MICHIGAN

State Protocols

General Treatment Protocols

Table of Contents

Trauma and Environmental Emergencies

Table of Contents

Adult Treatment Protocols

Table of Contents

MICHIGAN
State Protocols

Obstetrics and Pediatrics
Table of Contents

Adult Cardiac
Table of Contents

Pediatric Cardiac
Table of Contents

Procedures
Table of Contents

Procedures

Table of Contents

System

Table of Contents

MICHIGAN
State Protocols

Medications
Table of Contents

Medications
Table of Contents

Special Operations
Table of Contents

MICHIGAN

State Protocols

General Treatment Protocols

Table of Contents

General Pre-Hospital Care

Unless otherwise stated, pediatric protocols will apply to patients less than or equal to 14 years of age or up to 36kg.

1. Assess scene safety and use appropriate personal protective equipment.
2. Complete primary survey.
3. When indicated, implement airway intervention as per the **Emergency Airway Procedure.**
4. When indicated, administer oxygen and assist ventilations as per the **Oxygen Administration Procedure.**
5. Assess and treat other life threatening conditions per appropriate protocol.
6. 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).
7. Perform a secondary survey consistent with patient condition.
8. Follow specific protocol for patient condition.
9. Document patient care according to the **Patient Care Record Protocol**.

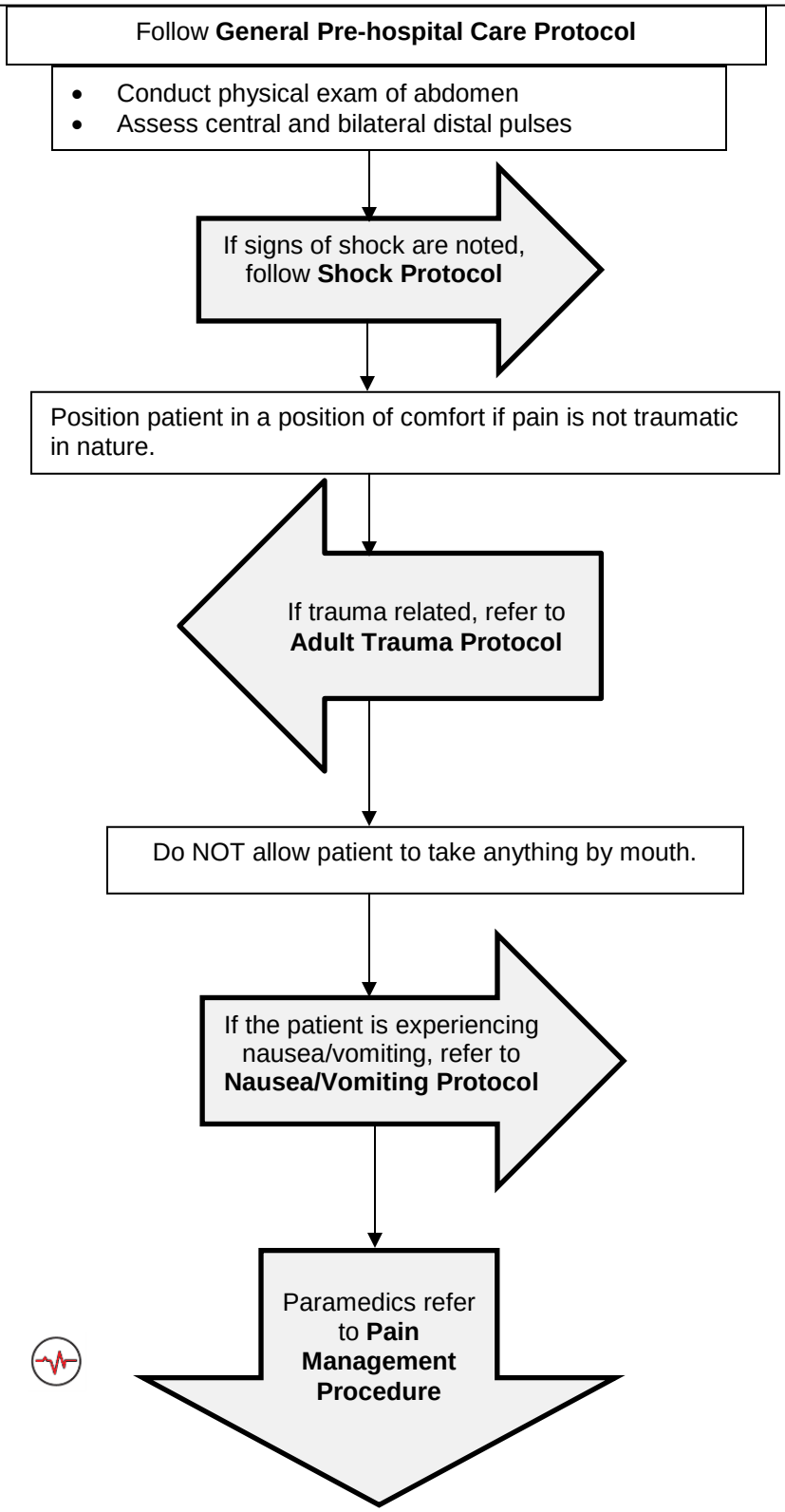

10. Establish vascular access per **Vascular Access & IV Fluid Therapy Procedure** when fluid or medication administration may be necessary.


11. Apply cardiac monitor and treat rhythm according to appropriate protocol. If applicable, obtain 12-lead ECG. Provide a copy of the rhythm strip or 12-lead ECG to the receiving facility, be sure to place patient identifiers on strip.
12. Consider use of capnography as appropriate and if available, per **Waveform Capnography Procedure**.

NOTE: When possible, provide a list of the patient's medications or bring the medications to the hospital.

Abdominal Pain (Non-traumatic)

1. Follow **General Pre-hospital Care Protocol**.
2. Conduct physical exam of abdomen including assessment of central and bilateral 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**.
7. Treat pain per **Pain Management Procedure**.


Follow **General Pre-hospital Care Protocol**
Conduct physical exam of abdomen
Assess central and bilateral distal pulses
If signs of shock are noted, follow **Shock Protocol**
Position patient in a position of comfort if pain is not traumatic in nature.
If trauma related, refer to **Adult Trauma Protocol**
Do NOT allow patient to take anything by mouth.
If the patient is experiencing nausea/vomiting, refer to **Nausea/Vomiting Protocol**
Paramedics refer to **Pain Management Procedure**

Nausea & Vomiting

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

2. Administer Ondansetron (Zofran) 4mg ODT, per MCA selection.

ODT Ondansetron included?

☐YES ☑NO

3. For signs of dehydration, administer NS IV/IO fluid bolus up to 1 liter, wide open.
   a. Pediatrics receive 20 ml/kg 

4. 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.
   a. Pediatrics repeat dose of 20 ml/kg 

5. Administer Ondansetron (Zofran)
   a. Adults 4mg IV/IM (if ODT not already administered).
   b. Pediatrics 0.1 mg/kg IV/IM, max dose of 4 mg 

6. Repeat Ondansetron (Zofran)
   a. Adults 4mg IV/IM (if ODT not already administered).
   b. Pediatrics 0.1 mg/kg IV/IM, max dose of 4 mg 

Follow **General Pre-hospital Care Protocol**

Administer **ODT Ondansetron 4 mg**, Per MCA Selection

ODT Ondansetron included?

☐YES ☑NO

- 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 4 mg IV/IM** for adults or **0.1mg/kg** for pediatrics if ODT not already administered

Contact Medical Control

Possible order: repeat Ondansetron (Zofran) 4 mg IV/IM for adults, or 0.1 mg/kg for pediatrics

Syncope

1. Assess for mechanism of injury, if trauma sustained, refer to **General Trauma Protocol.**
2. Follow **General Pre-hospital Care Protocol.**
3. Position patient
   A. If third trimester pregnancy, position patient left lateral recumbent.
   B. Supine for all other patients
4. If patient's mental status remains altered, refer to **Altered Mental Status Protocol**.

5. For signs of dehydration or hypotension, administer NS IV fluid bolus.
   A. Adults up to 1 liter
   B. Pediatrics up to 20 mL/kg
   C. Titrate to normotensive BP

6. Obtain 12-lead ECG per **12 Lead ECG Procedure** (May be a basic skill based on MCA selection). If ECG indicates cardiac event or dysrhythmia, refer to Appropriate Cardiac Protocol.

7. Additional IV fluids as ordered.

Follow **General Prehospital Care Protocol**

Any Trauma?

Yes → Refer to **General Trauma Protocol**

No

Position Patient
3rd Trimester? Left Lateral Recumbent
All others - Supine

Still Altered?

Yes → Refer to **Altered Mental Status Protocol**

No

For Signs of Hypotension, administer NS IV fluid bolus

- Adults up to 1 liter
- Pediatrics up to 20 ml/kg
- Titrate to Normotensive BP

Obtain 12 Lead ECG per **12 Lead ECG Procedure**
If cardiac event or dysrhythmia, refer to **Appropriate Cardiac Protocol**

Additional IV Fluids as Ordered

Shock

Assessment: Consider etiologies of shock

1. Follow **General Pre-hospital Care Protocol**.
2. Control major bleeding per **Soft Tissue and Orthopedic Injuries Protocol**.
3. Remove all transdermal patches using gloves.
4. Prompt transport following local MCA protocol.
5. Special consideration
   A. If 3rd trimester pregnancy, position patient left lateral recumbent.

6. Obtain vascular access (in a manner that will not delay transport).
   A. The standard NS IV/IO fluid bolus volume will be up to 1 liter, wide open, repeated as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated with pulmonary edema.
   B. Fluid should be slowed to TKO when SBP greater than 90 mm/Hg.
   C. For pediatrics, fluid bolus should be 20 mL/kg, and based on signs/symptoms of shock.
7. Consider establishing a second large bore IV of Normal Saline en route to
8. Obtain 12-lead ECG, if suspected cardiac etiology.
9. If anaphylactic shock, refer to the **Anaphylaxis/Allergic Reaction Protocol.**
10. For possible hemorrhagic shock, per MCA selection, refer to **Tranexamic Acid Protocol.**

MCA Adoption of Tranexamic Acid Protocol

☑ YES ☐ NO

11. Additional IV/IO fluid bolus
    A. Up to 2L total for adult
    B. Up to 40mL per kg total for pediatric.

12. If hypotension persists after IV/IO fluid bolus, administer Epinephrine by push dose (dilute boluses).
    A. Prepare by combining 1 mL of Epinephrine 1 mg/10 mL with 9 mL NS
    B. Adults
       1. Administer 10-20 mcg (1-2 mL Epinephrine 10 mcg/mL)
       2. Repeat every 3 to 5 minutes
       3. Titrate to SBP greater than 90 mm/Hg
    C. Pediatrics
       1. Administer 1 mcg/kg (0.1 mL/kg Epinephrine 10 mcg/mL)
       2. Maximum dose 10 mcg (1 mL)
       3. Repeat every 3-5 minutes

Follow **General Prehospital Care Protocol**

Control major bleeding per **Soft Tissue and Orthopedic Injuries Protocol**

- Remove all transdermal patches using gloves
- Position patient appropriately (3rd trimester pregnancy, left lateral recumbent)

Transport following **MCA Protocol**

Obtain vascular access (without delaying transport)

- IV bolus NS, up to 1 liter (may repeat as noted)
- Pediatrics up to 20 mL/kg
- Titrate to Normotensive BP and signs/symptoms of shock

Obtain 12 Lead, if Cardiac Etiology Suspected

If anaphylactic shock, refer to **Anaphylaxis/ Allergic Reaction Protocol**

MCA Adoption of Tranexamic Acid Protocol?

☑ Yes ☐ No

If possible hemorrhagic shock, per MCA selection, refer to **Tranexamic Acid Protocol**

Additional IV/IO fluid bolus

- Up to 2 L total for adult
- Up to 40 mL/kg total for pediatric

If hypotension persists after fluid bolus, administer Epinephrine by push dose

- Prepare (10mcg/ml by adding 1 mL of 1mg/10mL Epinephrine in 9mL NS then

Adult

- Administer 1-2 mL every 3 to 5 minutes, titrating to SBP >90 mm/Hg

Pediatric

- Administer 0.1 mL/kg (1 mcg/kg), maximum dose 10 mcg (1 mL), repeat every 3-5 minutes titrating to signs/symptoms of shock

Anaphylaxis/Allergic Reaction

1. Follow **General Pre-hospital Care Protocol**.
2. Determine substance or source of exposure, remove patient from source if known and able.
3. In cases of severe allergic reaction, wheezing or hypotension, administer epinephrine via auto-injector.
4. Assist the patient in administration of their own epinephrine auto-injector, if available.

5. *__**MCA Approval for MFR epinephrine auto-injector (Agency Option).**__

__MCA Approval of Epinephrine Auto-injector for Select MFR Agencies__
(Provide participating agency list to BETP)

☑ YES ☐ NO

   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 pediatric epinephrine auto-injector.
   c. For adults and children weighing greater than 30 kg; administer epinephrine auto-injector.
   d. May repeat at 3-5 minute intervals if the patient remains hypotensive, if available.
6. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.

7. Administer a Normal Saline IV/IO fluid bolus.
   a. The standard NS IV/IO fluid bolus volume will be up to 1 liter, wide open, repeated as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated with pulmonary edema.
   b. Fluid should be slowed to TKO when SBP greater than 90 mm/Hg.
   c. For pediatrics, fluid bolus should be 20 mL/kg, and based on signs/symptoms of shock.

8. In cases of suspected anaphylaxis with hypotension, severe respiratory distress, and/or angioedema, administer Epinephrine.
   a. Adult (1mg / 1mL), 0.3 mg (0.3 mL) IM. May repeat 1 time in 3-5 minutes if patient is still hypotensive.

   b. Pediatric
      i. For children less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
      ii. For children weighing less than 30 kg (approx. 60 lbs.); administer Epinephrine (concentration of 1mg/1mL) 0.15 mg (0.15mL) IM OR administer pediatric epinephrine auto-injector, if available.
      iii. Child weighing 30 kg or greater; administer Epinephrine (concentration of 1mg/1mL) 0.3 mg (0.3 mL) IM OR via epinephrine auto-injector if available.
      iv. May repeat 1 time in 3-5 minutes if patient is still hypotensive.

9. If patient is symptomatic, administer Diphenhydramine.
   a. Adult 50 mg IM or IV/IO.
   b. Pediatric 1 mg/kg IM/IV/IO (maximum dose 50 mg).
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 (Children > 6 y/o)**

☑ **Methylprednisolone Adult 125 mg IV or Pediatric 2 mg/kg IV (max 125 mg)**

12. For MCA with both selected, Prednisone PO is the preferred medication. Methylprednisolone is secondary and reserved for when a PO route is inappropriate.
13. If patient remains hypotensive after treatment, refer to **Shock Protocol**.
14. If patient is symptomatic after treatment without hypotension.
    a. Additional epinephrine via auto-injector.
    b. Additional epinephrine (1mg / 1 mL), 0.3 mg (0.3 mL) IM.

*MCA approval required for MFR auto-injector use.

Follow **General Prehospital Care Protocol**

Determine source of exposure, remove from source, if able

Severe reaction, wheezing, or hypotension?

Yes

Assist patient with own Epinephrine Autoinjector, if available

No

Administer Epinephrine Autoinjector

MCA Approval of Epinephrine Autoinjector for MFR Agencies

☑ Yes ☐ No

- 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 pediatric epinephrine auto-injector.
- For adults and children weighing greater than 30 kg; administer epinephrine auto-injector.
- May repeat at 3-5 minute intervals if the patient remains hypotensive, if available.

Albuterol may be indicated, refer to **Nebulized Bronchodilators Procedure**

Administer Normal Saline Fluid Bolus

- Adults up to 1 liter, repeated as necessary, unless otherwise noted.
- Pediatrics up to 20 ml/kg
- Titrate to Normotensive BP

Administer Epinephrine (1 mg/ 1 mL)

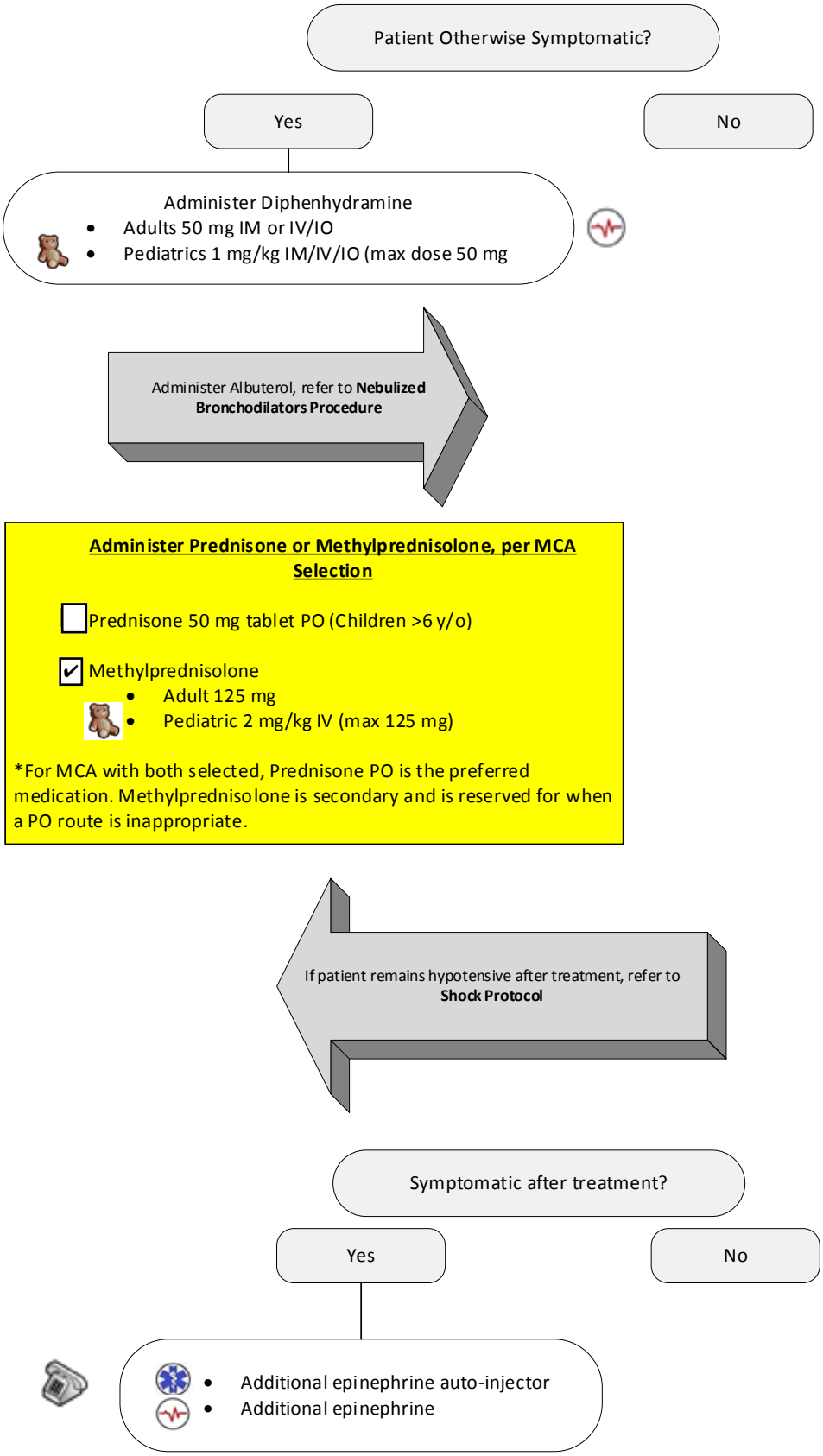
Adult

- 0.3 mg (0.3 ml) IM

Pediatrics

- Less than 10 kg Contact Medical Control
- Between 10-30 kg, administer 0.01 mg/ kg IM or pediatric autoinjector, if available
- 30 kg and great, administer 0.3 mg IM or epinephrine autoinjector, if available

May repeat 1 time in 3-5 minutes if patient remains hypotensive


Patient Otherwise Symptomatic?
Yes
No
Administer Diphenhydramine
Adults 50 mg IM or IV/IO
Pediatrics 1 mg/kg IM/IV/IO (max dose 50 mg
Administer Albuterol, refer to Nebulized Bronchodilators Procedure
Administer Prednisone or Methylprednisolone, per MCA Selection
Prednisone 50 mg tablet PO (Children >6 y/o)
Methylprednisolone
Adult 125 mg
Pediatric 2 mg/kg IV (max 125 mg)
*For MCA with both selected, Prednisone PO is the preferred medication. Methylprednisolone is secondary and is reserved for when a PO route is inappropriate.
If patient remains hypotensive after treatment, refer to Shock Protocol
Symptomatic after treatment?
Yes
No
Additional epinephrine auto-injector
Additional epinephrine

Adrenal Crisis

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

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.

Treatment:

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 IV
    b. Pediatric: 1-2 mg/kg IV

OR

4. Per MCA Selection, administer Prednisone **OR** Methylprednisolone

Medication Options:

☐ Prednisone - 50 mg tablet PO (ages 6 and up)

☑ Methylprednisolone - Adults 125 mg IV or
Pediatrics 2 mg/kg IV

5. For MCA with both selected, Prednisone PO is the preferred medication. Methylprednisolone is secondary and reserved for when a patient can't take a PO medication.
6. Transport
7. Notify Medical Control of patient's medical history.
8. Refer to **Altered Mental Status Protocol.**

Behavioral Health Emergencies

1. Assure scene is secure.
2. Follow **General Pre-hospital Care Protocol.**
3. Respect the dignity of the patient.
4. Treat known conditions such as hypoglycemia, hypoxia, or poisoning. Refer to appropriate protocol.
5. Patients experiencing behavioral health emergencies should be transported for treatment if they have any of the following:
    A. Can be reasonably expected to intentionally or unintentionally physically injure themselves or others or has engaged in acts or made threats to support the expectation.
    B. Are unable to attend to basic physical needs.
    C. Have judgement that is so impaired that he or she is unable to understand the need for treatment and whose behavior will cause significant physical harm.
    D. Have weakened mental processes because of age, epilepsy, alcohol or drug dependence which impairs their ability to make treatment decisions.
6. Communicate in a calm and nonthreatening manner. Be conscious of personal body language and tone of voice.
7. Keep contacts to a minimum; when prudent, utilize a single rescuer for assessment.
8. Offer your assistance to the patient.
9. Constantly monitor and observe patient to prevent injury or harm.
10. Control environmental factors; attempt to move patient to a private area. Maintain escape route.
11. Attempt de-escalation, utilize an empathetic approach. Avoid confrontation.
12. 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**.
13. If the patient is severely agitated, combative/aggressive, and shows signs of sweating, delirium, elevated temperature, and lack of fatiguing, refer to **Excited Delirium Protocol**.

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)

Return of Spontaneous Circulation (ROSC)

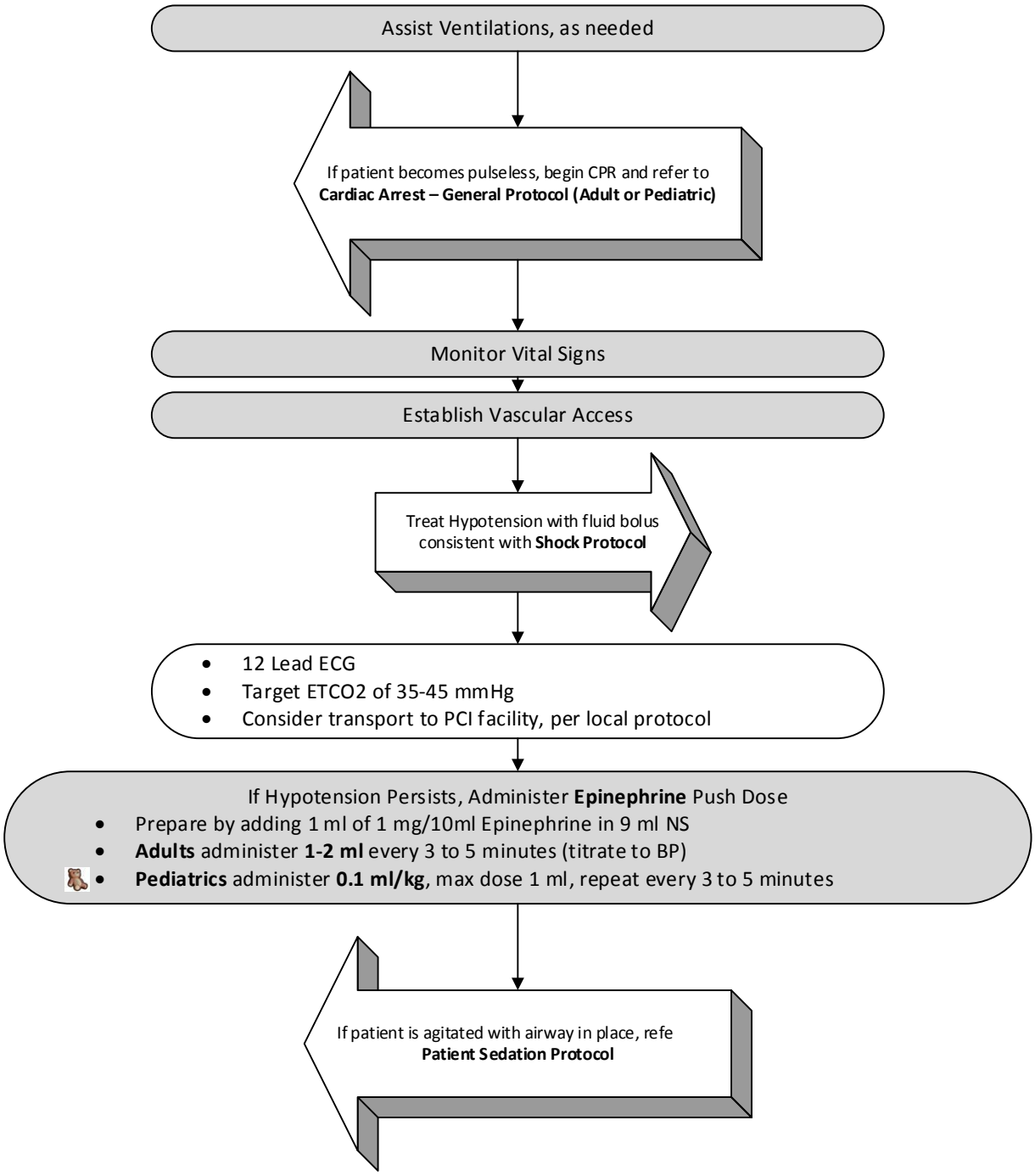
This protocol should be followed for all cardiac arrests with ROSC. If an arrest is of a known traumatic origin, refer to the **Traumatic Arrest Protocol** and **MCA Transport Protocol**. If it is unknown whether the arrest is traumatic or medical, consider other treatable causes. Initiate ALS response if available.

1. If ventilation assistance is required, ventilate at 10-12 breaths per minute. Do not hyperventilate.
2. Reassess patient, if patient becomes pulseless
    a. Begin CPR
    b. Follow **Adult** or **Pediatric Cardiac Arrest General Protocol**.
3. Monitor vital signs.
4. Check blood glucose (MFR, if MCA approved).
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**.
7. Perform 12- lead ECG (Per MCA selection, may be BLS skill per **12 Lead ECG Procedure**)
8. If ventilation assistance is required, target ETCO2 of 35-40 mm Hg.
9. Consider Transport to a facility capable of Percutaneous Coronary Intervention (PCI) per MCA protocol.
10. If hypotension persists after IV/IO fluid bolus, administer Epinephrine by push dose (dilute boluses).
    a. Prepare (10 mcg/mL) by adding 1mL of 1mg/10mL Epinephrine in 9mL NS, then
    b. Adults
        i. Administer 10-20 mcg (1-2 mL Epinephrine 10 mcg/mL)
        ii. Repeat every 3 to 5 minutes
        iii. Titrate to SBP greater than 90 mm/Hg
    c. Pediatrics
        i. Administer 1 mcg/kg (0.1 mL/kg Epinephrine 10 mcg/mL)
        ii. Maximum dose 10 mcg (1 mL)
        iii. Repeat every 3-5 minutes
11. If patient is agitated with advanced airway in place, refer to **Patient Sedation Protocol.**

Notes:

1. 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%. Titrate ETCO2 between 34-45 mmHg.
2. Consider extubation only if wide awake, following commands, and unable to tolerate endotracheal tube.

This Protocol Should be Followed for all Cardiac Arrests with ROSC



MICHIGAN

State Protocols

Protocol Number | **Protocol Name**

Trauma and Environmental Emergencies

Table of Contents

Adult/Pediatric Trauma Triage

PURPOSE

These guidelines were developed to assist the emergency responder to determine what constitutes a trauma patient and where to transport the trauma patient. The goal of any trauma patient assessment and transportation guideline is to facilitate delivery of the patient to the most appropriate level of care in the most expeditious manner.

This protocol applies to all patients who are seriously injured or potentially seriously injured. The criteria listed below serve to identify the injured patients who are likely to require comprehensive trauma care. An **ADULT** trauma patient is defined as an injured patient (age 15 or greater) who meets any of the following criteria or when in the judgment of EMS personnel, evidence for potential serious injury exists. A **PEDIATRIC** trauma patient is defined as an injured patient (age 14 years or younger) who meets any of the following criteria or when in the judgment of EMS personnel, evidence for potential serious injury exists. These guidelines are meant to supplement, but not replace, the judgment of the EMS personnel at the scene.

TRAUMA TRIAGE DESTINATION DECISIONS

Any **ADULT** trauma patient meeting the Physiologic or Anatomic criteria should be transported to the closest appropriate Level 1 or Level 2 trauma center if within 45 minutes, otherwise transport to an appropriate Level 3 (preferred) or Level 4 trauma center if the patient can arrive within 45 minutes. Any **PEDIATRIC** trauma patient meeting the Physiologic or Anatomic criteria should be transported to the closest appropriate Level 1 or Level 2 **PEDIATRIC** trauma center if within 45 minutes, otherwise transport to an appropriate Level 1 or Level 2 adult trauma center if the patient can arrive within 45 minutes, otherwise transport to an appropriate Level 3 (preferred) or Level 4 trauma center if the patient can arrive within 45 minutes. If none of these are available transport to the closest facility. Appropriate centers are determined by the Medical Control Authority as indicated in the **Trauma Triage Supplement**. Notify the trauma center as soon as possible, including inclusion criteria and ETA.

PHYSIOLOGIC CRITERIA

<u>Vital signs& level of consciousness</u>

- Glasgow Coma Scale <14

- Systolic Blood Pressure <90 mm Hg

- Respiratory Rate <10 or >29 breaths per minute, or need for ventilatory support

ANATOMIC CRITERIA

Anatomy of injury

- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee

- Chest wall instability or deformity (e.g. flail chest)

- Two or more proximal long bone fractures (femur and or humerus)

- Crush, degloved, mangled or pulseless extremity

- Amputation proximal to wrist or ankle

- Pelvic fracture

- Open or depressed skull fracture

- Paralysis

Any **ADULT** trauma patient meeting the Mechanism of Injury or Special Considerations criteria should be transported to the closest appropriate Level 1, Level 2 or Level 3 trauma center if within 45 minutes, otherwise transport to an appropriate Level 4 trauma center if the patient can arrive within 45 minutes. Any **PEDIATRIC** trauma patient meeting the Mechanism of Injury or Special Considerations criteria should be transported to the closest appropriate Level 1 or Level 2 **PEDIATRIC** trauma center if within 45 minutes, otherwise transport to an appropriate Level 1, 2 or 3 adult trauma center if the patient can arrive within 45 minutes, otherwise transport to an appropriate Level 4 adult trauma center if the patient can arrive within 45 minutes. If none of these are available, transport to the closest facility. Appropriate centers are determined by the Medical Control Authority as indicated in the **Trauma Triage Supplement**. Notify the trauma center as soon as possible, including inclusion criteria and ETA.

MECHANISM OFINJURY

Mechanism and evidence of high-energy impact -Falls

- **ADULT** >20 feet (one story is equal to 10 ft.)

- **PEDIATRIC** >10 feet (one story is equal to 10 ft.) or two or three times

Height of the child

-High-risk auto crash

- Intrusion, including roof: > 12 in. occupant site; >18 in. any site

- Ejection (partial or complete) from automobile

- Death in same passenger compartment

- Vehicle telemetry data consistent with a high risk injury

-Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
-Motorcycle/Recreational Vehicle crash >20 mph

SPECIAL CONSIDERATIONS

Special patient or system considerations

-**Older Adults**

- Risk of injury/death increases after age 55

- SBP < 110 mmHg may represent shock after age 65

- Low impact mechanisms (e.g. Ground level falls) may result in severe injury

-Children

Should be triaged preferentially to pediatric capable trauma centers

-Anticoagulation and bleeding disorders

Patients with head injury are at high risk for rapid deterioration

-Burns

Without other trauma mechanism: triage to bum facility with trauma mechanism: triage to trauma center

-**Pregnancy >20 weeks**

-Any other injuries felt by EMS personnel to require specialized trauma care

Exception to these triage guidelines is made for trauma patients requiring airway intervention that cannot be accomplished by pre-hospital personnel. These patients will be transported to closest appropriate hospital to allow for airway management, stabilization and subsequent transfer.

NOTES

1. Medical Control may be contacted to determine the appropriate destination when indicated.
2. Helicopter transport should be considered for patients meeting the trauma inclusion criteria and who have a projected ground transport time to the trauma center is greater than 45 minutes.

CDC Guidelines for Field Triage of Injured Patients.

Measure Vital signs and level of consciousness:

Glasgow Coma Scale	<14
Systolic Blood Pressure (mmHg)	<90 mmHg
Respiratory Rate	<10 or >29 breaths per minute, **or** need for ventilatory support (<20 in infants aged <1 year)

YES → **Transport to a trauma center**.

Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the defined trauma system (level 1 or 2).

No

Assess anatomy of injury:

- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Chest wall instability of deformity
- Two or more proximal long-bone fractures
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fracture
- Open or depressed skull fracture
- Paralysis

YES → **Transport to a trauma center**, which, depending upon the defined trauma system, need not be the highest level trauma center.

No

Assess mechanism of injury and evidence of high-energy impact:

- **Falls**
  - Adults: > 20 feet (one story is equal to 10 feet)
  - Children: > 10 feet or two or three times the height of the child
- **High-risk auto crash**
  - Intrusion, including roof: >12 inches occupant site; > 18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with a high risk of injury
- **Auto vs Pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact**
- **Motorcycle/Recreational Vehicle crash >20 mph**

YES → **Transport to a trauma center**, or hospital capable of timely and thorough evaluation and initial management of potentially serious injuries. Consider consultation with medical control

No

Assess special patient or system considerations:

- **Older Adults**
  - Risk of injury/death increases after 55 years
  - SBP <110 may represent shock after age 65
  - Low impact mechanisms (e.g. ground level falls) may result in severe injury
- **Children**
  - Should be triaged preferentially to pediatric capable trauma centers
- **Anticoagulants and bleeding disorders**
  - Patients with head injury are at high risk for rapid deterioration
- **Burns**
  - Without other trauma mechanism: triage to burn facility
  - With trauma mechanism: triage to trauma center
- **Pregnancy > 20 weeks**
- **EMS provider judgement**

NO → **TRANSPORT ACCORDING TO PROTOCOL**

When in doubt, transport to a trauma center

General 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.

Aliases: Trauma, injury, injuries

GENERAL TRAUMA MANAGEMENT

1. Follow **General Pre-hospital Care Protocol**.
2. Stabilize spinal column while opening the airway, determine level of consciousness. Refer to **Spinal Injury Assessment Protocol**.
3. Manage airway and ventilation per **Emergency Airway Procedure**. Avoid Hyperventilation/Hyperoxygenation.
4. Control major external bleeding. Refer to **Soft Tissue and Orthopedic Injuries Protocol.**
5. If shock present, refer to **Shock Protocol**.
6. Refer to **Mass Casualty Incidents Protocol** if appropriate.
7. Initiate transport according to the **Trauma Triage Protocol** or refer to applicable **MCA Protocol**.
8. Alert receiving hospital as soon as appropriate. Include pertinent trauma triage criteria.
9. Obtain vascular access (in a manner that will not delay transport).
10. Refer to **Pain Management Procedure**.

CHEST INJURY

1. Control hemorrhage per **Soft Tissue and Orthopedic Injuries Protocol**.
2. Assess, monitor, and treat life threatening respiratory problems.
    A. Administer oxygen to maintain a pulse oximetry (if available) of 94% to 99%. *Avoid positive pressure ventilation if possible.*
    B. All open and/or sucking chest wounds should be covered with an FDA **and** MCA approved occlusive seal device, or improvised occlusive dressing.
        1. Release dressing if worsened shortness of breath, or signs of tension pneumothorax.
3. If tension pneumothorax suspected, perform needle decompression per **Pleural Decompression Procedure.**

ABDOMINAL INJURY

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.

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

- Stabilize spinal column while opening airway, determine level of consciousness. Refer to **Spinal Injury Assessment Protocol.**
- Manage airway ventilation per **Emergency Airway Procedure.** Avoid Hyperventilation/Hyperoxygenation.
- Control major external bleeding. Refer to **Soft Tissue and Orthopedic Injuries Protocol**.
- If shock present, refer to **Shock Protocol.**

Refer to **Mass Casualty Protocol** as appropriate

Initiate transport according to **Trauma Triage and Destination Protocol** or refer to applicable **MCA Protocol**

- Obtain vascular access (in a manner that will not delay transport).

Refer to **Pain Management Procedure as needed**

If hypotensive, refer to **Shock Protocol**

Chest Injury

Control hemorrhage per **Soft Tissue and Orthopedic Injuries Protocol**.

Assess, monitor, and treat life threatening respiratory problems.

- Administer oxygen to maintain a pulse oximetry (if available) of 94% to 99%. *Avoid positive pressure ventilation if possible.*
- All open and/or sucking chest wounds should be covered with an FDA **and** MCA approved occlusive seal, or improvised occlusive dressing.
  - Release dressing if worsened shortness of breath, or signs of tension pneumothorax.

If tension pneumothorax suspected, 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**.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Burns

General Treatment:

1. Follow **General Pre-hospital Care Protocol**.
2. If evidence of possible airway burn, consider aggressive airway management per **Emergency Airway Procedure.**
3. Administer 100% O2 to all patients rescued from a confined space fire (i.e., building, automobile) regardless of pulse oximetry reading.
4. Determine burn extent & severity (rule of nines or palm = 1%).
5. Keep patient warm and avoid hypothermia.
6. If possibility of cyanide poisoning, refer to **Cyanide Exposure Protocol.**

THERMAL BURNS:

1. Stop the burning process. Remove smoldering and non-adherent clothing. Irrigate with sterile water or saline, if available.
2. Consider potential for secondary contamination (i.e., methamphetamine).
3. Assess and treat associated trauma.
4. Remove any constricting items.
5. If burn is
    a. Less than 15% of total body surface area (TBSA), consider covering with wet dressings for comfort.
    b. More than 15% of total body surface area (TBSA), cover wounds with dry clean dressings to avoid hypothermia.

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. Notify receiving hospital of possible chemical contamination.
7. Cover burned area in clean, dry dressing for transport.

ELECTRICAL INJURY:

1. Protect rescuers from live electric wires.
2. When energy source is removed, remove patient from electrical source.
3. Treat associated injuries provide spinal precautions per **Spinal Injury Assessment Protocol** and **Spinal Precautions Procedure** when indicated.
4. Assess and treat contact wound(s).

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

FOR ALL TYPES OF BURNS:

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 burn greater than 15% TBSA. Repeat as indicated. (20 ml/kg for pediatrics)

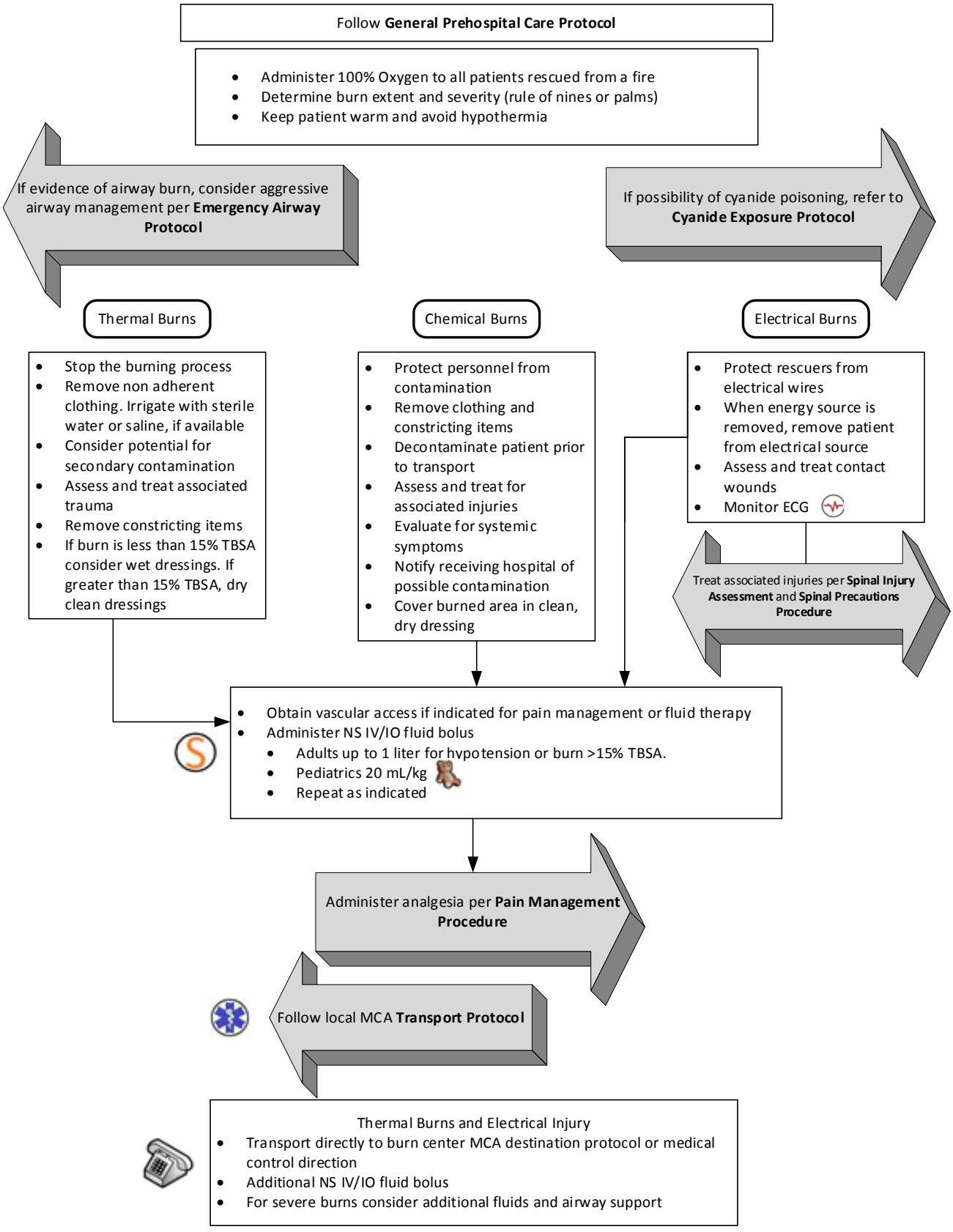
3. Administer Analgesic Medication. Refer to **Pain Management Procedure.**

Transport:

4. Follow local MCA **Transport Protocol**.
5. Special Transport Considerations
    a. The most appropriate facility may be a trauma center when there is airway or respiratory involvement, or when multi-trauma or blast injury is suspected.
    b. Consider transport directly to burn center if BSA > 20% partial thickness, BSA > 10% full thickness, involvement of hands/feet, genitalia, face; circumferential burns
    c. Consider air ambulance transportation for long transport times, pain control requiring deep sedation, and airway concerns that might necessitate advanced airway management.

Thermal Burns and Electrical Injury:

1. Transport directly to burn center per MCA destination protocol or medical control direction.
2. Additional NS IV/IO fluid bolus, up to 2 liters, wide open**.**
3. For severe burns, consider:
    a. Additional fluid needs
    b. Airway support


Follow **General Prehospital Care Protocol**
Administer 100% Oxygen to all patients rescued from a fire
Determine burn extent and severity (rule of nines or palms)
Keep patient warm and avoid hypothermia
If evidence of airway burn, consider aggressive airway management per **Emergency Airway Protocol**
If possibility of cyanide poisoning, refer to **Cyanide Exposure Protocol**
Thermal Burns
Stop the burning process
Remove non adherent clothing. Irrigate with sterile water or saline, if available
Consider potential for secondary contamination
Assess and treat associated trauma
Remove constricting items
If burn is less than 15% TBSA consider wet dressings. If greater than 15% TBSA, dry clean dressings
Chemical Burns
Protect personnel from contamination
Remove clothing and constricting items
Decontaminate patient prior to transport
Assess and treat for associated injuries
Evaluate for systemic symptoms
Notify receiving hospital of possible contamination
Cover burned area in clean, dry dressing
Electrical Burns
Protect rescuers from electrical wires
When energy source is removed, remove patient from electrical source
Assess and treat contact wounds
Monitor ECG
Treat associated injuries per **Spinal Injury Assessment** and **Spinal Precautions Procedure**
Obtain vascular access if indicated for pain management or fluid therapy
Administer NS IV/IO fluid bolus
Adults up to 1 liter for hypotension or burn >15% TBSA.
Pediatrics 20 mL/kg
Repeat as indicated
Administer analgesia per **Pain Management Procedure**
Follow local MCA **Transport Protocol**
Thermal Burns and Electrical Injury
Transport directly to burn center MCA destination protocol or medical control direction
Additional NS IV/IO fluid bolus
For severe burns consider additional fluids and airway support

General Crush Injury

Purpose:

This protocol should be considered when the patient has been entrapped at the scene for more than one hour, one or more full extremities trapped by an object capable of causing a crush injury, including machinery, dirt, rock, and rubble or there is entrapment of patient with history of previous cardiac or renal disease or dialysis treatment.

Crush Syndrome:

Should be suspected in patients with entrapment/compression of greater than one hour, especially when a large muscle mass/group is involved. Treatment of the patient at risk for Crush Syndrome **should begin before the patient is removed when practical.**

Treatment:

1. Follow **General Trauma Protocol**, identify and treat life threats.
2. Assess for signs of Compartment Syndrome or Crush Syndrome.
3. Use tourniquet as indicated (see **Tourniquet Application** procedure).

