** IV Calcium Chloride should be pushed slowly through a patent IV, avoiding hand & foot IV sites.

Glucagon
☑ Included
☐ Not Included

Symptomatic tricyclic antidepressant ingestion (tachycardia, or arrythmia, wide complex, QRS), administer sodium bicarbonate 1 mEq/kg IV repeat as needed.

Extrapyramidal dystonic reactions, administer diphenhydramine 1 mg/kg IV, (maximum dose 50 mg).

Symptomatic calcium channel blocker overdose, per MCA selection administer Glucagon 1 mg IV/IM/IO. Consider calcium chloride 20 mg/kg IV, (maximum dose 1 gm).
NOTE: IV Calcium Chloride should be pushed slowly through a patent IV, avoiding hand & foot IV sites.

Pediatric Respiratory Distress, Failure or Arrest

Pre-Medical Control

MRF/EMT/SPECIALIST/PARAMEDIC

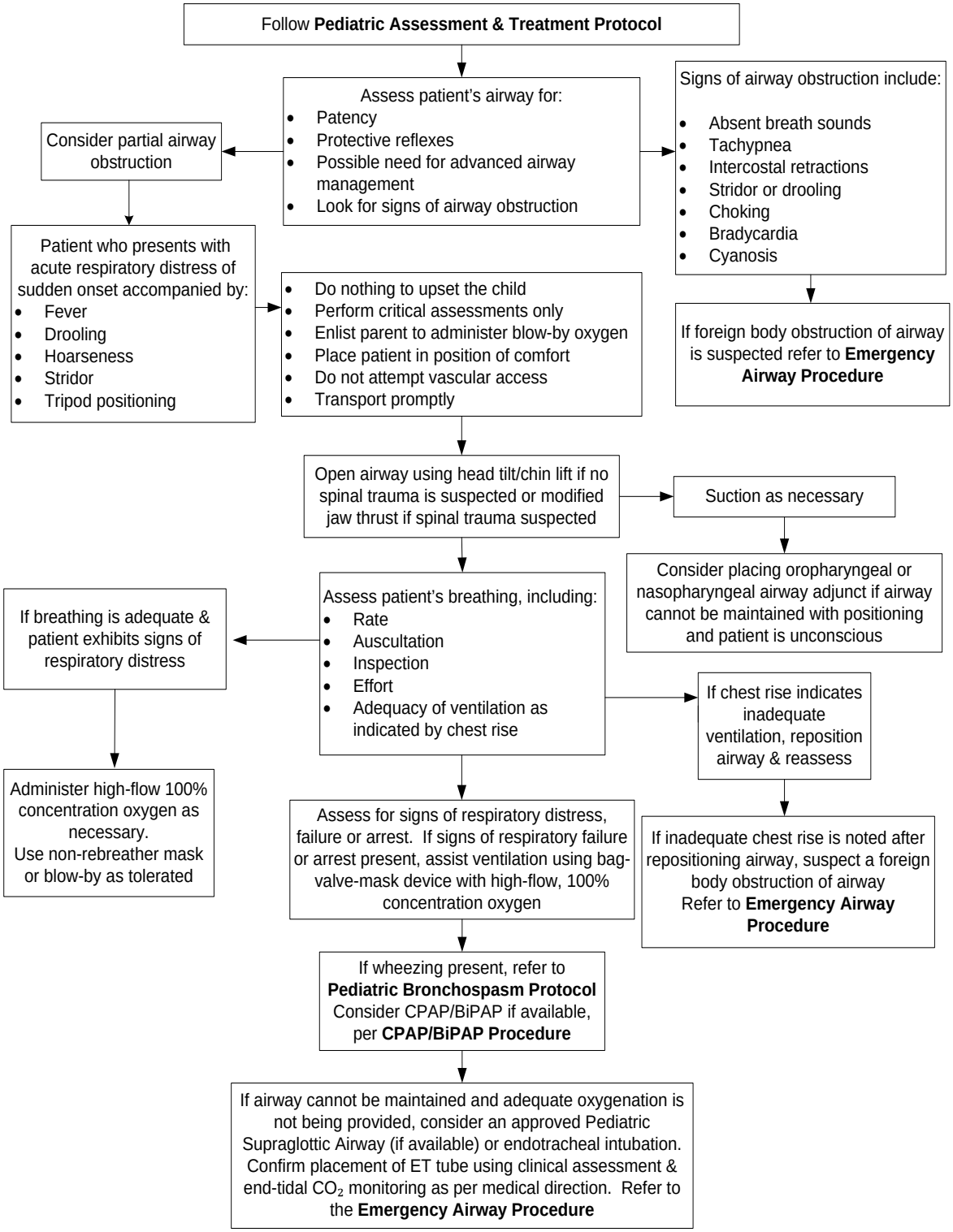
1. Follow **Pediatric Assessment and Treatment Protocol.**
2. Assess the patient's airway for patency, protective reflexes and the possible need for advanced airway management. Look for signs of airway obstruction. Signs include:
   A. absent breath sounds
   B. tachypnea
   C. intercostal retractions
   D. stridor or drooling
   E. choking
   F. bradycardia
   G. cyanosis
3. If foreign body obstruction of the airway is suspected, refer to the **Emergency Airway Procedure.**
4. Consider partial airway obstruction in a patient who presents with acute respiratory distress of sudden onset accompanied by fever, drooling, hoarseness, stridor, and tripod positioning.
   A. Do nothing to upset the child.
   B. Perform critical assessments only.
   C. Enlist the parent to administer blow-by oxygen.
   D. Place the patient in a position of comfort.
   E. Do not attempt vascular access.
   F. Transport promptly
5. Open the airway using head tilt/chin lift if no spinal trauma is suspected, or modified jaw thrust if spinal trauma is suspected.
6. Suction as necessary.
7. Consider placing an oropharyngeal or nasopharyngeal airway adjunct if the airway cannot be maintained with positioning and the patient is unconscious.
8. Assess the patient's breathing, including rate, auscultation, inspection, effort, and adequacy of ventilation as indicated by chest rise.
9. If chest rise indicates inadequate ventilation, reposition airway and reassess.
10. If inadequate chest rise is noted after repositioning airway, suspect a foreign body obstruction of the airway. Refer to the **Emergency Airway Procedure.**
11. If breathing is adequate and patient exhibits signs of respiratory distress, administer high-flow, 100% concentration oxygen as necessary. Use a non-rebreather mask or blow-by as tolerated.
12. Assess for signs of respiratory distress, failure, or arrest. If signs of respiratory failure or arrest are present, assist ventilation using a bag-valve-mask device with high-flow, 100% concentration oxygen.

EMT/SPECIALIST

13. If wheezing is present, refer to the **Pediatric Bronchospasm Protocol**.
14. Consider CPAP if available, per **CPAP/BiPAP Procedure**.
15. If the airway cannot be maintained and adequate oxygenation is not being provided, consider an approved Pediatric Supraglottic Airway, if available. Refer to the **Emergency Airway Procedure**.

PARAMEDIC

16. If wheezing is present, refer to the **Pediatric Bronchospasm Protocol**.
17. Consider CPAP/BiPAP if available, per **CPAP/BiPAP Procedure**.
18. If the airway cannot be maintained and adequate oxygenation is not being provided, consider an approved Pediatric Supraglottic Airway, if available or endotracheal intubation.
19. Confirm placement of endotracheal tube using clinical assessment and end-tidal CO_2 monitoring, if available. Refer to the **Emergency Airway Procedure**.


Follow **Pediatric Assessment & Treatment Protocol**
Assess patient's airway for:
• Patency
• Protective reflexes
• Possible need for advanced airway management
• Look for signs of airway obstruction
Consider partial airway obstruction
Signs of airway obstruction include:
• Absent breath sounds
• Tachypnea
• Intercostal retractions
• Stridor or drooling
• Choking
• Bradycardia
• Cyanosis
Patient who presents with acute respiratory distress of sudden onset accompanied by:
• Fever
• Drooling
• Hoarseness
• Stridor
• Tripod positioning
• Do nothing to upset the child
• Perform critical assessments only
• Enlist parent to administer blow-by oxygen
• Place patient in position of comfort
• Do not attempt vascular access
• Transport promptly
If foreign body obstruction of airway is suspected refer to **Emergency Airway Procedure**
Open airway using head tilt/chin lift if no spinal trauma is suspected or modified jaw thrust if spinal trauma suspected
Suction as necessary
Consider placing oropharyngeal or nasopharyngeal airway adjunct if airway cannot be maintained with positioning and patient is unconscious
Assess patient's breathing, including:
• Rate
• Auscultation
• Inspection
• Effort
• Adequacy of ventilation as indicated by chest rise
If breathing is adequate & patient exhibits signs of respiratory distress
If chest rise indicates inadequate ventilation, reposition airway & reassess
Administer high-flow 100% concentration oxygen as necessary.
Use non-rebreather mask or blow-by as tolerated
Assess for signs of respiratory distress, failure or arrest. If signs of respiratory failure or arrest present, assist ventilation using bag-valve-mask device with high-flow, 100% concentration oxygen
If inadequate chest rise is noted after repositioning airway, suspect a foreign body obstruction of airway
Refer to **Emergency Airway Procedure**
If wheezing present, refer to **Pediatric Bronchospasm Protocol**
Consider CPAP/BiPAP if available, per **CPAP/BiPAP Procedure**
If airway cannot be maintained and adequate oxygenation is not being provided, consider an approved Pediatric Supraglottic Airway (if available) or endotracheal intubation. Confirm placement of ET tube using clinical assessment & end-tidal CO_2 monitoring as per medical direction. Refer to the **Emergency Airway Procedure**

Pediatric Seizures

Pre-Medical Control

MRF/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. **IF PATIENT IS ACTIVELY SEIZING:**
   A. Protect patient from injury.
   B. Do not force anything between teeth.

SPECIALIST/PARAMEDIC

C. Start an IV/IO NS KVO.
D. Measure blood glucose level.
E. If glucose is less than 60 mg/dl, administer Dextrose.
   a. Dextrose 12.5% for neonates, (under 1 month of age) 4 ml/kg IV/IO*.
   b. Dextrose 25% for children up to 12 years old, 2 ml/kg IV/IO*.

*The IO route is a last resort if IV cannot be established and glucagon is not available with online Medical Control approval.

PARAMEDIC

F. Administer Midazolam 0.1mg/kg IM, maximum individual dose 10 mg prior to IV start, if patient is actively seizing
G. If IV established and Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam per MCA selection.

Medication Options:
(Choose One)

☑ Midazolam 0.05 mg/kg IV/IO, maximum individual dose 5 mg

OR

☐ Lorazepam - 0.1 mg/kg IV/IO, max single dose 4 mg, may repeat in 5 minutes if seizure activity continues; not to exceed 0.2 mg/kg total (maximum of 8 mg)

OR

☐ Diazepam - 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)

H. If seizures persist, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

MFR/EMT/SPECIALIST/PARAMEDIC

1. **IF PATIENT IS NOT CURRENTLY SEIZING, BUT HAS ALTERED MENTAL STATUS REFER TO ALTERED MENTAL STATUS PROTOCOL.**

NOTE:
To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.

To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

Follow **Pediatric Assessment & Treatment Protocol**

PATIENT IS ACTIVELY SEIZING

YES

- Protect patient from injury
- Do not force anything between teeth
- Start an IV/IO NS KVO.
- Measure blood glucose level.

If glucose is less than 60 mg/dl administer Dextrose

- Dextrose 12.5% for neonates, (under 1 month of age) 4 ml/kg IV/IO*
- Dextrose 25% children up to 12 yrs. old, 2 ml/kg IV/IO*.

*The IO route is a last resort if IV cannot be established and glucagon is not available with online Medical Control approval.

NO

Altered mental status present refer to **Altered Mental Status Protocol**

- Administer Midazolam 0.1 mg/kg IM, maximum individual dose 10 mg prior to IV start, if patient is actively seizing.
- If IV established & Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam, per MCA selection

If seizures persist, per MCA selection repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

Contact Medical Control

Medication Options:
(Choose One)

- [x] Midazolam 0.05 mg/kg IV/IO, maximum individual dose 5 mg

OR

- [ ] Lorazepam 0.1mg/kg IV/IO, maximum single dose 4 mg, may repeat in 5 minutes if seizure activity continues; not to exceed 0.2 mg/kg total (maximum of 8 mg)

OR

- [ ] Diazepam 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)

NOTE: To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.

To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

Pediatric Shock

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

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. If anaphylaxis shock suspected follow **Pediatric Anaphylaxis/Allergic Reaction Protocol.**
3. Control major bleeding

SPECIALIST/PARAMEDIC

4. Establish vascular access using an age-appropriate large-bore catheter. If intravenous access cannot be obtained, proceed with intraosseous access. Do not delay transport to obtain vascular access.
5. If evidence of shock, administer an IV/IO fluid bolus 20 ml/kg of normal saline
    A. At 20 ml/kg set to maximum flow rate. Reassess patient after bolus.
    B. If signs of shock persist, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.

Post-Medical Control

1. Additional IV/IO fluid bolus.

PARAMEDIC

2. Consider Dopamine 5-20 mcg/kg/min. Start at 5 mcg/kg/min, and increase every 10 minutes by an additional 5 mcg/kg/min. DO NOT exceed 20 mcg/kg/min unless ordered by Medical Control.

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

Follow **Pediatric Assessment & Treatment Protocol**

If anaphylaxis shock suspected follow **Pediatric Anaphylaxis/Allergic Reaction Protocol**

Control major bleeding

- Establish vascular access using an age-appropriate large bore catheter.
- If IV access cannot be obtained proceed with IO.
- Do not delay transport to obtain vascular access

If evidence of shock, administer IV/IO fluid bolus 20 ml/kg of normal saline

- At 20 ml/kg set to maximum flow rate. Reassess patient after bolus
- If signs of shock persist bolus may be repeated at the same dose up to a max total of 40 ml/kg

Contact Medical Control

- Additional IV/IO fluid bolus
- Consider Dopamine 5 – 20 mcg/kg/min
- Start at 5 mcg/kg/min and increase every 10 minutes by additional 5 mcg/kg/min
- DO NOT exceed 20 mcg/kg/min unless ordered by Medical Control

Pediatric Trauma

The priorities in pediatric trauma management are to prevent further injury, provide rapid transport, notify the receiving facility, and initiate definitive treatment.

Management
MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. If the airway or breathing management is needed see **Pediatric Respiratory Distress, Failure or Arrest Protocol.**
3. If breathing is adequate, provide high flow oxygen as necessary. Use a non-rebreather mask or blow-by as tolerated.
4. Control bleeding and splint injuries appropriately.
5. Assess for potential spine injury. Provide for spinal precautions as indicated. See **Spinal Injury Assessment Protocol**.

EMT/SPECIALIST/PARAMEDIC

6. Initiate transport per MCA transport protocol.

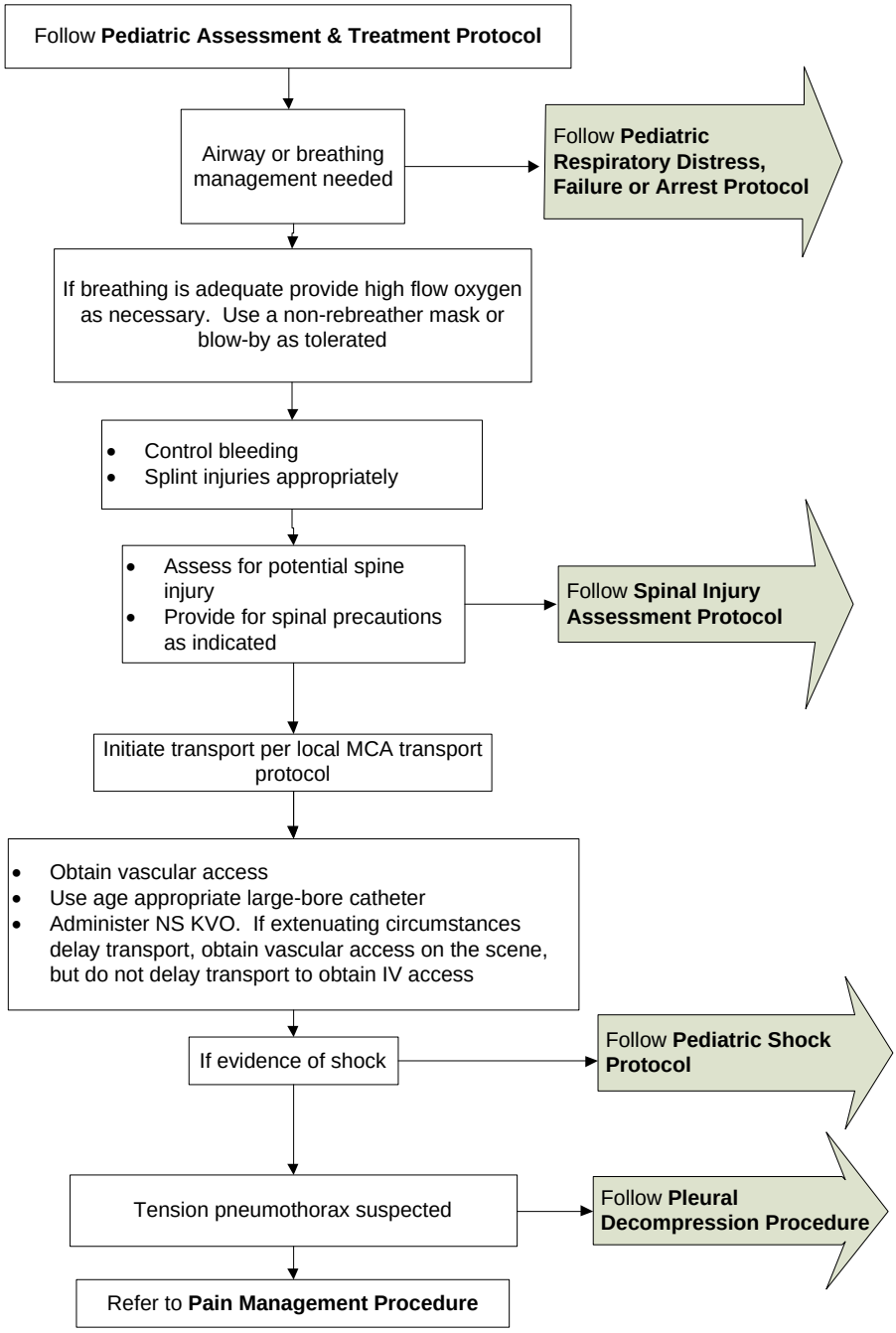
SPECIALIST/PARAMEDIC

7. Obtain vascular access using an age-appropriate large-bore catheter and administer NS KVO. If extenuating circumstances delay transport, obtain vascular access on the scene, but do not delay transport to obtain vascular access.
8. If there is evidence of shock see **Pediatric Shock Protocol.**

PARAMEDIC

9. If tension pneumothorax is suspected see **Pleural Decompression Procedure**.
10. Refer to **Pain Management Procedure.**

The priorities in pediatric trauma management are to prevent further injury, provide rapid transport, notify the receiving facility, and initiate definitive treatment.



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Pediatric Asystole / Pulseless Electrical Activity

During CPR, consider reversible causes of Asystole/PEA and treat as indicated. Causes and efforts to correct them include but are not limited to:

Hypovolemia – 20 ml/kg NS IV/IO fluid bolus
Hypoxia – reassess airway and ventilate with high flow oxygen
Tension pneumothorax – see **Pleural Decompression Procedure**
Hypothermia – follow **Hypothermia Cardiac Arrest Protocol,** consider rapid transport
Hyperkalemia (history of renal failure) – Contact Medical Control, possible Calcium Chloride / Sodium Bicarbonate

Pre-Medical Control
PARAMEDIC

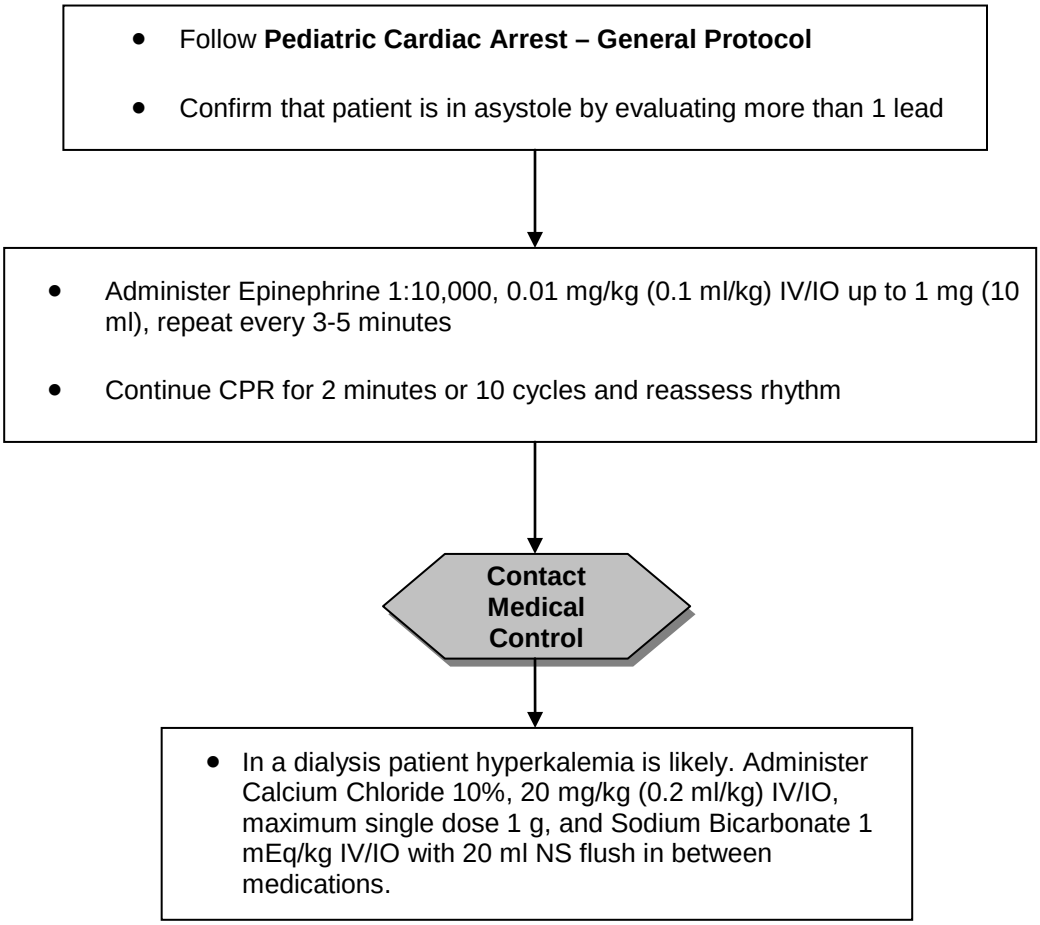
1. Follow the **Pediatric Cardiac Arrest - General Protocol.**
2. Confirm that patient is in asystole by evaluating more than one lead.
3. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml), repeat every 3-5 minutes.
4. Continue CPR for two minutes or 10 cycles and reassess rhythm.

Post-Medical Control
PARAMEDIC

1. In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 10 %, 20 mg/kg (0.2 ml/kg) IV/IO, maximum single dose 1 g, and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.

During CPR, consider reversible causes of Asystole/PEA and treat as indicated. Causes and efforts to correct them include but are not limited to:

- Hypovolemia – 20 ml/kg NS IV/IO fluid bolus
- Hypoxia – reassess airway and ventilate with high flow oxygen
- Tension pneumothorax – see **Pleural Decompression Procedure**
- Hypothermia – follow **Hypothermia Cardiac Arrest Protocol**, consider rapid transport
- Hyperkalemia (history of renal failure) – Contact Medical Control, possible Calcium Chloride/Sodium Bicarbonate



Pediatric Bradycardia

Bradycardia should be considered to be due to hypoxia until proven otherwise. This protocol applies to pediatric patients with bradycardia, a pulse and poor perfusion. Identify and treat the underlying causes:

- Maintain patent airway; assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and pulse oximetry
- IV/IO access
- 12-lead ECG if available; don't delay therapy

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Assessment & Treatment Protocol**.
2. If signs of Cardiorespiratory compromise are evident:
   A. Perform chest compression / CPR.
   B. If HR less than 60 despite oxygenation & ventilation, administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml), repeat every 3-5 minutes.
3. If suspected increased vagal tone or primary AV block:
   A. Administer Atropine 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg), may repeat once in 5 minutes.
   B. Consider transcutaneous pacing at rate up to 100 bpm.
4. Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Sedation Procedure**.

Post-Medical Control

5. Additional orders as appropriate.

Notes:

1. Signs of cardiopulmonary compromise include:
   A. Hypotension is SBP less than 70 + (age x 2).
   B. Acutely altered mental status.
   C. Signs of shock - indicated by absent or weak peripheral pulses, increased capillary refill time, skin cool/mottled.
   D. Respiratory difficulty (respiratory rate greater than 60/minute) indicated by increased work of breathing (retractions, nasal flaring, grunting), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.
2. When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important. Perform chest compressions if, despite oxygenation and ventilation, the heart rate is less than 60/minute and associated with cardiopulmonary compromise in infant or child. If severe hypothermia follow **Hypothermia Cardiac Arrest Protocol** and appropriate **Pediatric Cardiac protocols**.

Bradycardia should be considered to be due to hypoxia until proven otherwise. This protocol applies to pediatric patients with bradycardia, a pulse and poor perfusion. Identify and treat the underlying causes:

- Maintain patent airway; assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and pulse oximetry
- IV/IO access
- 12-lead ECG if available; don't delay therapy

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- Follow **Pediatric Assessment & Treatment Protocol**
- If signs of Cardiorespiratory compromise are evident:
  - Perform chest compression / CPR.
  - If HR less than 60 despite oxygenation and ventilation, administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10ml), repeat every 3-5 minutes.

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- If suspected increased vagal tone or primary AV block:
- Administer Atropine 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg), may repeat once in 5 minutes.
- Consider transcutaneous pacing at up to 100 bpm.

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- Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Sedation Procedure**.

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CONTACT MEDICAL CONTROL

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Additional orders as appropriate

Notes:

1. Signs of cardiopulmonary compromise include:
   A. Hypotension is SBP less than 70 + (age x 2).
   B. Acutely altered mental status.
   C. Signs of shock - indicated by absent or weak peripheral pulses, increased capillary refill time, skin cool/mottled.
   D. Respiratory difficulty (respiratory rate greater than 60/minute) indicated by increased work of breathing (retractions, nasal flaring, grunting), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.

When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important. Perform chest compressions if, despite oxygenation and ventilation, the heart rate is less than 60/minute and associated with cardiopulmonary compromise in infant or child. If severe hypothermia, follow **Hypothermia Cardiac Arrest Protocol** and appropriate **Pediatric Cardiac protocols.**

Pediatric Cardiac Arrest – General

This protocol should be followed for all pediatric cardiac arrests.

- If an arrest is of a known traumatic origin refer to the **Dead on Scene Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- When an ALS unit is present, follow this general cardiac arrest protocol in conjunction with the protocol that addresses the indentified rhythm.
- Once arrest is confirmed, emphasis should be on avoiding interruptions in CPR.
- CPR should be done in accordance with current guidelines established by the American Heart Association.

Note: Primary cardiac arrest in the pediatric patient is rare. Most arrests are secondary to respiratory failure. Consider maintaining basic airway management techniques if effective. Advanced airway insertion attempts should be performed in such a manner as to keep CPR interruptions to a minimum. Medications given during arrest are best given IV or IO. Avoid endotracheal administration unless IV or IO access is unavailable.

Pre-Medical Control

MFR/EMT/SPECIALIST

1. Confirm Arrest
    A. Assess for signs of normal breathing.
    B. Check a carotid or brachial pulse as age appropriate for not more than 10 seconds.
2. Initiate CPR or continue CPR if already in progress and apply and use AED as soon as available.
3. Ensure CPR quality
    A. Compressions at least 1.5” in depth for infants, 2” in depth for children.
    B. Compression rate at least 100 per minute.
    C. Avoid excessive ventilation (volume and rate).
4. Continue CPR with minimal interruptions, changing the rescuer doing compressions every 2 minutes, when possible.
5. Initiate ALS response if available.
6. Establish a patent airway, maintaining C-Spine precautions if indicated, using appropriate airway adjuncts and high flow oxygen. Ventilations with BVM may be as effective as endotracheal intubation in children. Any patient 8 years and under shall be ventilated via BVM or other basic maneuver.

EMT

7. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and ALS is not available or delayed, contact medical control, initiate transport.
8. If unable to ventilate or unable to maintain a patent airway, establish an airway with a supraglottic airway when indicated. After insertion provide continuous

CPR, without pauses for ventilation. Ventilations delivered at 8-10 breaths per minute or 1 breath every 6 to 7 seconds. See **Emergency Airway Procedure.**

9. Verify CPR quality frequently and anytime rescuer providing compressions or ventilations change.

SPECIALIST

10. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and ALS is not available or delayed, contact medical control, initiate transport.
11. Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
12. If unable to ventilate or unable to maintain a patent airway, establish an airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.

PARAMEDIC

13. Confirm Arrest if not previously done.
    A. Assess for signs of normal breathing.
    B. Check a carotid or brachial pulse as age appropriate for not more than 10 seconds.
14. Initiate CPR, or continue CPR if already in progress and apply cardiac monitor.
15. Check rhythm, shock if indicated and continue CPR.
16. Ensure CPR quality
    A. Compressions depress at least one third the anterior-posterior diameter of the chest or approximately 1.5” in infants and 2” in children.
    B. Compression rate at least 100 per minute.
    C. Avoid excessive ventilation (volume and rate).
    D. Apply waveform capnography, if available.
17. Start an IV/IO NS KVO. If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
18. Administer Medications consistent with appropriate protocol.
19. If unable to ventilate or unable to maintain a patent airway, establish an airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.
    B. Supraglottic airways are an acceptable alternative for endotracheal intubation.
20. If quantitative waveform capnography is available and P_{ETCO_2} is < 10 mm Hg attempt to improve CPR quality.

21. Reassess ABC's as indicated by rhythm or patient condition change. Pulse checks should take no more than 10 seconds. If no pulse after 10 seconds, assume pulselessness, continue CPR.
22. After insertion of advanced airway, monitor capnography to confirm appropriate tube placement and deliver continuous CPR, without pauses for ventilation. Ventilations delivered at 8-10 breaths per minute or 1 breath every 6 - 7 seconds.

Post-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

23. Additional basic and/or advanced life support care as appropriate.
24. Consider termination of resuscitation per **Termination of Resuscitation Protocol.**

Notes:

1. **Excellent CPR is a priority:**
   A. 15 compressions: 2 ventilations in groups of 10 cycles, over 2 minutes.
   B. Push hard depress at least one third the anterior-posterior diameter of the chest or approximately 1.5" in infants and 2" in children and fast (≥100/min) and allow full recoil of chest during compressions.
   C. Change rescuer doing compressions every 2 minutes to avoid fatigue or utilize automated mechanical CPR devices, if available.
   D. Restart CPR immediately after any defibrillation attempts.
   E. Keep pauses in CPR to a minimum by checking rhythm when rotating rescuer doing compressions and by avoiding pauses in CPR during airway management and other interventions.
2. Brachial pulse check is used for infants. Carotid pulse check is used for ages 1 – 8 years.
3. If AED has been applied by BLS personnel, skip to appropriate place in protocol that incorporates previous care. ALS personnel should switch to manual defibrillator after initial AED shock or place AED in manual mode.
4. First shock 2 J/kg, second shock 4 J/kg, subsequent shocks greater than or equal to 4 J/kg, maximum 10 J/kg or adult dose.
5. Confirm and document tube placement by physical exam, measurement of exhaled CO_2 and/or use of other MCA approved secondary confirmation device.
6. If possible, contact medical control prior to moving or transporting patient.
7. Continue resuscitation attempts and initiate transport, unless field termination is ordered by Medical Control.
8. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.
9. Ventilation with BVM may be as effective as endotracheal intubation in children. Any patient 8 years and under shall be ventilated via BVM or other basic maneuver. If unable to ventilate, or unable to maintain patent airway, then intubation shall be attempted. Refer to Broselow Pediatric Emergency Care tape or similar tape for proper pediatric airway equipment guidelines.
10. Treat reversible causes.

This protocol should be followed for all pediatric cardiac arrests.
- If an arrest is of a known traumatic origin refer to the **Dead on Scene Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- When an ALS unit is present, follow this general cardiac arrest protocol in conjunction with the protocol that addresses the identified rhythm.
- Once arrest is confirmed, emphasis should be on avoiding interruptions in CPR.
- CPR should be done in accordance with current guidelines established by the American Heart Association.

Note: Primary cardiac arrest in the pediatric patient is rare. Most arrests are secondary to respiratory failure. Consider maintaining basic airway management techniques if effective. Advanced airway insertions attempts should be performed in such a manner as to keep CPR interruptions to a minimum. Medications given during arrest are best given IV or IO. Avoid endotracheal administration unless IV or IO access is unavailable.

Confirm Arrest if not previously done.
- Assess for normal breathing.
- Check a carotid or brachial pulse as appropriate for age for not more than 10 seconds.
- Initiate CPR or Continue CPR if already in progress.
- Apply cardiac monitor.
- Check rhythm, shock if indicated and continue CPR.

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Ensure CPR quality
- Compressions depress at least one third the anterior-posterior diameter of the chest or approximately 1.5" in infants and 2" in children.
- Compression rate at least 100 per minute.
- Avoid excessive ventilation (volume & rate).
- Apply waveform capnography, if available.

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- Start an IV/IO NS KVO
- If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line of choice.
- Administer medications consistent with appropriate protocol

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If unable to ventilate or unable to maintain a patent airway, establish an airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
- Minimize interruptions in compressions during airway placement to less than 10 seconds.
- Supraglottic airways are an acceptable alternative for endotracheal intubation.
- If quantitative Waveform Capnography is available and $PETCO_2$ is < 10 mm Hg, attempt to improve CPR quality.

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- Reassess ABC's as indicated by rhythm or patient condition change.
- Pulse checks should take no more than 10 seconds.
- If no pulse after 10 seconds, assume pulselessness, continue CPR.

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- After insertion of advanced airway,monitor capnography to confirm appropriate tube placement and deliver continuous CPR without pauses for ventilation.
- Ventilations delivered at 8-10 per minute or 1 breath every 6 – 7 seconds.

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Contact Medical Control

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- Additional basic and/or advanced life support care as appropriate.
- Consider termination of resuscitation per **Termination of Resuscitation Protocol.**

Notes:

1. **Excellent CPR is a priority:**
   A. 15 compressions: 2 ventilations in groups of 10 cycles, over 2 minutes.
   B. Push hard depress at least one third the anterior-posterior diameter of the chest or approximately 1.5" in infants and 2" in children and fast (≥100/min) and allow full recoil of chest during compressions.
   C. Change rescuer doing compressions every 2 minutes to avoid fatigue or utilize automated mechanical CPR devices, if available.
   D. Restart CPR immediately after any defibrillation attempts.
   E. Keep pauses in CPR to a minimum by checking rhythm when rotating rescuer doing compressions and by avoiding pauses in CPR during airway management and other interventions.
2. Brachial pulse check is used for infants. Carotid pulse check is used for ages 1 – 8 years.
3. If AED has been applied by BLS personnel, skip to appropriate place in protocol that incorporates previous care. ALS personnel should switch to manual defibrillator after initial AED shock or place AED in manual mode.
4. First shock 2 J/kg, second shock 4 J/kg, subsequent shocks greater than or equal to 4 J/kg, maximum 10 J/kg or adult dose.
5. Confirm and document tube placement by physical exam, measurement of exhaled CO_2 and/or use of other MCA approved secondary confirmation device.
6. If possible, contact medical control prior to moving or transporting patient.
7. Continue resuscitation attempts and initiate transport, unless field termination is ordered by Medical Control.
8. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.
9. Ventilation with BVM may be as effective as endotracheal intubation in children. Any patient 8 years and under shall be ventilated via BVM or other basic maneuver. If unable to ventilate, or unable to maintain patent airway, then intubation shall be attempted. Refer to Broselow Pediatric Emergency Care tape or similar tape for proper pediatric airway equipment guidelines.
10. Treat reversible causes.

Pediatric Narrow Complex Tachycardia

Electrical and medication treatments in this protocol are not intended to treat tachycardia that is secondary to underlying conditions (i.e., dehydration, trauma toxins). Consultation with online medical control should be considered for complex patients in whom the cause of the arrhythmia is not obvious.

Narrow complex tachycardia in pediatric patient with a pulse and poor circulation may represent:

PROBABLE SVT OR PROBABLE SINUS TACHYCARDIA

Probable SVT if:	**Probable Sinus Tachycardia if:**
A. History of abrupt rate changes	A. Compatible history consistent with known cause
B. P waves are absent / abnormal	B. P waves are present / normal
C. HR not variable	C. Constant P-R; variable R-R
D. Infants: rate usually $\geq$ 220 bpm	D. Infants: rate usually < 220 bpm
E. Children: rate usually $\geq$ 180 bpm	E. Children: rate usually <180 bpm

If probable Sinus Tachycardia, evaluate and treat the cause, no cardioversion is indicated.

SYNCHRONIZED CARDIOVERSION PRECEDES DRUG THERAPY FOR UNSTABLE PATIENTS. Unstable patients may be defined as those suffering a narrow complex tachycardia with: significant chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, or pulmonary edema. Adenosine is only used for regular rhythm tachycardia.

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Assessment & Treatment Protocol**.
2. Consider 12-Lead ECG if available and patient is stable.

PROBABLE SVT

STABLE

1. Contact Medical Control early. Consider Vagal maneuver.
2. Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.
3. If there is a delay in contacting Medical Control, consider Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO, rapid IV push through the most proximal injection site. This should be followed immediately with a 5 - 10 ml NS flush. May repeat Adenosine 0.2 mg/kg (maximum 12mg) IV/IO.

UNSTABLE

1. If Cardiopulmonary compromise is present as evidenced by hypotension, acutely altered mental status or other signs of shock, contact medical control.

Post-Medical Control

1. If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Procedure.**
2. In borderline unstable patients, consider Adenosine 0.1 mg/kg (maximum 6 mg), IV/IO. May repeat Adenosine 0.2 mg/kg (maximum 12mg) IV/IO.
3. If HR greater than 180, consider Synchronized Cardioversion 0.5 – 1 J/kg.
4. Consider repeat cardioversions at 2 J/kg.

PROBABLE SINUS TACHYCARDIA

1. Assess for cause of sinus tachycardia.
2. Follow other appropriate protocol.

Electrical and medication treatments in this protocol are not intended to treat tachycardia that is secondary to underlying conditions (i.e., dehydration, trauma toxins). Consultation with online medical control should be considered for complex patients in whom the cause of the arrhythmia is not obvious.

