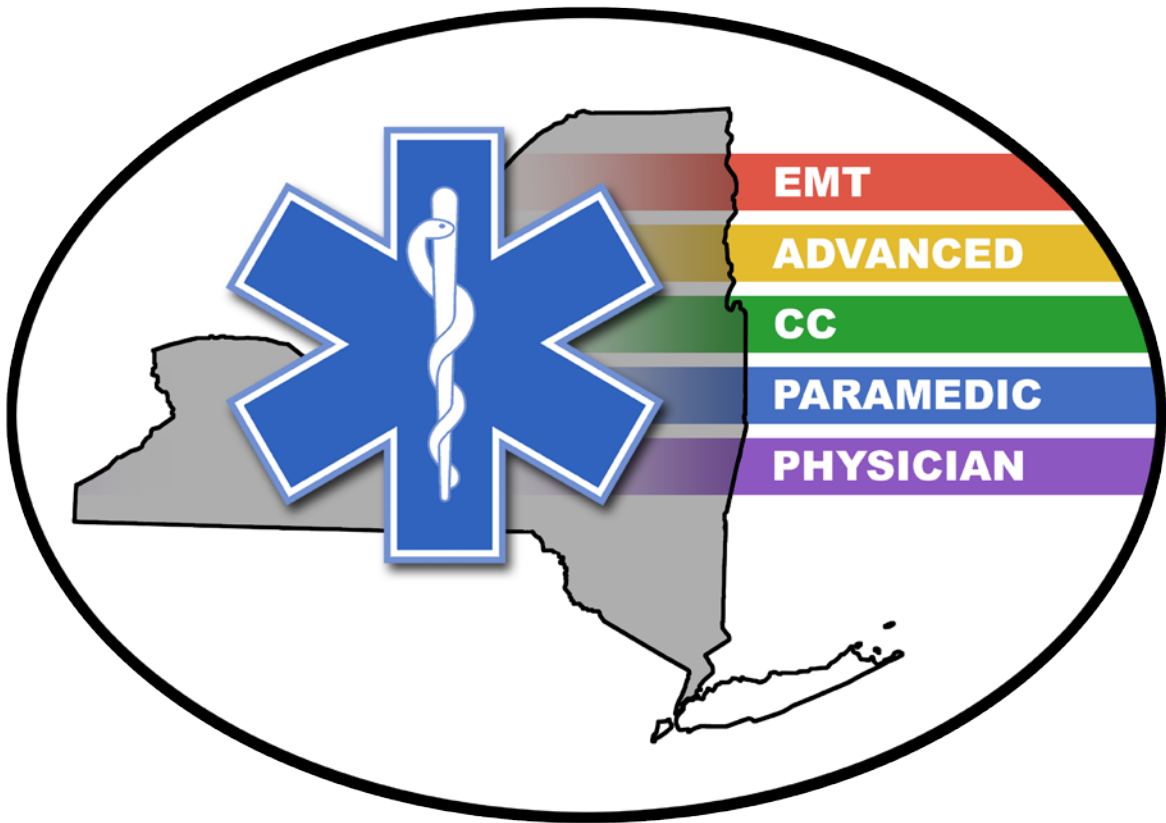


2017
NEW YORK STATE



EMS COLLABORATIVE
PROTOCOLS

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Introduction from Regional Medical Directors

Pursuant to Article 3004-A, the Regional Emergency Medical Advisory Committee (REMAC) shall develop policies, procedures and protocols for triage, treatment, and transport. The REMACs of the participating regions are proud to put forth these collaborative protocols.

The color-coded format of the protocols allows each EMS professional to easily follow the potential interventions that could be performed by level of certification. The collaborative protocols have been developed to serve all the levels of certification within New York State. Each region will determine which levels will be credentialed to practice within their jurisdiction.

Criteria

- Any specific information regarding the protocol in general

EMT

- EMT, AEMT, EMT-CC, and paramedic standing orders

 **EMT STOP**

ADVANCED

- AEMT, EMT-CC, and paramedic standing orders

 **ADVANCED STOP**

CC

- EMT-CC and paramedic standing orders

 **CC STOP**

PARAMEDIC

- Paramedic standing orders
- EMT-CC medical control (non-standing order) options

 **PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Medical control may give any order within the scope of practice of the provider
- Options listed in this section are common considerations that medical control may choose to order as the situation warrants

Key Points/Considerations

- Additional points specific to patients that fall within the protocol

BLS interventions should be completed before ALS interventions. Advanced providers are also responsible for, and may implement, the standing orders indicated for the preceding levels of care. Protocols are listed for each provider level and STOP lines indicate the end of standing orders.

There is a training module available that must be reviewed by every advanced provider prior to utilizing these protocols.



The Regions will continue to perform QI audits of patient care to develop training programs that will improve proficiency and the REMACs will continue to evaluate literature to update these protocols to optimize the outcomes of patients.

The collaborative protocol formulary exists as a minimum guideline for all agencies operating within these protocols. REMACs may entertain substitutions, as needed, for drug shortages or local variations, but must share these with the group.

Regional procedures may accompany these collaborative protocols.



Patient Care Responsibilities

The provision of patient care is a responsibility given to certified individuals who have completed a medical training and evaluation program specified by the NYS Public Health or Education Laws and regional regulations or policy. Prehospital providers are required to practice to the standards of the certifying agency (DOH) and the medical protocols authorized by the local REMAC.

Patient care takes place in many settings, some of which are hazardous or dangerous. The equipment and techniques used in these situations are the responsibility of locally designated, specially trained, and qualified personnel. Emergency incident scenes may be under the control of designated incident commanders who are not emergency medical care providers. These individuals are generally responsible for scene administration, safe entry to a scene, or decontamination of patients or responders.

Pursuant to the provisions of Public Health Law, the individual having the highest level of prehospital medical certification, and who is responding with authority (duty to act) is responsible for providing and/or directing the emergency medical care and the transportation of a patient. Such care and direction shall be in accordance with all NYS standards of training, applicable state and regional protocols, and may be provided under medical control.

The Governor's Executive Order No. 26 of March 5, 1996, establishes the National Incident Management System (NIMS) as the standard system of command and control for emergency operations in New York State. The Incident Command System (ICS) does not define who is in charge, but rather defines an operational framework to manage many types of emergency situations. One essential component of ICS is Unified Command. Unified Command is used to manage situations involving multiple jurisdictions, multiple agencies, or multiple situations. The specific issues of direction, provision of patient care, and the associated communication among responders must be integrated into each single or unified command structure and assigned to the appropriately trained personnel to carry out.



Medical Control Agreement

These protocols are intended to result in improved patient care by prehospital providers. They reflect the current evidence-based practice and consensus of content experts. These protocols are not intended to be absolute treatment documents; they are principles and directives, which are sufficiently flexible to accommodate the complexity of patient management. No protocol can be written to cover every situation that a provider may encounter and this set of protocols is not a substitute for the judgment and experience of providers. Providers are expected to utilize their best clinical judgment and deliver care and procedures, according to what is reasonable and prudent for specific situations. It is expected that any deviations from protocol shall be documented and reviewed, according to regional procedure.

**THESE PROTOCOLS ARE NOT A SUBSTITUTE
FOR GOOD CLINICAL JUDGEMENT**



Acknowledgements

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NYS DOH Bureau of EMS staff

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(1-1) Cardiac Arrest: General Cardiac Arrest Care

All Providers

- CPR should be initiated prior to defibrillation unless the cardiac arrest is witnessed by the responding EMS provider
 - Perform compressions while awaiting the application of defibrillation pads
- Push hard and fast (100-120 compressions/min)
 - Metronome or feedback devices may be used as an adjunct to maintain recommended rate
- Ensure full chest recoil
- Minimize interruptions in chest compressions
- Cycle of CPR = 30 compressions then 2 breaths
 - 5 cycles = 2 minutes
 - Rotate compressors every two minutes with rhythm checks, as staffing allows
 - Minimize interruptions in chest compressions
- Continuous compressions with asynchronous ventilation (not stopping compressions while ventilating) is permitted to substitute for cycles of CPR that have pauses for ventilation even in non-intubated patients
- Avoid hyperventilation
- Use of naso- and/or oropharyngeal airway and bag-valve mask device, as indicated, with BLS airway management, including suction (as needed), as available
- Rhythm check or AED “check patient” every 5 cycles or two minutes of CPR
- Defibrillate as appropriate
- Although transport may be necessary, make every effort to *not* do manual chest compressions in moving ambulances, because it poses a significant danger to providers and may be less effective
 - Consider mechanical CPR adjuncts when available for provider safety in moving ambulances (e.g. AutoPulse[®], LUCAS[®], LifeStat[®], Thumper[®], or other FDA approved device)

Advanced Providers

- Manage the airway and confirm placement of an advanced airway device with waveform capnography
 - Waveform capnography may be used on any ventilated patient, regardless of the use of an airway adjunct
- Check heart rhythm every two minutes
- SEE RHYTHM SPECIFIC PROTOCOLS
- Refer to “General: Vascular Devices – Pre-existing” protocol as needed
- After an advanced airway is placed, no longer deliver “cycles” of CPR
 - Give continuous chest compressions without pauses for breaths
 - Give 8-10 breaths/minute
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
 - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation – Symptomatic” protocol
- For cardiac arrest associated with hypothermia:



- If defibrillation is required, provide no more than three shocks
- Limit administration of medication in cardiac arrest associated with hypothermia to one round
- Rhythm changes may be treated with a single round of the appropriate drug
- See also “General: Hypothermia / Cold Emergencies” protocol



(1-2) Cardiac Arrest: Asystole or Pulseless Electrical Activity (PEA)

EMT

- General cardiac arrest care



EMT STOP

ADVANCED

- Manage airway: Use of naso- and/or oropharyngeal airway and bag-valve mask device is acceptable while deferring advanced airway until more urgent care is completed
- Vascular access; check glucose level
- Normal saline 500 mL bolus
- Epinephrine (1:10,000 / 0.1 mg/mL) 1 mg IV; repeat every 3-5 minutes



ADVANCED STOP

CC

Cardiac monitor



CC STOP

PARAMEDIC

- For suspected hyperkalemia or acidosis:
 - Sodium bicarbonate 50 mEq IV
 - Calcium chloride 1 gram IV



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway or placement of a mechanical CPR device
- If the cardiac monitor shows asystole, confirm in more than one lead
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Refer to the “Cardiac Arrest: Termination of Resuscitation” protocol as indicated
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
 - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- Consider bilateral chest decompression in patients with an organized cardiac rhythm presenting in cardiac arrest thought to be secondary to trauma
 - Note that a pneumothorax may also occur spontaneously (without trauma)
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation – Symptomatic” protocol