4. Establish large bore IV(s) and infuse one (1) to two (2) liters of Normal Saline *just prior to removal of patient when practical.*
5. Treat patient pain per the **Pain Management Procedure**.
6. Initiate cardiac monitoring and assess for hyperkalemia, i.e. wide QRS or peaked T waves.
7. Perform 12-Lead ECG, if conditions allow.
8. Administer **Oxygen** to patient if environment allows.
9. Administer **Sodium Bicarbonate**
    a. Adults 100 mEq IVP prior to extrication and 50 mEq/hr IVPB or slow IVP if extrication is prolonged and hyperkalemia is suspected.
    b. Pediatrics 1 mEq/kg (max dose 50 mEq) IV
10. Consider **Albuterol** 2.5 mg via NMT (nebulized mist treatment) during extrication process.
11. Administer **Calcium Chloride** if hyperkalemia is suspected (peaked T waves, widened QRS, hypotension)
    a. Adults 1 gram slow IVP over 5 minutes
    b. Pediatrics 20 mg/kg, max dose 1 gram over 5 minutes

Soft Tissue & Orthopedic Injuries

1. Follow **General Pre-hospital Care Protocol**.
2. Control bleeding.
    A. Utilize direct pressure.
    B. Consider early tourniquet use (refer to **Tourniquet Application Procedure**).
    C. Consider FDA **and** MCA approved hemostatic agents and hemorrhage control devices.
    D. Consider use of pressure dressings with deep wound packing.
    E. Consider pelvic binding for suspected unstable pelvic fracture.
3. If appropriate, maintain spinal precautions for patient per **Spinal Injury Assessment Protocol.**
4. Assess pain on 1-10 scale.
5. Immobilize/splint orthopedic injuries as appropriate.
    A. Special Considerations
        i. Consider traction splinting for femur fractures (excluding hip/femoral neck).
        ii. Straighten severely angulated fractures if distal extremity has signs of decreased perfusion.
        iii. Evaluate and document neurovascular status before and after splinting.
        iv. Dress open fractures.
6. Partial/complete amputations
    A. Control bleeding as above.
    B. Cover wounds with sterile dressings moistened with sterile solution.
    C. Splint extremity.
    D. Recoverable amputated parts should be brought to hospital as soon as possible.
    E. Wrap amputated part in sterile dressing moistened with sterile solution. Seal in a plastic bag and, if available, place bag in container of ice and water. DO NOT place part directly on ice.
    F. Frequent monitoring of circulation, sensation, and motion distal to the injury during transport.
7. For severe crush injuries, refer to **General Crush Injury Protocol**.
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.
10. Provide pain management per **Pain Management Procedure.**
11. Consideration sedation per **Patient Sedation Procedure**.

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

Control bleeding
- Utilize direct pressure
- Consider early tourniquet use (refer to **Tourniquet Application Procedure**).
- Consider FDA **and** MCA approved hemostatic agents and hemorrhage control devices.
- Consider use of pressure dressings with deep wound packing.

If appropriate, stabilize cervical spine and immobilize patient per **Spinal Injury Assessment Protocol**.

Consider tourniquet use when applicable (refer to **Tourniquet Application Procedure**).

Immobilize/splint orthopedic injuries as appropriate
- Special Considerations.
  - Consider traction splinting for femur fractures (excluding hip/femoral neck).
  - Straighten severely angulated fractures if distal extremity has signs of decreased perfusion.
  - Evaluate and document neurovascular status before and after splinting.
  - Dress open fractures.

Provide pain management per **Pain Management Procedure**.

For severe crush injuries, refer to **General Crush Injury Protocol.**

Impaled objects are left in place & stabilized. Removal of impaled objects is only with approval of medical control.

Contact Medical Control

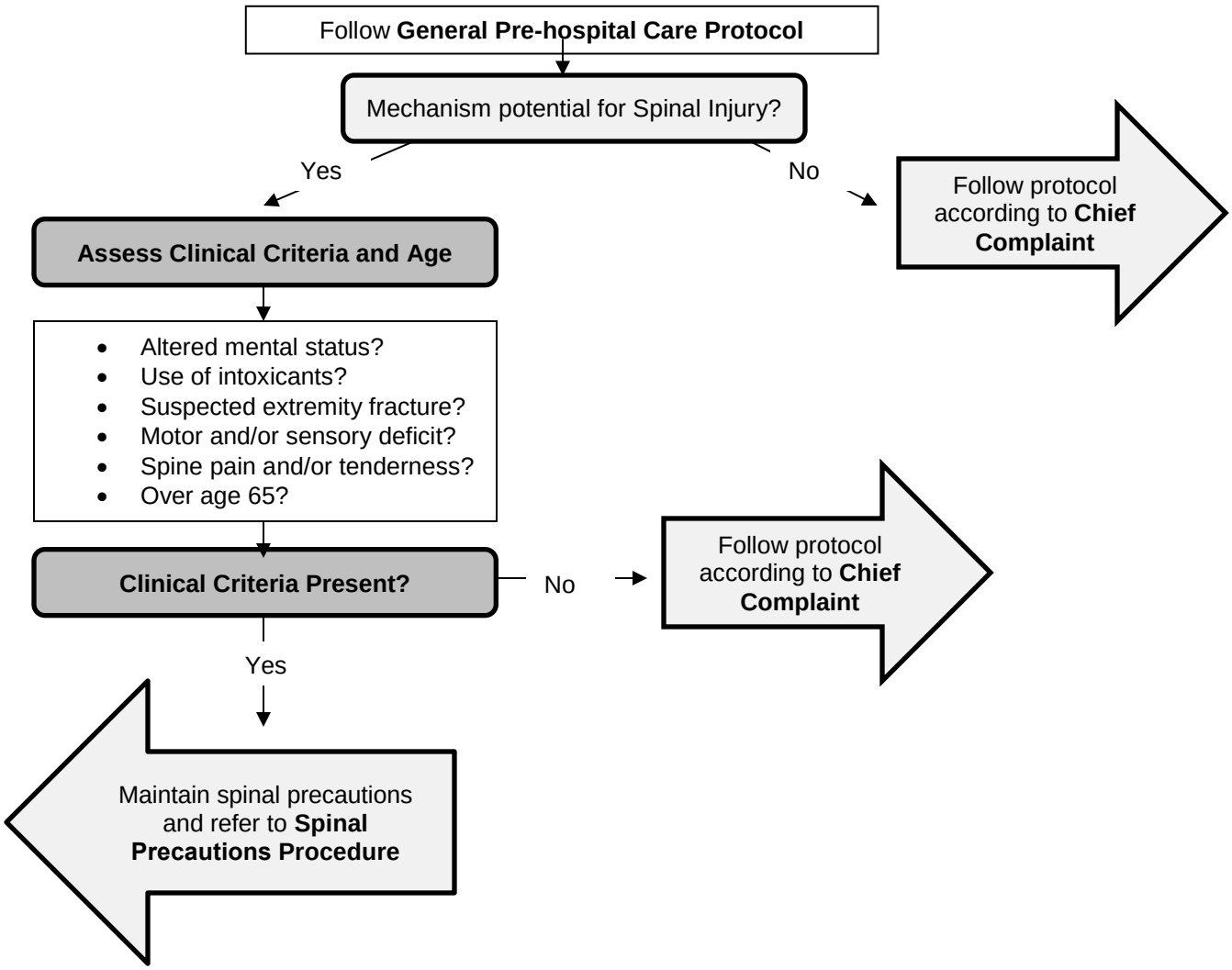
Follow local MCA transport protocol.

Partial/complete amputations
- Control bleeding as above
- Cover wounds with sterile dressings moistened with sterile solution.
- Splint extremity.
- Recoverable amputated parts should be brought to hospital as soon as possible.
- Wrap amputated part in sterile dressing moistened with sterile solution. Seal in a plastic bag and, if available, place bag in container of ice and water. DO NOT place part directly on ice.
- Frequent monitoring of circulation, sensation, and motion distal to the injury during transport.

Paramedics, consider sedation per **Patient Sedation Procedure.**

Spinal Injury Assessment

1. Follow **General Pre-hospital Care protocol**.
2. Assess the mechanism of injury.
    A. Negative mechanism does not need a spine injury clinical assessment
    B. Patients with mechanism of injury with the potential for causing spine injury shall have a spine injury clinical assessment performed.
3. 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.
4. 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
5. 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.
6. Patients with a positive spine injury assessment should have spinal precautions maintained during movement and transport. Refer to **Spinal Precautions Procedure.**
7. 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**
Mechanism potential for Spinal Injury?
Yes
No
Follow protocol according to **Chief Complaint**
Assess Clinical Criteria and Age
Altered mental status?
Use of intoxicants?
Suspected extremity fracture?
Motor and/or sensory deficit?
Spine pain and/or tenderness?
Over age 65?
Clinical Criteria Present?
No
Follow protocol according to **Chief Complaint**
Yes
Maintain spinal precautions and refer to **Spinal Precautions Procedure**

Traumatic Arrest

Purpose: To facilitate management of patients in cardiac arrest from a suspected traumatic cause. Successful resuscitation of the traumatic cardiac arrest patient requires rapid identification and correction of specific injuries, (blunt or penetrating) with prompt transport to appropriate facility.

1. Patient that meets DOA criteria, refer to **Dead on Scene Protocol.**
2. If the trauma appears to be minor and a medical condition appears to be the cause of the cardiac arrest, follow the appropriate cardiac arrest protocol.
3. If appropriate, begin high performance CPR, if witnessed arrest or arrest was within a few minutes of EMS arrival.
4. Airway - establish patent airway with 100% oxygen administration.
5. Control bleeding, any extremity injury with significant bleeding should have a tourniquet applied. If tourniquet application is not possible, apply a pressure dressing. For blunt trauma, considerations should be made for a pelvic fracture apply a pelvic binder (commercial or sheet).
6. Prepare for transport per MCA **Trauma Triage Destination Protocol**.
7. Follow **Emergency Airway Procedure**.


8. When indicated, volume administration with 2 large bore IV / IO with normal saline wide open.


9. Chest decompression for relief of tension pneumothorax. Use at least 3” catheter either (12g, 14g, or 16g angiocath).


10. If there is no response to resuscitation efforts, consult with online Medical Control for termination of resuscitation.

Drowning/Submersion Injury

Drowning is defined as**, "**A process resulting in primary respiratory impairment from submersion or immersion in a liquid medium." (American Heart Association, 2010).

Uncertainty exists regarding survival in cold water drowning, however, recent literature suggests the following:

1. In cold water (temperature is less than 43° F (6° C)) and the patient is submerged with evidence of cardiac arrest:
    A. Survival is possible for submersion time less than 90 minutes and resuscitative efforts should be initiated
    B. Survival is not likely for submersion time greater than 90 minutes and providers may consider not initiating resuscitation or termination of resuscitation on scene
2. If warm water (temperature is greater than 43° F (6° C)) and the patient is submerged with evidence of cardiac arrest:
    A. Survival is possible for submersion time less than 30 minutes and resuscitative efforts should be initiated
    B. Survival is not likely for submersion time greater than 30 minutes and providers may consider not initiating resuscitation or termination of resuscitation on scene.
3. It may often be impractical to determine water temperature; subsurface water temperatures may be considerably colder than surface temperature. When in doubt, consider water to be cold.
4. Time estimation begins when the patient is presumed to be submersed.

If SCUBA incident with rapid ascent, transport the patient in the left lateral recumbent position.

1. Follow **General Pre-hospital Care Protocol.**
    A. Primary survey should include aggressive airway management and restoration of adequate oxygenation and ventilation.
    B. Exam should include consideration of possible c-spine injury.
    C. Assess for other associated injury such as injury to the head or dive-related emergency.
    D. Assess patient's temperature.

2. **If pulse is absent**:
    A. If pulse is absent, consider submersion time and temperatures as indicated above. Refer to the **Dead on Scene Procedure as indicated.**
    B. In normothermic, (> 34 C or 93F) patients initiate CPR and refer to **Cardiac Arrest – General Protocol (Adult or Pediatric)**.
    C. If patient is hypothermic, (≤ 34C or 93F) go to **Hypothermia Cardiac Arrest Protocol.**

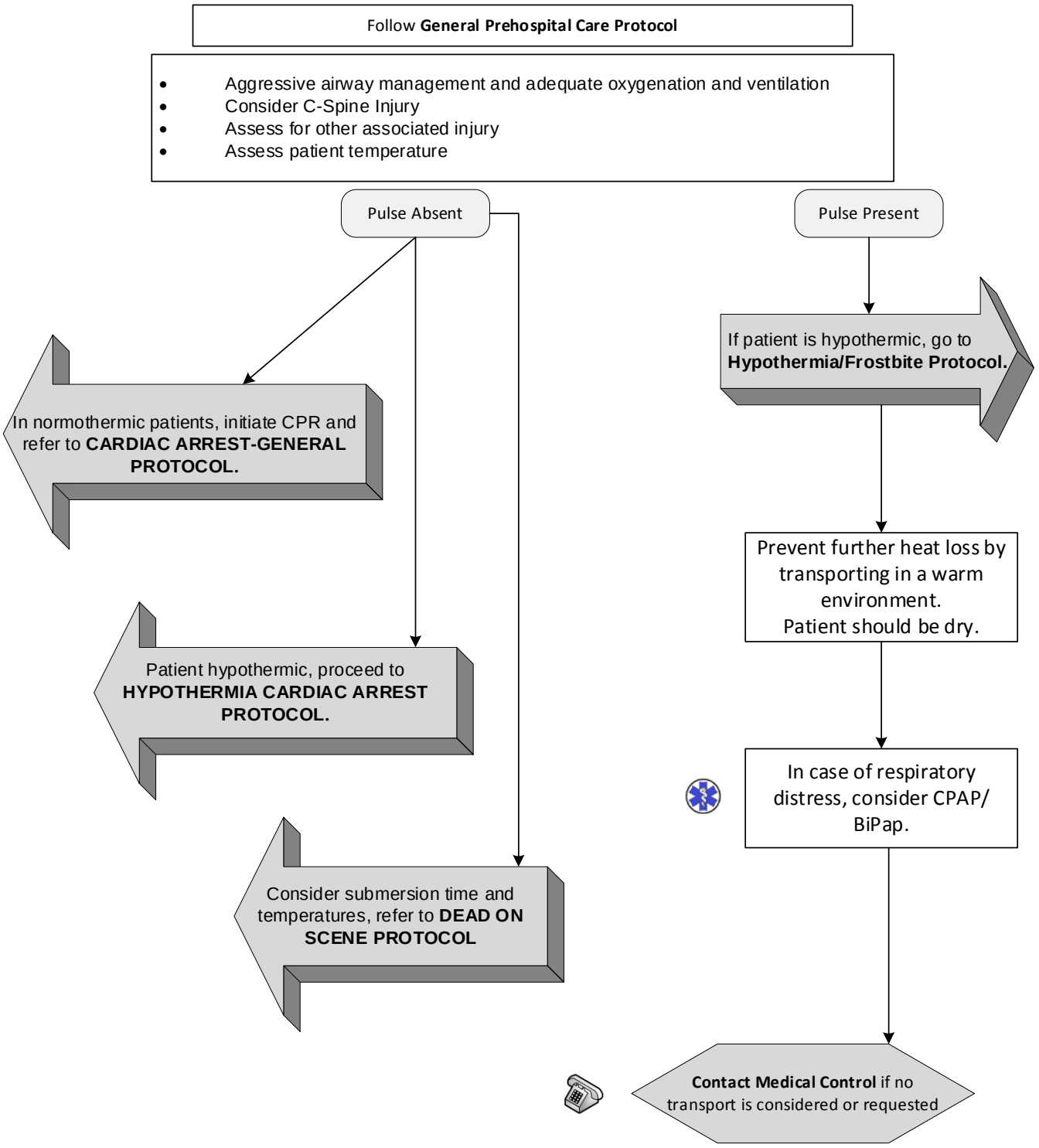
MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

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.
   C. Patient should be dry.
   D. Patients may develop subacute respiratory difficulty after drowning and therefore all victims of drowning should be transported for observation.

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

*Note: For SCUBA incident with rapid ascent, medical control can consider contacting the Divers Alert Network (DAN) @ 919-684-9111 to arrange evacuation and hyperbaric re-compression at a properly equipped and staffed chamber.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:



MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Poisoning/Overdose/Environmental Exposure

GENERAL MANAGEMENT OF TOXIC EXPOSURE (INCLUDING INGESTION)

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).
5. If altered mental status, refer to **Altered Mental Status Protocol**.
6. If respiratory distress, refer to **Respiratory Distress Protocol.**
7. If the patient is seizing, refer to **Seizure Protocol**.

8. Alert receiving hospital if patient may present HAZMAT risk.
9. 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.

10. Refer to **Pain Management Procedure**

INHALATION EXPOSURES:

1. Ensure high concentration of oxygen is provided.
2. If suspected cyanide gas exposure, refer to **Cyanide Exposure Protocol** and contact medical control immediately.

INGESTION:

1. Use protective eye equipment.
2. If suspected opioid overdose, refer to **Naloxone Administration Procedure.**

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

4. For extrapyramidal dystonic reactions, administer Diphenhydramine
    a. For adults, 50 mg IV.
    b. For pediatrics 1 mg/kg IV (max dose 50 mg).

5. For symptomatic tricyclic antidepressant ingestions (tachycardia, wide complex QRS), administer sodium bicarbonate
    a. Adults 50 mEq IV, repeat as needed.
    b. Pediatrics 1mEq/kg IV, repeat as needed.
6. For symptomatic calcium channel blocker overdose, consider Calcium Chloride
    a. Adults 1 gm IV.
    b. Pediatrics 20 mg/kg IV (max dose 1 gm).

EYE CONTAMINATION:

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.

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

Tetracaine Included?

☑ Yes ☐ No

SKIN ABSORPTION:

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.

MANAGEMENT OF BITES AND STINGS

SPIDERS, SNAKES AND SCORPIONS:

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:

1. Remove stinger 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.**

NERVE AGENT/ORGANOPHOSPHATE EXPOSURE

1. **Evaluate for signs and symptoms of exposure:** Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermotility, Emesis, Muscle twitching or spasm (seizures)
    a. ***Minor symptoms only*** – alert, salivation, eye watering, dim vision, drooling, nasal drainage, constricted pupils, abdominal cramps, diaphoresis
    b. ***Moderate symptoms*** – alert, vomiting, muscle twitching, increase in minor symptoms
    c. ***Severe signs & symptoms*** – decline in LOC, urinary incontinence, defecation, severe muscle twitching, seizure, respiratory distress/wheezing
2. Evaluate and maintain the airway, provide oxygenation and support ventilation as needed.
3. NOTE: Anticipate need for extensive suctioning
4. Antidote administration per Mark I Kit/Duo Dote auto-injector Dosing Directive – See Chart

5. Establish vascular access

6. 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)
7. Treat seizures
    a. **Adult**
        i. Administer Midazolam 10 mg IM prior to IV start
        ii. (or) if IV/IO already established, administer Midazolam 5 mg IV/IO
        iii. (or) If available, Valium auto-injector

    b. **Pediatrics**
        i. Administer Midazolam 0.1 mg/kg IM (maximum individual dose 10 mg) prior to IV start
        ii. (or) if IV/IO already established, administer Midazolam 0.05 mg/kg IV/IO (maximum individual dose 5 mg)
        iii. (or) If available, Valium auto-injector
8. Monitor EKG
9. Additional **Atropine** 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatrics)

10. For severe symptoms (if 3 Nerve-agent Antidote kits are administered), administer benzodiazepine as noted for seizures.

*NA Kit Dosing Directive				
	Clinical Findings	**Signs/Symptoms**	**Required Conditions**	**NA 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 NA 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 NA Kit
	Moderate Symptoms and Signs	• Constricted pupils • Difficulty breathing • Severe vomiting	Constricted Pupils	2 NA Kits
	Severe Signs	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Constricted Pupils	3 NA Kits (If 3 NA 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 NA Kits Age < 8 years old: • 1 NA Kit Contact Medical Control as needed

***NOTE: Nerve-agent Antidote (NA) =1 Duo Dote or 1 Mark I**

Follow **General Prehospital Care Protocol**

GENERAL MANAGEMENT OF TOXIC EXPOSURE

- Use proper equipment & prepare for decontamination
- Remove clothing exposed to chemical
- Identify substance, if possible
- Alert receiving hospital if patient presents HAZMAT risk
- Sample of substance & any containers should be brought with patient if it does not pose a risk to others

Refer to **Pain Management Procedure** as needed

INGESTION

If altered, refer to **Altered Mental Status Protocol**

If in cardiac dysrhythmia, refer to **appropriate dysrhythmia protocol**

If respiratory distress, refer to **Respiratory Distress Protocol**

If patient is seizing, refer to **Seizures Protocol**

If opioid overdose, refer to **Naloxone Administration Procedure**

INGESTION (CONTINUED)

Contact Medical Control

Administer

If symptomatic tricyclic antidepressant ingestion → **Sodium Bicarbonate 50mEq IV or 1 mEq/kg for pediatrics**

If extrapyramidal dystonic reactions → **Diphenhydramine 50 mg IV or 1 mg/kg for pediatrics**

If symptomatic calcium channel blocker overdose → Consider **calcium chloride 1 gm IV or 20 mg/kg for pediatrics**

INHALATION EXPOSURE

- Dilute noxious gas
- Ensure high concentration of oxygen

If suspected cyanide gas exposure, refer to **Cyanide Exposure Protocol**

EYE CONTAMINATION

- Irrigate continuously with Normal Saline or tap water for 15 minutes
- Attempt to continue during transport
- For alkali exposure, maintain continuous irrigation

If available, administer **Tetracaine, 1-2 drops per eye**, per MCA selection (ensure patient does not rub eye)

Tetracaine Included?

☑ Yes ☐ No

SKIN ABSORPTION

- Brush off dry chemicals
- Irrigate continuously with Normal Saline for 15 minutes or
- As directed by medical control

BITES AND STINGS

Spiders, Snakes, & Scorpions

- Protect rescuers
- Bring in for accurate identification (if contained and/or dead)
- Ice for comfort (spiders or scorpions **ONLY**)

Bees & Wasps

- Remove sting mechanism
- Do not squeeze
- Provide wound care
- Observe for systemic reaction

If systemic reaction, refer to **Anaphylaxis, Allergic Reaction Protocol**

NERVE AGENT/ORGANOPHOSPHATE EXPOSURE

- Evaluate for signs and symptoms
  - Minor Symptoms
  - Moderate Symptoms
  - Severe Symptoms
- Evaluate and maintain the airway, provide oxygenation and support ventilation as needed.
- Anticipate the need for extensive suctioning
- Antidote administration per Mark I Kit/Duo Dote auto-injector Dosing Direction – see chart

Establish vascular access

Atropine 2-6 mg IV/IM per Dosing Directive if Mark I Kit is not available
(Each Mark I kit has 2 mg of Atropine)

Seizures?

Adults
- Administer **Midazolam** 0.1 mg/kg to max 10 mg IM
- If available, **Valium** auto-injector

Pediatrics
- **Midazolam** 0.1 mg/kg IV/IM (maximum individual dose 5 mg)
- If available, **Valium** auto-injector

Monitor EKG

Additional **Atropine** 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatrics)

Heat Emergencies

1. Follow **General Pre-hospital Care Protocol**.
2. Determine history/evidence of heat exposure.
3. Check blood glucose and treat hypoglycemia per **Altered Mental Status Protocol**.

HEAT CRAMPS:

1. Move the patient to a cool environment and attempt oral liquids.
2. Contact medical control.

HEAT EXHAUSTION:

1. Move the patient to a cool environment.
2. Remove tight clothing.
3. Cool patient, provide air conditioning/fanning. Avoid chilling/shivering.
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.
5. Contact medical control.

HEAT STROKE:

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.
5. NS IV/IO fluid bolus up to 1 liter, wide open, repeat as indicated.
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 continually misting the exposed skin with tepid water while fanning the victim, may be used if immersion is not possible.
    A. Cool as much of the body as possible, especially the torso.
8. **Cool first, transport second when possible.**
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**.
11. Monitor ECG (lead cables can go in the water).
12. If uncontrolled shivering occurs during cooling, consider midazolam per **Patient Sedation Protocol.**

Follow **General Pre-Hospital Care Protocol**

- Determine history/evidence of heat exposure

Refer to **Altered Mental Status Protocol**

HEAT CRAMPS

- Move patient to a cool environment
- Attempt oral liquids

Contact Medical Control

HEAT EXHAUSTION

- Move patient to a cool environment
- Remove tight clothing
- Cool patient without chilling or shivering
- NS IV/IO fluid bolus up to 1 Liter
  - Patient can take fluids by mouth if preferred and no nausea (no alcohol, carbonation, caffeine)

Contact Medical Control

HEAT STROKE

- Move patient to a cool environment
- Remove tight clothing
- Immediately cool patient without chilling or shivering
- Place patient in semi-reclining position with head elevated
- NS IV/IO fluid bolus up to 1 Liter

Contact Medical Control

EXERTIONAL HEAT STROKE

- Cool as quickly as possible via ice or cool-water immersion, if possible
- Alternative means, such as misting the skin with tepid water while fanning may be used if needed
- Cool as much of the body as possible (especially the torso)
- **Cool FIRST, transport second when possible**
- Obtain vascular access
- Monitor ECG

If the patient seizes, refer to **Seizures Protocol**

Contact Medical Control

If uncontrollable shivering occurs, consider **Patient Sedation Protocol**

Hypothermia/Frostbite

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

HYPOTHERMIA:

1. If cardiac arrest develops follow **Hypothermia Cardiac Arrest Protocol**.
2. Move patient to a warm dry place, remove wet clothing & wrap in warm blankets and protect from wind exposure.
3. 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.
4. 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. Gentle handling is required.
   B. Facilitate transport immediately.
6. If alterations in mental status, consider measuring blood glucose and treat as indicated per **Altered Mental Status Protocol** and assess for other causes of alterations of mentation.

7. Administer warm NS IV/IO fluid bolus up to 1 liter, wide open, if available.
   A. Pediatrics 20 ml/kg

8. Use warmed humidified oxygen if available.

SUSPECTED FROSTBITE:

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.

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
- Administer warm non-caffeinated beverages (if available) by mouth slowly

No → For altered mental status, follow **Altered Mental Status Protocol**

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

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 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

Paramedics refer to **Pain Management Procedure**

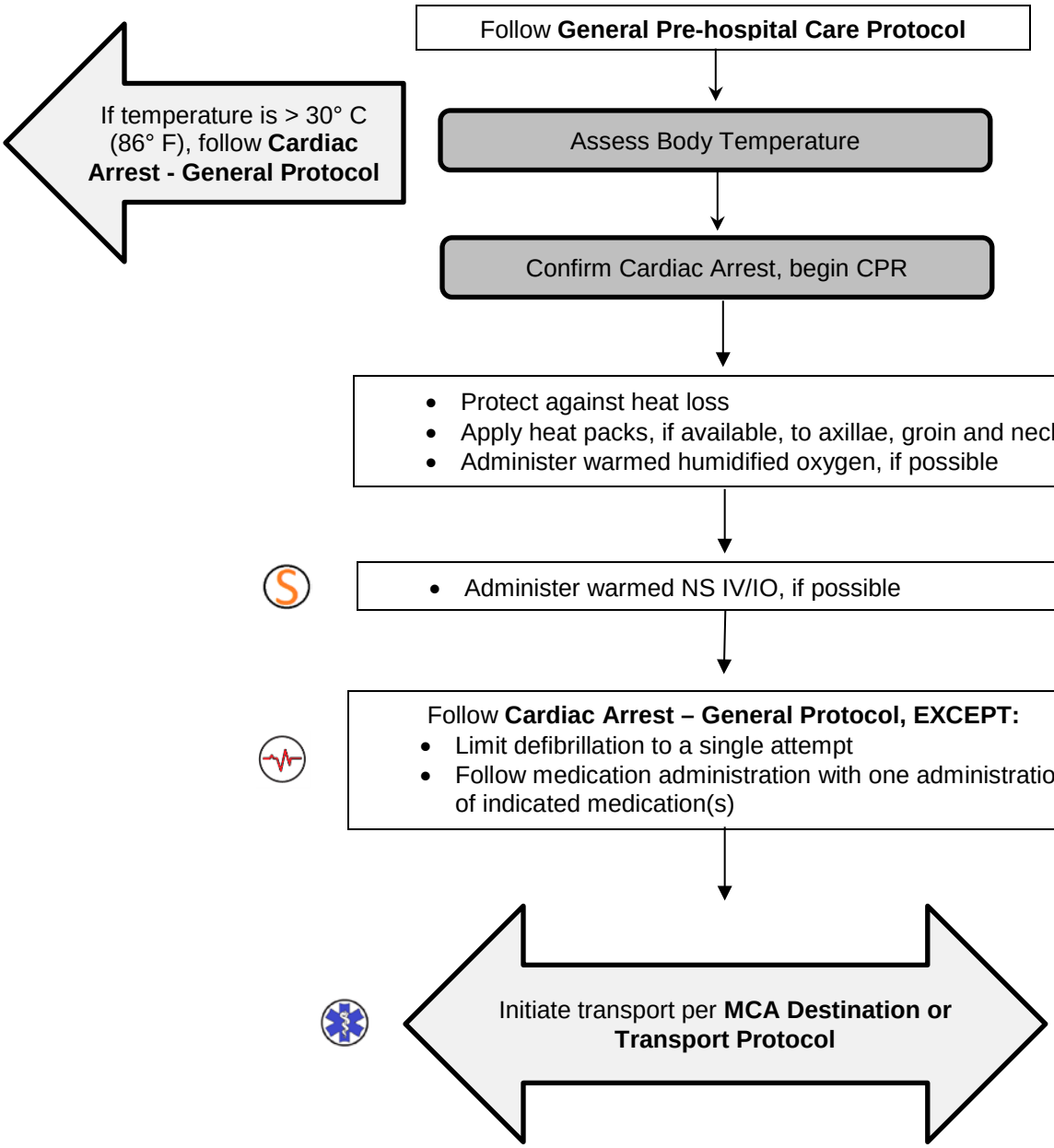
Hypothermia Cardiac Arrest

1. Follow **General Pre-hospital Care Protocol.**
2. Assess body temperature. If temperature is greater than 30° C (86° F), follow **Cardiac Arrest – General or Pediatric Cardiac Arrest – General**
3. Confirm cardiac arrest, 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.

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

8. Follow **Cardiac Arrest – General or Pediatric Cardiac Arrest – General** except:
   A. Limit defibrillation to a single attempt.
   B. Follow medication administration with one administration of indicated medication(s).

9. Initiate transport per **MCA Destination or Transport Protocol**.


Follow **General Pre-hospital Care Protocol**
If temperature is > 30° C (86° F), follow **Cardiac Arrest - General Protocol**
Assess Body Temperature
Confirm Cardiac Arrest, 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 **Cardiac Arrest – General Protocol, EXCEPT:**
• Limit defibrillation to a single attempt
• Follow medication administration with one administration of indicated medication(s)
Initiate transport per **MCA Destination or Transport Protocol**

MICHIGAN

State Protocols

Protocol Number | **Protocol Name**

Adult Treatment Protocols

Table of Contents

Altered Mental Status

The purpose of this protocol is to provide for the assessment and treatment of patients with altered mental status. Consideration should be given to treatable and reversible causes due to hypoglycemia, opioid overdose or unknown etiology.

1. Follow **General Pre-hospital Care Protocol**.
2. **If patient is not alert or vital signs are unstable:**
   a. Evaluate and maintain airway, provide oxygenation and support ventilations as needed per **Emergency Airway Procedure**.
   b. If no suspected spinal injury, place the patient in recovery position.
3. If respiratory depression is present due to suspected opioid overdose, administer Naloxone per **Naloxone Administration Procedure**.
4. Restrain patient if necessary, refer to **Patient Restraint Procedure**.
5. For a known diabetic, consider small amounts of oral glucose if unable to measure blood glucose level.

6. If the patient is demonstrating signs of hypoglycemia, measure blood glucose level.
   a. If less than 60 mg/dL, administer oral glucose.

MCA Approval of Blood Glucose Testing by specific MFR Agencies
(Provide participating agency list to BETP)

☑ YES ☐ NO

7. If glucose is less than 60 mg/dL, and patient is demonstrating signs of hypoglycemia:
   a. Administer IV Dextrose 25 gm.
   b. Per MCA selection, if unable to start IV, when IV Dextrose is indicated, administer Glucagon.

Glucagon 1mg IM

☑ Included

☐ Not Included

8. Recheck the blood glucose 10 minutes after glucose/Glucagon administration (Per MCA selection).

9. Contact medical control.

Follow **General Prehospital Care Protocol**

Restrain patient, if necessary. Refer to **Patient Restraint Procedure**

Evaluate and maintain airway, provide oxygenation, and support ventilations as needed per **Emergency Airway Procedure**.

If respiratory depression/suspected opioid overdose, refer to **Naloxone Administration Procedure**

If no suspected trauma, place patient in the recovery position

MCA Approval of Blood Glucose Testing by Specific MFR Agencies
Provide Agency List to BETP

☑ Yes ☐ No

Signs of Hypoglycemia?

Check Blood Glucose

Glucose < 60 mg/DL?

Known Diabetic?

Administer Oral Glucose

S Establish Vascular Access

Glucose < 60 mg/DL?

Administer Dextrose 25 g IV

No Access?

Glucagon 1 mg IM
☑ Included ☐ Not Included

Administer Glucagon 1 mg IM

Recheck Blood Glucose 10 minutes after administration

Contact Medical Control

Stroke or Suspected Stroke

1. Follow **General Pre-hospital Care Protocol.**
2. Utilize the Cincinnati Pre-hospital Stroke Scale (CPSS). 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")

Any deficit in the CPSS is considered positive for stroke.

3. If the patient is demonstrating signs of hypoglycemia, measure blood glucose level.
   a. If less than 60 mg/dL, administer oral glucose.

MCA Approval of Blood Glucose Testing by specific MFR Agencies
(Provide participating agency list to BETP)

☑ YES ☐ NO

   b. Treat per **Altered Mental Status Protocol**.
4. If seizure, follow **Seizures Protocol.**
5. Document time last seen normal for patient, if known.
6. Minimize scene time, notify destination hospital as soon as possible and begin transport.

7. Initiate vascular access. (**DO NOT** delay scene time for IV.)

8. Monitor ECG. (**DO NOT** delay scene time for ECG monitoring.)

Follow **General Prehospital Care Protocol**

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 the patient say "The sky is blue in Michigan."

MCA Approval of Blood Glucose Testing by Specific MFR Agencies
Provide Agency List to BETP

☑ Yes ☐ No

Obtain blood glucose measurement

If the patient seizes, go to **Seizures Protocol**

If blood glucose is <60 mg/dL, treat per **Altered Mental Status Protocol - Adult**

- Document time last seen normal for patient, if known.
- Minimize scene time, notify destination hospital as soon as possible and begin transport.

Initiate Vascular Access
(Do not delay scene time)

Monitor ECG
(Do not delay scene time)

Respiratory Distress

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

CLEAR BREATH SOUNDS:

1. Possible metabolic problems, MI, pulmonary embolus, hyperventilation
2. Obtain 12-lead ECG.

ASYMMETRICAL BREATH SOUNDS:

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

STRIDOR/UPPER AIRWAY OBSTRUCTION:

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.

RHONCHI (SUSPECTED PNEUMONIA):

1. Sit patient upright.
2. Consider CPAP per MCA selection. Refer to **CPAP/BiPAP Procedure**.
3. Consider NS IV/IO fluid bolus up to 1 liter, wide open if tachycardia, repeat as needed.

CRACKLES (CHF/PULMONARY EDEMA):

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

WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):

1. Assist the patient in using their own Albuterol Inhaler, if available
2. Administer Albuterol if available. Refer to **Nebulized Bronchodilators Procedure**.
3. Consider CPAP per MCA selection. Refer to **CPAP/BiPAP Procedure**.
4. Administer Epinephrine auto-injector (0.3 mg) in patients with impending respiratory failure unable to tolerate nebulizer therapy.
5. Administer Bronchodilator per **Nebulized Bronchodilators Procedure**.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

6. Administer Epinephrine 1 mg/ml, 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. For MCA with both selected, Prednisone PO is the preferred medication. Methylprednisolone is secondary and reserved for when a patient can't take a PO medication.
9. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

Asthma:

10. Consider repeat Epinephrine 1mg/ml, 0.3 mg (0.3 ml) IM in patients with impending respiratory failure unable to tolerate nebulizer therapy.
11. 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.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Follow **General Pre-hospital Care Protocol**

- Allow patient position of comfort
- Determine type of respiratory problem

Nature of Airway Sounds?

Clear

Possible
- Metabolic Problems
- Myocardial Infarction
- Pulmonary Embolus
- Hyperventilation

Obtain 12 Lead ECG

Stridor

Complete or Partial Obstruction?
Follow **Emergency Airway Procedure**

Consider Anaphylaxis, refer to **Anaphylaxis/Allergic Reaction Protocol**

Rhonchi (Pneumonia)

- Sit Patient Upright
- Consider Fluid Bolus

Refer to **CPAP/BiPAP Procedure**

Crackles (CHF/Pulmonary Edema)

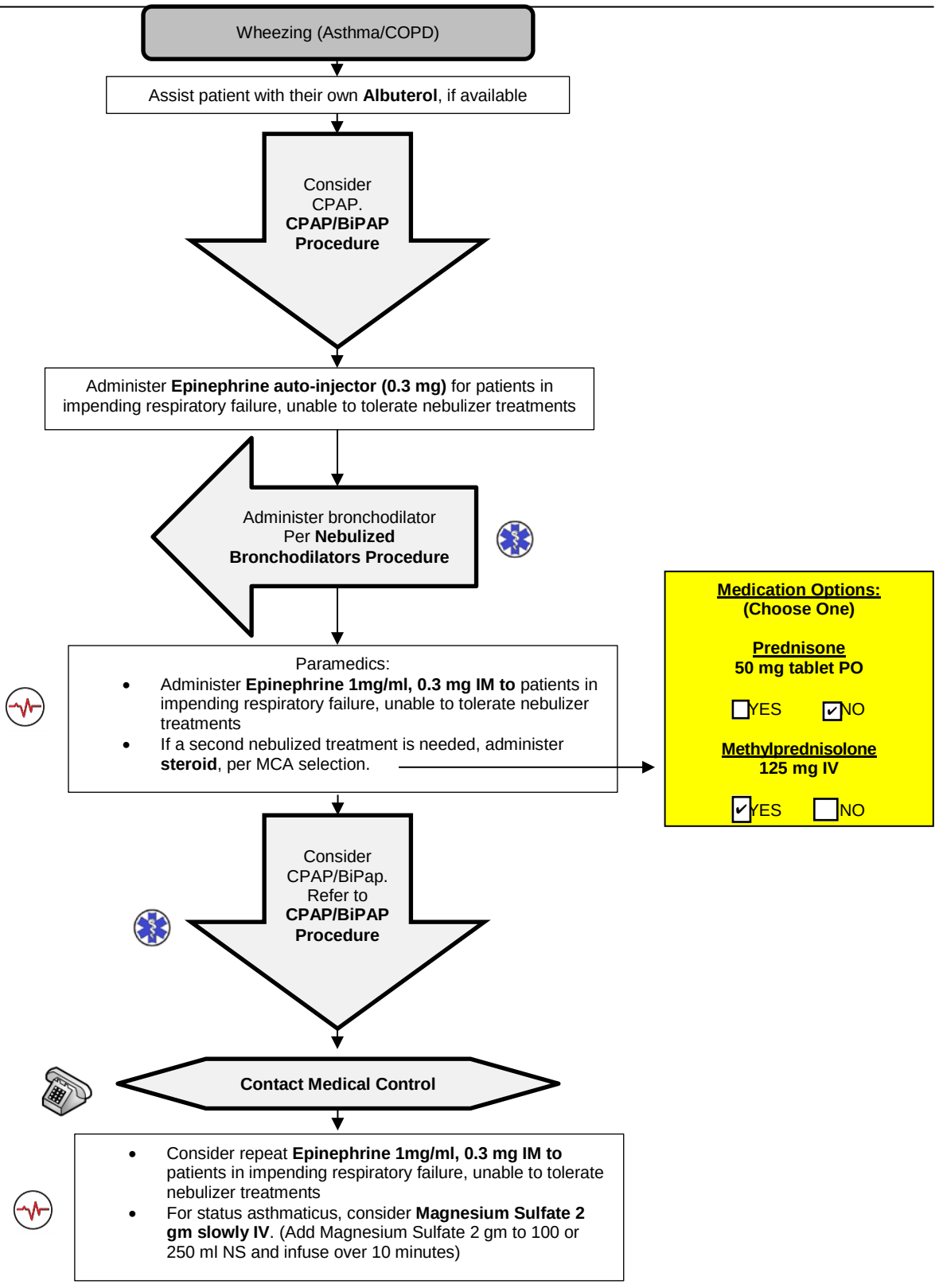
Consider Anaphylaxis, refer to **CHF/Pulmonary Edema**

Asymmetric

If evidence of tension pneumothorax and patient unstable refer to **Pleural Decompression Procedure**

Wheezing (Asthma/COPD), See Page 2

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:



MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Seizures

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.

   C. Administer Midazolam 10 mg IM prior to IV start.

   D. If blood glucose is found to be less than 60 mg/dL or hypoglycemia is suspected:
      a. Administer Dextrose 25 gm IV.
      b. If no IV access, per MCA selection, administer glucagon 1 mg IM

Glucagon included?

☑ Yes ☐ No

   E. If patient is pregnant (eclampsia)
      a. 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 eclamptic seizure does not stop after magnesium, then administer benzodiazepine as specified below.

   F. If IV already established and Midazolam IM has not been administered, administer
      a. Midazolam 5 mg IV/IO **OR**
      b. Lorazepam 2 mg slow IV push until seizure stops, per MCA selection.

Medication Options:
(Choose One)
☑ Midazolam 5 mg IV/IO
OR
☐ Lorazepam 2 mg IV/IO

   G. If seizures persist
      a. Per MCA selection, repeat Midazolam 5mg IV/IO/IM **OR**
      b. Lorazepam 2 mg slow IV push until seizure stops
      c. Contact medical control

3. **IF PATIENT IS NOT ACTIVELY SEIZING** and has/is:
   A. Altered level of consciousness, refer to **ALTERED MENTAL STATUS PROTOCOL.**
   B. Alert
      a. Monitor for changes
      b. Obtain vascular access.

Follow **General Pre-Hospital Protocol**

Is the patient **actively seizing**?

Seizing

- Protect patient from injury.
- Do not force anything between teeth
- Assess glucose, if possible (Do not Delay Midazolam)

Not Seizing

Alert

- Monitor for changes
- Establish vascular access (S)

Not Alert

Refer to **Altered Mental Status Protocol**

Hypoglycemic

Administer:
Dextrose 25 gm IV
If no IV, administer
Glucagon 1 mg IM,
Per MCA selection

Still Seizing?

And Hypoglycemic?

Contact Medical Control

Administer additional:
Dextrose 25 gm IV

Glucagon included?

☑ Yes ☐ No

Pregnant

Administer:
Magnesium Sulfate 2 gm over 10 minutes IV/IO
(Add 2 gm Magnesium Sulfate to 100 or 250 ml NS and infuse over 10 min)

Still Seizing?

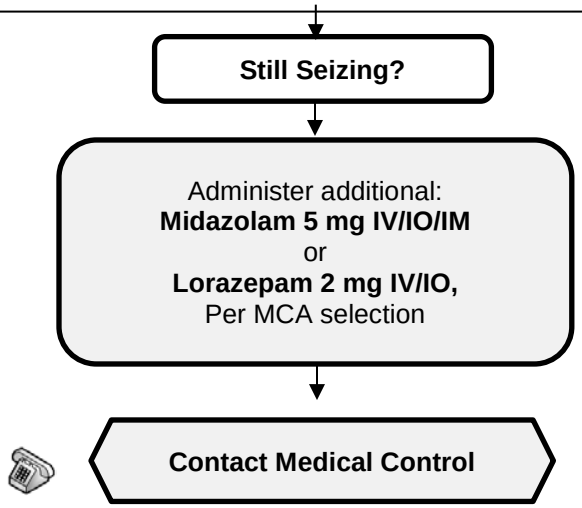
Prior to IV Start, Administer
Midazolam 10 mg IM

If IV already established and Midazolam IM has not been administered

Administer:
Midazolam 5 mg IV/IO
or
Lorazepam 2 mg IV/IO,
Per MCA selection

Still Seizing?

Medication Options:
(Choose One)
☑ Midazolam 5 mg IV/IO
OR
☐ Lorazepam 2 mg IV/IO


Still Seizing?
Administer additional:
Midazolam 5 mg IV/IO/IM
or
Lorazepam 2 mg IV/IO,
Per MCA selection
Contact Medical Control

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 14 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 minute
   E. SBP <90 mmHg or evidence of hypoperfusion

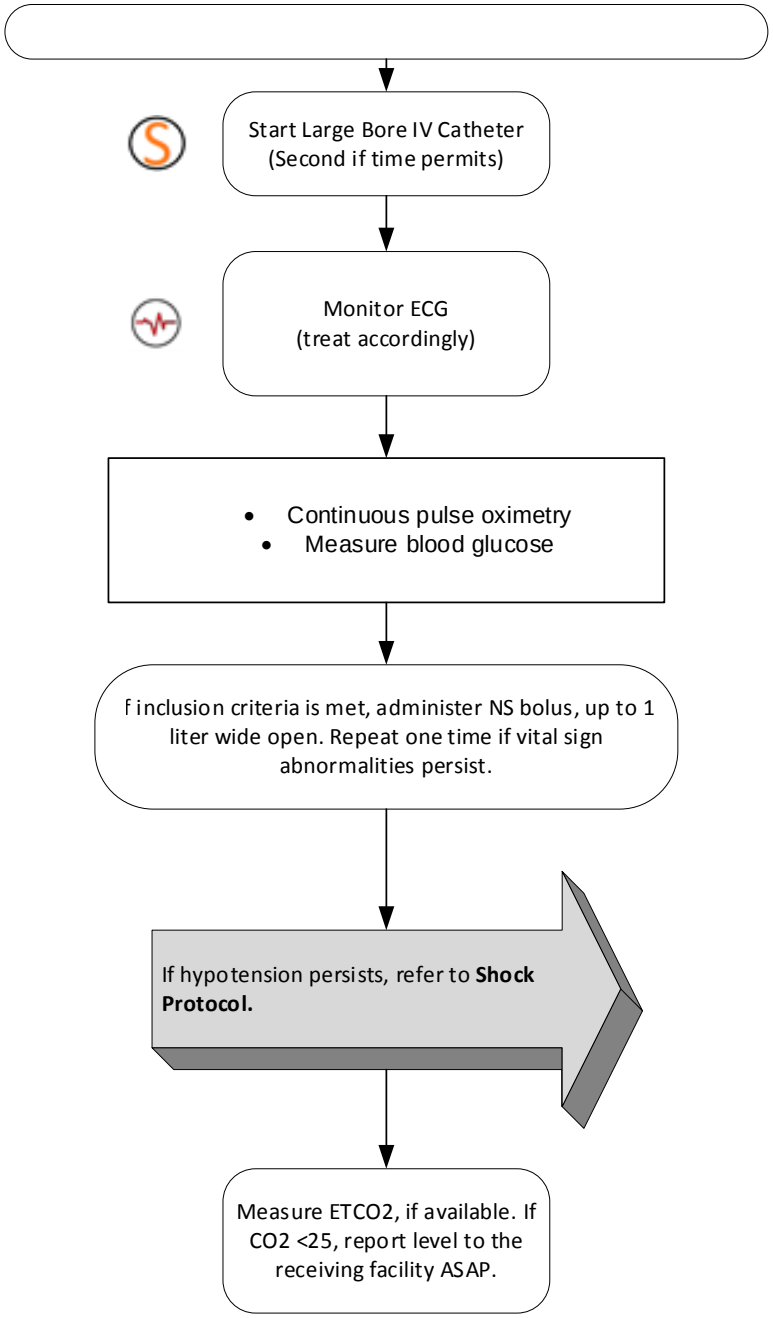
Treatment

1. Follow **General Pre-Hospital Care** protocol.
2. Place patient in supine position.
3. Start large bore IV catheter.
4. Start second large bore IV catheter, if time permits.
5. Place on cardiac monitor and treat rhythm according to appropriate protocol.
6. Place on continuous pulse oximetry.
7. Measure blood glucose.
8. 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.
9. If hypotension persists, refer to **Shock Protocol**.
10. **(Optional)** Measure ETCO2 level. If CO2 < 25, report level to the receiving facility as soon as possible.

