	Miscellaneous - last protocols for public comment	Due	Notes
1.11	Foreign Body Airway Obstruction	10/5/2022	Move out of Emergency Airway protocol (section 7 Procedures) and into Section 1 as its own treatment protocol - REVISIONS to prior material
2.1	Adult/Pediatric Trauma Triage	10/5/2022	Revised
2.14	Hemorrhagic Shock	10/5/2022	Revised
2.15	Head Injury Adult	10/5/2022	NEW
4.2	Childbirth and Obstetrical Emergencies	10/5/2022	Major Revisions, new title - proposed as NEW
4.3	Newborn and Neonatal Assessment and Resuscitation	10/5/2022	Major Revisions, new title - proposed as NEW
4.9	Pediatric Crashing Patient/Impending Arrest	10/5/2022	NEW
7.9	Emergency Airway	10/5/2022	Revised
7.27	Transport of Adult Ventilator Dependent Patients	10/5/2022	NEW
7.28	Left Ventricular Assist Device	10/5/2022	NEW
8.2	Patient Prioritization and Use of Lights and Sirens	10/5/2022	NEW -Combination of previous 8.2 Use of Emergency Lights and Sirens During Transport; 8.7 Lights and Sirens Response to the Scene; 8.8 Patient Prioritization
8.10	Infection Control and Communicable Disease	10/5/2022	NEW - Combination of previous 8.10 Communicable Disease and 8.11 Infection Control
9.22	Epinephrine	10/5/2022	Revised
9.29	Ketamine	10/5/2022	Revised
10.6	Mass Casualty Incidents	10/5/2022	Carrying over current version **** Group to be formed to discuss the revision of this.
10.8	Hazard Contaminated Patient	10/5/2022	Minor revisions - formerly in Section 7 as a procedure - moved to special operations section.
10.9	Suspected Pandemic	10/5/2022	Revised (formerly Suspected Pandemic Influenza)
10.18	SPRN Death During Transport	10/5/2022	Revised

Foreign Body Airway Obstruction

***Alias**: Choking, Airway Obstruction, FBAO*

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. EMS personnel should consider these cases to be potential cardiac arrests.

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
    e. Wheelchair bound patients

3. For conscious infants (under 1 year old) with evidence of severe FBAO:
    a. Deliver repeated cycles of 5 back blows 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 start CPR
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 chest compressions while performing direct laryngoscopy.
7. Once FBAO is relieved, if spontaneous respiration does not return, refer to **Emergency Airway Protocol**

Foreign Body Airway Obstruction

***Alias**: Choking, Airway Obstruction, FBAO*

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. EMS personnel should consider these cases to be potential cardiac arrests.

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
    e. Wheelchair bound patients

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 start CPR~~:~~
    ~~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~~ chest compressions while performing direct laryngoscopy.
7. Once FBAO is ~~removed~~ relieved, if spontaneous respiration does not return, refer to **Emergency Airway Protocol** ~~perform endotracheal intubation if able to be readily accomplished or place Supraglottic airway and begin ventilations.~~

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

Vital signs& level of consciousness

- 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 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.

[wv1]

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

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

Vital signs& level of consciousness

- 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.[wv1]

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 child

~~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.

[wv2]

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

Hemorrhagic Shock

Purpose: To provide treatment for patients displaying signs and symptoms of shock attributed to hemorrhage including trauma and **severe postpartum hemorrhage.**

1. Follow **General Pre-hospital Care Protocol** control bleeding according to **Bleeding Control (BCON) Protocol when applicable.**
2. Transport according to **Adult and Pediatric Trauma Triage Protocol** and local **Destination and Diversion Protocol if present**.
3. No intervention should delay transport.
4. Obtain vascular access.
5. Fluid should be administered if:
   a. Significant head trauma with SBP less than 100 mm/Hg.
   b. Altered mental status secondary to hemorrhage with signs/symptoms of shock.
6. Fluid administration:
   a. NS IV/IO up to 1 liter, titrated to mental status and signs/symptoms of shock.
   b. For pediatrics administer fluid bolus up to 20 mL/kg, titrated to resolution of shock. Maximum fluid administration of 1 liter.
   c. Additional fluids may only be administered post medical control contact.
7. Consider other causes of traumatic hypotension and treat accordingly. (Tension pneumothorax-**Pleural Decompression Protocol,** neurogenic shock – **General Shock Protocol**)
8. Per MCA Selection, if bleeding is uncontrolled and non-compressible, administer Tranexamic Acid (TXA)

Tranexamic Acid Included

☐ **Yes** ☐ **No**

Age greater than 18 years old AND > 50 kg

1. Must have destination that will continue 2nd dose.
2. Draw up and mix 1 gram of TXA into a 100 ml bag of normal saline solution (0.9% Sodium Chloride Solution).
   a. Use a filter needle if the medication is supplied in an ampule.
   b. Apply pre-printed “TXA added” fluorescent-colored label to IV bag
3. Administer mixed medication via piggy back into IV/IO line over 10 minutes

   a. Hospital Notification and Documentation
      i. The receiving hospital must be verbally notified that TXA has been given, prior to arrival.
      ii. A verbal report that TXA was administered must be provided to hospital ED staff (receiving physician preferred) upon hand-off of the patient from EMS.
      iii. The administration of TXA **must** be clearly documented on the EMS

patient care record.

b. Medical control may order TXA for selected patients with suspected compensated shock not meeting the above vital sign criteria.

Hemorrhagic Shock

Purpose: To provide treatment for patients displaying signs and symptoms of shock attributed to hemorrhage including trauma and **severe postpartum hemorrhage.**

1. Follow **General Pre-hospital Care Protocol** ~~and **Soft Tissue & Orthopedic Injuries Protocol,**~~ control bleeding according to **Bleeding Control (BCON) Protocol when applicable.** ~~.~~
2. Transport according to **Adult and Pediatric Trauma Triage Protocol** and local **Destination and Diversion Protocol if present**.
3. No intervention should delay transport.
4. Obtain vascular access.
5. Fluid should be administered if:
   a. Significant head trauma with SBP less than 100 mm/Hg.
   b. Altered mental status secondary to hemorrhage with ~~absent radial pulses~~signs/symptoms of shock.
6. Fluid administration:
   a. NS IV/IO up to 1 liter, titrated to mental status and ~~radial pulses~~signs/symptoms[BE(C1)] of shock.
   b. For pediatrics administer fluid bolus up to 20 mL/kg, titrated to resolution of shock. Maximum fluid administration of 1 liter.
   c. Additional fluids may only be administered post medical control contact.
7. Consider other causes of traumatic hypotension and treat accordingly. (Tension pneumothorax-**Pleural Decompression Protocol,** neurogenic shock – **General**[BE(C2)] **Shock Protocol**)
8. Per MCA Selection, if bleeding is uncontrolled and non-compressible, administer Tranexamic Acid (TXA[BE(C3)]~~)~~. ~~Age limit?~~.

Tranexamic Acid Included

☐ **Yes** ☐ **No**

Age greater than 18 years old AND > 50 kg

Must have destination that will continue 2nd dose.

1. ~~1.~~2. Draw up and mix 1 gram of TXA into a 100 ml bag of normal saline solution (0.9% Sodium Chloride Solution).
   a. Use a filter needle if the medication is supplied in an ampule.
   b. Apply pre-printed "TXA added" fluorescent-colored label to IV bag
2. ~~2.~~3. Administer mixed medication via piggy back into IV/IO line over 10 minutes

   a. Hospital Notification and Documentation
      i. The receiving hospital must be verbally notified that TXA has been given, prior to arrival.
      ii. A verbal report that TXA was administered must be provided to hospital

ED staff (receiving physician preferred) upon hand-off of the patient from EMS.

iii. The administration of TXA **must** be clearly documented on the EMS patient care record.

b. Medical control may order TXA for selected patients with suspected compensated shock not meeting the above vital sign criteria.

Initial Date: NEW
Revised Date:
PUBLIC COMMENT READY

Section: 2-15

HEAD INJURY – ADULT MODERATE & SEVERE TBI

Purpose: Reduction of morbidity and mortality associated with Traumatic Brain Injury (TBI).

The treatment of a patient with suspected TBI should focus on three important clinically identifiable conditions, hypoxia, hyperventilation and hypotension and hemorrhage. Each of these conditions, have been shown to cause patient harm and are often preventable. EMS provider education about and treatment of a patient with suspected TBI should emphasize control, monitoring and prevention of hypoxia, hyperventilation, hypotension and hemorrhage.

Inclusion Criteria:

- Adults: Age ≥18
- The prehospital identification of moderate or severe TBI: Anyone with physical trauma and a mechanism consistent with the potential to have induced a brain injury and:
  a. Any injured patient with loss of consciousness, especially those with GCS less than 15 or confusion
     OR
  b. Multisystem trauma requiring advanced airway whether the primary need for intubation was from TBI or from other potential injuries
     OR
  c. Post-traumatic seizures whether they are continuing or not

Procedure:

1. Follow **General Pre-hospital Care Protocol**
2. Transport according to **Adult and Pediatric Trauma Triage Protocol** and local **Destination and Diversion Protocol**.

3. Manage the Airway & Oxygenation
   a. All patients identified with moderate or severe head injury should receive high-flow oxygen.
   b. Maintain SpO2 equal to or greater than 90%.
   c. If high-flow O2 fails to correct hypoxia, basic maneuvers for airway repositioning should be attempted, followed by reevaluation.
   d. If this does not restore O2 sat to 90% or greater, or if there is inadequate ventilatory effort, bag-valve-mask ventilation should be performed using appropriate airway adjuncts (e.g., oropharyngeal airway). Use Pressure-Controlled Bags (PCBs), Ventilation Rate Timers (VRTs), ETCO2 monitoring or ventilators, if available.
      i. Maintain a strict 10 breaths per minute ventilation rate (one breath every 6 seconds)
   e. If airway compromise or hypoxia persists after these interventions, consider additional airway options; go to **Emergency Airway Protocol.**

4. Management of Ventilation

Note: Identify and treat hypoventilation as well as prevent hyperventilation when assisting ventilation. As much as possible maintain normal ventilation. Hyperventilation decreases cerebral blood flow and worsens secondary brain injury. Strict attention on avoiding hypo- and hyper- ventilation is critical.

a. If hypoventilation is suspected (ineffective respiratory rate, shallow or irregular respirations, or periods of apnea) despite high-flow O2 therapy, assisted ventilations should be performed via BVM. Use Pressure-Controlled Bags (PCBs), Ventilation Rate Timers (VRTs), ETCO2 monitoring or ventilators, if available.

b. If hypoventilation persists after these interventions, consider additional airway options, go to **Emergency Airway Protocol.**

i. Pressure Control Bags (PCBs) and Ventilation Rate Timers (VRTs) should be used immediately after advanced airway placement. Maintain a strict 10 breaths per minute ventilation rate.

ii. Maintain ETCO2 of 40 mmHg (35-45 mmHg). ETCO2 monitors should be used not only to confirm advanced airway placement but to monitor ventilation during patient care.

c. Ventilators may be used post-intubation, if available, to optimize ventilatory mechanics and O2 therapy. PCBs/VRTs should be used immediately after intubation and until the patient is place on the ventilator even if this will only take minutes.

i. Target tidal volume (TV) is 7mL/kg with ventilator rate adjusted to keep the ETCO2 within the target range (35-45 mmHg).