Narrow complex tachycardia in pediatric patient with a pulse and poor circulation may represent:

PROBABLE SVT OR PROBABLE SINUS TACHYCARDIA

Probable SVT	OR	**Probable Sinus Tachycardia**
• History of abrupt rate changes • P waves absent/abnormal • HR not variable • Infants: rate usually ≥ 220 bpm • Children: rate usually ≥ 180 bpm		• Compatible history consistent with known cause • P waves present/normal • Constant P-R; variable R-R • Infants: rate usually < 220 bpm • Children: rate usually < 180 bpm

If probable Sinus Tachycardia, evaluate and treat the cause, no cardioversion is indicated.

SYNCHRONIZED CARDIOVERSION PRECEDES DRUG THERAPY FOR UNSTABLE PATIENTS. Unstable patients may be defined as those suffering a narrow complex tachycardia with: significant chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, or pulmonary edema. Adenosine is only used for regular rhythm tachycardia.

Follow **Pediatric Assessment and Treatment Protocol**
Consider 12-Lead ECG, if available and patient stable

Probable SVT
Unstable with signs of Poor Perfusion

STABLE

- Contact Medical Control early.
- Consider Vagal maneuver.
- Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.

- If there is a delay in contacting medical control consider Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO, rapid IV push through the most proximal injection site. This should be followed immediately with a 5 – 10 ml NS flush.
- May repeat with Adenosine 0.2 mg/kg (maximum 12 mg) IV/IO.

Contact Medical Control

UNSTABLE

- If Cardiopulmonary compromise is present as evidenced by hypotension, acutely altered mental status or other signs of shock, contact medical control

Contact Medical Control

- If time & condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Procedure.**

- In borderline unstable patients, consider Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO.
- May repeat Adenosine 0.2 mg/kg (maximum 12 mg) IV/IO.
- If HR greater than 180, consider Synchronized Cardioversion 0.5-1 J/kg.
- Consider repeat cardioversion at 2 J/kg

Probable Sinus Tachycardia

- Assess for cause of sinus tachycardia
- Follow other appropriate protocol

Contact Medical Control

Pediatric Ventricular Fibrillation/Pulseless Ventricular Tachycardia

If AED is applied prior to ALS arrival, perform CPR and reassess the rhythm as indicated. After each intervention resume CPR immediately and reassess the rhythm after each 2 minute or 5 cycle interval.

For Biphasic devices shock with energy levels following manufacturers' recommendations.

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Cardiac Arrest – General Protocol**.
2. Defibrillate at 2 J/kg* and then continue CPR for 2 minutes.
3. Repeat defibrillation at 4 J/kg* every 2 minutes as indicated with immediate resumption of compressions. If rhythm changes go to appropriate protocol.
4. Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts, start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
5. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO, maximum dose 1 mg (10 ml). Repeat every 3-5 minutes. May be administered before or after defibrillation.
6. If unable to ventilate or unable to maintain a patent airway, establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
7. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer Amiodarone 5 mg/kg IV/IO, maximum dose 300 mg. May be administered before or after defibrillation.
8. Repeat defibrillation at 4 joules/kg*. Continue CPR and repeat defibrillations as indicated.
9. For persistent of recurrent VF / Pulseless VT, may repeat Amiodarone 5 mg/kg IV/IO twice up to a maximum of 15 mg/kg or a maximum dose of 450 mg. May be administered before or after defibrillation.

*If calculated energy is less than the lowest available setting, use the lowest available setting.

- If AED is applied prior to ALS arrival, perform CPR and reassess the rhythm as indicated. After each intervention resume CPR immediately and reassess the rhythm after each 2 minute or 5 cycle interval.
- For Biphasic devices shock with energy levels following manufacturers' recommendations.

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- Follow **Pediatric Cardiac Arrest General Protocol**

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- Defibrillate at 2 J/kg* and them continue CPR for 2 minutes

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- Repeat defibrillation 4 J/kg* every 2 minutes as indicated with immediate resumption of compressions.
- If rhythm changes go to appropriate protocol.

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- Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
- Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO. Maximum dose 1 mg (10 ml) Repeat every 3-5 minutes. May be administered before or after defibrillation.
- If unable to ventilate or unable to maintain a patent airway, establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
- For persistent or recurrent VF / Pulseless VT, administer Amiodarone 5 mg/kg IV/IO, maximum dose 300 mg. May be administered before or after defibrillation.
- Repeat defibrillation at 4 J/kg*. Continue CPR and repeat defibrillations as indicated.
- For persistent or recurrent VF/ Pulseless VT, may repeat Amiodarone 5 mg/kg IV/IO twice up to a maximum of 15 mg/kg or a maximum of 450 mg. May be administered before or after defibrillations.

*If calculated energy is less than the lowest available setting, use the lowest available setting.

Pediatric Wide Complex Tachycardia

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Assessment and Treatment Protocol.**

STABLE

1. Consider 12-Lead ECG, if available.

Post-Medical Control

2. Per MCA Selection Administer Lidocaine OR Amiodarone.

Medication Options:
(choose one)

☐ Lidocaine 1 mg/kg IV/IO

OR

☑ Amiodarone 5 mg/kg IV/IO over 20-60 minutes

UNSTABLE

1. If Cardiopulmonary compromise is present as evidenced by hypotension, acutely altered mental status or signs of shock, contact medical control.

Post-Medical Control

2. If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Protocol**.
3. If HR greater than 180, consider Synchronized Cardioversion 0.5 – 1 J/kg.
4. Consider repeat cardioversions at 2 J/kg.
5. In borderline unstable patients, consider Adenosine if rhythm regular and QRS is monomorphic. If IV/IO is readily available, administer Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO, rapid IV push through the most proximal injection site. This should be followed immediately with a 5 – 10 ml NS flush. May repeat Adenosine 0.2 mg/kg IV/IO (maximum 12 mg).

Follow **Pediatric Assessment and Treatment Protocol**

Probable VT
Wide complex tachycardia

STABLE

- Consider 12-Lead ECG, if available

Contact Medical Control

Per MCA Selection

- Administer Lidocaine 1 mg/kg IV/IO

OR

- Amiodarone,5 mg/kg IV/IO over 20-60 minutes

Medication Options:
(choose one)

☐ Lidocaine 1 mg/kg IV/IO

OR

☑ Amiodarone 5 mg/kg IV/IO over 20 – 60 minutes

UNSTABLE

If **CARDIOPULMONARY COMPROMISE** is present as evidenced by:

- Hypotension
- Acutely altered mental status
- Signs of shock

Contact Medical Control

- If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Protocol.**
- If HR greater than 180, consider Synchronized Cardioversion 0.5 - 1 J/kg.
- Consider repeat cardioversions at 2 J/kg.
- In borderline unstable patients, consider Adenosine if rhythm and QRS is monomorphic. If IV/IO is readily available administer Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO, rapid IV push through the most proximal injection site. This should be followed immediately with a 5 – 10 ml NS flush.
- May repeat Adenosine 0.2 mg/kg IV/IO (maximum 12 mg).

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12 Lead ECG

Prehospital 12-lead ECG acquisition (with relay of results to the receiving hospital) improves time to treatment for acute myocardial infarction. The purpose of this policy is to insure that prehospital 12-lead recordings are performed in a responsible manner, coordinated with prehospital ALS providers and medical control, and monitored by quality improvement and evaluation procedures.

Indications:

1. A 12 ECG, if available, must be performed on patients exhibiting any of the following signs/symptoms:
    A. Chest pain or pressure
    B. Upper abdominal pain
    C. Syncope
    D. Shortness of breath (not including asthma or COPD)
    E. Pain/discomfort often associated with cardiac ischemia
        a. Jaw, neck, shoulder, left arm or other presentation; unless no other symptoms exist and the cause of the specific pain can be identified with a traumatic or musculoskeletal injury.
        b. If there is any doubt about the origin of the pain/discomfort, or the presentation seems atypical for the mechanism, a 12 lead should be performed.

    F. Patients exhibiting the following signs/symptoms should have a 12 lead ECG performed if the etiology of the illness is indicative of an Acute Coronary Syndrome or the etiology of the illness is indeterminate:
        a. Nausea
        b. Vomiting
        c. Diaphoresis
        d. Dizziness
        e. Patient expression of “feelings of doom”

    G. A 12 lead ECG may be performed based on the clinical judgment of the paramedic even in the absence of the above signs/symptoms.

<u>Pre-Medical Control</u>
PARAMEDIC

1. Follow **General Pre-hospital Care Protocol.**
2. Perform 12-lead ECG per manufacturer guidelines.
3. Report if acute MI is suspected, as indicated by a 12 lead device.
4. Promptly relay either the 12-lead findings via MCA approved communications system or transmit 12-lead to the receiving facility.
5. Agencies in cooperation with Hospitals with 12-lead ECG pre-hospital receiving capability should have the relay done electronically immediately upon completion of the ECG in the following conditions:
    A. ST” elevation $\geq$ 1mm in 2 contiguous leads
    B. Chest pain patient with left bundle branch block

C. EMS personnel request assistance by hospital for interpretation of ECG
D. Hospital requests ECG be sent.

6. The Acute MI Report relayed to the receiving facility should include the following:
   A. *** Acute MI Suspected *** or equivalent machine indication of Acute MI
   B. Location of MI, "ST elevation, consider _____injury"
   C. Time of onset of the Chest Pain, if present.
   D. Current level of pain.
   E. Cardiac history (previous MI, CHF, CABG, Angioplasty or Stent)
   F. Presence of possible indicators of False Positive ECG (Tachyarrhythmia, left bundle branch block, Pacemaker, wide complex QRS, noisy positive ECG after previous negative ECG)
7. Transport patients per MCA transport protocol.

Abuse & Neglect (Suspected)

Purpose: To provide the process for assessment and management for patients of suspected child abuse and elder abuse.

When emergency personnel suspect that a patient has been abused (physically and/or sexually), neglected, or exploited, a report must be made to the emergency physician on arrival at the hospital and to the Protective Services Agency (child or adult). The primary purpose is protection of the patient from further harm. Do not confront the patient or family members with such suspicions at the scene.

Michigan law (MCL 722.623) requires that licensed EMS providers who have "reasonable cause to suspect child abuse or neglect" shall report "immediately, by telephone or otherwise" their suspicions to the Protective Services Agency for the County involved. In cases of suspected child abuse, this oral report shall also be followed with a written report on the Department of Human Services forms available in every hospital emergency department.

Michigan law (MCL 400.11a) also requires this same oral report for suspected cases of abuse or neglect of an adult.

1. Definitions

"Child Abuse" means harm or threatened harm to a child's health or welfare by a parent, legal guardian, or any other person responsible for the child's health or welfare…that occurs through non-accidental physical or mental injury; sexual abuse; sexual exploitation, or maltreatment.

"Child Neglect" means harm or threatened harm to a child's health or welfare by a parent, legal guardian, or any other person responsible for the child health or welfare that occurs through either of the following: 1) Negligent treatment, including the failure to provide adequate food, shelter, or medical care; 2) Placing a child at an unreasonable risk to the child's health or welfare by failure of the parent, legal guardian, or any other person responsible for the child's health or welfare to intervene to eliminate that risk when that person is able to do so and has, or should have, knowledge of the risk.

"Abuse" means harm or threatened harm to an adult's health or welfare caused by another person. Abuse includes, but is not limited to, non-accidental physical or mental injury, sexual abuse, or maltreatment.

"Exploitation" means an action that involves the misuse of an adult's funds, property, or personal dignity by another person.

"Neglect" means harm to an adult's health or welfare caused by the inability of the adult to respond to a harmful situation or by the conduct of a person who assumes responsibility for a significant aspect of the adult's health or welfare. Neglect includes the failure to provide adequate food, clothing, shelter, or medical care.

2. Indicators of Possible Abuse

- Unsolicited history provided by the patient
- Delay in seeking care for injury
- Injury inconsistent with history provided
- Conflicting reports of injury from patient and care-giver
- Patient unable, or unwilling, to describe mechanism of injury
- Lacerations, bruises, ecchymosis in various stages of healing
- Multiple fractures in various stages of healing
- Scald burns with demarcated immersion lines without splash marks
- Scald burns involving anterior or posterior half of extremity
- Scald burns involving buttocks or genitalia
- Cigarette burns
- Rope burns or marks
- Patient confined to restricted space or position
- Pregnancy or presence of venereal disease in a child less than 12 years

3. Physical Assessment

A. Treat and document physical injury per the appropriate medical treatment protocol.
B. Observe for:
   - Potential over-sedation
   - Inappropriate fear
   - Avoidance behavior
   - Poor parent-child bonding
   - Inappropriate interaction with care giver

4. Evaluation and Documentation

- Focus the interview on the patient's physical injury. Do not address the specifics of abuse or neglect at this point.
- Obtain and record pertinent history related to the presenting problems.
- Determine and chart past medical history, and any cognitive or physical impairment.
- Note signs of inadequate housing or lack of facilities such as heat or water.
- Carefully and specifically document the patient's statement of instances of rough handling, sexual abuse, alcohol or drug abuse by family members,

verbal or emotional abuse, isolation or confinement, misuse of property or theft, threats, gross neglect such as restriction of fluids, food or hygiene.

- Attempt to record, verbatim (word for word), any excited utterances (spontaneous comments).
- If necessary, ask the care-giver for information regarding the patient's medical condition. Observe mental health of care-giver.
- Request police assistance if there is any history of threatening, abusive, or violent acts. Protect yourself while obtaining a safe environment for the patient.

5. **Special Considerations**
    - If the patient is not transported, the suspected abuse must still be reported. Law enforcement may also be contacted, at the discretion of EMS providers.
    - Careful and specific documentation is vital because the "story" often changes as the investigation proceeds.
    - Contact the Department of Human Services Hotline at 1-855-444-3911.

Adrenal Crisis

Purpose: This protocol is intended for the management of patients with a known history of adrenal insufficiency, experiencing signs of crisis, and where the medication is readily available.

Indications:

1. Patient has a known history of adrenal insufficiency or Addison's disease.
2. Presents with signs and symptoms of adrenal crisis including:
    a. Pallor, headache, weakness, dizziness, nausea and vomiting, hypotension, hypoglycemia, heart failure, decreased mental status, or abdominal pain.
3. Medication is available.

Pre-Medical Control

PARAMEDIC

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

Post-Medical Control

2. Administer fluid bolus NS.
3. Assist with administration of patient's own hydrocortisone sodium succinate (Solu-Cortef)
    a. Adult: 100 mg IVP
    b. Pediatric: <5 ft. tall (<35kg/75lbs) 1-2 mg/kg IVP
4. Transport
5. Notify Medical Control of patient's medical history.
6. Refer to **Hypoglycemia Protocol.**

Assault and Sexual Assault

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**
2. Preserve evidence whenever possible.
    A. Consider wearing gloves for all patient care and other activities with the crime scene.
    B. Never cut through holes in clothing created by bullets or knives.
    C. Retain all clothing, place in a paper bag.
    D. When transporting a patient who may be dying, ascertain name and/or description of assailant if possible.
    E. At an outdoor crime scene do not disturb shoe prints, tire marks, shell casings, etc.
    F. Limit movement at the crime scene.
    G. Attempt to keep others out of the area.
3. Advise patient to not shower, change clothes, or dispose of pertinent objects.
4. Assess patient for injury and treat according to protocol.
5. Use sensitivity in asking victim for historical information.
6. Thoroughly document all injuries and voluntary statements of patient.
7. Assure appropriate law enforcement agency has been notified.
    A. Notify the investigating law enforcement officer of any alteration of the crime scene by EMS personnel including:
        a. Any movement of furniture, tables, etc.
        b. The original position of the items
        c. If you turned on lights
        d. What you touched, moved, etc.

EMT/SPECIALIST/PARAMEDIC

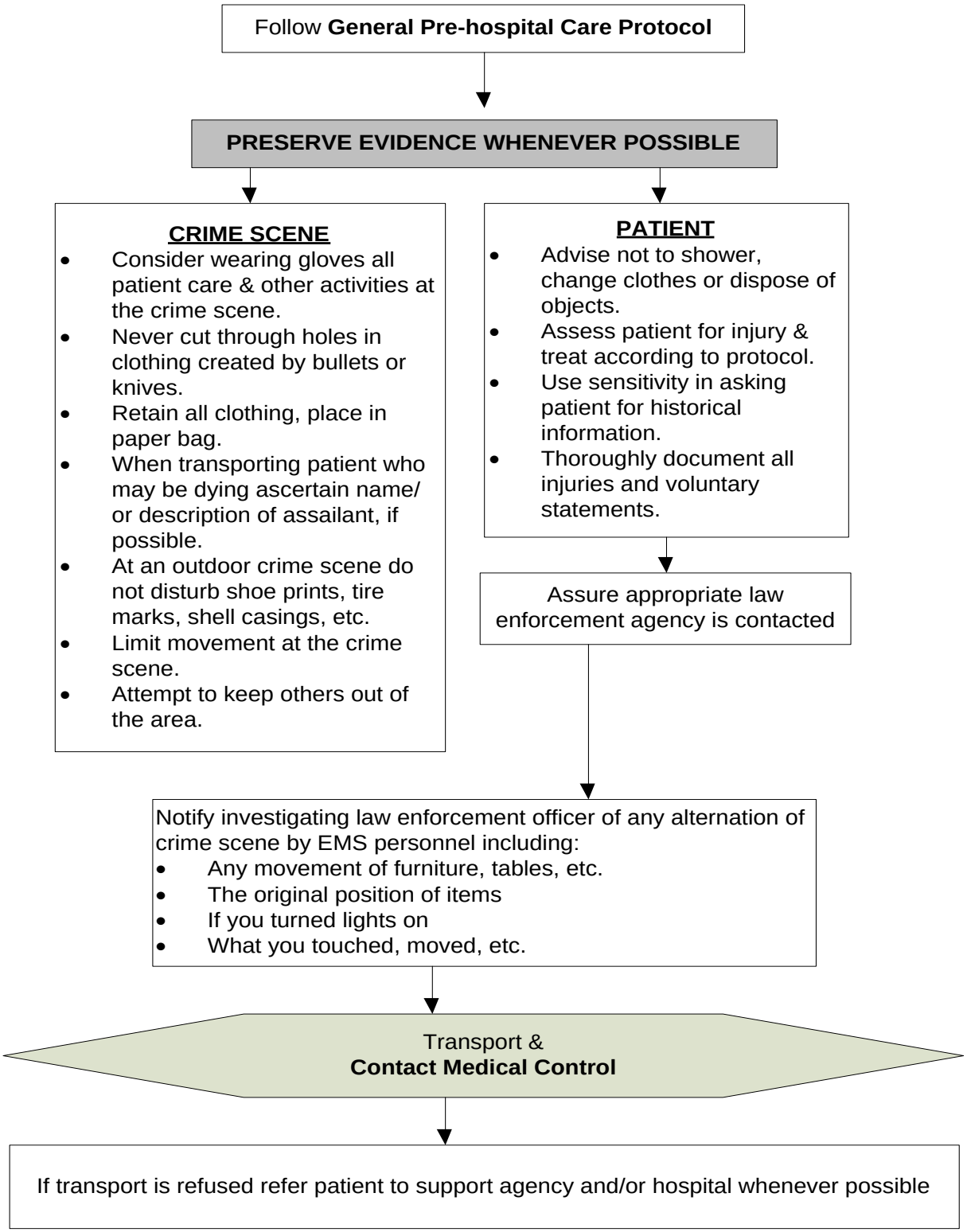
8. Transport

Post-Medical Control

If transport is refused refer patient to support agency and/or hospital whenever possible.

NOTES:

1. Your first duty is to provide emergency medical care at the scene of an illness/injury.
2. Certain measures can be taken to assist law enforcement personnel in preserving a crime without jeopardy to the patient.
3. The investigation of the circumstances surrounding the incident is the responsibility of the law enforcement agency.
4. Red marks may disappear and your documentation may be the only witness that the victim was choked or struck, even though he/she stated it.
5. Be alert for torn clothing, fragments of cloth, blood, or body fluids, etc. for they need to be preserved as evidence. Law enforcement is responsible for the disposition of this evidence.
6. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.


Follow **General Pre-hospital Care Protocol**
PRESERVE EVIDENCE WHENEVER POSSIBLE
CRIME SCENE
Consider wearing gloves all patient care & other activities at the crime scene.
Never cut through holes in clothing created by bullets or knives.
Retain all clothing, place in paper bag.
When transporting patient who may be dying ascertain name/ or description of assailant, if possible.
At an outdoor crime scene do not disturb shoe prints, tire marks, shell casings, etc.
Limit movement at the crime scene.
Attempt to keep others out of the area.
PATIENT
Advise not to shower, change clothes or dispose of objects.
Assess patient for injury & treat according to protocol.
Use sensitivity in asking patient for historical information.
Thoroughly document all injuries and voluntary statements.
Assure appropriate law enforcement agency is contacted
Notify investigating law enforcement officer of any alternation of crime scene by EMS personnel including:
Any movement of furniture, tables, etc.
The original position of items
If you turned lights on
What you touched, moved, etc.
Transport &
Contact Medical Control
If transport is refused refer patient to support agency and/or hospital whenever possible

NOTES:

1. Your first duty is to provide emergency medical care at the scene of an illness/injury.
2. Certain measures can be taken to assist law enforcement personnel in preserving a crime without jeopardy to the patient.
3. The investigation of the circumstances surrounding the incident is the responsibility of the law enforcement agency.
4. Red marks may disappear and your documentation may be the only witness that the victim was choked or struck, even though he/she stated it.
5. Be alert for torn clothing, fragments of cloth, blood, or body fluids, etc. for they need to be preserved as evidence. Law enforcement is responsible for the disposition of this evidence.
6. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.

Automated External Defibrillator (AED)

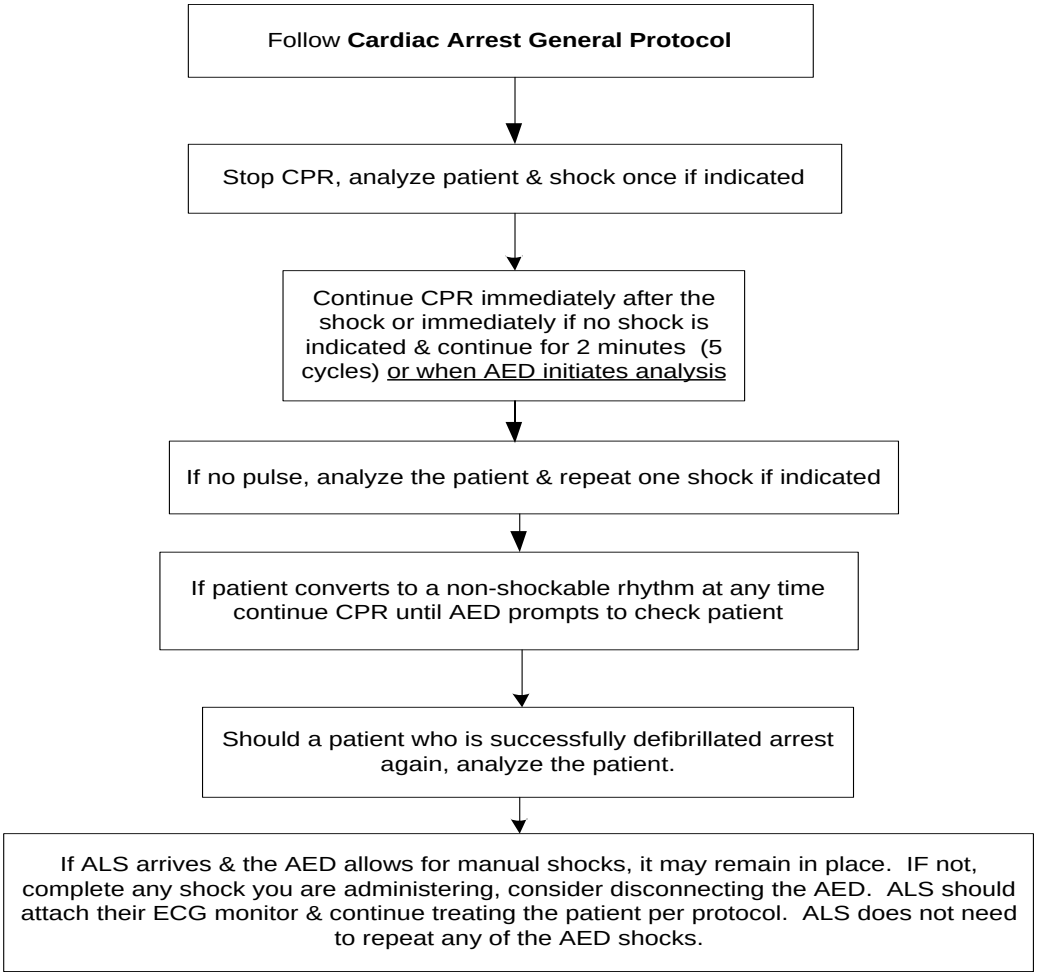
The Automated External Defibrillator (AED) shall be applied only to patients found in cardiopulmonary arrest. Interruptions to CPR should be kept to a minimum. The AED should not be used on patients found lying on conductive surfaces or patients in moving vehicles. There are no age or weight limits for AED use. In pediatric patients, attenuated pads should be used, if available. If adult pads are used in pediatric patients, place in an anterior/posterior configuration.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow the **Cardiac Arrest - General Protocol**.
2. Stop CPR to analyze patient and shock once, if indicated.
3. Continue CPR immediately after the shock, or immediately if no shock is indicated and continue for 2 minutes (5 cycles) or when AED initiates analysis.
4. If no pulse, analyze the patient and repeat one shock, if indicated.
5. If patient converts to a non-shockable rhythm at any time, continue CPR until AED prompts to check the patient.
6. Should a patient who is successfully defibrillated arrest again, analyze the patient.
7. If ALS arrives and the AED allows for manual shocks, it may remain in place. If not, complete any shock you are administering, consider disconnecting the AED. ALS should attach their ECG monitor and continue treating the patient per protocol. ALS does not need to repeat any of the AED shocks.

The Automated External Defibrillator (AED) shall be applied only to patients found in cardiopulmonary arrest. Interruptions to CPR should be kept to a minimum. The AED should not be used on patients found lying on conductive surfaces or patients in moving vehicles. There are no age or weight limits for AED use. In pediatric patients, attenuated pads should be used, if available. If adult pads are used in pediatric patients, place in an anterior/posterior configuration.



Contaminated Patient

Purpose: This protocol is intended to protect responding EMS providers, hospital personnel and the community from the possibility of contamination.

1. **Identification of the Contaminated Patient**
   A. Use all your senses. Suspect hazardous material situation if you:
      a. **See** containers, labels or placards, or a location suggesting a hazardous substance
      b. **Hear** explosions, or reports of possible contamination, pre-arrival or on scene
      c. **Smell** unusual odors – be suspicious

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

1. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.
2. The responding EMS agencies must prevent further contamination to themselves or others. Determine if any contaminated patients have already left the scene and promptly notify the hospital(s).
3. The responding EMS agency must not spread any contamination outside the response area until the responding fire or public safety department incident commander, or appropriate designee, has confirmed that decontamination is complete. Contaminated patients will not be transported out of the decontamination area until field decontamination is complete.
4. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.
5. Invasive patient care procedures (IV, OPA, NPA, ET, Combitube, King Airway) should not begin until decontamination of the patient is confirmed or until personal protective equipment is in place.
6. Prior to transport of a decontaminated patient, on-line medical control will be contacted to assure the patient is transported to a facility equipped to handle the specific needs of the patient.
7. Once the scene Incident Commander, or the appropriate designee, has confirmed that the patient is decontaminated, the responding EMS agency may transport the patient to the designated facility.

CPAP/BiPAP Administration

☑ Medical Control Authorities choosing to adopt this optional protocol may do so by selecting this check box.

- ☑ BLS
- ☑ LALS
- ☑ ALS

Purpose: The CPAP portion of the protocol may be utilized by BLS/LALS/ALS agencies that have completed CPAP training, approved by the MCA, and are equipped with CPAP Equipment including pulse oximetry. **BiPAP use is limited to ALS** agencies that have completed BiPAP training, approved by the MCA, and are equipped with BiPAP Equipment. For use of this protocol, patients must meet the Inclusion Criteria. Contraindicated patients and those that do not meet the inclusion criteria will be treated according to existing protocols without the application of CPAP/BiPAP.

Indications:

Severe respiratory distress not responding to initial treatment with any of the following:

1. CHF/Pulmonary edema/near drowning
2. Hypoxia, i.e., SaO2 less than 92% on supplemental oxygen.
3. Acute exacerbation of asthma/COPD.

Contraindications:

1. Respiratory/cardiac arrest.
2. B/P less than 90mmHg.
3. Unresponsive to speech.
4. Inability to maintain patent airway.
5. Major trauma, pneumothorax, penetrating chest trauma.
6. Vomiting or active GI bleeding with emesis.
7. Unstable facial fractures.
8. Patient with aspiration risk/history.

Pre-Medical Control
EMT/SPECIALIST/PARAMEDIC
Procedure

1. EXPLAIN THE PROCEDURE TO THE PATIENT.
2. Apply CPAP/BiPAP per manufacturer's recommendations.
3. Place the patient on continuous pulse oximetry.
4. Secure the mask with provided straps and tighten to obtain a good seal, check for air leaks
5. Continue to coach the patient to keep the mask in place, readjust as needed.
6. Advise medical control of CPAP/BiPAP use during radio report.

7. If respiratory status deteriorates, remove the device and assist ventilations with a BVM/supplemental O2; place an appropriate airway control device.

PARAMEDIC

8. Place the patient on cardiac monitor and record rhythm and vital signs.
9. Administer medications, per respiratory distress protocol, as indicated.

Post-Medical Control

1. Consider sedation to reduce anxiety per **Patient Sedation Procedure**.

Removal Procedure

1. CPAP/BiPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or has marked deterioration including respiratory arrest, decreasing LOC or patient may vomit.
2. Assist ventilations as necessary

Special Notes:

1. Do not remove CPAP/BiPAP until hospital therapy is ready to be placed on the patient.
2. Watch the patient for gastric distention.
3. CPAP/BiPAP may be used on DNR patients not in arrest.
4. Due to changes in cardiac preload and afterload during CPAP/BiPAP therapy, a complete set of VS must be obtained every 10 minutes (5 minutes in short transport situations).

Dead on Scene

Purpose: The procedure to follow when a patient appears to be dead on scene.

1. **CPR IS TO BE INITIATED ON ALL PATIENTS IN CARDIAC ARREST UNLESS one or more of the following conditions exists:**
   A. Gross dismemberment of the body.
   B. Decapitation.
   C. Completely charred body without any detectable signs of life.
   D. Obvious mortal wounds/conditions (injuries inconsistent with life – i.e., crushing injuries of the head and/or chest)
   E. At least one hour of submersion documented by the licensed health care professional after arrival on the scene.
   F. Putrefied, decayed, or frozen bodies and/or lividity with rigor mortis
   G. Blunt or penetrating traumatic arrest found pulseless and apneic (without agonal respirations) without organized electrical activity (must be asystolic or other rhythm with rate less than 40/min). Patients with ventricular fibrillation, ventricular tachycardia or organized rhythms greater than 40/min should have resuscitation initiated. Patients not meeting these criteria should have full resuscitation and prompt transport initiated. Special attention should be taken so mechanism of injury is consistent with condition of the patient.
   H. Patient has a valid "Do Not Resuscitate" identification bracelet or order.

2. **Specific Exceptions**

   A. Patients who are struck by lightning, are hypothermic or victims of cold water drowning (unless submersion time is over 1 hour) do not qualify for use of this policy.
   B. The licensed health care professional may initiate resuscitation efforts at any time.

3. **Procedure**
   A. When resuscitation is begun by another individual before the licensed health care professional arrives on the scene, resuscitation activity will be continued by the health care professional unless an above-mentioned condition is found. Once resuscitation is initiated by it may be terminated only at the discretion of Medical Control in conjunction with the ALS unit on scene.
   B. The public safety representative shall defer to the licensed health care professional for the above final recommendations. When the licensed health care professional arrives on the scene, he/she will make the final determination of potential viability and may consult Medical Control.

C. Agonal respirations will be considered signs of a recent arrest and resuscitation will be initiated unless H above applies.
D. As stipulated by Part 209 of Public Act 368 of 1978 as amended, "***Authority for management of a patient in an emergency is vested in the licensed health care professional at the scene who has the most training specific to the provision of emergency medical care.***"
E. Assure notification of law enforcement and medical examiner of death on scene.
F. Preserve the scene. Do not remove clothing, valuables, or any objects in, on or around the deceased.

Do-Not-Resuscitate

Purpose: The purpose of this policy is to provide a guideline to prehospital providers, who under certain circumstances may accommodate patients who do not wish to receive and/or may not benefit from cardiopulmonary resuscitation. This policy is drafted in accordance with Public Act 368 of 1978, as amended, as well as Act 192 and 193 of the Public Acts of 1996. This policy is intended to facilitate kind, humane, and compassionate service for patients who have executed a valid "Do-not-resuscitate order" under the aforementioned Acts.

1. **Definitions**
   A. Attending Physician – means the physician who has primary responsibility for the treatment and care of a declarant.
   B. Declarant – means a person who has executed a do-not-resuscitate order, or on whose behalf a do-not-resuscitate order has been executed pursuant to applicable laws.
   C. Do-not-resuscitate order – means a document executive pursuant to Act 193, directing that in the event a patient suffers cessation of both spontaneous respiration and circulation in a setting outside of a hospital, nursing home, or mental health facility owned or operated by the Department of Community Health, no resuscitation will be initiated.
   D. Do-not-resuscitate Identification Bracelet or Identification Bracelet – means a wrist bracelet that meets the requirements of Act 193 and worn by a declarant while a do-not-resuscitate order is in effect.
   E. Order – means a do-not-resuscitate order.
   F. Patient Advocate – means an individual designated to make medical treatment decisions for a patient under Section 496 of the revised probate code, Act No. 642 of the Public Acts of 1978, being section 700.496 of the Michigan Compiled Laws.
   G. Vital Sign – means a pulse or evidence of respiration.

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

2. **Procedure**
   A do-not-resuscitate order is applicable to all prehospital life support agencies and personnel. A do-not-resuscitate order may be executed by an individual 18 years of age or older and of sound mind **OR** by an individual 18 years of age or older and of sound mind, and adherent of a church or religious denomination whose members depend upon spiritual means through prayer alone for healing **OR** by a patient advocate of an individual 18 years of age or older.
   A. EMS providers **shall not attempt** resuscitation of any individual who meets **ALL** of the following criteria:
      a. 18 years of age or older
      b. Patient has no vital signs. This means no pulse or evidence of respiration.

c. Patient is wearing a do-not-resuscitate identification bracelet which is clearly imprinted with the words "Do-Not-Resuscitate Order", name and address of declarant, and the name and telephone number of declarant's attending physician, if any **OR**

The EMS provider is provided with a do-not-resuscitate order from the patient. Such an order form shall be in substantially the form outlined in Annex 1 or 2 and shall be dated and signed by all parties.

B. A patient wearing a "do-not-resuscitate order" identification bracelet, or who has executed a valid "do-not-resuscitate order" form, **but who has vital signs, shall not be denied** any treatments or care otherwise specified in protocols.
C. If a do-not-resuscitate order form is presented and is not substantially in the form as outlined in Annex 1 or 2, or is not complete and signed by all parties, **resuscitation will be initiated** while Medical Control is being contacted for direction.
D. In the event care has been initiated on a patient, and subsequently a valid do-not-resuscitate order form is identified, and the patient meets the criteria in Item 1 above, discontinue resuscitation.
E. A do-not-resuscitate order will not be followed if the declarant or patient advocate revokes the order. An order may be revoked at any time and in any manner by which the declarant or patient advocate is able to communicate this intent. **Resuscitation efforts will be initiated** and EMS personnel shall contact on-line Medical Control to advise them of the circumstances.
F. A patient care record will be completed for runs handled within this protocol. The patient care record will clearly specify the circumstances and patient condition found by the EMS providers, and describe the do-not-resuscitate documents involved.

Post-Medical Control

3. Honor DNR, terminate resuscitation or continue resuscitation and transport to the Hospital.

"DO-NOT-RESUSCITATE ORDER"

I have discussed my health status with my physician _____. I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked by me.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

_____ _____
(**Declarant's signature**) (Date)

_____
(Type or print declarant's full name)

_____ _____
(**Signature of person who signed for declarant, if applicable**) (Date)

_____
(Type or print full name)

_____ _____
(**Physician's signature)** (Date)

_____
(Type or print physician's full name)

ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the individual has (has not) received an identification bracelet.

_____ _____
(**Witness signature**) (Date) (**Witness signature**) (Date)

_____ _____
(Type or print witness's name) (Type of print witness's name)

**This form was prepared pursuant to, and in compliance with,
The "Michigan do-not-resuscitate procedure act".**

ANNEX 1

"DO-NOT-RESUSCITATE ORDER"
Adherent of Church or Religious Denomination

I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked by me.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

_____ _____

(**Declarant's signature**) (Date)

_____

(Type or print declarant's full name)

_____ _____

(**Signature of person who signed for declarant, if applicable**) (Date)

_____

(Type or print full name)

ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the individual has (has not) received an identification bracelet.

_____ _____

(**Witness signature**) (Date) (**Witness signature**) (Date)

_____ _____

(Type or print witness's name) (Type of print witness's name)

This form was prepared pursuant to, and in compliance with,
The "Michigan do-not-resuscitate procedure act".

ANNEX 2

Electrical Therapy

Purpose: To provide a procedure for the performance of appropriate electrical therapy

Automatic External Defibrillation (AED)

Refer to the Automatic External Defibrillator (AED) procedure.

Manual Defibrillation

1. Indications:
   A. Ventricular fibrillation
   B. Pulseless ventricular tachycardia

Pre-Medical Control

PARAMEDIC

2. Technique:
   A. Turn defibrillator on.
   B. Apply defibrillator paddles/pads according to manufacturer specifications.
   C. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
   D. Verify shockable rhythm.
   E. Assure that no one is touching the patient.
   F. Defibrillate patient.
   G. Immediately initiate or resume CPR.
   H. Repeat defibrillations at 2 minute intervals if the patient remains in a shockable rhythm per protocol.
   I. Continue to treat the patient according to the appropriate protocol.

3. Precautions
   A. Dry the chest-wall if wet or diaphoretic.
   B. Nitroglycerin paste should be removed; paddles should not be placed over nitroglycerin patches.
   C. Avoid placing the paddles over a pacemaker or AICD.
   D. If visible muscle contraction of the patient did not occur, defibrillation did not occur; check equipment.
   E. If pediatric pads were used with an AED prior to ALS management,
      a. Either use the AED with their pediatric pads or
      b. Remove the pediatric AED pads and use non-attenuated pediatric pads for defibrillation.
4. Complications
   A. Accidental shock of adjacent individual
   B. Skin burns resulting from inadequate contact between paddles and skin or due to inadequate conducting gel or dry conductive pads.