Follow **General Prehospital Care Protocol**

Clinical suspicion of systemic infection and two or more of the following:

- **Hyperthermia temp > 38 ° C (100.4° F)**
- Hypothermia temp < 36° C (96.8° F)
- Heart rate >90bpm
- Respiratory rate <10 or >20 per minute
- SBP <90 mmHg or evidence of hypoperfusion



Excited Delirium

Indications: Patient who is an imminent physical threat to personnel and/or themselves.

Treatment

1. Ensure ALS response
2. Follow **General Pre-hospital Care Protocol**
3. Coordinate with on scene law enforcement before any physical patient contact. Refer to **Patient Restraint Procedure.**
4. Obtain history when possible and perform a visual patient assessment looking for symptoms of ExDS. If an alternate cause of the behavior is likely, transition to the **Altered Mental Status Protocol**.

5. If the patient remains combative, following restraint by law enforcement:
   a. Per MCA selection, administer
   Midazolam 10 mg IM or 5 mg IN OR Ketamine 4 mg/kg IM.

MCA Selection
(Choose One)

☑ Midazolam 10 mg IM or 5 mg IN
OR
☐ Ketamine 4 mg/kg IM

6. Obtain temperature
   b. If hyperthermic, provide cooling – ice packs to neck, axilla and groin; fluids to skin
7. Provide fluid bolus of up to 2 L of NS
8. Restrain patient per the **Patient Restraint Procedure** in anticipation of the sedation wearing off.
9. Evaluate for other causes of Altered Mental Status including: **A**lcohol, **E**pilepsy/Seizure, **I**nsulin, **O**verdose, **U**remia/Under dose, **C**ardiac, **H**ypoxia, **E**nvironment, **S**troke, **S**epsis, **T**rauma, **I**ngestion, **P**sych, **P**henothiazines, **S**alicylates
10. Monitor EKG, consider 12-lead if any evidence of hyperkalemia (peaked T waves, prolonged PR, widened QRS)
11. Monitor capnography, if possible

12. Additional sedation as needed, per **Patient Sedation Procedure.**

Assure the Scene is SECURE

Follow **General Pre-hospital Care Protocol**

- Coordinate with **Law Enforcement** on scene before any physical patient contact
- Obtain history when possible
- Perform visual patient assessment looking for symptoms of Excited Delirium

Refer to **Patient Restraint Procedure**

If Alternate cause is likely, refer to **Altered Mental Status Protocol**

Have **Law Enforcement** restrain patient

Per MCA Selection Administer **Ketamine (4 mg/kg IM) OR Midazolam 10 mg IM or 5 mg IN**

MCA Selection (Choose One)

☑ Midazolam 10 mg IM or 5 mg IN
OR
☐ Ketamine 4 mg/kg IM

- If hyperthermic, provide cooling – ice packs to neck, axilla and groin; fluids to skin
- Provide fluid bolus of up to 2 L of NS
- Evaluate for other causes of Altered Mental Status including: **A**lcohol, **E**pilepsy/Seizure, **I**nsulin, **O**verdose, **U**remia/Under dose, **C**ardiac, **H**ypoxia, **E**nvironment, **S**troke, **S**epsis, **T**rauma, **I**ngestion, **P**sych, **P**henothiazines, **S**alicylates
- Monitor EKG, consider 12-lead if any evidence of hyperkalemia (peaked T waves, prolonged PR, widened QRS)

Additional sedation as needed, per **Patient Sedation Procedure**

MICHIGAN

State Protocols

Protocol Number | **Protocol Name**

Obstetrics and Pediatrics

Table of Contents

Pediatric Medication Emergency Dosing and Intervention Cards

Purpose: Instructions for using the **Michigan Medication Emergency Dosing and Intervention Cards** (MI-MEDIC). Protocols are dynamic and may change based on current science. EMS personnel must be familiar with the most current set of approved protocols which take precedence over the information included in the MI-MEDIC.

1. Obtain correct weight of the child
    a. If patient's actual weight is known, use MI MEDIC card for that weight. (DO NOT CONFUSE POUNDS and KILOGRAMS)
    b. If patient's weight is not known, use length-based resuscitation tape to determine the proper color zone.
    c. If a length-based resuscitation tape not available, use patient's age to determine color of card to use. DO NOT GUESS THE WEIGHT OF THE CHILD.
2. Select appropriate weight based medication for intervention.
3. Select the corresponding colored card
4. Select desired medication from Cardiac Resuscitation or Medical Conditions
5. ASSURE medication CONCENTRATION on hand is as specified on card
6. Some medications should be diluted as instructed on card
7. If dilution is required, follow steps to dilute entire vial of medication prior to drawing up final ml volume to administer.
8. Confirm medication dose and volume to be delivered.
9. Administer volume of medication as desired.
10. Contact Medical Control for questions or concerns.

NOTE: Some medication doses have been rounded for safety and ease of use for the prevention of medication errors. These doses may not exactly correspond with the mg/kg dose in the pediatric treatment protocols. The use of these rounded doses has been approved for use and administration will be acceptable as long as the dose was referenced from the MI MEDIC cards.

Obstetrical Emergencies

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

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
    D. Obtain vascular access, if time permits.

3. 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 provide a controlled delivery.
        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. (Suction with a bulb syringe should be reserved for infants with obvious obstruction)

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.
   i. A – appearance (color)
   ii. P – pulse (heart rate)
   iii. G – grimace (reflex irritability to slap on sole of foot)
   iv. A – activity (muscle tone)
   v. R – respiration (respiratory effort)
   vi. Each parameter gets a score of 0 to 2.

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

n. If **APGAR** is less than 6, refer to **Pediatric Newborn Assessment, Treatment and Resuscitation Protocol**.
o. When delivery of baby is complete, prepare for immediate transport. Placenta can be delivered in route or at the hospital
p. Delivery of placenta generally takes place within 20 minutes.
q. Following placental delivery, massage the uterus to aid in contraction of the uterus.
r. Place placenta in basin or plastic bag and transport with mother.


s. Contact medical control.

4. If there are signs of airway obstruction or respiratory distress, suction and refer to **Pediatric Newborn Assessment, Treatment and Resuscitation Protocol.**
5. 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 ATTEMPT 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 step 3a.)
d. Prepare additional supplies for subsequent births.
e. There may be time to transport between births.

6. **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

C. If seizure occurs
a. 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 eclamptic seizure does not stop after magnesium, then refer to **Seizure Protocol**

Follow **General Pre-Hospital Care Protocol**

- Assess history (previous births, complications, gestation, etc)
- Objective findings (vitals, contractions)
- Determine whether to transport or remain on scene.

Specialist/Paramedic: Obtain Vascular Access, if time permits

Seizure?

- 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.
- If eclamptic seizure does not stop after magnesium, then refer to **Seizure Protocol**

Delivery Imminent?

Yes

Presentation?

No

Transport, refer to **appropriate protocol**

Normal

- Prepare for delivery
- Try to find private, clean place
- Position patient on back
- Drape if possible
- Reassure

- Support the head as it emerges
- If cord is wrapped around the neck
  - Slide over if loose
  - Clamp and cut if tight
- Support the body through delivery
- Note time of delivery
- Suction with bulb syringe should be reserved for infants with obvious signs of airway obstruction

Breech

Contact Medical Control ASAP

- Allow buttocks and trunk to deliver spontaneously
- Once legs clear, support body, allowing head to deliver
- If head doesn't deliver immediately, transport rapidly with mother's hips elevated and baby's airway maintained
- Place a 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 until the head is delivered

Cord

Contact Medical Control ASAP

LIFE THREATENING CONDITION

- Place mother supine, with hips supported.
- Evaluate and maintain airway.
- **With sterile gloved hand**, gently push the baby up the vagina several inches to release pressure on the cord.
- **DO NOT PUSH CORD BACK**
- Transport maintaining pressure on the baby's head.

Limb

LIFE THREATENING CONDITION

- Immediate transportation
- Do not attempt delivery out of hospital
- Place mother in position of comfort, or hips elevated
- Evaluate and maintain airway, provide oxygen.

- Evaluate Infant Respirations
  - If not breathing, stimulate the infant
  - If breathing, administer oxygen until color is pink
- Clamp and cut the cord
- Score **APGAR** at one and five minutes after delivery

Neonatal Assessment and Resuscitation

Aliases: newborn treatment, newborn resuscitation

This protocol should be followed for all newly born infants.

1. History
    a. Date and time of birth
    b. Onset of symptoms
    c. Prenatal history (prenatal care, substance abuse, multiple gestation, maternal illness)
    d. Birth history (maternal fever, meconium, prolapsed or nuchal cord, bleeding)
    e. Estimated gestational age (may be based on last menstrual period)
2. Exam
    a. Respiratory rate and effort (strong, weak, or absent; regular or irregular)
    b. Signs of respiratory distress (grunting, nasal flaring, retractions, gasping, apnea)
    c. Heart rate (fast, slow, or absent), auscultation of chest is the preferred method
    d. Muscle tone (poor or strong)
    e. Color/Appearance (central cyanosis, peripheral cyanosis, pallor, normal)
    f. APGAR score

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

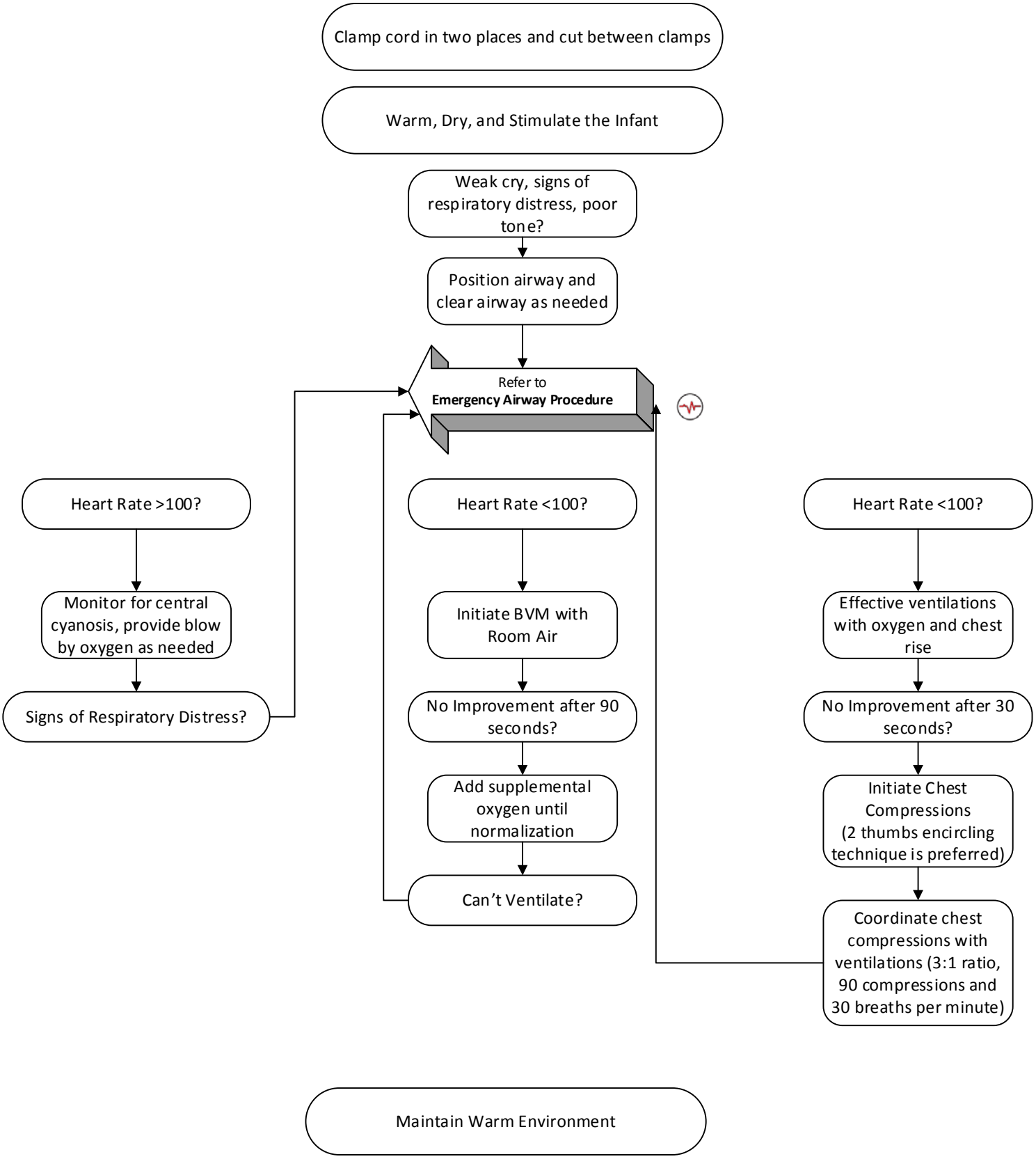
    g. Estimated gestational age (term, late preterm, premature)
    h. Pulse oximetry should be considered if prolonged resuscitative efforts or if supplemental oxygen is administered (goal 85-95% at 10 minutes)
3. Procedure
    a. Clamp cord in two places and cut cord between clamps
        i. Should be two to three minutes post delivery
        ii. One clamp 8” from the infant’s abdominal wall and second 2” further
    b. Warm, dry, and stimulate
        i. Wrap infant in dry towel or blanket to keep infant warm, keep head covered if possible
        ii. If strong cry, regular respiratory effort, good tone, and term gestation, infant should be placed skin-to-skin with mother and covered with dry linen

c. If weak cry, signs of respiratory distress, poor tone, or preterm gestation then position airway (sniffing position) and clear airway as needed
    i. If thick meconium or secretions present **and** signs of respiratory distress, then suction mouth then nose
d. If heart rate >100 beats per minute
    i. Monitor for central cyanosis, provide blow-by oxygen as needed
    ii. Monitor for signs of respiratory distress. If apneic or significant distress:
        1. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
        2. If unable to ventilate, consider intubation per **Emergency Airway Procedure**

e. If heart rate < 100 beats per minute
    i. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
        1. Primary indicator of improvement is increased heart rate
        2. Only use minimum necessary volume to achieve chest rise
    ii. If no improvement after 90 seconds, provide ventilations with supplemental oxygen (100%) until heart rate normalizes (100 or above)
        1. If unable to ventilate, consider intubation per **Emergency Airway Procedure**

f. If heart rate < 60 beats per minute
    i. Ensure effective ventilations with supplementary oxygen and adequate chest rise
    ii. If no improvements after 30 seconds, initiate chest compressions
        1. Two-thumb-encircling-hands technique is preferred
    iii. Coordinate chest compressions with positive pressure ventilation (3:1 ratio, 90 compressions and 30 breaths per minute)
        1. Per MCA selection, consider intubation per **Emergency Airway Procedure**

4. Maintain warm environment
    a. Dry off infant and discard wet linen
    b. Swaddle infant to mother skin to skin if infant is stable
    c. Use extreme caution if chemical heat packs are used
5. For patient transport, refer to **Safe Transportation of Children in Ambulances Protocol**.


Clamp cord in two places and cut between clamps
Warm, Dry, and Stimulate the Infant
Weak cry, signs of respiratory distress, poor tone?
Position airway and clear airway as needed
Refer to
Emergency Airway Procedure
Heart Rate >100?
Monitor for central cyanosis, provide blow by oxygen as needed
Signs of Respiratory Distress?
Heart Rate <100?
Initiate BVM with Room Air
No Improvement after 90 seconds?
Add supplemental oxygen until normalization
Can't Ventilate?
Heart Rate <100?
Effective ventilations with oxygen and chest rise
No Improvement after 30 seconds?
Initiate Chest Compressions (2 thumbs encircling technique is preferred)
Coordinate chest compressions with ventilations (3:1 ratio, 90 compressions and 30 breaths per minute)
Maintain Warm Environment

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.

1. Follow **Patient Assessment Protocol**.
2. Restrain patient if necessary, refer to **Patient Restraint Procedure**.
3. For a known diabetic, consider small amounts of oral glucose paste, buccal or sublingual.
4. If the patient is **alert** but demonstrating altered mental status, measure blood glucose level (per MCA selection).

MCA Approval of Blood Glucose Testing by specific MFR Agencies
(Provide participating agency list to BETP)

☑ YES ☐ NO

5. If less than 40 mg/dL for patients less than 1 year or 60 mg/dL for patients 1 year and above, administer small amounts of oral glucose paste, buccal or sublingual.
6. If glucose is less than 40 mg/dL for patients less than 1 year or 60 mg/dL for patients 1 year and above, administer Dextrose according to MI-MEDIC cards.
7. If MI-MEDIC unavailable, administer Dextrose 0.5 g/kg
   A. For patients up to 2 months of age, utilize Dextrose 12.5%
   B. For patients between 2 months and 6 years of age, utilize Dextrose 25%
   C. For patients age 7 or greater, utilize Dextrose 50%
   D. May utilize 10% for all ages 5 ml/kg (0.5 gm/kg) up to 250 ml, according to **Dextrose Protocol**.
8. Per MCA selection, if unable to start IV, administer Glucagon according to MI-MEDIC cards.

Glucagon Included?
☑ Yes ☐ No

9. If MI-MEDIC unavailable
   A. For patients up to 4 years of age, administer Glucagon 0.5 mg IM
   B. For patients aged 5 or greater, administer Glucagon 1 mg IM
10. If respiratory depression is present, administer Naloxone according to MI-MEDIC cards. If MI-MEDIC is unavailable, administer Naloxone 0.1 mg/kg IV/IO/IN/IM.
11. Repeat Dextrose as indicated.
12. 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).

Pediatric Respiratory Distress, Failure or Arrest

1. Follow **Patient Assessment Protocol.**
2. Assess the patient's airway; if the airway is obstructed, refer to **Emergency Airway Procedure**
   A. Consider possibility of partial airway obstruction presents with acute respiratory distress of sudden onset accompanied by fever, drooling, hoarseness, stridor, and tripod positioning.
   B. If unable to ventilate patient after airway repositioning, assume airway obstruction.
3. Allow the patient a position of comfort
4. Titrate oxygen saturation to 94% (Having a parent assist with blow by may be necessary)
5. Airway should be managed by least invasive method possible.
6. Suction as needed if excessive secretions are present.
7. Consider CPAP if available, per **CPAP/BiPAP Procedure**.
8. Do not delay transport for interventions.

9. Attempt vascular access only if necessary for patient treatment.

Suspected Bronchospasm (Wheezing):

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

2. Administer inhaled medications according to **Nebulized Bronchodilators Procedure**.
3. Consider CPAP, if available, per **CPAP/BiPAP Procedure.**
4. In cases of respiratory 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 Pediatric Epinephrine Auto-Injector.
   C. Child weighing greater than 30 kg; administer Epinephrine Auto-Injector.
5. 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

6. For MCA with both selected, Prednisone PO is the preferred medication. Methylprednisolone is secondary and reserved for when a patient can't take a PO medication.
7. If patient is in respiratory 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 Pediatric Epinephrine Auto-injector, if available.
   C. Child weighing greater than 30 kg; administer Epinephrine 1mg/ 1mL, 0.3 mg (0.3 ml) IM OR via Epinephrine Auto-Injector, if available.

Suspected Croup:

1. Notes:
   A. Croup is most common in the fall and winter with the onset of symptoms at night.
   B. Croup is most common in children 6 months to 6 years of age.
   C. Patients will likely have a recent history of upper airway infection or fever.
   D. If foreign body is suspected, contact Medical Control prior to administration of epinephrine.
2. Consider humidified oxygen
3. If patient presents with moderate to severe croup administer Epinephrine per MCA selection:

MCA Selection

☑ Racepinephrine 2.25% inhalation solution via nebulizer

Administer by placing 0.5 mL of Racepinephrine 2.25% inhalation solution in nebulizer and dilute with 3 mL of normal saline.

☐ Epinephrine 5 mg (1mg/1ml) nebulized

4. Do not delay transport.
5. Symptom improvement should occur within 10 to 30 minutes.

Respiratory Failure or Arrest:

1. Ventilate the patient using an appropriately sized BVM with supplemental oxygen.
   A. Chest rise is the best indicator of successful ventilation
   B. Ventilate at a rate appropriate for the patient:
      i. Infant: 30 breaths per minute
      ii. Child: 20 breaths per minute
2. Airway management should take place in order of least invasive to most invasive, titrating to effective ventilation and oxygenation.
3. If opioid overdose is suspected, administer Naloxone according to MI-MEDIC cards. If MI-MEDIC is unavailable, administer Naloxone 0.1 mg/kg IV/IO/IN/IM while ventilating with the BVM.

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.

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

3. If the child has not been given acetaminophen in last four (4) hours, is alert, and:
   a. The patient's weight is known, utilize that weight and MI-MEDIC for dosing.
   b. The patient's weight is not available, utilize length based tape and MI-MEDIC for dosing.
   c. If MI-Medic is not available, give **Acetaminophen 15 mg/kg PO or see chart.**

4. If child has not been given ibuprofen (Motrin/Advil) in the last 6 hours, is alert, and:
   a. The patient's weight is known, utilize that weight and MI-MEDIC for dosing.
   b. The patient's weight is not available, utilize length based tape and MI-MEDIC for dosing.
   c. If MI-MEDIC is not available, give ibuprofen 10 mg/kg PO or see chart
5. If any question concerning alertness or ability to swallow, **DO NOT ADMINISTER.**

6. Dosing questions should be directed to online medical control.

Dosing Table

Child's Weight (AGE)	Children's Acetaminophen Elixir (160 mg/5ml)	Children's Ibuprofen Elixir (100 mg/5 ml)
6-12 lbs. (0-2 mos.)	1.5 mL (48 mg)	DO NOT GIVE
13-16 lbs. (3-6 mos.)	3 mL (96 mg)	DO NOT GIVE
17-20 lbs. (7-10 mos.)	4 mL (128 mg)	4 mL (80 mg)
21-25 lbs. (11-18 mos.)	5 mL (160 mg)	5 mL (100 mg)
26-31 lbs. (19 mos-3yrs)	6 mL (192 mg)	6 mL (120 mg)
32-35 lbs. (3-4 yrs.)	7 mL (224 mg)	7.5 mL (150 mg)
36-40 lbs. (4-5 yrs.)	8 mL (256 mg)	8.5 mL (170 mg)
41-45 lbs. (5-6 yrs.)	9 mL (288 mg)	9.5 mL (190 mg)
41-51 lbs. (5-6 yrs.)	10 mL (320 mg)	11 mL (220 mg)
52-64 lbs. (7-9 yrs.)	12 mL (384 mg)	13 mL (260 mg)
65-79+ lbs. (10-14 yrs.)	15 mL (480 mg)	15 mL (300 mg)

Pediatric Seizures

I. Follow **Patient Assessment Protocol**.
II. **IF PATIENT IS ACTIVELY SEIZING:**
A. Protect patient from injury.
B. Do not force anything between teeth.
C. Administer Midazolam IM according to the MI-MEDIC cards
a. If MI-MEDIC unavailable administer Midazolam 0.1mg/kg IM
b. Maximum individual dose 10 mg

D. Measure blood glucose level.

MCA Approval of Blood Glucose Testing by specific MFR Agencies
(Provide participating agency list to BETP)

☑ YES ☐ NO

E. Start IV/IO if needed.
F. If glucose is less than 40 mg/dL for patients less than 1 year or 60 mg/dL for patients 1 year and above, administer Dextrose according to MI-MEDIC cards.
G. If MI-MEDIC unavailable, administer Dextrose 0.5 g/kg
a. For patients up to 2 months of age, utilize Dextrose 12.5%
b. For patients between 2 months and 6 years of age, utilize Dextrose 25%
c. For patients age 7 or greater, utilize Dextrose 50%
H. Per MCA selection, if unable to start IV, administer Glucagon according to MI-MEDIC cards.

Glucagon Included?
☑ Yes ☐ No

I. If MI-MEDIC unavailable
a. For patients up to 4 years of age, administer Glucagon 0.5 mg IM
b. For patients aged 5 or greater, administer Glucagon 1 mg IM

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

J. If IV established and **Midazolam IM** has not been administered, administer **Midazolam, or Lorazepam** 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)

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

III. If patient is not currently seizing, but has altered mental status, refer to **ALTERED MENTAL STATUS PROTOCOL.**

Safe Transportation of Children in Ambulances

Safe transportation of children in ambulances is very important. This protocol will serve as a guideline to the safe transportation of children in an ambulance. These are a limited set of circumstances that may not fit every situation.

Criteria for Transport

1. This protocol applies to every EMS response resulting in the need to transport pediatric patients who are of an age/weight that require the use of a child safety seat from the scene of an emergency. Pediatric patients that do not require a child safety seat should be transported following the same procedure as adult patients.
2. This protocol is based on recommendations, as published by the National Highway Traffic Safety Administration (NHTSA), for the transportation of children in five possible situations:
    a. The transport of a child who is not injured or ill.
    b. The transport of a child who is ill and/or injured and whose condition does not require continuous and/or intensive medical monitoring or intervention.
    c. The transport of an ill or injured child who does require continuous and/or intensive monitoring or intervention.
    d. The transport of a child whose condition requires spinal motion restriction and/or lying flat, refer to Spinal Precautions Procedure
    e. The transport of a child or children who require transport as part of a multiple patient transport (newborn with mother, multiple children, etc.)

Procedure

1. The child's age and weight shall be considered when determining an appropriate restraint system. Child seat models offer a wide range of age/weight limits, so each individual device must be evaluated to determine the appropriateness of use.
2. When possible, and with the exception of a minor vehicle crash (e.g. "fender-bender"), avoid transporting children in their own safety seats if the seat was involved in a motor vehicle crash. Use of the child's own seat can be considered if no other restraint systems are available and the seat shows no visible damage/defect.
3. Transportation of a child in any of the following ways is not allowed under normal circumstances:
    a. Unrestrained;
    b. On a parent/guardian/other caregiver's lap or held in their arms;
    c. Using only horizontal stretcher straps, if the child does not fit according to cot manufacturer's specifications for proper restraint of patients;
    d. On the multi-occupant bench seat or any seat perpendicular to the forward motion of the vehicle, even if the child is in a child safety seat.
4. For infants and newborns, be sure to maintain body heat.

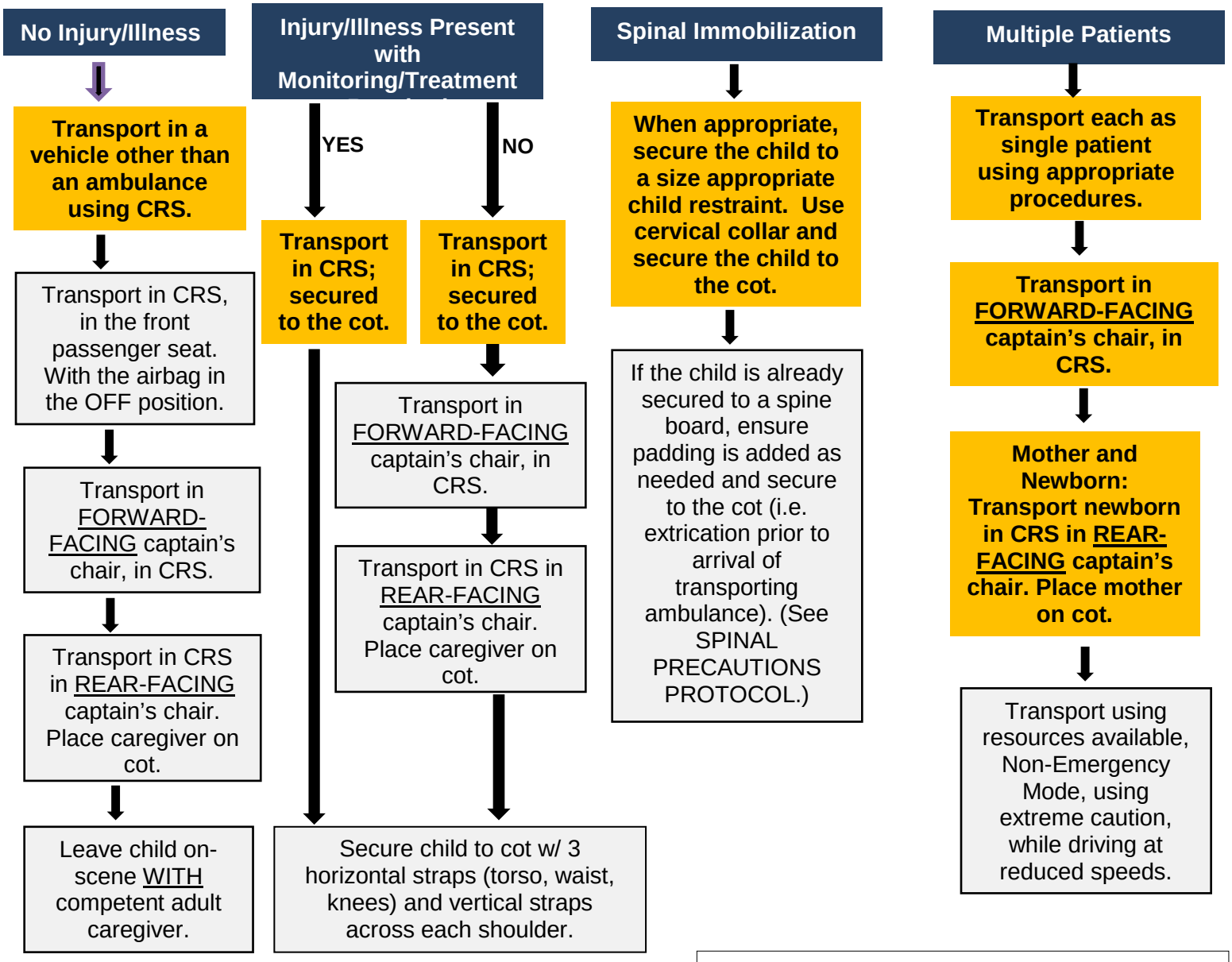
Situation Guidelines:
(*Ideal transport method is in **bold**, with acceptable alternatives listed if ideal is not achievable)

1. Transport of an uninjured/not ill child
    a. **Transport child in a vehicle other than a ground ambulance using a properly-installed, size-appropriate child restraint system**.
    b. Transport in a size-appropriate child seat properly-installed in the front passenger seat of the ambulance with the airbags off or in another forward-facing seat.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References: Transportation of children in emergency ground ambulances. https://www.nasemso.org/Committees/STC/documents/NHTSA-Safe-Transportation-of-Children-in-Ambulances-2012.pdf

   c. Transport in a size-appropriate child seat properly-installed on the rear-facing EMS provider's seat.
   d. Consider delaying the transport of the child (ensuring appropriate adult supervision) until additional vehicles are available without compromising other patients on the scene. Consult medical control if necessary.
2. Transport of an ill/injured child not requiring continuous intensive medical monitoring or interventions
   a. **Transport child in a size-appropriate child restraint system secured appropriately on the cot.**
   b. Transport child in the EMS provider's seat in a size-appropriate restraint system.
3. Transport of an ill/injured child whose condition requires continuous intensive monitoring or intervention.
   a. **Transport child in a size-appropriate child restraint system secured appropriately to the cot.**
   b. With the child's head at the top of the cot, secure the child to the cot with three horizontal straps and one vertical strap across each shoulder. If assessment/intervention requires the removing of restraint strap(s), restraints should be re-secured as quickly as possible.
4. Transport of an ill/injured child who requires spinal motion restriction or lying flat.
   a. **Secure the child to a size-appropriate child restraint when appropriate, use Cervical Collar, and secure child to the cot.**
   b. If the child is already secured to a spine board, ensure padding is added as needed and secure to the cot (i.e.: extrication prior to arrival of transporting ambulance). (See **Spinal Precautions protocol).**
5. Transport of a child or children requiring transport as part of a multiple patient transport (newborn with mother, multiple children, etc.)
   a. **If possible, for multiple patients, transport each as a single patient according to the guidance provided for situations 1 through 4. For mother and newborn, transport the newborn in an approved size-appropriate restraint system in the rear-facing EMS provider seat with a belt-path that prevents both lateral and forward movement, leaving the cot for the mother**.
   b. Consider the use of additional units to accomplish safe transport, remembering that non-patient children should be transported in non-EMS vehicles, if possible.
   c. When available resources prevent meeting the criteria for situations 1 through 4 for all child patients, transport using space available in a non-emergency mode, exercising extreme caution and driving at a reduced speed.
   d. **Note:** Even with childbirth in the field, it is NEVER appropriate to transport a child held in the parent/guardian/caregiver's arms or on a parent/guardian/caregiver's lap.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References: Transportation of children in emergency ground ambulances. https://www.nasemso.org/Committees/STC/documents/NHTSA-Safe-Transportation-of-Children-in-Ambulances-2012.pdf



TRANSPORTATION OF A CHILD IN ANY OF THE FOLLOWING WAYS IS NOT ALLOWED UNDER NORMAL CIRCUMSTANCES:

1) **Unrestrained**
2) **On someone's lap**
3) **Only using horizontal stretcher straps when the child does not fit according to the manufacturers recommendations**
4) **On the bench seat or any seat perpendicular to the forward motion of the vehicle, even if the child is in a child safety seat**

LEGEND
= Ideal Transport Method
= Acceptable Alternative Transport Method if Ideal is not achievable

CRS: Appropriately Sized Child Restraint Device (car seat, ACR, Pedi-Mate, Safe Guard, integrated captain's chair, etc.)

MUST REFER TO MANUFACTURER'S INSTRUCTIONS.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Transportation of children in emergency ground ambulances. https://www.nasemso.org/Committees/STC/documents/NHTSA-Safe-Transportation-of-Children-in-Ambulances-2012.pdf

MICHIGAN
State Protocols

Protocol Number | **Protocol Name**
Adult Cardiac

Table of Contents

Cardiac Arrest – General

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

- If an arrest is of a known traumatic origin, refer to the **Traumatic Arrest 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 Procedure**.
- Initiate ALS response if available.
- CPR should be consistent with current guidelines established by the American Heart Association.
- Focus should be on prompt defibrillation and effective chest compressions.

1. Confirm Arrest
    A. Assess breathing (Cardiac arrest patients may have gasping or agonal breathing).
    B. Check a carotid/femoral pulse for not more than 10 seconds.
2. Initiate CPR or continue CPR; apply and use AED/defibrillator (per **Electrical Therapy Procedure**) as soon as available.
3. Ensure high quality CPR
    A. Chest compression rate is 100 to 120/min.
    B. Chest compression depth for adults is 2 inches (5 cm) but not greater than 2.4 inches (6 cm).
    C. Allow complete chest recoil after each compression,
    D. Minimize interruptions in compressions.
    E. Avoid excessive ventilation.
    F. Restart CPR immediately after any defibrillation attempts.
    G. Keep pauses in CPR to a minimum. Immediately after AED recommends shock resume compressions until AED is fully charged, then immediately after shock, resume compressions without checking pulse or rhythm. Avoid pauses in CPR during airway management.
    H. CPR sequence is CAB (Compressions, Airway, Ventilation) for all ages, except the ABC sequence should be used in drowning.
    I. For pregnant patients, a rescuer should manually displace the uterus to the patient's left during CPR.
    J. Change rescuer doing compressions every 1-2 minutes (100-200 compressions) to avoid fatigue.
4. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
5. 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.

6. 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.

7. 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.
8. If hypovolemia suspected: Give one liter bolus, may repeat as necessary, Normal Saline Solution.

9. If quantitative waveform capnography is available and $ETCO_2$ is < 10 mm Hg, attempt to improve CPR quality.

10. Administer Epinephrine 1 mg/10 ml 1 mg IV/IO every 3 to 5 minutes

11. 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.

12. Administer antidysrhythmic according to rhythm check
    A. For Ventricular Fibrillation (VF) or pulseless Ventricular Tachycardia (VT), per MCA selection, administer Amiodarone 300 mg IV/IO OR Lidocaine 100mg IV/IO

Per MCA Selection
☑ Amiodarone 300mg IV/IO (May repeat once 150 mg IV/IO)
or
☐ Lidocaine 100mg IV/IO (May repeat, every 5-10 minutes, 0.5 mg/kg, up to total dose of 3 mg/kg)

    B. For suspected torsades de pointes administer Magnesium Sulfate 2 g IV/IO
13. Consider and treat reversible causes of cardiac arrest.
    a. If suspected hyperkalemia or tricyclic antidepressant overdose, administer Sodium Bicarbonate 1mEq/kg IV/IO
    b. If hyperkalemia suspected in dialysis patient administer: Calcium Cl (10%) 1gm/10 mL IV/IO
    c. Assess for tension pneumothorax or misplaced ETT:
        i. If tension pneumothorax suspected, perform needle decompression per procedure for pleural decompression.
    d. Hypothermia, follow **Hypothermia Cardiac Arrest Protocol**.
14. 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.

15. Additional basic and/or advanced life support care as appropriate.
16. 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.
   F. 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.
   G. 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.
   H. Confirm and document tube placement by physical exam, measurement of exhaled CO2 and/or use of other MCA approved secondary confirmation device.
   I. If possible, contact medical control prior to moving or transporting patient.
   J. Continue resuscitation attempts and initiate transport, unless field termination is ordered by Medical Control.
   K. Treat reversible causes.
   L. Manual chest compressions remain the standard of care for the treatment of cardiac arrest. Mechanical chest compression devices may be a reasonable alternative to conventional CPR in specific settings where the delivery of high-quality manual compressions may be challenging or dangerous for the provider (eg, limited rescuers available, prolonged CPR, CPR during hypothermic cardiac arrest, CPR in a moving ambulance).
   M. Supraglottic airways are an acceptable alternative for endotracheal intubation.
   N. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.

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 traumatic in origin, refer to **Traumatic Arrest Protocol**

- For Unknown Origin, Continue this protocol.
- Contact ALS.
- CPR should be per AHA guidelines.

For Patients with a DNR order, follow **DNR Protocol**

Confirm Cardiac Arrest

Initiate or continue **HIGH QUALITY CPR**

Apply and use AED/defibrillator ASAP

Establish an airway, refer to **Emergency Airway Procedure**

Reassess as indicated. If no ALS and no ROSC after three, two minute cycles or CPR, **contact medical control** and initiate transport.

Establish access, refer to **Vascular Access & IV Fluid Therapy Procedure**

Consider and treat reversible causes of cardiac arrest

If hyperkalemic or tricyclic overdose → **Sodium Bicarbonate 1mEq/kg IV/IO**

If hyperkalemic → **Calcium Cl (10%) 1gm/10mL IV/IO**

If tension pneumothorax → Refer to **Needle Decompression Procedure**

If hypothermic → Refer to **Hypothermia Protocol**

All patients → **Epinephrine 1mg (1mg/10mL)** every 3 to 5 minutes

If recurrent VF/VT → **Amiodarone 300 mg IV/IO** or **Lidocaine 100 mg IV/IO**

Per MCA Selection
☑ Amiodarone 300mg **or** ☐ Lidocaine 100mg

If Torsades de Pointes → **Magnesium Sulfate 2g IV/IO**

Contact Medical Control

Consider termination of resuscitation per
Termination of Resuscitation Protocol

Bradycardia

This is a protocol for patients with serious symptomatic bradycardia, defined as patients with heart rate less than 60 bpm and hypotension, or shock. Titrate treatments to a heart rate above 60 bpm. If the patient remains hypotensive, refer to the **Shock Protocol**.

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

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 60 /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**.
5. For patients with persistent symptomatic bradycardia, administer Epinephrine by push dose (dilute boluses)
    a. Prepare (10 mcg/mL) by adding 1mL of 1mg/10mL Epinephrine in 9mL NS, then
    b. Administer 1-2 mL
    c. Repeat every 3 to 5 minutes
    d. Titrate SBP greater than 90 mm/Hg

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 > 90. (See **Patient Sedation Procedure**)
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.

Tachycardia

This protocol is for paramedic use only

Aliases: SVT, V-tach, Supraventricular tachycardia, Ventricular Tachycardia, Uncontrolled Atrial Fibrillation, A-fib

This protocol is used for the care of patients with persistent tachycardia (ventricular rate greater than or equal to 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 or 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.

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, perform synchronized cardioversion 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, perform synchronized cardioversion 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, perform defibrillation beginning at 200 J, increasing to 300 J, 360 J. (Use manufacturers suggested biphasic energy dose 150 – 200 J).

STABLE

8. Attempt Vagal Maneuvers
    a. Ensure the patient is on oxygen and on a cardiac monitor.
    b. Run ECG strip during the procedure.
    c. Instruct the patient to cough forcefully several times or
    d. Have the patient take a deep breath and bear down.
    e. DO NOT USE CAROTID MASSAGE.
9. Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.
10. Obtain 12 lead ECG, if immediately available.
11. 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.

12. If conversion does not occur, administer Adenosine 12 mg IV using the same technique as stated above.
13. If rhythm is stable with narrow QRS contact medical control for possible orders.
14. 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

15. If at any point a patient becomes unstable, perform synchronized cardioversion.
16. Administer Magnesium Sulfate 2 gm IV/IO for suspected torsades de pointes.
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.

Pulmonary Edema / CHF

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

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

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

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. Continue administration in the presence of CPAP.
7. If wheezing, administer nebulized Albuterol 2.5 mg/3ml.

8. If indicated, consider 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.(May be a BLS skill, per MCA selection, see **12 Lead ECG Procedure**)

10. If BP is less than 100 mmHg and signs/symptoms of shock, administer Epinephrine by push dose (dilute boluses) per **Epinephrine Protocol**.
    a. Prepare (10 mcg/mL) by adding 1mL of 1mg/10mL Epinephrine in 9mL NS, then
    b. Administer 1-2 mL every 2 to 5 minutes and titrate SBP greater than 90 mm/Hg.

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-rebreather mask.
- Position patient upright with legs dependent, if possible.

Consider CPAP per **CPAP/BiPAP Procedure**

- 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.
- 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. Continue administration in the presence of CPAP.

If wheezing, administer nebulized Albuterol 2.5 mg/3ml.

Obtain 12 Lead ECG

Contact Medical Control

Administer push dose Epinephrine per **Epinephrine Protocol**

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.**

1. Follow **General Pre-Hospital Care Protocol.**
2. Administer oxygen 4 L/min per nasal cannula if pulse oximetry is not available. Oxygen is only required if pulse oximetry SaO2 < 94%.

3. Assist patient in the use of their own aspirin (if MCA approved, and patient not allergic to aspirin, administer aspirin up to 325 mg). Aspirin should be chewed and swallowed.

☑ MCA selection for MFR ☑ MCA selection for EMT

4. 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.
5. 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.

6. Administer aspirin up to 325 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
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. 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.
9. 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.

10. 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. (Per MCA selection, may be a BLS procedure, follow **12 Lead ECG Procedure**)

11. For patients with suspected cardiac chest pain refractory to Nitroglycerin, consider Fentanyl 1 mcg/kg IV/IO (IN, if available). Maximum single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

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 if pulse oximetry is not available. Oxygen is only required if pulse oximetry SaO2 < 94%.

Assist patient in the use of their own aspirin (if MCA approved, and patient not allergic to aspirin, **administer** aspirin up to 325 mg). Aspirin should be chewed and swallowed.

Aspirin: ☑ MCA selection for MFR ☑ MCA selection for EMT

Taken ED or pulmonary HTN meds <48 hrs?

Yes

DO NOT ADMINISTER NTG

Contact Medical Control

No

Assist patient in the use of their own Nitroglycerin, if available, and BP above 120 mmHg, for a maximum of 3 doses.

IV Access and administer fluid bolus (250 ML)
Titrate to BP >100mmHg

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.
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.

Obtain 12 Lead
If STEMI, alert receiving facility
Follow local transport protocol

For patients with suspected cardiac chest pain refractory to Nitroglycerin, consider Fentanyl 1 mcg/kg IV/IO (IN, if available). Maximum single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

Contact Medical Control

Nitroglycerin Drip Supplement (OPTIONAL)

This protocol is for paramedic use only

☑ 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 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.

Equipment

1. At least one functioning IV. A second IV preferable to allow additional IV fluid or medication administration.
2. Infusion pump and proper vented tubing are required.

Administrations Guidelines

1. Dosing
   A. Nitroglycerin is mixed in 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. Maximum dose is 200 mcg/min.
   C. It titrating nitroglycerin for Pulmonary Edema/CHF, titrate until systolic BP is 120 or below.
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. 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. Infusion 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 is mixed in 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 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.

MICHIGAN
State Protocols

Protocol Number | **Protocol Name**

Pediatric Cardiac

Table of Contents

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 **Traumatic Arrest Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- 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 cardiac arrest are given IV or IO.

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 per **Electrical Therapy Procedure** as soon as possible.
3. Ensure CPR quality
    a. Compressions at least 1.5” in depth for infants, 2” in depth for children.
    b. Compression rate at least 100-120 per minute (An FDA approved mechanical CPR device operating at the manufacturers pre-set rate meets this requirement).
    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.

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 per **Emergency Airway Procedure**.
    a. Minimize interruptions in compressions during airway placement to less than 10 seconds.
    b. After insertion provide continuous CPR, without pauses for ventilation. Ventilations delivered at 10 breaths per minute or 1 breath every 6 seconds. See **Emergency Airway Procedure.**

   c. All airway adjuncts should be utilized with high flow oxygen.
   d. Utilize waveform capnography (if available).
9. Verify CPR quality frequently and anytime rescuer providing compressions or ventilations change.

10. Start an IV/IO NS KVO. IO may be the first choice. See **Vascular Access & IV Fluid Therapy Procedure.**

11. Check rhythm, shock if indicated (**2 J/kg**) and continue CPR.
12. Administer Epinephrine
   a. 1 mg/10 ml, 0.01 mg/kg (0.1 ml/kg)
   b. Max dose 1mg (10 ml)
   c. Repeat every 3-5 minutes
13. If airway has not been established, **and** unable to ventilate, establish airway per **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.
   c. After interventional airway is established, ventilation rate is 10 breaths per minute
14. Utilize waveform capnography; if PETCO2 is < 10 mm Hg attempt to improve CPR quality.
15. Recheck rhythm every 2 minutes
16. If shockable rhythm persists
   a. Shock at **4 J/kg** every 2 minutes with immediate resumption of compressions. Subsequent shocks must be at least 4 J/kg, but may escalate to 10J/kg or adult dosage.
   b. Administer Amiodarone
      i. 5 mg/kg
      ii. Max dose 300 mg
      iii. May be repeated if continuous shockable rhythm up to 2 more times (maximum total dose 15 mg/kg or 450 mg)
17. Consider causes of arrest (non-shockable)
   a. Hypovolemia – Administer 20 ml/kg NS IV/IO bolus
   b. Tension pneumothorax – see **Pleural Decompression Procedure**
   c. Hypothermia – see **Hypothermia Cardiac Arrest Protocol**, consider rapid transport
   d. Hyperkalemia (renal failure) – Contact Medical Control
      i. Administer Calcium Chloride (10%), 20 mg/kg (0.2 ml/kg), max dose 1 gm
      ii. Administer Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush between medications
18. Additional basic and/or advanced life support care as appropriate.