5. Management of Hemorrhage

a. See **Bleeding Control Protocol**
b. Consider TXA per the **Hemorrhagic Shock Protocol**

6. Management of Blood Pressure

Note: Systolic Blood Pressure SBP should be maintained equal to or greater than 90 mmHg

a. Obtain vascular access.

i. Systolic blood pressure should not be allowed to drop below 90 mmHG

ii. Administer 1L bag of normal saline for immediate correction of systolic blood pressure below 90 mmHG.

iii. Continue IV fluids as needed to maintain a SBP above 90 mmHg. Reduce to a minimal (KVO) rate if SBP $\geq$ 140 mmHg.

iv. Do not wat for the patient to become hypotensive. If the SBP is dropping or if there are any other signs of compensated shock such as increased heart rate with decreasing SBP, begin aggressive treatment before the patient becomes hypotensive.

b. Consider Intraosseous (IO) access if there is hypotension or other signs of shock, peripheral access cannot be quickly established and the patient's mental status is such that they can tolerate the procedure.

7. Obtain fingerstick or serum glucose level. If < 60 mg/dl:
   a. Administer 50ml 50% dextrose (D50, 25g) IV
   b. Reassess in 10 minutes, if still less than 60 mg/dl repeat dose one time.
   c. If IV is unsuccessful, dextrose may also be given IO if it has been established for IV fluid administration.

Childbirth and Related Obstetrical Emergencies

Purpose: To provide the process for the assessment and management of the mother for childbirth and childbirth related emergencies. Assessment and care of newborns and infants under 30 days old – see **Neonatal Assessment and Resuscitation Protocol.**

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

2. **Assessment Information**
   A. Past Medical History: previous births, previous complications, history of preeclampsia/eclampsia.
   B. Current History: duration of gestation (weeks), whether single or multiple births are expected, or any prior pregnancy complications
   C. Specific Objective Findings: vital signs, assess contractions
   D. In the presence of licensed health care providers (e.g., physician, licensed midwife), contact medical control for care not consistent with protocols.
   E. 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

S D. Obtain vascular access if time permits.

3. **Management of Normal Delivery**
   A. If signs of newborn delivery are imminent, and there is no time to transport, prepare for delivery.
   B. Have oxygen and suction readily available for care of the newborn.
   C. Try to find a place for maximum privacy, cleanliness, and warmth.
   D. Allow safe birth position of choice.
   E. Monitor patient for signs of hypotension. If signs develop, position patient so weight of uterus is to patient's left side.
   F. Drape if possible, using clean sheets.
   G. Encourage mother to relax and take slow deep breaths through her mouth.
   H. Reassure her throughout process.
   I. As baby's head begins to emerge from vagina, support it gently with hand and towel to assist in delivery.
      a. Do not pull baby's head or neck once head is delivered.
   J. After head is delivered look and feel to see if cord is wrapped around baby's neck (see Nuchal Cord management below).
   K. As the shoulders deliver, carefully hold and support the head and shoulders as the body delivers, may be suddenly – and the baby is very slippery! Use a sterile towel if available to help support the baby.
   L. Note the time of delivery.

M. Begin newborn assessment per **Neonatal Assessment and Resuscitation**
N. **Protocol.**
O. After 1 minute, clamp cord about 5–6 inches from the abdomen with two clamps; cut the cord between the clamps
   a. While cord is attached, take care to ensure the baby is not significantly higher positioned than the mother to prevent blood from flowing backwards from baby to placenta
   b. If resuscitation is needed baby can still benefit from a 1- minute delay in cord clamping but start resuscitation immediately see **Neonatal Assessment and Resuscitation Protocol**
P. Place the baby skin to skin on the mother's abdomen on its side with head lower than the body. (Suction with a bulb syringe should be reserved for infants with obvious obstruction)
Q. Prevent heat loss
   a. Gently dry baby off and remove all wet linen
   b. Ensure the environment is warm.
   c. Place infant cap on baby
R. For near/at term vigorous newborns, with conscious stable mothers, allow infant to remain on mother's chest during assessment and cover both baby and the mother with warm dry blankets until transport. **Refer to Safe Transport of Children in Ambulances.**

4. **Management of mother post-delivery**.
   A. Obtain vital signs
   B. Assess for signs of preeclampsia/eclampsia
   C. Assess for signs of postpartum hemorrhage
   a. If blood loss is significant, place IV and administer fluid bolus of 1 liter wide open.
   b. Administer oxygen NRB @ 15 LPMN (if not already)
   c. Contact medical control for severe hemorrhage for consideration of TXA per **Hemorrhagic Shock protocol**
      i. Fundal massage should take place concurrently.
   D. Placenta delivery
      a. Generally, takes place within 20 minutes of delivery
      b. Place placenta in basin or plastic bag and transport with mother
      c. Following placental delivery, massage the uterus to aid in contraction of the uterus
      d. Continue to assess the mother's uterus and bleeding in route to the hospital to assure the uterus is contracted and blood loss is minimal. Report blood loss upon arrival at the hospital)

5. **Management of Abnormal Deliveries**
   A. Apply High Flow Oxygen to mother
   B. Contact Medical Control as soon as appropriate.
   C. **Nuchal Cord** (cord wrapped around neck)

a. If the cord is around the neck and loose, slide gently – over the head **DO NOT TUG.**
b. If the loop is too tight to slip over the head, attempt to slip the cord over the shoulders and deliver the body through the loop
c. If the cord is around neck and snug, clamp the cord with 2 clamps and cut between the clamps.
d. Wait for the next contraction for completion of delivery of the body. Do not pull on the baby.

D. **Shoulder Dystocia**
a. If delivery fails to progress after head delivers, quickly attempt the following
i. Hyperflex mother's hips to severe supine knee-chest position (i.e., McRoberts' maneuver)
ii. Apply firm suprapubic pressure to attempt to dislodge shoulder. This often requires two EMS clinicians to perform and allows for delivery in up to 75% of cases
iii. Attempt to angle baby's head as posteriorly as possible but NEVER pull
iv. Continue with delivery as normal once the anterior shoulder is delivered

E. **Breech position**
a. Place mother supine, allow the buttocks, feet, and trunk to deliver spontaneously, then support the body while the head is delivered.
b. When delivering breech, you may need to rotate the baby's trunk clockwise; or sweep the legs from the vagina
c. Once the legs are delivered support the body to avoid hyperextension of the head; keep the fetus elevated off the umbilical cord
d. If needed, put the mother in a prone kneeling position which may assist in the delivery of the newborn
e. Assess for presence of prolapsed cord and treat as below
f. If head fails to deliver, place gloved hand into vagina with fingers between infant's face and uterine wall to create an open airway. Place your index and ring fingers on the baby's cheeks forming a "V" taking care not to block the mouth and allowing the chin to be tilted toward the chest flexing the neck
g. NEVER pull on the body, especially a preterm or previable baby support the baby's body while mother pushes when she feels the urge to

F. **Prolapsed Cord**
a. Place mother in a supine position with hips supported on a pillow.
b. Placed gloved hand into vagina and gently lift head/body off the cord
c. Assess for pulsations in cord, if no pulses are felt, lift the presenting part off the cord
d. Wrap the prolapsed cord in moist sterile gauze
e. Maintain until relieved by hospital staff
f. If previous techniques are not successful, mother should be placed in prone knee chest position or extreme Trendelenburg with hips elevated
g. DO NOT ATTEMPT TO PUSH CORD BACK!

G. **Arm or limb presentation** – Life threatening condition.
   a. Immediate transportation in prone knee chest position or extreme Trendelenburg with hips elevated.
   b. Delivery should not be attempted outside the hospital.

H. **Multiple births**

   a. Immediate transportation

   b. Multiple birth infants are typically small birth weight and will need careful management to maintain body heat.
   c. For imminent delivery proceed with procedures of normal delivery as above including clamping of cord and skin to skin.
   d. Prepare additional supplies for subsequent births.
   e. There may be time to transport between births.

6. **Management of Preeclampsia or Eclampsia**

A. Management of Preeclampsia or Eclampsia include women 20 weeks gestation up to 48-hour post birth.
   a. Magnesium Sulfate can be administered prior, during, or post childbirth.
   b. Be prepared to support respirations for infants born post Magnesium Sulfate administration.

B. Signs of eclampsia
   a. Seizure **-** Any pregnant patient who is seizing should be assumed to have eclampsia and treated as such until arrival at the hospital

C. Treatment of eclampsia - if seizure occurs
   a. High Flow Oxygen
   b. IV access
      a. Administer Magnesium Sulfate 6 gm over 10 minutes IV/IO until seizure stops**.** Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 6gm 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**

D. Signs of severe preeclampsia
   a. BP systolic greater than 160 mmHG or diastolic greater than 110 mmHG with one or more of the associated symptoms below
      i. Headache
      ii. Confusion/altered mental status
      iii. Vision changes including blurred vision, spots/floaters, loss of vision (these symptoms are often a precursor to seizure)
      iv. Right upper quadrant or epigastric pain
      v. Shortness of breath/Pulmonary edema
      vi. Ecchymosis suggestive of low platelets (bruising, petechiae)
      vii. Vaginal bleeding suggestive of placental abruption
      viii. Focal neurologic deficits suggesting hemorrhagic or thromboembolic stroke
      ix. Marked peripheral edema

b. Prophylaxis treatment for severe pre-eclampsia
   i. High flow oxygen
   ii. IV access

iii. Per MCA selection

☐ **Pre Radio**

☐ **Contact Medical Control prior to administration** 

iv. 4g Magnesium Sulfate IV/IO over 20-30 minutes

c. Immediate transport

NOTES:

1. Hyperextension means head back,
2. Hyperflexion means head to chest.
3. There are two patients to assess, manage, and transport during childbirth – request resources as appropriate.

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
   - (S) 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

Limb

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.

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

Newborn & Neonatal Assessment and Resuscitation

Aliases: newborn assessment, newborn treatment, newborn resuscitation, neonatal resuscitation.

Purpose: Infants less than 30 days old are considered neonates. This protocol is intended for assessment of newly born infants, and/or the resuscitation of newly born infants less than 30 days old.