Synchronized Cardioversion

1. Indications: Hemodynamically unstable patient with the following rhythms:
   A. Wide Complex Tachycardia (Presumed Ventricular Tachycardia).

B. Narrow Complex Tachycardia (Supraventricular Tachycardia (SVT), or Atrial Fibrillation.

2. Contraindications: Heart rate < 150 unless ordered by medical control

Pre-Medical Control
PARAMEDIC

3. Technique:
   A. Consider IV sedation per **Patient Sedation Procedure.**
   B. Turn on defibrillator (monophasic or biphasic)
   C. Attach monitor leads to the patient and ensure proper display of the patient's rhythm.
   D. Turn SYNC on, assure that QRS complex is marked
   E. Apply defibrillator paddles/pads according to manufacturer specifications.
   F. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
   G. Check Rhythm.
   H. Assure that no one is touching the patient
   I. Cardiovert patient
   J. Recheck pulse and rhythm
   K. If rhythm does not convert, repeat cardioversion according to the appropriate protocol.
   L. Recheck the "sync mode" after each synchronized cardioversion as many defibrillators default back to unsynchronized mode.
   M. If ventricular fibrillation occurs, deactivate synchronized mode and defibrillate.

4. Precautions
   A. Same as for defibrillation
   B. In "sync" mode, the button(s) need to be held until a shock is delivered. If a shock is not delivered the first time, hold the buttons again.
   C. If a sinus rhythm is achieved by cardioversion, even briefly, and then reverts to previous rhythm, repeat the cardioversion at the same setting as was initially successful.

5. Complications
   A. Accidental shock of adjacent individual
   B. Skin burns resulting from inadequate contact between paddles and skin or due to inadequate conducting gel or dry conductive pads.

Transcutaneous Pacing (TCP)

1. Indications: Symptomatic Bradycardia with inadequate perfusion.

Pre-Medical Control
PARAMEDIC

2. Technique:
   A. Monitor rhythm.
   B. ECG electrodes must be in place, along with pacing pads or combo-pads, in order for the pacer to function.
   C. Apply pacing electrodes per manufacturer's instructions.
   D. Consider sedation, per **Patient Sedation Procedure.**

E. If QRS complexes are present, select a lead in which the QRS is the most positive or upright (so machine can sense their presence).
F. Set external pacemaker rate to 60 bpm to begin.
G. Initiate pacing and increase MA output until evidence of capture has occurred
H. Increase at increments of 20 MA for unconscious patients and 5 MA for conscious patients.
    a. Use minimal MA needed for mechanical capture.
I. Run an rhtyhm strip and save.
J. Assure adequate electrical and mechanical capture.
    a. Electrical:
        1. Visible pacer spike immediately followed by wide QRS and broad T waves.
    b. Mechanical:
        1. Palpable Pulses, improved LOC; improved BP; improved patient color
K. If mechanical capture is not obtained, contact medical control. Perform CPR if appropriate.

3. Precautions
    A. Use of transcutaneous pacemakers can cause painful muscle contractions. Consider the use of sedation in patients that are awake. See **Patient Sedation Procedure**

4. Contraindications
    A. Wet environment
    B. Burns to the chest (relative)

Special Considerations for Electrical Therapy:

1. Electrical therapy may not be successful in hypothermic patients; refer to **Hypothermia Cardiac Arrest Protocol.**

Emergency Airway

Effective airway management and ventilation are important lifesaving interventions that all EMS providers must be able to perform. The approach to airway management should generally proceed in a stepwise fashion, from basic to advanced, since basic maneuvers can sustain life until an advanced airway can be established. However, providers should use clinical judgment in determining which interventions are most appropriate for a particular patient.

Indications for Airway Management and Ventilation

1. Airway Management
    A. Airway obstruction
    B. Need for positive pressure ventilation (see below)
    C. Airway protection, such as an unconscious patient without a gag reflex.
    D. Trauma patient with a Glasgow Coma Score of 8 or less.
2. Positive Pressure Ventilation
    A. Respiratory or cardiac arrest (including agonal respirations)
    B. Respiratory failure (inadequate respiratory rate/volume)

Contraindications for Airway Management and Ventilation

1. Nasopharyngeal airway insertion and nasotracheal intubation are contraindicated in mid-face trauma.
2. Presence of a gag reflex may be a contraindication to some specific airway interventions.
3. Specific supraglottic airways may have contraindicated due to caustic ingestion or known esophageal varicies.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. In cases of foreign body airway obstruction, refer to **Foreign Body Airway Obstruction** section. When the airway is not self-maintained, open the airway using basic maneuvers (chin lift or jaw thrust). Patients with a potential cervical spine injury should have a modified jaw thrust performed attempting to minimize neck flexion and extension.
2. Perform oral pharyngeal suctioning as needed to remove body fluids and minimize risk of aspiration. When possible suctioning should be limited to no more than 15 seconds and should not extend beyond the pharynx.
3. In unconscious patients without a gag reflex, insert a properly sized oropharyngeal airway. Immediately remove upon return of gag reflex.
4. In unconscious patients with gag reflex, consider insertion of a properly sized nasopharyngeal airway, using water-soluble lubrication when available.
5. In patients requiring bag-valve-mask ventilations, consider inserting both oro- and nasopharyngeal airways to optimize ventilations.
6. In patients with respiratory arrest or significant respiratory depression (e.g., adult patient with respiratory rate less than 8) perform bag-valve-mask (BVM) ventilations. Note: BVM ventilations should be performed by 2 rescuers whenever possible. Use supplemental oxygen and reservoir system and avoid high-impulse ventilations.

7. Ventilate at appropriate rate. AVOID HYPERVENTILATION! Generally appropriate rates for ventilation are:
   A. Adults >8 y/o 8-12 breaths / minute
   B. Children 1-8 y/o 20 breaths / minute
   C. Infants < 1 y/o 25 breaths / minute
8. A pocket mask or face shield is an acceptable alternative for single rescuer ventilations.
9. When caring for patients with stomas, use pediatric masks to achieve seal.
10. For patients with a tracheostomy tube and home ventilator connect BVM (without mask) directly to tracheostomy tube and ventilate at appropriate rates.

EMT/SPECIALIST/PARAMEDIC

11. Providers may consider continuing basic airway management techniques if airway is able to maintained adequately in the adult patient.
12. Providers must continue basic airway management, unless the airway is unable to be adequately maintained, in the pediatric patient (8 or under).
13. MCA-approved supraglottic airways (e.g., Combitube, King Laryngeal Tracheal Tube) may be used to secure the airways in unconscious patients that do not have a gag reflex.
14. In cardiac arrest patients, supraglottic airways are considered equivalent to endotracheal intubation and are appropriate as a first-line advanced airway and should be used early when endotracheal intubation cannot be readily performed without interrupting chest compressions. Use of supraglottic airways in cardiac arrest patients may allow for earlier transition to continuous chest compressions.
15. Each MCA must select at least one state-authorized supraglottic airway for use in their system.
16. Supraglottic airways should be placed in accordance with manufacturer's instructions for use (see appropriate procedure) and must be confirmed by auscultation for absence of gastric sounds and presence of bilateral lung sounds and by positive end-tidal CO2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO2 detectors. Additional clinical findings consistent with a properly placed airway include chest expansion, improvement in patient's color, and improvement in pulse oximetry (when available).
17. Supraglottic airway placement should be re-confirmed at frequent intervals throughout the care of the patient, particularly after each patient movement.
18. CPAP (when available) should be considered for patients with severe respiratory distress that do not improve with supplemental oxygen administration in accordance with the **CPAP/BiPAP Administration Procedure.**

PARAMEDIC

19. Orotracheal intubation under direct laryngoscopy may be performed in adult patients who are unable to protect their own airway (e.g., no gag reflex), require sustained positive pressure ventilation, and/or are in cardiac arrest.
20. Orotracheal intubation under direct laryngoscopy may be performed in pediatric patients (< 8 years old) who are unable to protect their own airway (e.g., no gag reflex), require sustained positive pressure ventilation, and/or are in cardiac arrest ONLY when basic airway management techniques (e.g., 2-person mask ventilation with oropharyngeal airway) are

ineffective.

21. When approved by local MCA, nasotracheal intubation may be performed for spontaneously breathing patients in severe respiratory distress who have a patent gag reflex. Caution should be used as this technique is difficult to perform and has a high failure rate. See optional **Nasotracheal Intubation** section**.**
22. Deep tracheal suctioning may be performed when indicated using sterile technique and suctioning only during withdrawal of catheter.
    A. Maximum suction time:
        a. Adults (>8 years old): maximum 10 seconds
        b. Children (1 to 8 years old): maximum 10 seconds
        c. Infants (< 1 year old) maximum 5 seconds

23. When approved by local MCA, needle and/or surgical cricothyroidotomy may be performed where massive facial trauma precludes the possibility of successful intubation, in cases of complete airway obstruction that cannot be corrected, in situations when other basic and advanced airway management techniques are unsuccessful in achieving effective ventilation and/or oxygenation.
24. Endotracheal (ET) medications may not be given via the endotracheal tube unless IV or IO routes of administration cannot be obtained.
    A. If IV or IO access is not available, the following medications may be given via the endotracheal tube:
        a. Atropine, Epinephrine, Naloxone, Lidocaine
        b. Adults – ET doses should be 2 to 2.5 times that of the IV dosage. Children – ET doses should be 2 to 3 times that of the IV dosage. All dosages for pediatric epinephrine administered ET are 1:1000 concentration.
25. Use of sedation to facilitate advanced airway placement is contraindicated. Sedation for tube tolerance following successful tube placement is indicated in accordance with the **Patient Sedation Procedure**.

FOREIGN BODY AIRWAY OBSTRUCTION

This procedure is intended for situations in which a severe foreign body airway obstruction (FBAO) has occurred. EMS personnel must be able to rapidly initiate treatment in such cases. Note: Sudden cardiac arrest that occurs while a person is eating is frequently dispatched as "choking". EMS personnel should consider these cases to be potential cardiac arrests.

Indications for Obstructed Airway Procedures

Attempt to relieve the obstruction only if signs of severe obstruction develop:

1. Patient is unable to speak;
2. Patient's cough becomes silent;
3. Patient's respiratory difficulty increases and is accompanied by stridor;
4. Patient suspected of airway obstruction becomes unresponsive;
5. Patient is unresponsive, not breathing, and is unable to be ventilated using the 2-person bag-valve-mask ventilation technique with oropharyngeal airway.

Note: Conscious patients who are able to speak and have a forceful cough should be encouraged to continue coughing and do not require interventions unless the above occur.

MFR/EMT/SPECIALIST/PARAMEDIC

1. In conscious (responsive) adults and children ≥1 year of age, deliver abdominal thrusts in rapid sequence until the obstruction is relieved.
2. Administer chest thrusts in conscious patients in place of abdominal thrusts when:
   A. Abdominal thrusts are ineffective (optional consideration)
   B. Patient is obese and rescuer is unable to encircle the patient's abdomen
   C. Patient is in the later stages of pregnancy (e.g., greater than 20 weeks)
   D. Patient is under 1 year of age
3. If the adult patient becomes unresponsive or is found unresponsive and is unable to be ventilated using the 2-person bag-valve-mask technique with oropharyngeal airway:
   A. Begin immediate CPR in accordance with current American Heart Association Guidelines regardless of presence of pulse.
   B. With each set of ventilations, visually inspect the mouth for evidence of foreign body and remove if present.
   C. Bag-valve-mask ventilations should be performed using the two-rescuer technique with an oropharyngeal airway and special attention to maintain an effective mask seal.
   D. Continue CPR, alternating 30 compressions with two attempted ventilations.
4. For conscious infants (under 1 year old) with evidence of severe FBAO deliver repeated cycles of 5 back blows (slaps) followed by 5 chest compressions until the object is expelled or the patient becomes unresponsive. Note: Abdominal thrusts are not recommended for infants because they may damage the infant's relatively large and unprotected liver.
5. If the patient becomes unresponsive or is found unresponsive and is unable to be ventilated using the 2-person bag-valve-mask technique with oropharyngeal airway:
   A. Start CPR with chest compressions (do not perform a pulse check).
   B. After 30 chest compressions, open the airway and visually inspect the mouth for a foreign body, remove it but do not perform blind finger sweeps as this may

push obstructing objects farther into the pharynx and may damage the oropharynx.

C. Attempt to give 2 breaths and continue with cycles of chest compressions and ventilations until the object is expelled.

PARAMEDIC

6. Begin or continue basic FBAO treatment as described above.
7. For unconscious patients, while chest compressions are being provided, perform direct laryngoscopy. If foreign body is visible, remove using adult or pediatric Magill forceps.
8. If unsuccessful in visualizing foreign body, consider brief trial of abdominal thrusts while performing direct laryngoscopy.
9. Once FB is removed, perform endotracheal intubation if able to be readily accomplished or place supraglottic airway and begin ventilations.

PARAMEDIC
Oral Endotracheal Intubation Procedure
The table below is the required elements for every patient care record in which endotracheal intubation is attempted.

Documentation Points

✓ Size of ET tube	✓ Visualization of vocal cords
✓ Number of attempts	✓ Suction required
✓ ET Tube measurement (cm) at teeth	✓ Chest rise with ventilation
✓ Ventilation compliance	✓ Bulb syringe check documented if used
✓ Capnography used	✓ ETCO2/Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing ET tube	✓ Any complications with intubation procedure

Technique for Oral Endotracheal Intubation:

1. Ventilate the patient with 100% oxygen using BVM and 2-person technique.
2. Gather equipment:
    A. appropriate size ETT with stylet
    B. syringe
    C. laryngoscope with blades
    D. suction
    E. bag-valve-mask (BVM)
    F. commercial device for securing tube after placement
    G. waveform capnography (preferred) or colorimetric capnometry for confirmation
    H. pulse oximeter, if available
3. If no suspicion of cervical spine injury, position patient with head elevated and extended.
4. If cervical spine injury suspected, have 2nd person stabilize head and neck in neutral position.
5. Perform direct laryngoscopy.
    A. If using a curved blade, place the tip anterior to the epiglottis into the vallecula.
    B. If using a straight blade, directly lift the epiglottis with the tip of the blade.
    C. For infants and children less than 4-6 years old, a straight blade is recommended.
    D. For commercial video laryngoscopy systems (approved by MCA), follow manufacturer's instructions for use regarding placement.
6. In the adult patient the ET tube should be advanced through the cords until the proximal portion of the balloon is passed 2 to 3 cm beyond the vocal cords. Unless otherwise contradicted by auscultation, the tube should be 21 cm at the incisors (or corner of the mouth) in females and 23 cm in males.
7. In pediatric patients, the ET tube should be advanced to the depth recommended based on patient's weight. In general the ET tube should be advanced to a depth that is approximately 3 times the size of the ET tube (e.g., a 4.0 tube should be advanced to ~12 cm).
8. In general, attempts should be limited to less than 30 seconds each.
9. No more than two attempts should be may be made prior to considering a supraglottic airway and/or continuing with basic airway management techniques.

10. In cardiac arrest patients, limit interruptions of compressions to no more than 10 seconds.
11. If using a cuffed tube, inflate the balloon.
12. Confirm tube placement by absence of gastric sounds and by presence of bilateral breath sounds and with waveform capnography (preferred) or colorimetric capnometry.
13. Document the procedure including all the above confirmation techniques for each oral intubation attempt. Maintain airway monitoring once established. For documentation purposes an oral attempt is defined as anytime an ET tube passes patient's lips.
14. Airway placement should be re-confirmed at frequent intervals throughout the care of the patient, particularly after each patient movement.

PARAMEDIC
Nasotracheal (NT) Intubation – Optional MCA Approved Intervention

☑ **MCA Included** ☐ **MCA Not Included**

The table below is the required elements for every patient care record in which endotracheal intubation is attempted.

Documentation Points

✓ Size of ET tube	✓ Specific indication(s) for NT intubation
✓ Number of attempts	✓ Suction required
✓ ET Tube measurement (cm) at nare	✓ Chest rise with ventilation
✓ Ventilation compliance	✓ Color-metric Endtidal CO_2
✓ Capnography used	✓ ETCO2/Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing ET tube	✓ Any complications with intubation procedure

Indication: Spontaneously breathing adult patient with a gag reflex in need of advanced airway.

Contraindications:
1. Patients without spontaneous respiratory effort.
2. Patients with mid-face and nasal trauma.
3. Relative contraindication - known bleeding disorder.
4. Patients that are candidates for CPAP, if available, and not already attempted.

Technique for Nasotracheal Intubation:
1. Ventilate patient with 100% oxygen.
2. Gather equipment: Same as for orotracheal intubation except:
    A. Stylet is not used
    B. Water soluble lubricant needed, preferably lidocaine jelly
3. Liberally lubricate nares and the distal portion of the tube. If available, lidocaine jelly on a nasal pharyngeal airway should be used.
4. Secure the tube connector to the tube with firm pressure prior to beginning procedure.
5. Insert ET tube into nares with the bevel against the septum.
6. Advance the tube posteriorly with gentle pressure. If resistance is encountered may attempt gentle back and forth rotation of tube while advancing.
7. As tube is advanced into nasopharynx, listen for airflow through the ET tube. Advance the tube until airflow appears loudest. If using tip-controlled ET tube, direct tube tip anteriorly.
8. In synch with inhalation rapidly advance tube until airflow is clearly heard through tube.
9. Advance tube until the adapter is approximately 1 cm from nares.
10. Inflate balloon, attach ventilation device, and confirm as for orotracheal intubation. Right main stem intubation is uncommon. If chest rise is limited to right side, carefully withdraw tube (with balloon deflated) until breath sounds become equal.
11. Secure tube and reassess tube placement at frequent intervals.

EMT/SPECIALIST/PARAMEDIC
Combitube Supraglottic Airway – Optional MCA Approved Intervention

☑ **MCA Included** ☐ **MCA Not Included**

The table below is the required documentation elements for every patient care record in which a Combitube insertion is attempted.

Documentation Points

✓ Size of Combitube Airway	✓ Time of attempt(s)
✓ Number of attempts	✓ Suctioning required
✓ Ventilation compliance	✓ Chest rise with ventilation
✓ Capnography used	✓ ETCO2/Capnography reading
✓ Equality of lung sounds	✓ Any complications with procedure
✓ Absence of epigastric sounds	✓ Which tube is used for ventilation

Indications:
For use in unconscious patients with absent gag reflex, who require assisted ventilation. May be used as a rescue device for failed endotracheal intubation or as a primary advanced airway technique.
May be preferred over ET intubation in cardiac arrest patients to minimize interruptions in chest compressions.

Contraindications:
1. Patient with an intact gag reflex
2. Patient under 5 feet tall for a regular adult, 4 feet for Combitube SA
3. Patients in whom esophageal disease is suspected
4. Patients in whom caustic substance ingestion is suspected.
5. Presence of a tracheostomy

Equipment:
1. Combitube is available in 2 sizes, 41F and 37F (SA)
2. Combitube SA is preferred in most patients between 4 and 6 feet tall.
3. Support equipment: Bag-valve-mask, suction, capnography, securing device
4. Use appropriate size and inflation volumes for patient based on table below.

Combitube Size and Inflation Volume Tab

Airway Type	Patient Height	Proximal Balloon #1 Inflation Volume	Distal Balloon #2 Inflation Volume
Combitube 41F	> 5 Feet	50-75 cc initially (100 cc maximum)	15 cc
Combitube SA 37F	> 4 Feet	50-75 cc initially (85 cc maximum)	12 cc
Note: In most patients under 6 feet the Combitube SA (37F) is preferred.			

Procedure for Combitube Airway Insertion

1. Provide bag-valve-mask ventilation using 2-person technique with an oropharyngeal airway, avoiding hyperventilation, and performing pharyngeal suctioning as needed.
2. Test cuff inflation system by injecting the maximum inflation volume listed in table above for the size of the tube.
3. Deflate cuffs completely before insertion, leaving syringe attached to connector.
4. Lubricate tip of Combitube with water soluble medical lubricant.
5. Position patient with head/neck in a neutral position (or slightly flexed if no suspected spinal injury).
6. With gloved hand, lift mandible (jaw) forward.
    A. Alternatively, may use a curved laryngoscope blade to establish path for insertion (S,P)
    B. Insert Combitube into mouth following the same curvature as the pharynx.
7. Gently advance Combitube (along midline) deep into the pharynx until the patient's teeth (gums) lie between the two circular ring markings on the outer end of the airway.
    A. If resistance is felt while advancing, assure the mandible is fully displaced forward.
    B. Do not forcibly advance the airway against resistance.
    C. If resistance continues to be felt, withdraw the Combitube and reinsert.
8. Without holding the Combitube, inflate the Blue Port #1 (proximal pharyngeal balloon) with 50-75 cc of air using the large syringe. Combitube may be slightly displaced outward.
9. Inflate the White Port #2 (distal esophageal balloon) with 12 cc of air (Combitube SA 37 F) or 15 cc of air (Combitube 41 F) using the small syringe.
10. Attach the bag-valve ventilator to the Blue Tube (#1) and begin ventilations while assessing for placement.
    A. Assess for chest rise, listen for absence of gastric (stomach sounds), then listen for bilateral breath sounds. Measure end tidal CO2 as early as possible.
    B. If chest rises, no gastric sounds and bilateral breath sounds are present and CO2 detected, continue ventilating through Blue Tube #1. Tube should be in esophagus.
    C. If chest does not rise and if gastric sounds are present when ventilating through Blue Tube #1, immediately switch to Clear Tube #2. If chest rises, no gastric sounds and bilateral breath sounds are present and CO2 detected, continue ventilations through Clear Tube #2. Tube should be in trachea.
    D. If ventilation through either tube does not produce chest rise, absent gastric sounds, bilateral breath sounds and detection of CO2, then immediately fully deflate both balloons and remove Combitube, reinsert oropharyngeal airway and resume 2-person bag-valve mask ventilations prior to re-attempting procedure.
11. If ventilations are successful through Blue Tube #1 but an air leak is detected at the mouth, place additional air into Blue Port #1 in 10 cc increments while ventilating (85 cc maximum for 37 F or 100 cc maximum for 41 F) until air leak resolves.
12. If ventilating successfully through Blue Tube #1 and gastric distension is present, insert suction catheter (provided) through Clear Tube #2, attach suction and decompress stomach.
13. The large pharyngeal balloon generally is sufficient to keep the Combitube in place during

pre-hospital care. Additionally securing the Combitube with tape or similar means is recommended when extensive patient movement is likely to occur (e.g., during extrication).

14. Constant monitoring of the patency of the airway must be done throughout the care of the patient. End tidal CO2 monitoring, evaluating chest rise and re-auscultation of gastric and breath sounds should be performed at frequent intervals.
15. Both the pharyngeal and esophageal balloons are at risk for being punctured during insertion from sharp teeth. If either balloon is punctured the airway will not work effectively and must be removed. This can be detected by the pilot cuffs being unable to maintain air.
16. Combitube should be removed if patient becomes develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Sedation Procedure**.

EMT/SPECIALIST/PARAMEDIC
King LTS/D™ Supraglottic Airway – Optional MCA Approved Intervention

☑ **MCA Included** ☐ **MCA Not Included**

The table below is the required documentation elements for every patient care record in which a King LTS/D insertion is attempted.

Documentation Points

✓ Size of King Airway used	✓ Time of attempt(s)
✓ Number of attempts	✓ Suctioning required before placement
✓ Ventilation compliance	✓ Chest rise with ventilation
✓ Capnography used	✓ $ETCO_2$/Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing King Airway	✓ Any complications with procedure
✓ Gastric decompression performed	

Indications:

For use in unconscious patients without gag reflex, who require ventilation. May be used as a rescue device for failed endotracheal intubation or as a primary advanced airway technique. Consider in cardiac arrest patients to minimize interruptions in compressions.

Contraindications:

1. Responsive patients with a gag reflex
2. Patients who are under 35 inches tall (#2 KLTD) or 4 feet (#3 KLTD/S)
3. Patients in whom esophageal disease is suspected
4. Patients in whom caustic substance ingestion is suspected.

Equipment:

1. King LTD: Disposable King Airway that does not have gastric access.
2. King LTDS: Disposable King Airway that provides gastric access to allow for gastric decompression using an 18F gastric tube (preferred for adults).
3. Supplies: Water-soluble lubricant, bag-valve-mask, capnography, securing device.
4. Use appropriate size and inflation volumes for patient based on table below.

King Airway Size and Inflation Volume Table

Size	Airway Type	Patient Height	Connector Color	Inflation Volumes
2	KLTD	35-45 Inches	Green	25-35 cc
2.5	KLTD	40-51 Inches	Orange	30-40 cc
3	KLTD	4-5 Feet	Yellow	45-60 cc
	KLTDS			40-55 cc
4	KLTD	5-6 Feet	Red	60-80 cc
	KLTDS			50-70 cc
5	KLTD	>6 Feet	Purple	70-90 cc
	KLTDS			60-80 cc
(King Airway Instructions for Use, King Systems, Noblesville, IN)				

King LTS/D Procedure:

1. Provide bag-valve-mask ventilation using 2-person technique with an oropharyngeal airway, avoiding hyperventilation, and performing pharyngeal suctioning as needed.
2. Test cuff inflation system by injecting the maximum inflation volume listed in table above for the size of the tube.
3. Deflate cuffs completely before insertion, leaving syringe attached to connector.
4. Lubricate the beveled distal tip and posterior aspect of the tube avoiding introduction of lubricant in or near the ventilatory openings.
5. Position the patient's head (ideal position is the sniffing position but the neutral position can be used).
6. Holding the King at the connector, hold the patient's mouth open and apply chin lift unless contraindicated due to trauma and/or spinal immobilization,
7. With the King rotated laterally 45-90 degrees, such that the blue orientation line is touching the corner of the mouth, introduce tip into the mouth and advance behind the base of the tongue. Never force the tube into position.
8. As the tip passes under tongue rotate tube back to midline (blue orientation line
9. faces chin).
10. Without exerting excessive force, advance the King until base of connector aligns with teeth or gums.
11. Inflate the cuff based on the listed volumes for the tube size used.
12. Attempt ventilation. If resistance is met and/or no chest rise occurs, carefully withdraw the airway approximately 1 cm at a time while attempting to ventilate. When airway is in supraglottic position, patient should easily ventilate and chest should rise and fall.
13. Attach bag, valve device and verify placement by ALL of the following criteria:
    - ✓ Rise and fall of chest
    - ✓ Bilateral breath sounds
    - ✓ Absent epigastric sounds
    - ✓ CO2 measurement (capnography)
14. Secure the airway, preferably with a commercial tube holding device appropriate for the King Airway.
15. If there is any question about the proper placement of the King Airway, deflate the cuffs and remove the airway, Ventilate the patient with BVM for 30 seconds and repeat insertion procedure or consider other airway management options.
16. Continue to monitor the patient for proper airway placement throughout prehospital treatment and transport.
17. Following successful placement, consider gastric decompression using a lubricated 18F gastric tube.
18. King Airway should be removed if patient becomes develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Sedation Procedure**.

PARAMEDIC
Cricothyrotomy

- ☐ Cricothyrotomy MCA Not Included
- ☑ Surgical Cricothyrotomy-MCA Included
- ☑ Needle Cricothyrotomy-MCA Included
- ☐ Commercial Percutaneous Cricothyrotomy – MCA Approved

Approved Device(s) :_____

NOTE: If MCA selects Commercial Percutaneous Cricothyrotomy; training program must be submitted with this protocol.

The table below is the required documentation elements for every patient care record in which a cricothyrotomy is attempted.

Documentation Points

✓ Type of cricothyrotomy attempted	✓ Indication for cricothyrotomy
✓ Number of attempts	✓ Time of attempt(s)
✓ Ventilation compliance	✓ Previous advanced airway attempt(s)
✓ ETCO2/Capnography reading	✓ Chest rise with ventilation
✓ Equality of lung sounds	✓ Post-cricothyrotomy pulse oximetry
✓ Any complications with procedure	✓

The cricothyroid membrane is located subcutaneously between the thyroid cartilage ("Adam's apple") and cricoid cartilage. There are three methods for performing a cricothyrotomy: surgical cricothyrotomy, needle cricothyrotomy, and percutaneous cricothyrotomy using a state and local MCA-authorized commercial kit. The surgical technique uses a scalpel blade to create an opening in the cricothyroid membrane through which an endotracheal tube is inserted. The needle technique uses a large bore (≥ 14 ga) IV catheter inserted percutaneously and requires a commercial transtracheal jet insufflation device for optimal use. The percutaneous cricothyrotomy uses a commercial kit to perform the cricothyrotomy.

Patients less than age 8 may have a needle cricothyrotomy performed or approved pediatric percutaneous kit. Patient's age 8 or greater may undergo a needle, surgical, or commercial percutaneous cricothyrotomy, as approved by local medical control.

Indications for Cricothyrotomy:

1. Total airway obstruction not relieved by other methods.
2. Airway compromise from injuries that make oral or nasal intubation impractical.
3. Inability to intubate or effectively manage with basic techniques or supraglottic airway.

Pre-Medical Control

Technique for Surgical Cricothyrotomy:

1. Gather necessary equipment in addition to that needed for oral intubation
   A. antiseptic solution
   B. scalpel
   C. tracheal hook (recommended)

D. gum elastic bougie (recommended)

2. Identify cricothyroid membrane
3. Prep the site with antiseptic solution
4. While stabilizing the larynx with one hand, use the opposite hand to make a 3 cm **vertical incision** through the skin in the midline over the cricoid membrane.
5. After identification of the cricoid membrane, use the scalpel to make a ~1 cm **horizontal incision** through the lower portion of the membrane.
6. Enlarge the hole and advance the ET tube into the airway, and inflate the balloon.
   A. Care should be taken to assure tube is inserted into the trachea and not a false passage.
   B. When available, use a tracheal hook to displace the inferior aspect of the membrane anteriorly so as to facilitate tube placement.
   C. When available, insert a gum elastic bougie through the incised membrane and advance until resistance is felt at the level of the carina. Then advance the ET tube over the bougie (recommended technique)
7. Verify correct placement using usual techniques, including end tidal CO2 detection.
8. Maintain continuous CO2 monitoring once established.
9. Apply dressing to area.

Pre-Medical Control

Technique for Needle Cricothyrotomy:

1. Gather necessary equipment:
   A. antiseptic solution
   B. transtracheal jet insufflation device (preferred)
   C. alternatively use an improvised ventilation system using a 3 mm ET tube adapter connected directly to the catheter Luer lock and to bag-valve device. This system provides only temporary limited oxygenation.
   D. IV catheter ($\geq$ 14 gauge) and syringe (5-10 cc). Do not use needle safety catheters that do not allow for connection of syringe.
2. Identify cricothyroid membrane.
3. Prep the site with antiseptic solution.
4. Connect the IV catheter to a syringe.
5. Stabilize the larynx and re-identify the cricothyroid membrane.
6. Direct the IV catheter posteriorly and inferiorly at an angle of ~45 degrees to the skin.
7. Insert the IV catheter through the skin, maintaining negative pressure on the syringe. Entry of air and loss of resistance signifies entry into the larynx.
8. Advance the catheter into the larynx and retract the needle.
9. Caution must be used to ensure the catheter does not bend.
10. Ventilate using a commercial transtracheal jet insufflation device (preferred).
11. Alternatively, ventilate by connecting Luer lock end of catheter to 3 mm ET tube adapter and then attach to bag-valve system. This system does not allow for effective ventilation but may provide temporary oxygenation until definitive airway can be established.
12. Deliver 100% O_2 at 20 bursts/minute with Inspiratory/Expiratory (I:E) of 1:2.

Pre-Medical Control

Technique for Percutaneous Cricothyrotomy Using Approved Commercial Kit:

1. Prepare necessary equipment.
2. Note: Only state and local MCA approved commercial percutaneous cricothyrotomy kits may be used.
3. Follow Instructions for Use provided by device manufacture.

EMS Immunization & TB Testing

Purpose: To allow paramedics to provide agency TB testing and vaccinations for seasonal influenza and during public health emergencies.

Community immunization and other public health applications are important duties that paramedics may perform as determined necessary in cooperation with the medical control authority and the local public health department. Training will be approved by the EMS Medical Director and Medical Control Authority and may be accomplished under the direction of the MCA and/or local public health department.

1. **Indications for immunization and/or TB testing:**
    a. Public or EMS agency personnel may be immunized or tested for TB under guidelines developed by the public health department or MCA.
    b. Age groups for immunization will be determined by the MCA or public health department as appropriate for the immunization clinic setting or agency TB testing requirements as determined necessary by the local public health department or agency infection control guidance.
    c. Timing of immunizations or TB testing will be determined by the MCA, EMS agency and public health department to comply with public health needs or agency immunization requirements as determined by agency infection control guidance.
    d. Immunizations or TB testing may be performed in clinic, NEHC, mass immunization or agency setting as approved by the MCA and/or local public health department.

2. **Immunization or TB testing**
    a. Immunizations or TB testing may be administered via IM, SQ or intranasal route in dosing determined by guidance provided by the MCA or local public health department as required for the agent administered.
    b. Screening will be performed as determined appropriate for the agent administered by the MCA or local health department.
    c. TB tests will be interpreted by paramedics performing the tests or personnel trained to review TB tests under MCA approved training programs.

3. **Training**
    a. Training for immunization will be provided by local public health department personnel or under an approved MCA program.

4. **Personnel requirements**
    a. Immunizations or TB testing may only be performed by paramedics trained by local public health department personnel or under approved MCA training programs.

5. Record keeping

a. A record of public or agency personnel receiving immunizations or TB testing will be maintained by the agency performing the immunizations or TB testing as determined by the local public health department/Medical Control Authority.
b. Michigan Care Improvement Registry (MCIR) record keeping may be required for some immunizations such as is required for H1N1.

Epi-Pen Procedure

Purpose: To allow use of Epi-pen/Epi-Pen Jr. for life-threatening anaphylaxis by authorized prehospital providers licensed at or above the Emergency Medical Technician level.

1. **Indications**
   A. Life-threatening allergic/anaphylactic reactions
   B. Use with Allergic Reaction/Anaphylaxis Protocol

2. **Contraindications**
   A. No absolute contraindications to life-threatening anaphylaxis
   B. Caution: Use with caution in patients with heart disease, high blood pressure, and stroke.
   C. Patient weight less than 10 kg.

Pre-Medical Control
EMT/ SPECIALIST/PARAMEDIC

3. **Technique**
   A. Epi-Pen is an auto-injector that injects medication into the intramuscular tissue when the device is pushed against the skin. Injection is to be done at the anterolateral portion of the thigh.
   B. Dosing: Epi-Pen (0.3 mg) is used for patients weighing over 32 kg. Epi-Pen Jr. (0.15 mg) is used for patients weighing at least 10 kg.
   C. Instructions for use are pictured on the side of each autoinjector.
   D. The autoinjector must be held in place for ten (10) seconds once the needle injects into the thigh.

4. **Documentation**
   A. EMS providers will note any changes in the patient's condition and report those changes to on-line medical control and document changes on the run form and complete the Epi-Pen Utilization Form.

5. **Accountability**
   A. Epi-Pens will be stored in a securely locked compartment in a temperature controlled area of the EMS vehicle.
   B. Epi-Pens must be restocked at the pharmacy or through other Medical Control approved process in conformity with current pharmacy laws and the public health code. Utilization forms must be completed for each use.

Epi-Pen Utilization Form
(To be used by Hospital)

Drug	Standard Quantity	Count	Expiration Date
Epi-Pen 0.3 mg	1	_____	_____
Epi-Pen Jr. 0.15 mg	1	_____	_____

Run Date _____

Patient Name _____

Physician _____

EMT _____

Receiving Hospital _____

Epi-Pen Procedure Supplement

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

This supplement is intended to authorize MFRs to carry and use the Epi-Pen epinephrine auto-injector. In order to use this supplement the MCA must create a needs statement that defines criteria for agencies that will be using the Epi-Pen. The needs statement must be consistent with Michigan statute, MCL 333.20919 (6); and be reviewed and approved by the Department. If an agency in the MCA meets the criteria, this supplement becomes mandatory.

MCL 333.20919 (6) states that a local medical control authority may require medical first response services and licensed medical first responders within its region to meet additional standards for equipment and personnel to ensure that each medical first response service is equipped with an epinephrine auto-injector, and that each licensed medical first responder is properly trained to recognize an anaphylactic reaction and to administer and dispose of the epinephrine auto-injector, if a life support agency that provides basic life support, limited advanced life support, or advanced life support is not readily available in that location.

MCA Medical First Responder Need Statement

The Epinephrine Auto Injector protocol applies to Medical First Responders (MFRs) based on need as follows:

MFR agencies which _____
_____
_____
_____
_____
_____
_____
_____
_____

will carry epinephrine auto injectors as described in the **Epi-Pen Procedure. All providers in the system should use the following procedure.**

Epi-Pen Procedure

Purpose: To allow use of Epi-pen/Epi-Pen Jr. for life-threatening anaphylaxis by authorized prehospital providers licensed at or above the Medical First Responder level. Due to the high risk of relapse, patients who are treated with an Epi-pen/Epi-pen Jr., either prior to or after EMS arrival, should be transported to an appropriate facility, per MCA protocol. Contact medical control for refusal requests even if the Epi-pen/Epi-pen Jr. treatment was not administered by EMS personnel.

1. **Indications**
    a. Life-threatening allergic/anaphylactic reactions
    b. Use with Allergic Reaction/Anaphylaxis Protocol

2. **Contraindications**
    a. No absolute contraindications to life-threatening anaphylaxis
    b. Caution: Use with caution in patients with heart disease, high blood pressure, and stroke.
    c. Patient weight less than 10 kg.

Pre-Medical Control
MFR

1. **Technique**
    a. Epi-Pen is an auto-injector that injects medication into the intramuscular tissue when the device is pushed against the skin. Injection is to be done at the anterolateral portion of the thigh.
    b. Dosing: Epi-Pen (0.3 mg) is used for patients weighing over 32 kg. Epi-Pen Jr. (0.15 mg) is used for patients weighing at least 10 kg.
    c. Instructions for use are pictured on the side of each auto-injector.
    d. The auto injector must be held in place for ten (10) seconds once the needle injects into the thigh.

2. **Documentation**
    a. EMS providers will note any changes in the patient's condition and report those changes to on-line medical control and document changes on the run form and complete the Epi-Pen Utilization Form.

3. **Accountability**
    a. Epi-Pens will be stored in a securely locked compartment in a temperature controlled area of the EMS vehicle.
    b. Epi-Pens must be restocked at the pharmacy or through other Medical Control approved process in conformity with current pharmacy laws and the public health code. Utilization forms must be completed for each use.
    c. The utilization form and EMS patient care record will be forwarded to the MCA office after each Epi-Pen use.