19. Consider termination of resuscitation per **Termination of Resuscitation Protocol.**

Pediatric Bradycardia

Aliases: Slow heart rate, heart block

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 (cardiopulmonary compromise).

1. If heart rate is < 60 despite adequate oxygenation and ventilation, perform CPR.
2. Establish vascular access
3. Apply cardiac monitor to identify rhythm
4. If HR continues to be less than 60, despite oxygenation & ventilation
    A. Administer Epinephrine 1mg/ 10mL,
        i. 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml),
        ii. Repeat every 3-5 minutes.
    B. If HR is unresponsive to epinephrine:
        i. Administer Atropine 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg)
        ii. May repeat once in 5 minutes, if effective.
    C. If HR is unresponsive to Epinephrine and Atropine:
        i. Consider transcutaneous pacing at rate up to 100 bpm per **Electrical Therapy Procedure.**
        ii. Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Sedation Procedure**.

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 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.
3. If severe hypothermia follow **Hypothermia Cardiac Arrest Protocol**

Pediatric Tachycardia

Aliases: Supraventricular tachycardia (SVT), atrial fibrillation (a-fib), atrial flutter, ventricular tachycardia (V-tach)

This protocol is for paramedic use only.

This protocol is intended for symptomatic pediatric patients with elevated heart rate, relative for their age. Refer to MI-MEDIC for appropriate vital signs and medication doses.

I. General Treatment
- A. Manage airway as necessary
- B. Provide supplemental O2 as needed to maintain O2 saturation > 94%
- C. Initiate monitoring and perform 12-lead EKG
- D. Establish vascular access
- E. Identify and treat underlying causes of tachycardia such as dehydration, fever, vomiting, sepsis and pain.
- F. Administer fluid bolus 20cc/kg for patients with likely fluid depletion
- G. Consider the following additional therapies if specific dysrhythmias are recognized:

II. Specific Dysrhythmia Treatment

A. **Regular Narrow Complex Tachycardia – Stable** (SVT)
- i. Perform vagal maneuvers
- ii. Administer Adenosine
  1. 0.1 mg/kg (max of 6 mg)
  2. May repeat with 0.2 mg/kg (max of 12 mg)

B. **Regular Narrow Complex Tachycardia – Unstable**
- i. Deliver a synchronized shock; 0.5-1 J/kg for the first dose
- ii. Repeat doses should be 2 J/kg

C. **Regular, Wide Complex Tachycardia – Stable**
- i. Consider Adenosine 0.1 mg/kg (max of 6 mg) for SVT with aberrancy
- ii. If ventricular in origin, give Lidocaine 1 mg/kg IV (max of 100 mg)

D. **Regular, Wide Complex Tachycardia – Unstable**
- i. Synchronized cardioversion 0.5-1.0 J/kg

E. **Unstable, Irregular, Wide Complex Tachycardia –**
- i. Defibrillate according to **Electrical Therapy Procedure**
- ii. Refer to **Pediatric General Cardiac Arrest Protocol**

MICHIGAN

State Protocols

Protocol Number | **Protocol Name**

Procedures

Table of Contents

12-Lead ECG

Aliases: EKG, 12 lead

Indications:

1. A 12-lead ECG 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
    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.

2. 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”

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

Procedure:

1. Follow **General Pre-hospital Care Protocol.**
2. Perform 12-lead ECG per manufacturer guidelines, if available.

☑ MCA approval for EMT to obtain and transmit ECG (and notify if STEMI)

3. Report if acute MI is suspected, either by device or **paramedic** provider interpretation.
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 ≥ 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)

Aliases: Child abuse, elder abuse, 3200 form, mandatory reporting

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 verbal and written 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.

Licensed providers are required to make an immediate verbal report and a written report within 72 hours when they suspect child abuse or neglect. Mandated reporters must also notify the head of their organization of the report. Reporting the suspected allegations of child abuse and/or neglect to the head of the organization does not fulfill the requirement to report directly to MDHHS.

The verbal report can be completed by calling 855-444-3911. The form is found here http://www.michigan.gov/documents/FIA3200_11924_7.pdf and is included in the protocol for reference.

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 Health and Human Services Hotline at 1-855-444-3911.

REPORT OF ACTUAL OR SUSPECTED CHILD ABUSE OR NEGLECT
Michigan Department of Health and Human Services

Was complaint phoned to MDHHS?
☐ Yes ☐ No ▶ If yes, Log # _____ ▶ If no, contact Centralized Intake (855-444-3911) immediately

INSTRUCTIONS: REPORTING PERSON: Complete items 1-19 (20-28 should be completed by medical personnel, if applicable). Send to Centralized Intake at the address list on page 2.

1. Date

2. List of child(ren) suspected of being abused or neglected (Attach additional sheets if necessary)

NAME	BIRTH DATE	SOCIAL SECURITY #	SEX	RACE
3. Mother's name				
4. Father's name				

5. Child(ren)'s address (No. & Street)	6. City	7. County	8. Phone No.
9. Name of alleged perpetrator of abuse or neglect	10. Relationship to child(ren)		
11. Person(s) the child(ren) living with when abuse/neglect occurred	12. Address, City & Zip Code where abuse/neglect occurred		

13. Describe injury or conditions and reason for suspicion of abuse or neglect

_____

_____

14. Source of Complaint (Add reporter code below)

01 Private Physician/Physician's Assistant	11 School Nurse	42 MDHHS Facility Social Worker
02 Hosp/Clinic Physician/Physician's Assistant	12 Teacher	43 DMH Facility Social Worker
03 Coroner/Medical Examiner	13 School Administrator	44 Other Public Social Worker
04 Dentist/Register Dental Hygienist	14 School Counselor	45 Private Agency Social Worker
05 Audiologist	21 Law Enforcement	46 Court Social Worker
06 Nurse (Not School)	22 Domestic Violence Providers	47 Other Social Worker
07 Paramedic/EMT	23 Friend of the Court	48 FIS/ES Worker/Supervisor
08 Psychologist	25 Clergy	49 Social Services Specialist/Manager (CPS, FC, etc.)
09 Marriage/Family Therapist	31 Child Care Provider	56 Court Personnel
10 Licensed Counselor	41 Hospital/Clinic Social Worker	

15. Reporting person's name	Report Code (see above)	15a. Name of reporting organization (school, hospital, etc.)			
15b. Address (No. & Street)		15c. City	15d. State	15e. Zip Code	15f. Phone No.
16. Reporting person's name	Report Code (see above)	16a. Name of reporting organization (school, hospital, etc.)			
16b. Address (No. & Street)		16c. City	16d. State	16e. Zip Code	16f. Phone No.
17. Reporting person's name	Report Code (see above)	17a. Name of reporting organization (school, hospital, etc.)			
17b. Address (No. & Street)		17c. City	17d. State	17e. Zip Code	17f. Phone No.
18. Reporting person's name	Report Code (see above)	18a. Name of reporting organization (school, hospital, etc.)			
18b. Address (No. & Street)		18c. City	18d. State	18e. Zip Code	18f. Phone No.
19. Reporting person's name	Report Code (see above)	19a. Name of reporting organization (school, hospital, etc.)			
19b. Address (No. & Street)		19c. City	19d. State	19e. Zip Code	19f. Phone No.

DHS-3200 (Rev. 10-15) Previous edition may be used. 1

TO BE COMPLETED BY MEDICAL PERSONNEL WHEN PHYSICAL EXAMINATION HAS BEEN DONE

20. Summary report and conclusions of physical examination (Attach Medical Documentation)		
21. Laboratory report	22. X-Ray	
23. Other (specify)	24. History or physical signs of previous abuse/neglect ☐ YES ☐ NO	
25. Prior hospitalization or medical examination for this child		
DATES	PLACES	
26. Physician's Signature	27. Date	28. Hospital (if applicable)

The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group because of race, religion, age, national origin, color, height, weight, marital status, genetic information, sex, sexual orientation, gender identity or expression, political beliefs or disability.	AUTHORITY: P.A. 238 of 1975. COMPLETION: Mandatory. PENALTY: None.

INSTRUCTIONS

GENERAL INFORMATION:
This form is to be completed as the written follow-up to the oral report (as required in Sec. 3 (1) of 1975 PA 238, as amended) and mailed to Centralized Intake for Abuse & Neglect. Indicate if this report was phoned into MDHHS as a report of suspected CA/N. If so, indicate the Log # (if known). The reporting person is to fill out as completely as possible items 1-19. Only medical personnel should complete items 20-28.

Mail this form to:
Centralized Intake for Abuse & Neglect
5321 28th Street Court S.E.
Grand Rapids, MI 49546

OR

Fax this form to 616-977-8900 or 616-977-8050 or 616-977-1158 or 616-977-1154
OR
email this form to MDHHS-CPS-CIGroup@michigan.gov

1. Date – Enter the date the form is being completed.
2. List child(ren) suspected of being abused or neglected – Enter available information for the child(ren) believed to be abused or neglected. Indicate if child has a disability that may need accommodation.
3. Mother's name – Enter mother's name (or mother substitute) and other available information. Indicate if mother has a disability that may need accommodation.
4. Father's name – Enter father's name (or father substitute) and other available information. Indicate if father has a disability that may need accommodation.

5.-7. Child(ren)'s address – Enter the address of the child(ren).

8. Phone – Enter phone number of the household where child(ren) resides.
9. Name of alleged perpetrator of abuse or neglect – Indicate person(s) suspected or presumed to be responsible for the alleged abuse or neglect.
10. Relationship to child(ren) – Indicate the relationship to the child(ren) of the alleged perpetrator of neglect or abuse, e.g., parent, grandparent, babysitter.
11. Person(s) child(ren) living with when abuse/neglect occurred – Enter name(s). Indicate if individuals have a disability that may need accommodation.
12. Address where abuse / neglect occurred.
13. Describe injury or conditions and reason of suspicion of abuse or neglect – Indicate the basis for making a report and the information available about the abuse or neglect.
14. Source of complaint – Check appropriate box noting professional group or appropriate category.

Note: If abuse or neglect is suspected in a hospital, also check hospital.

MDHHS Facility – Refers to any group home, shelter home, halfway house or institution operated by the Department of Health and Human Services. Refers to any institution or facility operated by the Department of Health and Human Services.

15.-19 - Reporting person's name - Enter the name and address of person(s) reporting this matter.

DHS-3200 (Rev. 10-15) Previous edition may be used. 2

Crime Scene Management

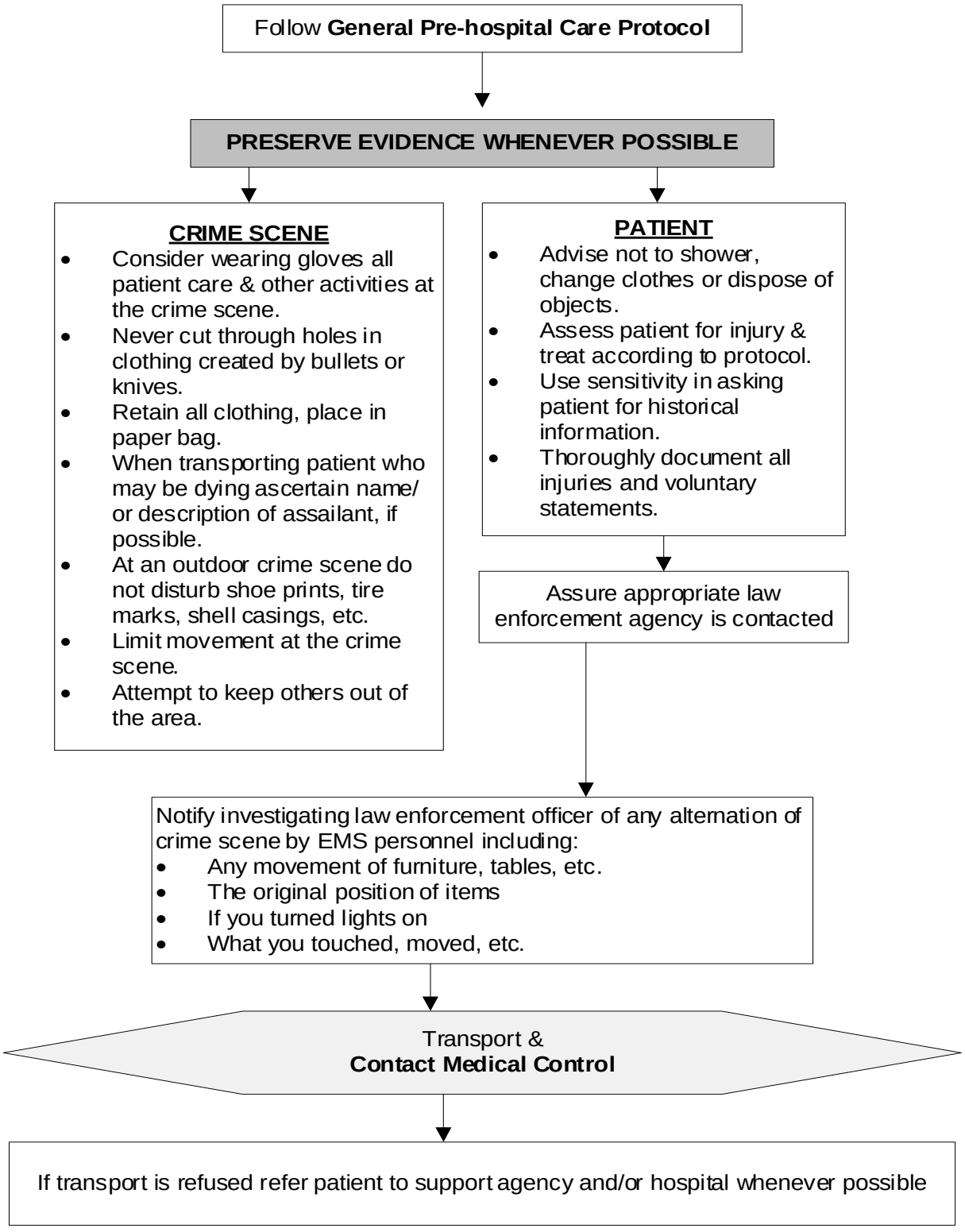
Aliases: Crime scene preservation

1. Follow **General Pre-hospital Care Protocol**
2. Preserve evidence whenever possible.
    A. Wear gloves for all patient care and other activities within the crime scene.
    B. Never cut through holes in clothing created by bullets or knives.
    C. Retain all clothing, place in a paper bag. Be alert for torn clothing, fragments of cloth, blood, or body fluids, etc. for they need to be preserved as evidence.
    D. Law enforcement is responsible for the disposition of this evidence.
    E. When transporting a patient who may be dying, ascertain name and/or description of assailant if possible.
    F. At an outdoor crime scene do not disturb shoe prints, tire marks, shell casings, etc.
    G. Limit movement at the crime scene.
    H. 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. 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.
7. Document patient's emotional state.
8. Assure law enforcement agency has been notified.
    A. Notify the investigating law enforcement of any alteration of the crime scene by EMS personnel including:
        a. Any movement of furniture, tables, etc.
        b. The original position of the patient and items.
        c. If you turned on lights.
        d. What you touched, moved, etc.
9. Transport, treating according to appropriate protocol

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. Do not touch firearms (loaded or unloaded) unless it poses a potential or 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

Contaminated Patient

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
2. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.
3. 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).
4. 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.
5. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.
6. Invasive patient care procedures (IV/IO, OPA, NPA, ET, and Emergency Airway Devices) should not begin until decontamination of the patient is confirmed or until personal protective equipment is in place.
7. 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.
8. 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.

Select the levels for which CPAP/BiPAP is approved

☑BLS
☑LALS
☑ALS

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.

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

10. 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

Aliases: DOA, DOS

I. Dead on Scene inclusion criteria:

Initiate or continue CPR for patient found to be in cardiac arrest UNLESS one or more of the following conditions exists:

A. Decomposition
B. Rigor mortis (Caution: do not confuse with stiffness due to cold environment)
C. Dependent lividity
D. Decapitation
E. Incinerated or frozen body
F. Submersion greater than 1 hour (90 minutes in cold water)
G. Gross dismemberment or obvious mortal wounds/conditions (injuries inconsistent with life – i.e., crushing injuries of the head and/or chest)
H. Unwitnessed arrest of traumatic origin, without organized electrical activity (must be asystolic or other rhythm with rate less than 40/min).
I. Patient has a valid “Do Not Resuscitate” identification bracelet or order.
J. In cases of mass casualty incidents, where the number of patients exceeds the providers and resources to care for them, any patient who is pulseless and apneic may be triaged as deceased.

II. 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. EMS personnel may initiate resuscitation efforts based upon professional judgement of viability, or if there is any concern over the validity of DNR orders, when present.

III. Procedure

A. If none of the inclusion criteria are present, continue CPR and proceed to the appropriate treatment protocol
B. If any of the above inclusion criteria, and none of the exclusion criteria, are met, cease CPR (if performed) and refer to the **Determination of Death, Death in an Ambulance and Transport of a Body Protocol.**

Do-Not-Resuscitate

Aliases: DNR

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.

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.

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

Note: The forms included in this protocol are samples, and examples of what a DNR may look like and should include. A valid DNR form does not need to look like this, but must contain fundamentally these items.

"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

Aliases: AED, Cardioversion, defibrillation, pacing

Automatic External Defibrillation (AED)

The 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.

1. Follow the **Cardiac Arrest - General Protocol (Adult or Pediatric)**.
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 again.

Manual Defibrillation

1. Indications:
   A. Ventricular fibrillation
   B. Pulseless ventricular tachycardia
   C. Unstable irregular wide complex tachycardia
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. Regular Wide Complex Tachycardia (Presumed Ventricular Tachycardia).
   B. Narrow Complex Tachycardia (Supraventricular Tachycardia (SVT) or Atrial Fibrillation with a rapid ventricular response).
2. Contraindications: Heart rate < 150 unless ordered by medical control
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 button(s) 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.

2. Technique:
    A. Monitor rhythm.
    B. Follow manufacturer's guidelines for pacing. For some monitors, 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 Protocol.**
    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 a rhythm 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 Protocol.**
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

***Alias**: Airway Management, Airway Intervention, Supraglottic Airway, Intubation, Cricothyroidotomy.*

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. Providers should use clinical judgment in conjunction with medical direction to determine 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. Presence of a gag reflex may be a contraindication to some specific airway interventions.
2. Specific supraglottic airways may have contraindications due to caustic ingestion or known esophageal varices.

MANAGEMENT OVERVIEW

1. In cases of foreign body airway obstruction, refer to Foreign Body Airway Obstruction section of this protocol.
2. 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**.
3. 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.
4. 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.
5. In unconscious patients without a gag reflex, insert a properly sized oropharyngeal airway. Immediately remove upon return of gag reflex.
6. In unconscious patients with gag reflex, consider insertion of a properly sized nasopharyngeal airway, using water-soluble lubrication when available.
7. In patients requiring bag-valve-mask ventilations, consider inserting both oral and nasopharyngeal airways to optimize ventilations.
8. For patients with respiratory arrest or significant respiratory depression (e.g., adult patient with respiratory rate less than 8 per minute) perform bag-valve-mask (BVM) ventilations.
    a. Note: BVM ventilations should be performed by 2 rescuers whenever possible. Use supplemental oxygen and reservoir system, focusing on adequate chest rise and ventilations that are not too forceful.

9. Ventilate at an appropriate rate. **Avoid hyperventilation**. Generally appropriate rates for ventilation are:
    a. Adults >8 y/o 10 breaths / minute
    b. Children 1-8 y/o 20 breaths / minute
    c. Infants < 1 y/o 25 breaths / minute
10. A pocket mask or face shield is an acceptable alternative for single rescuer ventilations.
11. When caring for patients with stomas, use pediatric masks to achieve seal.
12. For patients with a tracheostomy tube and home ventilator connect BVM (without mask) directly to tracheostomy tube and ventilate at appropriate rates.
13. In the adult patient, providers may consider continuing basic airway management techniques if the airway is able to be maintained adequately.
14. In the pediatric patient (14 or under), providers **must** continue basic airway management, unless the airway is unable to be adequately maintained.
15. MCA-approved supraglottic airways (e.g., Combitube®, King Laryngeal Tracheal Tube or i-gel®) may be used to secure the airways in unconscious patients that do not have a gag reflex.

MCA Approved Supraglottic Airways

☐ **Combitube ®** ☑ **King Laryngeal Tracheal Tube ®** ☑ **i-gel ®**

    a. **i-gel® is the only supraglottic airway for MFR use. It does not require cuff inflation and can be used by MFR if approved by the MCA and adopted by the agency.**

MCA Approval for MFR use of i-gel ®
(Agency Optional)
☑ **Yes** ☐ **No**

16. In cardiac arrest patients, although endotracheal intubation has been considered the gold standard, 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.
17. Each MCA must select at least one state-authorized supraglottic airway for use in their system.
18. Supraglottic airways should be placed in accordance with manufacturer's instructions for use (see appropriate procedure) and must be confirmed by positive end-tidal CO_2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO_2 detectors and by auscultation for absence of gastric sounds and presence of bilateral lung sounds. Additional clinical findings consistent with a properly placed airway include chest expansion, improvement in patient's color, and improvement in pulse oximetry (when available).
19. Supraglottic airway placement should be re-confirmed at frequent intervals throughout the care of the patient, particularly after each patient movement.

Table 1 Airway Procedures

PROCEDURE	MFR	EMT	EMT-A (Specialist)	PARAMEDIC
Oropharyngeal Airway	X	X	X	X
Nasopharyngeal Airway	X	X	X	X
Bag-Valve-Mask Ventilation	X	X	X	X
Supraglottic Airway (Individual Agency approval per MCA)	O/SR	X	X	X
Oral Endotracheal Intubation				X
Needle / Surgical Cricothyroidotomy				O/O
X: Approved Intervention ***O: Optional Intervention per MCA selection*** ***SR: Special Requirements =additional education, monitoring and reporting.***				

** This table indicates the type of airway procedures allowed per level of licensure. Based on jurisdictional need, the MCA may approve the use of the* i-gel® *supraglottic airway by MFRs. If an MCA opts to allow MFRs in a particular agency to utilize the* i-gel® *airway, special requirements must be enacted by the MCA including competency assessment, on-going training for MFRs, and PSRO review of every case in which an MFR utilizes a supraglottic airway.*

20. 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.
21. Orotracheal intubation under direct laryngoscopy may be performed in pediatric patients (14 years old and under) 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. Per MCA selection, may be pre or post-radio.

MCA Selection
Pediatric Intubation
☑ **Pre-Radio** ☐ **Post-Radio**

22. Deep tracheal suctioning may be performed when indicated using sterile technique and suctioning only during withdrawal of catheter.
    a. Maximum suction time:
        i. Adults (>14 years old): maximum 10 seconds
        ii. Children (1 to 14 years old): maximum 10 seconds
        iii. Infants (< 1 year old) maximum 5 seconds

23. When approved by local MCA, needle and/or surgical cricothyroidotomy may be performed when airway compromise from injury is present that prevents ventilation with basic techniques and makes intubation impractical in a patient who needs immediate airway management. In cases of complete airway obstruction that cannot be corrected, and in situations when other basic and advanced airway management techniques are unsuccessful in achieving effective ventilation.

☑ **MCA approval of Needle Cricothyroidotomy by Paramedics**
☑ **MCA approval of Surgical Cricothyroidotomy by Paramedics**
☐ **MCA Commercial Percutaneous Cricothyroidotomy by Paramedics**

24. 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.

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. For conscious infants (under 1 year old) with evidence of severe FBAO:
    a. Deliver repeated cycles of 5 back blows (slaps) followed by 5 chest compressions until the object is expelled or the patient becomes unresponsive.
    b. Note: Abdominal thrusts are not recommended for infants because they may damage the infant's relatively large and unprotected liver.
4. If any 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.
5. For unconscious patients, while chest compressions are being provided, perform direct laryngoscopy. If foreign body is visible, remove using adult or pediatric Magill forceps.
6. If unsuccessful in visualizing foreign body, consider brief trial of abdominal thrusts while performing direct laryngoscopy.
7. Once FB is removed, if spontaneous respiration does not return, perform endotracheal intubation if able to be readily accomplished or place Supraglottic airway and begin ventilations.

SPECIFIC AIRWAY PROCEDURES

i-gel® Supraglottic Airway

***MFR approved only if approved by the MCA, adopted by the agency, and personnel are trained**

Table 2 i-gel® Supraglottic Airway Required Documentation

Size of i-gel® used	Time of attempt(s)
Number of attempts	Suctioning required before placement
Ventilation compliance	Chest rise with ventilation
Capnography Used	ET CO_2/Capnography reading (serial)
Equality of lung sounds	Absence of epigastric sounds
Method for securing airway	Any complications with procedure
Gastric decompression performed (excluding MFRs)	

Indications:

1. Cardiac arrest. Appropriate as first-line advanced airway.
2. Respiratory arrest (including agonal breathing), without gag reflex, not responsive to initial treatment including bag-valve-mask ventilation and naloxone (when indicated)
3. Rescue airway for failed endotracheal intubation (Paramedics only).

Contraindications:

1. Responsive patients with a gag reflex.
2. Trismus (limited mouth opening), suspected pharyngo/peri-laryngeal abscess, major facial trauma or oral-pharyngeal mass.
3. Patients in whom caustic substance ingestion is suspected.

Equipment:

1. i-gel® O_2 Resus Pack (includes airway, support strap, water-soluble lubricant)
2. Supplies: bag-valve-mask, capnography, suction
3. Use appropriate size for patient based on table below.

Table 3 i-gel® Quick Reference

Size	Color	Patient Size	Patient Weight
3	Yellow	Small adult	30-60 kg (~65-130 pounds)
4	Green	Medium adult	50-90 kg (~110-200 pounds)
5	Orange	Large adult	90+ kg (More than 200 pounds)

Source: http://www.intersurgical.com/info/igel

Note: Patients with cylindrical necks or wide thyroid/cricoid cartilages may require a larger size i-gel® than would normally be recommended on a weight basis. Equally, patients with a broad or stocky neck or smaller thyroid/cricoid cartilage, may require a smaller size i-gel® than would normally be recommended on a weight basis. Patients with central obesity, where the main weight distribution is around the abdomen and hips, might in practice require an i-gel® of a size commensurate with the ideal body weight for their height rather than their actual body weight.

i-gel® O_2 Pre-Insertion:

1. Provide bag-valve mask ventilation using 2 person technique with an oropharyngeal airway, avoiding hyperventilation, and performing pharyngeal suctioning as needed.
2. Inspect the packaging and ensure it is not damaged prior to opening.

3. Inspect the device carefully, check that the airway is patent and confirm that there are no foreign bodies or a bolus of lubricant obstructing the distal opening of the airway or gastric channel.
4. Remove the i-gel® O_2, open the sachet of supplied lubricant and place a small bolus of the lubricant on the base of the inner side of the main shell of the packaging.
5. Grasp the i-gel® O_2 along the integral bite block and lubricate the back, sides and front of the cuff with a thin layer of lubricant. This process may be repeated if lubrication is not adequate. After lubrication has been completed, check that no bolus of lubricant remains in the bowl of the cuff or elsewhere on the device. Avoid touching the cuff of the device with your hands.
6. Ensure the supplementary oxygen port is firmly closed with the integral cap in place.
7. Position the patient's head (ideal position is the sniffing position, but the neutral position can be used especially for suspected spinal injury).
8. Pre-position the airway support strap behind the patient's neck.

i-gel® O_2 Procedure:

9. Grasp the lubricated i-gel® O_2 firmly along the integral bite block. Position the device so that the i-gel® O_2 cuff outlet is facing towards the chin of the patient.
10. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
11. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until definitive resistance is felt.
12. At this point, the tip of the device should be located in the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite block.
13. i-gel® O_2 should be secured with the airway support strap provided.
14. Attach bag-valve device and verify placement by ALL of the following criteria:
    a. Positive end-tidal CO2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO2
    b. Rise and fall of the chest
    c. Bilateral breath sounds and absent epigastric sounds
15. If there is any question about the proper placement of the i-gel® O_2 airway, remove the airway, ventilate the patient with BVM and OPA for at least 30 seconds and repeat insertion procedure (maximum of 3 attempts), considering different size.
16. If unsuccessful, return to BVM ventilation and consider alternative advanced airway as authorized by MCA.
17. If successful, continue positive pressure ventilation, avoiding hyperventilation.
18. Consider reinforcing the airway support strap with tape for transport.
19. Continue to monitor the patient for proper airway placement throughout prehospital treatment and transport using waveform capnography.
20. Following successful placement, consider gastric decompression (excluding MFR) using a lubricated 10F (#3 or 4 i-gel) or 12F (#5 i-gel) oral gastric tube, if available.

Combitube® Airway

Table 4 Combitube® Airway Required Documentation

Size and type of Combitube® Airway	Time(s) attempted
Number of attempts	Suction required
Ventilation compliance	Chest rise with ventilation
Absence of epigastric sounds	Which tube used for ventilation
Capnography used	ET CO_2 capnography reading
Equality of lung sounds	Any complications with intubation procedure

Indications:
For use in unconscious patients with absent gag reflex, that 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 caustic substance ingestion is suspected
4. Presence of a tracheostomy

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

Table 5 Combitube® Quick Reference

Patient Height	Combitube® size	Proximal Balloon #1 Inflation Volume	Distal balloon #2 Inflation Volume
>4 Feet Tall	Combitube® SA 37f	50-75 cc (85 cc max)	12cc
>5 Feet Tall	Combitube® 41f	50- 75 cc initially (100cc max)	15cc

Note: In most patients under 6' 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.
   S a. Alternatively, may use a curved laryngoscope blade to establish path for insertion.
   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. Confirm positive end-tidal CO2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO2. Assess for chest rise, listen for absence of gastric (stomach sounds), then listen for bilateral breath sounds.
    b. If chest rises, no gastric sounds and bilateral breath sounds are present and CO_2 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 CO_2 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 CO_2, then immediately fully deflate balloon #1 then balloon #2 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, if available.
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 CO_2 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 device 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 develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Patient Sedation Procedure**.

King LTS-D® Supraglottic Airway

Table 6 King ® Supraglottic Airway Required Documentation

Size and type of King ® airway used	Time(s) attempted
Number of attempts	Suctioning required before placement
Ventilation compliance	Chest rise with ventilation
Equality of Lung Sounds	Absence of Epigastric Sounds
Capnography used	ET CO_2 capnography reading
Method for Securing Airway	Any Complications with Intubation Procedure
Gastric decompression performed	

Indications:
For use in unconscious patients without gag reflex, that 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 4 feet
3. Patients in whom caustic substance ingestion is suspected.

Equipment:
1. King LT-D ®: Disposable King Airway that does not have gastric access.
2. King LTS-D ®: 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.

Table 7 King Airway ® Quick Reference

Size	Patient Criteria	Connector Color	Inflation Volume LT-D	Inflation Volume LTS-D
3	4-5 ft.	Yellow	45-60 ml	40-55 ml
4	5-6 ft.	Red	60-80 ml	50-70 ml
5	Greater than 6 ft.	Purple	70-90 ml	60-80 ml

Source: **https://www.narescue.com/media/custom/upload/File-1443546141.pdf**

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 faces chin).
9. Without exerting excessive force, advance the King ® until base of connector aligns with teeth or gums.
10. Inflate the cuff based on the listed volumes for the tube size used.
11. 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.
12. Attach bag, valve device and verify placement by ALL of the following criteria:
    a. Positive end-tidal CO2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO2.
    b. Rise and fall of chest
    c. Bilateral breath sounds
    d. Absent epigastric sounds
13. Secure the airway, preferably with a commercial tube holding device appropriate for the King Airway ®.
14. 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.
15. Continue to monitor the patient for proper airway placement throughout prehospital treatment and transport.
16. Following successful placement, consider gastric decompression using a lubricated 18F gastric tube, if available.
17. King Airway® should be removed if patient develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Sedation Procedure**.

Orotracheal Intubation

Pediatric Orotracheal Intubation should not be performed unless unable to ventilate by any other means (including BVM and basic airway adjuncts).

Table 8 Orotracheal Intubation Required Documentation

ET tube size	Number of attempts
Visualization of vocal chords	Suction required
ET Tube measurement (cm) at teeth	Chest rise with ventilation
Ventilation compliance	Bulb syringe check documented if used
Capnography used	ET CO_2 capnography reading
Equality of lung sounds	Absence of epigastric sounds
Method for securing ET tube	Any complications encountered

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 and the Division), 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 with positive end-tidal CO2 levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO2, by absence of gastric sounds and by presence of bilateral breath.
13. Document the procedure including all the above confirmation techniques for each oral intubation attempt. Maintain airway monitoring once established.
    a. 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.

Cricothyroidotomy

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

Table 9 Cricothyroidotomy Required Documentation

Type of cricothyroidotomy attempted	Indication for cricothyroidotomy
Number of attempts	Times attempted
Ventilation compliance	Previous advanced airway attempts
ET CO_2 Capnography reading	Chest rise with ventilation
Equality of lung sounds	Post cricothyroidotomy 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 cricothyroidotomy: surgical cricothyroidotomy, needle cricothyroidotomy, and percutaneous cricothyroidotomy 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 cricothyroidotomy uses a commercial kit to perform the cricothyroidotomy.

Patients less than age 8 may have a needle cricothyroidotomy performed or a percutaneous cricothyroidotomy using an approved pediatric kit. Patient's age 15 or greater may undergo a needle, surgical, or commercial percutaneous cricothyroidotomy, **as approved by local medical control**.

Indications for Cricothyroidotomy:

1. Total airway obstruction not relieved by other methods.
2. Airway compromise from injuries that prevent ventilation with basic techniques and makes intubation impractical in a patient who needs immediate airway management.
3. Inability to intubate or effectively manage with basic ventilation techniques or supraglottic airway.

Contraindications for Cricothyroidotomy:

1. Ability to ventilate by any other method.

Technique for Surgical Cricothyroidotomy:

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 CO_2 detection.
8. Maintain continuous CO_2 monitoring once established.
9. Apply dressing to area.

Technique for Needle Cricothyroidotomy:

1. Gather necessary equipment:
    a. Antiseptic solution
    b. Transtracheal jet insufflation device 50 psi (required for adults)
    c. For pediatric patients under 5 y/o use a 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 (≥ 14 gauge) and syringe (5-10 cc). Do not use needle safety catheters that do not allow for connection of a 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, as indicated.
11. Deliver 100% O_2 at 20 bursts/minute with Inspiratory/Expiratory of 1:2.

Technique for Percutaneous Cricothyroidotomy Using Approved Commercial Kit:
Note: Only state and local MCA approved commercial percutaneous cricothyroidotomy kits may be used.

1. Prepare necessary equipment.
2. Follow Instructions for use provided by device manufacturer.

Nasal Intubation Procedure

This protocol is only to be utilized by paramedics within an adopting MCA.

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

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 End-tidal CO2
✓ Capnography used	✓ ETCO2/Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing ET tube	✓ Any complications with intubation procedure

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.

MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Injured Athlete & Helmet Removal

Treatment of the injured athlete with protective gear presents unique challenges that are best considered prior to the event if possible. Whether responding to a request after an injury or responding as a stand by resource, an emergency action plan that has been discussed prior to the event may provide organized consistent treatment for the athlete.

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.
   B. Provide constant spinal precautions.

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, **unless there is a prearranged agreement between team training/medical staff, EMS providers and the likely receiving facility**, helmet and shoulder pads should be removed as spinal precautions are maintained. Removal of all equipment at the scene provides the best access to the athlete for treatment.
   B. If prearrangement is in place to keep the helmet and shoulder pads in place the procedure would be as follows (or as determined by agreement):
      1. 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.
      2. 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.
      3. If the face shield cannot easily be removed for any patient, the helmet and shoulder pads should be removed using in-line stabilization.
      4. 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.

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.
   B. Provide constant spinal precautions.

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

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. General trauma (more than isolated 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 (when available) is <94%.

Contraindications

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.

Procedure

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 pediatric patients): 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). A 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 with oxygen connected at 15 LPM (decrease in pediatric patients 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

Aliases: Analgesia, pain control, acute pain

For patients with suspected cardiac chest pain, refer to the **Chest Pain/Acute Coronary Syndrome Protocol.**

The goal is to reduce the level of pain for patients in the pre-hospital setting.

All 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.

Note: Medical Control contact is required for patients with labor pains, dental pain, established care plans that deter pain management, and patients with chronic pain who do not have a palliative care plan.

1. Place the patient in the position of comfort.
2. Verbally reassure the patient to control anxiety.
3. If not improved with BLS intervention, consider analgesia.
4. Start an IV NS KVO. If the patient's systolic blood pressure is clinically hypotensive, and signs of hypoperfusion, administer an IV/IO fluid bolus. Refer to **Vascular Access & IV Fluid Therapy Procedure**.
5. Per MCA selection, for mild to moderate pain (described as 1-4 on the Wong Pain Scale), consider non-opioid analgesia.

MCA Selected Non-Opioid Analgesia

☑ Acetaminophen 15 mg/kg PO (max dose 1 gm)
Pediatrics, see dosing chart

☑ Ibuprofen 10 mg/kg PO (Not appropriate for patients < 6 months or pregnant, maximum dose 600 mg)
Pediatrics, see dosing chart

☑ Ketorolac (Toradol ®)
Adult 15 mg IM/IV (not appropriate for pregnancy)
Pediatric 1 mg/kg IM/IV (max dose 15 mg)

6. For patients with significant pain (described as greater than 4 on the Wong Pain Scale), consider Ketamine.
    a. Adults (or > 80 lbs.)
        i. 0.2 mg/kg IV/IO or 0.5 mg/kg IN (if available)
        ii. Maximum single dose 25 mg
        iii. May repeat after 10 minutes to a maximum dose of 50 mg
    b. Pediatrics (or < 80 lbs.)

i. 0.2 mg/kg IV/IO or 0.5 mg/kg IN (if available)
ii. Maximum single dose 25 mg
iii. May repeat after 10 minutes to a maximum dose of 0.4 mg/kg IV/IO or 1.0 mg/kg IN

7. When administering analgesic medications, patients may experience nausea as a side effect. Consider Ondansetron.
   a. Adults: 4 mg IV/IO or ODT
   b. Pediatrics: 0.1 mg/kg IV/IO (max dose 4 mg)
   c. May repeat one time for continued nausea.
8. If a patient is unable to tolerate Ketamine or has significant pain (described as greater than 8 on the Wong Pain Scale), opioid analgesia may be administered. Patients should receive only one opioid medication.

MCA Selected Opioid Analgesia

☑ Morphine 0.1 mg/kg IV/IO (maximum single dose 10 mg) may repeat one time. Total dose may not exceed 20 mg.

☑ Fentanyl 1 mcg/kg IV/IO (IN, if available) Maximum single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

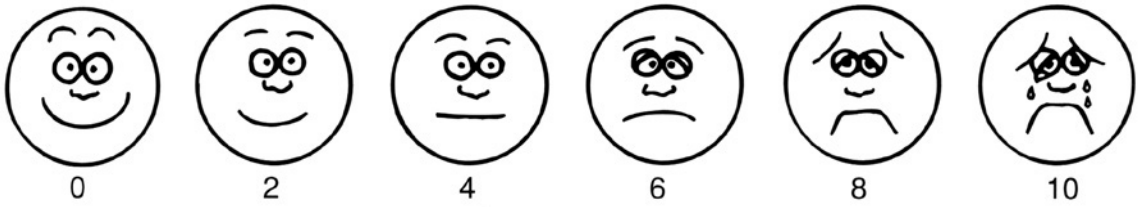
☐ Hydromorphone 0.5 mg IV/IO (for extended transports), may repeat every 10 minutes, for a maximum dose of 2 mg.

9. For patients with refractory pain after Ketamine administration, contact medical control for opioid administration.
10. Administer opioids slowly when using IV or IO routes (Intranasal per MCA selection). Systolic BP should be maintained at > 100 mm Hg for adult patients and > 80 + (2 x age) mm Hg for pediatric patients.
11. For patients with evidence of hypotension or hypoperfusion, contact medical control.

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

No pain Distressing pain Unbearable pain

0 1 2 3 4 5 6 7 8 9 10



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

Dosing Table

Child's Weight (AGE)	Children's Acetaminophen Elixir (160 mg/5ml)	Children's Ibuprofen Elixir (100 mg/5 ml)
6-12 lbs. (0-2 mos.)	1.5 mL (48 mg)	DO NOT GIVE
13-16 lbs. (3-6 mos.)	3 mL (96 mg)	DO NOT GIVE
17-20 lbs. (7-10 mos.)	4 mL (128 mg)	4 mL (80 mg)
21-25 lbs. (11-18 mos.)	5 mL (160 mg)	5 mL (100 mg)
26-31 lbs. (19 mos-3yrs)	6 mL (192 mg)	6 mL (120 mg)
32-35 lbs. (3-4 yrs.)	7 mL (224 mg)	7.5 mL (150 mg)
36-40 lbs. (4-5 yrs.)	8 mL (256 mg)	8.5 mL (170 mg)
41-45 lbs. (5-6 yrs.)	9 mL (288 mg)	9.5 mL (190 mg)
41-51 lbs. (5-6 yrs.)	10 mL (320 mg)	11 mL (220 mg)
52-64 lbs. (7-9 yrs.)	12 mL (384 mg)	13 mL (260 mg)
65-79+ lbs. (10-14 yrs.)	15 mL (480 mg)	15 mL (300 mg)

Patient Assessment

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.
    F. Tension pneumothorax: Follow **Pleural Decompression Procedure.**
3. Circulation
    A. Check pulse and begin CPR if no central pulse. Follow **Cardiac Arrest – General Protocol Adult or Pediatric** or **Neonatal Resuscitation Protocol**.
    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

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

5. **The secondary survey is performed in a systematic manner**.

(Steps listed are not necessarily sequential.)

A. Vital Signs:
   A. Frequent monitoring of blood pressure, pulse, and respirations
   B. Temperature as indicated in protocol.
   C. Blood glucose measurement as available and appropriate.
   D. Pulse oximetry as available and appropriate.
   E. ECG monitoring as indicated in protocol.
   F. 12 Lead if available and appropriate, follow **12 Lead ECG Procedure**.
   G. Monitor capnography, if available.

B. 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.

C. 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.

D. 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

E. Abdomen
   A. Observe for wounds, bruising, distention, or pregnancy.
   B. Palpation.

F. Pelvis
   A. Palpate pelvis for tenderness and stability

G. 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.

H. 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. **Newborn Assessment, Treatment and Resuscitation**
   C. **Cardiac Arrest – General Protocol**
   D. **Pediatric Cardiac Arrest – General Protocol**
   E. **General Trauma**
   F. **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 the Bureau of EMS, Trauma and Preparedness, 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. The transporting unit shall provide written patient care documentation, along with a verbal report, prior to leaving the receiving 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. MCAs 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. MCAs may utilize aggregate data that does not identify the patient or agency to support EMS system and public health activities.
   C. MCAs may choose to maintain its own repository and in turn submit the data to the Department of Health and Human Services.
   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 MDHHS 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.

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.
   A. If patient continues to resist physical restraints, consider chemical restraint.
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. Inform hospital that restraints are in place and assistance will be necessary to continue restraint of the patient.

Chemical Restraint Procedure

1. Per MCA selection, administer Midazolam 10 mg IM or 5 mg IN (if available) or Ketamine 4 mg/kg IM.

MCA Selection (Choose One)

☑ Midazolam 10 mg IM or 5 mg IN (if available) **OR** ☐ Ketamine 4 mg/kg IM or IN

2. Monitor capnography, if available.

Special Considerations

1. Physical restraints should be of a soft nature (e.g. hook and loop restraints, 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 compromises 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.

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."*

Patient Sedation

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

Indications for Sedation

1. Electrical Therapy (Cardioversion or Transcutaneous pacing)
2. Post intubation sedation
3. CPAP/BiPAP 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, ventilation and oxygenation
2. Monitor vital signs and level of consciousness
3. Monitor ECG
4. Monitor Pulse oximetry
5. Monitor capnography, if available

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

Pediatric Sedation:
(Titrate to minimum amount necessary)

- ☑ Midazolam 0.05 mg/kg IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ Fentanyl 1 mcg/kg IV/IO titrated slowly (IN, if available); may repeat every 5 minutes to a maximum of 3 mcg/kg.
- ☐ Ketamine 0.2 mg/kg IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes.

Adult Sedation:
(Titrate to minimum amount necessary)

- ☑ Midazolam 1-5 mg (0.05 mg/kg) IV/IO titrated slowly (IN, if available); 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.
- ☑ Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly (IN, if available); may repeat every 4 minutes to a maximum of 3 mcg/kg.
- ☐ Ketamine 0.2 mg/kg IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes

Possible orders post radio contact

1. Additional sedation as needed.
2. Sedation for CPAP/BiPAP

Pleural Decompression

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.

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 (hypotension)**.
2. Difficult ventilation in the hypotensive, unconscious/apneic patient in the presence of a confirmed, correctly positioned endotracheal tube.

Technique

1. Evaluate and maintain the airway, provide oxygenation and support ventilations.
2. Decompression procedure:
   - A. Assemble equipment
     - a. Large bore IV catheter - 14 gauge or larger and at least 3" in length (catheter should not have any type of flow restricting valve); or other MCA approved commercial device.

MCA Approved Commercial Device

☐ Yes:
☑ No

     - b. Antiseptic swabs
     - c. Dressing and tape
   - B. Identify landmarks
     - a. Insertion site is 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

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 serious or potentially fatal illness or injury, consider contacting 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 Precautions

Indications & General Guidance

1. Refer to the **Spinal Injury Assessment Protocol**. Patients with a positive spinal injury assessment should have spinal precautions maintained during transport.
2. Major trauma patients who require extrication should have spinal precautions maintained using an extrication device (long backboard or equivalent) during extrication. If sufficient personnel are present, the patient may be log rolled from the extrication device to the ambulance cot during loading of the patient.
3. Patients may remain on the extrication device if the crew deems it safer for the patient considering stability, time and patient comfort considerations. This decision will be at the discretion of the crew.
4. Patients with penetrating traumatic injuries do not require spinal precautions unless a focal neurologic deficit is noted on the spinal injury assessment.
5. An ambulatory patient with a positive spinal injury assessment should have an appropriately sized cervical collar placed. Place the patient directly on the ambulance cot in a position of comfort, limiting movement of the spine during the process.
6. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar. Limit movement of the spine during the process.
7. Patients over the age of 65 with a mechanism of injury with the potential for causing cervical spine injury will have a cervical collar applied even if the spinal injury clinical assessment is negative.