ASSESSMENT OF 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. Immediate Assessment & Procedures
   A. **Respiratory (R of APGAR)**
      i. Assess rate and effort (strong, weak, or absent; regular or irregular)
      ii. Absent
         a. If the baby does not breathe spontaneously, stimulate by gently rubbing its back or slapping the soles of its feet.
      iii. Respiratory distress (grunting, nasal flaring, retractions, gasping, apnea **OR** no return of spontaneous breathing after stimulation.
         a. position airway (sniffing position) and clear airway as needed
         b. If thick meconium or secretions present suction mouth then nose
         c. Initiate ventilation with appropriately sized equipment and 21% oxygen (room air)
   B. **Heart rate/pulse (P of APGAR)**(fast, slow, or absent), auscultation of chest is the preferred method
      i. If heart rate >100 beats per minute
         a. Monitor for central cyanosis, provide blow-by oxygen as needed
         b. Monitor for signs of respiratory distress. If apneic or significant distress:
         c. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
      ii. If heart rate < 100 beats per minute
         a. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
         b. Primary indicator of improvement is increased heart rate
         c. Only use minimum necessary volume to achieve chest rise
         d. If no improvement after 90 seconds, provide ventilations with supplemental oxygen (100%) until heart rate normalizes (100 or above)

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

C. **Color/Appearance (first A of APGAR)** (central cyanosis, peripheral cyanosis, pallor, normal)
   a. Administer blow-by oxygen for a few minutes until baby's core color is pink.

D. Grimace (G of APGAR)

E. **Muscle tone/activity (second A of APGAR)**(poor or strong)

3. APGAR score for witnessed deliveries, based on above assessment should be noted 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

4. Prevent heat lost
   A. Maintain warm environment
   B. Keep infant dry and covered with dry blankets
   C. Keep infant's head covered with infant cap
   D. Swaddle infant to mother skin to skin if infant is stable until transport
5. For patient transport, refer to **Safe Transportation of Children in Ambulances Protocol**.

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

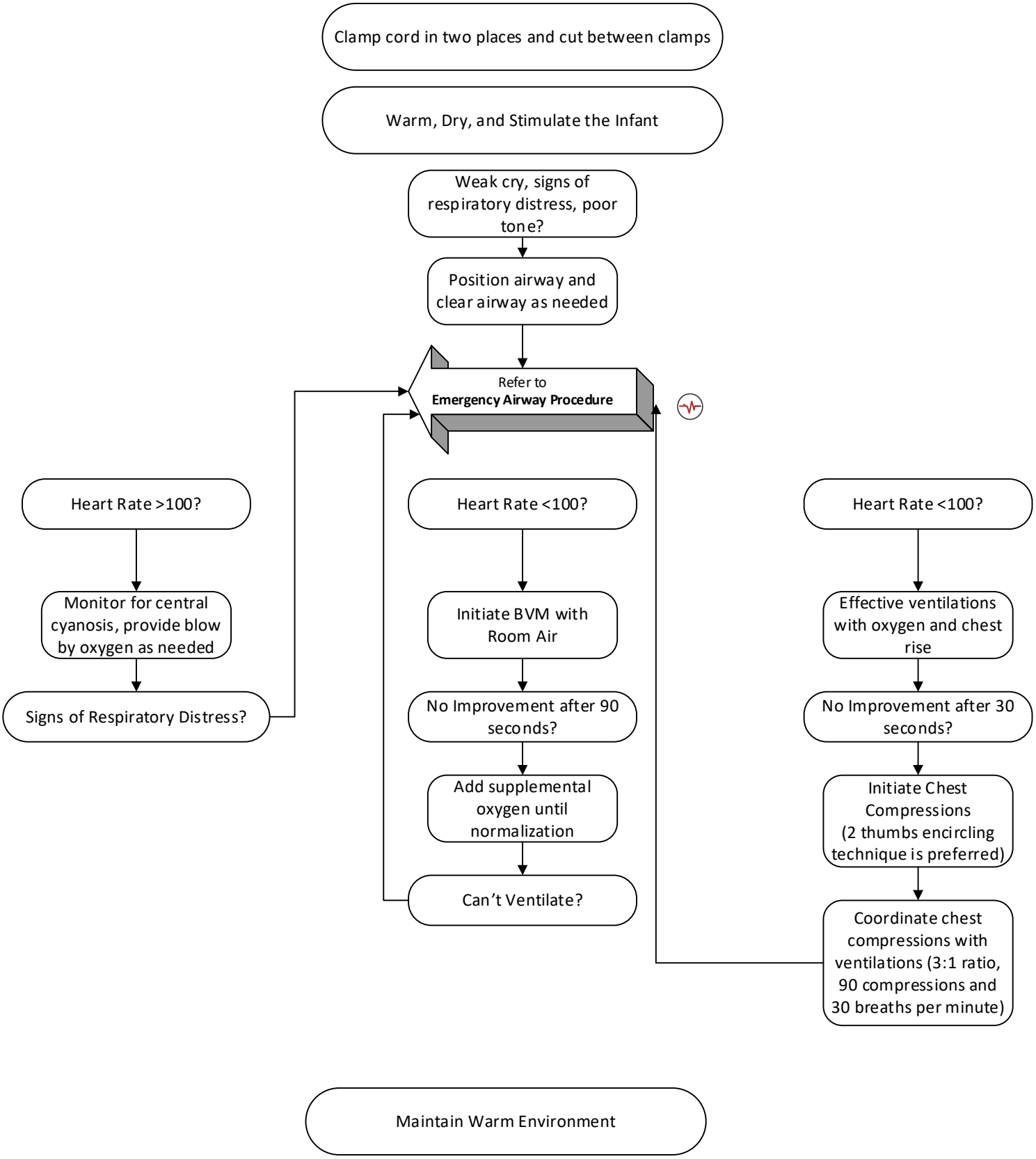
    g. Estimated gestational age (term, late preterm, premature)
    h. Pulse oximetry should be considered if prolonged resuscitative efforts or if supplemental oxygen is administered (goal 85-95% at 10 minutes)
3. Procedure
    a. Clamp cord in two places and cut cord between clamps
        i. Should be 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 and active warming blanket to keep infant warm, cover head with infant thermal hat
        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. Keep infants head covered with infant cap
    d. Utilize active warming blanket or pad
    e. 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

Purpose: EMS frequently encounters patients that are critically ill and quickly deteriorating to the point of cardiac or respiratory arrest. Deterioration can often occur while packaging and loading these patients. It is important to rapidly recognize the deteriorating patient and take immediate action where you encounter the patient to stabilize the condition before loading and transporting. The following timeline provides a prioritization of the goal-directed treatments to stabilize the patient and prevent deterioration.

These patients are critically ill and require immediate on-scene stabilization and rapid transport to the Emergency Department. Given the infrequency of these encounters, providers should consider early medical control contact to help guide care.

1. **Criteria: Patient is less than or equal to 14 years old**
   a. Inclusion:
      i. Patient in whom cardiac or respiratory arrest appears imminent
      ii. Patient with provider impression of critical illness, including new onset altered mental status, airway compromise or severe respiratory distress/failure,((cyanosis, severe retractions, head bobbing,grunting, respiratory rate extremes per age-adjusted normal MI-MEDIC), and/or signs and symptoms of shock/poor perfusion. (capillary refill greater than 3 seconds, tachycardia or hypotension per age-adjusted normal on MI-MEDIC).

   b. Exclusion:

      i. Life-threatening trauma

2. . Critical/Immediate Actions (within First 5 Minutes)

a. Airway

i. Open airway manually. For child <2 years old, place towel roll under shoulders (align auditory meatus with sternal notch).

ii. Insert Nasopharyngeal or Oropharyngeal Airway as indicated/tolerated if not following commands (GCS motor <6)

indicated/tolerated if GCS <9) or no response to verbal stimuli per the **Emergency Airway Procedure**.

b. Breathing

i. . If respiratory failure or distress, sit patient up if tolerated and not contraindicated by suspected spine injury. keep the patient calm and allow them to maintain a position of comfort, if possible.

ii. . Provide high-flow oxygen per the **Oxygen Administration Procedure.**

iii. . If respirations are <10 per minute, ventilate by BVM at 15LPM. Two-person, two-handed technique is most effective and is highly recommended if the number of providers allows. If respirations are inadequate, ventilate by BVM at 15LPM. Administer ventilations guided by chest rise. Two-person, two-handed technique is most effective and is highly recommended if the number of providers allows.

iv. If respirations are >10 but inadequate, apply CPAP for respiratory distress/hypoxia per the **CPAP/BiPAP Procedure.**

v. Respirations may be assisted with BVM in sitting position if patient tolerates.

vi. Consider PPV by BVM if not following commands or SpO2 <90%

vii. If respirations appear adequate, but the patient is not following commands or SpO2 persistently less than 90%, consider ventilation by BVM at 15LPM*

viii. Administer ventilations guided by chest rise. Two-person, two-handed technique is most effective and is highly recommended if the number of providers allows.

c. Circulation

i. Reference MI-MEDIC cards for age-adjusted expected blood pressure and heart rate ranges.

ii. If bradycardic (HR <60), optimize ventilation/oxygenation. Refer to the **Pediatric Bradycardia Protocol.**

iii. Emergent IV/IO access - Limit IV attempts to 2 total. For unresponsive or severely compromised pediatrics, IO can be the initial attempt.

d. Monitoring

i. ECG, SpO2, continuous/waveform EtCO2, NIBP(cycle every 3 minutes) EtCO2 (if nasal prong adapter available), NIBP (if available).

3. Immediate actions within First 10 Minutes

a. Circulation
   i. If evidence of poor perfusion, administer Normal Saline 20 mL/kg bolus (unless cardiogenic shock suspected i.e., JVD, hepatomegaly, abdominal distension, crackles, etc.).
      1) If suspected cardiogenic shock, administer 5-10 mL/kg normal saline bolus instead and contact Medical Control.
   ii. If dysrhythmia is thought to be primary cause of shock, contact medical control to discuss further interventions (electrical therapy with cardioversion or pacing, etc.).

b. Circulation
   i. If evidence of poor perfusion, administer Normal Saline 20 mL/kg bolus (unless cardiogenic shock suspected i.e., JVD, hepatomegaly, abdominal distension, crackles, etc.).
   ii. If suspected cardiogenic shock, administer 5-10 mL/kg normal saline bolus instead and advise Medical Control of suspected cardiogenic shock.
   iii. If dysrhythmia is thought to be primary cause of shock, contact medical control to discuss further interventions (electrical therapy with cardioversion or pacing, etc.) see **specific pediatric cardiac protocol**

4. Actions within First 15 Minutes

a. Re-assess response to treatments, including capillary refill with vital signs
   i. Recheck vitals and listen to lungs following fluid bolus. If decreasing

oxygen saturations, crackles, or worsening respiratory distress — STOP fluid bolus and contact medical control immediately. Consider starting vasopressors; refer to the **Shock Protocol**.

b. Circulation
   i. Repeat normal saline 20 mL/kg bolus if indicated
   ii. If bradycardia (HR <60), optimize ventilation/oxygenation and refer to the **Pediatric Bradycardia Protocol**.
   iii. If no response to fluids, follow **Shock Protocol.**

5. Actions within First 20 Minutes

a. Re-assess response to treatments

b. Circulation – continue fluids/vasopressors (push-dose) as indicated by **Shock Protocol appropriate protocol** or medical control order

c. Airway – insert advanced airway, if indicated, per **Emergency Airway Protocol.**

6. Once critical and immediate actions have been completed; move the patient to ambulance for transport. Transport may be initiated earlier per provider discretion as critical and immediate actions are performed.