Epi-Pen Utilization Form
(To be used by Hospital)

Drug	Standard Quantity Count		Expiration Date
Epi-Pen 0.3 mg	1	_____	_____
Epi-Pen Jr. 0.15 mg	1	_____	_____

Run Date _____

Patient Name _____

Physician _____

MFR _____

Receiving Hospital _____

Helmet Removal

Purpose: To insure proper handling of patients suspected of sustaining a head, neck or back injury while wearing a protective helmet.

Policy: In the event that an individual is injured while wearing a protective helmet, the initial assessment should proceed as outlined in the **Adult Trauma Protocol** and the **Spinal Injury Assessment Protocol.** The goal is to appropriately treat the patient while maintaining spinal precautions and being able to manage the patient's airway.

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

1. High Impact Helmets (i.e. motorcycle, car racing)
   a. Whether the helmet is a closed or open faced style helmet, the helmet must always be removed while providing spinal precautions. The helmet interferes with a proper assessment of possible head injury and would cause the cervical spine into a flexion position while the patient is supine.

2. Low Impact Helmets with Shoulder Pads (i.e. football, ice hockey, etc.)
   a. In those patients wearing a well-fitted helmet which conforms closely to the patient's head, **provided there is a prearranged agreement between team training/medical staff, EMS providers and the likely receiving facility**, it may be preferable to leave the helmet and shoulder pads in place. If such an agreement is in place the procedure would be as follows (or as determined by agreement):

      i. If the patient is awake and able to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield must be removed prior to transport.
      ii. If the patient has an altered level of consciousness or, for any other reason, is unable to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield should be immediately removed to allow access to the airway.
      iii. If the face shield cannot easily be removed for any patient, the helmet and shoulder pads should be removed using in-line stabilization.
      iv. If the airway cannot be controlled for any reason with the helmet in place, the helmet and shoulder pads should immediately be removed, using in-line stabilization.

   b. If there has not been a prearranged agreement for the management of patients with Low Impact Helmets, the helmet and shoulder pads should be removed while providing manual in-line spinal precautions.

3. Low Impact Helmets without Shoulder Pads (i.e. baseball, bicycle, rollerblade, etc.):
   a. Whether the helmet is a closed or open faced style helmet, the helmet must always be removed while providing spinal precautions. The helmet interferes with a proper assessment of possible head injury and would cause the cervical spine into a flexion position while the patient is supine.

NOTE: When providing spinal precautions for patients with the helmet in place, cervical immobilization devices should generally not be used in these patients. The helmet should rest directly on the extrication device or stretcher with towel rolls used to provide lateral support to the helmet.

EMS crews should work closely with sports medicine personnel (team trainers and physicians) for organized team sports. When providing scheduled standbys at sporting events, EMS personnel should interface with team trainers/medical staff prior to the event and coordinate and agree to specifics of the care expected for the injured athlete. The expected receiving facility should also be consulted when the expected care includes leaving the helmet and pads on injured players.

Impedance Threshold Device (ITD) (Optional)

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

PURPOSE
Conventional CPR provides 15% of normal blood flow to the heart and blood flow to the brain is 25% of normal. Current survival rates average 5%.

PROTOCOL

The ITD is an impedance threshold device that prevents unnecessary air from entering the chest during the decompression phase of CPR. When air is prevented from rushing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in a:

- Doubling of blood flow to the heart.
- 50% increase in blood flow to the brain.
- Doubling of systolic blood pressure.

Pre-Medical Control
MFR/BASIC/SPECIALIST/PARAMEDIC

Indications:
1. Cardiopulmonary arrest (medical etiology)

Contraindications:
1. Cardiopulmonary arrest related to trauma

Procedure:
1. Confirm absence of pulse and begin CPR immediately. Assure that chest wall recoils completely after each compression.

2. Using the ITD on a facemask:
   A. Connect ITD to the facemask.
   B. Connect ventilation source (BVM) to top of ITD. If utilizing a mask without a bag, connect a mouthpiece.
   C. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
   D. Do not use the ITD's timing lights during CPR utilizing a facemask for ventilation.
   E. Perform ACLS interventions as appropriate.
   F. Prepare for endotracheal intubation.

3. Using the ITD on an endotracheal tube or Supraglottic Airway Device (SAD):
    A. Endotracheal intubation is the preferred method of managing the airway when using the ITD.
    B. Place endotracheal tube or SAD and confirm placement. Secure the tube.
    C. Move the ITD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
    D. Continue CPR with minimal interruptions:
        a. Provide continuous (no pauses) chest compressions (approximately 10 per light flash) and ventilate asynchronously over 1 second when light flash 10/min).
    E. Perform ACLS interventions as appropriate.
    F. If a pulse is obtained, remove the ITD and assist ventilations as needed.

Special Notes:

1. Always place $ETCO_2$ detector between the ITD and ventilation source.
2. Administer endotracheal medications directly into endotracheal tube.
3. Do not interrupt CPR unless absolutely necessary.
4. If a pulse returns, discontinue CPR and the ITD. If the patient rearrests, resume CPR with the ITD.
5. Do not delay compressions if the ITD is not readily available.
6. Initial training and ongoing competency skills shall be monitored by the agency.

Intranasal Medication Administration (Optional)

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

Purpose: This optional procedure authorizes intranasal medication administration by paramedics using an FDA-approved atomizing device. This procedure authorizes the substitution of the intranasal route for other routes specified in individual protocols as approved for specific indications stated below by the local medical control authority.

Indications: In general, the intravenous route is preferred for medication administration. This procedure may be considered when IV access is unavailable and when a needleless delivery system is desired because of patient agitation, combativeness, or similar conditions that may pose a safety risk to personnel.

CHECK MCA APPROVED INDICATION

☑ Adult Seizures
☑ Pediatric Seizures
☑ Sedation
☑ Adult Pain Control
☑ Pediatric Pain Control
☑ Altered Mental Status with Suspected Opiate Overdose

Contraindications:

1. Nasal trauma
2. Epistaxis, nasal congestion, (significant) nasal discharge
3. Known cocaine use is a relative contraindication

Pre-Medical Control

SPECIALIST – Limited to Naloxone administration.

PARAMEDIC

1. Select desired medication and determine dose (See Medication Table).
2. Draw up appropriate dose (volume) of medication plus an additional 0.1 ml to account for device dead space.
3. Attach atomizing device to syringe.
4. Use one hand to support back of patient's head as needed.
5. Place tip of atomizing device snuggly against nostril aiming slightly upward and outward.
6. Rapidly administer one half of the dose of medication, briskly pushing plunger.
7. Repeat with other nostril delivering the remaining volume of medication.
8. Note: Maximal dose per nostril is 1 cc.

Indication	Medication	Dose	Comments
Adult Seizure	Midazolam (5 mg/1 cc)	10 mg	-Always use 5mg/1ml concentration
Pediatric Seizure	Midazolam (5 mg/1 cc)	0.2 mg/kg Max 10 mg	-Always use 5mg/1ml concentration
Sedation	Midazolam (5mg/1cc)	0.2 mg/kg Max 10 mg	-Always use 5mg/1ml concentration -Causes brief burning lasting approximately 30 seconds
Suspected Opiate Overdose	Naloxone (1mg/1ml)	2 mg	-Always use 1 mg/1ml concentration
Adult Pain Control	Fentanyl	2 mcg/kg	
Pediatric Pain Control	Fentanyl	2 mcg/kg	
Use most concentrated form of medication. Do Not dilute. Maximum 1 cc per nostril			

Medication Shortage

☑ Medical Control Authorities choosing to adopt this Emergency Protocol may do so by selecting this check box. Per Administrative Rule 325.22206 Rule 207 (5) an emergency protocol shall remain in effect for 60 days unless approved by the department.

☑ Medical Control Authority adopting as a Medication Shortage Procedure.

Purpose: The purpose of this protocol is to address the National Shortage of specific medications. This protocol authorizes the substitution of the Zofran, Benzodiazepine & Fentanyl options previously selected by Medical Control Authority that are currently on file with the State of Michigan.

The Michigan Protocols for Adult & Pediatric Treatment call for the selection of one (1) Benzodiazepine medication. This protocol allows for selecting all options. The Patient Sedation Procedures allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage. The Narcotic options in the state Pain Management Procedure also allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage. This protocol allows for an MCA to make selection of Zofran ODT as an alternative to Zofran IV/IM in the event IV Zofran availability is affected by the medication shortage.

The following Michigan protocols are affected by the **Benzodiazepine** medication shortage:

ADULT PROTOCOLS:	**PEDIATRIC PROTOCOLS:**	**PROCEDURES:**
Obstetrical Emergencies	Seizures	Patient Sedation
Seizures		

ADULT TREATMENT (Seizure)

Medication Options:
(Selection Options)

☑ Midazolam 5 mg IV/IO

☑ Lorazepam - 4 mg IV/IO

☑ Diazepam - 10 mg IV/IO or rectally

PEDIATRIC TREATMENT (Seizure)

Medication Options:
(Selection Options)

☑ Midazolam 0.05 mg/kg IV/IO, maximum individual dose 5 mg

☑ Lorazepam - 0.1 mg/kg IV/IO, max single dose 4 mg, may repeat in 5 minutes if seizure activity continues; not to exceed 0.2 mg/kg total (maximum of 8 mg)

☑ Diazepam - 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)

PROCEDURES (Patient Sedation)

Adult Sedation: (Select Options)
(Titrate to minimum amount necessary)

- ☑ Midazolam 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ Diazepam 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- ☑ Lorazepam 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- ☑ Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Pediatric Sedation: (Select Options)
(Titrate to minimum amount necessary)

- ☑ Midazolam 0.05 mg/kg IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ Diazepam 0.1 mg/kg IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- ☐ Lorazepam 0.1 mg/kg, max 4 mg/dose IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- ☑ Fentanyl 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

The following Michigan protocols are affected by the **Fentanyl** medication shortage:

PROCEDURES:
Pain Management

ADULT NARCOTIC ANALGESIC OPTIONS

- ☑ Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 3 mcg/kg
- ☑ Morphine Sulfate 2-5 mg (0.05 mg/kg) IV/IM/IO may repeat dose every 5 minutes until maximum of 20 mg.
- ☑ Hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

- ☑ Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 2 mcg/kg
- ☑ Morphine Sulfate - 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum of 0.2 mg/kg.
- ☑ Hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

MCA Pain Management Selections

Protocols		Medications	Pre-Medical Control	Post-Medical Control
Adult Abdominal Pain	✔	Fentanyl	✔	
	✔	Morphine	✔	
	✔	Hydromorphone	✔	
Adult Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Soft Tissue& Orthopedic Injury	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Chest Pain/ACS	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Pediatric Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Other indications not listed above	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	

The following Michigan protocols are affected by the **Ondansetron (Zofran)** medication shortage. If Zofran IV/IM is not available, it may be replaced with Zofran ODT and the available medication may be administered per protocol if both boxes below are checked:

ADULT:
Nausea/Vomiting

PEDIATRIC:
Nausea/Vomiting

ADULT

ONDANSETRON (ZOFRAN) OPTIONS
(Select Options)

✔ Ondansetron (Zofran) 4mg IV/IM

✔ Ondansetron (Zofran) 4 mg ODT

PEDIATRIC

ONDANSETRON (ZOFRAN) OPTIONS
(Select Options)

✔ Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg

✔ Ondansetron (Zofran) 4mg ODT

Nebulized Bronchodilators

Purpose: Proper administration of nebulized bronchodilator medications.

Indication

1. Patient with respiratory distress and wheezing.
2. When indicated under specific treatment protocol.

Pre-Medical Control

EMT/SPECIALIST/PARAMEDIC

1. Obtain vital signs and lung sounds.
2. Place the appropriate volume of medication in the lower half of the nebulizer unit. Then screw the upper half of the unit in place.
3. Attach the nebulizer to the base of the T-piece. Then attach the mouthpiece to the T-piece or connect neb chamber to NRB mask.
4. Attach one end of the oxygen tubing to the base of the nebulizer and the other end of the oxygen tubing to the oxygen source.
5. Set the oxygen liter flow at 6-7 L/min.
6. Instruct the patient to breathe normally through the mouthpiece, taking a deep inspiration every 4 or 5 breaths.
7. Continue the treatment until all the medication has been delivered through the nebulizer. You may need to gently tap the reservoir once or twice during the treatment to redispurse the medication.
8. Obtain and record another complete set of vital signs and lung sounds after completion of the treatment.

Medication Dosage

EMT/SPECIALIST

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

PARAMEDIC

1. Administer treatment number one as Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized if wheezing or airway constriction.
2. Per MCA selection administer additional bronchodilator treatments as Albuterol 2.5 mg/3 ml NS nebulized OR Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized, as needed, if wheezing or airway constriction persists.

ADDITIONAL BRONCHODILATOR TREATMENTS OPTIONS

☑ Albuterol 2.5 mg/3 ml NS nebulized

OR

☐ Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized

Pediatric Considerations

1. Infants and small children may not be able to use adult mouth piece and may need to use blow-by.

Oxygen Administration

Assuring adequate patient oxygenation is a fundamental responsibility of EMS providers at all levels. Supplemental oxygen when clinically indicated and through the proper delivery system can have an important impact on patient outcome.

INDICATIONS FOR OXYGEN ADMINISTRATION

1. Real or suspected hypoxia
2. Patients in respiratory or cardiac arrest
3. Respiratory distress
4. Chest pain, stroke, seizures, or altered mental status when pulse oximetry is unavailable or when oxygen saturation is less than 94%
5. Major multiple system trauma or isolated chest trauma
6. Shock
7. Suspected carbon monoxide and/or cyanide poisoning (including smoke inhalation) regardless of pulse oximetry value
8. Complicated childbirth
9. Patients who normally use supplemental oxygen as part of their routine care
10. Any condition in which pulse oximetry is <94%, when available

CONTRAINDICATIONS FOR OXYGEN ADMINISTRATION

1. There are no absolute contraindications to oxygen administration.
2. In general, supplemental oxygen should be guided by pulse oximetry (when available) to maintain oxygen saturations ≥94%.
3. Patients with COPD may develop a hypoxic drive to breath. High concentrations of oxygen may suppress their respiratory drive. Oxygen should still be administered when clinically indicated. Providers should monitor for respiratory depression and assist ventilations when indicated.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Assure the patient has an adequate airway or establish an airway in accordance with the **Emergency Airway Procedure.**

2. In spontaneously breathing patients administer supplemental oxygen by appropriate means.
   A. Nasal cannula at 2-6 LPM (decrease for peds): This is appropriate for most patients with mild to moderate hypoxia and minimal or no respiratory distress. Most patients tolerate nasal cannulas.
   B. Non-rebreather (NRB) mask at 8-12 LPM (adjust flow rate to keep reservoir bag inflated). An NRB should be used on all spontaneously breathing patients with moderate to severe respiratory distress and all patients with suspected carbon monoxide and/or cyanide poisoning (e.g., smoke inhalation).
3. In patients not breathing or breathing below their normal respiratory rate use a bag-valve-mask to provide ventilations at 8-12 LPM (decrease in peds to assure reservoir bag inflated). See **Emergency Airway Procedure.**
4. Pediatric "blow-by" oxygen is an ineffective means of delivering supplemental oxygen to pediatric patients and should be avoided when possible. Pediatric nasal cannulas are well tolerated by most children. When using, blow-by technique, keep mask as close to face as possible and use high flow (e.g., ~15 LPM).
5. When caring for patients with stomas, use pediatric size masks.

Pain Management

The goal is to reduce the level of pain for patients in the pre-hospital setting. All non-cardiac pain should be assessed and scored according to the "Wong Pain Scale". Reassessment should be timed according to medication onset of action, changes in patient condition, patient positioning and other treatments.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-Hospital Care Protocol** or Follow **Pediatric Assessment and Treatment Protocol**.
2. For trauma patients follow the **Adult or Pediatric Trauma Protocol**.
3. Place the patient in the position of most comfort.

SPECIALIST/PARAMEDIC

1. Start an IV NS KVO. If the patient has a systolic blood pressure is less than 100 mm Hg and signs of hypoperfusion administer an IV/IO fluid bolus. Refer to **Vascular Access & IV Fluid Therapy Procedure**.

PARAMEDIC

Only one pain medication may be given pre-radio if authorized by the MCA. Medical Control must be contacted if a different pain medication is needed.

If indicated, administer pain medication as described below. Administer narcotics slowly when using IV or IO routes. Systolic BP should be maintained at:

Adult $\geq$ 100 mm Hg
Pediatric 80 + (2 x age) mm Hg

1. Administer pain medication per MCA selection.
2. Administer Fentanyl in 1 mcg/kg increments IV/IM/IO. If pain persists after five minutes repeat dose up to a maximum dose of 3 mcg/kg. For pediatric patients, administer Fentanyl in 1 mcg/kg increments IV/IM/IO up to a maximum of 2 mcg/kg.
3. Administer Morphine sulfate in 2 – 5 mg (0.05 mg/kg) increments IV/IM/IO, up to a maximum of 20 mg. For pediatric patients administer Morphine sulfate 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum total dose of 0.2 mg/kg.
4. Administer hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg. For pediatric patients administer hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.
5. Medications administered IM are limited to a single dose without medical control order.

ADULT NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 3 mcg/kg

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

Hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 2 mcg/kg

Morphine Sulfate - 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum of 0.2 mg/kg.

Hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

MCA Pain Management Selections

Protocols		Medications	Pre-Medical Control	Post-Medical Control
Adult Abdominal Pain	✔	Fentanyl	✔	
	✔	Morphine	✔	
	✔	Hydromorphone	✔	
Adult Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Soft Tissue& Orthopedic Injury	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Chest Pain/ACS	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Pediatric Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Other indications not listed above	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	

Post-Medical Control

1. For patients with evidence of hypotension or hypoperfusion, contact medical control.

NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)

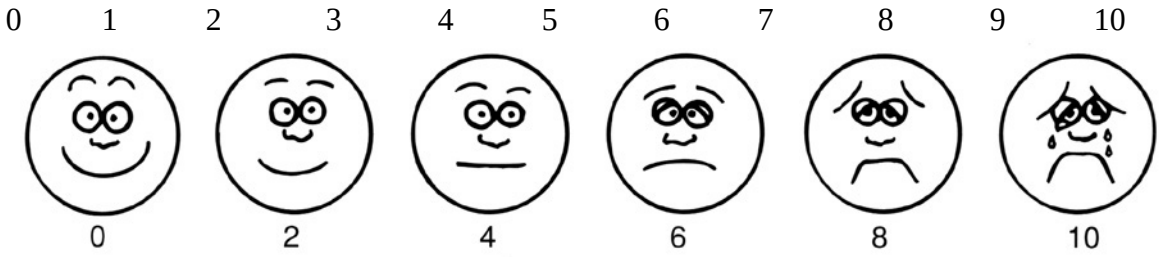
2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.

3. Patients who are very small or very large may fall below or exceed the dosing range, respectively. Those that fall below should be given the lowest dose in the range. Those that exceed the range should be given the maximum dose within the range.

Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

Wong Pain Scale: Pain Assessment Scale
Choose a number from 1 to 10 that best describes your pain

No pain Distressing pain Unbearable pain



NO HURT | HURTS LITTLE BIT | HURTS LITTLE MORE | HURTS EVEN MORE | HURTS WHOLE LOT | HURTS WORST

Indications for pain management include the following:
Short term pain relief for significantly painful conditions, including:

- Burns, isolated extremity trauma
- Back pain
- Flank pain
- Significant abdominal pain
- Severe headaches with migraine history
- Severe headache without altered mental status
- Significant pain in alert multiple trauma patient

Precautions such as reduced dose or administration rate may be indicated for:

- Elderly
- Respiratory depressed
- Pregnancy – not a contraindication to pain treatment unless at term or in labor
- Altered mental status
- Severe respiratory disorders
- Nursing mothers – relative, still treat pain
- Impaired hepatic or renal function – decreased metabolism
- Ingestion of benzodiazapines (i.e. Valium) – increased respiratory depression

For conditions in which longer acting pain management is desired and appropriate, i.e. burns, isolated extremity trauma, Morphine may be used preferentially to Fentanyl.

The goal is to reduce the level of pain for patients in the pre-hospital setting. All non-cardiac pain should be assessed and scored according to the Wong Pain Scale. Reassessment should be timed acceding to medication on set of action changes in patient condition, patient positioning and other treatments

Follow **General Pre-hospital Care Protocol**
OR
Pediatric Assessment & Treatment Protocol

Trauma patients follow
Adult
OR
Pediatric Trauma Protocol

Place the patient in the position of most comfort

Start IV NS KVO.

If patient has a systolic blood pressure less than 100 mm Hg and signs of hypoperfusion administer an IV/IO fluid bolus. Refer to **Vascular Access & IV Fluid Therapy Procedure.**

Only one pain medication may be given pre-radio if authorized by the MCA. Medical Control must be contacted if a different pain medication is needed.

If indicated, administer pain medication as described below. Administer narcotics slowly when using IV routes. Systolic blood pressure should be maintained at:
- Adult greater than or equal to 100 mm Hg
- Pediatric 80 + (2 x age) mm Hg

- Administer pain medication per MCA selection.
- Administer Fentanyl in 1 mcg/kg increments IV/IM/IO. If pain persists after 5 minutes repeat dose to a maximum of 3 mcg/kg.
- For **pediatric** patients, administer Fentanyl in 1 mcg/kg increments IV/IM/IO up to a max of 2 mcg/kg.
- Administer Morphine Sulfate in 2 – 5 mg (0.05 mg/kg) increments IV/IM/IO, up to a maximum of 20 mg.
- For **pediatric** patients administer Morphine Sulfate 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum total dose of 0.2 mg/kg.
- Administer hydromorphone 1 mg IV/IM/IO every 10 minutes for a maximum of 3 mg.
- For **pediatric** patients administer hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for max of 0.03 mg/kg.
- Medications administered IM are limited to a single dose without medical control order.

ADULT NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO, may repeat every 5 min until max of 3 mcg/kg,

Morphine sulfate 2-5 mg (0.05 mg/kg) IV/IM/IO may repeat dose every 5 min until max of 20 mg.

Hydromorphone 1 mg IV/IM/IO every 10 min for maximum of 3 mg.

IV/IO medication should be given slowly. IM medication should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO, may repeat every 5 min until max of 2 mcg/kg.

Morphine sulfate (0.05 mg/kg) IV/IM/IO, may repeat dose every 5 min until max of 0.2 mg/kg.

Hydromorphone 0.01 mg/kg IV/IM/IO every 10 min for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM medication should be limited to a single dose.

Evidence of hypotension or hypofusion?

CONTACT MEDICAL CONTROL

MCA Pain Management Selections

Protocols	Medications		Pre-Medical Control	Post-Medical Control
Adult Abdominal Pain	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Soft Tissue& Orthopedic Injury	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Adult Chest Pain/ACS	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Pediatric Burns	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Hydromorphone	✔	
Other indications not listed above	✔	Fentanyl	✔	
	✔	Morphine Sulfate	✔	
	✔	Fentanyl	✔	

NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)

2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.

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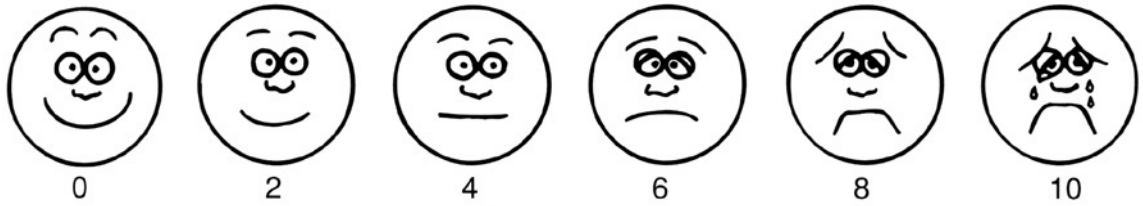

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For conditions in which longer acting pain management is desired and appropriate, i.e. burns, isolated extremity trauma, Morphine may be used preferentially to Fentanyl.

Patient Assessment

MFR/EMT/SPECIALIST/PARAMEDIC

Scene Size Up

1. Recognize environmental hazards to rescuers, and secure area for treatment.
2. Recognize hazard for patient, and protect from further injury.
3. Identify number of patients. Follow the **Mass Casualty Incident Protocol** if appropriate.
4. Observe position of patient, mechanism of injury, surroundings.
5. Identify self.
6. Utilize universal precautions in all protocols.
7. Determine if patient has a valid Do-not-resuscitate bracelet/order.

Primary Survey

1. Airway:
    A. Protect spine from movement in trauma victims. Provide continuous spinal precautions. Follow the **Spinal Injury Assessment Protocol**.
    B. Observe the mouth and upper airway for air movement.
    C. Establish and maintain the airway. Follow the **Emergency Airway Procedure.**
    D. Look for evidence of upper airway problems such as vomitus, bleeding, facial trauma, absent gag reflex.
    E. Clear upper airway of mechanical obstruction as needed.
2. Breathing: Look, Listen and Feel
    A. Note respiratory rate, noise, and effort.
    B. Treat respiratory distress or arrest with oxygenation and ventilation.
    C. Observe skin color and level of consciousness for signs of hypoxia.
    D. Expose chest and observe chest wall movement, as appropriate.
    E. Look for life-threatening respiratory problems and stabilize:

PARAMEDIC

    F. Tension pneumothorax: Follow **Pleural Decompression Procedure.**

MFR/EMT/SPECIALIST/PARAMEDIC

3. Circulation
    A. Check pulse and begin CPR if no central pulse. Follow **Adult or Pediatric Cardiac Arrest – General Protocols**.
    B. Note pulse quality and rate; compare distal to central pulses as appropriate.
    C. Control hemorrhage by direct pressure. (If needed, use elevation, pressure points or follow the **Tourniquet Application Procedure.**)
    D. Check capillary refill time in fingertips.
    E. If evidence of shock or hypovolemia begin treatment according to **Shock Protocol.**
4. Level of consciousness:
    A. Note mental status (AVPU)
        a. Alert
        b. Verbal stimuli response
        c. Painful stimuli response
        d. Unresponsive

EMT/SPECIALIST/PARAMEDIC

B. Measure Glasgow Coma Scale

	Patient age > 2 years old		Patient age < 2 years old
	Eye opening		
•	Spontaneous	4	Spontaneous
•	To speech	3	To speech
•	To pain	2	To Pain
•	No response	1	No Response
	Verbal response		
•	Oriented and talking	5	Smiles, recognizes sounds, follows objects, interacts
•	Disoriented and talking	4	Cries, consolable, inappropriate interactions
•	Inappropriate words	3	Inconsistently inconsolable, moaning
•	Incomprehensible sounds	2	Agitated, restless, inconsolable
•	No response	1	No response
	Motor response		
•	Obeys command	6	Spontaneous movement
•	Localizes pain	5	Withdraws from touch
•	Withdraws to pain	4	Withdraws from pain
•	Flexion to pain	3	Abnormal flexion to pain (decorticate posturing)
•	Extension to pain	2	Abnormal extension to pain (decerebrate posturing)
•	No response	1	No response

Any combined score of less than eight represents a significant risk of mortality.

If the patient is not alert and the cause is not immediately known, consider:

A – Alcohol	**T** – Trauma	**C** – Cardiac
E – Epilepsy	**I** – Ingestion	**H** – Hypoxia
I – Insulin	**P** – Psych	**E** – Environmental
O – Overdose	**P** – Phenothiazine	**S** – Stroke
U – Uremia	**S** – Saliscylates	**S** - Sepsis

MFR/EMT/SPECIALIST/PARAMEDIC

The secondary survey is performed in a systematic manner.

(Steps listed are not necessarily sequential.)

1. Vital Signs:
    A. Frequent monitoring of blood pressure, pulse, and respirations
    B. Temperature as indicated in protocol.

EMT/SPECIALIST/PARAMEDIC

    C. Blood glucose measurement as available and appropriate.

MFR/EMT/SPECIALIST/PARAMEDIC

    D. Pulse oximetry as available and appropriate.

PARAMEDIC

    E. ECG monitoring as indicated in protocol.
    F. 12 Lead if available and appropriate, follow **12 Lead ECG Procedure**.

MFR/EMT/SPECIALIST/PARAMEDIC

2. Head and Face
    A. Observe and palpate for deformities, asymmetry, bleeding, tenderness, or crepitus.
    B. Recheck airway for potential obstruction: upper airway noises, dentures, bleeding, loose or avulsed teeth, vomitus, or absent gag reflex.
    C. Eyes: pupils (equal or unequal, responsiveness to light), foreign bodies, contact lenses, or raccoon eyes
    D. Ears: bleeding, discharge, or bruising behind ears.
3. Neck
    A. Maintain stabilization; follow the **Spinal Injury Assessment Protocol**, if appropriate.
    B. Check for deformity, tenderness, wounds, jugular vein distention, and use of neck muscles for respiration, altered voice, and medical alert tags.
4. Chest
    A. Observe for wounds, air leak from wounds, symmetry of chest wall movement, and use of accessory muscles.
    B. Palpate for tenderness, wounds, crepitus, or unequal rise of chest.
    C. Auscultate for bilateral breath sounds.
    D. Capnography/capnometry if available and appropriate
5. Abdomen
    A. Observe for wounds, bruising, distention, or pregnancy.
    B. Palpation.
6. Pelvis
    A. Palpate pelvis for tenderness and stability
7. Extremities
    A. Observe for deformity, wounds, open fractures, and symmetry.
    B. Palpate for tenderness and crepitus.
    C. Note distal pulses, skin color, and medical alert/DNR tags.
    D. Check sensation.
    E. Test for motor strength if no obvious fracture present.

8. Back
    A. Observe and palpate for tenderness and wounds.

Special Considerations:

1. If there is a specific mechanism of injury with only localized injury, a focused exam may be performed in lieu of the full patient survey provided the patient is alert.
2. Follow the appropriate assessment protocol:
    A. General Pre-hospital Care
    B. Pediatric Assessment and Treatment
    C. Newborn Assessment, Treatment and Resuscitation
    D. Cardiac Arrest – General Protocol
    E. Pediatric Cardiac Arrest – General Protocol
    F. Adult Trauma
    G. Spinal Injury Assessment

Patient Care Record, Electronic Documentation & EMS Information System

This protocol is to be followed for completion of EMS Patient Care Records (PCR) and the use of an electronic documentation and information system.

1. **Responsibility**
   A. An electronic EMS PCR must be completed on any request for service to which a life support agency is dispatched. This includes all emergency and non-emergency EMS incidents and patients, ambulance inter-facility transfers, patient refusals, other patient contact, no patient found and cancellations.

   B. All PCR reports will be made available to the receiving facility, the MCA and Department of Community Health, in electronic format.

   C. If a patient is evaluated and/or treated and is not transported a Refusal of Treatment and/or Transport Evaluation Form shall be completed.

2. **Documentation**

   A. The PCR shall be created using a National EMS Information System (NEMSIS) and State of Michigan compliant software package allowing for upload to the state repository. All electronic charting software must meet or exceed State of Michigan requirements. To be compliant with MI-EMSIS, agencies must use a NEMSIS Gold Compliant system.

   B. Signed electronic or paper PCRs shall be maintained by the EMS agency as the official medical record for each patient treated and/or transported.

      a. Each PCR should include:
         1. All demographic, response and other general information pertinent to the EMS personnel's actions related to the response or transfer.

         2. Patient care information including chronology and clarity of patient care including history, assessment, treatment, response to that treatment, changes in patient's condition upon arrival at destination and transfer of responsibility for care.
      b. The agency PCR shall be considered a confidential medical record and treated in accordance with state and federal law.

c. Each agency's PCR shall be signed by the person documented as the agency's Primary Care Provider for that particular patient/incident.

3. **Distribution**

A. A printed or written copy of the PCR or an MCA approved field note should be left at the destination facility**.** An agency may be granted permission from their MCA to transmit a PCR by fax or electronically to the hospital deferring delivery under any of the following circumstances**:**

a. An agency that is transporting out of their primary service area.
b. An agency completing the PCR using an MCA approved mobile EMSIS**.**
c. An agency that is dispatched for another emergency call.
d. As otherwise approved by the MCA.

4. **Submission to MI-EMSIS Data Repository**

A. All agencies using approved EMSIS software shall transfer data monthly. Reporting period begins at 00:00:01 hours on the 1st day of the calendar month, ending at midnight on the last day of the calendar month. Data must be uploaded by the 15th of the month following the close of the reporting period. MCA's may require data to be transferred more frequently.

B. Agencies using approved EMSIS software are responsible to ensure that the quality of the data submitted to the MI-EMSIS repository is an accurate reflection of the information entered into their EMS information system.

C. Agencies entering data from paper PCRs after-the-fact are responsible for entering those PCRs in accordance with the above time frames.

5. **Utilizing Data**

A. Data submitted by the life support agencies shall be reviewed by the medical control authority professional standards review organization for the purpose of providing professional oversight and for improving the quality of medical care within the MCA region.

B. MCA's may utilize aggregate data that does not identify the patient or agency to support EMS system and public health activities.

C. MCA's may choose to maintain its own repository and in turn submit the data to the Department of Community Health.

D. The information accessed by the MCA is confidential in nature and is intended for the medical control professional standards review organization (PSRO). Data protection is critical and is provided for through 1967 PA 270, MCL 331.531 to 331.533, other applicable confidentiality laws, and use and user agreements. The MCA will:

a. Only use or disclose data for the purposes described in Part 209 of the Public Health Code and the Michigan Administrative Code R 325.22101 through R 22217. Any other uses or disclosures will be made only as required by applicable laws.
b. Use appropriate safeguards to prevent use or disclosure of the information other than as provided by this agreement.
c. Limit access to the data to only those employees assigned to perform the functions under the above statute and administrative rules and who have signed a data user agreement.
d. Report any actual or suspected breach, intrusion, or unauthorized use or disclosure to the MDCH EMS and Trauma Systems Section and the affected life support agency within 10 days of becoming aware of such breach, intrusion, or unauthorized use or disclosure or such shorter time period as is reasonable under the circumstances.
e. Mitigate the effects of any breach, intrusion, or unauthorized use or disclosure.
f. Comply with the Michigan Identity Theft Protection Act notification procedures at MCL 445.61 et seq.
g. As a public body subject to the Freedom of Information Act (FOIA), redact all personal identifiers or other information pursuant to applicable FOIA exemptions. 1976 PA 441: MCL 15.231 et seq.

Patient Restraint

Purpose: To ensure appropriate restraint of patients and to assure patient, others and EMS safety.

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC
Indications:

1. When an ill or injured person who is behaving in such a manner as to interfere with their examination, care and treatment to the extent they endanger their life or the safety of others.

Physical Restraint Procedure

1. Ensure that enough personnel are available to properly control the patient and establish the restraints.
2. Explain the purpose of the restraints.
3. Physically control the patient and apply restraints.
4. Complete Primary and Secondary Assessments.
    A. Restrained extremities should be evaluated for pulse quality, capillary refill time, color, sensory and motor function continuously
        a. Restraints must be adjusted if any of these functions are compromised.
        b. Restraints must not interfere with medical treatment.
5. Attempt to identify common physical causes for patient's abnormal behavior.
    - Hypoxia
    - Hypoglycemia
    - Head Trauma
    - ETOH/ Substances use/ abuse
6. Patient should be secured to a backboard or stretcher only. Patients must never be secured directly to a vehicle or immovable object.
7. Transport patient.
8. Contact medical control.
9. Inform hospital that restraints are in place and assistance will be necessary to continue restraint of the patient.

Post-Medical Control
PARAMEDIC
Chemical Restraint Procedure

1. If Chemical restraint is considered, contact medical control for appropriate guidance; also refer to **Patient Sedation Procedure.**
2. Chemical restraint may only be performed under direct medical control order.

Special Considerations

1. Physical restraints should be of a soft nature (e.g. leather cuffs, cravats, sheets, etc.) applied to the wrists and ankles. A restraint may also be needed across the chest and/or pelvis.

2. Stay with a restrained patient at all times, be observant for possible vomiting and be prepared to turn the patient and suction if necessary.
3. Documentation should include:
    A. A description of the circumstance / behavior which precipitated the use of restraints.
    B. Time of application of the restraints.
    C. Type of restraint used.
    D. The positions in which the patient was restrained.
4. When restraint devices are applied by law enforcement officers:
    A. An officer must be present with the patient at all times at the scene, as well as in the ambulance during transport.
    B. The restraint and position must not be so restrictive that the patient is in a position that compromise patient care.
5. EMS Personnel may NOT use:
    A. Hard plastic ties or any restraint devices that require a key to remove.
    B. Backboards to “sandwich” the patient.
    C. Restraints which secures the patient’s hands and feet behind the back.
    D. Restraints that “hog tie” the patient.
    E. Any device that restricts normal breathing.

Patient Sedation

Purpose: Proper sedation of patients requiring a painful medical procedure. This procedure is for Paramedic use only.

Indications for Sedation

1. Electrical cardioversion
2. Transcutaneous pacing
3. Post intubation sedation
4. CPAP/BiPAP if used cautiously, only under direct Medical Control Order
5. Chemical Restraint, only under direct Medical Control Order

Contraindications

1. Inability to control the patient's airway
2. As an adjunct for establishing an airway
3. Known allergy to sedation medications

Assessment

1. Evaluate adequacy of airway.
2. Evaluate presence of adequate ventilation with oxygenation.
3. Monitor vital signs and level of consciousness.
4. Monitor ECG.
5. Monitor Pulse oximetry, if available.

Pre-Medical Control

PARAMEDIC

Procedure

1. Maintain airway, provide oxygenation and support ventilation.
2. Obtain vascular access.
3. For Electrical cardioversion, transcutaneous pacing, and post intubation sedation sedate patient to a level of consciousness where procedure can be performed, per MCA selection.

Adult Sedation: (Select Options)
(Titrate to minimum amount necessary)

- ☐ Midazolam 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ Diazepam 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- ☑ Lorazepam 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- ☑ Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Pediatric Sedation: (Select Options)
(Titrate to minimum amount necessary)

- ☑ Midazolam 0.05 mg/kg IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ Diazepam 0.1 mg/kg IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- ☐ Lorazepam 0.1 mg/kg, max 4 mg/dose IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- ☑ Fentanyl 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Post-Medical Control:

Possible orders post radio contact:

1. Additional sedation as needed.
2. Sedation for CPAP/BiPAP
3. Sedation for Chemical Restraint

NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)

2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.

3. Patients who are very small or very large may fall below or exceed the dosing range, respectively. Those that fall below should be given the lowest dose in the range. Those that exceed the range should be given the maximum dose within the range.

4. Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

"Titrated slowly" means administering the medication over 1 to 2 minutes.

Pleural Decompression

Purpose: Decompression of a tension pneumothorax. **This procedure is for Paramedic use only.**

Indications

1. Suspected Tension Pneumothorax (not simple pneumothorax) with hemodynamic compromise.
2. Considered for patients who remain in PEA after treatment of other reversible causes of PEA have been unsuccessful.
3. Direct medical control physician order.