(1-3) Cardiac Arrest: Ventricular Fibrillation or Pulseless Ventricular Tachycardia

EMT

- General cardiac arrest care
- AED defibrillation, as indicated (CC/Paramedic may substitute manual defibrillation as indicated below)

EMT STOP

ADVANCED

- Manage airway: Initial use of naso- and/or oropharyngeal airway and bag-valve mask device is acceptable while deferring advanced airway until initial care is complete
- Vascular access; check glucose level
- Normal saline 500 mL IV bolus
- Epinephrine (1:10,000 / 0.1 mg/mL) 1 mg IV; repeat every 3-5 minutes

ADVANCED STOP

CC

- Cardiac monitor
- Defibrillate every 3-5 minutes
- Amiodarone 300 mg IV (dilute in 20 mL of normal saline). Repeat 150 mg in 5 minutes
- If pulses return, refer to the “Cardiac Arrest: Return of Spontaneous Circulation (ROSC)” protocol

CC STOP

PARAMEDIC

- Consider magnesium 2 grams IV if suspected hypomagnesemia or torsades de pointes
- For suspected hyperkalemia or acidosis:
 - Sodium bicarbonate 50 mEq IV
 - Calcium chloride 1 gram IV

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Lidocaine 1.5 mg/kg IV bolus and/or infusion
- Amiodarone 150 mg in 100 mL normal saline IV over 10 min
- If equipment is available to do so, consider double sequential defibrillation if ventricular fibrillation persists after completion of 5 shocks
- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway or initiation of a mechanical CPR device
- A minimum of 50 mL of normal saline should be given between the bolus of calcium



chloride and the bolus of sodium bicarbonate

- Amiodarone bolus doses should be diluted in a minimum of 20 mL of normal saline to minimize post ROSC hypotension and phlebitis
- Consult medical control if patient has return of pulses (even transiently)
- Consider bilateral chest decompression in patients with an organized cardiac rhythm presenting in cardiac arrest thought to be secondary to trauma
 - Note that a pneumothorax may also occur spontaneously (without trauma)
- Refer to the “Cardiac Arrest: Termination of Resuscitation” protocol as indicated
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation – Symptomatic” protocol



(1-4) Cardiac Arrest: Return of Spontaneous Circulation (ROSC)

EMT

- Airway management and appropriate oxygen therapy



EMT STOP

ADVANCED

- Vascular access, ideally at 2 sites (no more than one IO)



ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor with 12-lead ECG as soon as possible
- Treatment for appropriate presenting rhythm
 - Discuss antiarrhythmic treatment options with medical control if patient was in a shockable rhythm
 - If an AED shock was delivered for a rhythm that was not seen on a monitor, treat as ventricular fibrillation / ventricular tachycardia
- Maintain MAP > 65 mmHg or SBP > 100 mmHg
 - If needed, administer normal saline to a total of 2 L, providing there is no concern of pulmonary edema
 - Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after fluid bolus infused, to maintain MAP > 65 mmHg or SBP > 100 mmHg



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Antiarrhythmic (additional amiodarone or lidocaine)
 - Amiodarone 150 mg in 100 mL normal saline over 10 min
 - Lidocaine 1.5 mg/kg bolus and/or infusion
- Management of hypertension SBP > 200 mmHg:
 - Metoprolol 5 mg IV over 5 minutes, up to four doses

Key Points/Considerations

- Acquisition of a 12-lead ECG should be completed *before* transport
 - Appropriate patient assessment and stabilization should be completed as soon as possible following ROSC
 - Voice communication with receiving facility must be completed as soon as possible after ROSC
- ALL patients with STEMI and ROSC should be transported to a receiving hospital capable of primary angioplasty, if feasible, within a transport time recommended per regional procedure
- Patients who are in recurrent cardiac arrest should be transported to the closest hospital unless otherwise authorized by medical control
- Documentation must include pupil exam, and initial GCS recorded by element (Eyes/4, Verbal/5, Motor/6), not as a total



(1-5) Cardiac Arrest: Determination of Obvious Death

EMT
ADVANCED
CC
PARAMEDIC

- CPR, ALS treatment, and transport to an emergency department may be withheld in an apneic and pulseless patient that meets **ANY** one of the following:
 - Presence of a valid MOLST, eMOLST, or DNR indicating that no resuscitative efforts are desired by the patient
 - Patient exhibiting signs of obvious death as defined by **ANY** of the following:
 - Body decomposition
 - Rigor mortis
 - Dependent lividity
 - Injury not compatible with life (e.g. decapitation, burned beyond recognition, massive open or penetrating trauma to the head or chest with obvious organ destruction, etc.)
 - Patient who is pulseless and apneic with no organized cardiac activity on ECG following significant blunt or penetrating traumatic injury*
 - Cardiopulmonary arrest patients in whom the mechanism of injury does not correlate with clinical condition, suggesting a nontraumatic cause of the arrest, are excluded from this criterion
 - Patient who has been submerged for greater than one hour in any water temperature
- If a patient meets any of the aforementioned criteria, resuscitation efforts may be withheld, even if they have already been initiated. If any pads, patches, or other medical equipment have been applied, they should be left in place
- Notify law enforcement. The patient may be covered and, if allowed by law enforcement, may be moved to an adjacent private location. If there is any concern for suspicious activity, the patient should not be disturbed

EMT, ADVANCED, CC, AND PARAMEDIC STOP

Key Points/Considerations

- *Significant blunt or penetrating trauma includes meeting criteria set forth in step one, two, or three of the trauma triage criteria (Resource: Trauma Triage – CDC)
- See also “General: Advance Directives” protocol, as indicated
- If the above criteria can be met by BLS, ALS is not required for the determination of obvious death
- Copies of the MOLST form should be honored
- A copy of the DNR, MOLST, or eMOLST form should be attached to the PCR and retained by the agency whenever practical
- If a patient with a DNR (stand-alone DNR form, or as directed by a MOLST or eMOLST form) is a resident of a nursing home and expires during transport, contact the receiving staff to determine if they are willing to accept the patient back to that facility. If not, return the patient to the sending facility. A copy of the DNR, MOLST, or eMOLST must



be attached to the PCR and retained by the agency for all transports from a sending facility to a nursing home

- The eMOLST form may be printed and affixed with electronic signatures. Electronic signatures on the eMOLST form are considered valid signatures



(1-6) Cardiac Arrest: Termination of Resuscitation

EMT

ADVANCED

- See “Cardiac Arrest: Determination of Obvious Death” protocol



EMT AND ADVANCED STOP

CC

PARAMEDIC

- Patients who do not meet the “Cardiac Arrest: Determination of Obvious Death” protocol, but are in cardiopulmonary arrest, must meet **ALL** of the following requirements for termination of resuscitative efforts to be considered without a medical control order:
 - Age 18 or older
 - Arrest not witnessed by a bystander or by EMS
 - No bystander-administered CPR
 - No automated external defibrillator or manual shock delivered
 - No return of spontaneous circulation up to the time termination is considered
 - At least 20 minutes of resuscitation has been provided



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

Key Points/Considerations

- See also “General: Advance Directives” protocol, as indicated
- A copy of the DNR, MOLST, or eMOLST form should be attached to the PCR and retained by the agency whenever possible
- If a patient with a DNR (stand-alone DNR form, or as directed by a MOLST or eMOLST form) is a resident of a nursing home and expires during transport, contact the receiving staff to determine if they are willing to accept the patient back to that facility. If not, return the patient to the sending facility. A copy of the DNR, MOLST, or eMOLST must be attached to the PCR and retained by the agency for all transports from a sending facility to a nursing home
- Patients that do not meet the above standing order termination of resuscitation may be considered for termination of resuscitation with medical control, if the family is amenable to this decision
- If resuscitative efforts are terminated, contact law enforcement per regional or jurisdictional procedure. Do not remove endotracheal tubes, other airway management devices such as King[®] Airways, or IV/IO tubing. The patient may be covered and may be moved back onto a bed or sofa, if appropriate and approved by law enforcement
- Whenever possible, termination of resuscitation should be done when the patient is not in a public place
- If the family is present, appropriate emotional support by other family, neighbors, clergy, or police should be available when considering termination of resuscitation



(1-7) Pediatric Cardiac Arrest: Asystole or Pulseless Electrical Activity (PEA)

EMT

- General cardiac arrest care
- Airway management and appropriate oxygen therapy via BVM

EMT STOP

ADVANCED

- Vascular access

ADVANCED STOP

CC

- Cardiac monitor
- Normal saline 20 mL/kg bolus (up to 500 mL bolus) rapid IV
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
 - Repeat epinephrine every 3 – 5 minutes

CC STOP

PARAMEDIC

- Consider intubation only if unable to effectively ventilate with BVM and basic airway adjuncts

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Sodium bicarbonate 1 mEq/kg IV

Key Points/Considerations

- Intubation is not necessary if oxygenating and ventilating patient well with BLS airway management
- Do not interrupt compressions for placement of an advanced airway or initiation of a mechanical CPR device
 - Note: The use of a particular mechanical CPR device may be contraindicated in the pediatric patient; refer to manufacturer's recommendation
- Confirm asystole in more than 1 lead
- Perform CPR for at least 3 minutes between medication doses
- Consider airway obstruction
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
 - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation – Symptomatic” protocol



(1-8) Pediatric Cardiac Arrest: Ventricular Fibrillation or Pulseless V. Tachycardia

EMT

- General cardiac arrest management
- AED defibrillation, as indicated (CC/Paramedic may substitute manual defibrillation as indicated below)
- Airway management and appropriate oxygen therapy via BVM

EMT STOP

ADVANCED

- Vascular access

ADVANCED STOP

CC

- Cardiac monitor
- Normal saline 20 mL/kg bolus (up to 500 mL bolus) rapid IV
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
 - Repeat epinephrine every 3 – 5 minutes
- Defibrillate at 4 J/kg between doses of medication
 - Higher doses of energy may be considered for refractory ventricular fibrillation not to exceed the lesser of 10 J/kg or the recommended adult maximum dose

CC STOP

PARAMEDIC

- Consider intubation only if unable to effectively ventilate with BVM and basic airway adjuncts
- Amiodarone 5 mg/kg bolus IV (up to a maximum of 300 mg/dose); Dilute amiodarone in 20 mL of normal saline
 - Repeat once in 5 minutes (up to a maximum of 150 mg/dose)

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional amiodarone 5 mg/kg IV (up to 15 mg/kg total)
- Lidocaine 1 mg/kg IV