Notes:

1. The specific lengths of time listed are approximate to provide a sense of urgency and to prioritize actions. Provider safety is of utmost importance. Care for these patients should be given as quickly as possible, but safety considerations and the scene environment may lead to times that are longer than these stated goals. When conditions make it impossible to meet these goals, the reasons should be documented.

2. Actions listed should be simultaneous and not in any specific order. As critical actions are performed, transport may be initiated. However, transport should not supersede initiation of life saving intervention.

3. The concepts/actions listed can also be used in conjunction with the **Return of Spontaneous Circulation (ROSC)** protocol to prioritize key interventions prior to transport of cardiac arrest patients with ROSC.

MCA Quality Improvement Performance Parameters:

1. Review all cases of cardiac arrest witnessed by (in presence of) EMS providers for compliance with this protocol to prevent patient deterioration.

2. Ensure that specific treatments also follow other appropriate protocols, e.g. Airway Management, Shock, Tachycardia, Bradycardia, etc.

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 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 years of age or younger, providers **must** continue basic airway management, unless the airway is unable to be adequately maintained.
    a. Children age 8 and under, basic airway maneuvers preferred
    b. Children 9 to 14 years of age – supraglottic **only** if basic airway maneuvers are ineffective
    c. Children 14 years and older treat airway as adult

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. (see size and weight/age requirements)
    a. Specialist and above must have wave form capnography
    b. **Basic and MFR must have color metric minimally**

MCA Approved Supraglottic Airways
☐ **Combitube ®** ☐ **King Laryngeal Tracheal Tube ®** ☐ **i-gel ®** ☐ **LMA**

    c. **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. (Age 9 and older)**
       i. **Specialist and above must have wave form capnography**
       ii. **Basic and MFR must have color metric minimally**

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

16. In cardiac arrest patients age 14 years and older, supraglottic airways are the first-line advanced airway and should be used early.
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.

☐ MCA approval of Needle Cricothyroidotomy by Paramedics

☐ MCA approval of Surgical Cricothyroidotomy by Paramedics

☐ MCA Commercial Percutaneous Cricothyroidotomy by Paramedics

Table 1 Airway Procedures as allowed by licensure level

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, end tidal CO2 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 (age 14 and older) 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. **Contact Medical Control** for orotracheal intubation under direct laryngoscopy for pediatric patients (under the age of14 years old) who are unable to protect their own airway (e.g., no gag reflex), and require sustained positive pressure ventilation, and/or are in cardiac arrest **AND** basic airway management techniques (e.g., 2-person mask ventilation with oropharyngeal airway) are ineffective.
22. Deep tracheal suctioning may be performed when indicated using sterile technique and suctioning only during withdrawal of catheter.
    a. Maximum suction time:
        i. Over the age of 1 year old : maximum 10 seconds
        ii. Infants (less than 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.

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.**

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.
    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**.

LMA Supreme ®

Table 9 LMA Supreme ® Airway ***Required Documentation***

Size and type of LMA Supreme ®	Time(s) attempted
Number of attempts	Suction required
Ventilation compliance	Chest rise with ventilation

Absence of epigastric sounds	Method of Securing Airway
Capnography used	ET CO_2 capnography reading
Equality of lung sounds	Any complications with intubation procedure

Indications:

1. **Cardiac Arrest**
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. Patients in whom caustic substance ingestion is suspected.
3. Patients with an inadequate mouth opening to permit insertion.
4. Patients who have had radiotherapy to the neck involving the hypopharynx (risk of trauma, failure to seal effectively).

Equipment:

5. King LT-D ®: Disposable King Airway that does not have gastric access.
6. King LTS-D ®: Disposable King Airway that provides gastric access to allow for gastric decompression using an 18F gastric tube (preferred for adults).
7. Supplies: Water-soluble lubricant, bag-valve-mask, capnography, securing device.
8. Use appropriate size and inflation volumes for patient based on table below.

Table 10 LMA Supreme ® Airway Quick Reference

Size	Patient Weight	Max Size OG Tube	Recommended Maximum Inflation Volume	Optimum Intra-Cuff Pressure
1	< 5 kg	6 fr	5 ml	60cm H2O
1.5	5-10 kg	6 fr	8 ml	60cm H2O
2	10-20 kg	10 fr	12 ml	60cm H2O
2.5	20-30 kg	10 fr	20 ml	60cm H2O
3	30-50 kg	14 fr	30 ml	60cm H2O
4	50-70 kg	14 fr	45 ml	60cm H2O
5	70-100 kg	14 fr	45 ml	60cm H2O

Source: http://www.lmaco-ifu.com/sites/default/files/node/438/ifu/revision/685/paj2100000h.pdf

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 LMA at the connector, hold the patient's mouth open and apply chin lift unless contraindicated due to trauma and/or spinal immobilization.
7. 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 the tube should be midline.
9. Without exerting excessive force, advance the LMA 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 LMA
14. If there is any question about the proper placement of the LMA, 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. LMA should be removed if patient develops a gag reflex.
18. Alternatively, paramedics may sedate as needed for tube tolerance per **Patient Procedural 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
    h. Pulse oximeter
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. If available, a gum elastic bougie may be used to facilitate endotracheal tube placement.
7. 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.
8. In pediatric patients, the ET tube should be advanced to the depth recommended based on the MI MEDIC[BE(C1].
9. In general, attempts should be limited to less than 30 seconds each.
10. No more than two attempts should be may be made prior to considering a Supraglottic airway and/or continuing with basic airway management techniques.
11. In cardiac arrest patients, limit interruptions of compressions to no more than 10 seconds.
12. Inflate the balloon[BE(C2].
13. Confirm tube placement with positive end-tidal CO2 levels by waveform capnography.
14. 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.
15. 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.

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 Protocol.** ~~**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)~~ 148 years of age or younger, providers **must** continue basic airway management, unless the airway is unable to be adequately maintained.
    a. Children age 8 and ~~under age~~ under~~8~~, basic airway maneuvers preferred
    b. Children 9 to 14 years of age~~and older~~ – supraglottic **only** if basic airway maneuvers are ineffective
    ~~14.~~c. Children 14 years and older treat airway as adult
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. (see size and weight/age requirements)
    a. Specialist and above must have wave form capnography
    ~~15.~~b. **Basic and MFR must have color metric minimally**

MCA Approved Supraglottic Airways
☐ Combitube ® ☐ King Laryngeal Tracheal Tube ® ☐ i-gel ® ☐ LMA

    c. **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. (Age 9 and older)**
       i. **Specialist and above must have wave form capnography**
       ~~a.~~ii. **Basic and MFR must have ~~colormetric~~color metric minimally**

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

16. In cardiac arrest patients age 14 years and older, ~~, although endotracheal intubation has been considered the gold standard,~~ supraglottic airways ~~are considered equivalent to endotracheal intubation and are appropriate as a~~are the 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.~~

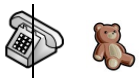
17. Each MCA must select at least one state-authorized supraglottic airway for use in their system.
18. Supraglottic airways should be placed in accordance with manufacturer's instructions for use (see appropriate procedure) and must be confirmed by positive end-tidal CO_2 levels by waveform capnography (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 as allowed by licensure level

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, end tidal CO2 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 (age 14 and older) 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. Contact Medical Control for o~~Orotracheal intubation under direct laryngoscopy ~~for may be performed in~~ pediatric patients (~~under the age of~~14 years old ~~and under~~) who are unable to protect their own airway (e.g., no gag reflex), ~~and~~ require sustained positive pressure ventilation, and/or are in cardiac arrest **AND** ~~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.~~

21.

MCA Selection – not a selection
Pediatric Intubation (less than 14)
☐ ~~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: [KK(C1]
        i. Over the age of 1 year old ~~Adults (>14 years old):~~ maximum 10 seconds
        ~~ii. Children (1 to 14 years old): maximum 10 seconds~~
        ~~iii.~~ii. Infants (less than ~~<~~ 1 year old) maximum 5 seconds

☐ MCA approval of Needle Cricothyroidotomy by Paramedics

☐ MCA approval of Surgical Cricothyroidotomy by Paramedics

☐ MCA Commercial Percutaneous Cricothyroidotomy by Paramedics

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.

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 (REMOVED FROM THIS PROTOCOL – Locate in General Treatment NEW 1.11 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. [KK(C2]

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. **NOTE: Removed S for specialist**
    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**.

LMA Supreme ®

Table 9 LMA Supreme ® Airway ***Required Documentation***

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

Indications:

1. **Cardiac Arrest**
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. Patients in whom caustic substance ingestion is suspected.
3. Patients with an inadequate mouth opening to permit insertion.
4. Patients who have had radiotherapy to the neck involving the hypopharynx (risk of trauma, failure to seal effectively).

Equipment:

5. King LT-D ®: Disposable King Airway that does not have gastric access.
6. King LTS-D ®: Disposable King Airway that provides gastric access to allow for gastric decompression using an 18F gastric tube (preferred for adults).
7. Supplies: Water-soluble lubricant, bag-valve-mask, capnography, securing device.
8. Use appropriate size and inflation volumes for patient based on table below.

Table 10 LMA Supreme ® Airway Quick Reference

Size	Patient Weight	Max Size OG Tube	Recommended Maximum Inflation Volume	Optimum Intra-Cuff Pressure
1	< 5 kg	6 fr	5 ml	60cm H2O
1.5	5-10 kg	6 fr	8 ml	60cm H2O
2	10-20 kg	10 fr	12 ml	60cm H2O
2.5	20-30 kg	10 fr	20 ml	60cm H2O
3	30-50 kg	14 fr	30 ml	60cm H2O
4	50-70 kg	14 fr	45 ml	60cm H2O
5	70-100 kg	14 fr	45 ml	60cm H2O

Source: http://www.lmaco-ifu.com/sites/default/files/node/438/ifu/revision/685/paj2100000h.pdf

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 LMA at the connector, hold the patient's mouth open and apply chin lift unless contraindicated due to trauma and/or spinal immobilization.
7. 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 the tube should be midline.
9. Without exerting excessive force, advance the LMA 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 LMA
14. If there is any question about the proper placement of the LMA, 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. LMA should be removed if patient develops a gag reflex.
18. Alternatively, paramedics may sedate as needed for tube tolerance per **Patient Procedural 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. If available, a gum elastic bougie may be used to facilitate endotracheal tube placement.
~~6.~~7. 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.~~8. In pediatric patients, the ET tube should be advanced to the depth recommended based on ~~patient's weight~~the MI MEDIC[BE(C3)]. ~~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.~~9. In general, attempts should be limited to less than 30 seconds each.
~~9.~~10. 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.~~11. In cardiac arrest patients, limit interruptions of compressions to no more than 10 seconds.