Presentation of Tension Pneumothorax

A tension pneumothorax will have at least one of the following:

1. Severe respiratory distress in the conscious/breathing patient with hemodynamic compromise.
2. Difficult ventilation in the unconscious/apneic patient in the presence of a correctly positioned endotracheal tube with hypotension.

Pre-Medical Control

PARAMEDIC

Technique

1. Evaluate and maintain the airway, provide oxygenation and support ventilations.
2. **Decompression procedure:**
    A. Assemble equipment
        a. Large bore IV catheter - 14 ga or larger and at least 2" in length; or other MCA approved commercial device.
        b. Antiseptic swabs
        c. Dressing and tape
    B. Identify landmarks
        a. Insert needle in the mid-clavicular line at the second intercostal space just above the third rib.
    C. Prep the area with antiseptic swab.
    D. Remove flash chamber cap from IV catheter.
    E. Insert the catheter over the top of the rib until air rushes out. Advance catheter over the needle. Remove needle leaving catheter in place.
    F. Reassess breath sounds and patient's condition (patient's condition should improve almost immediately).
    G. Secure catheter with tape.

NOTE: ***REMEMBER** to go just above the rib due to all of the major structures (arteries, veins, and nerves) which lie below the rib. The closer you stay to the top of the rib, the less chance of complication.

Pediatric Considerations

1. To perform needle decompression use an 18 or 20 gauge over the needle catheter inserting the needle in the mid-clavicular line at the second intercostal space, just above the third rib.

Refusal of Care; Adult & Minor

Purpose: To provide the process for EMS personnel interacting with a patient refusing care or transport.

EMS personnel have an affirmative duty to provide care to any patient presenting to them after a report of an emergency situation.

Individuals who are competent may object to treatment or transportation by EMS personnel. MCL 333.20969 "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 objection unless the objection is expressly based on the individual's religious beliefs."

1. **Definition**
   A. "Competent individual":
      a. One who is awake, oriented, and is capable of understanding the circumstances of the current situation.
      b. Does not appear to be under the influence of alcohol, drugs or other mind altering substances or circumstances that may interfere with mental functioning.
      c. Is not a clear danger to self or others.
      d. Is 18 years of age or older, or an emancipated minor.
   B. "Emancipated Minor" is one who is married, is a parent, or has been granted emancipation by the court.

2. **Procedure for Competent Individual Refusing Care or Transport**
   A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment and transport by EMS.
   B. Clearly explain the nature of the illness/injury and the need for emergency care or transportation.
   C. Explain possible complications that may develop without proper care or transportation.
   D. For individuals with signs or symptoms of illness or injury, contact medical control.
   E. Request that the individual sign an EMS Refusal Form. If the individual refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).
   F. Document assessment and complete approved EMS Refusal Form.
   G. Inform the individual that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.

3. **Procedure for the Individual Incapable of Competently Objecting to Treatment or Transportation**

A. Contact medical control as soon as practical and follow applicable treatment protocol.
B. Any patient with an urgent/life-threatening illness or injury who is incapable of competently objecting to treatment or transportation shall be transported by EMS for further evaluation and treatment.
C. Police assistance may be sought if needed.
D. A patient with non-urgent/non life-threatening illness or injury who is incapable of competently objecting to treatment or transportation should be transported for further evaluation and treatment after consultation with on-line medical control.

4. Procedure for the Individual who becomes Competent after Treatment has been Initiated and Refuses Transport

A. Contact medical control in all cases when a patient (now refusing transport) has been given medications or other advanced treatment by EMS personnel (i.e., glucose, Albuterol, IV, etc.).
B. Such patients should be strongly encouraged to seek further evaluation and treatment.
C. Comply with Section II above and document treatment on a patient care record.

5. Procedure for the Minor Patient Refusing Care or Transport

A. A minor is any individual under the age of 18 and who is not emancipated.
B. In general, minor patients are unable to consent or refuse consent for medical care. Such permission can only be provided by the minor's parent or legal guardian.
C. Treatment and transport of real or potential life-threatening emergencies will not be delayed by attempts to contact the parent or guardian.
D. For all emergency and non-emergency patients, contact medical control.

6. Procedure for Parent/Guardian Refusing Care or Transport of the Minor Patient

A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment and transport by EMS.
B. Clearly explain the nature of the illness/injury and the need for emergency care or transportation.
C. Explain possible complications that may develop without proper care or transportation.
D. For individuals with signs or symptoms of illness or injury, contact medical control.
E. Request that the parent/guardian sign an approved EMS Refusal Form. If the parent/guardian refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).
F. Document assessment and complete an approved EMS Refusal Form.
G. Inform the parent/guardian that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.

Note: A sample EMS Refusal Form has been included on a separate page.

SAMPLE EMS REFUSAL FORM

REFUSAL OF TREATMENT, TRANSPORT AND/OR EVALUATION

PLEASE READ COMPLETELY BEFORE SIGNING BELOW!

Because it is sometimes impossible to recognize actual or potential medical problems outside the hospital, we strongly encourage you to be evaluated, treated if necessary, and transported to a hospital by EMS personnel for more complete examination by a physician.

You have the right to choose to not be evaluated, treated or transported if you wish; however, there is the possibility that you could suffer serious complications or even death from conditions that are not apparent at this time.

By signing below, you are acknowledging that EMS personnel have advised you, and that you understand, the potential harm to your health that may result from your refusal of the recommended care; and, you release EMS and supporting personnel from liability resulting from refusal.

PLEASE CIRCLE THE FOLLOWING THAT APPLY:

I refuse:

EVALUATION **TREATMENT** **TRANSPORT**

□ **IF YOU CHANGE YOUR MIND AND DESIRE EVALUATION, TREATMENT, AND/OR TRANSPORT TO A HOSPITAL, YOU MAY RE-CONTACT THE EMS SYSTEM AT ANY TIME.**

Patient's Printed Name _____Age____DOB_____Phone #_____
Patient's Address_____City_____State____Zip_____

Signature_____ Relationship, if applicable_____

Witness Signature_____ Witness Printed Name_____
Date and Time_____

BP_____Pulse_____Resp._____Skin_____Pupils_____LOC_____

1. Oriented to person, place, and time? □ Yes □ No
2. Coherent speech? □ Yes □ No
3. Auditory and/or visual hallucinations? □ Yes □ No
4. Suicidal or homicidal? □ Yes □ No
5. Able to repeat understanding of their condition and consequences of treatment refusal? □ Yes □ No
6. Narrative: describe reasonable alternatives to treatment that were offered; the circumstances of the call; specific consequences of refusal; and, names of family or witnesses present:

_____
_____
_____
_____

EMS Agency Name Printed Crew Names Signature of EMS Provider

Spinal Immobilization

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC
Indications

1. Refer to the **Spinal Injury Assessment Protocol**

Specific Techniques

1. Cervical Immobilization Devices
    A. Cervical collar should be placed on patient prior to patient movement, if possible.
    B. If no collar can be made to fit patient, towel or blanket rolls may be used to support neutral head alignment.
2. Extrication Device/Short Backboard Procedure
    A. Short extrication devises may be indicated when patient condition is stable, and patient is in more of a sitting position than horizontal position.
    B. Patient's head and cervical spine should be manually stabilized.
    C. Rescuers should place patient in stable, neutral position where space is created to place extrication device or backboard behind patient.
    D. While the patient is supported, the extrication device or backboard is placed behind patient, and the patient is moved back to a secure position if necessary.
    E. The patient is secured to the extrication device or short blackboard device with torso straps applied before head immobilization.
        a. Head immobilization material should be placed to allow for movement of the lower jaw to facilitate possible airway management.
    F. Move the patient to supine position on a long backboard or equivalent.
    G. Patient is further immobilized on the long immobilization devise.
3. Emergency Patient Removal
    A. Indicated when scene poses an imminent or potential life threatening danger to patient and/or rescuers, (i.e. vehicle or structure fire).
    B. Remove the patient from danger while best attempt is made to maintain spinal precautions.
    C. Rapid Extrication is indicated when patient condition is unstable (i.e.: airway or breathing compromise, shock, unconsciousness, or need for immediate intervention).
4. Long Backboard Immobilization
    A. Indicated when patient requires spinal precautions.
    B. Cervical collar should be placed when indicated.
    C. Patient is log rolled, maintaining neutral alignment of spine and extremities.
        a. If log roll is not possible, patient should be moved to board while maintaining neutral alignment spinal precautions.

D. Patient is strapped to the board in a manner to minimize lateral or axial slide.
E. Head immobilization materials such as foam pads, blanket rolls may be used to prevent lateral motion. Pad under the head when feasible.

Special Considerations

1. Hypoventilation is likely to occur with spinal cord injury above the diaphragm. Quality of ventilation should be monitored closely with support offered early.
2. Spinal/neurogenic shock may result from high spinal cord injury. Monitor patient for signs of shock. Refer to **Shock Protocol.**
3. Immobilization of the patient wearing a helmet should be according to the **Helmet Removal Procedure.**
4. Manual spinal precautions must be initiated and continued until additional immobilization equipment is in place.
5. During patient movement or during rough transport, manual stabilization may need to be added to secure the patient.
6. Manual in line stabilization must be used during any procedure that risks head or neck movement, such as endotracheal intubation.
7. Document spinal stabilization techniques utilized.
8. Document the patient's neurologic status before and after establishing spinal precautions when possible.

Suspected Pandemic Influenza

Purpose: To have a standard approach to patients during a period of declared Pandemic Influenza, or state of public health emergency, that enhances awareness and protection of responders and prehospital care to patients and maximizing supplies that may become limited.

Criteria:

1. This protocol will apply to patients encountered by all levels of EMS, during an epidemic/ pandemic of influenza. All agencies should frequently check the CDC.gov/ website for the latest recommendations with Personal Protective Equipment (PPE) and treatment recommendations. These can change frequently in an evolving and ongoing epidemic/ pandemic.
2. The center for Disease Control and Prevention (CDC) has declared that an epidemic of influenza A or similar illness and / or the Michigan Department of Public Health has declared a statewide or local public health emergency.
3. "Acute Febrile Respiratory Illness" (AFRI) is defined as fever and at least one of the following (cough, nasal congestion/ runny nose or sore throat).

EMS System / Medical Control Authority (MCA) Recommendations:

1. Encourage all EMS personnel to receive seasonal vaccinations.
2. Each life support agency shall maintain a supply of fit tested disposable N-95 respirators and eye protection (e.g., goggles, eye shield), disposable non-sterile gloves, and gowns.
3. Each life support agency shall provide hand sanitizer to staff.
4. In areas with confirmed cases of influenza, each life support agency should instruct their personnel to stay home and not report for duty if they have signs or symptoms of acute febrile respiratory illness. A staff member that develops these symptoms during a shift should inform the agency supervisor for appropriate follow up procedures.
5. Dispatch centers should be encouraged to screen callers to determine if the patient may have an AFRI. Information should be provided to EMS personnel prior to arriving on the scene if suspected AFRI.
6. If it is determined by EMS that the patient may have an AFRI, early notification to the receiving facility should be done so that appropriate infection control may be taken prior to patient arrival.

Procedure and Patient Categorizations/Situations

1. **Limiting Personnel Exposure:**
    A. If the patient has symptoms of an "Acute Febrile Respiratory Illness" (AFRI) based upon the dispatch information the responding agency should consider limiting the initial number of personnel that approach or enter a residence.

2. **Patients with a medical condition that requires immediate care (e.g., cardiac arrest) and have a recent history of AFRI will be assessed and treated after:**
    A. EMS Personnel don appropriate PPE for suspected case of influenza prior to proceeding with assessment and treatment.

3. **Patient Assessment:**
    A. Begin patient assessment while maintaining a 6 foot distance from the patient exercising appropriate routine respiratory droplet precautions (hand hygiene, cough etiquette, and distance) while assessing patient for suspected case of influenza.
    B. Assess patient for "Acute Febrile Respiratory Illness" which is fever and at least one of the following (cough, nasal congestion/ runny nose or sore throat).
    C. If **patient does not have an Acute Febrile Respiratory Illness (AFRI)** proceed to appropriate treatment protocol.

4. If **patient has an AFRI,** EMS personnel with direct patient care shall:
    A. Don appropriate PPE.
    B. Place a surgical mask on the patient if tolerated.
    C. Treat patient according to appropriate protocol.
    D. Notify Medical Control of assessment findings.
    E. Encourage good patient compartment vehicle airflow/ventilation to reduce the concentration of aerosol accumulation when possible.

5. **Post Exposure**
    A. Health care personnel, who have had a recognized unprotected close contact exposure to a person with AFRI can be considered for treatment according to current post-exposure guidelines.

6. Cleaning EMS Transport Vehicles after Transporting a Suspected AFRI.

Termination of Resuscitation

Pre-Medical Control
PARAMEDIC

1. Follow the **Cardiac Arrest - General Protocol**.
2. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless return of spontaneous circulation (ROSC) is achieved or transport is ordered by medical control or otherwise specified in protocol. These patients will have resuscitation continued at the scene for at least 30 minutes. Temporary return of pulse qualifies as ROSC.

   If ALS personnel believe a prolonged resuscitation at the scene will be unduly distressing to the patient's family or bystanders, transport may begin prior to the termination of resuscitation. If the resuscitation can not be safely and efficiently performed on scene transport may begin whenever deemed appropriate by the ALS personnel.

Post-Medical Control

3. If the resuscitation has been unsuccessful after at least 30 minutes (ALS time without ROSC), the resuscitation may be terminated with the permission of medical control. If persistent Ventricular Fibrillation, prompt emergency transport will be initiated. **Once resuscitation is initiated by ALS or LALS it may be terminated only at the direction of medical control.** ROSC, i.e. return of a pulse resets the 30 minute clock and transport should be initiated.

4. Exceptions to the 30 minute time requirement may be requested of Medical Control. Care is to be provided, according to protocol, until such time as it is felt that appropriate procedures and medication are administered based on the medical condition and presentation of the patient. Medical Control must be contacted prior to termination of resuscitation. Total resuscitation time should be provided in the communication.

5. Once resuscitation is terminated, the prehospital personnel will provide information to the family which should include medical control procedures for termination of resuscitation.

6. The medical examiner system will be activated consistent with dead on scene protocol.

Tourniquet Application

Purpose: A tourniquet is a constricting or compressing device used to control venous and arterial circulation to an extremity for a period of time. Pressure is applied circumferentially to the skin and underlying tissues a limb; this pressure is transferred to the vessel wall causing a temporary occlusion. There are a number of commercially available tourniquets available for pre-hospital and hospital patients of exsanguinating extremity trauma. While there are potential risks involved in the utilization of tourniquets (see "Notes" section), expeditious and clinically appropriate application in the presence of potentially life threatening hemorrhage is in keeping not only with the standards of medical professionals, but accordingly so with the best interests of the patient.

Indications:

1. Life threatening extremity hemorrhage. An amputation with hemorrhage does not necessitate the use of a tourniquet; most bleeding from these injuries is controllable through use of direct pressure and elevation.
2. Amputation with uncontrolled active bleeding.
3. A mass causality incident may be an indication for the use of tourniquets for temporary control of hemorrhage while the situation is brought under control.

Contraindications:

1. Never use a tourniquet for more than the recommended period of time (product-specific). With any extrication plus transport time of less than 180 minutes, there is minimal risk of developing an ischemic limb.
2. Never apply a tourniquet over an impaled object.

Pre-Medical Control
MFR/ EMT/SPECIALIST/PARAMEDIC
Procedure:

1. Check neurovascular status prior to tourniquet application (pulse, sensation, motor function distal to hemorrhage).
2. Apply tourniquet proximal to the area of bleeding, at least 3-5 centimeters from the wound margins.
3. Secure the tourniquet in place; continue to tighten the tourniquet until hemorrhage is controlled – avoid "over-tightening" the tourniquet. Use only the minimal effective pressure required to reliably maintain arterial occlusion throughout the procedure.
4. Elevate the extremity if possible.
5. Note the time the tourniquet was applied. Reassess neurovascular status every five minutes post application.
6. Notify the receiving hospital that a tourniquet is in place. Once tourniquet is in place, do not remove prior to transferring patient to the emergency department staff.

Notes:

- Tourniquets should not be applied over joints. Application of the cuff over the peroneal nerve (knee or ankle) or ulnar nerve (the elbow) may result in nerve damage or paralysis.
- Tourniquets should not be applied over clothing. Any limb with an applied tourniquet should be fully exposed with removal of all clothing, and the tourniquet should never be covered with any other bandage.
- Continued bleeding (other than medullary oozing from fractured bones) distal to the site of the tourniquet is a sign of insufficient pressure and a need to tighten the tourniquet further.
- **A tourniquet should not be loosened in any patient with obvious signs of shock or amputation that necessitated use of the device.**

Vagal Maneuvers

Purpose: Outline utilization of the Valsalva vagal maneuver.

Indications

1. Narrow complex tachycardia. See **Narrow Complex Tachycardia** and **Pediatric Narrow Complex Tachycardia** protocols.

Contraindications

1. Patient unable to attempt the maneuver.

Equipment Needed

1. ECG Monitor

Pre-Medical Control

PARAMEDIC

1. Ensure that patient has oxygen, and is on a cardiac monitor. Run ECG strip during procedure.
2. Instruct the patient to cough forcefully several times, if this is ineffective:
    A. Explain Valsalva's Maneuver to the patient.
    B. Have patient take a deep breath and bear down.

Documentation

1. Results of initial assessment, indications for procedure and results of maneuver.

Vascular Access& IV Fluid Therapy

Purpose: To outline the process in patients requiring vascular access. This policy applies to Specialists and Paramedics.

Indications

1. For the purpose of fluid or medication administration.
2. External jugular cannulation should be initiated in patients in whom access is necessary and other peripheral vascular access is not accessible or is contraindicated.
3. IO indications: Adult and pediatric life threatening situations where venous access using peripheral veins has been unsuccessful. IO access should be considered early in situations where IV access is unsuccessful or technically challenging. Indications include:
    A. Cardiac Arrest
    B. Severe burn injury with shock
    C. Shock
    D. Severe multiple trauma with shock
    E. Status epilepticus
    F. Contact medical control for other situations without delaying transport

Saline Lock may be initiated in patients in whom IV access for medication administration may be necessary but IV fluid therapy unlikely.

IVs will be initiated in those situations in which fluid resuscitation may be indicated.

Contraindications

1. To peripheral vascular access:
    A. No peripheral sites available
    B. Burns overlying available peripheral sites unless no other sites available
    C. Infection overlying available peripheral sites
2. To intraosseous infusion and placement:
    A. If infiltration occurs (rare), do not reuse the same bone as fluid will leak out of the original hole; select another site.
    B. Do not place in a fractured extremity. If the femur is fractured, use the opposite leg.

Special Considerations (Side effects/Complications)

1. Initiation of vascular access generally should not delay patient transport to the hospital.
2. General side effects or complications: infection, air embolism, catheter shear, hematoma, arterial puncture, fluid overload
3. Intraosseous placement:

A. Complications include subperiosteal infusion, osteomyelitis, sepsis, fat embolism, bone marrow damage.

Standards for IV attempts

1. Two (2) attempts per provider, maximum 4 attempts.
2. Consider IO early, as indicated above.
3. Document any reasons for deviation.

Needle size for IV placement

1. Adult TKO 18 ga - 20 ga Angiocath
2. Adult trauma, bleeding or cardiac arrest 14 ga - 18 ga.
3. Pediatrics 20 ga - 24 ga Angiocath

Flow Rates

1. Flow rates for all IV's are to be at rates TKO or saline lock unless otherwise indicated by specific protocol or Medical Control.
2. The amount of fluid infused along with the IV rate is to be noted on the EMS Medical Record
    A. 25 ml/hr is TKO rate.
    B. Saline lock IV is preferred in place of TKO IV lines.
3. Flow rates and changes in flow rates must be documented on the EMS Patient Care Record.
4. The standard IV/IO fluid bolus volume will be 1 liter normal saline with repeat as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated in patients with pulmonary edema. Volume for pediatric IV/IO fluid bolus is 20 ml/kg, unless otherwise noted by protocol.
5. Medicated drips should be piggybacked into the main IV line or saline lock.

Solutions – Unless otherwise specified the IV solution of choice is Normal Saline 0.9% (NS).

IV Tubing

1. Normal Saline – macrodrip
2. Children - macrodrip

Procedure IV/IO Placement

1. Utilize universal precautions for all IV/IO placements.

Procedure for Peripheral Vascular Cannulation:

1. Gather and prepare equipment.
2. Place the tourniquet on the extremity.
3. Cleanse the skin
4. Make your puncture while maintaining vein stability.

5. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV tubing or Normal saline lock tubing and cap.
6. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
7. Instill 2-3 ml of normal saline if normal saline lock placed.
8. Secure catheter and IV tubing.

Procedure for External Jugular Cannulation:

1. Gather and prepare equipment
2. Position patient supine (trendelenburg, if possible)
3. Turn head to opposite side of venipuncture (if no C-spine injury is suspected)
4. Cleanse the skin
5. Occlude the vein by using the side of your finger above the clavicle to facilitate filling the vein.
6. Make your puncture midway between the angle of the jaw and the middle of the clavicle.
7. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV solution or normal saline lock cap, covering catheter with gloved finger while preparing to attach the IV tubing. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
8. Instill 2-3 ml of normal saline if normal saline lock placed.
9. Secure IV catheter and tubing.

Procedure for Intraosseous Placement:

1. Have all IO equipment ready prior to bone penetration.
2. Expose the extremity.
3. Stabilize the extremity to minimize motion.
4. Selection of site:
    A. Proximal Tibia or Proximal Humerus.
    B. In children less than six years of age, the preferred site is the proximal tibia.
5. Insertion:
    A. Follow the manufacturer's recommendations for IO insertion with the above indications.
6. Scrub the insertion site with alcohol prep/chlorhexidine. Strict adherence to aseptic technique is essential.
7. Insert the IO needle.
8. Attempt to confirm marrow placement by removing the stylet and aspirating blood and/or bone marrow.
    A. If unable to aspirate, attach 10 – 20 ml syringe with normal saline and gently infuse normal saline.

B. Observe for normal saline leakage or SQ tissue swelling.
   a. If neither occurs, proceed.
   b. If either occurs, select a different site.

9. Connect the appropriate IV equipment (normal saline locks not indicated in IO placement).
10. Administer the appropriate fluids and/or drugs.
11. Stabilize the entire intraosseous set-up as if securing an impaled object.
12. In conscious patients experiencing pain with IO infusion consider administering Lidocaine 2 %, 20 mg IO for adult patients, 0.5 mg/kg for pediatrics administer to a maximum of 20 mg. (Lidocaine 2% = 20 mg/ml).
13. Notify Medical Control of the IO placement.
14. If the IO is unsuccessful after 2 attempts, contact Medical Control.

Waveform Capnography (Capnometry and Capnography)

Purpose: The purpose of this procedure is to define the indications for use of capnography/ capnometry and to describe the physical procedure for use, if available.

Indications:

1. Determining that tracheal rather than esophageal intubation has taken place.
   A. Capnography/Capnometry **must** be utilized to confirm endotracheal tube placement.

2. Continuous monitoring of the integrity of the ventilatory circuit, including supraglottic or advanced airways.
   A. Capnography/Capnometry **may** be utilized in patients with supraglottic airways or receiving assisted ventilations without advanced airways (used between the face mask and the bag-valve)
   B. Capnography/Capnometry **may** be used for patients on transport ventilators

3. Monitoring severity of pulmonary disease (bronchospasm) and evaluating response to therapy
   A. Capnography/Capnometry **may** be utilized in patients with respiratory distress, or with signs and symptoms suggestive of acidosis.

4. Monitoring therapy intended to increase coronary blood flow, reflected in CO_2 elimination
   A. Capnography/Capnometry **may** be utilized in patients receiving CPR (even without advanced airway placement), cardiac pacing, or when receiving medications that are intended to increase cardiac output, as a means to determine the physiological effectiveness of interventions

Contraindications:

1. There are no absolute contraindications to Capnography/Capnometry

<u>Pre-Medical Control</u>
PARAMEDIC
Procedure:

1. Attach the CO_2 sensor to the monitoring device and to the advanced airway, or between the mask and the bag valve in the ventilated patient that does not have an advanced airway placed, or using the nasal cannula style sensor for patients not receiving assisted ventilation
2. Note the CO_2 level and waveform characteristics
3. Any loss of CO_2 detection or waveform may indicate an airway or ventilation problem and should be investigated, corrected and documented.
4. Document the use and results in the Patient Care Record (PCR).

Note: If a **"0"** value, or no value, is read for a patient:

- Ensure that the patient has adequate spontaneous circulation and ventilation, or that effective CPR is being performed
- Verify that the tubing is properly connected to the monitor and that there are no kinks in the tubing.
- If the tubing is found not to be the problem and an advanced airway has been placed, remove the advanced airway immediately and assist ventilations as needed with manual ventilation techniques.

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Cancellation/Downgrade of Call Policy

Purpose: To allow cancellation or downgrading of EMS vehicles responding to an EMS incident.

1. If information is received, while en-route, that the incident is not life-threatening, then that ambulance may use that information to alter response accordingly.

2. No EMS vehicle shall be canceled, once a request for emergency assistance is received, unless one of the following occurs:
   A. A police/fire department unit reports that no person/accident can be found at the location, or
   B. Any licensed EMS personnel on the scene cancels the responding EMS vehicles.

MCL 333.20967 If an emergency has been declared, the declaration of an emergency no longer exists shall be made only by a licensed EMS provider or a licensed health professional who has training specific to the provision of emergency medical services in accordance with protocols established by the local medical control authority.

Note: For the purposes of this protocol, a situation in which injuries or illness have not been confirmed does not constitute an "emergency" (i.e., motor vehicle crash with unknown injuries).

Communicable Disease

Purpose: **This is written to provide general guidelines for the treatment and transport of a patient with a known or suspected communicable disease.**

NOTE: The EMS provider must recognize that any patient that presents with one of the following may be potentially infectious, and must take the necessary precautions to avoid secondary exposure. These precautions include following this protocol.

- a skin rash
- open wounds
- blood or other body fluids
- a respiratory illness that produces cough and/or sputum

Exposure Defined:
An exposure is determined to be any breach of the skin by cut, needle stick, absorption or open wound, splash to the eyes, nose or mouth, inhaled, and any other parenteral route.

Reporting Exposures:
Police, Fire or EMS personnel who, in the performance of their duty, sustain a needle stick, mucous membrane or open wound exposure to blood or other potentially infectious material (OPIM) may request, under Public Act 368 or 419, that the patient be tested for HIV/Hepatitis B and C surface antigen. The exposed individual shall make the request on a Michigan Department of Community Health Form J427 **(MDCII Form J427).** The exposed individual should also report the exposure in accordance with their employer's policies and procedures.

Follow appropriate infection control procedures.

MRF/EMT/SPECIALIST/PARAMEDIC
Pre-Radio

1. If a patient presents with one of the following symptom complexes, then follow the remainder of this protocol.
    A. Fever > 100.5 F AND headache or malaise or myalgia, AND cough or shortness of breath or difficulty breathing.
    B. Pustular, papular or vesicular rash distributed over the body in the same stage of development (trunk, face, arms or legs) preceded by fever AND rash progressing over days (not weeks or months) AND patient appears ill.

2. Consider the patient to be both airborne and contact contagious. Crew will don the following PPE:
    A. N95 or higher protective mask/respiratory protection
    B. Gloves
    C. Goggles or face shield

DO NOT REMOVE protective equipment during patient transport.

3. Follow **General Pre-Hospital Care Protocol** (oxygen delivery with non-rebreather facemasks may be used for patient; however, nebulizer use should be avoided if possible because of increase spread of disease).

4. Positive pressure ventilation should be performed using a resuscitation bag-valve mask. If available, one equipped to provide HEPA or equivalent filtration of expired air should be used. Also see the section in this protocol "Mechanically Ventilated Patients".

5. Patient should wear a paper surgical mask to reduce droplet production, if tolerated.

6. Notify the receiving facility, prior to transport, of the patient's condition to facilitate preparation of the facility and institution of appropriate infection control procedures.

7. Hands must be washed or disinfected with a waterless hand sanitizer immediately after removal of gloves. Hand hygiene is of primary importance for all personnel working with patients.

8. Vehicles that have separate driver and patient compartments and can provide separate ventilation to these areas are preferred for patient transportation. If a vehicle without separate compartments and ventilation must be used, the outside air vents in the driver compartment should be turned on at the highest setting during transport of patient to provide relative negative pressure in the patient care compartment.

9. Patients should also be encouraged to use hand sanitizers.

10. Unless critical, do not allow additional passengers to travel with the patient in the ambulance.

11. All PPE and linens will be placed in an impervious biohazard plastic bag upon arrival at destination and disposed of in accordance with the direction from the hospital personnel.

MECHANICALLY VENTILATED PATIENTS

EMT/SPECIALIST/PARAMEDIC

1. Mechanical ventilators for potentially contagious patient transports must provide HEPA filtration of airflow exhaust.

2. EMS providers should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive pressure ventilation.

3. BIPAP, CPAP and nebulizers should be avoided if possible because of increased spread of disease when used.

CLEANING AND DISINFECTION

Cleaning and Disinfection after transporting a potentially contagious patient must be done immediately and prior to transporting additional patients. Contaminated non-reusable equipment should be placed in biohazard bags and disposed of at hospital. Contaminated reusable patient care equipment should be placed in biohazard bags and labeled for cleaning and disinfection according to manufacture's instruction.

INTERFACILITY TRANSFERS

1. Follow the above precautions for inter-facility transfers.

2. Prior to transporting the patient, the receiving facility should be notified and given and ETA for patient arrival allowing them time to prepare to receive this patient.

3. Clarify with receiving facility the appropriate entrance and route inside the hospital to be used once crew has arrived at the receiving facility.

4. All unnecessary equipment items should be removed from the vehicle to avoid contamination.

5. All transport personnel will wear the following PPE:
    A. Gloves
    B. Gown
    C. Shoe Covers
    D. N-95 (or higher) protective mask

6. Drape/cover interior of patient compartment and stretcher (utilizing plastic or disposable sheets with plastic backing).

7. Isolate the patient:
    A. Place disposable surgical mask on patient
    B. Cover patient with linen sheet to reduce chance of contaminating objects in area.

8. All PPE and linens will be placed in an impervious biohazard plastic bag upon arrival the receiving destination and disposed of in accordance with the direction from the hospital personnel.

9. The ambulance(s)/transport vehicle will not be used to transport other patients (or for any other use) until it is decontaminated using the CDC guidelines for decontamination.
    A. Patient cohorting may occur if resources are exhausted and patients are grouped with same disease. Cohorting should only be utilized as a last resort.

NOTE: All non-vaccinated EMS personnel should be vaccinated (when applicable) within 24 hours following potential exposure

Communications Failure

Purpose: To allow for continued patient care activities in the event of a communications failure or inability to contact medical control.

1. Procedure
   A. With a communications failure or inability to contact medical control, EMS personnel may initiate medical treatment protocols and procedures including interventions identified after the "Contact Medical Control" section.
   B. Contact medical control as soon as communications can be established and inform them of the situation, including care or procedures rendered.
   C. A written report describing the situation, actions taken, and description of the communication failure shall be provided to the medical control within 24 hours.

NOTE: This procedure is considered a serious protocol deviation and will only be used in exceptional circumstances in which failure to implement medical treatment protocol would jeopardize the patient's health, safety or welfare.

Complaint Investigation & Resolution

Purpose: This policy is provided as a means to receive, investigate, and resolve complaints regarding licensees falling under the purview of the Medical Control Authority.

1. **Complaint Defined**
   For the purpose of this policy, a complaint shall be defined as an inquiry regarding the efficacy or quality of provision of medical care by any licensee within the jurisdiction of the Medical Control Authority. A licensee is defined as an individual or an agency (fire department, rescue squad, life support agency, etc.) holding a valid State of Michigan Medical First Responder, Emergency Medical Technician, Specialist, Paramedic, or agency licensed to operate within the Medical Control Authority service area. Said individual licensee shall be an employee of a provider licensed to operate within the Medical Control Authority.

2. **Criteria**
   All complaints, to be considered for action by the Medical Control Authority, shall meet the following criteria:

   A. A complaint may be verbally or in writing. Verbal complaints shall be transcribed and signed by the complainant. Hearsay or "second hand" complaints may not be accepted or investigated by the Medical Control Authority.
   B. The complainant must provide the Medical Control Authority with his/her name, address, and telephone number. A request for anonymity by a complainant may be considered but shall be honored only upon approval by a majority vote of the Medical Control Authority. In no case will the Medical Control Authority accept or investigate a complaint where the complainant has not made his/her identity known.
   C. The complaint must be directed toward a licensee within the Medical Control Authority and upon the medical practice of that licensee.

3. **Complaints Not Considered**
   Complaints directed toward the conduct of a licensed individual exclusive of medical practice or actions bearing upon medical practice shall not be accepted or investigated. Complaints regarding conduct of a licensed individual exclusive of medical practice or actions bearing upon medical practice shall be referred to the employer of the licensee. Complaints directed toward a licensee acting while employed by an agency outside of the jurisdiction of the Medical Control Authority shall not be accepted or investigated.

4. **Receipt of Complaints**
   Any licensee may receive a complaint. Upon receipt of a complaint, a licensee must forward same to a member of the Medical Control Authority. Upon receipt of said complaint, the receiving member shall notify the Medical Control Authority Chair who shall forward same to the person(s) charged with complaint

investigation. The chair shall provide the complainant with written acknowledgement of receipt of the complaint as soon as practicable.

5. Investigation of Complaints

Upon receipt of a complaint, which meets the criteria of this policy, the chair of the Medical Control Authority shall notify, in writing, the subject licensee that a complaint has been received and provide the licensee with a copy of the initial complaint document.

6. Documentation

The documentation of the investigation of a complaint shall include the following:

A. The name, address, and telephone number of the complainant
B. A copy of the stated complaint
C. The date and time of the receipt of the complaint
D. A copy of the complaint acknowledgement
E. A copy of the notice to the subject licensee
F. A copy of the pertinent protocol(s) and/or policy(ies)
G. Written statements of witnesses including notes from telephone interviews
H. Copies of pertinent reports; copies or transcriptions of audio tapes; copies of other pertinent documents

7. Complaint Review

A complaint shall be reviewed at a special meeting called for that purpose. An agenda shall be published and adhered to. The subject licensee shall be provided with copies of all documentation gathered regarding the complaint prior to a review meeting. The subject licensee may request a postponement, of up to thirty (30) days, of a special meeting in order to prepare his/her response to the complaint. The subject licensee must submit a copy of all supporting documentation to the Medical Control Authority at least one week prior to the review meeting.

A. The following steps shall be taken in the complaint review process:
    a. The violation of policy or protocol shall be defined.
    b. The impact on patient outcome will be evaluated
    c. The subject licensee shall be given time to speak on the issue of the complaint including the opportunity to present supporting documentation
    d. Counseling, remedial, and/or disciplinary action shall be considered and/or ordered as deemed appropriate by a majority vote of the Medical Control Authority.
B. The complainant shall, to the extent allowed under confidentiality statutes, be notified of the outcome of the complaint review process. The employer shall be notified if one of their employees has their privileges suspended or revoked.

Destination & Diversion Guidelines

Purpose: To define the decision-making process regarding EMS destination.

1. **Transport Destination Decisions**
   A. In matters of imminent threat to life or limb, transport to the closest appropriate facility*.
   B. In matters which are not a threat to life or limb, the patient will be taken to the closest appropriate facility or facility of his/her choice, unless:
      a. The patient is a minor, or incompetent, the family or guardian may choose the destination facility.
      b. Transportation to the chosen facility removes the EMS vehicle from the service area for an extended time. Consult medical control and an alternative may be considered.
   C. No other individuals are permitted to determine destination of patient without prior approval of on-line medical control: (police, fire, bystander physician, etc.)

***Closest appropriate facility may be a facility capable of providing definitive care or, if definitive care is not readily available, resuscitative care for the patient's condition in consultation with on-line medical control or as defined by protocol.**

2. **Patient Diversions**
   A. Once the decision is made to transport a patient to a facility, the patient may be diverted to another facility if:
      a. On-line medical control requests diversion to another facility. The facility may not deny the individual access unless it does not have the staff or resources to accept the patient. Documentation of the reason for the diversion shall be included in the EMS patient care record.
      b. The patient experiences an imminent threat to life or clinical deterioration and, in the medical judgment of the EMS personnel, the patient may be transported to the closest appropriate facility. Documentation of the reason for the diversion shall be included in the EMS patient care record.
         1. Immediate on-line medical direction shall be established with the receiving facility.
         2. Contact with the initial receiving facility shall be made as quickly as possible to inform it of the diversion.
   B. Prehospital Considerations
      a. Patients requesting transport to a facility, which is currently on diversion, should be notified of that diversion and the fact that the appropriate resources to care for them are not currently

available at that institution. An alternative facility destination should be requested from the patient. If the patient persists in the request of the facility currently on diversion, contact medical control.

***Each facility has the authority to develop and administer written policies concerning the temporary closing of emergency departments. By statute, the medical control authority, based on needs of the EMS system, may determine the destination of the patient regardless of the diversion status (open or closed) of the local facilities.**

Disciplinary Action Appeal

Purpose: This protocol is provided to define the steps a licensee must take to appeal an order of disciplinary action issued by the Medical Control Authority.

1. **Procedure**
   A. A licensee having received an Order for Disciplinary Action from the Medical Control Authority may initiate a Request to Appeal.
   B. A licensee shall notify the Medical Control Authority within seven (7) days of receipt of notice of an Order for Disciplinary Action of his/her/their request to Appeal said action. Such notice shall be in writing.

2. **Appeal Hearing**
   A. Upon receipt of a Request to Appeal an Order for Disciplinary Action, the Medical Control Authority shall schedule a special meeting for the purpose of hearing an appeal. Said meeting shall be scheduled as soon as practicable following receipt of a Request to Appeal.
   B. The acceptance of a Request to Appeal shall not forestall the Order for Disciplinary Action nor the imposition of it on the appellant licensee.
   C. The Medical Control Authority shall honor a request to postpone a meeting, no later than thirty (30) days past the originally scheduled hearing date, to allow the appellant licensee opportunity to assemble information bearing upon his/her/their appeal.
   D. The Medical Control Authority shall hold an Appeal Hearing to review the appellant licensee's new information and exercise one of the following options:
      a. Uphold the original decision and subsequent Order for Disciplinary Action.
      b. Diminish the Order for Disciplinary Action to a lesser Disciplinary Action (i.e., suspension of privileges diminished to written reprimand).
      c. Revoke the Order for Disciplinary Action (revocation of an Order for Disciplinary Action shall not expunge the appellant's record of the complaint process records for a period to twelve (12) months from date of original incident).
   E. Following exhaustion of the procedure stated herein, an appellant may appeal the decision of the Medical Control Authority to the State of Michigan Emergency Medical Services Coordination Committee as defined in Part 209 of P.A. 368 of 1978, as amended Section 20919(4). An appeal must be filed with the Department, in writing, no more than 30 calendar days following notification of the final determination by the Medical Control Authority.
      a. If a decision of the Medical Control Authority is appealed to the Emergency Medical Services Coordination Committee, the

Medical Control Authority shall make available, in writing, the medical and economic information it considered in makings its decision.