Specific Techniques

1. Cervical Collars
    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, blanket rolls, head block or similar device may be used to support neutral head alignment.
    C. The cervical collar may be removed if interfering with airway management or airway placement, or if causing extreme patient distress.
2. Self-Extrication Procedure
    A. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar.
    B. Limit movement of the spine during the process.
3. Emergency Patient Removal
    A. Indicated when scene poses an imminent or potential life threatening danger to patient and/or rescuers, (e.g. 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 Extrication Device (e.g. long Backboard, scoop stretcher, basket stretcher)
   A. Indicated when patient requires spinal precautions and the patient condition prevents self-extrication.
   B. Patient's head and cervical spine should be manually stabilized.
   C. Rescuers should place the patient in a stable, neutral position where space is created to place backboard or other long extrication device in position near the patient.
   D. Move the patient to supine position on the long extrication device.
   E. The patient is secured to the device with torso straps applied before head stabilization.
   F. Head stabilization material should be placed to allow for movement of the lower jaw to facilitate possible airway management.
   G. The extrication device is used to move the patient to the ambulance cot.
5. Log Roll Procedure
   A. Cervical collar should be placed when indicated.
   B. Place the backboard or equivalent behind the patient.
   C. Patient is log rolled, maintaining neutral alignment of spine and extremities.
   D. Log roll procedure requires 2 or more personnel in contact with the patient.
   E. If log roll is not possible, patient should be moved to board or equivalent while attempting to maintain neutral alignment spinal precautions.
   F. Patient is secured to the backboard or equivalent for movement to the ambulance cot.
   G. Head stabilization materials such as foam pads, blanket rolls may be used to prevent lateral motion. Pad under the head when feasible.
   H. If sufficient personnel are present, the patient should be log rolled from the extrication device to the ambulance cot during loading of the patient.
   I. When log roll on to the ambulance cot is impractical, secure the patient to the extrication device and ambulance cot for transport.
6. Spinal Precautions
   A. Once the patient is placed on the ambulance cot, if no extrication device is still in place, secure the patient with seatbelts in a supine position, or in position of comfort if a supine position is not tolerated.
   B. Head may be supported with head block or similar device to prevent rotation if needed. Padding should be placed under the head when practical. Do not tape the head to the ambulance cot.

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. Spinal precautions in the patient wearing a helmet should be according to the Helmet Removal Procedure.
4. Manual spinal precautions in the obtunded patient must be initiated and continued until the patient is secured to the ambulance cot.
5. Patients who are markedly agitated, combative or confused may not be able to follow commands and cooperate with minimizing spinal movement. Rigid immobilization should be avoided if it contributes to patient combativeness. Patients may remain on the backboard if the crew deems it safer for the patient, and this will be at the discretion of the crew.
6. Manual in line stabilization must be used during any procedure that risks head or neck movement, such as endotracheal intubation. If manual cervical stabilization is hampering efforts to intubate the patient, the neck should be allowed to move as needed to secure the airway. An unsecured airway is a greater danger to the patient than a spinal fracture.
7. Document spinal precautions techniques utilized.
8. Document the patient's neurologic status before and after establishing spinal precautions when possible.
9. Pediatric Patients and Car Seats:
    A. Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock).
    B. Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should have spinal precautions maintained as for an adult.
    C. Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard procedures.

Termination of Resuscitation

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 should 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 cannot be safely and efficiently performed on scene transport may begin whenever deemed appropriate by the ALS personnel.
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 also 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.

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 second tourniquet adjacent to the first may be necessary.
- **A tourniquet should not be loosened in any patient with obvious signs of shock or amputation that necessitated use of the device.**

Vascular Access & IV Fluid Therapy

Indications

1. Patients with potential need for either fluid resuscitation 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 multi-system trauma with shock
    E. Status epilepticus
    F. Contact medical control for other situations without delaying transport

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, and fluid overload.
3. Intraosseous placement:
    A. Complications include subperiosteal infusion, osteomyelitis, sepsis, fat embolism, and 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. Saline lock IV is preferred, unless fluid resuscitation is needed.
2. Flow rates and changes in flow rates must be documented on the EMS Patient Care Record.
3. 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.
4. 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. Macrodrip is the preferred tubing.

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. Medial aspect of 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. If the IO is unsuccessful after 2 attempts, contact Medical Control.

End-Tidal Carbon Dioxide Monitoring (Capnometry and Capnography)

Aliases: ETCO2, End Tidal, Capnography

Definitions: For the purpose of all protocols the mention End Tidal Carbon Dioxide monitoring, these are the definitions:

1. Capnography is a graphic representation of exhaled carbon dioxide. Capnography is a waveform along with a numeric representation. Capnography is the preferred method of detection for ALS providers and will be mandatory for all ALS providers by October 1, 2018.
2. Capnometry is simply a numeric representation of exhaled carbon dioxide.
    a. A colorimetric end tidal carbon dioxide monitor is a rudimentary form of capnometry and is acceptable for use in MFR and BLS applications.
    b. Capnometry that includes a numerical read out is preferred to colorimetric capnometry.

Indications:

1. Determining appropriate placement of an airway has taken place.
    A. Capnography/Capnometry **must** be utilized to confirm endotracheal tube placement.
    B. Capnography/Capnometry **must** be utilized on all supraglottic airways.

2. Continuous monitoring of the integrity of the ventilatory circuit.
    A. Capnography **may** be utilized in patients receiving assisted ventilations without advanced airways (used between the face mask and the bag-valve).
    B. Capnography **must** be used for patients on transport ventilators.

3. Monitoring severity of pulmonary disease (bronchospasm) and evaluating response to therapy
    A. Capnography **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 **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

Procedure:

1. Attach the colorimetric device to airway device (supraglottic or between facemask and BVM)

2. Note presence or absence of color change.
    a. If no change in color on device, verify placement of device.
3. Document findings in patient chart.
4. When ALS arrives, switch to capnography (if available) from capnometry.
5. 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.
6. Note the CO_2 level and waveform characteristics
7. Any loss of CO_2 detection or waveform may indicate an airway or ventilation problem and should be investigated, corrected and documented.
8. Document the use and results in the Patient Care Record (PCR).

Note: If a **"0"** value, no value, or no color change is noted 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.

MICHIGAN

State Protocols

Protocol Number | **Protocol Name**

System

Table of Contents

Cancellation/Downgrade of Call Policy

Purpose: To allow cancellation or downgrading of EMS vehicles responding to an EMS incident.

I. 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.

II. 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 that 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, unknown medical alarm).

Use of Emergency Lights and Sirens during Transport

Procedure

A. **Michigan Motor Vehicle Code** *(§257.603 and 257.653)*
The Michigan Motor Vehicle Code governs the driving of emergency vehicles. All licensed life support vehicles will abide by the Michigan Motor Vehicle Code.

B. **Transporting a Patient**

1. EMS units may transport patients using lights and sirens when:
   2. The patient's condition meets Priority One prioritization level **AND** the condition is unstable or deteriorating **AND** there is a need to circumvent significant traffic delays and obstructions
      OR
   3. The patient's condition requires immediate lifesaving intervention which cannot be accomplished by EMS personnel, with approved equipment **AND** there is a need to circumvent traffic delays or obstruction

2. Non-emergency patients will **NOT** be transported with the use of lights and siren.

C. **Authority to Require Lights and Siren Use**
Neither the patient's sending nor receiving physician has the authority to require the use of lights and siren during transport; this policy shall be followed at all times.

D. **Prudent Use of Lights and Siren During Transport**
Lights and sirens may be used to clear traffic and then shut down, if prudent, where no obstruction or delay is present, provided both lights and siren are activated at least 500 feet before any intersection or obstruction to be cleared. When lights and siren are not in use, the vehicle must be operated as a typical non-emergency vehicle, per the Motor Vehicle Code.

E. **Returning from the transport, returning to a service area**

1. EMS units may ONLY utilize lights and sirens to return to their area IF THEY ARE RESPONDING TO AN EMERGENCY CALL.
2. Lights and sirens will **NOT** be used to return to an area when the unit is not responding to another emergency call.

F. **Education**
Transporting Life Support Agencies shall ensure annual training surrounding the Michigan Motor Vehicle Code, safe use of lights and siren, this policy and related agency polices.

G. **Agency Specific Policies**
This policy does not preclude individual agencies from developing internal policies on this subject, as long as the policy includes the contents of this policy as a minimum.

Destination and 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.

      Closest appropriate is 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.

   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.)

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.

      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.

      c. Documentation of the reason for the diversion shall be included in the EMS patient care record.

   B. Immediate on-line medical direction shall be established with the receiving facility.

C. Contact with the initial receiving facility shall be made as quickly as possible to inform it of the diversion.

D. 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.

Note: 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.

High-Risk Delivery Transport Guidelines

Purpose:
This policy is to establish guidelines for transport of women with pregnancy of more than 20 weeks and less than 34 weeks gestation in active labor, as these infants may require newborn intensive care.

1. In all cases where delivery is imminent, transport will be to the closest emergency receiving facility.

2. If labor is brought on by medical illness or injury of the mother, appropriate medical treatment of the mother is the first priority. This is also the most appropriate treatment of the newborn.

3. If time allows, any woman in active labor with a gestational period of more than 20 weeks and less than 34 weeks, in anticipation of delivery of a high risk newborn, should be taken to (list facilities and instructions for where to proceed with the patient):

   ☑ UPHS - Marquette

   ☐

   ☐

NOTE: This protocol was created as a template to be used for each MCA to determine the most appropriate transport decisions for the high risk OB patient in their individualized MCA areas.

Intercept Policy (Optional for all ALS Systems)

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.

I. 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 BLS units, ALS intercept is indicated at any point during the transport.

A. Indications for ALS Intercept
1. All priority 1 & 2 patients

B. Indications for LALS
1. 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.

Dispatch

Purpose:
As mandated under Public Act 368 of 1978, as amended, Section 20919 (1)(b): “A local medical control authority shall establish written protocols for the practice of life support agencies and licensed emergency medical services personnel within its region. The protocols shall be developed and adopted in accordance with procedures established by the department and shall include medical protocols to ensure the appropriate dispatching of a life support agency based upon medical need and the capability of the emergency medical services system.”

Local municipalities shall determine, in accordance with the rules and regulations of their local Medical Control Authority, the level of agency licensure, as well as who will provide EMS service in their area.

Protocol

1. Public Safety Answering Points and/or Life Support Agency dispatch centers shall use Enhanced 911 technology, where available, and shall dispatch appropriate resources as quickly as possible.
2. Since ALS may provide additional medical care and delay may negatively impact patient outcome, in areas where ALS is available it shall be simultaneously dispatched to certain medical emergencies including, but not limited to:
    a. Cardiac Arrest
    b. Chest Pain
    c. Stroke
    d. Drug Overdose / Poison
    e. Altered Mental Status / Unconscious
    f. Allergic Reaction
    g. Difficulty Breathing
    h. Drowning or Near Drowning
    i. Injury with Bleeding or Immobility
    j. Seizures / Convulsions
    k. Diabetic Reactions
    l. Child Birth
    m. Burns
    n. or as determined through prioritized dispatch developed through an MCA approved EMD program.

All medical callers shall be provided with complaint evaluation and prioritization, along with pre-arrival instructions through an Emergency Medical Dispatch program approved by the MCA. Pre-arrival instructions should conform to nationally recognized guidelines.

Lights and Sirens Response to the Scene

I. Medical Priority Response
   A. Priority One – Life-Threatening or Potentially Life Threatening Emergencies Response
      1. Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene.
   B. Priority Two – Response Per MCA Selection

☑ Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene.

☐ Emergency Vehicles, in compliance with Michigan Vehicle Code, respond with no lights and sirens to the scene

OR

☐ 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.

   C. Priority Three - Non-Life Threatening Emergency Response
      1. Life support vehicles, in compliance with Michigan Motor Vehicle Code, respond with no lights and sirens to the scene

Patient Prioritization

1. Priority 1
    A. Critically ill or injured patient with an immediate life-threatening condition.
    B. Examples include, but are not limited to:
        1. Unstable or deteriorating vital signs
        2. Compromised airway
        3. Severe respiratory distress/failure
        4. Cardiac arrest or post cardiac arrest
        5. Stroke or STEMI
        6. GCS ≤ 10
        7. Significant blunt or penetrating trauma including but not limited to:
            a. Airway compromised
            b. Respiratory distress
            c. Signs of inadequate perfusion
        8. 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:
        1. GCS 11-14
        2. Medical conditions such as chest pain, suspected sepsis, respiratory distress without immediate threat to life.
        3. Altered level of consciousness, responding to verbal or painful stimuli
        4. 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.

Helicopter Utilization

I. 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
   1. Priority I patient
   2. Long transport times
   3. Poor road conditions
   4. Entrapment with prolonged extrication

B. Medical Patients
   1. In rare circumstances, if in the estimation of the paramedic, that the use of helicopter resources would be beneficial to patient outcome.

II. 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:
   1. Patient should be stabilized and immobilized with ground ambulance equipment per existing protocol.
   2. Ground ambulance personnel will stay with the patient until released by the helicopter personnel.

D. Communications
   1. Communication with the helicopter dispatch should include information regarding location, identifying marks or vehicles and landing sites.
   2. Helicopter dispatch will request pertinent medical information to relay to the flight crew.
   3. Communications between the helicopter and ground ambulance shall be coordinated through dispatch.

E. Landing Site
   1. Locate a level, 100’ x 100’ area clear of obstacles (i.e. wires, trees)
   2. Mark landing zone with a marker at each corner and one upwind.
   3. Public safety vehicles should leave on flashers to assist in identifying site from the air.
   4. Identify obstacles close to the landing zone and communicate all pertinent information about the landing zone to the flight crew.
   5. Landing zone personnel will communicate by radio with the flight crew.

F. Safety
   1. Under no circumstances should the helicopter be approached unless signaled to do so by the pilot or flight crew.

2. 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.
3. Loading and unloading of the patient is done at the direction of the flight crew.
4. Crews should crouch down when in the vicinity of the main rotor blades.

G. Patient Destination
1. Patient will be transported to appropriate facility as directed by medical control.

H. Quality Assurance
1. Helicopter services will forward copies of their patient care record to the Medical Control Authority for each scene call upon request. The Medical Director may review all helicopter activations for appropriateness.

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 Bureau of EMS, Trauma and Preparedness 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.

1. If a patient presents with one of the following symptom complexes, then follow the remainder of this protocol.

    A. Fever > 100.5 F with 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 with rash progressing over days (not weeks or months) and the 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. 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".

4. Patient should wear a paper surgical mask to reduce droplet production, if tolerated.

5. 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.

6. 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.

7. 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.

8. Patients should also be encouraged to use hand sanitizers.

9. Unless critical, do not allow additional passengers to travel with the patient in the ambulance.

10. 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

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.

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 manufacturer's instruction.

INTER-FACILITY 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. Place disposable surgical mask on patient

8. Cover patient with linen sheet to reduce chance of contaminating objects in area.

9. 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.

10. 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.

11. Patient cohorting may occur if resources are exhausted and patients are grouped with same disease. Cohorting should only be utilized as a last resort.

Infection Control

NOTE: Any information obtained or exchanged regarding communicable disease exposures must be handled with strict confidentiality.

I. 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.

1. 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

1. 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.
2. 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.
3. 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.
4. 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).
5. 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.
6. 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.

7. 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.
8. Linens soiled with blood or body fluids shall be placed in appropriately marked container. Gloves shall be worn when handling soiled linens.
9. 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.
10. 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.
11. 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

1. In the event of a suspected or confirmed TB patient, an appropriate HEPA mask must be worn, in accordance with MIOSHA regulations.
2. 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.

II. Radio Communications

A. 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.

III. EMS Personnel Exposure to a Communicable Disease

A. Definition of a Reportable Exposure

1. Contaminated needle or sharp instrument puncture
2. Blood/body fluid splash into mucous membrane including mouth, nose, and eye
3. Blood/body fluid splash into non-intact skin area

B. Cooperating Hospitals' Responsibilities

1. 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.
2. 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.

3. Hospitals, when requested to do so, will obtain lab tests and results on source patients when exposure to a pre-hospital provider has occurred
   a. Hospitals will report the results of testing on the form DCH-1179(E) and return to the address indicated on the form.
4. 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
   1. 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.
   2. Each pre-hospital provider agency will be responsible for supplying personnel with the appropriate personal protective equipment.
   3. 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
   1. 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
   1. Wash exposed area very well.
   2. 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.
   3. Notify agency supervisor of possible exposure.
   4. Fill out form DCH-1179(E) and forward to Medical Control.
   5. Supervisor contacts Medical Control to request source patient testing.
   6. Medical Control contacts hospital personnel to request source patient testing.
   7. Provider obtains exposure evaluation and counseling.
   8. Medical Control reviews form DCH-1179(E) for completeness and forwards to hospital infection control office.
   9. Hospital infection control office returns form with tests results to EMS agency supervisor.

Communications Failure

Purpose: To allow for continued patient care activities in the event of a communications failure or inability to contact medical control.

Procedure

1. With a communications failure or inability to contact medical control, EMS personnel may initiate medical treatment protocols and procedures including interventions identified after the “Post-Medical Control” section.

2. Contact medical control as soon as communications can be established and inform them of the situation, including care or procedures rendered.

3. 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 protocol deviation and will only be used in exceptional circumstances.

Waiver of EMS Patient Side Communication Capabilities

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 time-dependent medical interventions to be performed without the need to obtain on-line permission from medical control. The EMS Medical Director must indicate that local state approved protocols permit these interventions to be performed without online medical control authorization either directly in protocol, or through the **Communications Failure Protocol**.

By adopting and implementing this protocol, both the medical director and alternate medical director stipulate that life-saving interventions listed in protocol are permitted to be performed by providers without on-line medical control authorization as defined by protocol.

Health Insurance Portability Accountability Act (HIPAA)

Purpose:

I. To provide a guideline for sharing protected health information (PHI) with entities that function in the capacity of a life support agency.

II. 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:

I. 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.

II. Patient care records will be completed on all patients where any type of care or assessment has occurred.

III. 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.

IV. The Medical Control Authorities shall hold all patient care information in strictest confidence.

V. 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.

VI. 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.

VII. 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.

Inter-facility Patient Transfers and Critical Care Patient Transports (Optional)

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 patient's 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 or consider other appropriate means of medical transportation.
        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. Hospital supplied medications not used during transport must be appropriately tracked, wasted and documented. All controlled substances and Propofol must have a documented chain of custody.
    b. 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.

Medication Custody Form

Patient Name _____

EMS Staff Receiving Medication _____ (**Name**) _____ (**Signature**)

Hospital Staff Sending Medication _____ (**Name**) _____ (**Signature**)

Medication	Amount Received From Hospital	Administered	Wasted

EMS Staff Wasting Medication _____ (**Name**) _____ (**Signature**)

Hospital Staff Witnessing Waste _____ (**Name**) _____ (**Signature**)

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. MDHHS 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. Waveform Capnography
        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 appropriately 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. Labetalol

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 pneumothorax 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 Quizzes
    A. Ventilators, chest tubes, invasive lines
    B. Thrombolytics, ABGs, blood, enzymes, pressers, paralytics
22. Written and Practical Exam (4 hours)

Licensure Level Requirement of Attendant during Transport (Optional)

☑ 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: 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.

I. 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.

II. 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.

Medical Control Privileges

Purpose: To establish minimum requirements for licensees applying for and retaining medical privileges within the jurisdiction of this medical control.

I. Minimum requirements for providers
   A. EMS personnel shall possess a valid State of Michigan license.
   B. EMS personnel shall possess a valid BLS Healthcare Provider card.
   C. Personnel licensed at EMT-Basic and above are subject to other MCA specific requirements as outlined below

II. Minimum Life Support Agency Requirements
   A. Valid State of Michigan license.
   B. Medical Control approved electronic patient care record.
   C. Responsibility for their EMS personnel meeting the requirements of this and other applicable protocols.
   D. Compliance with protocols.
   E. Notification of the medical control authority if they are unable to meet or comply with any protocol, statutory or regulatory requirement.
   F. Compliance with the minimum staffing and equipment requirements as defined in P.A. 368 of 1978, as amended.

III. Optional Training Standards: mark and specify as applicable

- [x] Written Exam
- [x] Pre-hospital Trauma Certification (PHTLS, ITLS, FTC)
- [x] Practical Competency (EMT Skills)

BEES, CPAP, ECG

- [x] Practical Competency (Specialist Skills)

BEES. CPAP, ECG

- [x] Advanced Cardiac Life Support (ACLS)
- [x] Pre-hospital Pediatric Certification (PALS, PEPP)
- [ ] Practical Competency (Paramedic Skills)

- [ ]
- [ ]

IV. 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).

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.

I. 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.
      b. PSRO will provide an impartial, fair and medically appropriate peer review process.

II. 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.

III. Responsibilities of EMS Agencies
   A. Agencies will operate under the Medical Control Authority and comply with Division 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.

IV. Accountability

A. The State of Michigan, Department of Health and Human Services, Division of EMS and Trauma, 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.

Physician on Scene

Purpose: To provide a process for interaction between EMS personnel and physicians at the scene of a medical emergency.

I. 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.

II. 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

I. 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.

II. 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.

III. All deviations must be reported to medical control.

IV. All deviations will be reviewed within the medical control quality improvement program.

Violent/Chemical/Hazardous Scene

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.

I. 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:
      1. Violent Situations
         a. Is assailant/weapon present?
         b. Assure law enforcement notification?
         c. Is scene secure?
      2. Hazardous materials situation
         a. Is scene secure?
         b. Nature and identification of material?
         c. Assure FD/Hazmat Team notification?

NOTE: The above information should be communicated to responding crews.

II. 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.

III. Once on the scene, if the situation changes posing an immediate life or limb threat to EMS personnel:
   A. Attempt to safely exit scene.
      1. Exit scene with patient, if possible.
      2. 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.

Special Considerations: For those patients, who have been contaminated in a hazardous material incident, refer to **Contaminated Patient Procedure**

Determination of Death, Death in an Ambulance and Transport of a Body

The intent of this policy is to establish standards for Determination of Death, when patients with Do-Not-Resuscitate (DNR) orders die in an ambulance, or care is terminated for a patient while in the ambulance.

I. Pronouncement/Determination of Death

A. Per the Determination of Death Act (Act 90 of 1992, MCL 333.1033), the MCA may establish which of its medical personnel may pronounce death.[1] Per this policy, paramedics holding MCA privileges, while on duty with a licensed ALS life support agency, with primary or secondary operations within this MCA or while providing mutual aid within this MCA, may pronounce the death of a patient who meets the following criteria:

1. Irreversible cessation of circulatory and respiratory functions
   a) Irreversible cessation of circulatory and respiratory functions is implied when a patient has experienced cardiac arrest and a valid DNR is in place, such that no attempt will be made to reestablish either circulation or respiratory functions.
   b) Irreversible cessation of circulatory and respiratory functions is also implied when a patient meets the criteria established under the **Dead on Scene protocol** or the termination criteria are met under the **Termination of Resuscitation Protocol**.

B. Contact with on-line medical control for the purpose of determination of death or pronouncement is not necessary unless expressly stated in the enabling protocol.

C. Contact with Dispatch for the purposes of recording the death is required.

II. Out of hospital death – Notification of the Medical Examiner

A. The Medical Examiner's office shall be notified for any out-of-hospital death under the following circumstances:

1. The individual dies by violence
2. The individual's death is unexpected
3. The individual dies without medical attendance by a physician, or the individual dies while under home hospice care without medical attendance by a physician or registered nurse, during the 48 hours immediately preceding the time of death, unless the attending physician, if any, is able to determine accurately the time of death.
4. If the individual dies as a result of an abortion, whether self-induced or otherwise.
5. Death of a prisoner in a county or city jail.

B. Responsibility to notify the Medical Examiner

1. If a patient is transported to a hospital from the scene, having met the above criteria, EMS shall notify the hospital of the criteria which requires notification.

[1] MCL 333.1033 (3) A physician or registered nurse may pronounce the death of a person in accordance with this act. This subsection does not prohibit a health facility or agency licensed under article 17 of the public health code, Act No. 368 of the Public Acts of 1978, being sections 333.20101 to 333.22260 of the Michigan Compiled Laws, from determining which of its medical personnel may pronounce the death of a person in that health facility or agency.

Responsibility for the notification of the Medical Examiner resides with the hospital.

2. If a patient meeting the above criteria is pronounced dead without being transported to the hospital, the responsibility for notification of the Medical Examiner is shared between law enforcement and EMS personnel having authority for the management of the patient.
3. Patients who do not meet the above criteria and who are pronounced dead outside of a hospital do not require notification of the medical examiner.
   a) Any patient who is attended by a physician or registered nurse at the time of death (nursing home)
   b) Any patient who was under home hospice care and had medical attendance by a physician or registered nurse within the 48 hours immediately preceding the time of death (hospice patient either at home or in hospice facility)

III. Out of Hospital Death – Management, Handling and Movement of Body

A. A body shall not be moved from the location of death if any mandatory Medical Examiner reporting criteria are present, **unless the ME's office provides official notification that an autopsy or external examination will not be performed and that the body will be released to the funeral home.**

B. Alternately, the body of a person who has unexpectedly died in a public location may be moved only after approval from the ME's office to EMS. Such approval shall not be requested if there is any indication of violence, criminal activity or if the physical environment may contain evidence related to a cause of death or an injury pattern.

C. **A situation which does not require notification of the ME's office does allow for movement of the body pending retrieval by the funeral home.**

D. Bodies must remain in the physical custody of the police or EMS until custody is transferred to the funeral home or the ME's office staff.

E. Medical devices utilized during care by EMS may be removed from the patient if the body is released by the ME's office to the funeral home (IV's, advanced airways, defibrillation pads, etc.)

F. Medical devices utilized during care by EMS must remain in place if the ME's office advises that an autopsy of examination will be performed.

G. If there is evidence of suspicious, violent or unusual cause of death, caution should be taken to avoid contamination of the scene.
   1. Police may choose to photograph or document the placement of medical devices, medical equipment, etc. in suspicious situations, prior to their movement or removal.

H. No personal items should be removed from the body with the exception of identification.

I. Bodies may be covered with a burn sheet or other sheet which does not shed fibers.

J. If a body is moved, as permitted in the prior criteria, the location should be to a private, secure and nearby location pending retrieval by the funeral home or the ME's staff.

K. Bodies must be handled with care and respect for the deceased, the family and the public.

IV. Death in an Ambulance – termination of care

A. Patients with valid DNR orders being transported for any reason, whether due to an emergency condition or during an interfacility transfer, who experience cardiac or respiratory arrest shall have the DNR honored unless, before arresting, the patient expressly withdraws their DNR.

B. Patients for whom transport was initiated but who, during transport, meet the criteria for either Dead on Scene or Termination of Resuscitation protocols, and for whom On-line Medical Control (OLMC) has approved a termination of resuscitation (as required by those protocols respectively), may have care terminated while still en route to the hospital.

V. Death in an Ambulance – transportation of patient's body

A. In the event of a patient death in an ambulance, the body shall be transported to the original destination hospital if the call was originally from a scene to a hospital or from a facility to a hospital (transfer).
   1. The patient's body shall be brought to the Emergency Department
   2. The patient will be registered to accommodate both the transfer of custody and for preservation of evidence, if indicated
   3. The Medical Examiner shall be contacted by the hospital and the disposition of the body shall be according to the direction of the ME.

B. If a patient is being transferred to a nursing home or to their home, immediately following discharge from a hospital, and death is determined, the body should be brought back to the hospital from which they were discharged, unless the patient is a hospice patient.
   1. If the patient is a hospice patient and hospice will be meeting you at the destination, or the destination is a hospice facility, you may continue on to the destination and relinquish the body to hospice personnel. This is permitted, without notification of the Medical Examiner, since the patient was both a hospice patient and received medical attendance within the 48 hours immediately preceding the time of death. However, if the death was unexpected, the Medical Examiner must be notified.
   2. If the patient is a hospice patient and hospice personnel will not be meeting you at the destination, continue on toward the destination, contact a supervisor from your agency and evaluate the situation. Where you ultimately go is dependent on how far you are from the destination, if family was intending to meet you at the destination, if the death was unexpected and any confounding factors. The body may not be left without there being a custodial transfer from EMS to an appropriate healthcare provider.
      a) Consider contacting the hospice care provider
      b) Consider consultation with online medical control
      c) If the death was unexpected, contact the Medical Examiner

C. If a patient is being transferred from a facility to an appointment, or vice versa, where neither the starting or ending destination was a hospital:
   a) If no DNR exists, treat and transport the patient to a hospital
   b) If a DNR exists but the patient is not a hospice patient, determine death, honor the DNR, and transport the body to a hospital
   c) If a DNR exists and the patient is a hospice patient, determine death; honor the DNR, refer to V.B (1 and 2) above.

Safe Delivery of Newborns

Purpose

According to Public Act 488 of 2006 and Public Acts 232, 233, 234, and 235 or 2000, parents may surrender their newborn child to any hospital, fire department, police station, or call 911 from any location and remain anonymous. This protocol outlines steps to be taken in this circumstance. ***IMPORTANT* While there is opportunity for information gathering through forms, the surrendering parent has the option of remaining completely anonymous and disclosing no information.**

Definitions

Newborn: A child who a physician reasonably believes to be not more than 72 hours old.

Emergency Service Provider: A uniformed or otherwise identified employee or contractor of a fire department, hospital, or police station when such an individual is inside the premises and on duty. ESP also includes a paramedic or an emergency medical technician (EMT) when either of those individuals is responding to a 9-1-1 emergency call.

Surrender: To leave a newborn with an emergency service provider without expressing an intent to return for the newborn.

Procedures

1. The surrender of the infant must occur inside the fire department, police station or in response to a 9-1-1 emergency call to paramedics or EMT.
2. To protect the parent's right to anonymity/confidentiality, the EMS agency responding to a 9–1–1 emergency call from a parent(s) wanting to surrender a newborn, should not use the vehicle sirens or flashing lights.
3. The firefighter, police officer, paramedic or EMT personnel cannot refuse to accept the infant and must place the infant under temporary protective custody.
4. Fire departments, police stations, paramedics and EMTs have statutory obligations under the law, including:
    a. Assume that the child is a newborn and take into temporary protective custody.
    b. Ask surrendering person(s) if they are the biological parent(s). If they are not the biological parent(s) the newborn cannot be surrendered under the Safe Delivery of Newborns law.
    c. Make a reasonable effort to inform the parent(s) that:
        i. By surrendering the newborn, the parent(s) is releasing the newborn to a child placement agency to be placed for adoption.
        ii. He or she has 28 days to petition the Circuit Court, Family Division to regain custody of the newborn.
        iii. There will be a public notice of this hearing and the notice will not contain the parent(s) name.
        iv. The parent(s) will not receive personal notice of the hearing.

   v. Information the parent(s) provides will not be made public. A parent(s) may contact the Safe Delivery of Newborns hotline for information. The toll free number is: **866-733-7733**

5. Provide the parent(s) with written material from the Department of Health and Human Services that includes:
   a. Safe Delivery Program FACT Sheet (DHHS Pub 867)
   b. What Am I Going To Do? (DHHS Pub 864) Optional
6. Make a reasonable attempt to:
   a. Reassure parent(s) that shared information will be kept confidential.
   b. Encourage parent(s) to identify him/herself.
   c. Encourage the parent(s) to share any relevant family/medical background, Voluntary Medical Background Form for a Surrendered Newborn (DHHS Form 4819).
   d. Inform the parent(s) of the newborn he or she can receive counseling or medical attention.
   e. Inform parent that in order to place the child for adoption the state is required to make a reasonable attempt to identify both parents. Ask for the non-surrendering parent's name. Do not press if the name is refused.
   f. Inform the parent(s) that he or she can sign a release for the child that could be used at the parental rights termination hearing, Voluntary Release for Adoption of a Surrendered Newborn (DHHS Form 4820).
7. Fire and Police will contact emergency medical services (EMS) to transport newborn to hospital. ESP will accompany newborn to the hospital to provide hospital with any forms completed by the parent(s) and to transfer temporary protective custody.
   a. Note: Temporary protective custody cannot be transferred to EMS. A representative of the fire department or police station must go to the hospital to transfer temporary protective custody to the hospital.
8. Paramedics and EMT responding to a 9-1-1 emergency call will transport newborn to hospital, provide any forms completed by parent(s) and transfer temporary protective custody to hospital staff.

* For Safe Delivery purposes EMS is defined as a paramedic or emergency medical technician.

Michigan's
Safe Delivery of Newborns Law
FACT Sheet

SAFE. LEGAL. ANONYMOUS.

Background:

Michigan lawmakers passed the Safe Delivery of Newborns law to end the tragedy of unwanted newborns being hidden and left to die in unsafe places. More than 100 newborns were surrendered in the first 10 years the law was in effect, with the majority of these infants adopted by loving families.

What the law provides?

- Unharmed newborns, up to 72 hours old, can be taken to an Emergency Service Provider (ESP), meaning a uniformed or otherwise identified employee or contractor of a fire department, hospital or police station who is inside the building and on duty. ESP includes a paramedic or EMT when either responds to a 9-1-1 call. The parent(s) has the choice to leave the infant without giving any identifying information to the ESP.
- The ESP is authorized to accept the infant and provide whatever care may be necessary.
- The ESP will make a reasonable effort to provide the parent(s) with the following information:
  1. A written statement of the parent's rights following surrender of the infant.
  2. Information about other confidential infant placement options, as well as information about the availability of confidential medical and counseling services, such as Public Health, Community Mental Health, Family Planning Clinics, Adoptions Agencies.

What are the rights of the surrendering parent?

- To be informed that by surrendering the newborn, the parent is releasing the newborn to a child placing agency to be placed for adoption.
- To petition the court to regain custody of the newborn within 28 days of surrender or notice of surrender.
- Any information the parent(s) provides the ESP will **not** be made public.
- A criminal investigation shall not be initated solely on the basis of a newborn being surrendered to an ESP.
- To file a consent to release identifying information with the Adoption Central Registry.

CONFIDENTIAL
VOLUNTARY MEDICAL BACKGROUND FORM FOR A SURRENDERED NEWBORN
Michigan Department of Human Services

Preference for Child's Name	Date of Birth
Where was the child born?	Sex

SURRENDERING PARENT BACKGROUND (Optional)

Name	Marital Status ☐ S ☐ M ☐ D	Date of Birth	Phone Number
Address			
Race	Affiliated with American Indian Tribe ☐ YES ☐ NO	Identify Tribe	
Height	Weight	Hair Color	Eye Color

Any Family History of:	Yes	No		Yes	No	
Sickle Cell Disease	☐	☐	Cancer	☐	☐	If Yes Type
Heart Disease	☐	☐	Genetic Disease	☐	☐	If Yes Type
Diabetes	☐	☐	Family History of Mental Illness	☐	☐	If Yes Explain
HIV	☐	☐	Drug Usage	☐	☐	If Yes Explain
Hepatitis	☐	☐	Alcohol Usage	☐	☐	If Yes Explain
Other						

Surgical History

OTHER PARENT BACKGROUND (Optional)

Name	Marital Status ☐ S ☐ M ☐ D	Date of Birth	Phone Number
Address			
Race	Affiliated with American Indian Tribe ☐ YES ☐ NO	Identify Tribe	
Height	Weight	Hair Color	Eye Color

Any Family History of:	Yes	No		Yes	No	
Sickle Cell Disease	☐	☐	Cancer	☐	☐	If Yes Type
Heart Disease	☐	☐	Genetic Disease	☐	☐	If Yes Type
Diabetes	☐	☐	Family History of Mental Illness	☐	☐	If Yes Explain
HIV	☐	☐	Drug Usage	☐	☐	If Yes Explain
Hepatitis	☐	☐	Alcohol Usage	☐	☐	If Yes Explain
Other						

Surgical History

INFORMATION ABOUT THE PREGNANCY

Length of Pregnancy	Weight Gain Lbs.	Drug or Alcohol Use During Pregnancy ☐ Yes ☐ No, If yes, Explain

EMERGENCY SERVICE PROVIDER OBSERVATIONS

Comments			
ESP Signature		Date	Phone Number
Address:	City	State	Zip Code

DHS-4819 (Rev. 4-11) Previous edition obsolete. MS Word 1

VOLUNTARY RELEASE FOR ADOPTION OF A SURRENDERED NEWBORN BY PARENT
Michigan Department of Human Services

In the matter of _____, a newborn child.

1. I, _____, DOB ___/___/_____ am the ☐ mother ☐ father of the above child, who was born on ___/___/_____ at _____ (place).

2. I understand that I have parental rights to this child and that by signing this release, I voluntarily release all of my parental rights to my child. (Subject to number three below.)

3. I understand that I have 28 days after surrendering my newborn child to petition the court to reclaim custody of my child.

4. I understand that I will not receive notice of any hearings.

5. Understanding the above provisions, I release completely and permanently my parental rights to my child, and release my child to a child placing agency for the purpose of adoption.

6. I acknowledge receipt of the following:
   ____ Fact Sheet (Pub 867)

Date ___/___/_____ Parent Signature _____

Address _____

City _____ State _____ Zip _____

Witnessed by _____
Name (type or print)

on _____, at _____
Date Agency and Address

_____
Signature

IF A NOTARY IS AVAILABLE: Notary Public

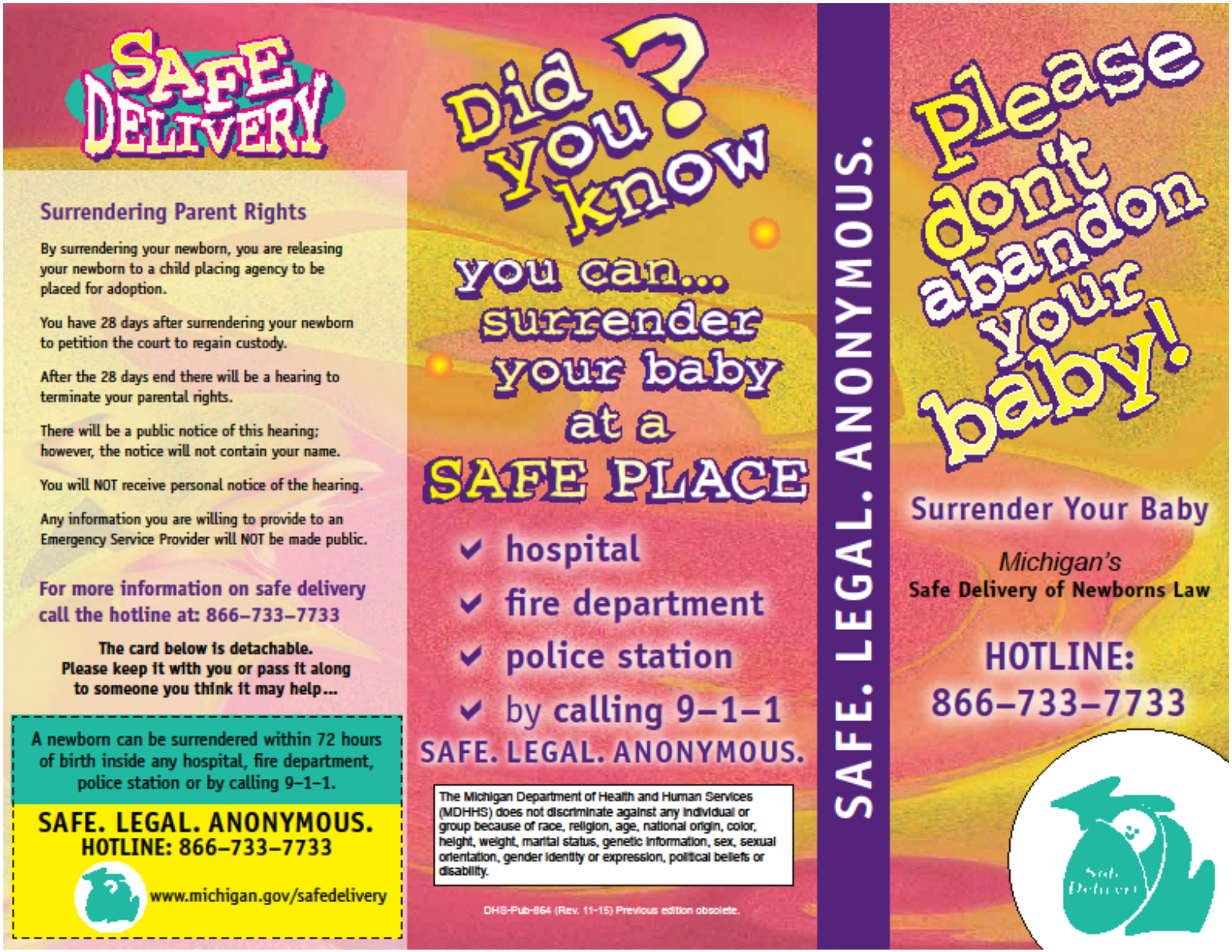
Subscribed and sworn to before me on _____, _____
Date County and State

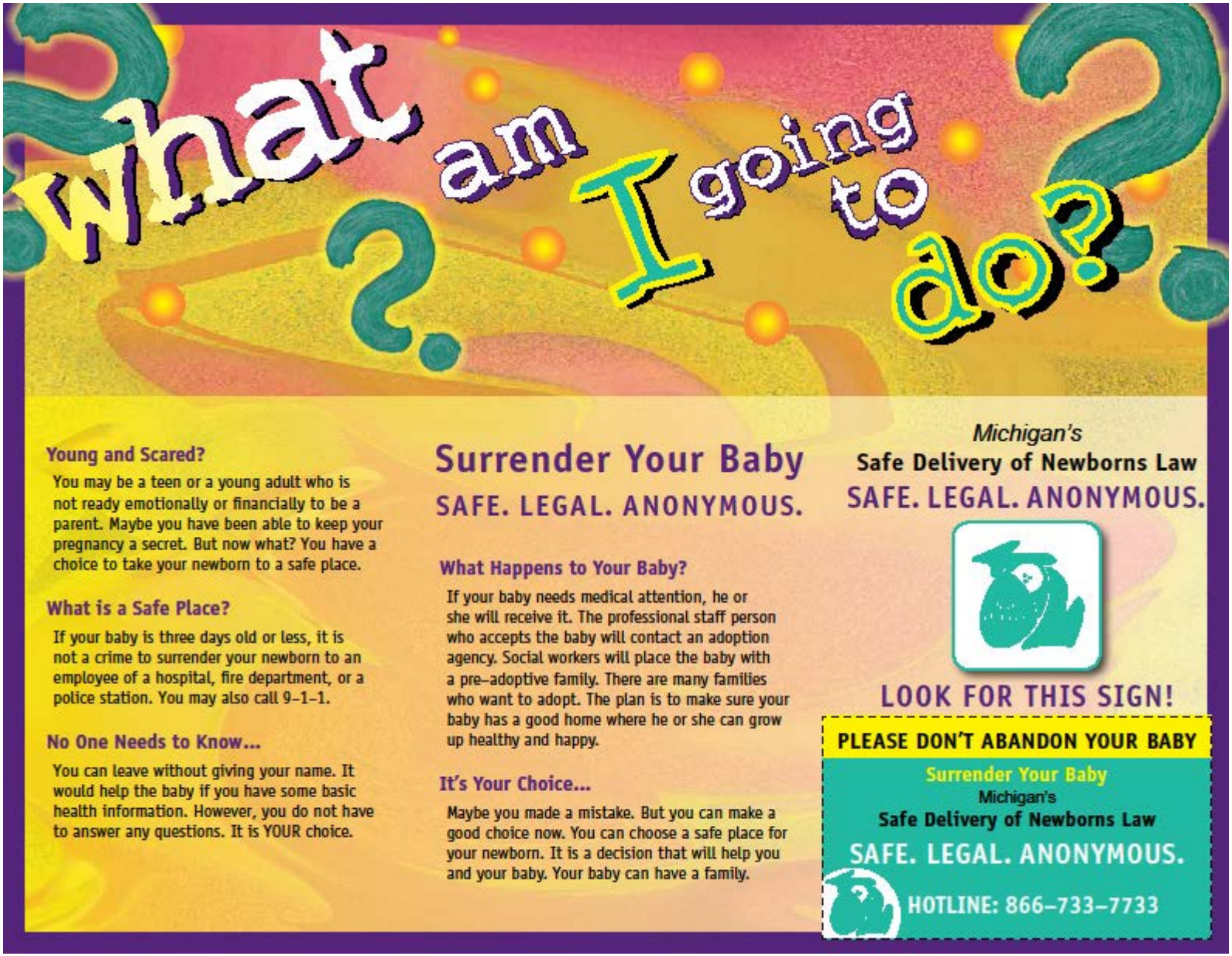
My commission expires: _____ Signature: _____
Date

_____
Name (type or print)

AUTHORITY: State P.A. 232 of 2000 RESPONSE: Voluntary PENALTY: None	Department of Human Services (DHS) will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, height, weight, marital status, political beliefs or disability. If you need help with reading, writing, hearing, etc., under the Americans with Disabilities Act, you are invited to make your needs known to a DHS office in your area.

DHS-4820 (Rev. 5-07) MS Word


SAFE DELIVERY
Surrendering Parent Rights
By surrendering your newborn, you are releasing your newborn to a child placing agency to be placed for adoption.
You have 28 days after surrendering your newborn to petition the court to regain custody.
After the 28 days end there will be a hearing to terminate your parental rights.
There will be a public notice of this hearing; however, the notice will not contain your name.
You will NOT receive personal notice of the hearing.
Any information you are willing to provide to an Emergency Service Provider will NOT be made public.
For more information on safe delivery call the hotline at: 866–733–7733
The card below is detachable.
Please keep it with you or pass it along to someone you think it may help...
A newborn can be surrendered within 72 hours of birth inside any hospital, fire department, police station or by calling 9–1–1.
SAFE. LEGAL. ANONYMOUS.
HOTLINE: 866–733–7733
www.michigan.gov/safedelivery
Did you know
you can... surrender your baby at a SAFE PLACE
hospital
fire department
police station
by calling 9–1–1
SAFE. LEGAL. ANONYMOUS.
The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group because of race, religion, age, national origin, color, height, weight, marital status, genetic information, sex, sexual orientation, gender identity or expression, political beliefs or disability.
DHS-Pub-864 (Rev. 11-15) Previous edition obsolete.
SAFE. LEGAL. ANONYMOUS.
Please don't abandon your baby!
Surrender Your Baby
Michigan's
Safe Delivery of Newborns Law
HOTLINE:
866–733–7733


what am I going to do?
Young and Scared?
You may be a teen or a young adult who is not ready emotionally or financially to be a parent. Maybe you have been able to keep your pregnancy a secret. But now what? You have a choice to take your newborn to a safe place.
What is a Safe Place?
If your baby is three days old or less, it is not a crime to surrender your newborn to an employee of a hospital, fire department, or a police station. You may also call 9-1-1.
No One Needs to Know...
You can leave without giving your name. It would help the baby if you have some basic health information. However, you do not have to answer any questions. It is YOUR choice.
Surrender Your Baby
SAFE. LEGAL. ANONYMOUS.
What Happens to Your Baby?
If your baby needs medical attention, he or she will receive it. The professional staff person who accepts the baby will contact an adoption agency. Social workers will place the baby with a pre-adoptive family. There are many families who want to adopt. The plan is to make sure your baby has a good home where he or she can grow up healthy and happy.
It's Your Choice...
Maybe you made a mistake. But you can make a good choice now. You can choose a safe place for your newborn. It is a decision that will help you and your baby. Your baby can have a family.
Michigan's
Safe Delivery of Newborns Law
SAFE. LEGAL. ANONYMOUS.
LOOK FOR THIS SIGN!
PLEASE DON'T ABANDON YOUR BABY
Surrender Your Baby
Michigan's
Safe Delivery of Newborns Law
SAFE. LEGAL. ANONYMOUS.
HOTLINE: 866-733-7733

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 (MCA).