~~11.~~12. ~~If using a cuffed tube, i~~Inflate the balloon[BE(C4)].
~~12.~~13. 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.~~14. 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.~~15. 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.

Initial Date: NEW
Revised Date:
PUBLIC COMMENT READY Section 7.27

Transport of Adult Ventilator-Dependent Patient

The purpose of this protocol is to establish a uniform procedure for using mechanical ventilation for the transport of patients who are otherwise stable and do not meet criteria for MICU or Air Medical transport.

Criteria

A. BLS may transport patients on their own ventilator if:
    a. Patient caregiver trained on the ventilator accompanies patient
    b. Waveform capnography is available
    c. Scheduled transport (interfacility, facility to home, home to appointment, etc.) OR
    d. Low acuity 9-1-1 that requires BLS level care.
B. ALS (non-Critical Care, non-Enhance Paramedic) in which all agency paramedic personnel are trained on and carry ventilators.

Procedure

A. Always keep a bag valve mask resuscitator close by in case of ventilator failure.

B. Patients who are ventilator dependent may be transported on their own ventilator (home ventilator) if desired. Assure the BVM is available for back up use if transporting with a home ventilator. Patient caregiver trained in the use of ventilator should attend during transport if possible. (BLS)

1. Verify tube placement with waveform capnography prior to placing the patient on the transport ventilator.

2. Patient lung sounds should be checked and documented. Tube placement must be rechecked via lung sounds and continuous waveform capnography every time the patient is moved, i.e., stretcher to stretcher or in or out of a vehicle. Continuous monitoring with the pulse oximeter will be used on all patients.

C. Patients on agency supplied ventilator:
1. Newly vented - Ventilatory status should be established via Venous Blood Gas (VBG) in the newly intubated patient and documented when available. Continuous monitoring with the pulse oximeter and capnography will be used on all patients. If pulse oximetry is not attainable due to poor circulation, an ABG may be used to ensure adequate oxygenation. If unavailable, consider MICU or air medical transport.

2. Ventilator and circuit must be set up according to manufacturer's recommendations.

3. Patient should be placed on the ventilator approximately 5 minutes prior to departure to ensure the patient tolerates the ventilator. Appropriate adjustments should be made prior to departure.

4. Assist Control (AC) and Synchronized Intermittent Mandatory Ventilations (SIMV) are acceptable modes of operation. Set Positive End Expiratory Pressure (PEEP) and Sigh as established by sending facility. PEEP greater than 5 cmH2O should be referred to MICU or Air Medical Services for transport or appropriate hospital staff must accompany the patient.

    a. Verify tube placement with waveform capnography prior to placing the patient on the transport ventilator.

    b. Patient lung sounds should be checked and documented. Tube placement must be rechecked via lung sounds and continuous waveform capnography every time the patient is moved, i.e., stretcher to stretcher or in or out of a vehicle. Continuous monitoring with the pulse oximeter will be used on all patients.

Left Ventricular Assist Device (OPTIONAL)

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

Left Ventricular Assist Devices

A Left Ventricular Assist Device (LVAD) is an implanted device that pumps blood from the left ventricle into the aorta to support circulation. For some of these patients this device is a bridge to transplant but for others it is a life prolonging therapy if transplant is not an option. Care of patients supported by these devices can present a challenge for care givers in the pre-hospital environment. This document provides guidance for the provision of emergency care for patients in the pre-hospital environment who have an LVAD in place. Contact VAD coordinator/center for devices which you are unfamiliar with or require assistance with.

Contact Information: (MCA fill in)
Program Name: (MCA fill in)
Phone: (MCA fill in)
Request: VAD Coordinator and state patient's name
OR
VAD Pager number: (MCA fill in)

1. LVAD's create non-pulsatile flow; it may be difficult to obtain vital signs using standard equipment and or methods. Utilize skin color, mental status and capillary refill to assess the patient.
2. The device supports left ventricular function and is dependent on some right heart function and adequate circulating volume. Even minor volume depletion may cause diminished perfusion and require fluid administration.
3. LVAD patients are all anticoagulated.
4. LVAD's are powered electrically, a driveline exits the body, connects to a "controller" which in turn is connected to a power source. Proper functioning of the device is dependent on the integrity of these connections. Exercise caution related to the drive line, which exits through the skin in the upper abdomen. Do not cut, pull or damage it in any way. It will be secured by some type of binder or other device to protect it.
5. Connections should not be forced together or apart. All connections are secured by a locking device.
6. Generally, patients, their families and caregivers are familiar with the operation of the device and should accompany the patient as a resource for operation of the device if promptly available.
7. All LVAD patients are assigned a hospital based coordinator who is available by phone and should be contacted urgently.

MCA Name:
MCA Board Approval Date:
MCA Implementation Date:

8. All LVAD patients should have a “go bag” close by which contains an additional power supply as well as an extra controller. This should be brought with the patient to the hospital. This should contain charged batteries, a back-up controller and a power based unit.
9. If possible, the patient should be transported with four fully charged batteries. Two will be connected to the patient and the other will serve as backups.
10. Most issues will be the result of medical problems rather than device failure.

1. Assess the patient for signs of life and function of the device
   A. Awake and or alert
   B. Satisfactory capillary refill
   C. Audible whine/hum in the region around the heart and or left upper abdomen
   D. Check all connections, tighten as indicated to be sure they are secure
   E. Identify any alarms that are heard or visible on controller
   F. If able, begin to assemble components or have the patient's LVAD competent companion gather components that will accompany patient
      a. Extra controller
      b. Extra batteries
      c. Power unit (charger) and or A/C adapter

2. Assess for other medical issues
   A. Start an IV and a fluid bolus if volume depletion is felt to be present
   B. Control bleeding
   C. Attach monitor and assess rhythm
      a. LVAD patients may have life threatening arrhythmias at baseline including VF or VT. Ask the patient, companion, or LVAD coordinator what the patient's baseline rhythm is.
      b. If the patient is unstable and they are in an arrhythmia that is not their baseline treat the arrhythmia
   D. Move to appropriate medical protocol
      a. Defibrillation, cardioversion and external pacing are allowed if indicated. You do not need to disconnect the device.
   E. CPR compressions should only be performed as a last resort. Consult with Medical Control immediately if the device is non-functioning and you are starting CPR.
   F. Prepare for transport to MCA-approved LVAD hospital

3. Consult with LVAD coordinator
   A. Patient or companion should have emergency contact information
   B. Report information from the controller including any alarms
   C. Change battery or power source as requested
   D. Change controller as requested-be sure patient is laying or sitting down as pump will stop briefly

MCA Name:
MCA Board Approval Date:
MCA Implementation Date:

4. Transport to an MCA-approved LVAD Center
   A. UM VAD program
   B. Henry Ford LVAD program

Common LVAD devices in Michigan: Heart Mate II
HeartWare

Device	Pulse	Defibrillation	Blood pressure	CPR
Heart Mate II Heart Mate III Heart Ware	Dependent on native heart function	Yes- On batteries is best	Difficult to obtain, may get mean arterial pressure using standard equipment 75-90 mm Hg	Only as a last resort. Contact medical control if this is necessary

***NOTE – this combines the following former protocols**
8.2 Use of Emergency Lights and Sirens During Transport
8.7 Lights and Sirens Response to Scene
8.8 Patient Prioritization

Patient Prioritization and Use of Lights and Siren

This protocol is designed to provide a safe and orderly response to all requests for emergency medical care in the State of Michigan.

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.

1. This protocol does not supersede the Michigan Motor Vehicle Code.

B. **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. Only the EMS transport crew can determine transport mode, based on patient priority.

C. **Use of Emergency Medical Dispatch**
Where Emergency Medical Dispatchers (EMD) and/or a tiered EMS response are/is available, the EMS Agency is encouraged to develop procedures that reduce unnecessary use of lights and sirens. The procedures may include, but are not limited to, the use of established EMD call screening protocols and evaluation of the scene/patient by first responder personnel.

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

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

H. When in doubt, contact medical control to determine if there is an urgent need to transport with lights and siren.

I. **Response and Transport**
Response to the scene and transport to the hospital is determined by patient priority.
1. If the on scene patient priority is different from the dispatch priority, follow the on scene patient priority for transport.
2. If the patient priority changes during transport follow the appropriate use of lights and sirens for the new patient priority.

1. Unstable Patients

Priority	Description	Example(s) include, but not limited to	

Unstable	**Unstable** patients with a critical and immediate life threatening illness or injury, or require time sensitive interventions	A patient that has an acutely life-threatening illness or injury and is unstable.
		• Unstable or deteriorating vital signs
		• Compromised airway that cannot be secured by EMS.
		• Severe respiratory distress/failure
		• Cardiac arrest or post cardiac arrest
		• STEMI
		• Tonic Clonic seizures unresponsive to treatment
		• Significant blunt or penetrating trauma including but not limited to:
		  ○ Airway compromised
		  ○ Respiratory distress
		  ○ Signs of inadequate perfusion	

Response to the scene and transport to the hospital:

MCA Selection Response to Unstable Patient Incidents and Transports

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

☐Response
☐Transport

☐Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and siren only when necessary to circumvent significant traffic delays and obstructions.

☐Response
☐Transport

2. Potentially Unstable Patients:

Priority	Description	Example(s) include, but not limited to
Potentially Unstable	**Potentially unstable** patients that are ill or injured patient *without immediate* life-threatening condition and do not require time sensitive interventions	A patient that is currently stable but is felt to have a condition that may become unstable or life-threatening if not evaluated and treated rapidly. • Hemodynamically stable chest pain without signs of STEMI • Altered mental status – not acutely deteriorating • Seizure - Post-ictal not actively seizing • Hemodynamically stable abdominal pain • Hemodynamically stable >65 y/o fall with confirmed or suspicion of head injury and currently taking blood thinner medications

a. Response to the scene.

MCA Selection for Response to Potentially Unstable Patients and Transports

☐Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene, transports without lights and siren.

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

☐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.

b. Do not transport using lights and sirens.