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway or initiation of a mechanical CPR device
 - Note: The use of a particular mechanical CPR device may be contraindicated in the pediatric patient; refer to manufacturer's recommendation
- Amiodarone bolus doses should be diluted in a minimum of 20 mL of normal saline to



minimize post ROSC hypotension and phlebitis

- Use the small (pediatric) pads for patients weighing less than 10 kg
- Consider toxic ingestions, including tricyclic antidepressants
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
 - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation – Symptomatic” protocol



(2-1) General: Acute Asthma

For the pediatric patient, “Pediatric: Acute Asthma”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Assist patient with his or her own medications, as appropriate, *OR* if patient has a known diagnosis of asthma:
 - Administer albuterol 2.5 mg in 3 mL (unit dose) via nebulizer at a flow rate of 6 LPM
 - May repeat to a total of three doses if symptoms persist
 - CC and paramedic may replace this step with albuterol + ipratropium (Atrovent)
- Continuous Positive Airway Pressure (CPAP) 5-10 cm H₂O as needed, if equipped and trained
- See medical control considerations for use of epinephrine

EMT STOP

ADVANCED

- Vascular access, if not improving with nebulizer treatment

ADVANCED STOP

CC

PARAMEDIC

- Albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer; may repeat to a total of three doses
- Epinephrine (1:1,000 / 1mg/mL) dose 0.3 mg IM for severe distress
 - *If severe distress persists, may repeat in 5 minutes
- Consider cardiac monitor and 12-lead ECG.
- Dexamethasone (Decadron) 10 mg PO, IM, or IV
- If patient is not responding to treatments above, administer magnesium 2 grams in 100 mL normal saline IV over 10 minutes

CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- EMT use of epinephrine (EMT-B epinephrine kits or autoinjector [e.g. EpiPen[®]], as available and as trained)
- Additional albuterol unit doses via nebulizer
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg via nebulizer
- Repeat magnesium

Key Points/Considerations

- Wheezing does not always indicate asthma. Consider allergic reaction, airway obstruction, pulmonary edema, or COPD exacerbation



- A total of 3 doses of albuterol and ipratropium (Atrovent) may be administered by prehospital providers, prior to consulting medical control
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- IM administration of epinephrine should be used if the patient is in severe distress and tidal volume is so small that nebulized medications will not work
- If an ALS provider has administered any medications, regional procedure *may* require consultation with medical control prior to honoring a request for refusal of medical care or before sending the patient with BLS care
- Observe airborne and/or droplet precautions in appropriate patients, such as those with suspected tuberculosis
- BiPAP may be used in place of CPAP, as training and equipment allow



(2-2) General: Acute Coronary Syndrome – Suspected Cardiac Chest Pain

EMT

- ABCs and vital signs
- Acquire and transmit 12-lead ECG, if equipped and regionally approved
- Aspirin 324 mg (4 x 81 mg tabs) chewed, if able to chew
- Airway management and appropriate oxygen therapy
- Assist patient with his or her prescribed nitroglycerin, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is > 120 mmHg (additional nitroglycerin may be given by EMT with a medical control order)
- See also “General: Cardiogenic Shock” protocol for patients with signs of hypoperfusion



EMT STOP

ADVANCED

- Vascular access
Refer to the “General: Pain Management” protocol as indicated



ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor with 12-lead ECG (if capable, transmit to hospital if there is any question or if there is a significant finding)
- Nitroglycerin 0.4 mg SL per dose, as needed, 5 minutes apart, provided the patient's systolic BP is > 120mmHg or MAP > 90 mmHg
- If systolic BP drops below 100 mmHg, place patient in a supine position, if possible, and consider normal saline 500mL IV bolus



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional nitroglycerin 0.4 mg SL every 5 minutes for EMT

Key Points/Considerations

- Focus on maintaining ABCs, pain relief, rapid identification, rapid notification, and rapid transport to an appropriate facility
- Vitals, as well as 12-lead ECG, should be assessed frequently during transport
- If the patient does not have prescribed nitroglycerin, a 12-lead ECG should be obtained prior to administering any nitroglycerin
- If the patient becomes hypotensive after nitroglycerin administration, place the patient in a supine position, if there is no contraindication to doing so, such as severe pulmonary edema
- Aspirin should not be enteric coated
- The patient may have been advised to take aspirin prior to arrival by emergency medical dispatch. You may give an additional dose of aspirin (324 mg chewed) if there is any concern about the patient having received an effective dose prior to your arrival
- Consider 12-lead ECG for adults, with any one of the following: dyspnea, syncope, dizziness, fatigue, weakness, nausea, or vomiting



(2-3) General: Advance Directives

Criteria

The following procedure is to be used in determining course of action for all patients

EMT

ADVANCED

CC

PARAMEDIC

- For conscious and alert patients, their wishes are to be followed in accordance with standard consent procedures
- For patients unable to consent, including the unconscious, determine the presence of valid MOLST, eMOLST or DNR forms at the scene:
 - Properly completed “Medical Orders for Life Sustaining Treatment” (MOLST) form
 - Signed New York State approved document, bracelet, or necklace
 - Properly documented nursing home or nonhospital DNR form
- If MOLST, eMOLST, or DNR (document, bracelet, or necklace) is not present – begin standard treatment, per protocol
- If MOLST, eMOLST, or DNR (document, bracelet, or necklace) is present, and is valid for the patient’s clinical state (e.g. cardiac arrest), follow the orders as written, inclusive of either terminating or not beginning resuscitation
- Any valid directive indicated on the MOLST or eMOLST should be honored, including the directive for the patient not to be transported to the hospital
- If advanced directives not mentioned above are present (living will or health care proxy), contact medical control for direction



EMT, ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Direction regarding wishes expressed via other forms of advanced directives including living wills, health care proxies, and in-hospital do not resuscitate orders

Key Points/Considerations

- A copy of the DNR, MOLST, or eMOLST form should be attached to the PCR and retained by the agency whenever possible
- If a patient with a DNR (stand-alone DNR form or as directed by a MOLST or eMOLST form) is a resident of a nursing home and expires during transport back to that facility, contact the receiving staff to determine if they are willing to accept the patient. If not, return the patient to the sending facility. A copy of the DNR, MOLST, or eMOLST must be attached to the PCR and retained by the agency for all transports from a sending facility to a nursing home



(2-4) General: Agitated Patient

Criteria

- This protocol is intended to be used with agitated patients requiring sedation
- This may include any patient who demonstrates potentially violent behavior, regardless of underlying etiology
- Pharmacologic management of behavioral emergencies is only to be utilized for situations in which environmental modification and verbal de-escalation (utilizing interpersonal communication skills) is not successful or not possible
- For patients who are extremely combative and are at risk of causing physical harm to emergency responders, the public, and/or themselves refer to the “General: Excited Delirium” protocol

EMT

ADVANCED

- Call for law enforcement
- ABCs and vital signs, as tolerated
- Airway management and appropriate oxygen therapy, if tolerated
- Check blood glucose level, if equipped, as soon as you are able to safely do so. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated
- Apply soft restraints, such as towels, triangular bandages, or commercially available soft medical restraints, only if necessary to protect the patient and others from harm



EMT AND ADVANCED STOP

CC

PARAMEDIC

- Midazolam (Versed) up to 2.5 mg IV or up to 5 mg IM; may repeat up to 10 mg



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional midazolam (Versed) IV, IM
- Haloperidol (Haldol) 2.5 to 5 mg IV or IM
- Ketamine* 0.5-2 mg/kg IV or IM
 - Consider initial dose of ketamine 250 mg IM for the appropriate patient
 - Use caution when ordering >250 mg IM of ketamine after midazolam (Versed) because apnea may occur

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- **Patient must NOT be transported in a face-down position**
- Utilize caution and consider smaller doses in high risk populations such as the elderly, small patients, or those with significant comorbidities



- If the agitated patient goes into cardiac arrest, refer to the appropriate protocol, and consider the possibility of acidosis in that protocol
- A team approach should be attempted at all times for the safety of the patient and the providers
- Ketamine and haloperidol (Haldol) may not be available in all regions
- If the patient is in police custody and/or has handcuffs on, a police officer should accompany the patient in the ambulance to the hospital. The provider must have the ability to immediately remove any mechanical restraints that hinder patient care at all times



(2-5) General: Airway Management and Oxygen Delivery

Criteria

Providers may operate as outlined below. They may not exceed their scope of practice, even with direct online medical control

EMT

- Oxygen therapy via non-rebreather mask (NRB) 10-15 LPM, or nasal cannula (NC) 2-6 LPM, to maintain oxygen saturation $\geq 92\%$
- Continuous positive airway pressure (CPAP) 5-10 cm H₂O, as needed, if equipped and trained
- Oxygen therapy using bag-valve mask (BVM) 15-25 LPM
- Nasopharyngeal airway (NPA)
- Oropharyngeal airway (OPA)
- BVM-assisted ventilation
- Portable automated transport ventilators (ATV), if trained
 - See “Resource: Automatic Transport Ventilator”

EMT STOP

ADVANCED

- Nasal cannula (NC) 15 LPM during intubation attempts and RSI
- Oral endotracheal intubation in unresponsive ADULTS
- Alternative airway device in unresponsive ADULTS

ADVANCED STOP

CC

- Age-appropriate pediatric laryngoscope and Magill Forceps in cases of obstructed airway

CC STOP

PARAMEDIC

- Nasal endotracheal intubation in ADULTS, if trained and regionally approved
- Pediatric intubation
 - Consider intubation in pediatric patients *only* if unable to effectively ventilate with BVM and basic airway adjuncts
- Rapid sequence intubation, if equipped and credentialed
- Surgical airway, if equipped

PARAMEDIC STOP

Key Points

- Providers may only perform endotracheal intubation if they have end-tidal waveform capnography
- Only paramedics may intubate pediatric patients
- Rapid sequence intubation is to be performed only by paramedics who have received specific training and are approved per regional procedure
- Only air medical agencies may perform pediatric rapid sequence intubation on standing orders



- Intubation may be attempted on a patient a maximum of 2 times by one AEMT, and one more time by a second AEMT, if appropriate. If a patient is not intubated for any reason, utilize an alternative airway device and ventilate with a BVM
- A cervical collar should be considered on all intubated patients to assist the maintenance and secure placement of the airway device, especially when moving the patient
- Approved list of alternative airway devices is available through each Regional Program Agency
- Contraindications for use of alternative airway device:
 - Patients with pharyngeal hemorrhage, tracheostomy, or laryngectomy
 - Patients who have ingested a caustic substance
 - Patients with known obstruction of larynx and/or trachea
- BiPAP may be used in place of CPAP, as training and equipment allow



(2-6) General: Allergic Reaction and Anaphylaxis

For the pediatric patient, “Pediatric: Allergic Reaction and Anaphylaxis”