3. Appeal Hearing for an Immediate Threat

A. If the Medical Control Authority determined that an immediate threat to the public health, safety, or welfare exists, appropriate action to remove medical control privileges can be taken immediately until the Medical Control Authority has had the opportunity to review the matter at a Medical Control Authority hearing. The hearing shall be held within 3 business days after the Medical Control Authority's determination to remove medical control.

Documentation

1. An EMS patient care record will be completed by all responding agencies on all patients where any type of care has been rendered, e.g., vital signs, assessment, including those patients who refuse treatment or transport.
2. Agencies accompanying the patient will complete the EMS patient care record in a timely fashion.
3. The patient care record will be distributed in the following manner:
    a. One copy kept by agency for their record.
    b. Second copy will be sent/left to the receiving facility to be attached to the medical record.
    c. A copy shall be sent or made available to the medical control authority.

NOTE: The EMS patient care record is a confidential patient care document and is not to be released to anyone not involved in the patient's care or professional standards review organization without the patient's written release of information permission.

Due Process & Disciplinary Procedures

Purpose: To establish a fair and equitable method of applying remediation and/or discipline to licensees found to be violation of protocol.

1. Application

The application of remediation and/or discipline is intended to promote improvement in the clinical and operational performance of licensees who are found to be substandard. The Medical Control Authority Board shall engage in a process to ensure that licensees maintain an appropriate level of clinical and operational performance. The review process outlined in the Complaint Investigation Procedure shall be utilized in assessing the remedial and/or disciplinary action required.

2. Remediation

The Medical Control Authority may issue an order of remediation to correct substandard clinical performance. A defined time period for completion of remedial activity shall be stated in said order. Licensees shall be required to perform remedial activity under the supervision of an appointed proctor to correct an identified performance shortcoming. Notice of a remedial order shall be forwarded to the licensee's employer (or governing body in the case of an agency provider). A licensee shall be allowed only one opportunity for remediation of repetitive substandard performance in a twelve-month period. Subsequent episodes of substandard performance of the same nature occurring within the same twelve-month period shall be addressed under the disciplinary portion of this policy. Disciplinary action may be accompanied by assignment of additional remedial activity.

3. Discipline

Disciplinary action is indicated in cases where the licensee has demonstrated a repetitive substandard performance resistant to remedial activities or has shown disregard for the protocols and/or policies of the Medical Control Authority. The disciplinary action may be ascending in severity or, in cases accompanied by adverse patient sequelae, ascending discipline may be bypassed with the most severe disciplinary action possible invoked.

A. Written Reprimand
A written reprimand shall be issued to a licensee stating the details of his/her substandard performance, the remedial action required, the time allowed for completion of remedial action, and the consequences for repetitive noncompliance. Notice of disciplinary action shall be forwarded t the licensee's employer (or governing body in the case of an agency provider). A copy of the Disciplinary Action Appeal policy shall be included in the notice to the licensee.

B. Suspension of Privileges

A licensee's medical privileges shall be suspended for a specified period of time. A written notice of the suspension shall be issued to the licensee stating the violation(s) of protocol and/or policy, the term of suspension, the remedial activity required, and the time allowed for the completion of the remedial activity. Notice of disciplinary action shall be forwarded to the licensee's employer (or governing body in the case of an agency provider). A copy of the Disciplinary Action Appeal Process policy shall be included in the notice to the licensee.

If a licensee's medical privileges (medical control) have been suspended from a licensee, the licensee shall not provide prehospital care until medical control is reinstated.

C. Temporary Suspension of Privileges

The Medical Director may temporarily suspend a licensee's privileges in cases where there is a clearly definable risk to the public health and welfare. The Medical Control Authority shall review such action within three (3) business days after the Medical Control Authority's determination. In no case shall the term of temporary suspension exceed seventy-two hours.

If a licensee's medical privileges (medical control) have been temporarily suspended from a licensee, the licensee shall not provide prehospital care until medical control is reinstated.

D. Revocation of Privileges

A licensee's medical privileges shall be revoked. A written notice of the revocation shall be issued to the licensee and delivered to him/her via certified mail. The notice of revocation shall state the violation(s) of protocol and/or policy. Notice of disciplinary action shall be forwarded to the licensee's employer (or governing body in the case of an agency provider) via certified mail. A copy of the Disciplinary Action Appeal policy shall be included in the notice to the licensee.

The Medical Control Authority must notify the department within one (1) business day of the removal of medical control from a licensee.

If a licensee's medical privileges (medical control) have been revoked from a licensee, the licensee shall not provide prehospital care until medical control is reinstated.

4. Alleged violations of administrative or operational protocol requirements by an EMS agency shall be resolved as follows:

A. The Medical Control Authority will notify the chief executive of the agency involved of the alleged protocol violation. A written response will be requested within 30 days.

B. Details of the alleged violation, and any response received from the EMS agency, will be presented to the Medical Control Authority at their next meeting. The agency involved may attend the meeting and present any information it believes would be helpful.

C. The Medical Control Authority will review the alleged violation and by majority vote of the members present decide a course of action. Any sanction imposed shall follow the guidelines below:
   a. Severity of the violation will determine the level of sanction to be imposed. A violation is considered "minor" if it involves administrative infractions, including but not limited to failure to timely file reports. A violation is considered "serious" if it involves intentional operational issues including but not limited to a failure to provide staffing as required by statute. An otherwise minor violation that is frequent or recurring may be considered by the Medical Control Authority to be "serious" for purposes of this section.
   b. If a minor protocol violation is determined by the Medical Control Authority to have occurred, a letter of warning will be sent to the EMS agency. If an initial serious violation or a second minor protocol violation within a six month period is determined to have occurred, a letter of reprimand will be sent and the EMS agency will be required to submit within 15 days a written statement of actions it will take to prevent future protocol violations. At the discretion of the Medical Control Authority, notice of these actions may be made public.

D. If a third of more frequent minor protocol violation is determined by the Medical Control Authority to have occurred within a period of 18 months, or if the violation is a second serious violation within 18 months, the Medical Control Authority may suspend or revoke its medical control oversight for the EMS agency. The EMS agency shall not provide pre-hospital care until medical control is reinstated. At its discretion, the Medical Control Authority may take any other action within its authority to prevent further protocol violations. Notice of this action shall be made public.

E. An EMS agency may appeal a decision of the Medical Control Authority. The EMS Agency must follow the Disciplinary Action Appeal Process policy.

Field Drug Box & IV Kits

1. Emergency medical service vehicles will be equipped with drug boxes and IV kits consistent with their licensure level and protocols.

2. IV kits and drug boxes will be prepared by participating hospital pharmacies prior to each patient use. The pharmacy will seal and secure the drug box and IV kits.

3. Drug boxes and IV kits will be labeled with a pharmacy label which contains, at a minimum:
    A. The name of the re-stocking pharmacy
    B. The name or initials of the certifying pharmacist
    C. The expiration date of the box or kit (and ID of first expiring med)
    D. The date the box or kit was refilled
    E. The tag number of the locks assigned to the box.

4. Licensed EMS personnel will assure that a proper seal is in place on any drug box or IV kit when it is provided by the participating pharmacy. The ambulance agency and licensed EMS personnel are accountable for each drug box and their contents. They are responsible for the security of controlled substances.

5. Drug boxes and IV kits shall be locked and secured in the EMS vehicle, except when required for patient care. A procedure will be in place in each agency to ensure limited and controlled access to the drug box.

6. Licensed EMS personnel will document the medications used from the drug box and/or IV kit. This documentation shall include the signature of the receiving physician for purposes of drug exchange. The documentation will accompany the sealed drug box when returned to a secure location for pharmacy exchange.

7. Whenever controlled substances are used from a drug box, any unused or contaminated drug must be disposed of in the presence of a licensed hospital employee or physician authorized to dispense that medication. This witness shall also sign their name on a patient care record, attesting to the disposal of the unused drug.

8. Opened syringes, needles, and any broken glass ampules will be properly disposed of and not left in the drug box. It is the responsibility of the licensed EMS personnel to clean any blood or body fluids from the inside of the drug box before it is returned to the pharmacy.

9. The pharmacy shall routinely inspect these medications and shall verify the contents and replace the medications as necessary. It is the responsibility of each life support agency to ensure compliance with the drug box inventory procedure.

10. If a pharmacy or agency discovers a discrepancy in drug box contents, they shall contact the last pharmacy or agency, which had possession of the box and mutually resolve the discrepancy. The pharmacy/agency, which discovered the discrepancy, shall submit a report to the medical control authority documenting the circumstances and the resolution. If the pharmacy and agency are not able to arrive at a mutually agreeable solution, the issue shall immediately be forwarded to the medical control for investigation and resolution.

11. The contents of the drug box are subject to inspection at any time by participating hospital pharmacy staff or by the medical control authority.

Health Insurance Portability Accountability Act (HIPAA)

Purpose: To provide a guideline for sharing protected health information (PHI) with entities that function in the capacity of a life support agency.

To promote and improve overall patient care and pre-hospital EMS activities, Medical Control Authorities shall establish patient care quality improvement programs. Patient care information will be utilized in these programs for quality improvement activities only and shall conform to all state and federal patient confidentiality and privacy laws.

Policy: Medical Control Authorities and their Professional Standards Review Organization (QI Committee) will collect patient care information through retrospective review of patient care records generated and supplied by all life support agencies.

Patient care records will be completed on all patients where any type of care or assessment has occurred.

Each responding pre-hospital care provider shall complete Medical Control approved documentation, a copy of which may be forwarded to Medical Control Authority for quality improvement purposes.

The Medical Control Authorities shall hold all patient care information in strictest confidence.

Quality Improvement within the Medical Control Authority shall be conducted under the Professional Standards Review Organization, which may be comprised of representatives from various pre hospital agencies. No patient identifiers will be used or shared during reporting of any retrospective QI reviews of patient care.

Patient outcomes may be tracked by pre hospital agencies and/or Medical Control Authorities and may be shared among pre hospital agencies, including Medical First Response agencies, responsible for patient care. No patient identifiers will be used or shared during reporting.

Patient care audits may occur as part of the QI process. No patient identifiers will be used or shared during reporting. Aggregate data will be shared with pre hospital agencies using no patient identifiers. This data will be used for education, remediation and overall improvement of system processes.

Helicopter

MFR/EMT/SPECIALIST/PARAMEDIC

1. **Indications for Use – in the presence of one or any combination of the following:**

NOTE: These guidelines are offered as examples of patients who might benefit from helicopter transport. Additional considerations would include the physical exam, additional contributing factors such as age, mechanism of injury and the level of care available in the area.

A. Trauma Patients
   a. Priority I patient
      1. Long transport times
      2. Poor road conditions
      3. Entrapment with prolonged extrication

B. Medical Patients
   a. In rare circumstances, if in the estimation of the paramedic, that the use of helicopter resources would be beneficial to patient outcome.

2. **Procedure**

A. Request for helicopter service response may be approved by medical control or by medical control pre-approved guidelines.
B. Requests for helicopter by medical control or dispatch procedure.
C. Patient should be prepared for transport by air in the following manner:
   a. Patient should be stabilized and immobilized with ground ambulance equipment per existing protocol.
   b. Ground ambulance personnel will stay with the patient until released by the helicopter personnel.
D. Communications:
   a. Communication with the helicopter dispatch should include information regarding location, identifying marks or vehicles and landing sites.
   b. Helicopter dispatch will request pertinent medical information to relay to the flight crew.
   c. Communications between the helicopter and ground ambulance shall be coordinated through dispatch.
E. Landing Site:
   a. Locate a level, 100 x 100 area clear of obstacles (i.e. wires, trees)
   b. Mark landing zone with a marker at each corner and one upwind.
   c. Public safety vehicles should leave on flashers to assist in identifying site from the air.
   d. Identify obstacles close to the landing zone and communicate all pertinent information about the landing zone to the flight crew.
   e. Landing zone personnel will communicate by radio with the flight crew.

F. Safety:
    a. Under no circumstances should the helicopter be approached unless signaled to do so by the pilot or flight crew.
    b. Always approach the helicopter from the front. Under no circumstances should the helicopter be approached from the rear due to the extreme danger of the tail rotor.
    c. Loading and unloading of the patient is done at the direction of the flight crew.
    d. Crews should crouch down when in the vicinity of the main rotor blades.

G. Patient Destination:
    a. Patient will be transported to appropriate facility as directed by medical control.

H. Quality Assurance:
    a. Helicopter services will forward copies of their patient care record to the Medical Control Authority for each scene call. The Medical Director will review all helicopter activations for appropriateness.

Infection Control

Purpose: To provide EMS personnel with a guideline for minimizing the risk of cross contamination and for the prevention of exposure to communicable disease.

NOTE: Any information obtained or exchanged regarding communicable disease exposures must be handled with strict confidentiality.

1. Standard Precautions and Body Substance Isolation (BSI)
    A. Purpose: To prevent the transmission of all bloodborne pathogens that are spread by blood, tears, sweat, saliva, sputum, gastric secretions, urine, feces, CSF, amniotic fluid, semen, and breast milk.
    B. Rationale: Since medical history and examination cannot reliably identify all patients infected with HIV, or other bloodborne pathogens, blood and body fluid precautions shall be consistently used for **all** patients. This approach, previously recommended by the CDC, shall be used in the care of **all** patients. This is especially important in the emergency care settings in which the risk of blood or body fluids exposure is increased and the infection status of the patient is usually unknown.
        a. Standard Precautions/BSI shall be done for **every** patient if contact with their blood or body fluid is possible, regardless of whether a diagnosis is known or not. This includes but is not limited to starting IVs, intubation, suctioning, caring for trauma patients, or assisting with OB/GYN emergencies.
    C. Procedures:
        a. **Handwashing** shall be done before and after contact with patients regardless of whether or not gloves were used. Hands contaminated with blood or body fluids shall be washed as soon as possible after the incident.
        b. Nonsterile **disposable gloves** shall be worn if contact with blood or body fluids may occur. Gloves shall be changed in-between patients and not used repeatedly.
        c. **Outerwear** (example: gown, tyvek suit, turnout gear) shall be worn if soiling clothing with blood or body fluids may occur. The protection shall be impervious to blood or body fluids particularly in the chest and arm areas.
        d. **Face Protection** (including eye protection) shall be worn if aerosolization of blood or body fluids may occur (examples of when to wear include: suctioning, insertion of endotracheal tubes, patient who is coughing excessively and certain invasive procedures).
        e. **Mouth-to-mouth** resuscitation: CDC recommends that EMS personnel refrain from having direct contact with patients whenever possible, and that adjunctive aids be carried and

utilized. These adjunctive aids include pocket masks, face shields or use of BVM.

f. **Contaminated Articles:** Bag all **non-disposable** articles soiled with blood or body fluids and handle according to agency procedures. Wear gloves when handling soiled articles. Bloody or soiled non-disposable articles shall be decontaminated prior to being placed back into service. Refer to manufacturer's recommendations for proper cleaning and disinfecting. **Non-disposable** equipment shall be **decontaminated** appropriately prior to reusing. Bloody or soiled **disposable** equipment shall be carefully bagged and discarded.

g. **Drug/IV Bags** shall be inspected and all contaminated waste removed prior to bag exchange. If the bag is contaminated, it must be spot cleaned or laundered prior to being placed back into service.

h. **Linens** soiled with blood or body fluids shall be placed in appropriately marked container. Gloves shall be worn when handling soiled linens.

i. **Needles and syringes** shall be disposed of in a rigid, puncture-resistant container. Any grossly contaminated container, or one that is within 1" of the top, should be disposed of appropriately.

j. **Blood spills** shall be cleaned up promptly with a solution of 5.25% sodium hypochlorite (household bleach) diluted 1:10 with water or other FDA approved disinfectant. Wear gloves when cleaning up such spills.

k. **Routine cleaning** of vehicles and equipment shall be done. Cleaning and disinfecting solutions and procedures shall be developed by provider agencies following manufacturer's guidelines and CDC recommendations.

D. Respiratory Isolation

a. In the event of a suspected or confirmed TB patient, an appropriate HEPA mask must be worn, in accordance with MIOSHA regulations.

b. Decontamination of equipment and vehicle after exposure to a patient with a known or suspect respiratory route of transmission shall be carried out following manufacturer's recommendations and CDC guidelines or as described in the text Infection Control Procedures for Pre-Hospital Care Providers.

2. Radio Communications

Anytime the unit and/or dispatcher is made aware of the potential for any communicable disease, that information should be communicated in a format that ensures that patient confidentiality is adhered to.

3. EMS Personnel Exposure to a Communicable Disease

A. Definition of a Reportable Exposure
   a. Contaminated needle or sharp instrument puncture
   b. Blood/body fluid splash into mucous membrane including mouth, nose, and eye
   c. Blood/body fluid splash into non-intact skin area

B. Cooperating Hospitals' Responsibilities
   a. Each cooperating hospital in the Medical Control region will designate an infection control contact to serve as liaison(s) with the staff of medical control and all EMS agencies for the purpose of communicating information about infectious patients or potential exposures.
   b. Hospitals, upon learning that any patient has a reportable infectious or communicable disease, will check the patient chart to determine if any EMS agencies were involved with the patient prior to hospitalization. When determined that EMS may have had contact with the patient, designated individual will notify the EMS agency for further follow-up and complete the required State forms.
   c. Hospitals, when requested to do so, will obtain lab tests and results on source patients when exposure to a pre-hospital provider has occurred
      1. Hospitals will report the results of testing on the "MDCH Request for HIV/HBV Testing Form" and return to the address indicated on the form.
   d. Hospitals will notify transporting agencies at the time a transfer is scheduled if any infection potential exists with the patient and the precautions necessary (standard precautions and/or mask).

C. Pre-hospital Agency Responsibilities
   a. Each pre-hospital provider agency will be responsible for assuring that their personnel, trainees and students are familiar with infection control procedures, epidemiology, modes of transmission and means of preventing transmission of communicable disease per CDC guidelines and MIOSHA regulations.
   b. Each pre-hospital provider agency will be responsible for supplying personnel with the appropriate personal protective equipment.
   c. It is recommended that each pre-hospital provider agency ensures adequate immunizations per CDC Immunization Guidelines for Health Care Workers.

D. Follow-up Care/Counseling
   a. Follow-up care and counseling of exposed personnel shall be the responsibility of the pre-hospital provider agency and shall be carried out without delay upon notification of exposure.

E. Summary of EMS Personnel Post-Exposure Procedures
   a. Wash exposed area very well.
   b. Affected personnel may notify ED staff of potential exposure, but ED staff may choose not to test patient until potential exposure confirmed by Medical Control.
   c. Notify agency supervisor of possible exposure.
   d. Fill out "MDCH Request for HIV/HBV Testing Form" and forward to Medical Control.
   e. Supervisor contacts Medical Control to request source patient testing.
   f. Medical Control contacts hospital personnel to request source patient testing.
   g. Provider obtains exposure evaluation and counseling.
   h. Medical Control reviews HIV/HBV Testing Form for completeness and forwards to hospital infection control office.
   i. Hospital infection control office returns form with tests results to EMS agency supervisor.

Resource: The Infection Control for Pre-Hospital Care Providers, 1993, will serve as a resource text for situation involving suspected or known infectious patients.

Intercept Policy

Purpose: The purpose of this policy is to ensure that Advanced Life Support/Limited Advanced Life Support ambulances are dispatched, when available, to patients requiring Advanced Life Support/Limited Advanced Life Support levels of care.

Procedure

If a transport has begun by a Basic Life Support (BLS) unit, a rendezvous with an Advanced Life Support (ALS) (Limited Advanced Life Support if ALS unit not available) unit should be attempted at a mutually agreed upon location. Rendezvous is indicated if it will occur at a point, which is greater than five (5) minutes from the receiving hospital. For patients in cardiac arrest being transported in non AED equipped BLS units, ALS, (LALS -- AED equipped) intercept is indicated at any point during the transport.

1. Indications for ALS Intercept
    A. All priority 1 & 2 patients

2. Indications for LALS
    A. All Priority 1 patients & some Priority 2 patients as indicated by Medical Control.

NOTE: BLS unit may contact Medical Control for assistance with any situation as necessary.

Inter-facility Patient Transfers

Purpose: The purpose of this policy is to establish a uniform procedure for inter-facility transfers.

1. Responsibility:
    A. Patient transfer is a physician-to-physician referral. The transferring physician is responsible for securing the acceptance of the patient by an appropriate physician at the receiving facility prior to the transportation. The name of the accepting physician must be included with the transfer orders.
    B. It is the responsibility of the transferring facility to:
        a. Perform a screening examination
        b. Determine if transfer to another facility is in the patients best interest
        c. Initiate appropriate stabilization measures prior to transfer.

    C. During transport, the transferring physician is responsible for patient care until arrival of the patient at the receiving facility.
    D. If unanticipated events occur during patient transport, and contact with the transferring physician is not possible, then on-line Medical Control will serve as a safety net.
    E. It is the transferring physician's responsibility to know and understand the training and capabilities of the transporting EMS personnel.

2. Transportation
    A. Pre-transport
        a. Care initiated by the transferring facility may need to be continued during transport. The transferring physician will determine the method and level of transport and any additional treatment(s), if any, that will be provided during the course of transport.
        b. Orders for treatment, including medications for ALS transfers, or other orders shall be provided in writing to the EMS personnel prior to initiation of the transport by the transferring Physician.
        c. For ALS transfers, ordered medications not contained within the EMS System Medication Box/Bag must be supplied by the transferring hospital.
        d. EMS personnel must be trained in all the equipment being used in the patient's care or appropriately trained staff must accompany the patient.
        e. Should the patient require care and/or equipment above and beyond the normal scope of practice and training of the EMS personnel, the transferring facility shall provide appropriate staff or consider other appropriate means of medical transportation.
        f. The paramedic has the right to decline transport if he/she is convinced patient care is outside their scope of practice and training or,

alternatively, to insist a hospital staff member accompany them on the transfer.

g. If additional staff accompanies the patient, the transferring physician is responsible for ensuring their qualifications. This staff will render care to the patient under the orders of the transferring physician. It will be the responsibility of the transferring facility to provide arrangements for the return of staff, equipment, and medications.
h. The following information should accompany the patient (but not delay the transfer in acute situations):
    1. Copies of pertinent hospital records
    2. Written orders during transport
    3. Any other pertinent information including appropriate transfer documents.

B. During Transport
    a. If applicable, hospital supplied medications not used during transport must be returned to the originating facility or appropriately wasted and documented in compliance with FDA guidelines at the receiving facility.
    b. If applicable, the concentration and administration rates of all medications being administered will be documented on the patient care record.
    c. Interventions performed en-route, and who performed them, will be documented on the patient care record.
    d. In the event that a patient's condition warrants intervention beyond the written Physician orders provided by the transferring Physician, the EMS personnel will contact the transferring Physician. If that is not possible, the EMS personnel will follow local Medical Control Protocols and initiate contact with the on-line Medical Control Physician from either the sending or receiving facility or, if not able to contact those facilities, the closest appropriate on-line Medical Control facility.

Critical Care Patient Inter-Facility Transport (OPTIONAL) Additional Requirements

Purpose: To provide hospital facilities, physicians, and medical transport personnel with guidelines to facilitate inter-facility transportation of critically sick and injured patients within Advanced Life Support vehicles.

1. Vehicle and Staffing Policy
    A. MDCIS Vehicle License. All vehicles conducting Critical Care Inter-Facility Patient Transports must be licensed as transporting Advanced Life Support (ALS) vehicles.
    B. Equipment. The following is the minimum equipment that will be carried by an ALS vehicle while it is providing Critical Care Inter-Facility Patient Transport, in addition to the equipment required by Part 209, P.A. 368 of 1978, as amended, and local medical control authority protocols:
        a. Pulse Oximeter
        b. Portable Ventilator or staff capable of providing ventilatory support
        c. Portable Infusion Pump(s)
        d. Pressure infusion bag(s)

    C. Staffing
        e. All ALS vehicles that conduct Critical Care Inter-Facility Patient Transports will be staffed in accordance with local medical control requirements with at least one (1) paramedic trained in the Critical Care Inter-Facility Patient Transport curriculum. The trained paramedic must be in the patient compartment while transporting the patient.
        f. The above requirement for staffing does not apply to the transportation of a patient by an ambulance if the patient is accompanied in the patient compartment of the ambulance by an appropriate licensed health professional designated by a physician and after a physician-patient relationship has been established as prescribed. (PA 368, Section 20921(5)).

2. Critical Care Inter-Facility Patient Transport Physician Director/Quality Improvement
    A. Ambulance services that utilize this protocol must designate a Critical Care Inter-Facility Patient Transport Physician Director.
    B. The Critical Care Inter-Facility Patient Transport Physician Director will be responsible for:
        a. Oversight of a quality improvement program for Critical Care Inter-Facility Patient Transports
        b. Oversight of the training curriculum for EMS personnel trained under this protocol.

3. Critical Care Inter-Facility Patient Transport Curriculum

CRITICAL CARE PATIENT INTER-FACILITY TRANSPORT CURRICULUM

COURSE OUTLINE

1. Ventilator patient concerns (4 hours total)
    A. Types of ventilators
    B. IPPB, SIMV, PEEP, CPAP
    C. Use of transport ventilators
    D. Complications
    E. Use of Pulse Oximeter/Capnography

2. Chest Tubes and Pleurovac (1 hour)

    A. Principles of pleural cavity evacuation
    B. Maintaining chest tubes
    C. Review various systems
    D. Pleurovac Practical Lab

3. Maintenance of invasive lines (2 hours)
    A. Types of hemodynamic monitoring
        a. Various equipment
        b. Insertion sites
        c. Maintaining infusions
        d. Complications

4. Equipment Training Videos (1 hour)
    A. IV Pumps
    B. Ventilator
    C. 12 Lead Monitoring

5. Thrombolytics (1 hour)
    A. Indications, contraindications, adverse effects, and administration
        a. Streptokinase
        b. tPa
        c. Retavase
        d. TNKase
        e. Heparin
        f. Lovenox
6. Interpreting blood gases (1 hour)
    A. The use of ABGs in ventilator managements

7. Blood products (1 hour)
    A. Whole blood/Packed RBCs/Plasma

8. Cardiac Enzymes (1 hour)
    A. Cardiac physiology and the meaning of enzyme abnormalities

9. Vasoactive drugs (2 hours)
    A. Indications, contraindications, adverse effects, and administration
        a. Dopamine
        b. Epinephrine
        c. Dobutamine
        d. Levophed
        e. Amrinone/Milrinone
        f. Nitroglycerin
        g. Nitroprusside
        h. Esmolol
        i. Labetolol

10. Critical Care Patient Transport Protocol Review (1 hour)
    A. Protocol review and miscellaneous drugs
        a. Indications, contraindications, adverse effects, and administration
            1. Aminophylline
            2. Mannitol
            3. Phenytoin
            4. Insulin
            5. Propofol
            6. Oxytocin and related drugs

11. Paralytics (1 hour)
    A. Indications, contraindications, adverse effects, and administration
        a. Non-depolarizing neuromuscular blockers
        b. Sedatives during paralytic maintenance
        c. RSI indications during critical care patient transport
    B. Administer with Medical Control

12. Practical Lab (1 hour)
    A. IV Pumps
        a. Various tubing
        b. Maintaining a drip while changing to the pump
    B. Ventilator
    C. 12 Lead
    D. CO2 detector

13. Cardiac Physiology/12-Lead ECG (4 hours)
    A. Cardiac physiology and cardiac drug review
        a. Indications, contraindications, adverse effects, and administration
            1. Lidocaine/Procainamide
            2. Potassium
            3. Morphine
            4. Cardizem
            5. Amiodarone

14. 12-Lead AMI Recognition (2 hours)
15. High Risk Pregnancy (1 hour)
    A. Indications, contraindications, adverse effects, and administration
        a. Magnesium Sulfate
        b. Pitocin

16. Antibiotics (1 hour)

17. Pediatrics (4 hours)
    A. Pediatric Airway and Ventilation management including Ventilator Dynamics and Chest Tube Monitoring and pnuemothorax recognition and treatment (1 hour)
    B. Pediatric fluid requirements including maintenance and bolus therapies (1 hour)
    C. Pain management (1 hour)
    D. Case studies, trauma specific (1 hour)

18. Critical Care Patient Transport Charting (1 hour)
19. Critical Care Patient Transport Call: Start to Finish (1 hour)
    A. General considerations
    B. Staffing and quality management considerations
    C. When to refuse a call

20. Critical Care Patient Transport Case Presentations (1 hour)

21. Daily Quizes
    A. Ventilators, chest tubes, invasive lines
    B. Thrombolytics, ABGs, blood, enzymes, pressors, paralytics

22. Written and Practical Exam (4 hours)

Latex Sensitivity

Purpose: As health care providers, we are acutely aware of the fact that many individuals are latex sensitive, and being exposed to these products can result in severe sensitivity reactions. Every effort should be made to maintain a reduced latex environment for identified patients.

1. **Definitions**
   - **A.** Irritant reactions are not considered allergenic. They are caused by mechanical or thermal injury. Symptoms include redness, cracking, peeling, chapping, fissures, thickened skin which ends at point of contact.
   - B. Type 1 reaction is an IgE antibody mediated system reaction caused by absorption, inhalation or mucosal contact. Symptoms include redness, swelling, wheezing, asthma, hives, rhinitis, conjunctivitis and anaphylaxis. Onset of symptoms is 5-30 minutes following exposure.
   - C. Type IV reaction is a T cell mediated reaction caused by accelerators, antioxidants and disinfectants used in the latex manufacturing process. Symptoms include pruritis, edema, eczema, skin cracking and redness. Onset is often delayed 6 to 48 hours after exposure and usually resolves in 72-96 hours.
   - D. Latex free describes products in which latex is not able to come into contact with the skin, mucous membrane or blood stream, nor can latex be released into the air.
   - E. Reduced latex environment is one in which the risk of latex exposure is as low as reasonably possible. This includes routinely eliminating powdered gloves from the patient environment.
2. **Latex Sensitivity High Risk Factors**

   Individuals at risk for latex allergy generally are those with a history of:
   - A. Identified hypersensitivity reaction to latex products such as sneezing, itching eyes, hives, wheezing or anaphylaxis.
   - B. Eczema from latex gloves.
   - C. Spina bifida or any urogenital abnormality requiring frequent use of latex catheters.
   - D. Multiple surgical procedures in infancy.
   - E. Employment in the manufacture of rubber products.
   - F. Allergies to bananas, chestnuts, kiwi, or avocados.
   - G. Atopic dermatitis.

3. **Policy**

   Reasonable efforts will be made to identify prehospital patients who may be allergic to latex products. Following identification of these patients, efforts will be made to maintain a latex reduced environment.

4. Procedures

A. Complete the Latex Sensitivity Assessment Form (Attachment C). The form attached should be used as a template for the type of information which should be collected for patients identified as latex sensitive.
B. If the patient is allergic to latex, document same in the patient care report.
C. If the patient admits to other allergies or symptoms which suggest "high risk", notify medical control of the patient(s) status.
D. Maintain a reduced latex environment during patient transport.
E. Products containing latex that have the potential to come into contact with the patient's skin, or more importantly their mucous membranes, should be avoided. Latex free gloves and medical products should be used. Cover latex containing medical devices with stockingette or Saran Wrap.
F. Remove rubber stoppers from medicine vials prior to drawing medications. **Do not pierce the rubber stopper**.
G. Refrain from removing gloves in the presence of the patient.
H. If the patient exhibits signs and symptoms of allergic reaction, refer to the appropriate treatment protocol.

LATEX SENSITIVITY ASSESSMENT FORM

Directions: Please ask the patient(s) to answer the following questions to the best of their ability.

Have you ever suffered from:	**No**	**Yes**	**If yes, explain:**
Allergic nasal inflammation			
Allergic eye inflammation			
Asthma			
Bronchitis			
Eczema or skin inflammation			
Hay fever			
Hives			
Sinus problems			
Unexplained rash			
Reactions to band-aids/tape			
Have you ever reacted after handling:	**No**	**Yes**	**If yes, explain:**
Poinsetta plant			
Balloons			
Rubber products			
Clothing with elastic or stretchy fabrics			
Elastic bandages			
Have you ever had any of the following symptoms following a dental appointment:	**No**	**Yes**	**If yes, explain:**
Itching			
Tearing			
Fatigue			
Sneezing			
Runny nose			
Facial swelling/redness			
Have you ever reacted after eating:	**No**	**Yes**	**If yes, explain:**
Avocados			
Bananas			
Tropical fruit, kiwi, papayas			
Chestnuts			

Patient's signature_____ Date _____

EMS Provider signature _____ Date _____

Licensure Level Requirement of Attendant during Transport

☑ Medical Control Authorities choosing to adopt this protocol may do so by selecting this check box.

Purpose: To provide a protocol to fulfill the requirement that allows for EMS personnel to transport patients up to their individual licensure level in the event that the vehicle is licensed at a higher level as set forth in Michigan Administrative Code Part 3, Ambulance Operations R325.22133 (f).

Michigan Administrative Code Part 3. Ambulance Operations R 325.22133 (f) states: Require that an individual whose license is at least equal to the level of vehicle license is in the patient compartment when transporting an emergency patient, or consistent with department approved medical control authority protocols.

1. Patient care transport level is to be determined by the individual(s) whose license is at least equal to the level of the vehicle license. This individual will perform a patient assessment to determine the level of patient care transport.

    a. EMT-Basic may attend in the patient compartment during transport on a patient deemed to be within the scope of practice for an EMT-Basic as defined by the State of Michigan.
    b. EMT-Specialist may attend in the patient compartment during transport on a patient deemed to be within the scope of practice for an EMT-Specialist as defined by the State of Michigan.
    c. EMT-Paramedic may transport a patient at any level.

2. Ambulance(s) must maintain minimum staffing in accordance with Public Health Code Act 368 of 1978 Section 333.20921:
   (3a) If designated as providing basic life support, with at least 1 emergency medical technician and 1 medical first responder.
   (3b) If designated as providing limited advanced life support, with at least 1 emergency medical technician specialist and 1 emergency medical technician.
   (3c) If designated as providing advanced life support, with at least 1 paramedic and 1 emergency medical technician.

The purpose of this protocol is to provide a uniform initial response to a Mass Casualty Incident (MCI).

1. Pre-hospital care providers will operate in accordance with medical control authority standard operating procedures.

   Definition of MCI: For the purpose of this document, an MCI will be defined as any incident, which because of its physical size, the number and criticality of its victims, or its complexity, is likely to overwhelm those local resources, which would typically be available.

All Levels of Pre-hospital Providers

2. **SCENE MANAGEMENT**

EMS personnel should accomplish the following actions upon arrival:

A. Survey the scene
   a. Confirm the incident location
   b. Perform an initial size-up to determine the number of victims and the level of resources needed
   c. Assume and announce command, if appropriate
   d. Conduct scene safety assessment
   e. Contact dispatch with scene information
   f. Ensure that sufficient resources have been dispatched

3. If Incident Command (IC) has not been established the most qualified EMS personnel shall assume the role of IC until command is transferred. The IC is responsible for all functions of the Incident Command System (ICS) until other personnel are assigned those functions**.**

   Incident Command and ICS supervisory roles at a mass casualty incident should be designated to personnel who have completed ICS training and who have experience in implementing an ICS structure.

   A. If Incident Command has not been established:
      a. Secure the area and limit access to nonessential personnel
      b. Determine whether the incident scene is safe to enter and whether decontamination is required.
      c. Assess the situation and request adequate resources.
   B. If Incident Command has been established:
      a. Report either to the IC, Operations Section Chief or staging area, as appropriate, for assignment.

C. Advise dispatch who has assumed command and who is the Operations Section Chief, Staging Area Manager, or EMS Branch Director/Group Supervisor.
D. IC or designee may call for additional resources:
    a. EMS personnel
    b. Any specialized equipment
    c. MEDDRUN
    d. CHEMPACK
    e. Regional/county MCI trailer(s)
    f. Regional Response Team Network (RRTN)

E. Inform the "Coordinating Resource" of nature and scope of incident and consider activation of Regional Medical Coordination Center (RMCC)

F. Assign roles to arriving EMS personnel
    a. Triage Leader Role
        1. Report to EMS Branch Director/Group Supervisor
        2. Coordinates rapid triage process
    b. Treatment Leader Role
        1. Within EMS Branch/Group Operations, establish treatment areas
        2. Assigns personnel to treatment area
        3. Supervise care in treatment areas
        4. Document care given
        5. Requests additional personnel needs to EMS Branch Director/Group Supervisor
    c. Transportation Leader Role
        1. Prioritize transportation of patients from scene
        2. With information from coordinating resource, assigns destination hospital
        3. Maintains log and tracking of patients transported

4. PERSONNEL ACCOUNTABILITY

A. EMS personnel responding to an incident should report to the designated staging area unless otherwise directed while en route to the incident.

    a. Off duty personnel should report to their own agency for assignment and <u>not</u> to the scene.
    b. Personnel Identification badges should be worn so they are visible at all times.
B. It is the Incident Commander's responsibility to establish a personnel accountability system and maintain the ability to account for all personnel at all times.

5. PATIENT MANAGEMENT

A. Primary Triage

a. Identify and manage immediate life threats. Necessary care will be limited to:
   1. Positioning airway
   2. Attempt hemorrhage control
   3. Chest decompression
   4. Antidotes by auto-injector

b. Identify patients for priority evacuation to treatment area.

Priority	Transport Priority	Color Designator
Priority 1	Immediate	Red
Priority 2	Delayed	Yellow
Priority 3	Minor	Green
Priority 0	Deceased/Expected	Black

c. The triage information (e.g. tag or colored strip) should be attached to the body and the appropriate section removed to indicate priority by the last remaining section.
d. Triaged patients (except black category) are taken or directed to corresponding treatment area.
e. Notify the "coordinating resource" of number, general injury type, and priority of patients when primary triage information is available.
   1. Updating the "coordinating resource" as primary triage information is updated is imperative.