3. Stable Patients:

Priority	Description	Example(s) include, but not limited to
Stable	**Stable** patients are Ill or injured patients not fitting the above two categories who require medical attention but do not have a life-threatening condition.	A patient that does need to receive medical evaluation but does NOT have a potentially life-threatening illness or injury at the time of assessment or transport by EMS.

a. Respond and transport using normal traffic patterns to the incident and to the hospital

4. Dead Patients:

Priority	Description	Example(s) include, but not limited to
Dead	**Dead** patients are absent of all vital signs and do not require further medical attention, per protocol.	**See Patient Death, Termination of Resuscitation and Pronouncement Protocol**

a. Do not transport using lights and sirens.

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.

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.

Initial Date: NEW
Revised Date:
PUBLIC COMMENT READY Section: 8-10

PURPOSE: To outline infection control through personal protective equipment use and decontamination for people, equipment, and vehicles utilized in assessment, treatment, and transport of patients along with categorization and response for exposure. ALL patients are considered potentially infectious.

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

I. PRECAUTIONS AND PREVENTION

A. Standard Precautions and Body Substance Isolation (BSI)

1. 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.
    a. Skin rash, open wounds
2. Rationale: Medical history and examination cannot identify all patients infected with bloodborne pathogens.
3. Practice: Standard Precautions/BSI will be done for patient encounters in which the risk of exposure to blood or body fluid exists.

B. Respiratory Precautions

1. Purpose: To prevent the transmission of airborne infections for patients with respiratory complaints.
2. Rationale: Medical history and examination cannot fully identify all patients with transmissible respiratory pathogens. Respiratory complaints include but are not limited to: dyspnea, cough, shortness of breath, etc.
3. Practice: Respiratory precautions will be used for every patient with respiratory complaints and/or receiving aerosolized treatments.

C.Precautions for patients highly suspicious communicable disease including but not limited to:

1. Fever > 100.5 F with headache or malaise or myalgia, and cough or shortness of breath or difficulty breathing

2. 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.

    a. Consider the patient to be both airborne and contact contagious.

    b. Crew PPE and procedures:

i. N95 or higher protective mask/respiratory protection

ii. Goggles or face shield

iii. Gowns

iv. Shoe covers

v. Utilized waterless hand sanitizer between glove changes and upon removal of gloves

vi. Drape/cover interior of patient compartment and stretcher (utilizing plastic or disposable sheets with plastic backing).

vii.

c. Source Control:

i. Patient should wear a paper surgical mask to if tolerated.

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

iii. Patients should be encouraged to use hand sanitizer when tolerated

d. 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

i. Confirm entrance and procedure for transfer of patient into facility.

ii. Ensure proper notification and preparation of receiving facility for inter-facility transfers

e. 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.

f. DO NOT REMOVE protective equipment during patient transport.
g. Discourage non-essential personnel and family members from entry or accompanying patient in ambulance.
h. Patient cohorting may occur if resources are exhausted and patients are grouped with same disease. Cohorting should only be utilized as a last resort.
i. 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

D. Procedures

1. Handwashing will be done before and after contact with ALL patients
2. Nonsterile disposable gloves will be worn with patients that pose a potential exposure through blood or body fluids. Gloves will be changed in-between patients and not used repeatedly.
3. Outerwear (example: gown, coveralls, turnout gear) will be worn if contact with blood or body fluids contamination may occur
4. Face Protection (including eye protection) will be worn if aerosolization of blood or body fluids may occur (examples include but are not limited to: suctioning, insertion of endotracheal tubes, patient with excessive coughing, invasive procedures).
5. Mouth-to-mouth resuscitation: CDC recommends that EMS personnel NOT perform mouth to mouth, instead use adjunctive aids (pocket masks, face shields, BVM).
6. N95 or higher will be worn during contact with patients with respiratory complaints, during any aerosolizing treatments, and with all mechanically ventilated patients.
7. Mechanically Ventilated Patients
    a. HEPA filtration of airflow exhaust
    b. Consult ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive pressure ventilation

II. CLEANING AND DECONTAMINATION

A. Wear gloves for ALL decontamination

B. Non-disposable contaminated articles:

1. Bag according to agency procedures.
2. Articles must be decontaminated prior to being placed back into service. Refer to manufacturer's recommendations for proper cleaning and disinfecting

C. Disposable contaminated articles

1. Articles contaminated with blood or body fluids must be bagged and discarded in accordance with MIOSHA guidelines.

D. 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.

E. Linens soiled with blood or body fluids shall be placed in appropriately marked container.

F. Needles and syringes shall be disposed of in a rigid, puncture-resistant container. Any grossly contaminated container, or one that has reached the 'fill line', should be disposed of appropriately.

G. 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.

H. Non contaminated but utilized equipment will be disinfected after every patient encounter in accordance with MCA approved agency guidelines.

I. Vehicle surfaces will be disinfected after every patient encounter in accordance with MCA approved agency guidelines.

III. RADIO COMMUNICATIONS

A. Radio communications of any kind regarding a communicable disease should be done so in a format that ensures patient confidentiality.

IV. EXPOSURES

A. Definition of Reportable Exposure:

1. Any breach of the skin by cut, needle stick, absorption, or open wound.
2. Blood/body fluid splash to the moth, nose, eye, or other parenteral route.
3. Blood/body fluid splash into non-intact skin area

B.Reporting Exposures:

1. 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).

C. 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).

D. 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.

E. 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.

F. 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.

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~~
- Moved above to Purpose Section of NEW 8.10 Infection Control and Communicable Disease Exposure. Statement: ALL patients are considered potentially infectious.

- Below moved to IV of NEW 8.10

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.

BELOW MOVED TO I.C. OF NEW 8.10

~~Follow appropriate infection control procedures.~~

Precautions for patients with highly suspicious communicable disease including but not limited to:

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.~~i. Consider the patient to be both airborne and contact contagious. Crew will don the following PPE:

~~A.~~C. N95 or higher protective mask/respiratory protection

~~B.~~D. ~~Gloves~~

~~C.~~E. Goggles or face shield

DO NOT REMOVE protective equipment during patient transport.

~~3.~~2. ~~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.~~3. Patient should wear a paper surgical mask to reduce droplet production, if tolerated.

~~5.~~4. 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.~~5. ~~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.~~6. 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.~~7. Patients should also be encouraged to use hand sanitizers.

~~9.~~8. Unless critical, do not allow additional passengers to travel with the patient in the ambulance.

~~10.~~9. 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.

~~I.~~A. Standard Precautions and Body Substance Isolation (BSI)

~~A.~~1. 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.~~2. Rationale: ~~Since~~ medical history and examination cannot reliably identify all patients ~~infected with HIV, or other~~ with 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.~~

3. Practice: Standard Precautions/BSI will ~~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~~.

B. Respiratory Precautions

1. Purpose: To prevent the transmission of airborne infections
2. Rationale: Medical history and examination cannot fully identify all patients with transmissible respiratory pathogens. Respiratory illnesses include but are not limited to confirmed or suspected common cold, asthma, COVID, TB, ARDS, etc.
3. Practice: Respiratory precautions will be used for every patient suspected of respiratory illness and/or all aerosolized treatments.

~~1.~~

C. Procedures

1. Handwashing will ~~shall~~ be done before and after contact with ALL 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 will ~~shall~~ be worn with ALL patients. ~~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) will ~~shall~~ be worn if contact ~~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) will ~~shall~~ be worn if aerosolization of blood or body fluids may occur (examples ~~of when to wear~~ include but are not limited to: suctioning, insertion of endotracheal tubes, patient with excessive coughing, ~~who is coughing excessively and certain~~ invasive procedures).
5. Mouth-to-mouth resuscitation: CDC recommends that EMS personnel NOT perform mouth to mouth, ~~refrain from having direct contact with patients whenever possible, and that~~ instead use adjunctive ~~aids be carried and utilized. These adjunctive aids include~~ (pocket masks, face shields, ~~or use of~~ BVM).

II. Cleaning and Decontamination.

A. Wear gloves for ALL decontamination

B. Non-disposable contaminated articles:

~~5.~~

1. ~~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~~
2. ~~a~~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~~.

C. Disposable contaminated articles

~~6.~~1. Articles contaminated with ~~B~~blood~~y~~ or body fluids must be bagged and discarded in accordance with MIOSHA guidelines ~~soiled disposable equipment shall be carefully bagged and discarded~~.

~~7.~~D. 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.~~E. Linens soiled with blood or body fluids shall be placed in appropriately marked container. ~~Gloves shall be worn when handling soiled linens.~~

~~9.~~F. 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.

G. 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.~~

H. Non contaminated but utilized equipment will be disinfected after every patient encounter in accordance with MCA approved agency guidelines.

I. Vehicle surfaces will be disinfected after every patient encounter in accordance with MCA approved agency guidelines.

~~10.~~

~~11.~~1. ~~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.~~J. ~~Respiratory Isolation~~ (precautions move to I.B.)

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.~~III. 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.~~IV. EMS Personnel Exposure to a Communicable Disease

A. Definition of a Reportable Exposure

1. Any breach of the skin by cut, needle stick, absorption or open wound. ~~Contaminated needle or sharp instrument puncture~~
2. Blood/body fluid splash to the ~~into mucous membrane including~~ mouth, nose, ~~and~~ eye, or other parenteral route.
3. Blood/body fluid splash into non-intact skin area

B. Reporting Exposures

1. 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).

~~3.~~2.

~~B.~~C. 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.~~D. 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.~~E. 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.~~F. 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.