EMT

- If patient has exposure to known allergen and is developing respiratory distress and/or hypotension:
 - Administer epinephrine (EMT epinephrine kits or autoinjector [e.g. EpiPen[®]], as available and as trained)
 - CC and paramedic may substitute standard epinephrine administration, as directed below
- If patient has **a history of true anaphylaxis*** and has an exposure to an allergen developing respiratory distress and/or hypotension **and/or rash**:
 - Administer epinephrine (EMT epinephrine kits or autoinjector [e.g. EpiPen[®]], as available and as trained)
 - CC and paramedic may substitute standard epinephrine administration, as directed below



EMT STOP

ADVANCED

- Vascular access as appropriate
- Normal saline 500 mL bolus if SBP < 90 mmHg or MAP < 60 mmHg; recheck lung sounds and repeat bolus, if the patient remains hypotensive up to 2L providing lung sounds remain clear



ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor
- Epinephrine (1:1,000 / 1mg/mL) 0.3 mg IM, **ONLY** if patient is hypotensive and/or is developing respiratory distress w/airway swelling, hoarseness, stridor, or wheezing. May repeat every 5 minutes if these symptoms persist
- Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer or ET tube nebulizer; may repeat to a total of three doses of both medications for wheezing
- Diphenhydramine (Benadryl) 50 mg IV or IM
- Dexamethasone (Decadron) 10 mg PO, IM, or IV
- Consider norepinephrine 2 mcg/min titrated to 20 mcg/min, if needed after fluid bolus is complete to maintain MAP > 65 mmHg or SBP > 100 mmHg



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional albuterol unit dose, via nebulizer
- Additional IV fluid
- Epinephrine infusion (1 mg in 1000 mL normal saline), at 5 mcg/min



Key Points/Considerations

- **Do not administer IV epinephrine without consulting online medical control**
- If epinephrine is administered by crew or patient self-administered epinephrine, regional procedure may require consulting medical control prior to honoring a request for refusal of medical care
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- *Anaphylaxis is a rapidly progressing, life-threatening allergic reaction



(2-7) General: Amputations

EMT
ADVANCED
CC
PARAMEDIC

- ABCs and vital signs
- Consider spinal motion restriction
- Refer to the “General: Hemorrhage Control” protocol, as indicated
- Elevate and wrap the stump with moist sterile dressings and cover with dry bandage
- Provide or direct care for amputated part:
 - Moisten sterile dressing with sterile saline solution and wrap amputated part
 - Place the severed part in a water-tight container, such as a sealed plastic bag
 - Place this container on ice or cold packs, using caution to avoid freezing the limb
- Refer to the “General: Pain Management” protocol as your level of training allows, as indicated

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

Key Points/Considerations

- Distal amputations (such as those distal to wrist or ankle) do not typically require a trauma center
- Consider medical control consultation if there is uncertainty regarding appropriate destination facility



(2-8) General: Avulsed Tooth

Criteria

- **For permanent teeth only**

EMT

ADVANCED

CC

PARAMEDIC

- ABCs and vital signs
- Hold the tooth by the crown (not the root)
- Quickly rinse the tooth with saline before reimplantation, but do not brush off or clean the tooth of tissue
- Remove the clot from the socket; suction the clot, if needed
- Reimplant the tooth firmly into its socket with digital pressure
- Have the patient hold the tooth in place using gauze and bite pressure
- Report to hospital staff that a tooth has been reimplanted

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

Key Points/Considerations

- The best chance for success is when reimplantation occurs within five minutes of the injury
- **If the patient has altered mental status, do not reimplant**
- **If the patient must be transported in a supine position, do not reimplant**
- Do not reimplant if the alveolar bone / gingiva are missing, or if the root is fractured
- Do not reimplant if the patient is immunosuppressed, or reports having cardiac issues that require antibiotics prior to procedures
- If the patient is not a candidate for reimplantation and avulsed a permanent tooth, place the avulsed tooth in interim storage media (lowfat milk, patient's saliva, or saline) and keep cool. Avoid tap water storage, if possible, but do not allow the permanent tooth to dry



(2-9) General: Bradycardia / Heart Blocks – Symptomatic

For the pediatric patient, “Pediatric: Bradycardia”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT STOP**

ADVANCED

- Vascular access

 **ADVANCED STOP**

CC

- Cardiac monitor
- 12-lead ECG, when possible
- Atropine 0.5 mg IV every 3 min, up to a max of 3 mg
- If needed, administer normal saline to a total of 2 L, if there is no concern for pulmonary edema
- Transcutaneous pacing, consider sedation (General: Procedural Sedation)

 **CC STOP**

PARAMEDIC

- Consider norepinephrine 2 mcg/min titrated to 20 mcg/min, if needed, after fluid bolus completed to maintain MAP > 65 mmHg or SBP > 100 mmHg

 **PARAMEDIC STOP**

Key Points/Considerations

- Only treat bradycardia if the patient is symptomatic
- Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction, or hypotension (systolic BP < 90 mmHg or MAP < 60 mmHg)
- Consider immediate transcutaneous pacing for patients with poor perfusion
 - May also consider in cases when atropine may have little or no effect, such as cardiac transplant patients
- Patients with high degree AV block (2nd degree type II and 3rd degree) may have limited response to atropine



(2-10) General: Burns

EMT

- Stop the burning
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Remove smoldering clothing that is not adhering to the patient's skin
- Remove rings, bracelets, and other constricting objects at or distal to burned area, if possible
- If the burn is $\leq 10\%$ BSA (body surface area) use moist sterile dressings
- If the burn is $> 10\%$ BSA use dry sterile dressings
- Refer to the "General: Eye Injuries and Exposures" protocol as indicated



EMT STOP

ADVANCED

- Vascular access at 2 sites, if possible (no more than one IO), for severe burns
- Normal saline 500 mL bolus
- Refer to the "General: Pain Management" protocol



ADVANCED STOP

CC

PARAMEDIC

- Be prepared to intubate, if the patient has signs of airway involvement



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional fluid to maintain perfusion while exercising caution against administering excessive volume

Key Points/Considerations

- Assure scene safety and patient decontamination for chemical burns/HAZMAT exposure
 - For liquid chemical burns, flush with copious amount of water or saline, ideally for a minimum of 20 minutes
 - For dry powder burns, brush powder off before flushing
 - Use caution to avoid the spread of the contaminant to unaffected areas
- Be alert for other injuries, including cardiac dysrhythmias
- Be alert for smoke inhalation and airway burns
- Administer high flow oxygen
 - Oxygen saturation readings may be falsely elevated
- If hazardous material involvement is suspected, immediately notify the destination hospital to allow for decontamination
- The palm of the patient's hand is $\sim 1\%$ BSA (body surface area)
 - When considering the total area of a burn, DO NOT count first degree burns



- Burns > 10% are only to be dressed with simple sterile dressings once the burning process has stopped

Transportation Considerations

- Burns associated with trauma should go to the closest appropriate trauma center
- If there is any question about the appropriate destination of a patient, consult medical control

Consider direct transport to a burn center if:

- >10% BSA partial thickness burns (do not count first degree burns)
- Involvement of face, hands, feet, genitalia, or major joints
- Circumferential burn injuries
- Third degree burns
- Severe electrical burns, including lightning injuries
- Severe chemical burns
- Inhalation injury (ONLY if endotracheally intubated; consider local hospital for airway management if the patient is at risk for delayed airway edema)



(2-11) General: Carbon Monoxide Exposure– Suspected

Criteria

- For patients with smoke inhalation, patients for whom a CO alarm has gone off in the residence, or any other potential exposure to CO
- See also “General: Smoke Inhalation – Symptomatic” protocol, as indicated

EMT

ADVANCED

CC

PARAMEDIC

- Any patient with suspected carbon monoxide poisoning should receive oxygen via non-rebreather mask (NRB)
- Consider CPAP 5-10 cm H₂O (if the device delivers 100% oxygen) if equipped and trained
- The Masimo RAD-57[®] or other objective carbon-monoxide evaluation tool may be used to guide therapy, if available

ASYMPTOMATIC potentially exposed people:

- Any asymptomatic patient with a CO level 12-25% should receive high flow oxygen for 30 minutes and then be reassessed
 - Consider transport if CO levels are not decreasing
- Any asymptomatic patient with a CO level >25% should receive high flow oxygen and be transported to the hospital

SYMPTOMATIC patients:

- Carbon monoxide poisoning does not have specific, clear cut symptoms; other medical conditions may present with dizziness, nausea, or confusion
- All symptomatic patients should be transported, regardless of CO level

MULTIPLE patients:

- Consult medical control for guidance regarding transport location decisions and on-scene treatment and release when multiple patients are involved
- If there is potential for greater than 5 patients, consider requesting an EMS physician to the scene

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

Key Points/Considerations

- **CONSIDER** direct transport to a hyperbaric center if patient’s SpCO reading is >25% **AND/OR** the patient had any loss of consciousness, has significant altered mental status / abnormal neurologic exam, or the patient is pregnant
- Pediatrics – Assure your device is approved for pediatric use and, if so, that pediatric appropriate sensors are utilized
- Pregnant Women – The fetal SpCO may be 10-15% higher than the maternal reading
- Smokers – Heavy smokers may have baseline SpCO levels up to 10%



- A misapplied or dislodged sensor may cause inaccurate readings
- Never use tape to secure the sensor
- Do not place the sensor on the thumb or 5th digit
- There is no commercial endorsement implied by this protocol
- BiPAP may be used in place of CPAP, as training and equipment allow



(2-12) General: Cardiogenic Shock

Criteria

- This protocol is to be used with the “General: ST Elevation MI (STEMI) – CONFIRMED” or “General: Acute Coronary Syndrome – Suspected Cardiac Chest Pain” protocols for patients who have signs of hypoperfusion

EMT

- ABCs and vital signs
- Acquire and transmit 12-lead ECG, if equipped and regionally approved
- Airway management and appropriate oxygen therapy
- Aspirin 324 mg (4 x 81 mg tabs) chewed, if able to chew
- Place patient supine unless dyspnea is present



EMT STOP

ADVANCED

- Vascular access
- Normal saline 500mL bolus; recheck lung sounds and repeat bolus, if necessary, up to 2L providing lung sounds remain clear



ADVANCED STOP

CC

- Cardiac monitor with 12-lead ECG
- Notify hospital AS SOON AS POSSIBLE for ST elevation myocardial infarction (STEMI)



CC STOP

PARAMEDIC

- If UNSTABLE, or in pulmonary edema, norepinephrine 2 mcg/min, titrated to 20 mcg/min if needed after fluid bolus complete to maintain MAP > 65 mmHg or SBP > 100 mmHg