I. Definitions:
   A. Complaint
      For the purpose of this policy, a complaint shall be defined as any notification of dissatisfaction or concern regarding medical care rendered by a MCA licensed EMS provider/agency, or any issues that involve the performance of the EMS system in whole or in part.
   B. Privileged Documents
      Privileged documents are those which are collected by the Professional Standards Review Organization (PSRO) of the MCA.
   C. Formal Inquiry
      Formal inquiry means that a complaint has been found to either be valid, or that more detailed inquiry is necessary to determine the validity of the complaint; either of which will require that the subject licensee (individual/agency) be notified of the specific complaint. A formal inquiry may involve the gathering of incident reports which provide explanations for care rendered or justification for actions, as well as subject/witness interviews. Some information gathering may not necessitate a formal inquiry.
   D. Sentinel Event
      A sentinel event is any complaint which involves at least one single level I infraction, a violation of Michigan or Federal laws, EMS rules, or 2 or more level II infractions, as described in the Medical Incident Review and Corrective Action Policy. Refer to **Incident Classification Protocol**.
   E. Licensee
      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.

II. Professional Standards Review Organization of the MCA
   A. The medical control authority shall establish a PSRO to perform its duties and functions related to complaints, investigations or quality improvement activities, both prospective and retrospective.

B. The PSRO may be comprised of members of the board(s), MCA employees and contract staff, EMS agency staff, hospital staff, committee members, and other designated individuals when acting on behalf of, or at the direction of the MCA when performing PSRO tasks.[1]

III. Complaints Which Will be Considered

All complaints, in order to be considered for action by the MCA, shall meet the following criteria:

A. A complaint may be submitted either verbally or in writing. Hearsay or "second hand" complaints may not be accepted or investigated by the MCA.

B. The complainant must provide the MCA with his/her name, address, and telephone number. A request for anonymity by a complainant shall be honored by the MCA to the extent possible.

C. The complaint must be directed toward a licensee (individual or agency) within the MCA.

IV. Complaints That May Not Be Considered

Complaints regarding conduct of a licensee, exclusive of medical practice or actions bearing upon medical practice, shall be referred to the employer of the individual. These complaints may also be referred to the PSRO for investigation at the discretion of the MCA.

V. Complaint Delegation

A. Complaints directed toward an individual acting while employed by an agency outside of the jurisdiction of the MCA shall not be accepted or investigated but will be forwarded, or the complainant directed to, the MCA/agency under whose jurisdiction it does fall.

B. MCAs may cooperate on investigations which overlap jurisdictional boundaries. For the purposes of remediation or discipline, the MCA granting Medical Control to the provider or agency where the primary action or actions being investigated took place shall be considered the jurisdictional MCA.

C. Complaints more appropriately investigated at the agency or operational level may be turned over to the life support agency or hospital involved. Investigation results should be reported to the MCA.

VI. Receipt of Complaints

Complaints may be received at the MCA directly, at life support agencies or by individuals. Those in receipt of a complaint which involves violations of protocols,

[1] MCL §331.531, (Et Seq.)

statutes, or administrative rules shall inform the MCA. The MCA will determine if further investigation is necessary.

The complainant for a case should be asked if they would like to be contacted by the agency/individual that is the subject of the complaint. This will allow the complainant the opportunity to voice a request to remain anonymous or to allow their information to be provided to the subject of the complaint.

VII. Investigation of Complaints

Once a complaint is received by the MCA, the complaint will be assigned to the PSRO. The person(s) charged with complaint investigation will gather information to determine the validity of the complaint and, if valid, will communicate with the employing agency of the subject(s) involved in the complaint. The PSRO may request copies of documents, incident reports, video and audio recordings relating to a complaint without formal notification of the complaint to the subject licensee. All requests for information will be documented in the investigation notes or with attached documentation/emails.

Formal notification of the subject licensee will occur if MCA disciplinary actions or formal inquiry are indicated. A copy of the initial complaint, or a complaint summary (if the initial complainant requested anonymity), may be provided upon request.

VIII.Documentation

The documentation of the investigation of a complaint may include, but is not limited to, the following:

A. The name, address, and telephone number of the complainant (if known)
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, if appropriate.
E. A copy of the notice to the subject licensee, if appropriate.
F. A copy of the pertinent protocol(s) and/or policy/policies.
G. Written statements of witnesses including notes from telephone interviews
H. Copies of pertinent reports, transcriptions of audio tapes; video recordings and copies of other pertinent documents or emails.

IX. General Complaint Review

The complaint review process will first seek to identify the validity of each complaint. Complaints found to be invalid will be closed as unsubstantiated; notification to the individual or the agency of the closure will only occur if prior knowledge of the complaint was provided to, or exists with, the involved individual/agency.

Complaints found to be valid, but of a minor or less severe nature may be handled in

cooperation with the agency's quality improvement personnel or management. These incidents may involve education and remediation but may not involve suspension, limitation or revocation of the individual's or agency's privileges to function in the MCA area.

X. Sentinel Event Complaint Review

A sentinel event complaint shall be reviewed by the PSRO at a special meeting called for that purpose. Prior to a review meeting, the subject licensee shall be provided with copies of all documentation gathered regarding the complaint with the exception of any documents that would reveal the identity of an individual who requested anonymity. The licensee will be informed if documents are withheld or summarized to maintain the anonymity of an individual.

The subject licensee (individual/agency) may request a postponement, of up to thirty (30) days, of a special meeting in order to prepare his/her/their response to the complaint. The subject individual/agency must submit copies of all supporting documentation to the PSRO at least one week prior to the review meeting.

A. Attorneys and Union representatives are not permitted in PSRO case reviews without prior expressed permission of the MCA.
B. A subject licensee may bring a representative of their life support agency, such that the agency may provide guidance for the individual, and so the agency may fairly represent themselves and their policies.
C. The following steps shall be taken in the complaint review process:
    1. The violation of policy or protocol shall be defined.
    2. The impact on patient outcome will be evaluated.
    3. The subject licensee shall be given time to speak on the issue of the complaint including the opportunity to present supporting documentation.
    4. Counseling, remedial, and/or disciplinary action shall be considered and/or ordered as deemed appropriate by a majority vote of the MCA or their designated and pre-established Professional Standards Review Organization/Quality Review Committee.
D. 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.
E. If the MCA has enacted a temporary suspension, in accord with the Due Process and Disciplinary Action Policy, and the subject licensee requests a 30-day postponement, the suspension of privileges to function shall remain in place during the postponement.

F. The PSRO shall remove all the names and addresses of patients from the record before the review entity releases or publishes a record of its proceedings, or its reports, findings, and conclusions.[2]

[2] MCL 331.533

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.

I. Procedure
   A. A licensee having received an Order for Disciplinary Action (ODA) from the Medical Control Authority (MCA) may initiate a Request to Appeal.
   B. A licensee shall notify the MCA within seven (7) days of receipt of notice of an ODA of his/her/their request to Appeal. Such notice shall be in writing.

II. Appeal Hearing
   A. Upon receipt of a Request to Appeal an ODA, the MCA shall schedule a special meeting for the purpose of hearing an appeal. This meeting shall be scheduled as soon as practicable following receipt of a Request to Appeal.
   B. The receipt of a Request to Appeal does not stay the ODA or the imposition of the discipline on the appellant licensee.
   C. The MCA shall honor a request to postpone an appeal hearing, 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 MCA shall hold an appeal hearing to review the appellant licensee's new information and exercise one of the following options:
      1. Uphold the original decision and subsequent ODA.
      2. Diminish the ODA to a lesser Disciplinary Action (i.e., suspension of privileges diminished to written reprimand).
      3. Revoke the ODA (revocation of an ODA 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 MCA 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 of Health and Human Services, in writing, no more than 30 calendar days following notification of the final determination by the MCA.
      1. If a decision of the MCA is appealed to the Emergency Medical Services Coordination Committee, the MCA shall make available, in writing, the information it considered in makings its decision.

III. Appeal Hearing for an Immediate Threat
If the MCA determines 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 MCA has had the opportunity to review the matter at a MCA hearing. The hearing shall be held within 3 business days after the MCA's (or Medical Director's) determination to remove medical control.

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.

I. Due Process

The **Complaint Investigation & Resolution Policy** establishes the initial steps of Due Process. Under that policy, a complaint will be investigated for validity and severity. Both individuals and agencies shall be notified of formal or sentinel reviews.

A. The MCA will provide at least 4 business days' notice to affected providers and agencies prior to convening a special PSRO meeting.

B. Subjects of a complaint will be provided with copies of all, complaint/investigation related materials at the time of a special meeting with the exception of materials that would reveal the identity of an individual that provided information under the condition of anonymity. The subject individual or agency may request the complaint/investigation related materials in advance of the special meeting.

C. Any MCA suspension enacted as a measure to ensure the safety of the community or patients shall remain in effect pending sentinel event review and disposition.

D. In the event of criminal charges being filed against a provider or agency related to acts of violence, diversion of medications, illegal possession of controlled substances, criminal sexual conduct, or other practice which may pose a threat to the community or patients, the MCA may act with suspension of MCA privileges without convening a special PSRO meeting.

1. The individual or agency shall be notified of the suspension per the **Disciplinary Action and Appeal Policy**.
2. If found guilty in a court of law, MCA privileges will be considered to be revoked.
3. If found not guilty of charges, the individual or agency must provide copies of court documents, including transcripts, to the MCA.
4. If a court case is dismissed based on procedural failings or errors, the MCA may decline to extend privileges if the conduct of the individual or agency may pose a threat to the community or patients.

E. A subject licensee may request a postponement of up to thirty (30) calendar days of a special PSRO meeting in order to prepare his/her individual or agency response to the complaint. The subject licensee must submit a copy of all supporting documentation to the MCA at least one week (5 business days) prior to the postponed review meeting.

F. The MCA is not a hiring entity and is not subject to collective bargaining. Union representation during MCA PSRO reviews is not permitted.

G. The MCA's PSRO investigates incidents, complaints, personnel and agencies. While a deed or misdeed may be civil or criminal in nature, the MCA's PSRO is not an adjudicating body for either of these conditions. The PSRO is not subject to the rules and statutes which govern civil or criminal

adjudication; as such, attorneys and legal representatives are not permitted in PSRO reviews.

H. Recording, monitoring or any manner of duplicating a PSRO review is not permitted unless conducted by the PSRO entity and expressly for PSRO purposes.
I. Disclosure of confidential PSRO materials[1] by individuals or agencies both before and after review shall be cause for possible suspension or revocation of MCA privileges, as well as possible statutory violations.
J. The MCA may disclose non-specific information relating to discipline of individuals or agencies. Care must be taken to not compromise any confidential information.[2]
K. Subject individuals or agencies may have agency representation at PSRO reviews provided PSRO standards are maintained.
L. Individuals or agencies failing to appear for PSRO reviews waive their right to representation and are subject to the summary findings of the review body. Failure to appear also constitutes a violation as defined in the **Incident Classification Policy**.
M. Subject individuals or agencies shall be notified of the findings of a PSRO review. If disciplinary action results, the individual or agency will be provided with any required remediation steps/actions and a copy of the **Disciplinary Action Appeal Policy**.
N. In the event that a complaint/investigation involves both the function of an individual and the compliance of their agency or department, the requirement for a 4 business day notice of any special meeting shall apply, unless a postponement is granted to the individual.

II. Application of Disciplinary Action

A. A primary function of disciplinary action is to ensure the protection and safety of the community and patients.
B. The application of remediation and/or discipline is intended to promote improvement in clinical and operational performance.
C. The MCA shall engage in a process to ensure that licensees maintain an appropriate level of clinical and operational performance.
D. The review process outlined in the **Complaint Investigation Procedure** shall be utilized in assessing the remedial and/or disciplinary action required.
E. MCAs should utilize Just Culture when applying or considering disciplinary action. There should be a balance between provider and system accountability.

III. Remediation

A. The Medical Control Authority may issue an order of remediation to correct substandard clinical performance.

[1] MCL 331.533
[2] MCL 331.533

B. A defined time period for completion of remedial activity shall be stated in the order.
C. Licensees shall be required to perform remedial activity under the supervision of an appointed proctor to correct an identified performance shortcoming.
D. Notice of a remedial order, or the order itself, shall be forwarded to the licensee's employer (or MCA board in the case of an agency provider).
E. 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.
F. Disciplinary action may be accompanied by assignment of additional remedial activity.

IV. Discipline

Disciplinary action may or may not be ascending in severity. In cases where misconduct (by action or omission), regardless of where the misconduct occurred, is determined to be reckless, willful, or criminal, ascending discipline may be bypassed with a more severe disciplinary action imposed.

A. Order of Disciplinary Action
    1. An Order of Disciplinary Action (ODA) is a written document developed by the MCA and sent to a subject licensee for the purposes of clearly and plainly identifying the findings of the MCA, any disciplinary action and any required remediation.
    2. ODAs include, but are not limited to, written reprimands, written notice of suspension, written notice of revocation, a letter of warning and a letter of reprimand.
    3. The ODA must be delivered in a way that confirmed receipt by the licensee may occur.
    4. The licensee that receives an ODA must provide a copy to all MCAs in which they are privileged.
    5. Licensees receiving an ODA from another MCA must provide a copy of the ODA to this MCA.
B. Temporary Suspension of Privileges
    1. 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 business days after the Medical Director's determination.
    2. If a licensee's MCA privileges have been temporarily suspended from a licensee, the licensee shall not provide prehospital care until MCA privileges are reinstated.
C. Written Reprimand
    1. A written reprimand shall be issued to a licensee stating
        a. the details of the substandard performance

   b. the remedial action, if required
   c. the time allowed for completion of remedial action
   d. the consequences for repetitive noncompliance
2. Notice of disciplinary action shall be forwarded to the licensee's employer (or MCA board in the case of an agency provider).
3. A copy of the **Disciplinary Action Appeal** policy shall be included in the notice to the licensee.

D. Probation
1. A probationary letter shall be issued to a licensee stating
   a. the details of the substandard performance
   b. the details of the probation
   c. the remedial action required
   d. the restriction of privileges, if applicable
   e. the time of probationary period
   f. the consequences for repetitive noncompliance
2. Notice of probationary action shall be forwarded to the licensee's employer (or MCA board in the case of an agency provider).
3. A copy of the **Disciplinary Action Appeal** policy shall be included in the notice to the licensee.

E. Suspension of Privileges

A licensee's medical privileges shall be suspended for a specified period of time.

1. A written notice of the suspension shall be issued to the licensee stating
   a. the details of the substandard performance
   b. the violation(s) of protocol and/or policy
   c. the term of suspension
   d. the remedial activity, if required
   e. the time allowed for the completion of the remedial activity
2. Notice of disciplinary action shall be forwarded to the licensee's employer, if employed (or MCA board in the case of an agency provider).
3. A copy of the **Disciplinary Action Appeal** policy shall be included in the notice to the licensee.
4. If a licensee's MCA privileges have been suspended from a licensee, the licensee shall not provide prehospital care until the MCA privileges are reinstated.
5. The Medical Control Authority must notify the department within one (1) business day of the removal of medical control privileges from a licensee.

F. Revocation of Privileges
1. The notice of revocation shall state the violation(s) of protocol and/or policy.

2. Notice of disciplinary action shall be forwarded to the licensee's employer (or MCA board in the case of an agency provider).
3. A copy of the **Disciplinary Action Appeal** policy shall be included in the notice to the licensee.
4. The Medical Control Authority must notify the department within one (1) business day of the removal of medical control privileges from a licensee.
5. Within one (1) business day of the removal of medical control privileges, the Medical Control Authority must notify all other Medical Control Authorities which it knows, or has reason to believe, have granted the licensee or agency Medical Control privileges.

G. Financial Penalties

The MCA may not apply financial penalties to individuals, per this policy. No such prohibition exists within statute; however, a MCA wishing to establish individual financial penalties must purposely develop an addendum to this policy.

H. PSRO Communications

PSRO protected entities may share PSRO information with other PSRO entities for the following purposes[3]:

1. To advance health care research or health care education.
2. To maintain the standards of the health care professions.
3. To protect the financial integrity of any governmentally funded program.
4. To provide evidence relating to the ethics or discipline of a health care provider, entity, or practitioner.
5. To review the qualifications, competence, and performance of a health care professional with respect to the selection and appointment of the health care professional to the medical staff of a health facility.

V. 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 department chief or agency official of the alleged protocol violation.

B. Details of the alleged violation, and any response received from the EMS agency, will be presented to the MCA designated PSRO review body at their next meeting. The agency involved will be notified of and may attend the meeting and present any information it believes pertinent.

C. If the PSRO discussion will take place at an otherwise open meeting, the committee must go into closed session for PSRO purposes, prior to discussion. The predesignated PSRO of the MCA will then meet in closed

[3] MCL 331.532

session to perform the PSRO review. All parties not principal to the PSRO review shall be excluded from such a closed session review. No record of PSRO reviews shall be entered into the general minutes except to state that the committee entered/exited closed session for a PSRO review.

D. The PSRO of the MCA 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:
    1. Severity of the violation will determine the level of sanction to be imposed.
        a. A violation is considered "minor" if it involves administrative infractions, including but not limited to, failure to timely file reports.
        b. 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.
        c. 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.
    2. 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.
    3. 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 may be required to submit, within 15 days, a written statement of actions it will take to prevent future protocol violations.
    4. At the discretion of the Medical Control Authority, notice of these actions may be made public.
    5. A MCA may assess restrictions or limitations upon a licensed life support agency for non-compliance with protocols.

E. 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.

F. An EMS agency may appeal a decision of the Medical Control Authority. The EMS Agency must follow the **Disciplinary Action Appeal** policy.

VI. A licensee must notify the MCA of disciplinary action from the State of Michigan.

Quality Improvement Policy

Purpose: The purpose of this policy is to establish the requirement for a defined Quality Improvement process within the Medical Control Authority (MCA) and with agencies holding medical control privileges. This policy provides a means for evaluation and improvement of protocol and EMS system components and design.

I. Confidentiality Assurance

Information obtained for the purpose of Quality Review will be used to determine if the current protocols in the MCA are being appropriately followed and to improve the protocols and the EMS system. Data is protected under P.A. 270 of 1967, MCL 331.531 to 331.533.

In specific cases where EMS providers may require corrective actions, the emergency medical services personnel names may be given to the agency to address at the agency level.

II. Professional Standards Review Organization

A. The Professional Standards Review Organization (PSRO) of the MCA 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 MCA for the purpose of improving the quality of medical care and oversight of appropriate protocol compliance within the EMS system.

B. Agencies shall develop institutional PSROs for the purpose of internal review and improvement. For the purpose of this protocol, PRSO is meant to refer to the PSRO of the MCA.

C. The MCA's designated PSRO shall perform the duties and functions related to complaints, investigations or quality improvement activities, both prospective and retrospective.

D. The PSRO may be comprised of members of the board(s), MCA employees and contract staff, EMS agency staff, hospital staff, committee members, and other designated individuals when acting on behalf of, or at the direction of the MCA when performing PSRO tasks.

E. All Quality Improvement activities shall be performed by the PSRO, and all documents collected for Quality Improvement activities shall be held by the PSRO subject to Michigan's peer review privilege.[1]

III. Data Collection

A. Electronic Patient Care Reports (EPCR)
The MCA is authorized to obtain access to EPCR originating within their service area; this includes all scene responses, interfacility transfers and critical care transfers. The Medical Control may elect to receive reports on request.

B. MI-EMSIS Data Collection
1. Providers and agencies are required to report per the **Patient Care Record, Electronic Documentation and EMS Information System** procedure.
2. Agencies shall work in cooperation with the MCA, under PSRO, to ensure the quality, consistency and accuracy of data submitted through MI-EMSIS.
3. The MCA shall maintain access to the MI-EMSIS data and ensure that agencies are accountable for the submission of data.
4. MI-EMSIS data should be utilized as a tool for the evaluation of performance and function as a driving mechanism for quality improvement.

C. Other Electronic Data Collection
The MCA is authorized to obtain electronic data and voice recordings from any and all EMS agencies and/or departments, and dispatch agencies with interaction with callers requesting a medical response within the MCA service area. This includes mutual aid responses into the MCA service area. Data will be provided to the MCA's PSRO on a monthly basis or when individual records, recordings and reports are requested. The Medical Control may elect to receive electronic reports on a more frequent schedule.

D. Ownership of Records
Any documents or data relating to requests for service, records of provided services, records of refused services, dispatch reports and incident reports including all aggregated reports for benchmarking and analysis which are submitted to the PSRO of the MCA, or generated by the PSRO, are privileged. The MCA's PSRO holds ownership of only protected Quality Improvement documents. The submitting agency maintains ownership of any and all original records generated by their agency and personnel.

E. Incident Report Collection
1. Incident reports and requests for additional information directed to an individual provider or to an EMS agency/department requested by the MCA/PSRO must be submitted to the MCA/PSRO within 96 hours.
2. The MCA may establish an online reporting system.

IV. Data Review

A. Agency PSRO Responsibilities
Each agency, or department licensed to provide prehospital care, within the MCA area must develop and maintain a PSRO subgroup that reviews, either through a peer evaluation group or individuals tasked with peer review functions, and conducts audits requested by Medical Control.

B. Special Studies
All EPCR that include the use of equipment, skills, techniques or procedures that are currently under special study will be reviewed.

C. Unusual Occurrences
Any EPCR that are unusual and possibly one-time situations that may serve as a learning tool for other services in the future may be reviewed.

D. Problem Identification
1. Potential concerns in patient care may be brought to the attention of the PSRO of the MCA.
2. Topic quality improvement reviews will be performed with results reported to the Medical Control Authority.

E. Sentinel Event Reporting
1. The Medical Control Authority may designate specific items that must be reported.
2. Any intervention where it is reasonable to believe that harm to the patient may have occurred must be reported.

VI. Quality Review Criteria

A. Medical Control Authority Protocols
1. The current protocols in place at the time of the event will be used to review the EPCR selected.
2. Any changes in protocols will not be used for evaluation until the changes are approved and distributed.

B. Dispatch Policies
The review of the EPCR may address dispatch, location, response time, or mutual aid/multi-agency problems.

VII. Quality Improvement Actions

The PSRO, the Medical Director or his/her designee 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

Incident Classification

Purpose: To establish a process for the classification of Incidents reviewed by the MCA. Incidents will be divided into two categories, Level I and Level II.

Discretionary Powers
If the Medical Control Authority determines that an immediate threat to the public health, safety, or welfare exists, appropriate action to remove medical control privileges can be taken immediately and until the Medical Control Authority has had the opportunity to review the matter. A Professional Standards Review Organization (PSRO) hearing shall be held within three business days after the Medical Control Authority's determination to remove medical control. The Medical Director or his /her designee shall determine the personnel needed for the hearing.

Receipt and Investigation of Incidents
When the MCA becomes aware of a potential violation of the state approved policies, procedures, protocols, or statutes, the Medical Director, his/her designee, or the PSRO of the MCA will investigate the complaint per the state approved **Complaint Investigation Policy**.

Classification of Complaints
Complaints determined to be valid will be reviewed and will be classified using the criteria below. These criteria are for example purposes and do not form an all-inclusive list of potential violations. Violations that are substantively similar in type or severity will fall under the closest, most appropriate classification category.

Level I Incidents
The following categories of incidents are defined as Level I incidents:

1. Willful neglect of a patient
2. Abandonment of a patient
3. Failure to obey a medical control physician's legitimate orders either by omission or commission in the presence of good communications.
4. Improper and inappropriate care which may result in compromise of wellbeing of the patient
5. Conviction of a felony or misdemeanor
6. Two or more Level II offenses in any six month period *
7. Breach of Confidentiality
8. Intentional falsification of EMS documentation, including patient care records.
9. Found to be under the influence of drugs or intoxicants while involved with patient care.
10. Violation of the EMS statute and its attendant rules and regulations, including care outside the scope of practice, as defined by protocol.
11. Practicing in the MCA without a current Michigan EMS provider license.
12. Practicing in the MCA without current privileges on two separate occasions within a single licensure period. Certifications required by the MCA in order to maintain privileges are identified in the Authorization for **Medical Control Privileges** Policy.

13. Any other patient care offense resulting from violation of policies, protocols and procedures of similar severity not listed above at the discretion of the EMS Medical Director.
14. Failure to complete prescribed remediation from a previous incident. (Or see #14 of LEVEL II)
15. Arrest or criminal charges for criminal sexual conduct of any degree, violent crime, drug diversion or illegal possession or distribution of controlled substances.
16. Failure to notify the MCA of a criminal charge, arrest or conviction within 1 business day
17. Gross negligence or willful misconduct

* Time measured from the time of occurrence of the initial incident to the time of occurrence of the succeeding event.

Level II Incidents
The following categories of incidents are defined as Level II incidents:

1. Failure to adhere to system protocols, policies and procedures that had the potential to negatively impact patient care, as determined by the EMS Medical Director.
2. Failure of personnel or agency to respond within 96 hours of receipt of requests for information or documentation regarding an incident under investigation by the MCA. A response shall be submitted in writing and with a signed delivery receipt to MCA staff within the allotted time period.
3. Abuse and/or loss of system equipment due to neglect.
4. Significant documentation errors
5. Failure to accurately perform procedures as defined in protocols, policies and procedures.
6. Failure to check and maintain functional equipment necessary to provide adequate patient care at the level of licensure, the failure of which may lead to an inability to communicate with medical control, inability to administer appropriate medications, or otherwise negatively affecting the ability of the personnel to function at his/her level of training in the field. This includes verification that a sealed drug and IV box, functional monitor/defibrillator, functional airway equipment, etc. are present on the unit.
7. Improper or unprofessional medical communications including, but not limited to, any violation of Federal Communications Regulations, and falsification of identification during medical communications.
8. Failure to appear before the EMS Medical Director, designated PSRO committee or MCA Governing Body when so requested by the MCA, as defined in the Complaint Investigation, Quality Improvement and Disciplinary Action Policies.
9. Furnishing of information known to be inaccurate in response to any official request for information relative to quality improvement activities or other investigations subsequent to this policy.

10. Two or more orders of disciplinary action within a 6 month period **
11. Any other patient care offense resulting from violation of policies, protocols and procedures of similar severity not listed above at the discretion of the EMS Medical Director.
12. Practicing in the MCA without current credentials required in order to maintain privileges, as identified in the Authorization for Medical Control Privileges Policy.
13. Medication error, which has a negative impact on patient care.
14. A determination by the designated PSRO Committee of failure to complete prescribed remediation within the prescribed time frame.

** Time measured from the time of occurrence of the initial incident to the time of occurrence of the succeeding event.

Due Process and Disciplinary Actions
The application of disciplinary measures shall be defined by the state approved **Due Process and Disciplinary Action** Protocol.

Appeal Process
An appeal may be filed according to the **Disciplinary Action Appeal** Protocol.

Reapplication after Revocation
Following revocation of an involved party's privilege to practice in the MCA, the involved party may reapply to the MCA for privileges after no less than 24 months have elapsed from the date of revocation. Those issued a permanent revocation may not reapply for privileges at any time.

Helicopter Service

This policy serves as a guide for the provision of pre-hospital care by helicopter emergency medical services based in the Region 8 Medical Control Authority Network (MCA).

A. All helicopter emergency medical services in the Region 8 Medical Control Authority Network will have obtained approval from the local Medical Control Board to conduct emergency response within its boundaries. Helicopter services must be accredited by the Commission on Accreditation of Medical Transport Systems (CAMTS) or National Accreditation Alliance Medical Transport Applications (NAAMTA) to operate in the MCA.

B. Medical control and medical direction for the flight team will be provided and monitored by their affiliated hospital. The affiliated hospital will be a hospital within Region 8 with representation on the Region 8 MCA Network Board. Protocols will be shared with Region 8 Medical Control Authorities for approval.

C. Flight team members will be credentialed and monitored by their Flight program and the affiliated hospital, and their actions governed by the policies of Medical Transport Accreditation Standards defined by NAAMTA or CAMTS. Competencies will be demonstrated to and documented by the flight service and made available to the affiliated hospital EMS Medical Director. Credentialing policies will be made available to the affiliated hospital EMS Medical Director.

D. Helicopter programs may provide care over and above that specified in Local MCA and Region 8 Medical Control Authority Network protocols, including (but not limited to): administration of blood products, placement of central venous access devices, placement of thoracostomy tubes, establishment of a surgical airway, and administration of medications not included in the MCA protocols. Policies and procedures regarding the use of equipment and medications not included in the MCA Protocols will be made available to the affiliated hospital EMS Medical Director. Accountability for training and quality assurance regarding these additional protocols will rest with the flight program and reported monthly to the affiliated hospital EMS Medical Director. Oversight of quality assurance rests with the affiliated hospital.

F. Monthly reports on pre-hospital helicopter activity in the MCA will be submitted to the Medical Control Board. These reports will contain the following information;

1. Date of the request
2. The name of the requesting agency or service
3. The type of incident
4. Age and sex of the patient
5. Receiving institution

G. Copies of the patient care records will be made available to the local PSRO. These documents will be considered confidential professional/peer review quality assessment documents protected from disclosure pursuant to the provisions of Michigan law MCLA 333.20175, 333.21515,20175, and other State and Federal laws.

MICHIGAN
State Protocols

Protocol Number | **Protocol Name**

Medications

Table of Contents

9.39	Ondansetron
9.41	Sodium Bicarbonate
9.42	Tetracaine
9.43	Transexamic Acid

Medication Administration

Information:

EMS providers preparing to administer medications in the out of hospital setting should review and/or recite the "6 Rights" prior to administering any medication to a patient. While all 6 elements are important, In the out of hospital setting, special attention should be paid to the right medication, right dose, and right route - as these are frequently the areas of error in the EMS environment. In addition, EMS providers should ensure the patient is informed as to what medications they are receiving, and afford an opportunity for the patient to refuse. Lastly, documentation is essential so that medications administered in the out of hospital setting become part of the patient's clinical medical record. By following the "6 Rights" of medication administration, EMS providers will significantly decrease the potential and number of errors associated with medication administration.

Definitions:

I. Medication: Any pharmacological intervention used to treat, prevent, or reduce signs and symptoms of diseases, disorders, and/or traumatic injuries.

II. Medication administration routes include the following: Intramuscular, Intravenous, Intraosseous, Oral, Buccal, Rectal, Inhaled, and Subcutaneous.

Procedure:

I. Prior to the administration of any medication ensure the following are reviewed and/or verbalized by at least two providers – if available (checked, and double checked):
   A. 6 Rights of Medication Administration –
      1. Right Patient
      2. Right Dose
      3. Right Medication
      4. Right Route
      5. Right Time
      6. Right Documentation
   B. Following administration of controlled medications, EMS personnel shall follow their individual department's policy on the correct accounting, disposal, and restocking of these medications.

II. Calculating medications when given a dosage range and a per kg dose:
   A. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)

   B. The resultant dose should be less than the maximum single dose.
      1. In adults, 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: 1.2 mg rounded to 1 mg, 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.
      2. For pediatric patients, utilize MI-MEDIC and a length based tape for all medication calculations.
   C. Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

Medication Substitution

Purpose:

This protocol allows for MCA to substitute medications during a time of shortage without having to enact emergency protocols within the MCA. This protocol does not replace or override any portion of the **Medication Shortage Procedure**. All procedures within that procedure must still be followed in regards to substitutions in concentration or medication.

Indications:

1. Medications indicated in the primary protocol are not available.
2. No other medication is listed in primary protocols as accepted by the MCA for use.

Procedure:

1. Follow **Medication Shortage Procedure.**
2. Alternate concentrations are listed within this protocol for reference; these do not require a protocol change and are outlined in the **Medication Shortage Procedure.**
3. Notification and education of providers within the MCA should be done as soon as the substitution is known.
    a. It is the responsibility of the MCA to distribute information on the shortages and substitutions to agencies for distribution to providers.
    b. If a substitution is imminent, it is acceptable for an MCA to distribute information prior to the medication being substituted.
4. The MCA should notify the Division of EMS and Trauma if a substitution is suspected to last more than 60 days so that a more permanent protocol solution can be enacted.
5. All uses of substitute medications will be reviewed by PSRO for appropriateness.

Current Medication	Alternate A	Alternate B	Protocols
Atropine	Epinephrine 2-10 mcg/min infusion Pediatric 0.1 mcg/kg/min	Transcutaneous Pacing	**Bradycardia**
Amiodarone	Lidocaine 1-1.5 mg/kg IV Pediatric 1 mg/kg IV	Procainamide 20 mg/min, max 17 mg/kg IV/IO Pediatric 15 mg/kg IV/IO over 60 minutes	**Adult and Pediatric Cardiac Arrest – General** **Adult and Pediatric Tachycardia**
Calcium Chloride	Calcium Gluconate 20 ml of 10% solution administered over 1 to 2 minutes IV (adults only)		**Poisoning/Overdose** **Cardiac Arrest – General (Adult)**
Dextrose 50%, 50 ml	Dextrose 10%, 250 ml IV Pediatric Dextrose 10% 5 ml/kg IV	Glucagon 1 mg Pediatric 0.05 mg/kg, up to 1 mg IM	**Adult and Pediatric Altered Mental Status** **Adult and Pediatric Seizures**
Diphenhydramine	Famotidine 20 mg IV Pediatric 0.25 mg IV Or Ranitidine 50 mg IV Pediatric 0.1 mg/kg IV	Hydroxyzine 50 mg IM Pediatric 0.1 mg/kg IM	**Allergic Reaction**

Lidocaine	Amiodarone: 1. For Recurrent VF/VT: Adults 300 mg IV/IO repeat 150 mg one time. Pediatrics 5 mg/kg IV 2. Wide complex Tach 150 mg x 2 PRN, pediatric 5 mg/kg IV	Procainamide 20 mg/min, max 17 mg/kg IV/IO Pediatric 15 mg/kg IV/IO over 60 minutes	**Adult and Pediatric Cardiac Arrest – General** **Adult and Pediatric Tachycardia**
Morphine	Fentanyl 1 mcg/kg	Hydromorphone 2 mg IV or IM Pediatric 0.05 mg/kg max dose 2 mg	**Pain Management**
Fentanyl	Morphine 4 mg IV/IO Pediatrics 0.1 mg/kg IV	Hydromorphone 2 mg IV or IM Pediatric 0.05 mg/kg max dose 2 mg	**Pain Management**
Midazolam (Versed)	Lorazepam 2 mg or 0.05 mg/kg IV	Diazepam 5 mg IV Pediatric 0.1 mg/kg	**Adult and Pediatric Seizures** **Patient Sedation** **Excited Delirium**
Ondansetron (Zofran)	Promethazine 12.5 mg IM Pediatric 0.25 mg/kg IM	Compazine 10 mg Pediatric 0.1mg/ kg	**Nausea/Vomiting**
Diazepam (Valium)	Midazolam 5 mg IV Pediatrics 0.1 mg/kg	Lorazepam 2mg IV Pediatrics 0.1 mg/kg IV	**Adult Seizures**
Ketamine	Midazolam 5 mg IV Pediatrics 0.1 mg/kg	Fentanyl 1 mcg/kg	**Patient Sedation** **Excited Delirium**
Midazolam	Patient Sedation: Ketamine 0.2 mg/kg IV/IO slowly Excited Delirium Adults only 4 mg/kg IM	Lorazepam 2mg IV Pediatrics 0.1 mg/kg IV	**Patient Sedation** **Excited Delirium**
Epinephrine 1mg/10ml	**Epinephrine 1mg/1ml 30mL Vial** 1. Expel 1mL of normal saline from a 10mL syringe (pre-filled) 2. Instill 1mg(mL) of Epinephrine 1:1,000 from 30 mL vial in to pre-filled syringe 3. 30mL vials are to be single patient use only		
	Epinephrine 1mg/ml Ampule 1. Expel 1mL of normal saline from a 10mL syringe (pre-filled) 2. Instill 1mg(mL) of Epinephrine 1:1,000 from ampule in to pre-filled syringe		

Medication Shortage

A. Definitions:

1. ***Alternate Concentration*** – same medication, different concentration, while volume may change, the delivered dose remains unchanged, dilution may be required (*Epinephrine 1: 10,000 replaced using Epi 1: 1,000 with a 10mL diluent)*
2. ***Alternate Supplied Volume –*** same medication, same concentration, standard volume is unavailable, the delivered dose and volume remain the same *(Epi 1: 1,000, typically supplied in a 1mL vial replaced with Epi 1: 1,000 in a 10mL multi-dose vial due to shortage of the smaller vials)*
3. ***Alternate Supply/Type –*** same medication, standard supply type is unavailable (preloads vs. vials), dosing remains unchanged *(diphenhydramine 50mg/5mL preload is unavailable, replaced with diphenhydramine 50mg/5mL in a vial)*
4. ***Alternate Form*** – same medication, different route such that identical dosing does not yield the same systemic concentration or effect *(ondansetron 4mg vial unavailable, replaced with ondansetron 4mg ODT, option to repeat x 1 added to allow approximation of equivalent dosing)*
5. ***Alternate Medications*** – medication other than the standard approved medication which accomplishes an acceptably similar effect as the medication it replaces *(fentanyl 100mcg approved to replace morphine 10mg, dosing adjusted to obtain therapeutic equivalency)*
6. ***Missing Medication*** – standard medication which is unavailable *(amyl nitrite not available, acceptable alternative of Cyanokit is excessive in cost and size: alternate means to access treatment established – MEDDRUN)*

B. Criteria:

1. Each EMS Medication Management System (MMS), be it at the individual MCA or at a wider regional level, shall establish and maintain a listing of the standard medications and supplies contained in drug bags or boxes supplied to life support agencies for the purposes of treating patients.
2. Each MMS shall maintain a dated listing of alternative medications which are approved as substitutes or replacements for medications which are in shortage.
3. Due to the frequency of medication shortages and the need for alternative dosing or medication substitutions, each MCA shall develop and enact a medication cross-check procedure, to which EMS personnel will be held accountable as a means to avoid medication errors
4. Both the standard list and the alternate list (may be combined into a single document) shall be made readily available to system participants
5. The MMS shall enact policies/procedures which guide each of the following:
   A. Recognition of medication shortages and a means to report them
   B. Pharmacy involvement in the investigation and designation of acceptable alternatives when shortages are identified
   C. An organized process by which participant pharmacies will enact the replacement or substitution

D. A documented means of visually identifying when an alternative medication or dosing has been placed into an EMS drug bag or box, or when a medication is missing
   a. ***Alternate medications*** will be indicated by the placement of a sticker, tag or label on the outside of the bag or box; on the compartment where the alternate medication is located (if applicable) such that one inspecting the bag or box could easily recognize that the medication was included and what the missing medication it is intended to replace was. (Stickers GREEN or WHITE with GREEN)
   b. ***Missing medications*** will be signified by the placement of a sticker, tag or label on the outside of the bag or box, on the compartment where the missing medication would be located (if applicable) such that one inspecting the bag or box could easily recognize that the medication was missing and what the potential alternate medication was. (Stickers YELLOW or WHITE with YELLOW)

E. A method for dissemination of information related to changes made to the MMS drug bags or boxes with a means of accounting for receipt of the notifications at the agency/pharmacy levels

C. Selection of Alternative Medications:

1. Alternative concentrations, alternative supply/type and alternative supplied volume may be approved at the MCA/MMS level without a change to protocol provided that the standard and approved alternate medications are documented in the required lists, by effective date or date range.
2. Alternate form and alternate medications may be enacted as an emergency protocol according to statute and state approval, in the event of imminent shortage.
3. Non-standard medications, or those with no precedence of EMS use within Michigan must be submitted as new protocol submissions. The state may allow for expedited review in the event of imminent shortage of the medication being replaced.
4. If a missing medication will not be replaced, or an acceptable alternative is not found, a protocol or process should be developed or presented which addresses the potential inability to meet the existing protocol established standard of care.

D. Process:

1. A brightly colored ALTERNATE DOSE sticker/tag MUST be attached to the outside of the drug bag, box or narcotics box that lists the effected medication, the concentration of the substituted medication, the expiration date of the medication and the pharmacy name/date.
2. A brightly colored – MISSING MEDICATION sticker/tag must be placed on bags/boxes when a protocol medication is not available to stock in that bag/box.
3. A dosing/instruction card may be required to be included in the bag/box depending on the change.

4. Pharmacies experiencing shortages must provide notification of the need to utilize alternate dosing to the MCA and the drug exchange coordinator, and receive approval, prior to any change being implemented.
5. Drug bags, boxes or narcotics boxes with alternate dose medications/missing medications should have the medication replaced and the sticker/tag removed by pharmacy as soon as possible when the proper medication or concentration of medication is available.
6. Any additional equipment, which is needed to deliver the medication, must be included with the alternate dose. *(I.e. – Medication is typically in a carpuject but a vial is being substituted due to shortages of the carpuject version. An appropriately sized safety needle and syringe must be available within close proximity to the medication in order to facilitate administration. These supplies too may be removed when the proper medication concentration is returned to the bag/box.)*
7. EMS Agencies receiving notice of the utilization of alternate dosing, alternate medications or missing medications due to shortage must post the changes and ensure that all providers that may have cause to use the medications are made aware of the changes and are educated on proper use, risk and dosing of any new or replacement medication prior to their first potential exposure to the alternate dose or medication.
8. Any Special Instruction for a particular shortage will be communicated to all effected pharmacies and EMS services.

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 (and other levels of licensure, for naloxone) 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

☑ Pain Management
☑ Altered Mental Status with Suspected Opiate Overdose
☑ Sedation
☑ Seizures

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. Use the highest concentration available for the medication.
9. Note: Maximal dose per nostril is 1 cc.

Indication	Medication
Suspected Opiate Overdose	Naloxone (1mg/1mL)
Sedation/Seizures	Midazolam
Adult Pain Control	Fentanyl
Adult Pain Control/Sedation	Ketamine
Pediatric Pain Control	Fentanyl
Pediatric Sedation/Seizure	Midazolam
Pediatric Pain Control/Sedation	Ketamine

Field Drug Box and IV Kits

I. Emergency medical service vehicles will be equipped with drug boxes and IV kits consistent with their licensure level and protocols.

II. 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.

III. 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.

IV. 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 responsible for the security of the medications and supplies.

V. Drug boxes and IV kits shall be locked and secured in the EMS vehicle, except when required for patient care. Each agency will have a procedure in place to ensure controlled access to the drug box.

VI. Licensed EMS personnel will document the medications used from the drug box and/or IV kit. A physician, PA or NP signature is required as part of the documentation when controlled substances are administered. The documentation will accompany the sealed drug box when returned to a secure location for pharmacy exchange.

VII. 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.

VIII. 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.

IX. The pharmacy shall routinely inspect these medications and will verify the contents and replace the medications as necessary.

X. 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 authority for investigation and resolution.

XI. The contents of the drug box are subject to inspection at any time by participating hospital pharmacy staff or by the medical control authority.

Pharmacy, Drug Box and IV Supply Exchange Procedure

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 supplies 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 supplies 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 supplies.

5. The pharmacy will replace the used contents of the drug box and IV supplies, 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 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.

Epinephrine Auto-Injector Procedure

Aliases: Epi-Pen ®

Purpose: To allow use of epinephrine auto-injector/pediatric epinephrine auto-injector for life-threatening anaphylaxis by authorized prehospital providers licensed at or above the Emergency Medical Technician level. *If MCA selected, epinephrine auto-injectors are approved for Medical First Responder use.

MCA Approval of Epinephrine Auto-injector for Select MFR Agencies
(Provide List to BETP)
☑ YES ☐ NO

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.
3. **Technique**
   A. Epinephrine auto-injector 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: Epinephrine auto-injector (0.3 mg) is used for patients weighing over 32 kg. Pediatric epinephrine auto-injector (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.
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 Epinephrine Auto-injector Utilization Form.
5. **Accountability**
   A. Epinephrine auto-injectors will be stored in a securely locked compartment in a temperature controlled area of the EMS vehicle.
   B. Epinephrine auto-injectors 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.

Epinephrine auto-injector Utilization Form
(To be used by Hospital)

Drug	Standard	Quantity	Count	Exp. Date
Epinephrine auto-injector	0.3 mg	1	_____	_____
Pediatric Epinephrine auto-injector	0.15 mg	1	_____	_____

Run Date _____

Patient Name _____

Physician _____

EMT _____

Receiving Hospital _____

Initial Date: 11/15/2012
Revised Date: 10/25/2017

Nebulized Bronchodilators

Indication

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

MCA Selection for Nebulizer

☑ EMT-B
☑ Specialist
☑ Paramedic

Procedure

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 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 re-disperse the medication.
8. Obtain and record another complete set of vital signs and lung sounds after completion of the treatment.

Medication Dosage

1. Administer Albuterol 2.5 mg/3 ml NS nebulized, if available, repeat as indicated.
2. 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.
3. 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/2.5 ml NS nebulized, as needed, if wheezing or airway constriction persists. For patients **age 5 or under**, Ipratropium .25 mg should be given in conjunction with albuterol.

ADDITIONAL BRONCHODILATOR TREATMENTS

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

Pediatric Considerations

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

Naloxone Administration

Aliases: Opioid overdose medication

Indications: Decreased level of consciousness associated with respiratory depression from **Opioid Overdose,** without other apparent cause (e.g., stroke, hypoglycemia).

MCA Selection for Naloxone Administration

☑ MFR ☑ EMT

Procedure:

Consider administration of Naloxone when:

1. Ventilations have been established and patient has not regained consciousness.
2. There is more than 1 rescuer on scene for personnel safety precautions.
3. Treatment goal is to restore effective respirations; the patient need not be completely awakened.
4. Per MCA Selection (below), administer Naloxone intramuscular auto injection OR Intranasal via prefilled syringe with atomizer (half the dose in each nostril), OR Narcan® Nasal Spray. May repeat one time in 3-5 minutes if effective respirations not restored.

MFR/EMT Administration Options (MUST SELECT AT LEAST ONE):

☐ Naloxone Intramuscular Auto Injector 0.4mg IM (Adults Only)

☐ Narcan® Nasal Spray 4 mg (Adults Only)

☑ Naloxone Prefilled-2 mg/2 ml IN via Atomizer

- Adult and child over 3 years: 2ml
- Pediatric Dosing:
  - Up to 3 months: 0.5 ml
  - 3 months up to 18 months: 1 ml
  - Children 19-35 months: 1.5 ml

(S) 5. Administer Naloxone IM, IN or slowly IV, titrating to restore effective respirations.
   a. Adult: 2 mg IM, IN or IV
   b. Pediatric: 0.1mg/kg IM/IN/IV-Refer to the MI-MEDIC Cards for proper dosing.

SPECIALIST/PARAMEDIC Administration Options (Must select at least one):

☑ Naloxone 2.0 mg/2ml IM, or IV
- Adult and child over 3 years: 2ml.
- Pediatric Dosing:
  - Up to 3 months: 0.5 ml
  - 3 months up to 18 months: 1 ml
  - Children 19-35 months: 1.5 ml

☑ Naloxone Prefilled-2 mg/2 ml IN via Atomizer –
- Adult and child over 5 years: 2 ml
  - Distribute half of the dose in each nostril.
  - Up to 3 months: 0.5 ml
  - 3 months up to 18 months: 1 ml
  - Children 19-35 months: 1.5 ml

6. Repeat every 3-5 minutes as needed to restore effective respirations. Note IN Naloxone should only be repeated one time.
7. Treatment goal is restoration of effective respirations; the patient need not be completely awakened.
8. Transport supporting ventilations as needed
9. Notify medical control.