Epinephrine

Protocols:

1. Anaphylaxis/Allergic Reaction 1-6
2. Shock 1-5
3. Respiratory Distress (Adult) 3-3
4. Pediatric Respiratory Distress, Failure, or Arrest 4-5
5. Adult Cardiac Arrest – General 5-1
6. Adult Bradycardia 5-2
7. Pulmonary Edema/CHF 5-4
8. Return of Spontaneous Circulation 1-9
9. Pediatric Cardiac Arrest – General 6-1
10. Pediatric Bradycardia 6-2

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
   a. Adults 0.3 mg, IM (Anaphylaxis/Allergic Reaction 1-6)
   b. Pediatrics (Anaphylaxis/Allergic Reaction 1-6, Pediatric Respiratory Distress, Failure or Arrest 4-5)
      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
   a. Adults 0.3 mg IM (Anaphylaxis/Allergic Reaction 1-6, Respiratory Distress Protocol 3-3)
   b. Pediatrics (Anaphylaxis/Allergic Reaction 1-6, Pediatric Respiratory Distress, Failure, or Arrest 4-5)
      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 (Pediatric Respiratory Distress, Failure, or Arrest 4-5)
   a. Racepinephrine 2.25%
      i. Place 0.5 mL in nebulizer

MCA Name:
MCA Baord

ii. Dilute with 3 mL normal saline

b. Epinephrine (1mg/1mL), 5 mL (5 mg) nebulized

4. Epinephrine 1mg/10mL
   a. IV Bolus
      i. Adults 1 mg every 3 to 5 minutes in cardiac arrest (Cardiac Arrest General 5-1)
      ii. Pediatrics 0.01 mg/kg (0.1mL/kg) (Pediatric Cardiac Arrest-General 6-1)

   b. Push dose (
      i. Prepare by combining 1 mL of Epinephrine 1 mg/10 mL with 9 mL NS
      ii. Adults (Shock 1-5, Anaphylaxis/Allergic Reaction 1-6, ROSC 1-9 , Crashing Adult/Impending Arrest 3-7. Bradycardia 5-2, Pulmonary Edema/CHF 5-4)
         1. Administer 10mcg (1 mL Epinephrine 10 mcg/mL)
         2. Repeat every 3 to 5 minutes
         3. Titrate to SBP greater than 90 mm/Hg
      iii. Pediatrics (Shock 1-5, Anaphylaxis/Allergic Reaction 1-6, ROSC 1-9, Pediatric Crashing Patient/Impending Arrest 4-9, Pediatric Symptomatic Bradycardia 6-2)
         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

Epinephrine

Protocols:

1. Anaphylaxis/Allergic Reaction 1-6
2. Shock 1-5
3. Respiratory Distress (Adult) 3-3
4. Pediatric Respiratory Distress, Failure, or Arrest 4-5
5. Adult Cardiac Arrest – General 5-1
6. Adult Bradycardia 5-2
7. Pulmonary Edema/CHF 5-4
8. Return of Spontaneous Circulation 1-9
9. Pediatric Cardiac Arrest ~~–~~ General 6-1
10. Pediatric Bradycardia 6-2
11. ~~Neonatal Assessment and Resuscitation 4-3~~

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 (Anaphylaxis/Allergic Reaction 1-6)
   b. Pediatrics (Anaphylaxis/Allergic Reaction 1-6, Pediatric Respiratory Distress, Failure or Arrest 4-5)
      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 (Anaphylaxis/Allergic Reaction 1-6, Respiratory Distress Protocol 3-3)
   b. Pediatrics (Anaphylaxis/Allergic Reaction 1-6, Pediatric Respiratory Distress, Failure, or Arrest 4-5)
      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)~~(Pediatric Respiratory Distress, Failure, or Arrest 4-5)
   a. Racepinephrine 2.25%

MCA Name:
MCA Baord

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 (Cardiac Arrest General 5-1)
      ii. Pediatrics 0.01 mg/kg (0.1mL/kg) (Pediatric Cardiac Arrest-General 6-1)

   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 (Shock 1-5, Anaphylaxis/Allergic Reaction 1-6, ROSC 1-9 , Crashing Adult/Impending Arrest 3-7. Bradycardia 5-2, Pulmonary Edema/CHF 5-4)
         1. Administer[KK(C1)] 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 (Shock 1-5, Anaphylaxis/Allergic Reaction 1-6, ROSC 1-9, Pediatric Crashing Patient/Impending Arrest 4-9, Pediatric Symptomatic Bradycardia 6-2)
         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

2022 REVISIONS -PUBLIC COMMENT READY

Ketamine

Protocols:

1. Delirium with Agitated Behavior
2. Patient Procedural Sedation (MCA selection)
3. Pain Management (MCA selection)

Indications:

1. Patients displaying delirium with agitated behavior that have NOT responded to de-escalation techniques

2. Significant pain
3. Pre-sedation for painful procedures (pacing, etc.)

Contraindications:

1. Known hypersensitivity

Dosing:

- Delirium with agitated behavior – ADULTS ONLY
    1. **4 mg/kg IM** maximum single dose 500 mg (3-5 minute onset).
- Patient Procedural Sedation
    1. Adults and Pediatrics
        i. 4 mg/kg IM
        OR
        ii. 1-2 mg/kg IV/IO (IN if available) titrated slowly to sedation (max dose 500 mg).
        iii. 4 mg/kg IN,* (max dose 200 mg) if available or
        iv. 1-2 mg/kg IV/IO max 500 mg
        v. Maximum single dose 500 mg
        vi. May repeat after 10-15 minutes with medical direction
- Pain Management

NOTE: IV/IO should be diluted by drawing up the Ketamine and diluting to 100 mL with NS and slow infusion over 5-10 minutes to avoid dissociation symptoms.

1. Adults (or > 80 lbs. (approximately 36 kg.)
    i. 0.2 mg/kg IV/IO (diluted) maximum single dose 25 mg
    ii. 0.5 mg/kg IN (undiluted) maximum single dose 50 mg
        (a). May repeat after 10 minutes
2. Pediatrics (or < 80 lbs.(approximately 36 kg)
    i. 0.2 mg/kg IV/IO (diluted) maximum single dose 7.2 mg
    ii. 0.5 mg/kg IN (undiluted) maximum single dose 18 mg
        (a). May repeat after 10 minutes

NOTE: Ketamine for pain management given IM (undiluted) if an IV is not available may only be given as a single dose

iii. Single dose IM 0.2 mg/kg

Expected Effects:

1. Sedation

2. Decreased agitation
3. Decreased pain

Side Effects:

1. Nausea/vomiting
2. Nystagmus
3. Dysphoria

2022 REVISIONS -PUBLIC COMMENT READY

Ketamine

Protocols:

1. Delirium with Agitated Behavior ~~Excited Delirium~~
2. Patient Procedural Sedation (MCA selection)
3. Pain Management (MCA selection)
4. ~~Patient Restraint~~

Indications:

1. Patients displaying ~~with~~ delirium with agitated behvarior that have NOT responded to de-escalation techniques ~~excited delirium~~
   ~~2. Agitation~~
2. Significant pain
3. Pre-sedation for painful procedures (pacing, etc)

Contraindications:

1. Known hypersensitivity

Dosing:

- ~~Excited Delirium~~
  - ~~1. Adults only – 4 mg/kg IM~~
- Delirium with agitated behavior – ADULTS ONLY
  - 1. **4 mg/kg IM** maximum single dose 500 mg (3-5 minute onset).
- Patient Procedural Sedation
  - 1. Adults and Pediatrics
    - i. 4 mg/kg IM
      OR
    - ii. 1-2 mg/kg IV/IO (IN if available) titrated slowly to sedation (max dose 500 mg).

~~and Pediatrics~~

~~1.~~2.

i. 4 mg/kg IN,* (max dose 200 mg) if available or
ii. 1-2 mg/kg IV/IO max here 500
iii. Maximum single dose 500 mg
iv. May repeat after 10-15 minutes with medical direction

- Pain Management

NOTE: IV/IO should be diluted by drawing up the Ketamine and diluting to 100 mL with NS and slow infusion over 5-10 minutes to avoid dissociation symptoms.

1. Adults (or > 80 lbs (approximately 36 kg.)
   - i. 0.2 mg/kg IV/IO (diluted) maximum single dose 25 mg
   - ii. 0.5 mg/kg IN (undiluted) maximum single dose 50 mg
     (a). May repeat after 10 minutes
2. Pediatrics (or < 80 lbs.(approximately 36 kg)
   - i. 0.2 mg/kg IV/IO (diluted) maximum single dose 7.2 mg

ii. 0.5 mg/kg IN (undiluted) maximum single dose 18 mg
(a). May repeat after 10 minutes
NOTE: Ketamine for pain management given IM (undiluted) if an IV is not available may only be given as a single dose
iii. Single dose IM 0.2 mg/kg

~~1. 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
~~2.~~3. Dysphoria

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****upport*: 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**

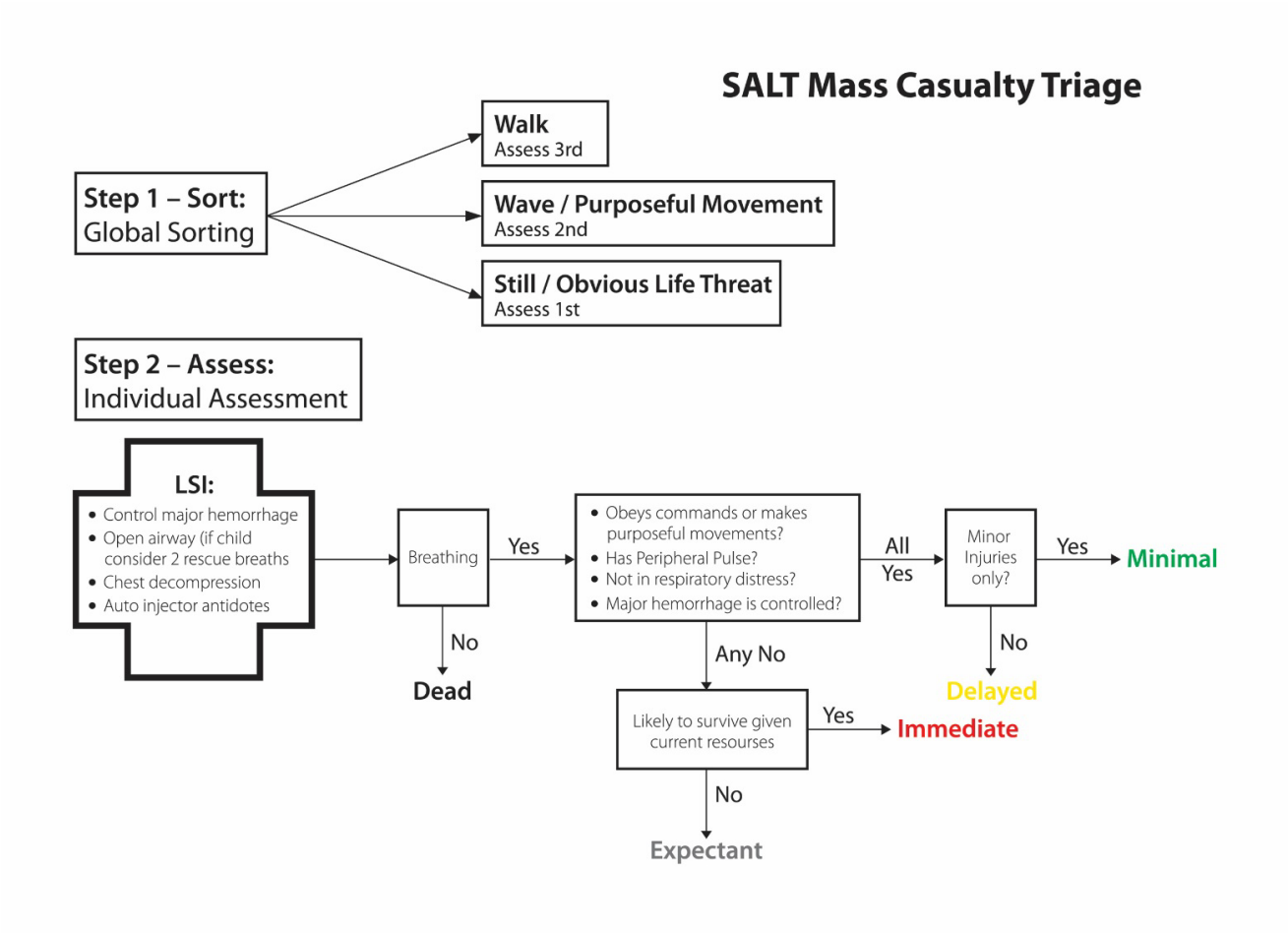
A. Transport Unit Leader should assure all departing ambulances and non-licensed transport vehicles depart scene with highest acuity patients
1. Assure distribution of patients to appropriate hospitals (e.g., trauma centers)
2. Maintain a tracking log of patients, acuities, and destinations

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
STATBAND

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.