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline

Key Points/Considerations

- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Refer to appropriate dysrhythmia protocols, as needed
- Aspirin should not be enteric coated
- The patient may have been advised to take aspirin prior to arrival by emergency medical dispatch. You may give an additional dose of aspirin (324 mg chewed) if there is any concern about the patient having received an effective dose prior to your arrival



(2-13) General: Chest Trauma

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- If sucking chest wound, cover with occlusive dressing; if dyspnea increases, release the dressing, momentarily, during exhalation
- Contact the receiving hospital as soon as possible



EMT STOP

ADVANCED

- Vascular access; use the side opposite of the injury if possible
- Normal saline administration, per the “General: Trauma Associated Hypoperfusion / Hypovolemia” protocol



ADVANCED STOP

CC

- If the patient is in cardiac arrest, proceed with bilateral needle chest decompression and refer to appropriate arrest protocol
- If the patient is not in cardiac arrest, contact medical control for consideration of needle chest decompression if there is concern for a tension pneumothorax



CC STOP

PARAMEDIC

- Needle decompression if signs and symptoms of tension pneumothorax, including hemodynamic compromise



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- If patient has signs and symptoms consistent with tension pneumothorax AND hemodynamic compromise, consider needle chest decompression for CC

Key Points/Considerations

- Signs and symptoms of a tension pneumothorax include absent lung sounds on one side, extreme dyspnea, AND hemodynamic compromise (may also include jugular vein distention, cyanosis, and tracheal deviation)
- May repeat chest decompression if tension pneumothorax recurs
- If resuscitating a patient in traumatic arrest, consider bilateral chest decompression
- Advanced EMTs in tactical EMS may be trained and equipped for decompression, but the agency must be approved by the REMAC
- Hemodynamic compromise: hypotension, narrowed pulse pressure, and tachycardia
- Thoracic decompression is a serious medical intervention that requires a chest tube in the hospital
- CQI review may be required by regional procedure
- Thoracic decompression should only be performed with a $\geq 3.25''$, $\geq 14G$ IV catheter



(2-14) General: Childbirth

Management of a Normal Delivery

- Support the baby's head over the perineum with gentle pressure to prevent precipitous delivery
- If the membranes cover the head after it emerges, tear the sac with your fingers or forceps to permit escape of the amniotic fluid
- Gently guide the head downward until the shoulder appears
- The other shoulder is delivered by gentle upward traction
- The infant's face should be upward at this point

Management of Umbilical Cord Around the Neck

- Umbilical cord around the neck is an emergency, as the baby is no longer getting any oxygen either through the cord or by breathing
- If the cord is around the neck:
 - Unwrap the cord from around the neck, if possible
 - Clamp the umbilical cord with two clamps
 - Cut the cord between them

Management of a Breech Delivery

- Support the buttocks or extremities until the back appears
- Grasp the baby's ILIAC WINGS and apply gentle downward traction. DO NOT pull on the legs or back, as this may cause spine dislocation or adrenal hemorrhage
- Gently swing the infant's body in the direction of least resistance
- By swinging anteriorly and posteriorly, both shoulders should deliver posteriorly
- Splint the humerus bones with your two fingers; apply gentle traction with your fingers
- Gentle downward compression of the uterus will assist in head delivery
- Swing the legs upward until the body is in a vertical position. This will permit delivery of the head

Management of Prolapsed Cord or Limb Presentation

- Place the mother in a face-up position with hips elevated
- Place a gloved hand in the vagina; attempt to hold baby's head away from the cord and maintain an airway for the baby
- Keep the cord moist using a sterile dressing and sterile water
- Transport as soon as possible to closest appropriate facility

Key Points

- See "Pediatric: Neonatal Resuscitation" protocol, as needed
- Determine the estimated date of expected birth, the number of previous pregnancies and number of live births
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding, mucous discharge, or the urge to bear down
- Determine the duration and frequency of uterine contractions
- Examine the patient for crowning:
 - If delivery is not imminent, transport as soon as possible
 - If delivery is imminent, prepare for an on-scene delivery
- If multiple births are anticipated, but the subsequent births do not occur within 10 minutes



of the previous delivery, transport immediately

- After delivery of the placenta, massage the lower abdomen
- Take the placenta and any other tissue to the hospital for inspection
- Do not await the delivery of the placenta for transport
- If uterine inversion occurs (uterus turns inside out after delivery and extends through the cervix), treat for shock and transport immediately. If a single attempt to replace the uterus fails, cover the exposed uterus with moistened sterile towels



(2-15) General: COPD Exacerbation/Bronchospasm

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Assist the patient with his or her own medications, as appropriate
- Continuous Positive Airway Pressure (CPAP) 5-10 cm H₂O, as needed, if equipped and trained
- Administer albuterol 2.5 mg in 3 mL (unit dose) via nebulizer
 - May repeat to a total of three doses if symptoms persist

 **EMT STOP**

ADVANCED

- Vascular access if the patient's condition is not improving

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor
- Albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer; may repeat to a total of three doses of both medications
- Consider 12-lead ECG
- Consider dexamethasone (Decadron) 10 mg PO, IM, or IV

 **CC AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Additional albuterol unit dose, via nebulizer
- Magnesium 2 grams IV over 10 minutes in 100 mL normal saline

Key Points/Considerations

- BiPAP may be used in place of CPAP as training and equipment allow
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together



(2-16) General: Crush Injuries

EMT

- ABCs and vital signs every 5 minutes, if practical
- Airway management and appropriate oxygen therapy
- Consider EMS physician response, if available, or early physician consultation for prolonged entrapment

EMT STOP

ADVANCED

- Vascular access, ideally at 2 sites (no more than one IO)
- Normal saline 1 liter IV bolus
- Refer to the “General: Pain Management” protocol, as indicated

ADVANCED STOP

CC

- Cardiac monitor, if possible, with 12-lead ECG repeated at 30 minute intervals

CC STOP

PARAMEDIC

- If one complete extremity is crushed > 2 hours, or 2 extremities are crushed >1 hour:
 - Sodium bicarbonate 50 mEq IV slow push every 30 minutes
 - In addition, one minute prior to extrication: Sodium bicarbonate 50 mEq IV

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- If hyperkalemia is suspected and ECG changes, calcium chloride 1 gram IV (over 5 minutes). Repeat in 10 minutes, if there is no resolution of the ECG changes of hyperkalemia
- Albuterol via nebulizer
- Consider application of a tourniquet for prolonged entrapment placed as close as possible to the crush injury prior to the release of the extremity

Key Points/Considerations

- Consider EMS physician response to the scene, if prolonged extrication is anticipated
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Hyperkalemia is indicated by PVCs, peaked T-waves, or widened QRS complexes
- After extrication, immobilize the extremity and apply cold therapy; do not elevate the extremity



(2-17) General: Eye Injuries and Exposures

EMT

- Stop the burning
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Burns to the eye require copious irrigation with normal saline — do not delay irrigation
 - Other neutral fluid may be used, if needed, such as tap water
- Stabilize any object lodged in the eye, and cover both eyes to prevent consensual movement



EMT STOP

ADVANCED

- Vascular access, if needed
- Refer to the “General: Pain Management” protocol, as indicated



ADVANCED STOP

CC

PARAMEDIC

- Tetracaine (0.5%) 2 drops in the affected eye for pain every 3 minutes, as needed
- For chemical exposure to the eye, you may use a Morgan Lens[®] for irrigation



CC AND PARAMEDIC STOP

Key Points/Considerations

- If hazardous materials are involved, notify the destination hospital immediately, to allow for decontamination
- Do not put any pressure on the eye when covering with a shield or patch
- Tetracaine may be injected into the side port of the IV tubing connected to the Morgan Lens[®] while fluids are running. DO NOT administer ophthalmic tetracaine intravenously



(2-18) General: Excited Delirium

Criteria

- For patients who are extremely combative and are at immediate risk of causing physical harm to emergency responders, the public, and/or themselves
- Excited delirium syndrome involves the clinical triad of psychomotor agitation, physiologic excitation, and delirium in the setting of destructive, erratic, bizarre, or violent behavior. Common features include:
 - Unusual strength
 - Lack of tiring
 - Unnatural pain tolerance
 - Tachypnea
 - Diaphoresis
 - Psychomotor agitation
 - Tactile hyperthermia
 - Altered mental status
- For the agitated patient who requires treatment and does not meet the above criteria, refer to the “General: Agitated Patient” protocol

EMT

ADVANCED

- Call for law enforcement
- ABCs and vital signs, as tolerated
- Airway management and appropriate oxygen therapy, if tolerated
- Check blood glucose level, if equipped, as soon as you are able to safely do so. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated
- Apply soft restraints, such as towels, triangular bandages, or commercially available soft medical restraints, only if necessary to protect the patient and others from harm



EMT AND ADVANCED STOP

CC

PARAMEDIC

- Midazolam (Versed) 10 mg IM or ketamine* 250 mg IM
- May administer ketamine 250 mg IM after 5 minutes (as a single repeat dose or as a single dose after midazolam [Versed]), should the patient remain uncontrolled



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional Midazolam (Versed) 2.5 to 10 mg IV or IM
- Haloperidol (Haldol) 2.5 to 5 mg IV or IM
- Additional ketamine* up to 0.5-2 mg/kg IV or 3-5 mg/kg IM
 - Use caution when ordering >250 mg IM of ketamine after midazolam (Versed) because apnea may occur



Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- **Patient must NOT be transported in a face-down position**
- If the agitated patient goes into cardiac arrest, consider possibility of acidosis in the appropriate cardiac arrest protocol
- Pharmacologic management of behavioral emergencies is only to be utilized for situations in which environmental modification and verbal de-escalation (utilizing interpersonal communication skills) is not successful or not possible
- A team approach should be attempted at all times for the safety of the patient and the providers. Monitor surroundings and utilize the assistance of law enforcement for crowd control
- Ketamine and haloperidol may not be available in all regions
- If the patient is in police custody and/or has handcuffs on, a police officer should accompany the patient in the ambulance to the hospital; the provider must have the ability to immediately remove any mechanical restraints that hinder patient care at all times
- Excited delirium is frequently associated with drug abuse
- Excited delirium does not frequently occur in the elderly
- All uses of this protocol may require Agency Medical Director review or regional QA, depending on regional procedure



(2-19) General: Heat Emergencies

EMT

- ABCs, vital signs
- Remove patient from the hot environment
- Loosen or remove outer clothing
- For patients presenting with moist, pale, and normal to cool skin temperature:
 - If the patient is not nauseated and able to drink water without assistance, have the patient drink water
- For patients presenting with hot, flushed, and dry skin:
 - Apply cold packs to patient's neck, groin, and armpits
 - Keep the patient's skin wet by applying wet sponges or towels