2-Pam Chloride/DuoDote

Protocols:

1. Nerve Agent Organophosphate exposure

Indications:

1. Exposure to organophosphate or nerve agents
2. Given in conjunction with atropine in DuoDote or Mark-1 kit

Contraindications:

1. None

Dosing:

1. Self-Rescue – 1 DuoDote (Mark-1) Injector
2. Mild Reaction
    a. Adults (8 years and over) – 1 DuoDote (Mark-1) Injector
    
    b. Pediatrics – Contact Medical Control
3. Moderate Reaction
    a. Adults (8 years and over) – 2 DuoDote (Mark-1) Injectors
    
    b. Pediatrics – Contact Medical Control
4. Severe Reaction
    a. Adults (8 years and over) – 3 DuoDote (Mark-1) Injector
    
    b. Pediatrics – 1 DuoDote (Mark-1) Injector, Contact Medical Control as needed

Expected Effects:

1. Decrease in symptoms

Side Effects:

1. Blurred vision
2. Headache
3. Dizziness
4. Nausea

Acetaminophen

Protocols:

1. Pediatric Fever
2. Pain Management (per MCA selection)

Indications:

1. Fever
2. Mild pain

Contraindications:

1. Hypersensitivity
2. Known severe acute liver disease

Dosing:

1. Adults – 15 mg/kg PO, maximum dose 1 gm
2. Pediatrics – 15 mg/kg PO, maximum dose 500 mg

Expected effects:

1. Decrease temperature
2. Pain Relief

Side effects:

1. Nausea/vomiting

Adenosine (Adenocard)

Protocols:

1. Tachycardia (Adult and Pediatric)

Indications:

1. Specifically for treatment of Supraventricular Tachycardia.
2. Consider for regular or wide complex tachycardia.

Contraindications:

1. Sick sinus syndrome
2. Hypersensitivity to adenosine
3. 2nd or 3rd degree heart block

Dosing:

1. Adult
    a. 6 mg rapid IV/IO push over 1-3 seconds
    b. Repeat at 12 mg after 1-2 minutes, if no conversion
    c. Medication should be followed by a rapid 30 ml NS bolus
2. Pediatric
    a. 0.1 mg/kg IV/IO rapid bolus. (Max dose 6 mg)
    b. Repeat at 0.2 mg/kg after 2 minutes (Max dose 12 mg)
    c. Medication should be followed by rapid 5-10 ml NS flush

Expected Effects:

1. Slowed conduction through the AV node
2. Conversion to NSR

Side Effects:

1. Hypotension
2. Flushing
3. Dyspnea
4. Light-headedness
5. Nausea

Albuterol (Ventolin®)

Protocols:

1. Nebulized Bronchodilators
2. Crush Injury
3. Adult and Pediatric Respiratory Distress
4. Adult and Pediatric Allergic Reaction/Anaphylaxis

Indications:

1. Bronchospasm (wheezing)
2. Crush injury syndrome with evidence of hyperkalemia

Contraindications:

1. Hypersensitivity to albuterol

Dosing:

1. Adults and pediatric
    a. 2.5 mg in 3 ml NS via nebulizer

Expected Effects:

1. Dilated bronchi
2. Improvement in capnographic waveform (if available)

Amiodarone (Cordarone)

Protocols:

1. General Cardiac Arrest – Adult and Pediatric
2. Tachycardia - Adult

Indications:

1. Recurrent ventricular fibrillation or recurrent pulseless ventricular tachycardia
2. Recurrent hemodynamically unstable ventricular tachycardia
3. Stable ventricular tachycardia in consultation with online medical control

Contraindications:

1. Hypersensitivity to Amiodarone

Dosing:

1. Adult
    a. Cardiac Arrest – persistent shockable rhythm
        i. 300 mg IV/IO
        ii. May repeat one time at 150 mg IV/IO
    b. Tachycardia
        i. Wide complex symptomatic but stable
        ii. 150 mg IV over 10 minutes
2. Pediatric – Persistent shockable rhythm in cardiac arrest
    a. 5 mg/kg IV/IO
    b. Max dose 300 mg
    c. May be repeated up to 2 more times (max total dose 15 mg/kg or 450 mg total)

Expected Effects:

1. Prolongs refractory period
2. Inhibits alpha and beta adrenergic stimulation

Side Effects:

1. Prolonged QT
2. Vasodilation
3. Hypotension

Aspirin

Protocols:

1. Chest Pain/Acute Coronary Syndrome

Indications:

1. Suspected cardiac chest pain
2. Suspected Myocardial Infarction

Contraindications:

1. Hypersensitivity to aspirin or nonsteroidal anti-inflammatories

Dosing:

1. Adult Only Medication
    a. 324-325 mg chewable tablet PO

Atropine

Protocols:

1. Bradycardia (Adult and Pediatric)
2. Poisoning
3. Nerve Agents/Organophosphate exposure

Indications:

1. Symptomatic bradycardia with a suspected vagal origin
2. Exposure to organophosphates or other nerve agents

Contraindications:

1. Known hypersensitivity (no absolute contraindications)

Dosing:

1. Symptomatic Bradycardia
    a. Adult:
        i. Administer 0.5 mg IV/IO every 3-5 minutes
        ii. Max dose 3 mg
    b. Pediatric:
        i. Given ONLY if primary AV block, or if bradycardia is unresponsive to oxygenation, ventilation and epinephrine.
        ii. Administer 0.01-0.02 0.02 mg/kg IV/IO
        iii. Minimum single dose 0.1 mg
        iv. Maximum single dose 1 mg
        v. Repeat prn in 5 minutes, maximum total dose 3 mg
2. Organophosphate/Nerve Agent Exposures
    a. Adults
        i. 2-6 mg IV/IM per Mark 1 Kit Dosing Directive (each kit contains 2 mg of atropine)
        ii. If kit is not available administer 2-6 mg IV/IM as needed
    b. Pediatrics
        i. Infant 0.05-0.1 mg/kg IM/IV/IO (0.2-1 mg), Pediatric Atropen or Vial
        ii. Child 1-4 mg IM/IV/IO, Pediatric Atropen, Vial, or Mark 1

Expected Effects:

1. Increased heart rate
2. Dilated pupils

Calcium Chloride

Protocols:

1. Poisoning/Overdose
2. Crush Injury
3. Cardiac Arrest General – Adult

Indications:

1. Cardiac arrest in the renal failure patient
2. Calcium channel blocker toxicity
3. Crush Injury with suspected hyperkalemia

Precautions:

1. May precipitate digitalis toxicity
2. Extremely important to flush IV line fully after administration

Dosing:

1. Cardiac Arrest
    a. Adult:
        i. 1 gm slow IV
2. Calcium channel blocker toxicity
    a. Adult: 0.5 – 1 gm IV
3. Crush Injury
    a. Adult: 1 gm slow IV over 5 minutes, after extrication

Expected Effects:

1. Increased force of myocardial contraction
2. Rise in arterial pressure

Dextrose

Protocols:

1. Adult and Pediatric Seizures
2. Adult and Pediatric Altered Mental Status

Indications:

1. Hypoglycemia
2. Altered mental status in the absence of a glucometer

Contraindications:

None

Concentration:

1. Dextrose 10% 25 gm in 250 ml
2. Dextrose 12.5% (for patients up to 2 months of age)
    a. Created by expelling 37.5 ml from Dextrose 50% 50 ml syringe and drawing up 37.5 ml of NS
    b. Creates 6.25 gm/ 50 ml concentration of 12.5%
3. Dextrose 25% (for patients between 2 months and 6 years of age)
    a. Created by expelling 25 ml from Dextrose 50% 50 ml syringe and drawing up 25 ml of NS
    b. Creates 12.5 gm/50 ml concentration of 25%
4. Dextrose 50% (prefilled syringe of 25 gm in 50 ml)

Dosing (ensure patent IV):

1. Pediatric (weight based)
    a. 3-5 kg, Dextrose 12.5%, dose: 2.5g, Volume: 20mL or Dextrose 10%, 25 ml
    b. 6-7 kg, Dextrose 25%, dose: 3.25g, volume 13 mL or Dextrose 10%, 33 ml
    c. 8-9 kg, Dextrose 25%, dose: 4.25g, volume 17 mL or Dextrose 10%, 43 ml
    d. 10-11 kg, Dextrose 25%, dose: 5g, volume 20 mL or Dextrose 10%, 50 ml
    e. 12-14 kg, Dextrose 25%, dose 6.25g, volume 25 mL or Dextrose 10%, 63 ml
    f. 15-18 kg, Dextrose 25%, dose 8 g, volume 32 mL or Dextrose 10%, 80ml
    g. 19-23 kg, Dextrose 25%, dose 10g, volume 40 mL or Dextrose 10%, 100 ml
    h. 24-29 kg, Dextrose 50%, dose 12.5g, volume 25 mL or Dextrose 10%, 125 ml
    i. 30-36 kg, Dextrose 50%, dose 15g, volume 30 mL or Dextrose 10%, 150 ml
2. Adult
    a. Dextrose 50%, 25 gm, 50 ml
    b. Dextrose 10%, 25 gm, 250 ml

Incompatibilities/Drug Interactions:

1. Sodium bicarbonate
2. Diazepam will precipitate if given concurrently without flushing

Diazepam

Protocols:

1. As indicated in **Medication Substitution Protocol**

Indications:

1. Seizures when first line medications are not available

Precautions:

1. Respiratory depression
2. Hypotension

Dosing:

1. Adult: 5-10 mg IM/IV
2. Pediatric: 0.2 - 0.5 mg/kg IM/IV

Expected Effects:

1. Skeletal muscle relaxation
2. Ceasing of seizure activity

Diphenhydramine (Benadryl ®)

Protocols:

1. Anaphylaxis/Allergic reaction
2. Poisoning/overdose

Indications:

1. Anaphylaxis
2. Mild or moderate allergic reaction
3. Urticaria

Contraindications:

1. Lower respiratory distress
2. Hypersensitivity to diphenhydramine

Dosing:

1. Adult: 50 mg IM or IV
2. Pediatric: 1-1.5 mg/kg IM or IV

Expected Effects:

1. Antihistamine, decreased urticarial, itching
2. Drowsiness

Dopamine

Protocols:

1. As indicated in the **Medication Substitution** protocol

Indications:

1. Cardiogenic shock
2. Bradycardia with hypotension

Contraindications:

1. Hemorrhagic shock

Dosing:

1. Adults and Pediatric
    a. Mix 400 mg/250 ml (1600 mcg/ml)
    b. Administer 5 – 20 mcg/kg/min, titrated to effect of BP 90 systolic

Expected Effects:

1. Increased BP
2. Increased HR

Epinephrine

Protocols:

1. Anaphylaxis/Allergic Reaction
2. Shock
3. Respiratory Distress (Adult)
4. Pediatric Respiratory Distress, Failure, or Arrest
5. Adult Cardiac Arrest – General
6. Adult Bradycardia
7. Pulmonary Edema/CHF
8. Return of Spontaneous Circulation
9. Pediatric Cardiac Arrest - General
10. Pediatric Bradycardia
11. Neonatal Assessment and Resuscitation

Indications:

1. Anaphylaxis
2. Bradycardia
3. Respiratory distress
4. Hypotension
5. Cardiac arrest

Contraindications:

1. No contraindications in critical patients

Dosing:

1. Epinephrine auto-injector (Protocols 1, 3, 4, MFR per MCA selection in protocol 1)
    a. Adults 0.3 mg, IM
    b. Pediatrics
        i. 0.15 mg, IM
        ii. Pediatric auto-injector indicated for patients greater than 10 kg and less than 30 kg
2. Epinephrine 1mg/1mL (Protocols 1, 3, 4)
    a. Adults 0.3 mg IM
    b. Pediatrics
        i. For patients less than 10 kg contact medical control prior to administration
        ii. For patients greater than 10 kg, administer 0.01 mg/kg, up to 0.3 mg
3. Nebulized (Protocol 4)
    a. Racepinephrine 2.25%
        i. Place 0.5 mL in nebulizer
        ii. Dilute with 3 mL normal saline
    b. Epinephrine (1mg/1mL), 5 mL (5 mg) nebulized

4. Epinephrine 1mg/10mL
    a. IV Bolus (Protocols 5, 9, 10, 11)
        i. Adults 1 mg every 3 to 5 minutes in cardiac arrest
        
        ii. Pediatrics 0.01 mg/kg (0.1mL/kg)

    b. Push dose (Protocols 2, 6, 8)
        i. Prepare by combining 1 mL of Epinephrine 1 mg/10 mL with 9 mL NS
        ii. Adults
            1. Administer 10-20 mcg (1-2 mL Epinephrine 10 mcg/mL)
            2. Repeat every 3 to 5 minutes
            3. Titrate to SBP greater than 90 mm/Hg
        
        iii. Pediatrics
            1. Administer 1 mcg/kg (0.1 mL/kg Epinephrine 10 mcg/mL)
            2. Maximum dose 10 mcg (1 mL)
            3. Repeat every 3-5 minutes

Expected Effects:

1. Decreased wheezing
2. Increased BP
3. Increased HR

Fentanyl

Protocols:

1. Intranasal Medication Administration
2. Pain Management
3. Patient Sedation

Indications:

1. Pain management
2. Patient sedation

Contraindications:

1. Altered Mental Status
2. Hypotension
3. Respiratory Depression
4. Hypersensitivity to Fentanyl

Dosing:

1. Adult
    a. 1 mcg/kg
    b. Single dose up to 100 mcg
    c. May repeat, up to a max dose of 200 mcg
2. Pediatric
    a. 1 mcg/kg
    b. Single dose up to 40 mcg (otherwise dose as adult)
    c. May repeat, total dose up to 80 mcg

Expected Effects:

1. Decreased pain
2. Decreased agitation

Side Effects:

1. Drowsiness
2. Hypotension
3. Respiratory Depression
4. Vomiting

Special Notes:

1. Naloxone will reverse the effect of Fentanyl
2. Administration with Ondansetron for nausea is encouraged

Initial Date: 10/25/2017
Revised Date:

Glucagon

Protocols:

1. Altered Mental Status (Adult and Pediatric)
2. Seizures (Adult and Pediatric)

Indications:

1. Hypoglycemia with inability to obtain IV access

Contraindications:

1. Adrenal gland tumor
2. Hypersensitivity to glucagon

Dosing:

1. Adult: 1 mg IM/SQ
2. Pediatric: 0.05 mg/kg up to 1 mg IM/SQ

Expected Effects:

1. Increased blood glucose

Side Effects:

1. Nausea
2. Vomiting

Hydromorphone

Protocols:

1. Pain Management (MCA Selection)

Indications:

1. Severe pain with extended transport time

Contraindications:

1. Hypersensitivity
2. Hypotension
3. Hypovolemia

Dosing:

1. Adults only 0.5 mg IV/IM
2. IV dose must be administered slowly, over 2 minutes
3. May repeat one time

Expected Effects:

1. Decreased pain

Side Effects:

1. Respiratory depression
2. Hypotension
3. Altered mental status

Cyanokit ® (Hydroxocobalamin)

Protocols:

1. Cyanide Exposure Supplement Protocol

Indications:

1. Known or suspected cyanide poisoning

Contraindications:

1. Hypersensitivity to hydroxocobalamin or cyanocobalamin
2. Can not be administered in the same line as dopamine or fentanyl

Dosing:

1. 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.
2. 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.
3. 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.
4. Pediatrics:

TWO VIAL KIT (2.5G/100ML)

AGE GROUP	AMOUNT	DOSAGE
INFANT / TODDLER (0-2YEARS)	¼ BOTTLE	0.625G
PRESCHOOL (3-5 YEARS)	½ BOTTLE	1.25G
GRADE SCHOOL (6-13 YEARS)	1 BOTTLE	2.5G
ADULT >14YEARS	2 BOTTLES (ENTIRE KIT)	5G

ONE VIAL KIT (5G / 200ML)

AGE GROUP	AMOUNT	DOSAGE
INFANT / TODDLER (0-2YEARS)	1/8 BOTTLE	0.625G
PRESCHOOL (3-5 YEARS)	¼ BOTTLE	1.25G
GRADE SCHOOL (6-13YEARS)	½ BOTTLE	2.5G
ADULT >14YEARS	1 BOTTLE (ENTIRE KIT)	5G

Expected Effects:

1. Increased blood glucose

Side Effects:

1. Nausea
2. Vomiting
3. Abdominal pain
4. Red colored urine, skin, mucus membranes
5. Rash

Ibuprofen

Protocols:

1. Pain Management (per MCA selection)

Indications:

1. Mild pain

Contraindications:

1. Hypersensitivity
2. Active bleeding
3. <6 months of age
4. Pregnancy

Dosing:

1. Adults – 10mg/kg PO, maximum dose 800 mg
2. Pediatrics – 10 mg/kg PO, maximum dose 800 mg

Expected effects:

1. Pain Relief

Side effects:

1. Nausea/vomiting
2. Abdominal pain
3. Heartburn

Ipratropium Bromide (Atrovent ®)

Protocols:
1. Nebulized Bronchodilators

Indications:
1. Bronchial asthma
2. Bronchospasm in emphysema
3. Chronic bronchitis
4. Other wheezing in adults and pediatrics

Contraindications:
1. Hypersensitivity to ipratropium bromide
2. Hypersensitivity to atropine or its derivatives

Dosing:
1. Adult: 500 mcg/3 ml combined with Albuterol 2.5 mg/3ml, nebulized
2. Pediatric: For children aged 5 or under, Ipratropium 250 mcg should be given

Expected Effects:
1. Decreased wheezing
2. Decreased respiratory distress

Side Effects:
1. Palpitations
2. Dry Mouth
3. Anxiety

Ketamine

Protocols:
1. Excited Delirium
2. Patient Sedation
3. Pain Management
4. Patient Restraint

Indications:
1. Patients with excited delirium
2. Agitation
3. Significant pain

Contraindications:
1. Known hypersensitivity

Dosing:
1. Excited Delirium
    a. Adults only – 4 mg/kg IM
2. Patient Sedation
    a. Adults and Pediatrics
        i. 0.5 mg/kg IN, if available or
        ii. 0.2 mg/kg IV/IO
        iii. Maximum single dose 25 mg
        iv. May repeat after 10-15 minutes to a maximum dose of 2 mg/kg
3. Pain Management
    a. Adults and Pediatrics
        i. 0.5 mg/kg IN, if available or
        ii. 0.2 mg/kg IV/IO
        iii. Maximum single dose 25 mg
        iv. May repeat after 10-15 minutes to a maximum dose of 2 mg/kg
4. Patient Restraint
    a. Adults only – 4 mg/kg IM or IN

Expected Effects:
1. Sedation
2. Decreased agitation
3. Decreased pain

Side Effects:
1. Nausea/vomiting
2. Nystagmus

Ketoralac (Toradol ®)

Protocols:
1. Pain Management (per MCA selection)

Indications:
1. Mild to moderate pain

Contraindications:
1. Allergies to NSAIDs
2. Active labor or women who are breastfeeding
3. Renal impairment
4. Bleeding or high risk of bleeding
5. Pregnancy

Dosing:
1. Adults – 15 mg IM/IV
2. Pediatrics – 1 mg/kg IM/IV (max dose 15 mg)

Expected effects:
1. Pain Relief

Side effects:
1. Nausea/vomiting
2. Bloating

Lidocaine

Protocols:

1. Adult Cardiac Arrest – General (MCA Selection)
2. Adult and Pediatric Tachycardia (MCA Selection)
3. Vascular Access & IV Fluid Therapy (IO placement)

Indications:

1. Alternative to amiodarone in cardiac arrest from VF/VT
2. Alternative to amiodarone in pulsatile VT
3. As an anesthetic agent when administering medications via intraosseous route

Contraindications:

1. Hypersensitivity to lidocaine
2. Bradycardia or heart block

Dosing:

1. Cardiac Arrest (Adult) 100 mg IV/IO
2. Wide complex tachycardia
    a. Adults: 1 mg/kg
    b. Pediatric: 1 mg/kg (only with medical direction)
    c. May repeat after 5-10 minutes to a maximum of 3 mg/kg
3. For conscious patients with pain from IO infusion
    a. Adults: 20 mg IO
    b. Pediatrics: 0.5 mg/kg, maximum dose 20 mg

Expected Effects:

1. Increased VF threshold
2. Decreased ventricular irritability
3. Decreased pain with infusion

Magnesium Sulfate

Protocols:

1. Adult Cardiac Arrest - General
2. Adult Tachycardia
3. Adult Respiratory Distress
4. Adult Seizures

Indications:

1. Suspected Torsades de Pointes
2. VF/VT in hypomagnesemia
3. Seizures secondary to toxemia of pregnancy
4. Asthma exacerbation not responding to first line treatments

Contraindications:

1. Hypersensitivity to magnesium sulfate
2. Should not be given for 2 hours preceding delivery

Dosing:

1. Cardiac Arrest (and Wide Complex Tachycardia)
    a. 2 grams diluted in 10 ml NS
    b. Administerd IVP
2. Asthma exacerbation (refractory)
    a. 2 grams diluted in 10 ml normal saline
    b. Administered over 10 to 20 minutes
    c. Administer with open line of normal saline
3. Seizures in pregnancy
    a. 4 grams diluted in 20 ml
    b. Administered over 10-20 minutes
    c. Administer with open line of normal saline

Expected Effects:

1. Seizure cessation
2. Decreased respiratory distress

Side Effects:

1. Respiratory depression
2. Hypotension
3. Asystole
4. Burning in IV site for conscious patients

Methylprednisolone

Protocols:
1. Anaphylaxis/Allergic Reaction
2. Adrenal Crisis
3. Adult Respiratory Distress
4. Pediatric Respiratory Distress, Failure, or Arrest

Indications:
1. Allergic reactions
2. Airway inflammation
3. Reactive airway disease
4. Acute adrenal insufficiency

Contraindications:
1. Hypersensitivity to methylprednisolone (or similar)
2. Inability to swallow (by age or patient status)

Dosing:
1. Adult 125 mg IV/IO
2. Pediatrics 2 mg/kg IV/IO (max dose 125mg)

Expected Effects:
1. Decreased inflammation

Side Effects:
1. Dizziness
2. Nausea/vomiting

Midazolam (Versed ®)

Protocols:

1. Adult and Pediatric Seizures
2. Excited Delirium
3. Heat Emergencies
4. Patient Restraint
5. Patient Sedation
6. Nerve agent/Organophosphate Pesticide Exposure

Indications:

1. Adult or pediatric seizures
2. Sedation for patients receiving electrical therapy
3. Excited delirium or severe agitation to enable assessment and/or treatment

Contraindications:

1. Hypersensitivity to midazolam
2. Shock

Dosing:

1. Seizures
    a. Adults
        i. 10 mg IM
        ii. 5 mg IV/IO
        iii. May repeat with medical direction
    b. Pediatrics
        i. 0.1 mg/kg IM (maximum dose 10 mg)
        ii. 0.05 mg/kg IV/IO (maximum dose 5 mg)
        iii. May repeat with medical direction
2. Excited Delirium and Chemical Restraint (Adults ONLY)
    a. 10 mg IM **or**
    b. 5 mg IN
3. Patient Sedation (and for tremors in heat emergencies)
    a. Adults
        i. 1-5 mg IV/IO/IN (0.05 mg/kg)
        ii. Titrated slowly
        iii. May repeat once in 5 minutes to a maximum of 0.1 mg/kg
    b. Pediatrics
        i. 0.05 mg/kg IV/IO (max single dose 5 mg)
        ii. Titrated slowly
        iii. May repeat once in 5 minutes to a maximum of 0.1 mg/kg

Expected Effects:

1. Seizure cessation
2. Sedation

Side Effects:

1. Respiratory depression
2. Hypotension

Morphine

Protocols:
1. Pain Management (MCA Selection)
2. Medication Substitution

Indications:
1. Severe pain

Contraindications:
1. Hypersensitivity to morphine
2. Hypotension

Dosing:
1. 0.1 mg/kg
    a. Adults max single dose 10 mg
    b. Pediatrics administer no more than 1 mg in a single dose
2. May repeat
    a. Adults up to 20 mg
    b. Pediatrics up to total dose of 5 mg

Expected Effects:
1. Decreased pain

Side Effects:
1. Respiratory depression
2. Hypotension

Naloxone (Narcan ®)

Protocols:

1. Adult and Pediatric Altered Mental Status
2. Pediatric Respiratory Distress, Failure, or Arrest
3. Poisoning/Overdose
4. Naloxone Administration

Indications:

1. Known opioid overdose with respiratory depression
2. Respiratory depression or arrest of unknown or suspicious origin

Contraindications:

1. Hypersensitivity to naloxone

Dosing:

1. For MFR and EMT-Basic (Per MCA selection)
    a. 0.4 mg IN
    b. 2.0 mg pre-filled syringe IN
    c. 4.0 mg intranasal spray
2. For Specialist and Paramedic
    a. 0.4 mg IN/IM/IV/IO
    b. Repeat as needed
    c. May need larger doses dependent on substance
3. Pediatrics (Specialist and Paramedics Only)
    a. 0.1 mg/kg IV/IO/IM
    b. Max dose 2 mg

Expected Effects:

1. Decreased pain

Side Effects:

1. Respiratory depression
2. Hypotension

Nitroglycerin

Protocols:

1. Chest Pain/Acute Coronary Syndrome
2. Nitroglycerin Drip Supplement (Optional)
3. Pulmonary Edema/CHF

Indications:

1. Chest, arm, or neck pain thought to be caused by cardiac ischemia
2. Pulmonary edema
3. Nitroglycerin drip may be used as a supplement to both above indications when sublingual nitroglycerin has not relieved symptoms and the MCA has both adopted the supplement and trained the providers. The provider must use vented IV tubing and an infusion pump.

Contraindications:

1. Use of erectile dysfunction medications within the previous 48 hours

Dosing:

1. MFR and EMT Basic may assist patients with their own sublingual nitroglycerin
2. Sublingual nitroglycerin
    a. 0.4 mg sublingual if BP is above 100 mmHg
    b. May repeat at 3 to 5 minute intervals if pain persists and BP sustains
    c. May be administered prior to IV start if BP is above 120 mmHg
3. Nitroglycerin IV drip (MCA selection)
    a. Begin drip at 10 mcg/min
    b. Increase by 10 mcg/min at 5 minute intervals, titrating to pain and BP
    c. Maximum dose is 200 mcg/min

Expected Effects:

1. Decreased blood pressure
2. Relief of chest pain

Side Effects:

1. Headache
2. Flushing
3. Hypotension

Ondansetron (Zofran ®)

Protocols:
1. Nausea/Vomiting
2. Pain Management

Indications:
1. Nausea and vomiting
2. Prophylactic use in patients receiving opioids for pain management to prevent nausea/vomiting

Contraindications:
1. Hypersensitivity to ondansetron (or similar)

Dosing:
1. Adult
    a. 4 mg ODT (oral dissolving tablet)
    b. 4 mg IM
    c. 4 mg slow IV (at least 30 seconds, recommended over 2 minutes)
2. Pediatrics
    a. For patients less than 40 kg, 0.1 mg/kg slow IV
    b. For patients greater than 40 kg, 4 mg slow IV
    c. Not routinely give IM in pediatrics, administer over at least 30 seconds, recommended over 2 minutes

Expected Effects:
1. Diminished nausea

Side Effects:
1. Headache
2. Dry mouth
3. Drowsiness

Sodium Bicarbonate (NaHCO3)

Protocols:

1. Excited Delirium
2. Adult and Pediatric Cardiac Arrest – General
3. Poisoning/Overdose
4. Crush Injury

Indications:

1. Cardiac arrest with suspected hyperkalemia
2. Tricyclic antidepressant (TCA)
3. To cause alkalization in significant acidosis

Contraindications:

1. Hypersensitivity to sodium bicarbonate
2. Severe pulmonary edema
3. Known Alkalosis

Dosing:

1. Adults in Excited Delirium: 50 mEq IV
2. Adult and Pediatric Cardiac Arrest: 1 mEq/kg IV/IO
3. TCA overdose with widened QRS
    a. 1-2 mEq/kg IV/IO
    b. May be repeated to narrow QRS and improve blood pressure
4. Crush Injury: 1 mEq/kg IV/IO, max dose 50 mEq

Precautions:

1. Must flush IV line between medications
2. Administer slowly
3. Only given if acidosis is suspected

Tetracaine Hydrochloride

Protocols:

1. Poisoning/Overdose
2. Chemical Exposure

Indications:

1. Used before/after eye irrigation for pain
2. Chemical exposure to eyes

Contraindications:

1. Hypersensitivity to anesthetics
2. Large area application
3. Infants less than 1 year

Dosing:

1. Adults and Pediatrics great than 1 year odl
    a. 1 to 2 drops per eye
2. May be used before/after flushing eye

Expected Effects:

1. Numbing of eye

Side Effects:

1. Burning
2. Irritation
3. Rash

Tranexamic Acid (TXA) (Optional)

Protocols:

1. Shock

Indications (TRAUMATIC CAUSE ONLY):

1. Evidence of marked blood loss
2. Sustained tachycardia (>110/Min, despite a 500 ml bolus of IVFs)
3. Initial systolic BP < 90
4. Sustained hypotension (<100 systolic, despite a 500 ml bolus of IVFs)
5. Major trauma with suspicion for pelvic and/or abdominal injury
6. Major arterial bleeding not controlled with tourniquet

Contraindications:

1. Hemorrhagic shock from a non-traumatic cause (massive Gastrointestinal or Gynecological bleeding)

Dosing:

1. Adults
    a. 1 g of TXA mixed in 100 ml of normal saline
    b. Administered over 10 minutes
2. Pediatrics (only appropriate inside a formal research study)
    a. 15 mg/kg TXA
    b. Administered over 10 minutes

Precautions:

1. Must be administered within 3 hours of injury
2. Do not delay transport for administration of TXA
3. TXA delivered in the field is a loading dose
    a. It is not effective if a second dose is not given at the appropriate time in the hospital
    b. It is very important that the administering provider make note of the time that the loading dose is given

MICHIGAN

State Protocols

Protocol Number **Protocol Name**

Special Operations

Table of Contents

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 an overview of different types of incidents and agents.

Signs of an Incident

1. A chemical or biological incident may not always be obvious.
2. Many of the early signs and symptoms produced by chemical agents may resemble those of a variety of disorders. Biological symptoms are generally delayed.
3. The patient's clinical presentation may offer clues about the type of toxic substance exposure.
    - A. **CHEMICAL INCIDENT**
        - i. Explosions or suspected release of liquids, vapors or gases
        - ii. Mass casualties without obvious trauma
        - iii. Definite pattern of casualties and common symptoms
    - B. **BIOLOGICAL INCIDENT**
        - i. An unusual increase in the number of individuals seeking care, especially with similar symptoms such as respiratory, neurological, gastrointestinal or dermatological symptoms.
        - ii. Any clustering of patients in time or location (e.g., persons who attended the same public event).
    - C. **RADIOLOGICAL INCIDENT**
        - i. Notification of the detonation of a nuclear device.
        - ii. Dirty bomb
        - iii. Known issues with nuclear power plant or other radioactive source.
    - D. **NUCLEAR INCIDENT**
        - i. Explosion with mushroom cloud and devastation of a large geographical area
    - E. **EXPLOSIVE INCIDENT**
        - i. Responders should be aware of the possibility of secondary incendiary devices and agents.
        - ii. Obvious trauma.

Medical Response

4. First responding units must approach with caution.
5. Approach upwind, uphill and upstream, as appropriate.
6. Utilize resource materials such as the Emergency Response Guidebook or Emergency Care for Hazardous Materials Exposure.
7. Utilize appropriate PPE.
8. Be aware of contaminated terrain and contaminated objects.
9. Hazmat response protocols must be initiated, as well as unified incident command.
10. Maintain a safe distance from the exposure area.
11. Attempt to identify the nature of the exposure by looking for placards, mode of dispersal (vehicle explosion, bomb, aerosolized gas, etc.)

12. Victims and potential victims must be evacuated rapidly from the contaminated area and decontaminated as quickly as possible, if appropriate.
13. Treatment may be initiated within the hot and/or warm zones of an incident by properly trained, protected and equipped personnel.
14. Be alert for secondary devices.

Select Agents

1. **Chemical Agents**
   A. Chemical agents are compounds that may produce damaging or lethal effects.
   B. The potential of the agent to do damage is measured by how readily it disperses. Wind and rain will increase the dispersion rate of a chemical agent.
      i. **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.
      ii. **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.
   C. Chemical agents are classified by their effects:
      i. **Nerve agents**, the most deadly of all chemical agents, disrupt nerve transmission within organs and are quickly fatal in cases of severe exposure.
      ii. **Blood agents** (cyanides) interfere with the blood's ability to transport oxygen throughout the body; often rapidly fatal.
      iii. **Blister agents,** or vesicants, cause a blistering of the skin and mucous membranes, especially the lungs.
      iv. **Choking agents,** or pulmonary agents, irritate the lungs, causing them to fill with fluid.
      v. **Incapacitating agents,** cause an intense (but temporary) irritation of eyes and respiratory tract.
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
      i. Bacterial Agents (e.g. Anthrax, Cholera, Plague, Tularemia, Q-Fever)
      ii. Viral Agents (e.g. Smallpox, Viral Hemorrhagic Fevers)
      iii. Biological Toxins (e.g. Botulinum Toxins, Staphylococcal Enterotoxin B, Ricin, Trichothecene Mycotoxins (T2))
      *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:** Exposure typically has no immediate effect. The sooner the victim has symptoms the worse the exposure.

2. **Nuclear Agents:** Primary risk is massive trauma and devastation as the result of a large scale blast.
3. **Explosives:** Threats with explosive devices may be or large or small scale.

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 chemical resistant clothing along with a full-faced/half mask 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, appropriate protective suits and respirators (PAPR) with Organic Vapor/HEPA cartridges should be donned.

Chemical Exposure

Purpose: To provide guidance for the treatment of chemical exposure patients.

Assessment/Management – Chemical Agents
If there is a confirmation of, or symptoms indicative of, a chemical incident, utilize appropriate protective suits and respirators (PAPR) with Organic Vapor/HEPA cartridges should be donned.

I. Nerve Agents & Cyanide Compounds – refer to **Nerve Agent/Organophosphate Pesticide Exposure Treatment** and **Cyanide Exposure Protocol.**

II. Choking Agents (e.g. Phosgene, Chlorine, Chloropicrin)
   A. Exposure Route: Inhalation
   B. Signs and symptoms:
      1. Cough, dyspnea, irritation of mucous membranes, pulmonary edema
   C. Patients should be promptly removed from the area to a clean atmosphere.
   D. Treatment
      1. Assist ventilations, as necessary
      2. 100% Oxygen
      3. If wheezing, administer Albuterol
         a. 2.5 mg/3 ml nebulized
         b. 2-3 puffs from metered dose inhaler
      4. For severe exposure consider early interventional airway and aggressive ventilatory support. (Evidence of non-cardiogenic pulmonary edema)
      5. If eye exposure,
         a. Eye irrigation
            i. Remove contact lenses
            ii. Flush with 1000cc of NS each eye
         b. For eye pain, use Tetracaine hydrochloride 1-2 drops in each eye, if available.

III. Vesicant Agents (Blister agents)
   A. Examples: Sulfur Mustard (HD), Nitrogen Mustard (HN), Lewisite, Phosgene Oxime (CX) Vesicant agents are named for their tendency to cause blisters.
   B. Exposure Route: Dermal/Inhalation
   C. Decontamination is critical:
      1. Medical providers will require the proper PPE as determined by unified command before decontaminating patient.
      2. Remove patient's clothing, if necessary.
      3. Patients may begin self-decontamination by removing clothing and using soap (if available) and water.
      4. Decontaminate by blotting and cleansing with soap (if available) and water.
      5. Remember that time is critical for effective mustard decontamination.

D. Management/Treatment
    1. Immediate attention should be directed toward:
        a. Assisted ventilation
        b. Administration of 100 % oxygen
    2. Symptomatic treatment per protocol.

IV. Lacrimator Agents (Tear Gas)
A. Information: Lacrimator (tearing) agents are widely used by law enforcement, the military, and widely available to the public.
B. Exposure Route: Inhalation/Ocular
C. Signs and Symptoms: The most common effects are nasal and ocular discharges, photophobia, and burning sensations in the mucous membranes.
D. Decontamination:
    1. Patients should be decontaminated with soap and water.
    2. Medical providers require protective masks and clothing for patient management since lacrimator agents are transmitted by physical contact.
    3. Decontaminate by blotting and cleansing with soap (if available) and water.
E. Treatment
    1. Symptomatic treatment per protocol (no specific antidote).
    2. Eye irrigation
        a. Remove contact lenses
        b. Flush with 1000cc of NS each eye
        c. Use Tetracaine hydrochloride, if available, 1-2 drops in each eye.

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.

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. Removal of outer clothing provides significant decontamination
   B. Clothing should be removed before transport
   C. 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


4. Establish vascular access


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
   A. **Adult**

a. Administer **Diazepam** 2-10 mg IV/IM **OR** Midazolam 0.05 mg/kg to max 5 IV/IM
b. Administer **Midazolam** 0.1 mg/kg to max 10 mg IM
c. If available, **Valium** auto-injector

B. **Pediatrics**
a. **Midazolam** 0.15 mg/kg IV/IM (maximum individual dose 5 mg)
b. If available, **Valium** auto-injector

7. Monitor EKG

8. Additional **Atropine** 2 mg IV/IM for continued secretions (0.05 mg/kg for pediatrics) 

*NA Kit Dosing Directive				
	Clinical Findings	**Signs/Symptoms**	**Required Conditions**	**NA 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 NA 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 NA Kit
	Moderate Symptoms and Signs	• Constricted pupils • Difficulty breathing • Severe vomiting	Constricted Pupils	2 NA Kits
	Severe Signs	• Constricted pupils • Unconsciousness • Seizures • Severe difficulty breathing	Constricted Pupils	3 NA Kits (If 3 NA Kits are used, administer 1st dose of available benzodiazepine)
PEDIATRI	**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 NA Kits Age < 8 years old: • 1 NA Kit Contact Medical Control as needed

***NOTE: Nerve-agent Antidote (NA) =1 Duo Dote or 1 Mark I**

CHEMPACK/MEDDRUN

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. 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.

The Michigan Emergency Drug Delivery and Resource Utilization Network (MEDDRUN) established standardized caches 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.

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 Bureau of EMS, Trauma and Preparedness (BETP), the Michigan State Police (MSP) and the Regional Bioterrorism Preparedness projects.

Activation

I. Recognition of need can come from EMS personnel or it may be a hospital, public health, EOC, or Emergency management that identifies the need for activation.
   A. EMS Identifies a need for medication support.
      1. Contact Central Dispatch or a hospital/MCA
      2. Central Dispatch or hospital/MCA contacts MEDDRUN Communications Agency
         a. Primary: Survival Flight 877-633-7786
         b. Secondary: Aero Med: 616-391-5330
   B. Hospital, Public Health, EOC or Emergency Management
      1. Identifies need
      2. Contact MEDDRUN Communications Agency
         a. Primary: Survival Flight 877-633-7786
         b. Secondary: Aero Med: 616-391-5330

II. CHEMPACK/MEDDRUN Communications Agency:
   A. Conducts analysis & issues deployment orders to selected CHEMPACK/MEDDRUN storage sight, (CSS) Point of Contact (POC).
   B. Contacts the state agency (BETP) Point of Contact: BEEPER: 517-232-0007

III. Storage site notifies the transport unit and moves cache to designated loading area.
   A. If confirmed, the Agency loads CHEMPACK/MEDDRUN supplies onto transport unit.
   B. If deployed, Dispatch notifies the MCA regarding dispatching transport vehicle.

Responsibilities

I. BETP follow-up will include:
   A. Contacting the requesting agency to authenticate the request.
   B. Contacting 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.

II. Communications:
   A. Provides Certificate Order/Recall Order.
   B. Notifies storage site Point of Contact of either a Certification Order or Recall Order.
   C. If BETP issues an alert, Communications Agency issues an Alert Order to appropriate CHEMPACK storage site(s) for possible deployment.

III. Storage Site:
   A. Once confirmed, the Agency loads the supplies into the transportation vehicle and transports to the specific location.

IV. Designated Transportation Agency:
   A. Ensure adequate security of the cache materials while being transported to the delivery point.
   B. Maintain communications with the 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

I. 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 Dispatch/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.

POST DEPLOYMENT

I. Within 72 hours of a deployment, the Agencies, BETP and Communications will prepare a Preliminary After Action Report (AAR) using the format prescribed by BETP. (See AAR attachment) BETP will review each AAR with the intent of improving future responses.

Re-STOCKING MEDPACKS

I. It is important that a packs be restocked and placed back in service as quickly as possible. The Agency may be returned to service on a limited basis with a partially depleted MedPack/Chempack. Depending on the availability of federal funds, the Regional Emergency Preparedness Coordinator, in collaboration with BETP, will be responsible for ordering the supplies to re-stock the MedPack(s)/Chempack(s) used.

II. BETP and Communications will be notified upon the MedPack/Chempack being returned to FULL SERVICE.

**MEDDRUN may also be pre-deployed for special events, designated by the State and Regional Leadership.*

APPENDIX A –MEDDRUN/CHEMPACK Activation and Deployment Algorithm

Biological, Chemical, Radiological or Mass Casualty Incident

Existing supplies are depleting

Identifies Need for Nerve Agent Antidote Support or Dirty Bomb MEDDRUN / CHEMPACK Supplies

Confers with Incident Commander

Provide Report to Central Dispatch or Hospital

Abbreviations

APOC: Alternate Point of Contact
CSS: CHEMPACK Storage Site
EOC: Emergency Operations Center
EEI: Essential Elements of Information
MCA: Medical Control Authority
MCC: Medical Coordination Center
MI-HAN: Michigan Health Alert Network
NA: Nerve Agent
POC: Point of Contact

Central Dispatch or Requesting Agency

MEDDRUN/CHEMPACK Communication Agency

Primary: 877-633-7786
Secondary: 616-391-5330

First
Deployment Orders to selected MEDDRUN Dispatch and/or CHEMPACK POC/APOC

Second
Contact BETP POC

BETP POC will contact Requesting Agency to authenticate request

BETP POC then contacts Communication Agency to provide confirmation and determines need for additional resources

MEDDRUN / CHEMPACK Communication Agency to provide confirmation or recall deployment

Selected Agency notifies transport personnel and moves desired cache to designated loading area

Notify MCA regarding dispatched transport vehicle

Desired cache is loaded on transport vehicle

Agency delivers supplies to requesting location

Agency returns to service

BETP POC Contacts MSP MIOC
BETP POC Contacts BETP Director

BETP POC Contacts Regional MCC

BETP POC coordinates a MI-HAN Alert consistent with guidelines

Essential Elements of Information (EEI) Report

Essential Elements of Information Report		
1.	**Name, Position, and Contact Information for the Individual Requesting Deployment of CHEMPACK Cache**	**Name:** _____ **Position/Title:** _____ **Telephone/Other Contact:** _____
2.	**Name of Physician/Officer in Charge of Medical Management at the Scene (if different than above)**	**Name:** _____ **Position/Title:** _____ **Employer:** _____ **Telephone/Other Contact:** _____
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**	**Pinpoint Pupils** **Twitching** **Dimness of Vision** **Seizures** **Slurred Speech** **Chest Tightness** **Difficulty 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

Purpose: This Protocol is intended for EMS personnel at all levels to assess and treat patients exposed to cyanide. Additionally, the protocol allows trained and authorized paramedics to administer antidotes when available.

NOTE: A single medical control order in a mass casualty incident may be applied to all symptomatic patients.

Medications in this protocol are not required to be carried on EMS vehicles and may be available through special response units.

Chemical Agent

1. Agents of Concern (e.g. Hydrogen Cyanide, Potassium/Sodium Cyanide, 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
4. Alert receiving hospital ASAP to prepare additional antidotes

Assessment

1. Shortness of breath
    A. Generally not associated with cyanosis
    B. Pulse oximetry levels usually normal
    C. Usually associated with increased respiratory rate and depth
    D. Potential for rapid respiratory arrest
2. Chest pain
3. Confusion, decreased level of consciousness, coma
4. Seizures
5. Headache, dizziness, vertigo
6. Pupils may be normal or dilated.

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 and Warm Zones, unless appropriately trained and in proper PPE.
4. Avoid contact with vomit if ingestion suspected – off gassing possible
5. Decontamination of victims usually not indicated unless additional unknown chemical(s) suspected

Patient Management (in Cold zone)

1. Evaluate and maintain the airway
2. Provide oxygenation and support ventilation as needed
3. 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.
4. This is in contrast to most triage systems that would categorize non-breathing patients as non-survivable.
5. Establish vascular access
6. Administer antidote:
    a. Cyanokit® (5g. adult; 70 mg/kg pediatric maximum dose 1g.) per **Cyanokit® Protocol** (preferred, per MCA Selection)

Cyanokit® Included?	
☑ **Yes**	☐ **No**

    b. Sodium Thiosulfate
        i. Adults: 50 ml (12.5 g) IV over 10 minutes if available
        ii. For pediatric patients: 1.65 ml/kg (12.5 g/50 ml solution) IV over 10 minutes
7. Cardiac monitoring
8. Special Considerations for Smoke Inhalation
    a. Smoke inhalation victims may have cyanide poisoning along with burns, trauma, and exposure to other toxic substances making a diagnosis of cyanide poisoning particularly difficult.
    b. Prior to administration of Cyanokit®, smoke inhalation victims should be assessed for the following:
        i. Exposure to fire or smoke in an enclosed area
        ii. Presence of soot around the mouth, nose or oropharynx
        iii. Altered mental status
    c. The Cyanokit® should be considered for all serious smoke inhalation victims (including cardiac arrest).

Mass Casualty Incidents

The purpose of this protocol is to provide a uniform initial response to a Mass Casualty Incident (MCI).

I. **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.

II. **Overall MCI Management – DISASTER Paradigm™**
The DISASTER Paradigm™ is part of the National Disaster Life Support (NDLS) Program and provides a framework for management of MCIs. The components may be pursued concurrently.
A. ***D****etection*: Do we have an MCI? If yes, immediately declare to dispatch.
B. ***I****ncident Command*: Establish or interface with the Incident Command System (ICS)
C. ***S****afety and Security*: Immediate action steps to immediately protect responders, casualties, public.
D. ***A****ssess Hazards*: Actively assess (initially and ongoing) for hazards that can harm responders, casualties, public.
E. ***S****uppor*t: Request resources needed to effectively manage incident
F. ***T****riage and Treatment*: Initiate SALT Triage and provide treatment to casualties
G. ***E****vacuation:* Transport of casualties to appropriate hospitals (avoiding overloading individual hospitals) or alternate treatment centers
H. ***R****ecovery:* Return responders and community to pre-incident status and identify lessons learned.