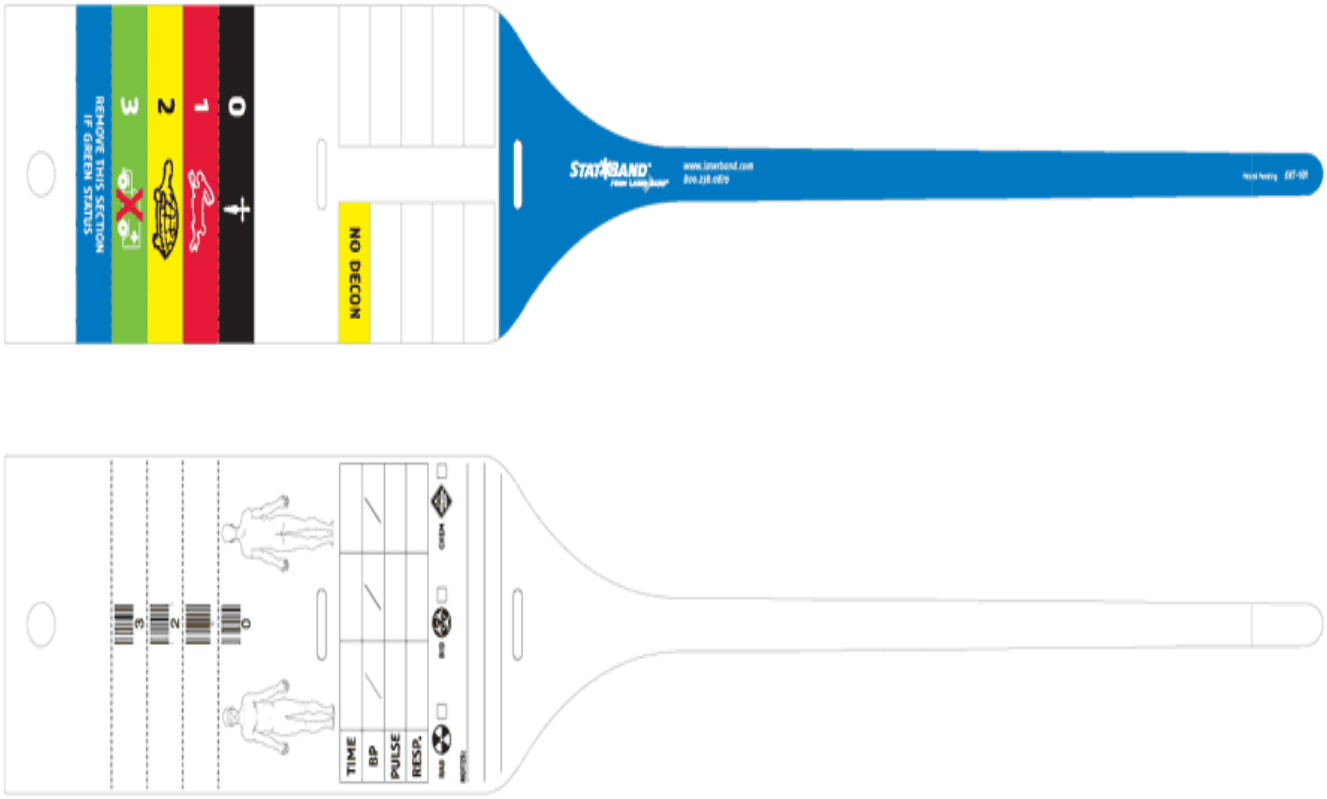
B. Treatment

a. Do the most good for the greatest number of patients as resources permit.
b. Identify and treat potential life-threatening injuries/illnesses in treatment area in accordance with established patient care protocols.
c. Perform secondary triage within each treatment area as able.
d. Stabilize and prepare for transport on a priority basis to hospital(s).

C. Transport

a. EMS personnel assigned to transport activities should report to the transport group leader.

B. Transport personnel will assure wide distribution of patients to hospitals.


REMOVE THIS SECTION IF GREEN STATUS
3
2
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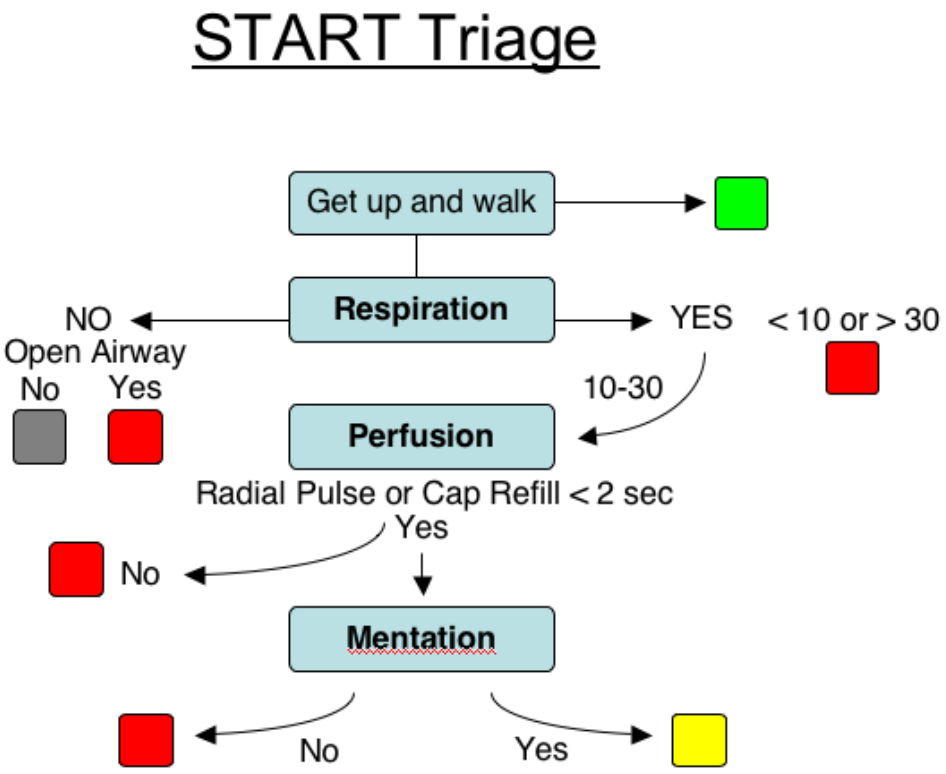
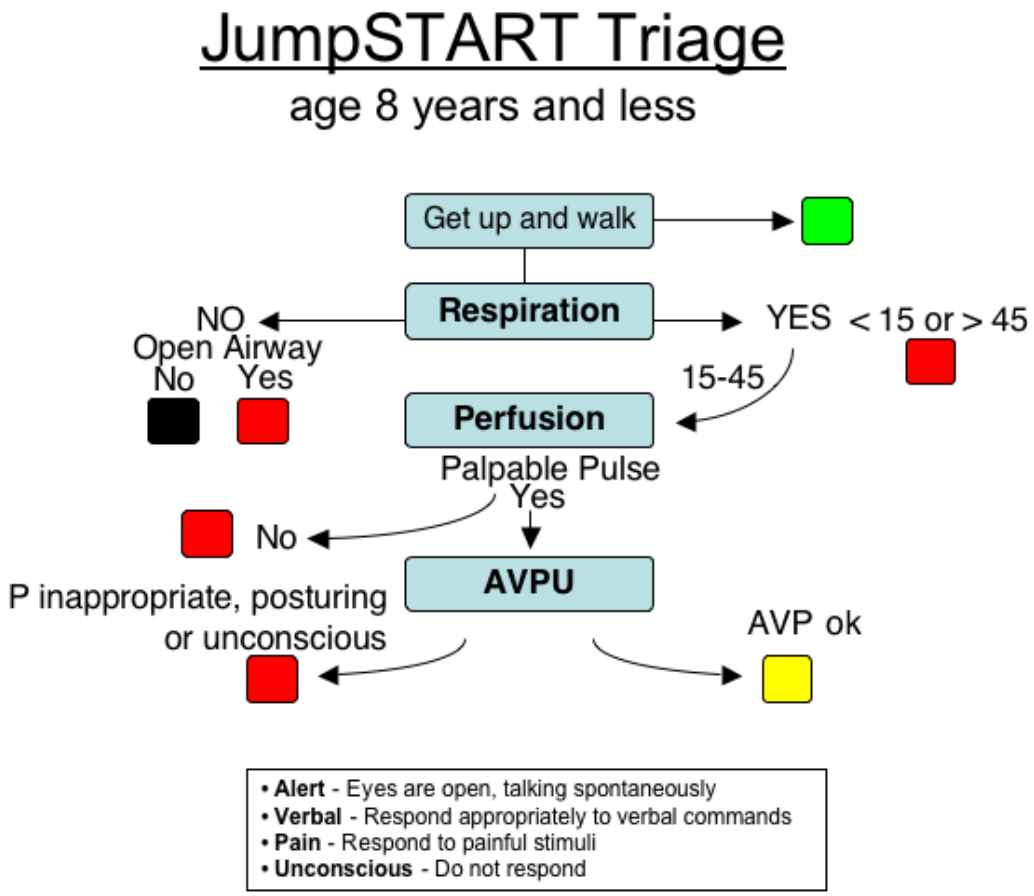
RESP.

A. START Triage

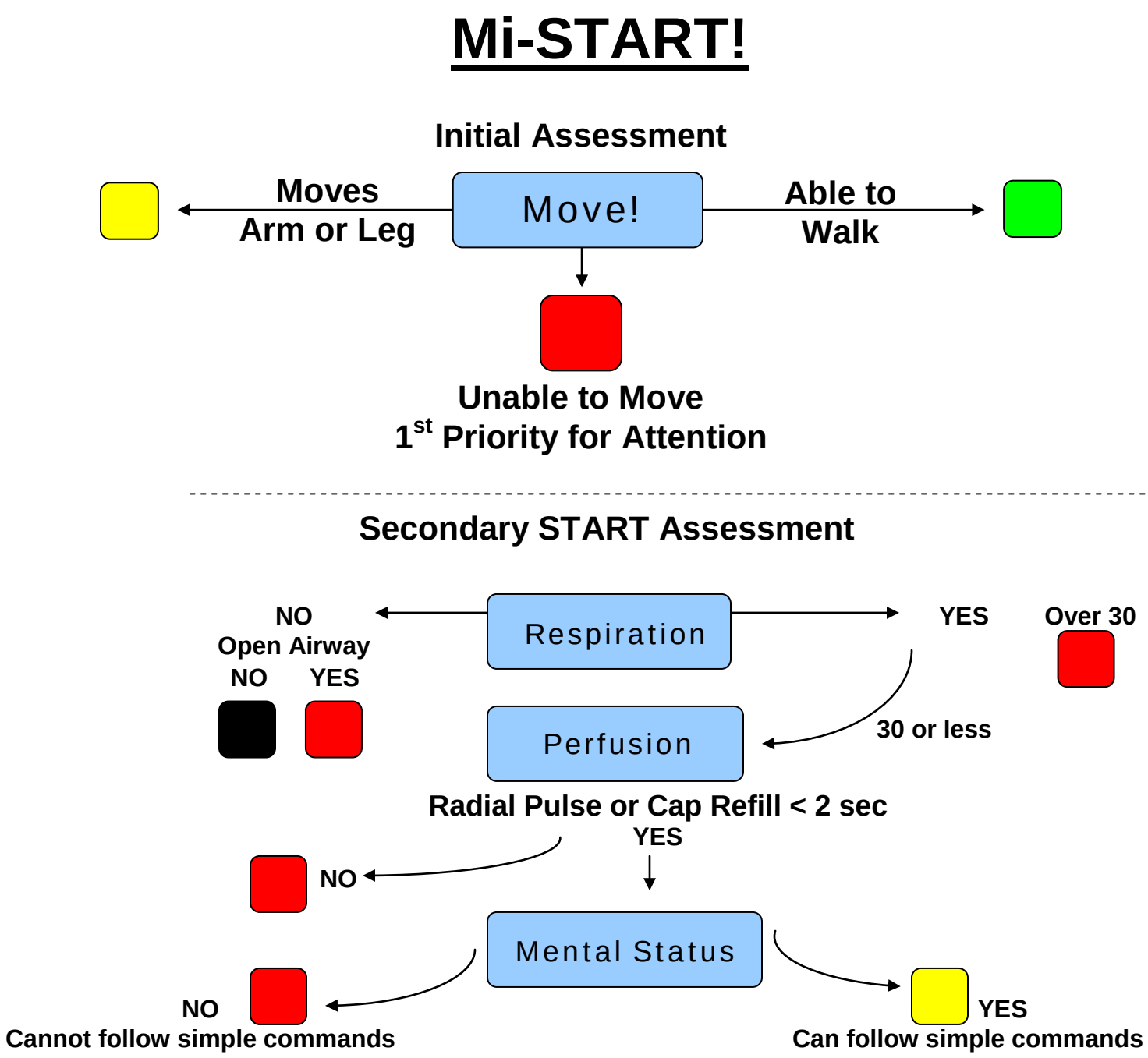


B. JumpSTART TRIAGE (for pediatrics)



C. For large scale disasters, consider Mi-START Triage

- Mi-START Triage



6. REGIONAL MEDICAL COORDINATION CENTER

The MCC serves as a regional multi-agency coordination center entity as defined by the National Incident Management System (NIMS). The MCC serves as a single regional point of contact for the coordination of healthcare resources. The MCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The MCC serves as a link to the Community Health Emergency Coordination Center (CHECC).

The MCC acts as an extension and agent of the Medical Control Authority.

A. MCC Responsibilities include, but are not limited to:

a. Maintain communications with all involved entities
   1. EMS Branch Directors
   2. EMS Division/Group Supervisors
   3. EMS Unit Leaders
   4. Hospitals
   5. Local EOCs (when activated)
   6. CHECC (when activated)
   7. MEMS sites (when activated)
   8. Other Regional MCCs (as appropriate)

b. Provide initial and update alerts via available communications resources.

c. Provide frequent updates to on-scene EMS Branch Directors/Group/ Supervisors (or designee) regarding hospital casualty care capacity.

d. May relay casualty transport information to receiving facilities.

e. May relay urgent and routine communications to appropriate entities.

f. May assist in coordination and distribution of resources.

g. Other appropriate tasks as necessary for an effective regional medical response.

7. REGIONAL MEDICAL COORDINATION CENTER IMMUNITY FROM LIABILITY

It is the intent of this protocol that the Medical Coordination Center and the personnel staffing the MCC and performing the functions are afforded immunity from liability whether or not a Mass Casualty Incident has occurred, as provided through MCL

333.20965 of Part 209 of PA 368 of 1978, as amended. This section specifically provides immunity from liability protection to Medical Control Authorities in the development and implementation of department-approved protocols (see language below):

333.20965 Immunity from liability.

Sec. 20965 (3) Unless an act or omission is the result of gross negligence or willful misconduct, the acts or omissions of any of the persons named below, while participating in the development of protocols under this part, implementation of protocols under this part, or holding a participant in the emergency medical services system accountable for department-approved protocols under this part, does not impose liability in the performance of those functions:

(a) The medical director and individuals serving on the governing board, advisory body, or committees of the medical control authority or employees of the medical control authority.

(b) A participating hospital or freestanding surgical outpatient facility in the medical control authority or an officer, member of the medical staff, or other employee of the hospital or freestanding surgical outpatient facility.

(c) A participating agency in the medical control authority or an officer, member of the medical staff, or other employee of the participating agency.

(d) A nonprofit corporation that performs the functions of a medical control authority.

STATE COMMUNITY HEALTH EMERGENCY COORDINATION CENTER

1. Operated by MDCH Office of Public Health Preparedness

2. EMS Personnel should be aware of the existence of CHECC but are not expected to directly interface with CHECC.

Appendix 1:

Definitions:

Incident Commander (IC): The IC is the individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. EMS will typically fall under the IC through a subordinate Branch, Division or Group.

Section Chief: A Section Chief may be assigned to Operations, Logistics, Planning, or Administration/Finance depending on the size of the incident. Not all incidents will require all 4 sections to be assigned.

Branch Director: A Branch Director may be assigned under the Operations Section Chief. Branch Directors are responsible for managing a specific discipline including Fire, EMS, Law Enforcement, Public Works, Public Health, etc.

Division Supervisor: A Division Supervisor is assigned to an area that is separated by a barrier. Examples of a Division would be a multi level structure, include separated by a river, etc. Numbers are primarily used to identify divisions.

Group Supervisor: A Group Supervisor functions within the Operation Section and is assigned to a specific group. Letters of the alphabet are primarily used to identify groups.

Unit Leaders: Units can be assigned to the Command and General Staff or within a Group or Division.

Medical Unit Officer: The Medical Unit Officer is the individual responsible for the management of incident responder medical treatment and rehab.

Safety Officer: The IC shall appoint a Safety Officer who will ensure safety of responders and victims during the incident operations. With the concept of Unified Incident Command there is valid reasoning to have Assistant Safety Officers to include all disciplines involved in the operation. The Safety Officer appointed by the IC shall have the authority designed within the Incident Command System with the input and advice of all Assistant Safety Officers.

Deputies: Deputies are used within the Command and General Staff or Sections of the ICS. A Deputy may be a higher-ranking responder that assists the IC or Section Chief however does not assume Command.

Coordinating Resource: the entity within the local EMS system responsible for the notification and coordination of the mass casualty response. Examples include: medcom, resource hospital, MCA, medical control, dispatch

Regional Medical Coordination Center: The MCC serves as a regional multi-agency coordination entity as defined by the National Incident Management System (NIMS). The MCC serves as a single regional point of contact for the coordination of healthcare resources. The MCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The MCC serves as a link to the State Health Operations Center (SHOC).

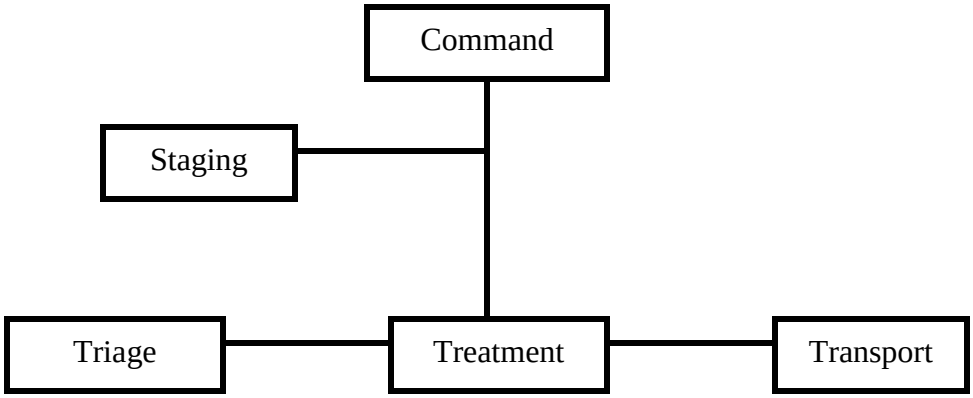
Community Health Emergency Coordination Center: The CHECC serves as a statewide multi-agency coordination entity as defined by NIMS. CHECC is intended to coordinate state-level healthcare and public health resources, to serve as a central point of contact for regional MCC's, and to serve as a resource to the State EOC. CHECC is expected to be activated following a major disaster or other public health emergency and should be operational within hours of activation.

Incident Command System: The ICS organizational structure develops in a top-down fashion that is based on the size and complexity of the incident, as well as the specific hazard environment created by the incident.

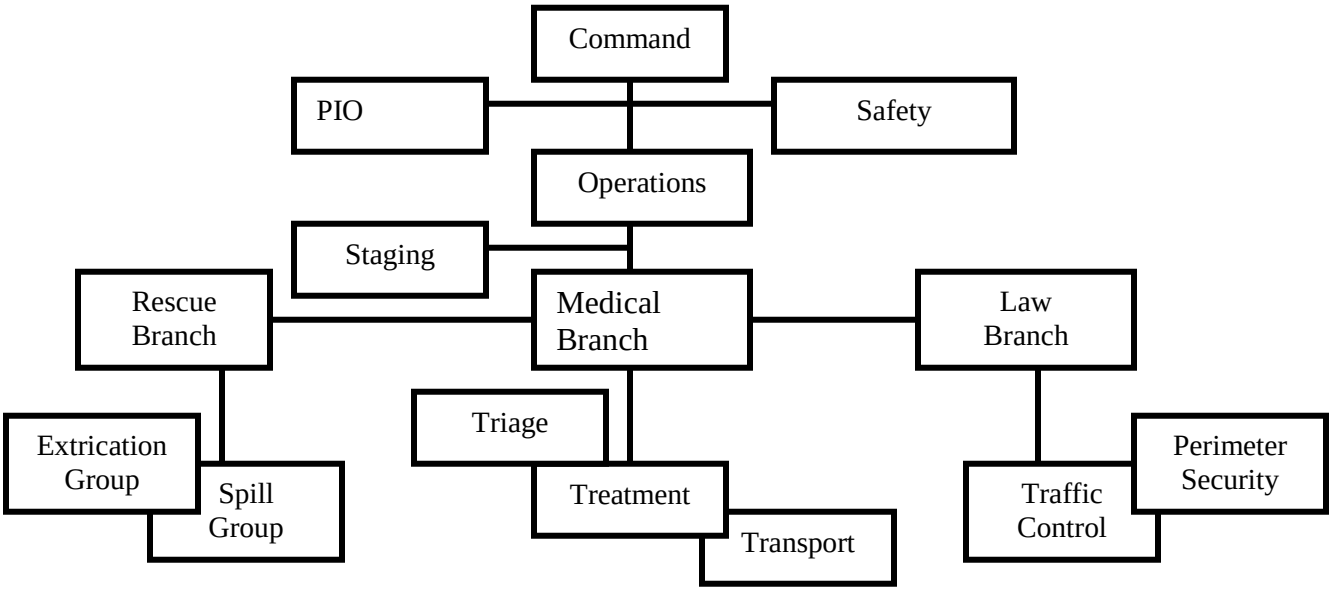
Unified Command: In incidents involving multiple jurisdictions, a single jurisdiction with multi-agency involvement, or multiple jurisdictions with multi-agency involvement, unified command can be implemented. Unified command allows agencies to work together effectively without affecting individual agency authority, responsibility, or accountability

Appendix 2:

Example organizational chart



Example command chart for complex incident



Medical Control Privileges

Purpose: To establish minimum requirements for licensees applying for and retaining medical privileges within the jurisdiction of this medical control.

1. Minimum Requirements: All Levels
   A. EMS personnel shall possess a valid State of Michigan license.
   B. EMS personnel shall possess a valid CPR card.

2. Additional Personnel Requirements: Emergency Medical Technician, EMT-Specialist, and Paramedics.
   A. In addition to requirements established above for all levels, EMT's shall successfully complete approved Medical Control requirements (i.e.: system orientation, protocol knowledge, clinical competency).

3. Minimum Life Support Agency Requirements
   A. Agencies shall possess a valid State of Michigan license.
   B. Agencies shall utilize a Medical Control approved patient care record.
   C. Agencies are responsible that their EMS personnel meet the requirements of this and other applicable protocols.
   D. Agencies must comply with protocols.
   E. Agencies must notify the medical control authority if they are unable to meet or comply with any protocol, statutory or regulatory requirement.
   F. Agencies must comply with the minimum staffing and equipment requirements as defined in P.A. 368 of 1978, as amended.

4. Optional Training Standards: mark and specify as applicable
   A. Basic Trauma Life Support
   B. Prehospital Trauma Life Support
   C. First Trauma Care
   D. Advanced Cardiac Life Support
   E. Pediatric Life Support
   F. Neonatal Life Support
   G. Pediatric Education for Prehospital Providers
   H. FEMA Terrorism Awareness/Self-Study
   I. MCA Clinical Competency, specify:_____
   J. _____
   K. _____
   L. _____
   M. _____

5. Scope of Privileges
   A. A licensee's scope of medical privileges shall be granted to the equivalent of those granted his/her employer agency operating within the jurisdiction of this medical control authority.

   B. In circumstances where a licensee is dually employed he/she may exercise privileges to the limit of his/her employer agency of the moment (i.e., a paramedic who is employed by an advanced life support agency and a medical first responder agency may only practice to the level of privileges granted to the agency on whose behalf he/she is acting).

Medical Priority Response & Transport

Purpose: To provide guidelines on the use of lights and sirens for EMS response and patient transportation.

1. Medical Priority Response
    A. Priority 1: Life threatening or potentially life threatening emergencies
        a. RESPONSE: Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene.
    B. Priority 2: *Unknown Emergency
        a. RESPONSE: Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene.
    C. Priority 3: Non-Life Threatening Emergency
        a. RESPONSE: Life support vehicles, in compliance with Michigan Motor Vehicle Code, responds with no lights and sirens to the scene
    D. *Priority 2: Response Alternatives (as determined by medical control):
        a. Emergency Vehicles, in compliance with Michigan Vehicle Code, respond with no lights and sirens to the scene **OR**
        b. Only the first responding life support vehicle, in compliance with Michigan Motor Vehicle Code, responds lights and sirens to the scene. All other life support vehicles respond with no lights and sirens to the scene unless upgraded.

2. Medical Priority Transport
    A. Priority 1: Imminent life threatening emergencies
        a. Examples include:
        b. Unsecured airway
        c. Ongoing severe respiratory distress
        d. Clinical signs of shock
        e. Deteriorating mental status
    B. TRANSPORT: Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens.
    C. Priority 2 and 3: No imminent threat to life
        a. Examples include:
            1. Chest pain
            2. Abdominal pain
            3. Extremity injuries
            4. Head injuries
            5. Spinal injuries
    D. TRANSPORT: Life support vehicles, in compliance with Michigan Motor Vehicle Code, transports with no lights and sirens.

Patient Prioritization

Purpose: To provide guidelines for prioritization of the patient's clinical status.

1. Priority 1
    A. Critically ill or injured patient with an immediate life-threatening condition.
    B. Examples include, but are not limited to:
        a. Unstable or deteriorating vital signs
        b. Compromised airway
        c. Severe respiratory distress/failure
        d. Cardiac arrest or post cardiac arrest
        e. GCS ≤ 10
        f. Significant blunt or penetrating trauma including but not limited to:
            1. Airway compromised
            2. Respiratory distress
            3. Signs of inadequate perfusion
        g. Actively seizing patient

2. Priority 2
    A. Seriously ill or injured patient without immediate life-threatening condition.
    B. Examples include, but are not limited to:
        a. GCS 11-14
        b. Medical conditions such as chest pain, stroke, respiratory distress without immediate threat to life.
        c. Altered level of consciousness, responding to verbal or painful stimuli
        d. Significant mechanism of injury in patient with stable vital signs

3. Priority 3
    A. Ill or injured patients not fitting the above two categories who require medical attention and do not have a life-threatening problems.

4. Dead on Scene
    A. Refer to **Dead on Scene Procedure.**

Pharmacy Drug Box & IV Kit Exchange

1. Pharmacies operated within the member hospitals of the medical control authority participate in the medication exchange system established by this protocol.

2. The pharmacy is responsible for ensuring that re-stocked EMS drug boxes and IV kits are available to EMS units who bring in a used box for replacement. The Administrative Rules of the Michigan Board of Pharmacy (R 338.486(4)(c) require that "The pharmacist shall routinely inspect these medications and, after use, shall verify the contents and replace the medications as necessary".

3. The pharmacy is responsible for providing a secure environment for restocked drug boxes and IV kits awaiting pickup by an EMS unit and used boxes brought back for restocking.

4. Upon receiving a used box from an EMS service, the pharmacy will check to assure that the box is properly sealed and contains documentation of medication use, signed by a physician for drug exchange, is in the box. The documentation will be checked, by the pharmacist, against the remaining contents of the box to assure accountability for all medications. The pharmacy will design a system whereby EMS units present appropriate documentation when replacing used IV kits.

5. The pharmacy will replace the used contents of the drug box and IV kits, and verify that all supplies and medications listed on the medical control authority drug box inventory form are present. The box will be sealed and secured.

6. The refilled drug box and IV kits will then be relabeled with a pharmacy label which contains, at a minimum:
    A. The hospital name
    B. The name or initials of the pharmacist checking the box
    C. The date the box was restocked and checked.
    D. The expiration date of the first drug to expire in the box (this date must be at least three months from the date the box is being restocked and checked).
    E. The tag number of the locks assigned to the box.

7. Drug box contents remain the property of the participating pharmacy. The box itself is owned by the entity (EMS or hospital) that purchased it and entered it into the system. The medical control authority will maintain a listing of the drug box numbers currently "in service", and will assign new drug box numbers, as needed.

8. The Director of Pharmacy at each participating hospital is responsible for assuring compliance with this policy.

Physician on Scene

Purpose: To provide a process for interaction between EMS personnel and physicians at the scene of a medical emergency.

1. Responsibility of Medical Control
   A. "When a life support agency is present at the scene of the emergency, authority for the management of an emergency patient in an emergency is vested in the physician responsible for medical control until that physician relinquishes management of the patient to a licensed physician at the scene of the emergency". MCL 333.20967

   B. The EMS provider is responsible for management of the patient and acts as the agent of the medical control physician.

2. Patient Management in the Presence of an On Scene Physician
   A. The EMS provider may accept assistance and/or advice of the on-scene physician provided they are consistent with medical control protocols. The assistance of an on-scene physician may be provided without accepting full responsibility for patient care, as long as there is ongoing communications and approval by the medical control physician. The medical control physician may relinquish control of the patient to the on-scene physician provided the on-scene physician agrees to accept full responsibility for the patient. Full responsibility includes accompanying the patient to the hospital and completing a patient care record. The EMS personnel should encourage the on-scene physician to communicate with the on-line medical control physician.

   B. The medical control physician may reassume responsibility of the patient at their discretion at any time.

Protocol Deviation

1. It is acknowledged that there are situations in which deviation from the protocols, policies and procedures may be needed in the interest of patient care.

    A. In those situations, EMS personnel should request permission for deviation from on-line medical direction whenever possible.

    B. Unavailability of on-line medical direction and the immediacy of patient care needs may, in very rare instances, prohibit such requests, but those situations should occur rarely.

2. All instances of protocol deviation must be documented in the EMS patient care record, noting the deviation which occurred and the reason for that deviation.

3. All deviations will be reviewed within the medical control quality improvement program.

Quality Improvement Program

Purpose: The purpose of the Medical Control Authority Quality Improvement Program is to provide the services in the Medical Control Authority area with a review process in which current protocols and their use can be monitored and upgraded; to provide a means of reviewing the standards of care in individual EMS services and the Medical Control Authority as a whole; to provide a means of documenting the need and/or desire for changes to the current protocols as written.

1. **Confidentiality Assurance**
   A. All information obtained for the purpose of Quality Review will be used solely to determine if the current protocols in the Medical Control Authority are being followed. Under no circumstances will patient names be disclosed during this review or in any reporting process related to this review. Data is protected under P.A. 270 of 1967, MCL 331.531 to 331.533.

   B. The names of the emergency care providers on specific runs are not to be used in the reporting process related to this review.

   C. In specific cases where the service care providers may require corrective actions, the emergency medical services personnel names may be given to the agency to address at the agency level.

2. **Professional Standards Review Organization**
   A. The Professional Standards Review Organization (PSRO) is a review entity that is provided information or data regarding the physical or psychological condition of a person, the necessity, appropriateness, or quality of health care rendered to a person, or the qualifications, competence, or performance of a health care provider. The PSRO is a committee established by the Medical Control Authority for the purpose of improving the quality of medical care.

   B. The Medical Control Authority shall determine the membership of the PSRO.

   C. All Quality Improvement activities shall be considered activities of the PSRO.

3. **Data Collection**
   A. Run Report Collection

   B. The Medical Control Authority is authorized to request copies of EMS runs within their service area. Copies of EMS runs will be provided to the

Medical Control Authority Professional Standards Review Organization on a monthly basis, and are to be received no later than the tenth of the following month.

C. Protocols and Current Revisions

D. All reviews will be based on those protocols that are currently approved and in place in the Medical Control Authority area. Revisions to these protocols will not be used until they are approved and distributed to all agencies.

4. Selection Process

A. Random Selection Per Agency

B. All services will have a minimum of twenty percent of their run sheets reviewed. Services who have less than ten runs per month will have ALL runs sheets reviewed. Large volume services will be reviewed on a percentage-based selection, and an attempt will be made to review at least one run by each emergency care provider from those services, if possible.

C. Mandatory Reports
   a. All runs involving cardiac arrests will be reviewed. Runs from all services involved will be reviewed.
   b. All runs requested specifically by the Medical Control physicians and/or nursing staff will be reviewed.
   c. All runs involving a Multi-Casualty Incident (MCI) will be reviewed.

D. Special Studies
   d. All runs that include the use of equipment, skills, techniques or procedures that are currently under special study will be reviewed.

E. Unusual Occurrences
   e. Any runs that are unusual and possibly one-time situations that may serve as a learning tool for other services in the future may be reviewed.

F. Nomination-Based Review by Hospital Providers
   f. Medical Control physicians may request, at any time, that a specific run be reviewed. Nursing staff in the receiving hospital may also request, through the Medical Control Authority, that a run be reviewed. EMS agencies may also request that a run be reviewed based on their knowledge of the care provided.

G. Multi-Agency/Intercepts/Mutual Aid
    g. Runs that involve more than one agency (i.e., intercepts) will be reviewed following BOTH services runs sheets. Runs by agencies responding out of their normal coverage area will also be reviewed.

H. Problem Identification
    h. Potential problems in patient care may be brought to the attention of the PSRO.
    i. Topic quality improvement reviews will be performed with results reported to the Medical Control Authority.

5. Quality Review Criteria

A. Medical Control Authority Protocols
    a. The current protocols in place will be used to review the runs sheets selected. Any changes in protocols will not be put in to the review process until the charges are approved and distributed.

B. Documentation
    a. All EMS runs in the Medical Control Authority area are required to be documented by the emergency care provider. As always, documentation must be thorough and provide a detailed description of all care provided to the patient, as well as documenting communication with Central Dispatch and Medical Control.

C. Dispatch Policies
    a. The review of the run reports will also address any dispatch, location, response time, or mutual aid/multi-agency problems.

6. Quality Improvement Actions

A. The PSRO or the Medical Director will determine the severity of the incident and develop an action plan to address the matter. The action plan may include:
    a. Revision of policies/procedures
    b. Remediation of individuals involved
    c. Education recommendations for the system
    d. Referral to Due Process and Disciplinary Procedures Protocol
    e. Modification of clinical privileges
    f. Continued monitoring

7. Reporting

A. Agencies may receive a copy of the system-wide report on request. They may also receive copies of their service's individual run-sheet findings on request.

B. Runs reviewed to address a "Nomination" and/or "Concern" from a Medical Control physician will be responded to in writing by the PSRO.

C. An annual report will be compiled and distributed to the Medical Control Authority and to all EMS agencies. This report will be a compilation of all findings noted in the monthly reviews throughout the reporting year.

Responsibilities of the Participants in the Medical Control Authority System

Purpose: This protocol defines the responsibilities of each administrative segment of the Medical Control Authority system. These segments include the Medical Control Authority itself, the hospitals providing on-line medical direction, and the EMS agencies providing direct EMS services to the public.

1. **Responsibilities of the Medical Control Authority**
   - A. The Medical Control Authority is responsible for providing medical oversight for EMS. Hospitals are responsible for administering the Medical Control Authority.
   - B. The Medical Control Authority will issue protocols, as defined by Part 209 of P.A. 368 of 1978, as amended, that are up-to-date, reflect current medical practice, and address issues as necessary to assure quality pre-hospital patient care.
   - C. In cooperation with the EMS agencies, the Medical Control Authority will coordinate training to implement protocols if not included in routine EMS education.
   - D. The Medical Control Authority will establish a Professional Standards Review Organization (PSRO).
     - a. PSRO will implement a system wide Continuous Quality Improvement program and may offer continuous quality improvement efforts.
     - b. PSRO will provide an impartial, fair and medically appropriate peer review process to review complaints against EMS providers.

2. **Responsibilities of Participating Hospitals Providing "On-Line" Medical Direction**
   - A. A hospital within the Medical Control Authority system providing "on-line" medical direction to EMS providers will assure that any physician designee providing such direction is properly trained and qualified and abide by Medical Control Authority protocols.
   - B. Each hospital providing "on-line" medical direction will encourage the participation of a representative of its Emergency Department physician staff with the Medical Control Authority.
   - C. Hospitals will promptly inform their Emergency Department physicians and staff of Medical Control Authority policy and protocol changes.

3. **Responsibilities of EMS Agencies**
   - A. Agencies will operate under the Medical Control Authority and comply with department-approved protocols.
   - B. Only persons currently authorized to do so by the Medical Control Authority will provide pre-hospital patient care. Each EMS agency will assure that

their personnel have current training and certifications as required by protocol.

C. The Medical Control Authority will be immediately notified if an EMS agency is unable to provide staffing at the level required by its State license.
D. Licensed EMS vehicles will be equipped with all Medical Control Authority required equipment, if applicable, in addition to that equipment required by the State of Michigan.
E. EMS agencies will promptly inform their EMS personnel of Medical Control Authority policy and protocol changes.
F. EMS agencies will provide an annual listing of EMS personnel upon request of the Medical Control Authority. This listing shall note the license and Medical Control Authority authorization status of each individual.
G. If an employee of an EMS agency is found to be in violation of a Medical Control Authority protocol, the EMS agency will cooperate with the Medical Control Authority in addressing the violation and taking corrective measures.

4. <u>Accountability</u>

A. The State of Michigan, Department of Consumer and Industry Services, EMS Section, designated the Medical Control Authority for a specific region. As such, the Medical Control Authority is accountable to that agency in the performance of its duties.
B. The hospitals within the Medical Control Authority system collectively administer this Medical Control Authority. Each individual hospital is accountable to the Medical Control Authority to meet the responsibilities listed above. Failure to meet those responsibilities may result in a termination of the ability of a hospital to provide "on-line" medical direction.
C. EMS agencies within the Medical Control Authority system are accountable to the Medical Control Authority, as detailed and defined in protocol. Failure to comply with approved protocols may result in sanctions against that EMS agency.

Violent/Chemical/Hazardous Scene

Purpose: To ensure safety of EMS personnel when faced with known or potentially violent/hazardous situations.

Note: This policy applies to any situation, which may expose EMS personnel to known or potentially violent (e.g., shooting, stabbing, assault, other violent crimes) or other known or potentially hazardous (e.g., hazardous material, chemical, biological) situations.

The medical component of the response to a violent or hazardous incident will operate under the Incident Command System.

1. Procedure
    A. Upon notification of a known or potentially violent situation, the EMS personnel will determine through dispatch, the nature and location of incident and:
        a. Violent Situations
            1. Is assailant/weapon present?
            2. Assure law enforcement notification?
            3. Is scene secure?
        b. Hazardous materials situation
            1. Is scene secure?
            2. Nature and identification of material?
            3. Assure FD/Hazmat Team notification?

NOTE: The above information should be communicated to responding crews.

2. In any situation in which the scene is not secured, EMS personnel ARE NOT TO ENTER THE SCENE until it has been secured by the appropriate agency.
    A. When responding to an unsecured scene, EMS personnel will stage an appropriate distance away from the scene to protect themselves from danger.