EMT STOP

ADVANCED

CC

PARAMEDIC

- Vascular access, as needed
- Consider normal saline 500 cc IV bolus; may repeat up to 2 liters as needed, if there are no signs of pulmonary edema and no concern for water intoxication*

ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional IV fluid hydration

Key Points/Considerations

- Stable patients with normal mental status and no signs of hot, dry skin may only require oral rehydration and cooling
- Do not delay transport to treat the patient on the scene; transport is suggested for all patients who present with a heat emergency
- *Water intoxication occurs when patients ingest excessive water which causes potentially life threatening electrolyte abnormalities
 - Suspect in long distance runners who consume large amounts of water and present with collapse or confusion
 - Cool the patient, as indicated, and contact medical control before administering any fluid to a patient with suspected water intoxication



(2-20) General: Hemorrhage Control

Criteria

- This protocol authorizes the use of hemostatic dressings and commercially manufactured tourniquets
- These devices are not mandatory for any agency to stock or carry
- Specific tactical application of these devices may be different. Local agency education and manufacturer specific instructions may take precedence

EMT

ADVANCED

CC

PARAMEDIC

Immediate intervention for severe arterial bleeding:

- Apply pressure directly on the wound with a sterile dressing
 - Hemostatic gauze may be applied with initial direct pressure for severe bleeding (if equipped and trained)
 - Rolled gauze may be used if hemostatic gauze is not available
 - Pack wound and hold pressure for at least 3 minutes
- If bleeding soaks through the dressing, apply additional dressings and reapply pressure
- Apply a pressure dressing to the wound, if bleeding is controlled
- If severe bleeding persists, remove all conventional dressings, expose site of bleeding, and apply hemostatic dressing, according to manufacturer's instructions and agency/squad training (if equipped and not already performed above)
- Cover the dressed site with a pressure bandage
- Conventional and pressure splints may also be used to control bleeding
- Use a tourniquet for uncontrollable bleeding from an extremity
 - Place tourniquet 2-3 inches proximal to the wound
 - If bleeding continues, you may place a second tourniquet proximal to the first, or above the knee or elbow, if wound is distal to these joints
 - Note the time of tourniquet application and location of tourniquet(s)
- Refer to the "General: Trauma Associated Hypoperfusion / Hypovolemia" protocol, as indicated
- Airway management and appropriate oxygen therapy



EMT, ADVANCED, CC, AND PARAMEDIC STOP



(2-21) General: Hyperglycemia

For the pediatric patient, “Pediatric: Hyperglycemia”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped
- Call for ALS intercept, if patient has altered mental status
- If blood glucose is CONFIRMED by glucometer to be high, do not administer oral glucose



EMT STOP

ADVANCED

CC

PARAMEDIC

- Vascular access
- If glucose level is above 400 mg/dL, administer normal saline 500 mL IV bolus if there is no concern for pulmonary edema
 - May repeat bolus x1 if no concern for pulmonary edema



ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline IV bolus



(2-22) General: Hyperkalemia

Criteria

- This protocol is intended to be used for the prevention of potentially fatal cardiac rhythm abnormalities in patients with known or suspected hyperkalemia including:
 - Patients with known elevated laboratory values
 - Patients with renal failure who should be receiving dialysis
 - Patients with suspected renal failure who are not yet receiving dialysis
 - For patients with crush injury refer to the “General: Crush Injuries” protocol
- There are no standing orders for hyperkalemia *except* for paramedics in cases of cardiac arrest or rhythm change during rapid sequence intubation

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

EMT STOP

ADVANCED

- Vascular access
- Normal saline 500 mL bolus

ADVANCED STOP

CC

- Cardiac monitor
- 12-lead ECG

CC STOP

PARAMEDIC

- In cases of cardiac arrest or rhythm changes during rapid sequence intubation:
 - Sodium bicarbonate 50 mEq IV
 - Calcium chloride 1 gram IV if there is QTc prolongation or suspected QRS widening
- Contact medical control for treatment of other indications

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Albuterol 2.5 mg in 3 mL (unit dose), via nebulizer (without ipratropium) repeated every 10 minutes
- Sodium bicarbonate and calcium chloride in patients who do not meet standing order criteria



Key Points/Considerations

- Significant QTc prolongation should be considered when QTc > 500 milliseconds
- Significant QRS widening should be considered when QRS >150 milliseconds
- Calcium chloride is not a benign medication and should only be given if there are dangerous ECG changes such as QTc prolongation or suspected QRS widening
- Calcium chloride should only be given through a large, proximal, easily flowing IV
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Hyperkalemia is indicated by prolonged QTc or widened QRS complexes



(2-23) General: Hypoglycemia

For the pediatric patient, “Pediatric: Hypoglycemia”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low, and patient can self-administer and swallow on command, give one unit dose (15-24 grams) of oral glucose, or another available carbohydrate source
- Call for an ALS intercept, if the patient is unable to swallow on command, or mental status remains altered following administration of oral glucose



EMT STOP

ADVANCED

CC

PARAMEDIC

- Vascular access
- If glucose level is below 60 mg/dL and the patient cannot swallow on command, administer dextrose 10%, up to 25 grams (250 mL) IV; may redose if hypoglycemia reoccurs
- If unable to obtain vascular access, administer glucagon 1 mg IM



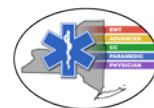
ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional dextrose 10 %, if patient is hypoglycemic

Key Points/Considerations

- If the patient wishes to refuse transportation to a hospital and you have administered any medications, including oral glucose, regional procedure may require you to contact medical control prior to leaving the patient or completing the refusal of care, particularly if you know or suspect the patient may be on oral glyceimic medications, or for any other worrisome concerns. Patient should be instructed to eat a meal if they are refusing transport because simple sugars are quickly metabolized
- If the patient’s blood glucose level is below 60 mg/dL and the patient is able to self-administer and swallow on command, administer oral glucose or equivalent, rather than establishing vascular access, if practical
- If the patient regains normal responsiveness prior to infusion of the complete dose of dextrose, stop the infusion and record amount infused
- Diabetic patients may exhibit signs of hypoglycemia with a blood sugar between 60-80 mg/dL. If you suspect the symptoms are hypoglycemia-induced, titrate dextrose 10 % using 5 grams (50 mL) aliquots for treatment and diagnosis



(2-24) General: Hypothermia / Cold Emergencies

EMT

ADVANCED

CC

PARAMEDIC

- ABCs, vital signs
- Remove the patient from the cold environment
- For local cold injury:
 - Protect areas from pressure, trauma, and friction
 - Do not break blisters
 - Do not rub the injured area
 - Remove clothing and jewelry
- Rewarm the extremity if transport time > 30 minutes, **AND** the patient presents with early or superficial local cold injury only, **AND** there is no concern that the extremity will freeze again:
 - Immerse the affected part in a warm water bath ≤ 105 °F; water should feel warm, but not hot
 - Frequently stir the water and assure it remains warm
 - Continue the immersion in warm water until the extremity is soft, **AND** color and sensation return
 - Dress the area with dry, sterile dressings
 - If a hand or foot is involved, place sterile dressings between the fingers or toes
 - Prevent the warmed part from freezing again
- For generalized hypothermia:
 - Handle patient carefully to prevent cardiac dysrhythmias
 - Gently remove wet clothing and dry the patient
 - If oxygen is required, provide warm, humidified oxygen, if available
 - Place heat packs, if available, in the patient's groin area, lateral chest, and neck
 - Wrap the patient in dry blankets and maintain a warm environment



EMT, ADVANCED, CC, AND PARAMEDIC STOP

Key Points/Considerations

- Patients with severe hypothermia may have very slow heart rates
- If defibrillation is required, provide no more than three shocks
- Limit administration of medication in cardiac arrest associated with hypothermia to one round
 - Rhythm changes may be treated with a single round of the appropriate drug



(2-25) General: Interfacility Transport

EMT

- An EMT may transport stable patients with a secured saline lock device in place, as long as no fluids or medications are attached

EMT STOP

ADVANCED

- An AEMT may transport stable patients with simple IV fluids, such as D5W, normal saline, or lactated ringers. The solution may not contain potassium or any other medications

ADVANCED STOP

CC

PARAMEDIC

- Paramedics and critical care technicians may transport a patient between facilities with standard IV infusions flowing, including antibiotics, provided they are ordered and provided by the transferring facility
- Be certain to clarify orders regarding medication titration prior to departure
- All vasoactive medication drips and all fluids containing potassium must be run on an infusion pump

CC AND PARAMEDIC STOP

Key Points/Considerations

- This protocol may be applied to facilities not covered in Article 28 of the public health law, such as urgent care centers and physician offices, as required
- Orders should be written by the sending physician in case there are directives to implement care not otherwise specified in the protocols
- Ambulances credentialed as, “Ambulance Transfusion Services,” may transport patients with blood products initiated at the hospital, but must have orders for the blood products and orders for response to complications, written by the sending physician
- After assessing the patient and reviewing the patient’s records and transfer orders, the crew must determine if the patient’s current condition is appropriate for the provider’s level of training, experience, and available equipment
- If there are any changes in the patient’s condition that are not covered by the prescribed orders or agency protocols, contact medical control. If a total failure of communications occurs, and the patient is unstable and decompensating, follow these protocols and go to the closest hospital’s emergency department
- An appropriately trained nurse, respiratory therapist, physician assistant, nurse practitioner, or physician from the sending facility must accompany the patient for any prescribed treatments or modalities for which the designated provider is not credentialed by his or her agency, or that is outside of the provider’s level of training, experience, and/or available equipment
 - Each region may indicate specific medications or medication types that providers may transport without hospital personnel
- Specialty care transports (SCT) are a subset of inter-hospital transports, and can only be done by paramedics or critical care technicians credentialed by the medical director of the agency performing the transport and in accordance with regional procedure
- Regions may have more extensive procedures governing interfacility transports



(2-26) General: Musculoskeletal Trauma

EMT

ADVANCED

CC

PARAMEDIC

- ABCs and vital signs
- Consider spinal motion restriction
- Manually stabilize the extremity above and below the injury
- Evaluate distal pulse, motor, and sensory function
- Expose injured area
- If the distal extremity is cyanotic, **or** lacks a pulse, **or** if a long bone is severely deformed, align the extremity by applying gentle manual traction prior to splinting
- Apply a splint, and reassess the distal pulse, motor, and sensory function
 - Traction splinting may be indicated if there is a mid-thigh injury, and no suspected injury to the pelvis, hip, knee, lower leg, or ankle on the same side (depending on particular device). The traction splint may not be applied if the injury is close to the knee, associated with amputation, or near an avulsion with bone separation
 - Stabilize the pelvis if the patient has a potential unstable pelvic fracture
- Continue ongoing assessment of vital signs and distal pulse, motor, and sensory function
- Consider “General: Pain Management,” protocol as your level of training allows, as indicated