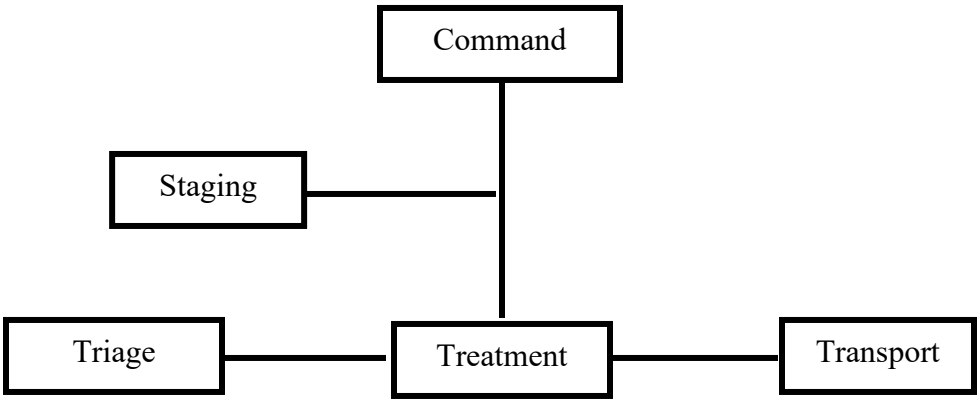
Coordinating Resource: the entity within the local EMS system responsible for the notification and coordination of the mass casualty response. Examples include: medcom, resource hospital, MCA, medical control, dispatch

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).

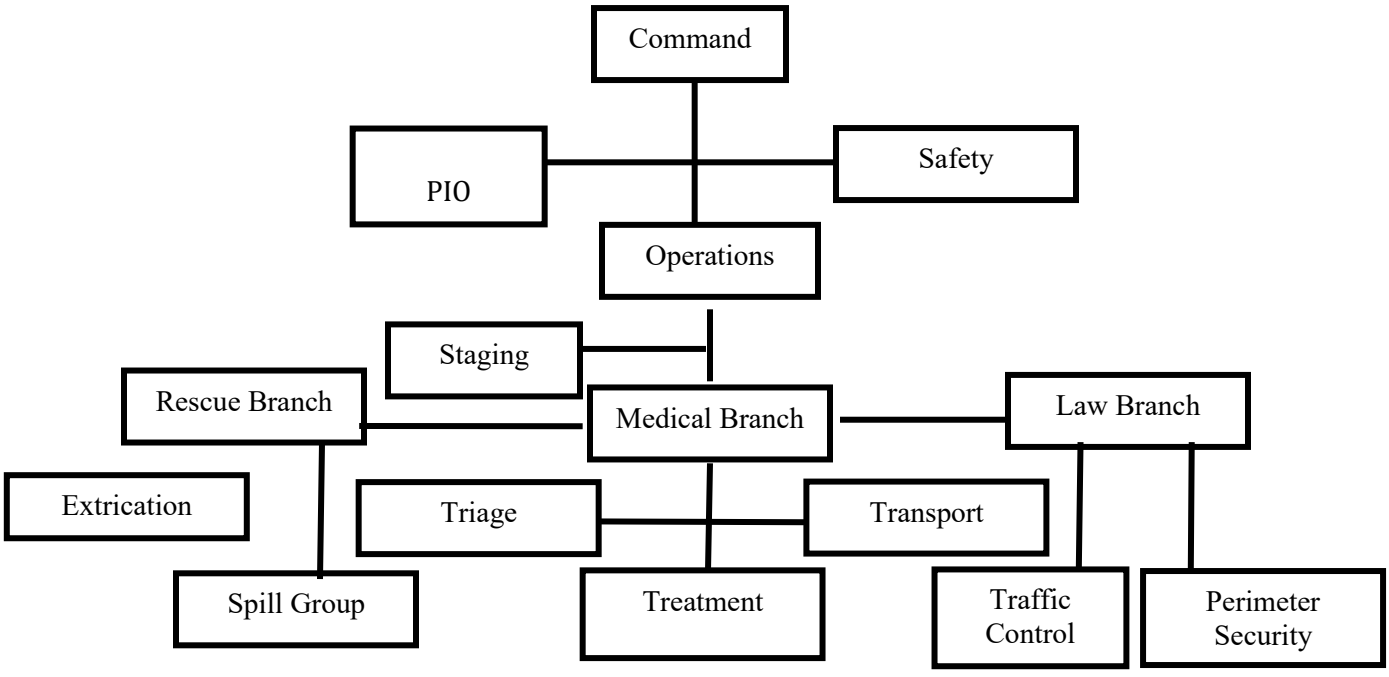
Community Health Emergency Coordination Center: The CHECC serves as a statewide multi-agency coordination entity as defined by NIMS. CHECC is intended to coordinate state-level healthcare and public health resources, to serve as a central point of contact for regional RMCC's, and to serve as a resource 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



Hazard Contaminated Patient

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

II. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.

III. 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).

IV. 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.

V. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.

VI. 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.

VII. 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.

VIII. 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.

Hazard Contaminated Patient

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

II. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.

III. 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).

IV. 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.

V. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.

VI. 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.

VII. 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.

VIII. 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.

Suspected Pandemic

Purpose: To have a standard approach to patients during a period of a declared pandemic or state of Public Health Emergency. This approach should increase awareness and protection of first responders and prehospital care while maximizing supplies that may become limited.

Criteria:

1. This protocol will apply to patients encountered by all levels of EMS, during an infectious disease epidemic/pandemic. All agencies should frequently check the CDC.gov website for the latest recommendations with Personal Protective Equipment (PPE) and treatment. These recommendations may change frequently during an evolving and ongoing epidemic/pandemic as regulatory standards are influenced by CDC recommendations.
2. The center for Disease Control and Prevention (CDC) has declared that an epidemic 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 and disease specific vaccinations.
2. Each life support agency shall maintain a supply of fit tested N-95 respirators and eye protection (e.g., goggles, eye shield), disposable non-sterile gloves, and gowns.
3. Each life support agency shall provide approved pathogen neutralizing hand[OD(C1]] sanitizer to staff.
4. 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 must 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 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 .
   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.

Suspected Pandemic

Purpose: To[SW(C1)] have a standard approach to patients during a period of a declared pandemic or state of Public Health Emergency. This approach should increase awareness and protection of first responders and prehospital care while maximizing supplies that may become limited.
~~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~~[OD(C2)]~~.~~

Criteria:

1. This protocol will apply to patients encountered by [OD(C3)]all levels of EMS, during an infectious disease epidemic/pandemic[KK(C4)]. ~~of influenza.~~ All agencies should frequently check the CDC.gov website for the latest recommendations with Personal Protective Equipment (PPE) and treatment. ~~recommendations.~~ [SW(C5)]These recommendations may~~can~~ [SW(C6)]change frequently during~~in~~ an evolving and ongoing epidemic/pandemic[OD(C7)] as ~~-~~regulatory standards are influenced by CDC recommendations.

~~1.~~2. ~~2.~~3. The center for Disease Control and Prevention (CDC) has declared that an epidemic ~~of influenza A or similar illness~~ [SW(C8)]and/or the Michigan Department of Public Health has declared a statewide or local public health emergency.

~~3.~~4. "Acute Febrile Respiratory Illness" (AFRI) is defined as fever and at least one of the following (cough, nasal congestion/runny ~~nose~~nose, or sore throat).

EMS System / Medical Control Authority (MCA) Recommendations:

1. Encourage all EMS personnel to receive seasonal and disease specific ~~seasonal~~[OD(C9)] vaccinations[SW(C10)].
2. Each life support agency shall maintain a supply of fit tested ~~disposable~~[OD(C11)] N-95 respirators and eye protection (e.g., goggles, eye shield), disposable non-sterile gloves, and gowns.
3. Each life support agency shall provide approved pathogen neutralizing hand[OD(C12)] sanitizer to staff.
4. ~~In areas with confirmed cases of influenza, e~~Each life support agency should instruct their personnel to stay home and not report for duty if they have signs ~~or symptoms~~or symptoms of acute febrile respiratory illness. A staff member that develops these symptoms during a shift ~~should~~[OD(C13)] ~~inform~~must 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[KK(C14]

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~~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~~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.~~.[SW(C15]
   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.

Death During Transport

Purpose
To provide guidance for special pathogen crews when a patient suffers cardiac arrest during transport to a special pathogen treatment facility.

I. This protocol is only for use by trained crews during the transport of a patient being handled for treatment of a special pathogen.
II. If a patient experiences cardiac arrest during transport,
    a. No interventions will be performed
    b. Immediately discontinue transport
    c. Contact Community Health Emergency Coordination Center for destination determination
        i. Crematorium
        ii. ME needed?
        iii. Receiving or sending hospital
        iv. What about when it's a county in between sending & receiving
III. MDHHS SPRN subject matter expert will provide technical assistance in the event of a patient death using Bio Seal and body bags to complete safe and respectful handling of the decedent.
IV. The Community Health Coordination Center (CHECC) has identified a list of crematoriums to receive the body.

Death During Transport

Purpose

To provide guidance for special pathogen crews when a patient suffers cardiac arrest during transport[KK(C1)] to a special pathogen treatment facility.

I. This protocol is only for use by trained crews during the transport of a patient being handled for treatment of a special pathogen[KK(C2)].

II. If a patient experiences cardiac arrest during transport,
   a. No interventions will be performed
   b. Immediately discontinue transport
   c. Contact Community Health Emergency Coordination Center for destination determination[KK(C3)]
      i. Creamatorium
      ii. ME needed?
      iii. Receiving or sending hospital
      ~~c.~~iv. What about when it's a county in between sending & receiving

III. MDHHS SPRN [KK(C4)]subject matter expert will provide technical assistance in the event of a patient death using Bio Seal and body bags to complete safe and respectful handling of the decedent.

IV. The Community Health Coordination Center (CHECC) has identified a list of crematoriums[KK(C5)] to receive the body.