III. **MCI Detection**
A. Actively assess the scene to determine if MCI is (or maybe) present
B. Alert dispatch and assure hospitals and other stakeholders made aware
C. For major incidents (including incidents involving multiple counties/MCA resources) RMCC should be alerted

IV. **Incident Command System**
A. All incidents shall be managed in accordance with the National Incident Management System and the National Response Framework.
B. If Incident Command (IC) has not been established, the most qualified EMS personnel shall assume the role of IC until command is transferred.
C. The IC is responsible for all functions of the Incident Command System (ICS) until other personnel are assigned those functions**.**
D. Establish EMS Branch Director/EMS Group Supervisor
    1. Established by IC
    2. Responsible for all EMS activities
    3. Reports to IC or Operations Chief
E. Establish functional subordinate EMS ICS positions, as appropriate. Note, positions may be combined (e.g., Treatment/Transport) when appropriate.
    1. Triage Unit Leader Role

a. Report to EMS Branch Director/Group Supervisor
b. Coordinates rapid triage process
c. Determines number/severity of casualties

2. Treatment Unit Leader Role
   a. Within EMS Branch/Group Operations, establish Casualty Collection Point (CCP)
   b. Assigns personnel to treatment area(s)
   c. Supervise care in treatment areas and/or establish subordinate treatment unit leaders for selected casualty types (e.g., Red, Yellow, Green, etc.).
3. Transportation Unit Leader Role
   a. Prioritize transportation of patients from scene assuring high priority patients transported first and departing ambulances maximally utilized.
   b. With information from coordinating resource, assigns destination hospital or alternate care center
   c. Maintains log and tracking of patients transported

V. **Safety and Security**
   A. Responders should don appropriate personal protective equipment (PPE)
   B. Identify any immediate threats to responders, patients, or the public

VI. **Assess for Hazards**
   A. Actively assess scene for hazards
   B. Ongoing assessment for new hazards

VII. **Support – Request Additional Resources for Incident**
   A. Ambulances
      1. Request additional ambulances
      2. Ideally, one ambulance for every two Red/Yellow patients
   B. Non-Ambulance Medical Transport
      1. Non-licensed vehicles may be used for emergency transport when licensed ambulances are not readily available.

If an ambulance operation is unable to respond to an emergency patient within a reasonable time, this part does not prohibit the spontaneous use of a vehicle under exceptional circumstances to provide, without charge or fee and as a humane service, transportation for the emergency patient. Emergency medical personnel who transport or who make the decision to transport an emergency patient under this section shall file a written report describing the incident with the medical control authority. MCL 333.20939

      2. Non-Licensed vehicles include (but are not limited to):
         a. Wheelchair vans
         b. Busses
         c. Other public safety vehicles
   C. Request specialized resources, as appropriate
      1. Local/regional mass casualty resources
      2. Decontamination units
      3. Air medical units

4. Activate MEDDRUN/CHEMPAC per protocol

D. For major incidents, RMCC may be appropriate for coordination of support

VIII. **Triage and Treatment**

A. Initiate SALT Triage - Preferred
   1. Sort – Perform global assorting
   2. Assess – Perform individual assessment
   3. Life Saving Interventions
      a. Control major hemorrhage
      b. Open airway (if child, 2 rescue breaths)
      c. Chest decompression, as needed (Paramedic only)
      d. Auto-injector antidote (e.g., Duodote®)
   4. Treatment and Transport

B. Triage other than SALT must be compliant with the Model Uniform Core Criteria for Mass Casualty Incident Triage (MUCC)[1]

C. Categorize Patients
   1. Immediate (Red): Unable to follow commands or make purposeful movements, OR they do not have a peripheral pulse, OR they are in obvious respiratory distress, OR they have a life-threatening external hemorrhage; provided their injuries are likely to be survivable given available resources. Examples include:
      a. Physiologic and anatomic Trauma Triage Criteria
      b. Major burns (>20% BSA)
      c. Moderate to severe respiratory distress
   2. Delayed (Yellow): Able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND they have injuries that are not considered minor. Examples include:
      a. Mechanism of injury Trauma Triage Criteria
      b. Isolated fractures/dislocations
      c. Large and/or multiple lacerations with controlled bleeding
      d. Deep burns <20% BSA
   3. Minimal (Green): Able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND their injuries are considered minor. Examples include:
      a. Minor wounds (abrasions, isolated laceration)
      b. Contusions
      c. Minor head trauma (GCS 15)
   4. Expectant (Gray): unable to follow commands or make purposeful movements OR they do not have a peripheral pulse, OR they are in

[1] Model Uniform Core Criteria for Mass Casualty Triage. Disaster Med Public Health Preparedness.2011;5:125-128, doi: 10.1001/dmp.2011.41.

obvious respiratory distress, OR they have a life-threatening external hemorrhage, AND they are unlikely to survive given the available resources. These patients should receive resuscitation or comfort care when sufficient resources are available. Examples include:

a. Major head trauma (open skull fracture with exposed brain, blown pupil, etc)
b. Major burns (>75% BSA)

5. Dead (Black): No spontaneous breathing after establishing a basic airway (and 2 ventilations in a child). Patients triaged as Dead should be reassessed after initial triage to confirm no signs of life.

D. Establish Casualty Collection Point(s)
1. One or more sites to provide triage and treatment
2. May be subdivided into treatment areas based on triage category
3. Emphasis should be on providing lifesaving treatment and rapid transport
4. Minimal patients can be sequestered in a designated area
5. Perform secondary triage within each treatment area as able

E. Treatment
1. Treatment should be provided in accordance with Michigan EMS State Protocols
2. ALS should be limited to essential medical interventions, including pain relief

IX. **Evacuation**

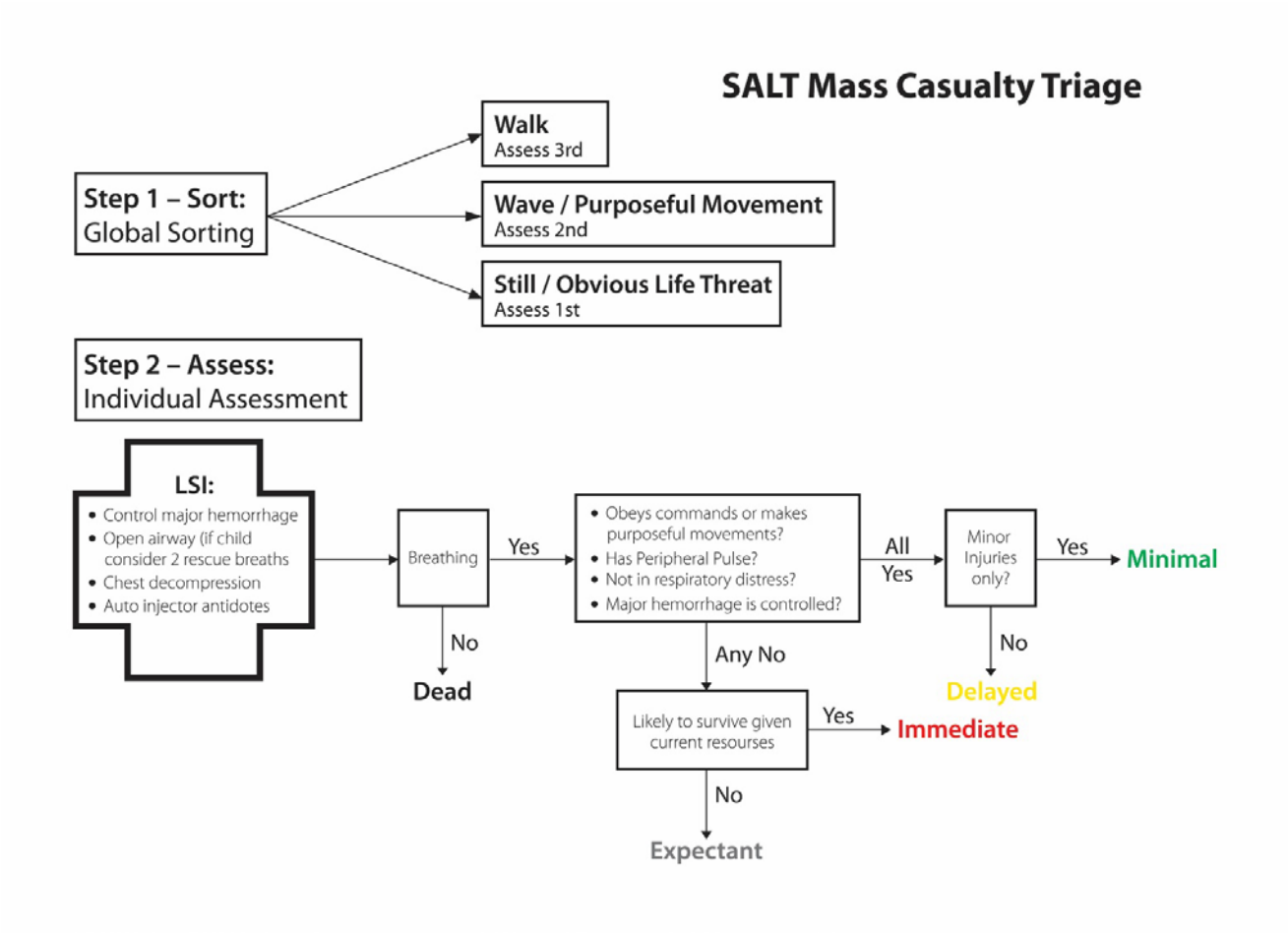
A. Transport Unit Leader should assure all departing ambulances and non-licensed transport vehicles depart scene with highest acuity patients
1. Assure distribution of patients to appropriate hospitals (e.g., trauma centers)
2. Maintain a tracking log of patients, acuities, and destinations

B. Non-hospital alternate care centers may be established in major incidents for lower acuity patients

C. Licensed EMS personnel should accompany injured patients when transported in non-licensed vehicles whenever possible

X. **Recovery**

A. Responder rehabilitation (e.g., hydration, nutrition)
B. Responder recovery (e.g., physical and emotional)
C. Agency recovery (e.g., resupply, workforce recovery) and completion of After Action Review
D. Community recovery


SALT Mass Casualty Triage
Step 1 – Sort:
Global Sorting
Walk
Assess 3rd
Wave / Purposeful Movement
Assess 2nd
Still / Obvious Life Threat
Assess 1st
Step 2 – Assess:
Individual Assessment
LSI:
• Control major hemorrhage
• Open airway (if child consider 2 rescue breaths
• Chest decompression
• Auto injector antidotes
Breathing
Yes
No
Dead
• Obeys commands or makes purposeful movements?
• Has Peripheral Pulse?
• Not in respiratory distress?
• Major hemorrhage is controlled?
All Yes
Any No
Minor Injuries only?
Yes
Minimal
No
Delayed
Likely to survive given current resourses
Yes
Immediate
No
Expectant


MINIMAL
DELAYED
IMMEDIATE
EXPECTANT
DECEASED
STAT BAND

XI. REGIONAL MEDICAL COORDINATION CENTER (RMCC)

The RMCC serves as a regional multi-agency coordination center entity as defined by the National Incident Management System (NIMS). The RMCC serves as a single regional point of contact for the coordination of healthcare resources. The RMCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The RMCC serves as a link to the Community Health Emergency Coordination Center (CHECC).

The RMCC acts as an extension and agent of the Medical Control Authority.

A. RMCC Responsibilities include, but are not limited to:
   1. Maintain communications with all involved entities
      a. EMS Branch Directors
      b. EMS Division/Group Supervisors
      c. EMS Unit Leaders
      d. Hospitals
      e. Local EOCs (when activated)
      f. CHECC (when activated)
      g. Alternate care sites (when activated)
      h. Other RMCCs (as appropriate)
   2. Provide initial and update alerts via available communications resources.
   3. Provide frequent updates to on-scene EMS Branch Directors/Group/ Supervisors (or designee) regarding hospital casualty care capacity.
   4. May relay casualty transport information to receiving facilities.
   5. May relay urgent and routine communications to appropriate entities.
   6. May assist in coordination and distribution of resources.
   7. Other appropriate tasks as necessary for an effective regional medical response.

B. RMCC Immunity from Liability

It is the intent of this protocol that the Regional Medical Coordination Center and the personnel staffing the RMCC 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):

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.

333.20965 Immunity from liability

XII. STATE COMMUNITY HEALTH EMERGENCY COORDINATION CENTER (CHECC)
- A. Operated by MDHHS Bureau of EMS, Trauma and Preparedness
- B. EMS Personnel should be aware of the existence of CHECC but are not expected to directly interface with CHECC.

Appendix 1:

Definitions:

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

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.

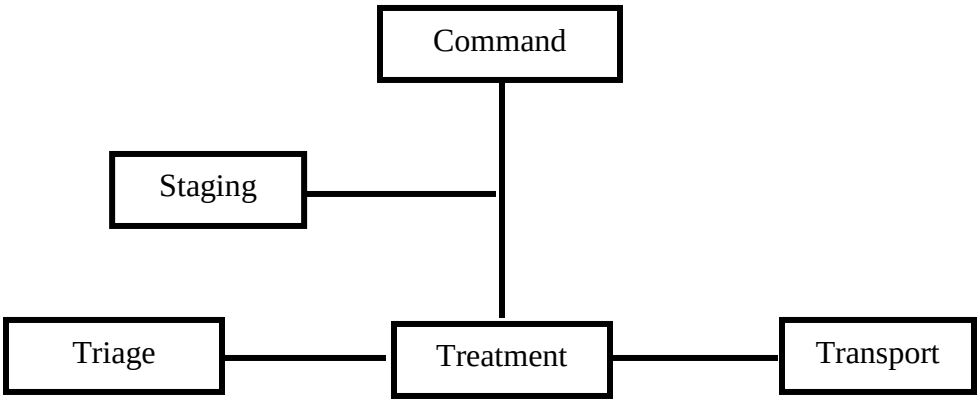
Coordinating Resource: the entity within the local EMS system responsible for the notification and coordination of the mass casualty response. Examples include: medcom, resource hospital, MCA, medical control, dispatch

Regional Medical Coordination Center: The RMCC serves as a regional multi-agency coordination entity as defined by the National Incident Management System (NIMS). The RMCC serves as a single regional point of contact for the coordination of healthcare resources. The RMCC is intended to optimize resource coordination among hospitals, EMS agencies, medical control authorities and other resources. The RMCC serves as a link to the Community Health Emergency Coordination Center (CHECC).

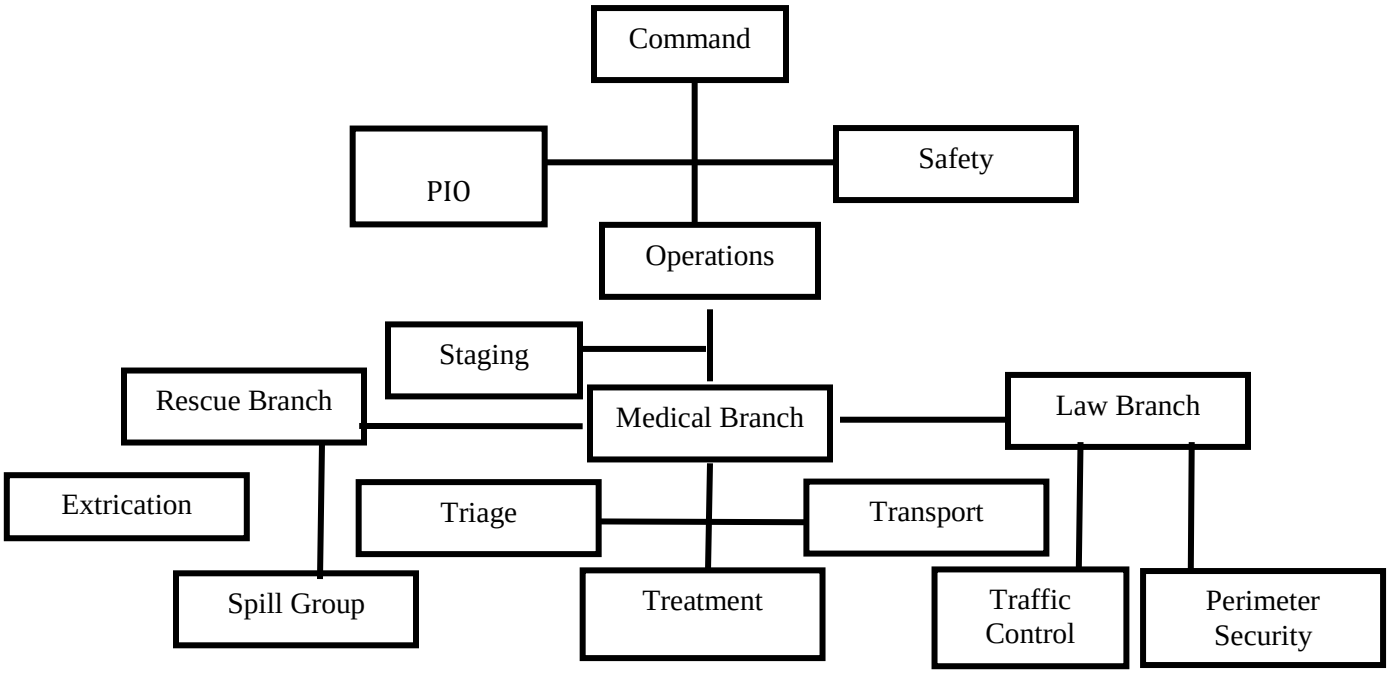
Community Health Emergency Coordination Center: The CHECC serves as a statewide multi-agency coordination entity as defined by NIMS. CHECC is intended to coordinate state-level healthcare and public health resources, to serve as a central point of contact for regional RMCC's, and to serve as a resource 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.

Appendix 2:

Example ICS Organizational Chart for Simple Incident



Example ICS Chart for Complex Incident



Pre-hospital (EMS) MCA Mutual Aid Agreement

Purpose: Establish a mechanism allowing EMS agencies/Medical Control Authorities (MCA) to give prehospital care across jurisdictional boundaries during “disaster” conditions.

1. This agreement between the MCAs 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, MCAs may need assistance from other MCAs. 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 its 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 MCAs to include each other in disaster in planning efforts. It is expected that upon request, participating MCAs will extend any relevant information on emergency planning to other MCAs as deemed reasonably appropriate by the participating MCA distributing the information.

5. Participating MCAs 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 MCAs.

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.

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.
   B. Clean EMS Transport Vehicles after Transporting a Suspected AFRI.

Transportation and Destination Guidelines

Purpose:

This protocol is to assist inter-facility transport of patients believed to be infected with a "*special pathogen*" to a hospital that may be outside of the local Medical Control Authority.

Definition:

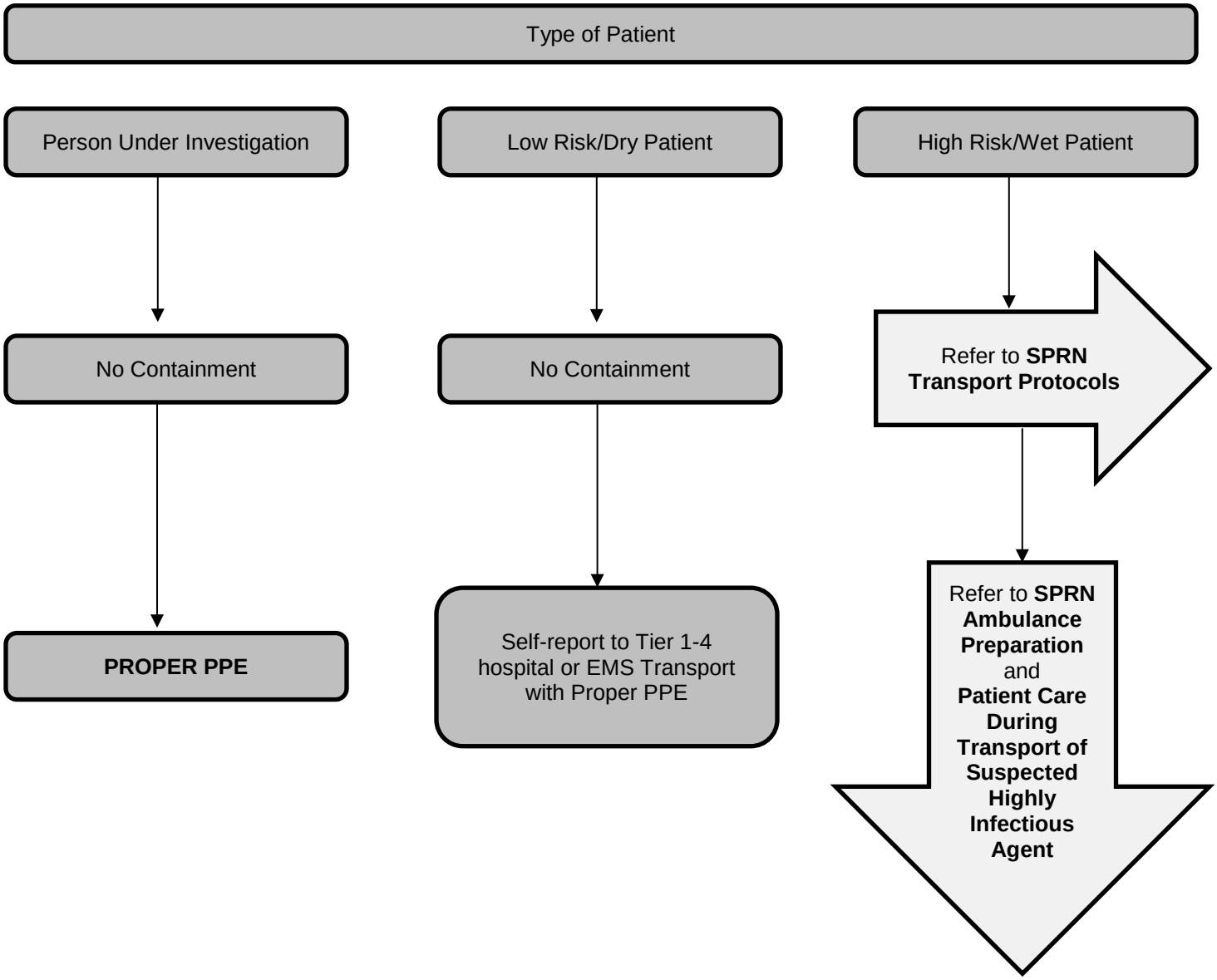
"*Special pathogen*" refers to highly-infectious diseases, including hemorrhagic viral diseases (HVDs) such as Ebola and similar infections.

Transport Destination Decision

1. The patient will be transported to the closest appropriate hospital capable of providing the services needed. *The closest appropriate hospital may be outside of an agency's primary service area.*
2. Inter-facility transport of patients is permitted by pre-identified transport teams to hospitals that may originate and end outside of the transporting agency's Medical Control Authority when no local pre-identified specialty transport team is available.

SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)
PATIENT CONTAINMENT ALGORITHM (Optional)

Initial Date: 04/28/17
Revised Date: 10/25/2017 Section 10-11



MCA Name: Schoolcraft Medical Control Authority
MCA Board Approval Date: 12/6/2017
MCA Implementation Date: 08/01/2018
Protocol Source/References:

Transport Supplies

Suggested Supplies to be Immediately Available:

- ☐ Manual Suction
- ☐ BP cuff (manual, disposable)
- ☐ Pulse Ox (disposable)
- ☐ Emesis containers (sealable)
- ☐ Absorbent paper towels
- ☐ Sharps Container (small)
- ☐ Nitrile gloves box (Small, Medium, Large, Extra-large)
- ☐ Small trash bags
- ☐ Disinfectant wipes for surfaces
- ☐ Disinfectant wipes for skin
- ☐ Portable 02 tank (15 LPM capable)
- ☐ Nasal Cannula/NRB
- ☐ Cooler/ice packs
- ☐ Blankets (Space)
- ☐ Pillow
- ☐ Trauma Shears
- ☐ 2 Buckets (for bodily fluids, hold trash bags, use for cleaning)
- ☐ Time Keeping Device
- ☐ Sedation and/or pain control guidelines as applicable
- ☐ Medications, needleless delivery system

Suggested Supplies to be in accompanying vehicle or with driver:

- ☐ IV Kit/Fluid/Saline Lock
- ☐ 4X4 and/or Abdominal Pads
- ☐ Tape
- ☐ Rolled Gauze
- ☐ Body bag
- ☐ Cleaning / decontamination equipment
- ☐ Solidifier for liquids
- ☐ Donning/doffing protocols and checklists

Cleaning and Decontamination supplies (in accompanying vehicle or with driver):

- ☐ Towels & Cleaning Rags (disposable)
- ☐ Solidifier
- ☐ Bucket for cleaning
- ☐ EPA registered cleaning product with instructions for use
- ☐ Biohazard bags (~20)
- ☐ Box for Biocell / Visquine disposal
- ☐ Zip ties for trash

- ☐ Bleach wipes for outside of Biohazard bags
- ☐ Procedure for cleaning/disinfection
- ☐ Procedure for waste handling

Suggested PPE per team members:
(PPE should cover all skin, mucous membranes and protect against inhalation of aerosolized particles)

☐ Fluid-resistant or impermeable coveralls (appropriate sized suits)	2
☐ Fluid-resistant or impermeable boot covers	2
☐ Powered air-purifying respirator (PAPR)	1
☐ PAPR batteries	2
☐ PAPR filters	1 set
☐ PAPR hoods	1
☐ PAPR hose and clamp	1
OR	
☐ Full-face respirators with appropriate cartridges for protection	2
☐ Surgical Cap/Hair Cover (2)	2
☐ N-95 Respirator	1
☐ Biohazard bags (Large)	30
☐ Biohazard Receptacles (1 small for sharps)	
☐ Nitrile gloves box (1 each of Small, Medium, Large, Extra-large)	1EA
☐ Hand sanitizer (1 bottle)	10
☐ Absorbent rags (package)	
☐ Caution tape (yellow 200' roll)	
☐ Duct tape (roll)	
☐ Buckets (2)	2
☐ Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes	
☐ Trauma Shears (for Biocell/Visquine removal)	2
☐ Doffing Pad (Large Fluid Absorbent Fabric) (2)	2

References

January 28, 2016 Guidance for developing a plan for interfacility transport of persons under investigation or confirmed patients with Ebola virus disease in the United States

Nebraska Biocontainment Unit and Healthcare and Emergency Responder Organization Education through Simulation (HEROES)

Transport Procedure

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as "Category A" agents.

1. Patient belongings
   A. All patient belongings shall be kept in transport vehicle and only be removed at the final destination.
   B. Belongings shall be placed in a biohazard bag if possible and sealed in a manner that will prevent any further contamination to its surroundings.
   C. Belongings will be labeled with the patient name and identification.

2. Documentation
   A. Pt documentation may be performed in a normal manner as outlined by the transporting agencies guidelines. A note pad may be used to document vital signs and times during transport.
   B. All documentation should be performed after the transport is complete as to avoid contamination of equipment and materials. Any materials used for documentation in the patient environment (such as Toughbook, tablets, clipboards etc.) shall be cleaned, disinfected, and decommissioned for the same duration as the transport vehicle and equipment involved in transport.

3. Travel plans
   A. The MDHHS will be the central coordinating agency for the patient transport. Local and state authorities will assist in planning the path of travel so as to assist in the event of an emergency.
   B. A predetermined route will be planned in conjunction with the sending facility, transport agency, receiving facility or airport, and any facilities in between sending facility and receiving facility that are willing to participate and accommodate transport crews for crew changes or emergency procedures.
      a. Path of travel should be planned out in a way that will keep transport crews on as many major roads as possible to ease the ability of possible responding ems agencies to locate them in the event of an emergency or accident.
      b. Consider communication to potential Medical Control Authority along the path of travel in the event that assistance is required.
      c. Transport team shall attempt to solve any in transport emergencies without involving any outside responding agencies whenever possible.
      d. During transport, hospitals located along an extended route (over 2 hours) may act as Patient Transfer Points (PTP). PTP will be identified and notified prior to patient transport. Although the patient will not leave the transport vehicle, PTP may be used to allow EMS personnel to change staff.

4. Destination arrival

A. The patient will be accepted by healthcare workers at the hospital or airport directly from the EMS transport rig. EMS team should not leave the designated "hot zone" or "dirty area" until PPE is doffed per protocol. If there is not an appropriate area for complete decontamination at the receiving facility (such as an airport), decontamination should occur at the closest appropriate doffing area. This will prevent the transmission of the pathogen via accidental contamination to the environment.

B. After proper doffing of PPE, the safety officer, receiving facility or other team members will evaluate and care for crew members involved in transport.
   a. Post vital signs should be recorded.
   b. Evaluation for any exposure to the pathogen.
   c. Food, fluids and lodging may be provided until the receiving facility feels the personnel are fit and able to make the return trip home.

C. To minimize further contamination of "clean personnel", only those involved in actual patient transport may operate the transport vehicle during the return trip. It is anticipated that the person will drive the return trip.

D. Follow cleaning and disinfection of the Ambulance procedure prior to leaving receiving hospital. After airport transfer, the ambulance will go to the designated PTP to doff PPE, and follow cleaning and disinfection procedures prior to resuming the return trip to the agency.

E. The receiving facility or PTP shall accept and properly dispose of any PPE and other material(s) used in the transport vehicle.

F. Upon arrival back to the home agency, the vehicle and equipment may be sequestered for a predetermined amount of time to allow for full decontamination.

G. This time will be dependent on the pathogen and current guidelines.

H. No vehicles or equipment shall be placed back into general service prior to completion of the vehicle quarantine.

I. If the vehicle is needed prior to completion of quarantine for transport of like case, guidance will be sought from the MDHHS and CDC.

References:

Guidance for Developing A Plan for Interfacility Transport of Persons Under investigation or Confirmed Patients with Ebola Virus Disease in the United States:
http://www.cdc.gov/vhf/ebola
Bratt, J., Robinson, A., and Alcorta, R. (n.d.). Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak. (Accessed 8/1/2016.) Maryland Institute for Emergency Medical Service Systems.
Lowe et al: *Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. Prehospital Emergency Care* October

Patient Care During Transport of Suspected Highly Infectious Agent

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as "Category A" agents from a health care facility to another, more specialized health care facility.

The EMS Agency Will

A. Prior to transport, the transporting agency will communicate with the sending (departing) and receiving (arriving) hospital facility to coordinate existing and anticipated patient care needs.
    a. Determine the medical authority for the patient while in transit. Refer to the state protocol.
    b. Determine the number and mix of staff needed to provide care during transport.
    c. Assure that equipment, devices, and crew can fit into the load-carrying dimensions of all planned transport vehicles.
    d. Determine if the patient has proper identification for transport.
    e. Determine method for patient tracking.
    f. Determine method to document patient care while preventing contamination.

B. Assess and develop plans for:
    a. Physical needs of the patient: baseline vital signs via non-invasive method. Use blue tooth technology, disposable O2 saturation monitor.
    b. Assess ability to provide for physical comfort of patient:
        i. Heat
        ii. Air flow
    c. Plans for failure of equipment.
    d. Identified pre-existing conditions that will require medication or other means of support (such as diabetes, oxygen therapy, etc.). Identify method to support these conditions if necessary.
    e. Avoid use of sharps (needles, lancets) unless necessary. Dispose in sharps container.
    f. Identify current life support status and identify procedures that will or will not be performed during transport.
    g. Identify medications necessary for patient comfort during transport: sedation, pain, nausea.
    h. Identify method to handle fluid loss (vomiting, diarrhea, urine) during transport.
        i. Patient wipes absorbent pads, solidifier, trash bags, duct tape.
        ii. Wipes for cleaning and disinfection of spills. Minimize the use of bleach wipes during transit to prevent overpowering fumes.

C. Provide for crew safety during transport
    a. Assess how communication will occur among all crew.

b. If PPE is breached, crew should wipe affected area with bleach and communicate breach immediately to supervisor.
c. Plans should include area for emergency doffing of PPE for crew safety.
d. Identify nearest Patient Transfer Point (PTP) to provide relief of staff.

Ambulance Cleaning and Disinfection

Purpose:
Proper cleaning and disinfection of an ambulance and equipment are necessary to reduce the bioburden of disease and prevent secondary transmission of a known or unknown highly contagious disease. The process describes the measures needed to clean and disinfect an ambulance prior to its return to service following the transport of a patient with a known or suspected Category A disease.

***Note:** All disinfection should use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces at appropriate concentration and contact time.*

1. This process is to be done after the Biocell or visquine (see procedure) has been removed.
2. Site Set Up
   A. Select an appropriate site for ambulance decontamination that protects the vehicle and the decontamination team from weather elements, preferably a well-ventilated large enclosed structure.
   B. Establish a secure perimeter for safety of the public and decontamination personnel.
   C. Include considerations for waste management, security plan, public perception, and media visibility when selecting decontamination site.
   D. Depending on the location, the ability for climate control is beneficial.
   E. Define and mark hot, warm, and cold zones of contamination[1] around the ambulance that require PPE to enter.
3. Prior to cleaning
   A. The patient care provider (while wearing "dirty PPE") will remove all equipment, supplies, linen, waste PRIOR to leaving the vehicle and before Biocell/Visquine liners are removed from inside the ambulance. Equipment will be placed in the warm zone.

[1] The hot zone is considered an area that is known or suspected to be contaminated and has a high risk of exposure. It should only be entered with full PPE. In ambulance decontamination, this would be the vehicle and an area about a meter beyond the ambulance.
The warm zone can be considered a transitional area between the hot and cold zones that has no known contamination but has a moderate risk of exposure. It should only be entered when wearing full PPE. This is also the area where one begins the initial portion of the doffing process (following a full suit wipe down within the hot zone) when leaving the hot zone. For ambulance decontamination, the warm zone can also be the place where waste barrels are pre-positioned so that the waste bags can be placed directly into the containers without entering the hot zone.
The cold zone is considered an area that has no contamination and no potential risk for exposure. The individuals in this area are not required to wear PPE, although the cold zone will often also serve as the PPE donning area.

B. All waste, including PPE, drapes, and wipes, should be considered Category "A" infectious substance, and should be packaged appropriately for disposal.
C. The driver or other personnel will be responsible for cleaning and disinfection of the transport unit. One to two people will clean and disinfect; a third in PPE will observe and be available to assist as necessary
D. The cleaning teams will don CLEAN PPE per protocol.
E. Any areas that are visibly contaminated with the patient's body fluids should be decontaminated first with an approved EPA-registered disinfectant for the appropriate contact time before soaking up the fluid with absorbent materials.
F. Place biohazard bag in container close to exit for used cleaning cloths.

4. Cleaning and decontamination
   A. Cleaning will be done beginning at an entrance to the ambulance, and moving towards the dirty area. This way, the clean personnel will remain clean as they enter the vehicle and stay in a "clean" area until they exit at the opposite end of the ambulance.
   B. Mix EPA registered cleaning disinfectant per manufacturers' guidelines. All products will have instructions for cleaning and disinfection. Note the manufacturers' "dwell time" or the amount of time a surface must stay wet AFTER cleaning to achieve disinfection.
   C. Using disposable cloths begin cleaning all surfaces as the vehicle is entered.
   D. Remove visible soiling of all surfaces.
   E. Allow surface to stay wet during dwell time. Reapply cleaner if necessary.
   F. Change cloths frequently during cleaning process. Place cloths in biohazard bag.
   G. Manually wipe down the ambulance's exterior patient loading doors and handles, and any areas that may have been contaminated, with disinfectant. The exterior of the ambulance does not require a full disinfectant wipe down.
   H. After ambulance is cleaned, clean re-usable medical equipment.
      a. Using the above process, clean then disinfect the outside of any prepositioned but unused medical equipment (still inside the protective bags they were placed in).
      b. If the equipment was removed from a protective bag in transit, assess the equipment to determine if it can be properly cleaned and disinfected, or disposed of.
   I. Once cleaning and disinfection has been completed, collect and package all waste as Category "A" waste. Dispose of all waste according to organization protocols as well as local and federal regulations for Category "A" infectious substances.

J. Remove PPE per checklist. A third person who has been in the cold zone should supervise doffing, which should be performed according to organization doffing protocols.

5. Further options for decontamination
   A. Additional cleaning methods can also be used. While not required, this may provide additional assurance to personnel and public prior returning the vehicle to service.
   B. Ultraviolet germicidal irradiation, chlorine dioxide vapor, or hydrogen peroxide vapor can be used for an additional decontamination step. However, these should not replace the manual cleaning and disinfection, as their efficacy against organisms in body fluids has not been fully established and these methods may require specialized equipment and PPE.
   C. The ambulance can then be returned to service.

Materials and equipment needed to decontaminate an ambulance (items listed are per person decontaminating)

	Fluid-resistant or impermeable coveralls (appropriate sized suits)	2
	Fluid-resistant or impermeable boot covers	2
	Powered air-purifying respirator (PAPR)	1
	PAPR batteries	2
	PAPR filters	1 set
	PAPR hoods	1
	PAPR hose and clamp	1

OR

	Full-face respirators with appropriate cartridges for protection	2

	Surgical Cap/Hair Cover	2
	N-95 Respirator	1
	Biohazard bags (Large)	30
	Biohazard Receptacles (1 small for sharps)	
	Nitrile gloves box (Small, Medium, Large, Extra-large)	1 EA
	Hand sanitizer (1 bottle)	10
	Absorbent rags (package)	
	Caution tape (yellow 200' roll)	
	Duct tape (roll)	
	Buckets	2
	Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes	
	Trauma Shears (for Biocell/Visquine removal)	2
	Doffing Pad (Large Fluid Absorbent Fabric)	2

References:

1. Isakov, A., Jamison, A., Miles, W., & Ribner, B. Safe management of patients with serious communicable diseases: recent experience with Ebola virus. Annals of internal medicine. 161(11): 829-830.
2. Isakov A, Miles W, Gibbs S, Lowe J, Jamison A, Swansiger R. Transport and management of patients with confirmed or suspected Ebola virus disease. Ann of Emerg Med. 2015; 66(3):297-305.
3. Jelden, K.C., Gibbs, S.G., Smith, P.W., Schweldhelm, M., Iwen, P.C., +Beam, E., Hayes, A.K., Marion, N., Kratochvil, C.J., Boulter, K.C., Hewlett, A., Lowe, J.J. Nebraska Biocontainment Unit Patient Discharge and Environmental Decontamination following Ebola Care. American Journal of Infection Control. 2015; 43(3):203-205.
4. Lowe, J.J., Gibbs, S.G., Schwedhelm, S., Nguyen, J., Smith, P.W. Nebraska Biocontainment Unit Perspective on Disposal of Ebola Medical Waste. American Journal of Infection Control. 2014; 42:1256-1257.
5. Lowe, J.J., Jelden, K.C., Schenarts, P.J., Rupp, L.E., Hawes, K.J., Tysor, B.M., Swansinger,
6. R.G., Schweldhelm, S.S., Smith, P.W., Gibbs, S.G. Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. Prehospital Emergency Care. 2015; 19(2):179-183.
7. Lowe, J.J., Olinger, P.L., Gibbs, S.G., Rengarajan, K, Beam, E.L., Boulter, K.C., Schwedhelm,
8. M.M., Hayes, K.A., Krotochvil, C.J., Vanairsdale, S., Frislie, B; Lewis J., Hewlett, A., Smith, P.W., Gartland, B., Ribner, B.S. Environmental infection control considerations for Ebola. American Journal of Infection Control. 2015; 43(7):747-9.
9. Swansiger, R.G., Walters, W.A., Isakov, A.P., Gibbs, S.G., Lowe, J.J. 2014. BioContainment Ground Transport Standard Operating Procedures. Office of Medical Services Operational Medicine. United States Department of State.

Medical Isolation Transport Device

Definition:

A Medical Isolation Transport Device is a vinyl enclosed patient containment device. It creates a negative air environment when closed. It is used for the transport of highly infectious disease patients either internally at a facility or from one facility to another.

1. Patient will be transported in impervious suit if ambulatory, in impervious suit and sheets (as tolerated) if stretcher bound or in isolation pod, as indicated. All transferred patient belongings are considered contaminated and are typically bagged, labeled, and transferred with patient.
2. Any patient care documents should be free of contamination. When in doubt, consider them contaminated and package as appropriate for transport with patient. It may be desirable to store and transmit patient care records electronically if feasible.

Indications for use:

1. A known or suspected case of highly infectious disease that may have been acquired via travel, health care provider, or lab.
2. Drug resistant organism
3. Some Medical Isolation Transport Devices may be used as a positive air environment to transport a patient with known immune deficiency or burns.

Things to know regarding use of Medical Isolation Transport Device:

1. Assess if MEDICAL ISOLATION TRANSPORT DEVICE outside straps are approved for transportation. General rule: vinyl straps are not tested and approved, but some material straps (such as those used in seat belts) may have been tested and approved.
2. The head of the Medical Isolation Transport Device should be placed at the head of the gurney or cart, so the patient is always moving feet first.
3. The white noise created by the blower motor will reduce patient and staff level of hearing.
4. Be careful that wind may catch and move the Medical Isolation Transport Device, especially when unsecured.
5. As the outside temperature increases, the temperature inside the Medical Isolation Transport Device will also increase.
6. After using the Medical Isolation Transport Device during a drill, it may be cleaned and disinfected for future use. Some disinfectants may leave a residue that can be wiped off with a clean towel.
7. In some cases where the disease is treatable, the Medical Isolation Transport Device can be cleaned, disinfected and readied for re-use as per direction of MDHHS, Subject Matter Experts (SME), and in consultation with manufacture.

Readying for use and patient placement:

1. Consider equipment that will be used for the patient and how it will be placed into the Medical Isolation Transport Device.
   a. Blankets and pillows will not fit through the access ports.

   b. IV's, defibrillator, and pulse oximetry will remain outside the Medical Isolation Transport Device with the wires and tubes snorkeled through the ports.
   c. Keep the snorkel port closed tightly with Velcro to minimize the potential for contamination outside the Medical Isolation Transport Device.
   d. Keep the access ports closed.
   e. Wear exam gloves when using the glove ports.
   f. If the gloves inside the Medical Isolation Transport Device become damaged, gently twist the glove at the port, and secure with tape to maintain air pressure and prevent contamination outside the Medical Isolation Transport Device.
2. Roll the Medical Isolation Transport Device on the gurney. Use Belts to attach to the gurney. Assure that the belts do not interfere with any moving parts of the gurney.
   a. Restraints within the Medical Isolation Transport Device may only be used per order of a physician.
3. Connect the blower motor, inlet and outlet filters as per manufacturer's recommendations. Turn on blower.
   a. Assure the motor remains unobstructed.
   b. Assure that the battery is charged and know how long the charge will last.
4. Place patient in the Medical Isolation Transport Device. Patient may be wearing gown, gloves, and mask to minimize contamination of the outside of the Medical Isolation Transport Device.
5. Place ribs/spine of the Medical Isolation Transport Device per manufacturer's instructions. Close zipper. Patient should remove mask while in Medical Isolation Transport Device.
6. Wearing clean PPE, clean and disinfect the outside of the Medical Isolation Transport Device before transport. Follow dwell times for disinfectant.
7. Transport patient.

Patient Handoff:

1. EMS removes Medical Isolation Transport Device from rig into designated "dirty" area outside the rig.
2. Hospital personnel in PPE will clean and disinfect the outside of the Medical Isolation Transport Device. Gurney will be placed so as to straddle dirty and clean area. Patient bed will be placed in clean area. Staff who have cleaned the Medical Isolation Transport Device will remain on dirty side of gurney and will assist 2nd team of PPE donned staff on clean side to move Medical Isolation Transport Device onto patient bed.
3. "Soiled" Hospital personnel (who cleaned the Medical Isolation Transport Device) will assist EMS to doff in designated "dirty area". After doffing, these hospital personnel will doff PPE per protocols.
4. EMS will use 2nd team to clean and disinfect rig before leaving. Waste will be contained at the receiving hospital. Gurney will be cleaned and disinfected.
5. 2nd team of Hospital personnel in clean PPE will move patient to care area.
6. Medical Isolation Transport Device may be disposed of per manufacturer's instructions or consultation with SME.

Team Selection Procedure

Purpose
The purpose of this procedure is to provide guidance in selecting qualified and support training of EMS personnel willing to transport a patient with known or suspected highly infectious disease including pathogens referred to as “Category A” agents.

1. <u>The selected team members will be chosen according to</u>
   A. Previous physical and mental health history
   B. Ability to be in service and away from home for an extended period of time
   C. Knowledge of the potentially hazardous situation to which they may be placed
   D. Additional assets of team members may include:
      a. Able to work in a restrictive environment
      b. Critical thinking skills
      c. Participation in education sessions, exercises and drills
      d. Able to follow strict guidelines to ensure the safety of the entire unit

2. <u>It is recommended that each team member may have on file with their agency</u>
   A. Two or more emergency contacts
   B. Hospital or Health care system of preference
   C. Blood type
   D. Religious preference
   E. Advanced directives (if applicable)

3. <u>Team member health status</u>
   A. Each team member shall be compliant with and have documentation they have passed the medical screening requirements of the agencies Respiratory Protection Program. This includes acknowledging a new history of respiratory diseases (i.e. asthma, chronic lung disease, or upper respiratory infection) that would interfere with wearing a fully enclosed respiratory device, such as a PAPR or would involve removal of the PAPR hood for medication administration.
   B. Consideration should be given to any team member having a condition that affects them while being in an enclosed environment.
   C. Each team member shall be free of any medical conditions that require medication administration in any less than 6 hour increments.

4. <u>Prior to transport:</u>
   A. Team members providing care in patient compartment shall have vital signs assessed prior to transport.
      a. Vital signs must fall with preset parameters (suggestions e.g.: systolic blood pressure less than 150; diastolic blood pressure less than 90; resting heart rate less than 100).
   B. The name of each team member who has direct contact with the patient or the patient environment will be recorded.

5. Post-transport:
   A. Team members will receive a medical evaluation to include
      a. Blood pressure
      b. Heart rate
   B. May include
      a. Blood glucose
      b. Assessment for dehydration
   C. Information will be kept in the employee health file

6. Team member roles and responsibilities: The number and make up of healthcare providers needed during the transport may be based on the patient's condition and length of the transport. Below are suggestions that define roles and responsibilities of team members.
   A. One or more **direct care providers** will remain with the patient in the back of the transport vehicle to provide care and comfort. This area is considered "contaminated" or "soiled". Team members should attempt to limit their time in full PPE to two (2) hours.
   B. The **driver of the transport vehicle** will remain in the front cab. This area is considered "clean". Although the driver may wear PPE, the driver is considered "clean".
   C. The **chase team** may consist of enough personnel (up to 6 to 7 employees) to accommodate crew changes, to take place at designated site and at designated intervals. The purpose of the chase team is to ensure personnel do not become fatigued or in danger of dehydration or malnourishment. The chase team may be members of another transport agency.
   D. The chase team may consist of a **medical officer** who will not be involved in the actual transport and care of a patient; his or her sole responsibility will be to attend to any personnel that fall ill or succumb to any injury during transport.
   E. The chase vehicle shall carry enough Personal Protective Equipment (PPE) to cover each team member on the transport team. Extra PPE shall also be carried in chase vehicle in the event of rips or tears in PPE gowns or malfunctions in PAPR operation.
   F. It is recommended that an operations supervisor or special operation supervisor be included in the transport chase team and act as **safety officer**.
   G. A second ambulance may follow transport vehicle and supervisor vehicle in the event of a mechanical failure during transport.

7. Post trip monitoring
   A. Any crew member that had any duration of time spent in the transport vehicle with the patient may be placed on a paid leave for a duration determined by his or her employer.
   B. Any crew member that had any duration of time spent in the transport vehicle with the patient will be appropriately monitored according to their employer procedure.

8. Public information
   A. Any communication with the public, media or other EMS, fire or police agencies shall be handled by a designated person, as outlined in transport agency or sending facilities policies.
   B. At no time shall any transport team member be subject to inquiries from outside agencies, media, or family members.
   C. Team members shall follow the State of Michigan Communicable disease rules when divulging any details of patient transport.

References:

Guidance for Developing A Plan for Interfacility Transport of Persons Under investigation or Confirmed Patients with Ebola Virus Disease in the United States:
http://www.cdc.gov/vhf/ebola
Bratt, J., Robinson, A., and Alcorta, R. (n.d.). Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak. (Accessed 8/1/2016.) Maryland Institute for Emergency Medical Service Systems.
Lowe et al: *Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. Prehospital Emergency Care* October/December 2014