EMT, ADVANCED, CC, AND PARAMEDIC STOP



(2-27) General: Nausea and/or Vomiting

For the pediatric patient, “Pediatric: Nausea and/or Vomiting (> 2 y/o)”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT STOP**

ADVANCED

- Vascular access
- Normal saline 500 mL IV bolus; may repeat once, if lung sounds remain clear

 **ADVANCED STOP**

CC

PARAMEDIC

- Consider a 12-lead ECG and cardiac monitor
- Ondansetron (Zofran) 4 mg ODT/PO, IV, or IM, may repeat x 1 in 10 minutes
- Diphenhydramine (Benadryl) 25 mg IV or IM for motion sickness

 **CC AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Midazolam (Versed) IV, IM, or IN

Key Points/Considerations

- This protocol is intended for the prevention and treatment of nausea and/or vomiting



(2-28) General: Nerve Agent- Suspected

THIS PROTOCOL IS SPECIFIC TO A DISASTER SETTING

Criteria

- This protocol is for those adult patients who are suspected of being exposed to an organophosphate or a chemical nerve agent, and are experiencing some or all of following signs/symptoms:
 - MODERATE: SLUDGEM = Salivation-Lacrimation-Urination-Diarrhea-GI Distress-Emesis-Muscle Twitching-Miosis
 - SEVERE: SLUDGEM + Agitation/Confusion/Seizures/Coma + Respiratory Distress

EMT

ADVANCED

CC

PARAMEDIC

- Don personal protective equipment
DO NOT APPROACH WITHOUT ADEQUATE PROTECTION
- Contact dispatch to declare an incident; request an appropriate response
- Request ALS, if not already present or en route
- Contact medical control to request CHEMPACK Program Antidote Kits
- Consider requesting an EMS physician to scene
- Decontaminate as needed
- ABCs and vital signs
- Airway management with high concentration oxygen
- If SEVERE signs and symptoms are present, administer three (3) atropine 2 mg auto-injectors and three (3) pralidoxime (2-PAM) auto-injectors in rapid succession (stacked). Atropine MUST be administered first
- If MODERATE signs and symptoms are present, administer two (2) atropine 2 mg auto-injectors and one (1) pralidoxime (2-PAM) auto-injectors in rapid succession (stacked). Atropine MUST be administered first

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

Key Points/Considerations

- EMS providers should be trained at the WMD Awareness level to use this protocol
- The auto-injectors or other medications found in the CHEMPACK Program Antidote Kits are NOT to be used for prophylaxis
- Children should be decontaminated and have expedited transport off scene, especially if they are demonstrating ANY signs or symptoms of exposure
- Consult medical control before administering medication to children younger than 8 years of age
- **CHEMPACK Program Antidote Kit medications may be used regardless of the expiration date**



Mark I Kit Dosing Chart

Triage - Initial Treatment – Antidote Dosing Schedules		
Signs and Symptoms	Atropine Dose Monitor Interval	Pralidoxime Chloride (2-PAM CL) Dose
SEVERE Respiratory Distress Agitation/Seizures SLUDGEM	3 Auto-injectors (6 mg total) Monitor every 5 minutes	3 Auto-injectors (1.8 Gm)
MODERATE Respiratory Distress SLUDGEM	2 Auto-injectors (4 mg total) Monitor every 10 minutes	1 Auto-injector (600 mg)
ASYMPTOMATIC None	None Monitor for signs and symptoms every 15 minutes	None

From NYS DOH Mark I Kit

Key Points/Considerations

- Mark I Kit Assets: diazepam (Valium), atropine, and pralidoxime (2-PAM) may be administered by qualified emergency personnel and designated emergency responders who have had adequate training in on-site recognition and treatment of nerve and/or organophosphate agent intoxication
- Combination autoinjectors (such as DuoDote® and ComboPen®) that contain both atropine and pralidoxime (2-PAM) together may be used in place of the autoinjectors that contain the individual drugs
- Diazepam (Valium) auto-injectors should be administered, as directed on the packaging, only to patients who are having active tonic-clonic seizures
- **CHEMPACK Program Antidote Kit medications may be used regardless of the expiration date**



(2-29) General: Opioid (Narcotic) Overdose

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what and how much was taken, along with the time, if possible
- Check blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated
- Naloxone (Narcan) 2 mg IN, if hypoventilation or respiratory arrest; may repeat once in 5 minutes, if no significant improvement occurs
 - May substitute 4mg/0.1mL nasal spray

 **EMT STOP**

ADVANCED

- Vascular access *ONLY* if necessary

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor
- Consider a 12-lead ECG, especially if bradycardic or tachycardic. (Evaluate for QRS widening or long QTc)
- Titrate naloxone (Narcan) to max 2 mg per dose IV, IM, or IN, **ONLY** if hypoventilation or respiratory arrest. (Consider administering in ≤ 0.5 mg increments, if giving IV)

 **CC AND PARAMEDIC STOP**

Key Points/Considerations

- **Only administer naloxone (Narcan) to patients with suspected opioid overdose *with hypoventilation*. For provider and patient safety, do not administer without a medical control order if there are adequate ventilations**
- ALS providers should titrate the naloxone (Narcan) dose to assure adequate ventilation
- If high suspicion of opioid overdose, providers may administer naloxone (Narcan) prior to checking a blood glucose level
- Do NOT give naloxone (Narcan) to any intubated patient without a medical control order unless they are in cardiac arrest
- If suspected isolated opioid overdose, consider giving naloxone (Narcan), intranasally, for provider and patient safety



(2-30) General: Organophosphate Exposure

EMT

- Decontamination as needed
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what and how much was taken, along with the time, if possible
- Check blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated

 **EMT STOP**

ADVANCED

- Vascular access

 **ADVANCED STOP**

CC

- Cardiac monitor
- Consider a 12-lead ECG, especially if bradycardic or tachycardic. (Evaluate for QRS widening or long QT)

 **CC STOP**

PARAMEDIC

- For symptomatic patients with organophosphate poisoning:
 - Atropine 2 mg (per dose) IV, every 5 minutes until secretions dry
 - Midazolam (Versed) 5 mg IV, IM, or IN for seizures (See also the “General: Seizures” protocol)

 **PARAMEDIC STOP**

Key Points/Considerations

- If suspected WMD, refer to the “General: Nerve Agent – Suspected” protocol or NYS Advisory on Mark I Kits, #03-05
- For severe exposure or multiple patients, the atropine supply may quickly be exhausted. Diligent airway management, including suctioning and/or patient positioning, is imperative



(2-31) General: Overdose / Toxic Exposure

For the pediatric patient, “Pediatric: Overdose / Toxic Exposure”

Criteria

- This protocol is intended for the undifferentiated toxic exposure
- For a suspected carbon monoxide exposure, see the “General: Carbon Monoxide Exposure – Suspected” protocol
- For a suspected nerve agent exposure, see “General: Nerve Agent – Suspected” protocol
- For an opioid overdose, see the “General: Opioid (Narcotic) Overdose” protocol
- For an organophosphate exposure, see “General: Organophosphate Exposure” protocol
- For smoke inhalation, see “General: Smoke Inhalation – Symptomatic” protocol

EMT

- Decontamination, as needed
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what and how much was taken, along with the time, if possible
- Check a blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated



EMT STOP

ADVANCED

- Vascular access



ADVANCED STOP

CC

- Cardiac monitor
- Consider a 12-lead ECG, especially if the patient is bradycardic or tachycardic. (Evaluate for QRS widening or long QT)
- Sympathomimetic OD (cocaine/amphetamines):
 - Consider midazolam (Versed) 2.5mg IV or 5mg IM or IN; may repeat x 1 in 5 minutes



CC STOP

PARAMEDIC

For symptomatic patients with:

- Organophosphate poisoning: See the “General: Organophosphate Exposure” protocol
- Dystonic reaction:
 - Diphenhydramine (Benadryl) 50 mg IV or IM
- Tricyclic antidepressant OD (if tachycardic and wide complex QRS)
 - Sodium bicarbonate 1 mEq/kg IV every 5 minutes until QRS complex normalizes (< 0.12 sec / 120 milliseconds / 3 small boxes)



PARAMEDIC STOP



MEDICAL CONTROL CONSIDERATIONS

- Calcium channel blocker OD:
 - Calcium chloride 1 gram IV slow push over 10 minutes

Key Points/Considerations

- Dystonic reaction is a reaction to medication resulting in uncontrolled muscle contractions of the face, neck, or tongue. Extrapyramidal side effects may also include extreme restlessness and may be treated as a dystonic reaction



(2-32) General: Pain Management

For the pediatric patient, “Pediatric: Pain Management”

Criteria

- Contraindications to standing order pain management: altered mental status, hypoventilation, SBP < 100 mmHg
- Consider consultation with medical control prior to pain management in the third trimester pregnant women with pain complaints

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



EMT STOP

ADVANCED

- Vascular access
- Nitrous oxide by self-administered inhalation, if equipped



ADVANCED STOP

CC

PARAMEDIC

- Morphine 0.05 mg/kg IV or 0.1 mg/kg IM
 - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
- Fentanyl 1-1.5 mcg/kg IN, IV, or IM
 - Fentanyl may be repeated after 5 minutes; maximum total dose of 200 mcg
- For nausea or vomiting see “General: Nausea and/or Vomiting” protocol



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional morphine IV or IM
- Additional fentanyl IV, IM, or IN
- Ketamine* 25 mg IV over 5 minutes or 50 mg IM
 - May consider weight-based dosing ketamine 0.1-0.3 mg/kg IV
 - Use caution when ordering >250 mg IM of ketamine after midazolam (Versed) because apnea may occur
- Midazolam (Versed) IV, IM, or IN
- Ketorolac (Toradol) 30 mg IV or 30 - 60 mg IM

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- **ONE** pain medication may be given under standing orders. For dosing that exceeds the standing order maximum, or to switch to another agent, you must consult medical control
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl to the nearest 50 mcg; consider approximating the dose of morphine to the nearest 5 mg