3. Once on the scene, if the situation changes posing an immediate life or limb threat to EMS personnel:
    A. Attempt to safely exit scene.
        a. Exit scene with patient, if possible.
        b. Medical treatment protocols may be limited or deferred to assure safety of EMS personnel and/or patient.
    B. Notify the dispatcher of the assistance needed.
    C. Provide any additional information available – e.g., number of assailants, weapons present/involved, any additional information.

4. **Special Considerations:** For those patients, who have been contaminated in a hazardous material incident, refer to **Contaminated Patient Procedure**.

Waiver of EMS Patient Side Communication Capabilities Medical Control Check List

The State of Michigan requires advanced life support (ALS) units to have the capability of communicating by radio with medical control when away from the ALS vehicle at the patient's side. This requirement may be waived when State-approved protocols permit certain time-dependent medical interventions to be performed without the need to obtain on-line permission from medical control. These interventions are listed below. The EMS Medical Director must indicate that local state approved protocols permit these interventions to be performed without online medical control authorization. Alternatively, the EMS Medical Director may indicate these interventions may be performed without on-line medical control authorization under a "Failure of Medical Control Communications" (or similar) State-approved protocol.

Minimum Required Off-Line ALS Interventions

1. Airway
    A. Endotracheal Intubation, Oral
    B. Endotracheal Intubation, Nasal
    C. Laryngoscopy for Foreign Body Removal
    D. Crichothryotomy (or alternative procedure) for complete airway obstruction, if permitted by protocol

2. Breathing
    A. Thoracostomy, Needle (for suspected tension pneumothorax), if permitted by protocol

3. Circulation
    A. Defibrillation
    B. Cardioversion, Syncronized (for unstable tachy dysrhythmias)
    C. Transcutaneous Cardiac Pacemaker Use
    D. Intravenous / Intraosseous Access
    E. IV/IO Fluid Replacement (fluid challenge)

4. Medication Administration
    A. All medications included in cardiac arrest protocols
    B. Albuterol [or other approved nebulized bronchodilator] (for asthma / COPD)
    C. Aspirin (for chest pain of possible cardiac origin)
    D. Atropine (for symptomatic bradycardias)
    E. Dextrose 50% [D25 for Peds] (for hypoglycemia)
    F. Diphenhydramine (for anaphylactic shock)
    G. Epinephrine 1:1000 (for anaphylactic shock)
    H. Lidocaine [or other approved anti-dysrhythmic] (for ventricular tachycardia)
    I. Midazolam [or other benzodiazepam] (for seizures / procedural sedation)
    J. Morphine [or other approved analgesic] (for pain control)Nitroglycerine (for pulmonary edema/CHF and chest pain of suspected cardiac origin)

MEDICAL DIRECTOR DECLARATION

As Medical Director for _____ Medical Control Authority, I hereby stipulate that all of the ALS interventions listed above are permitted to be performed by paramedics without on-line medical control authorization as defined by State-approved protocols.

_____	_____	_____
Name of Medical Director	Signature of Medical Director	Date

ALTERNATE MEDICAL DIRECTOR DECLARATION

As Medical Director for Lenawee County Medical Control Authority, I hereby stipulate that all of the ALS interventions listed above are permitted to be performed by paramedics without on-line medical control authorization in the event of a communications failure under the appropriate State-approved protocol. Furthermore, I recognize that situations in which paramedics are at the side of the patient and do not have timely direct (on-line) medical control communications constitutes such a failure and that the above interventions may be performed. ALS personnel have been so advised.

Dr. Ronald Dicecco	_____	_____
Name of Medical Director	Signature of Medical Director	Date

TABLE OF CONTENTS

Chemical Exposure

Purpose: To provide specific criteria for the treatment of chemical exposure of patients.

Note: This protocol may be used in conjunction with the General CBRNE/Identification of Agent Protocol.

Assessment/Management – Chemical Agents

MFR/EMT/SPECIALIST/PARAMEDIC
If there is a confirmation of, or symptoms indicative of, a chemical incident, utilize appropriate PPE as outlined in the General CBRNE Protocol.

1. **Nerve Agents & Cyanide Compounds – refer to appropriate protocol**
2. **Choking Agents**
    A. Phosgene, Chlorine, Chloropicrin
    B. Routes: Inhalation
    C. Signs and symptoms:
    D. Cough, dyspnea, irritation of mucous membranes, pulmonary edema
    E. Patients should be immediately removed from the area to a clean atmosphere.
3. **Treatment**
    A. Respiratory chemical PPE
    B. Assist ventilations, as necessary
    C. 100% Oxygen
    D. Symptomatic treatment per protocol
    E. Eye irrigation
        a. Remove contact lenses
        b. Flush with 1000cc of NS each eye
        c. Flush from nose-side outward

PARAMEDIC

        d. If available, use Tetracaine hydrochloride 1-2 drops in each eye.
        e. Ensure that patient does not rub eyes after administration of Tetracaine as injury may result.
        f. For severe exposure consider early intubation and aggressive ventilatory support. (Evidence of non-cardiogenic pulmonary edema)
            - Albuterol 2.5mg via nebulizer or 2-3 puffs from metered dose inhaler, if wheezing (May repeat x 1).
4. **Vesicant Agents (Blister agents)**

MFR/EMT/SPECIALIST/PARAMEDIC

    A. **Examples**: Sulfur Mustard (HD), Nitrogen Mustard (HN), Lewisite, Phosgene Oxime (CX) Vesicant agents are named for their tendency to cause blisters.

B. **Decontamination:** Patients suspected to be contaminated should be decontaminated by removing clothing and using soap (if available) and water. Medical providers will require the proper protective equipment as determined by unified command, for patient management. Decontaminate by blotting and cleansing with soap (if available) and water. Avoid scrubbing and the use of hot water.

Note: Latex and rubber will absorb Mustard. Remember that time is critical for effective mustard decontamination because blister agents become "fixed" to tissue components within two minutes after deposition.

5. **Management/Treatment**
   A. Immediate attention should be directed toward assisted ventilation, administration of 100 % oxygen, insertion of intravenous lines and institution of cardiac monitoring, if available.
      - Symptomatic treatment per protocol.
6. **Lacrimator Agents (Tear Gas)**
   A. **Information:** Lacrimator (tearing) agents are widely used by law enforcement, the military, and widely available to the public.
   B. **Signs and Symptoms**: The most common effects are nasal and ocular discharges, photophobia, and burning sensations in the mucous membranes.
   C. **Decontamination:** Patients suspected to be contaminated should be decontaminated with soap and water. Medical providers require protective masks and clothing for patient management since lacrimator agents are transmitted by physical contact. Decontaminate by blotting and cleansing with soap and water.
   D. **Treatment**
      a. High flow oxygen for all symptomatic patients.
      b. Symptomatic treatment per protocol (no specific antidote).
      c. Eye irrigation
         - Remove contact lenses
         - Flush with 1000cc of NS each eye
         - Flush from nose-side outward
         - If available, use Tetracaine hydrochloride 1-2 drops in each eye.
         - Ensure that patient does not rub eyes after administration of Tetracaine as injury may result.

CHEMPACK

Purpose: The CHEMPACK Project provided the State of Michigan, in collaboration with the Center for Disease Control (CDC) and the U.S. Department of Homeland Security, with a sustainable, supplemental source of pre-positioned nerve agent/organophosphate antidotes and associated pharmaceuticals that will be readily available for use when local supplies become depleted. A large-scale event would rapidly overwhelm both the pre-hospital and hospital healthcare systems.

The CHEMPACK project is one component of the Michigan Emergency Preparedness Pharmaceutical Plan (MEPPP), a comprehensive statewide plan for coordinating timely application of pharmaceutical resources in the event of an act of terrorism or large-scale technological emergency/disaster.

ACTIVATION

1. EMS Identifies a need for Nerve Agent (NA) antidote support.
    A. Notify Central Dispatch (911) or the Medical Control Authority/hospital (MCA) and provide the Essential Elements of Information (EEI).

    B. Central Dispatch or MCA/Hospital
        a. Submits EEI Report to the MEDDRUN/CHEMPACK Communications Agency.
            1. *Primary: SURVIVAL FLIGHT: 877-633-7786 (877 MEDSRUN)*
            2. *Secondary: Aero Med: 616-391-5330*
        b. Informs Emergency Management that Nerve Agent Antidote Supplies have been requested.

    C. CHEMPACK Communications Agency:
        a. Conducts analysis & issues deployment orders to selected CHEMPACK storage sight, (CSS) Point of Contact (POC).
        b. Contacts the state agency (OPHP) Point of Contact: *BEEPER: 517-232-7297*

    D. CHEMPACK Storage site notifies the transport unit and moves cache to designated loading area.
        a. If confirmed, the Agency loads CHEMPACK supplies onto transport.
        b. If deployed, MA Dispatch notifies the MCA regarding dispatching transport vehicle.

RESPONSIBILITIES

1. OPHP/POC follow-up will include:
    A. Contacting the requesting agency to authenticate the request.
    B. Contacting CHEMPACK Communications Agency to provide confirmation or initiate recall. If confirmed, advise if Alert Orders should be initiated.
    C. Contacts Michigan State Police (MSP) East Lansing Operations Center (ELOP)
    D. Coordinates potential Inter-Hospital Formulary Distribution.
    E. Coordinates a MI-HAN Alert.

2. CHEMPACK Communications:
    A. Provides Certificate Order/Recall Order.
    B. Notifies CHEMPACK storage site Point of Contact of either a Certification Order or Recall Order.
    C. If OPHP issues an alert, MEDDRUN/CHEMPACK Communications Agency issues an Alert Order to appropriate CHEMPACK storage site(s) for possible deployment.

3. CHEMMPACK Storage Site:
    A. Once confirmed, the Agency loads the CHEMPACK Supplies into the transportation vehicle and transports to the specific location.

4. Designated Transportation Agency:
    A. Ensure adequate security of the cache materials while being transported to the delivery point.
    B. Maintain communications with the ChemPack Storage site's Point of Contact while en route to the delivery point, providing periodic updates regarding present location/circumstances that may impact time of delivery.
    C. Follow the routes specified by the CSS POC and advise upon arrival to the delivery point.

DELIVERY OF CACHE

1. When the cache arrives at the delivery point the Incident Command (IC) will take receipt of the cache as the person in charge by completing the Transfer of Custody form that will accompany the cache. The IC will ensure accurate accounting of the antidote supplies in coordination with the senior medical/EMT at the scene.
    A. If additional antidotes are required the IC will Inform Central Diapatch/911.
    B. If it appears that the amount of antidote needed will be less than anticipated, the transport vehicle will remain in the area to take custody of the unused antidotes to return them to the CSS POC.
    C. Advise the CSS POC when the mission is completed.

Essential Elements of Information (EEI) Report

To Request CHEMPACK Deployments

Essential Elements of Information Report	
1. Name, Position, and Contact Information for the Individual Requesting Deployment of the CHEMPACK Cache?	Name: _____ Position/Title:_____ Telephone/Other: _____ _____
2. Name of Physician / Officer in Charge of Medical Management at the Scene (if different from "1." above.)	Name: _____ Position/Title: _____ Employer: _____ Telephone/Other: _____
3. Location of Incident	Jurisdiction Name _____ Closest Intersection _____ (or) Name of Site _____
4. Estimated Number of Casualties	None 5-10 100-300 1 10-20 300-500 2-3 20-40 500-1000 4-5 40-100 1000+
5. Symptoms of Casualties	Pin Pointed Pupils Twitching Dimness of Vision Seizures Slurred Speech Chest Tightness Difficulty in Breathing Unconsciousness
6. Local Supplies of Antidotes and Pharmaceuticals are Exhausted, multiple lives remain at risk, and CHEMPACK supplies are needed to save lives?	Yes _____ No _____

Cyanide Exposure
Supplement Protocol for use of Cyanokit® (Hydroxocobalamin)

NOTE: This protocol is a supplement to the Michigan CBRNE Protocol for Cyanide Exposure and is intended exclusively for use by Paramedics. The Cyanide Exposure Protocol should be followed. This protocol provides direction for use of Cyanokit® (hydroxocobalamin), when available, as an alternative antidote to sodium nitrite and sodium thiosulfate.

Indications:
The Cyanokit® is indicated for the treatment of known or suspected cyanide poisoning. If clinical suspicion of cyanide poisoning is high, Cyanokit® should be administered without delay. Note, patients experiencing serious symptoms from smoke inhalation, particularly when in a confined space exposure (inside a house fire,) frequently have cyanide exposure with or without carbon monoxide exposure and should be considered for the Cyanokit®.

PARAMEDIC

1. Continue all non-pharmacologic treatment called for under the **Cyanide Exposure Protocol**.
2. Cyanokit®: If available and cyanide exposure confirmed **OR SUSPECTED** and with medical control order* for critical patients:
   A. The Cyanokit® is packaged in two ways:
      a. A **two vial kit** with 2.5g of hydroxocobalamin each in powder form which must be reconstituted with 100mL of normal saline each, rotated or tipped for 30 seconds each (not shaken) and then administered through its own IV line (not used with any other medications) over 7.5 minutes each.
      b. A **one vial kit** with 5g of hydroxocobalamin powder which must be reconstituted with 200mL of normal saline, be rotated or tipped for 60 seconds (not shaken) and administered through its own IV line (not used with any other medication) over 15 minutes.
   B. The starting dose of hydroxocobalamin for adults is 5g (i.e., two 2.5g vials OR one 5g vial) administered as an intravenous (IV) infusion over 15 minutes. See charts below for pediatric dosing.

Two Vial Kit (2.5g/100mL):

AGE GROUP	AMOUNT	DOSAGE
Infant/Toddler (0-2 years)	¼ bottle	0.625g
Preschool (3-5 years)	½ bottle	1.25g
Grade School (6-13 years)	1 bottle	2.5g
Adult ≥ 14 years	2 bottles (entire kit)	5g

One Vial Kit (5g/200mL):

AGE GROUP	AMOUNT	DOSAGE
Infant/Toddler (0-2 years)	⅛ bottle	0.625g
Preschool (3-5 years)	¼ bottle	1.25g
Grade School (6-13 years)	½ bottle	2.5g
Adult ≥ 14 years	1 bottle (entire kit)	5g

C. Each vial of hydroxocobalamin for injection is to be reconstituted with diluent (not provided with Cyanokit®) using the supplied sterile transfer spike.
    a. The recommended diluent is 0.9% Sodium Chloride injection (0.9% NaCl).
        i. Alternate solutions for dilution if NaCl not available:
            1. Lactated Ringers injection
            2. 5% Dextrose injection (D5W)
    b. The line on each vial label represents the volume of diluent. Following the addition of diluent to the lyophilized powder, each vial should be repeatedly inverted or rocked, not shaken, for at least 30 seconds for the 2.5g bottles prior to infusion, 60 seconds for the 5g bottles.
    c. Hydroxocobalamin solutions should be visually inspected for particulate matter and color prior to administration.
        i. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should **not be administered to the patient** and should be discarded.
D. There are a number of drugs and blood products that are incompatible with Cyanokit®, thus Cyanokit® requires a separate intravenous line for administration.
E. Depending upon the severity of the poisoning and the clinical response, a second dose of 5g may be administered by IV infusion for a total dose of 10g in adults. The rate of infusion for the second dose may range from 15 minutes (for patients in extremis) to two hours, as clinically indicated. Contact medical control for second dose instructions for pediatric patients.
F. Contraindications: None

SPECIAL CONSIDERATION FOR SMOKE INHALATION:

Many, but not all, smoke inhalation victims will have cyanide poisoning and may present with burns, trauma, and exposure to other toxic substances making a diagnosis of cyanide poisoning particularly difficult. Prior to administration of Cyanokit®, smoke inhalation victims should be assessed for the following:

- Exposure to fire or smoke in an enclosed area
- Presence of soot around the mouth, nose or oropharynx
- Altered mental status

The Cyanokit® should be considered for all serious smoke inhalation victims (including cardiac arrest).

*NOTE: A single medical control order in a mass casualty incident may be applied to all symptomatic patients.

This medication is not required to be carried on EMS vehicles and may be available through special response units.

Cyanide Exposure

Purpose: This Protocol is intended for EMS personnel at all levels to assess and treat patients exposed to cyanide. The protocol includes the use of inhaled amyl nitrite by trained personnel who are authorized by their local medical control authority. Additionally, the protocol allows trained and authorized paramedics to administer sodium nitrite and sodium thiosulfate when these medications are available.

MFR/EMT/SPECIALIST/PARAMEDIC

Chemical Agents

1. Agents of Concern Include: Cyanide
    A. Hydrogen Cyanide
    B. Potassium / Sodium Cyanide
    C. Cyanogen Chloride
2. Detection: The presence of these agents can be detected through specialized environmental monitoring equipment available to hazardous materials response teams.
3. Modes of Exposure
    A. Inhalation (including smoke inhalation)
    B. Ingestion
    C. Skin absorption unlikely

Assessment

1. Shortness of breath
    A. Possibly accompanied by chest pain
    B. Generally not associated with cyanosis (blue skin membranes)
    C. Pulse oximetry levels usually normal
    D. Usually associated with increased respiratory rate and depth
    E. Potential for rapid respiratory arrest
        a. Confusion, decreased level of consciousness, coma
        b. Seizures
        c. Headache, dizziness, vertigo (sense of things spinning)
        d. Pupils dilate (late)

Personal Protection

1. Be Alert for secondary device in potential terrorist incident
2. Personal Protective Equipment (PPE) as directed by Incident Commander.
3. Assure EMS personnel are operating outside of Hot Zone
4. Avoid contact with vomit if ingestion suspected – off gassing possible
5. Decontamination of victims usually not indicated unless additional unknown chemical(s) suspected

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Patient Management (After Evacuation)

1. Evaluate and maintain the airway, provide oxygenation and support ventilation as needed
2. Note: Patients in respiratory arrest (i.e., not breathing but still having a pulse) have been found to respond to antidote therapy and should receive positive pressure ventilation when operationally feasible.

3. This in contrast to most triage systems that would categorize non-breathing patients as non-survivable.
4. Contact Medical Control
5. Amyl Nitrite Per Amyl Nitrite Procedure*
    A. Requires symptomatic patient(s) *and*
    B. Positive evidence of cyanide exposure through environmental monitoring or credible operational intelligence.

EMT/SPECIALIST/PARAMEDIC

6. Alert receiving hospital ASAP to prepare additional antidotes

SPECIALIST/PARAMEDIC

7. Establish vascular access

PARAMEDIC

8. Cardiac monitoring
9. Sodium Nitrite 10 ml (300 mg) IV over 5 minutes if available and cyanide exposure confirmed and with medical control order* for critical patients
    A. For pediatric patients: 0,15 ml/kg IV over >5 minutes
    B. Monitor BP carefully and slow administration for hypotension
    C. Sodium Thiosulfate: 50 ml (12.5 g) IV over 10 minutes if available and cyanide exposure confirmed and with medical control order* for critical patients
        a. For pediatric patients: 1.65 ml/kg (12.5 g/50 ml solution) IV over 10 minutes
        b. Generally administered after sodium nitrite
        c. If cyanide exposure not confirmed, may receive order for Sodium Thiosulfate with Sodium Nitrite.

*NOTE: A single medical control order in a mass casualty incident may be applied to all symptomatic patients.

These medications are not required to be carried on EMS vehicles and may be available through special response units.

General CBRNE Identification of Agents

Purpose: This is written to provide general pre-arrival information for suspected HAZMAT and CBRNE (chemical, biological, radiological, nuclear, and explosive) incidents.

NOTE: This information is designed to augment other established protocols.

MFR/EMT/SPECIALIST/PARAMEDIC
First Responder/ EMS Issues

1. **Chemical agents** pose a threat during every phase of their existence: production, packaging, storage and delivery to the intended target. Many common hazardous materials used in industry pose the same threat to emergency responders as the chemicals classified as nerve, blister, blood, and choking agents.
2. **Biological threats** may be intentional or natural. Either may affect large segments of the population and will not necessarily present immediately.
3. **Radiological threats** affecting a significant portion of the population will most likely be associated with the explosion of a nuclear device or with the intentional release of radioactive material, including associated with an explosion as in a "dirty bomb".
4. **Nuclear threats** may be intentional or accidental. Either may affect large segments of the population. Immediate threat is results of explosion followed by devastation of radioactive isotopes.
5. **Explosive threats** may be intentional or accidental. Either may affect large segments of the population and will present immediately. Those not affected by initial device may risk threat from agents released. Awareness should be heightened for secondary incendiary devices in the event of an intentional explosive.

Signs and Symptoms of Attack

1. Unlike an attack with explosives, the fact that a terrorist has attacked with a chemical or biological agent may not always be obvious at first.
2. Many of the early signs and symptoms produced by chemical warfare agents may resemble those of a variety of disorders, including stress, psychological withdrawal, palpitations, gastrointestinal distress, headaches, dizziness, and inattentiveness.
3. The patient's clinical presentation will offer clues about the type of toxic substance used.
    A. **CHEMICAL INCIDENT** (HAZMAT or CBRNE)
        a. Responders should be alert for the following signs that a chemical agent may have been dispersed:
        b. Explosions that dispense liquids, vapors or gases
        c. Explosions that seem only to destroy a package or bomb device
        d. Unscheduled and unusual spray being disseminated
        e. Abandoned spray devices
        f. Numerous dead animals, fish and birds
        g. Lack of insect life
        h. Mass casualties without obvious trauma
        i. Definite pattern of casualties and common symptoms
        j. Civilian panic in potential target areas (government buildings, public assemblies, etc.)

k. Any clustering of symptoms or unusual age distribution (e.g., chemical exposure in children).

B. **BIOLOGICAL INCIDENT** (Natural or CBRNE)
   a. Responders should be alert for the following signs that a biological agent may have been dispersed:
   b. An unusual increase in the number of individuals seeking care, especially with similar symptoms such as respiratory, neurological, gastrointestinal or dermatological symptoms.
   c. Any clustering of patients in time or location (e.g., persons who attended the same public event).

C. **RADIOLOGICAL INCIDENT** (CBRNE)
   a. Notification of the detonation of a nuclear device.
   b. Dirty bomb

D. **NUCLEAR INCIDENT** (Natural or CBRNE)
   a. Explosion with mushroom cloud and devastation of a large geographical area (atypically large for an incendiary device)

E. **EXPLOSIVE INCIDENT** (Natural or CBRNE)
   a. Responders should be aware of the possibility of secondary incendiary devices and release of a threatening agent.
   b. Obvious trauma
   c. Panic in potential target areas.

MEDICAL RESPONSE

1. First responding units must approach with caution.
2. Approach upwind, uphill and upstream, as appropriate.
3. Utilize resource materials such as the Emergency Response Guidebook or Emergency Care for Hazardous Materials Exposure.
4. Utilize appropriate PPE.
5. Be aware of contaminated terrain and contaminated objects.
6. Hazmat response protocols must be initiated, as well as unified incident command.
7. Maintain a safe distance.
8. Attempt to identify the nature of the exposure by looking for placards, mode of dispersal (vehicle explosion, bomb, aerosolized gas, etc.)
9. Victims and potential victims must be evacuated rapidly from the contaminated area and decontaminated as quickly as possible, if appropriate. In certain situations, treatment may be initiated within the hot and/or warm zones of an incident by properly trained, protected and equipped personnel.
10. Be alert for secondary devices.

Select Agents of Terrorism

1. **Chemical Agents**
   A. A chemical agent may be defined as a compound that, through its chemical properties, produces lethal or damaging effects in humans, animals, plants or materials. Chemical agents are usually man-made through the use of industrial chemical processes.
      a. Chemical agents are classified by their effects:
   B. **Lethal agents** are designed to kill, and are broken down into two subcategories:

a. Nerve agents
    1. Nerve agents, the most deadly of all chemical agents, disrupt nerve transmission within organs and are quickly fatal in cases of severe exposure.
b. Blood agents
    1. Blood agents (cyanides) interfere with the blood's ability to transport oxygen throughout the body; often rapidly fatal.

C. **Blister agents,** or vesicants, cause a blistering of the skin and mucous membranes, especially the lungs.

D. **Choking agents,** or pulmonary agents, irritate the lungs, causing them to fill with fluid.

E. **Incapacitating agents,** cause an intense (but temporary) irritation of eyes and respiratory tract.
    a. The potential of the agent to do damage is measured by how readily it disperses. Chemical agents are either *persistent* or *non-persistent.* Wind and rain will increase the dispersion rate of a chemical agent. Heavy rains act to dilute both persistent and non-persistent agents and facilitate penetration into the ground.

F. **Persistent agents** have low volatility, evaporate slowly and are particularly hazardous in liquid form. They stay around for long periods of time (24 hours or longer) and contaminate not only the air but objects and terrain as well. Mustard and the nerve agent VX are examples of persistent agents.

G. **Non-persistent agents** are volatile and evaporate quickly, within several hours. Gases, aerosols, and highly volatile liquids tend to disperse rapidly after release. Phosgene, cyanide and the G series of nerve agents (with the exception of GD-Soman) are non-persistent agents. Because of their volatility, they pose an immediate respiratory hazard but are not particularly hazardous in liquid form.

2. **Biological Agents,** Micro-organisms and toxins, generally, of microbial, plant or animal origin to produce disease and/or death in humans, livestock and crops
    A. Biological agents
        a. Bacterial Agents
            1. Anthrax
            2. Cholera
            3. Plague
            4. Tularemia
            5. Q-Fever
        b. Viral Agents
            1. Smallpox
            2. Venezuelan Equine Encephalitis
            3. Viral Hemorrhagic Fevers
        c. Biological Toxins
            1. Botulinum Toxins
            2. Staphylococcal Enterotoxin B
            3. Ricin

4. Trichothecene Mycotoxins (T2)

B. Biological agents utilized as a CBRNE may not become evident until hours, days or weeks after the exposure due to the various incubation periods for each pathogen.

3. **Radiological Agents:** Isotope exposure with typically no immediate effect. The sooner the victim has symptoms the worse the exposure.
4. **Nuclear Agents:** Primary risk is massive trauma and devastation as the result of a large scale blast. Supportive care and treatment based upon exposure.
5. **Explosives:** Threats with explosive devices may be or large or small scale. Trauma and mass casualty care will be primary.

Personal Protective Equipment

1. **NIOSH/OSHA/EPA classification system:**
   A. **Level A:** Fully encapsulating, chemical resistant suit, gloves and boots, and a pressure demand, self-contained breathing apparatus (SCBA) or a pressure-demand supplied air respirator (air hose) and escape SCBA. (Maximum protection against vapor and liquids)
   B. **Level B:** Non-encapsulating, splash-protective, chemical-resistant suit that provides Level A protection against liquids but is not airtight. (Full respiratory protection is required but danger to skin from vapor is less)
   C. **Level C:** Utilizes a splash suit along with a full-faced positive or negative pressure respirator (a filter type air purifying respirator or PAPR) rather than an SCBA or air line.
   D. **Level D:** Limited to coveralls or other work clothing, boots and gloves

2. **Universal Precautions:**
   A. Assume that all patients are potentially contagious and use appropriate barriers to prevent the transmission of pathogenic organisms. PPE include gloves, gowns, HEPA respirators, face shields and appropriate handwashing.
   B. If a chemical exposure is suspected, coated Tyvex suits, and respirators with Organic Vapor/HEPA cartridges are recommended.

MEDDRUN

Purpose: The Michigan Emergency Drug Delivery and Resource Utilization Network (MEDDRUN) established standardized cashes of medications and supplies strategically located throughout the State of Michigan. In the event of a terrorist incident or other catastrophic event resulting in mass casualties, MEDDRUN is intended to rapidly deliver medications and medical supplies, when local supplies are not adequate or become exhausted. The goal is to deploy MedPack within 15 minutes of the request.

AUTHORIZATION

1. Only authorized agencies and officials can request MEDDRUN. These agencies include any Michigan Hospital, local public health agency, or emergency management program. Authorized officials include designated representatives from the Office of Public Health Preparedness (OPHP), the Michigan State Police (MSP) and the Regional Bioterrorism Preparedness projects.

ACTIVATION

1. There are two modes for activating MEDDRUN, depending on the location and who is making the request. The first may be any EMS personal that identifies the need; the second may be a hospital, Public Health, EOC or Emergency Management that identifies a need for activation.
2. EMS
    A. Identifies need
    B. Contact Central Dispatch, a hospital or MCA
    C. Central Dispatch contacts MEDDRUN Communications Agency
        a. Primary: Survival Flight 877-633-7786 (877 MEDSRUN)
        b. Secondary: Aero Med: 616-391-5330
3. Hospital, Public Health, EOC or Emergency Management
    A. Identifies need
    B. Contact MEDDRUN Communications Agency
        a. Primary: Survival Flight 877-633-7786 (877 MEDSRUN)
        b. Secondary: Aero Med: 616-391-5330

RESPONSIBILITIES

1. MEDDRUN Communications Agency
    A. Contact MEDDRUN Agency Dispatch who then dispatches the closest MEDDRUN MedPack to the requesting location.

Dispatch and response should not be delayed while waiting for confirmation from OPHP.

1. Contacts OPHP Point of Contact 517-232-7297 (beeper)
2. Will notify/alert the next closest MEDDRUN Agency for possible deployment
3. Contact dispatched MEDDRUN Agency to either confirm/recall deployment after OPHP Point of Contact (POC) has confirmed the request with the affected agency.
4. Communicate updates with requesting agency.
5. OPHP POC will contact the requesting agency to authenticate the request.

OPHP POC

1. Contact the MEDDRUN Communications Agency to provide confirmation and determine the need for any additional MedPacks or/ to recall the dispatch.
2. Contact the Michigan State Police East Lansing Operations Center (ELOP).

3. Contact the Regional Medical Coordination Center.
4. Will coordinate a MI-HAN alert.
5. Once MedPack reaches its destination the MEDDRUN response vehicle and crew will have completed their primary mission. They will either return to service or assume other operational responsibilities as requested by incident management officials and coordinate with their dispatch center.
    A. The person in charge of the scene will receive the MedPack. The MEDDRUN Controlled Substance Transfer Form must be completed. (See attachment) The Controlled Substance Form must be issued, Submitted, and received by the Regional Bioterrorism Preparedness Medical Director, within 24 hours.

POST MEDDRUN DEPLOYMENT

1. Within 72 hours of a MedPack deployment, the MEDDRUN Agencies, OPHP and MEDDRUN Communications will prepare a Preliminary after Action Report (AAR) using the format prescribed by OPHP. (See AAR attachment) OPHP will review each AAR with the intent of improving future MEDDRUN responses.

Re-STOCKING MEDPACKS

1. It is important that a MedPack be restocked and placed back in service as quickly as possible. The MEDDRUN Agency may be returned to service on a limited basis with a partially depleted MedPack. Depending on the availability of federal funds, the Regional Preparedness Bioterrorism Coordinator, in Collaboration with OPHP will be responsible for ordering the supplies to re-stock the MedPack(s) used.
2. OPHP and MEDDRUN Communications will be notified upon the MedPack being returned to FULL SERVICE.

MEDDRUN may also be pre-deployed for special events, designated by the State and Regional Leadership.

***Should non-authorized agencies, officials or another state request MEDDRUN an authorized OPHP official must approve this request.**

Nerve Agent/Organophosphate Pesticide Exposure Treatment

Purpose: This Protocol is intended for EMS personnel at all levels to assess and treat patients exposed to nerve agents and organophosphate pesticides. The protocol includes the use of the Mark I/Duo Dote Antidote Kits and the Atropen auto injector for personnel trained in the use of these devices and authorized by the local medical control authority.

MFR/EMT/SPECIALIST/PARAMEDIC

Chemical Agents

1. Agents of Concern
   A. Military Nerve Agents including: Sarin (GB), Soman (GD), Tabun (GA), VX
   B. Organophosphate Pesticides (OPP) including Glutathione, Malathion, Parathion, etc.
2. Detection: The presence of these agents can be detected through a variety of monitoring devices available to most hazardous materials response teams and other public safety agencies.

Patient Assessment

1. SLUDGEM Syndrome
   A. **S** Salivation / Sweating / Seizures
   B. **L** Lacrimation (Tearing)
   C. **U** Urination
   D. **D** Defecation / Diarrhea
   E. **G** Gastric Emptying (Vomiting) / GI Upset (Cramps)
   F. **E** Emesis
   G. **M** Muscle Twitching or Spasm
2. Threshold Symptoms: These are symptoms that may allow rescuers to recognize that they may have been exposed to one of these agents and include:
   A. Dim vision
   B. Increased tearing / drooling
   C. Runny nose
   D. Nausea/vomiting
   E. Abdominal cramps
   F. Shortness of breath

NOTE: Many of the above may also be associated with heat related illness.

3. Mild Symptoms and Signs:
   A. Threshold Symptoms *plus*:
   B. Constricted Pupils*
   C. Muscle Twitching
   D. Increased Tearing, Drooling, Runny Nose
   E. Diaphoresis
4. Moderate Symptoms and Signs
   A. Any or all above *plus:*
   B. Constricted Pupils
   C. Urinary Incontinence
   D. Respiratory Distress with Wheezing
   E. Severe Vomiting

5. Severe Signs
    A. Any or All of Above *plus*
    B. Constricted Pupils*
    C. Unconsciousness
    D. Seizures
    E. Severe Respiratory Distress

***NOTE**: Pupil constriction is a relatively unique finding occurs early and persists after antidote treatment. The presence of constricted pupils with SLUDGEM findings indicates nerve agent / OPP toxicity.

Personal Protection

1. Be Alert for secondary device in potential terrorist incident
2. Personal Protective Equipment (PPE)
    A. Don appropriate PPE as directed by Incident Commander.
    B. Minimum PPE for Non-Hot Zone (i.e., DECON Zone)
        a. Powered Air Purifying Respirator or Air Purifying Respiratory with proper filter
        b. Chemical resistant suit with boots
        c. Double chemical resistant gloves (butyl or nitrile)
        d. Duct tape glove suit interface and other vulnerable areas
3. Assure EMS personnel are operating outside of Hot Zone
4. Avoid contact with vomit if ingestion suspected – off gassing possible
5. Assure patients are adequately decontaminated *prior* to transport
    A. Follow **Decontamination Protocol**
    B. Removal of outer clothing provides significant decontamination
    C. Clothing should be removed before transport
    D. DO NOT transport clothing with patient
6. Alert hospital(s) as early as possible

Patient Management (After Evacuation and Decontamination)

1. Evaluate and maintain the airway, provide oxygenation and support ventilation as needed.
2. NOTE: Anticipate need for extensive suctioning
3. Antidote administration per Mark I Kit/Duo Dote auto injector Dosing Directive – See Chart

SPECIALIST/PARAMEDIC

4. Establish vascular access

PARAMEDIC

5. Atropine 2-6 mg IV/IM per Mark I Kit Dosing Directive if Mark I Kit is not available (each Mark I Kit/Duo Dote auto injector contains 2 mg of atropine)
6. Treat seizures per **Seizure Protocols**
    A. **Adult**
        a. Administer diazepam 2-10 mg IVP **OR**
        b. Midazolam 0.05 mg/kg to max 5 IVP
        c. Administer Midazolam 0.1 mg/kg to max 10 mg IM
        d. If available, Valium auto-injector

B. **Pediatrics**
   a. Diazepam 0.2 mg/kg (maximum individual dose 10 mg) via intravenous route ***or*** 0.5 mg/kg (maximum individual dose 10 mg) via rectal route.
   b. Midazolam 0.15 mg/kg (maximum individual dose 5 mg) via intravenous or intramuscular route

7. Monitor EKG
8. Contact Medical Control

PARAMEDIC

Post Medical Control

1. Additional Atropine 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatrics)
2. Seizure Prophylaxis per Seizure Protocol for patients with severe signs

MFR/EMT/SPECIALIST/PARAMEDIC

*Mark I Kit Dosing Directive				
	Clinical Findings	**Signs/Symptoms**	**Required Conditions**	**Mark I Kits To Be Delivered**
SELF-RESCUE	**Threshold Symptoms**	• Dim vision • Increased tearing • Runny nose • Nausea/vomiting • Abdominal cramps • Shortness of breath	Threshold Symptoms *-and-* Positive evidence of nerve agent or OPP on site	1 Mark I Kit (self-rescue)
ADULT PATIENT	**Mild Symptoms and Signs**	• Increased tearing • Increased salivation • Dim Vision • Runny nose • Sweating • Nausea/vomiting • Abdominal cramps • Diarrhea	Medical Control Order	1 Mark I Kit
	Moderate Symptoms and Signs	• Constricted pupils • Difficulty breathing • Severe vomiting	Constricted Pupils	2 Mark I Kits
	Severe Signs	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Constricted Pupils	3 Mark I Kits (If 3 Mark I Kits are used, administer 1st dose of available benzodiazepine)
PEDIATRIC	**Pediatric Patient with Non-Severe Signs/Symptoms**	*Mild or moderate symptoms as above*	Positive evidence of nerve agent or OPP on site	Age ≥8 years old: • As Above Age <8 years old • Per Medical Control
	Pediatric Patient with Severe Signs/Symptoms	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Severe breathing difficulty Weakness	Age ≥ 8 years old: • 3 Mark I Kits Age < 8 years old: • 1 Mark I Kit Contact Medical Control as needed

***NOTE: 1 Mark I Kit equals 1 Duo Dote**

Pre-hospital (EMS) MCA Mutual Aid Agreement

Purpose: Establish a mechanism allowing EMS agencies/Medical Control Authorities to give prehospital care across jurisdictional boundaries during "disaster" conditions.

1. This agreement between the Medical Control Authorities (MCA) demonstrates the intention to assist and support each other during a disaster situation. It provides an approved/authorized process allowing EMS agencies to function within a MCA during a disaster.

2. During "disaster" conditions, whether natural or otherwise, MCA's may need assistance from other MCA's. For the purpose of this agreement, a "disaster" is considered to be an emergency event where a "declared" emergency and/or disaster condition as defined by local, state, or federal statutory laws, exists in which the responding MCA and EMS resources may be unable to handle the patient care needs without additional resources from outside it's own Medical Control area.

3. Requests for support may be made to the MCA or EMS agencies within the jurisdiction. It is agreed that mutual aid response is dependent on the availability of equipment and personnel.

4. It is in the best interests of participating MCA's to include each other in disaster in planning efforts. It is expected that upon request, participating MCA's will extend any relevant information on emergency planning to other MCA's as deemed reasonably appropriate by the participating MCA distributing the information.

5. Participating MCA's agree to adopt, as a minimum, the State Model Protocols for responding to a disaster event, and those agencies/EMS personnel will follow these when responding outside their own MCA, unless prior arrangements with that MCA.

6. It is agreed that signatories may terminate this agreement without cause by providing a 30 day written notice to all other participating MCA's.