- Morphine or fentanyl up to the maximum dose may be given via standing orders
- **Nitrous oxide, ketamine, and ketorolac (Toradol) are not required formulary items**
- Ketorolac (Toradol) should not be administered in renal failure/to dialysis patients, to patients > 60 years of age, in pregnancy, or in patients for whom active bleeding is a concern
 - Lower dosing of ketorolac (Toradol) should be considered for those weighing less than 50 kg
- Contraindications to nitrous oxide include: suspected bowel obstruction, pneumothorax, hypoxia, or the inability to self-administer
- Fentanyl should be considered if there is an allergy to morphine, or potential hemodynamic instability
- Morphine often produces a normal localized histamine reaction which manifests as urticaria (hives) immediately surrounding the IV site, and is not considered a sign of allergy. More extensive involvement of urticaria or other signs of allergic reaction should be treated (See: the “General: Allergic Reaction and Anaphylaxis” protocol)
- Fentanyl must be pushed *slowly*



(2-33) General: Patella Dislocation

Criteria

- For isolated, clinically obvious, medial or lateral dislocation of the patella
- Usually described as “knee went out”
- Intraarticular and superior dislocations are not reducible in the prehospital environment

EMT

ADVANCED

CC

PARAMEDIC

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Address hemorrhage and other, more serious injuries first (if there are other serious injuries, this protocol does not apply)
- Obvious medial or lateral patella dislocation
 - If body habitus precludes assessment, stop and immobilize in position found
- Gradually extend the knee while, at the same time, a second provider applies pressure on the patella towards the midline of the knee
- When straight, place the entire knee joint in a knee immobilizer or posterior splint
- Initiate “General: Pain Management” protocol, as your level of training allows

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

Key Points/Considerations

- Some increased pain may occur during reduction
- If there is severe increased pain or resistance, stop and splint in the position found
- Patient usually feel significantly better after reduction, but they still need transport to a hospital for further evaluation and possible treatment



(2-34) General: Post Intubation Management

INDICATION

- For use on standing order, unless otherwise specified, by critical care or paramedic providers (regardless of RSI credentialing) in patients who have been intubated

PROCEDURE

- Elevate the head of the bed when possible to decrease risk of aspiration
- Continuously monitor capnography and ventilate with a target EtCO₂ of 35-45 mmHg
- Administer continual analgesia and, if necessary, sedation:
 - Fentanyl 100 mcg IV once, and then 50 mcg IV every 5 minutes, as needed
 - Midazolam (Versed) up to 5mg IV every 10 minutes, as needed
 - May substitute ketamine* up to 100 mg every 5 minutes, as needed
- Ongoing paralysis is a standing order ***ONLY for air medical services***
 - Consider vecuronium up to 10 mg every 30 minutes, as needed, if necessary for patient or crew safety
 - Paralytics are not substitutes for adequate sedation and pain management
 - Use of paralytics requires ongoing sedation and pain management
- Continuously monitor ETT placement, including effectiveness of oxygenation and ventilation
- Consider placement of an orogastric (OG) tube, if equipped and regionally approved
- Refer to “Resource: Automatic Transport Ventilator,” as indicated

MEDICAL CONTROL CONSIDERATIONS

- Additional sedation and/or pain management
- Consider long-term paralysis with rocuronium or vecuronium, if available, ***ONLY*** if necessary (e.g. for patient or crew safety)
 - Paralytics are not substitutes for adequate sedation and pain management
 - Use of paralytics ***requires*** ongoing sedation and pain management
 - Inadequate response to sedation and pain management may be secondary to insufficient sedation and/or analgesia

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- In cases of inadequate ventilation or oxygenation of the intubated patient, consider the DOPE mnemonic:
 - Displacement
 - Obstruction
 - Pneumothorax (tension)
 - Patients who are being ventilated (with positive pressure) have an increased risk of developing a tension pneumothorax
 - Equipment failure



(2-35) General: Prescribed Medication Assistance

Criteria

- For patients or caregivers of patients who require assistance with medication that they, or people in their care, are prescribed

EMT

- Sublingual nitroglycerin for patients with chest pain
- Inhalers (albuterol* or other beta-agonists) for patients with asthma or COPD
- Rectal diazepam (Diastat) for children or adults with special needs
- Epinephrine autoinjectors for treatment of anaphylaxis
- Naloxone (Narcan) via autoinjector or intranasal device

EMT STOP



ADVANCED

CC

PARAMEDIC

- Vascular access to resume and maintain pre-existing drips
- Naloxone (Narcan) via IM injection



ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Approval of any medication administration not listed above:
 - Approval of oral and rectal medications for EMT
 - Approval of IM, SC, IN, or IV for advanced, CC, and paramedic providers

Key Points/Considerations

- This protocol is designed to assure that the EMS provider and medical control provider are best prepared to assist patients with ongoing disease processes that are not covered by these protocols, and who have already been given therapy by their prescribers. Typical situations include:
 - Pulmonary hypertension – epoprostenol (Flolan) infusion when PICC line breaks
 - Congenital adrenal hyperplasia – assisting with IM administration of hydrocortisone sodium succinate (Solu-Cortef)
- If a patient is on a continuous drip medication and they lose their access, it is potentially fatal. Obtaining IV access (or an IO, should IV access be unobtainable) and continuing an infusion pump the patient has prescribed may be life-saving
- Access of ports may not be done unless the provider has additional training and is equipped, or the patient has his or her own access device. See General: Vascular Devices – Pre-Existing
- *Common brand names for albuterol include Ventolin[®], Proventil[®], and ProAir[®]
 - Levalbuterol (Xopenex) is a beta agonist and, therefore, a levalbuterol inhaler may be utilized in this protocol
 - A combination inhaler that contains albuterol & ipratropium (Atrovent[®]), such as Combivent[®], that is prescribed to the patient may be substituted for an albuterol inhaler in this protocol



(2-36) General: Preterm Labor (24 – 37 weeks)

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT STOP**

ADVANCED

CC

PARAMEDIC

- Vascular access
- Normal saline 500 mL IV bolus

 **ADVANCED, CC, AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Magnesium 4 grams in 100 mL IV over 20 minutes
- Additional normal saline

Key Points/Considerations

- Transport to the closest appropriate hospital, if delivery is imminent or occurs on scene
 - Notify the destination hospital ASAP
 - If a patient is unwilling to go to the closest appropriate hospital, consult medical control for assistance in determining an appropriate destination



(2-37) General: Procedural Sedation

For the pediatric patient, “Pediatric: Procedural Sedation”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



EMT STOP

ADVANCED

- Vascular access



ADVANCED STOP

CC

- Cardiac monitor with continuous pulse oximetry and waveform capnography



CC STOP

PARAMEDIC

- Midazolam (Versed) 2.5 mg IV or 5 mg IM
 - May be repeated every 5 minutes, as needed, if SBP > 100 mmHg or MAP > 65 mmHg.
- Fentanyl 1-1.5 mcg/kg IN, IV, or IM
 - Fentanyl may be repeated after 5 minutes; maximum total dose of 200 mcg



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Morphine IV or IM
- Midazolam (Versed) IV, IM, or IN
- Ketamine* 0.5-2 mg/kg IV or 3-5 mg/kg IM
 - Use caution when ordering > 250 mg IM of ketamine after midazolam (Versed) because apnea may occur
- Etomidate (Amidate) 0.1 mg/kg IV (if regionally approved)
 - Should not be administered more than once
 - Note: 0.3 mg/kg IV is the dose typically reserved for induction

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- This protocol may only be used for intubation upon medical control order
- Etomidate is not a required formulary medication and may not be available in all regions
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl to the nearest 50 mcg
- For patients with the following anxiety-producing or painful procedures including:
 - Cardioversion
 - Transcutaneous pacing
- For post-intubation sedation, see the “General: Post Intubation Management” protocol
- If additional sedation is required after giving a dose of etomidate (Amidate), midazolam (Versed) may be used on standing order
- **Utilize waveform capnography with proper sampling equipment for conscious patients (i.e. nasal prong EtCO₂ monitoring device)**



(2-38) General: Pulmonary Edema – Acute Cardiogenic

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Sit patient upright, if possible
- Continuous Positive Airway Pressure (CPAP) 5-10 cm H₂O as needed, if equipped and trained

EMT STOP

ADVANCED

- Vascular access

ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor
- Aggressive nitroglycerin 0.4 mg SL or equivalent, as needed:
 - One dose/tablet every 5 minutes if the patient's systolic BP 120 – 160 mmHg
 - Two doses/tablets every 5 minutes if the patient's systolic BP 160 – 200 mmHg
 - Three doses/tablets every 5 minutes if the patient's systolic BP > 200 mmHg
- Consider albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer, only if wheezes are present
- 12-lead ECG

CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional albuterol

Key Points/Considerations

- All patients with rales do not have pulmonary edema; consider the possibility of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Monitor BP closely, particularly when administering nitroglycerin for pulmonary edema (may not be able to lay patient in a supine position if he/she becomes hypotensive)
- BiPAP may be used in place of CPAP as training and equipment allow



(2-39) General: Rapid Sequence Intubation (RSI)

INDICATIONS

- Regional policy/procedure determines credentialing of paramedics authorized to utilize this protocol, and any additional directives pertaining to rapid sequence intubation
- Rapid Sequence Intubation (RSI) may be utilized on standing orders when definitive airway control is necessary in an adult, **and** both of the following exist:
 - GCS \leq 8
 - Patient's weight at least 30 kg (66 pounds)
- Above restrictions to standing order do not apply to air medical services

CONTRAINDICATIONS / PRECAUTIONS

- Patients who cannot be ventilated with a bag-valve-mask (BVM) because of anatomy, facial/airway trauma, or other reasons

PROCEDURE

- Position the patient, appropriately
- Attach SaO₂, NIBP, and cardiac monitor
- Oxygenate via non-rebreather mask (NRB) or utilize a BVM, as indicated, while preparing for the procedure
- Consider high flow nasal oxygen during intubation (15 LPM via nasal cannula)
- Consider use of a Bougie on the initial attempt
- Prepare a continuous EtCO₂ device
- Prepare for post intubation management (General: Post Intubation Management)
- Assemble and test all basic and advanced airway equipment, including suction
- Ready backup airway devices
- Draw up appropriate medications
- Have a second rescuer assist with laryngeal manipulation, as indicated
- Administer an induction agent: (Select one medication)
 - Etomidate (Amidate) 0.3 mg/kg rapid IV push
 - Etomidate (Amidate) is dosed on the **total** body weight
 - May round etomidate (Amidate) dose to the nearest 10 mg for adults (Max 40 mg)
 - Ketamine* 2 mg/kg rapid IV push
 - Ketamine* is dosed based on the **ideal** body weight
 - May round to the nearest 50 mg for adults (Max 500 mg)
- Administer Paralytic: (Select one medication)
 - Succinylcholine 1.5 mg/kg rapid IV push
 - Succinylcholine is dosed on the **total** body weight (Max 200 mg)
 - May round succinylcholine dose to the nearest 50 mg for adults
 - Rocuronium 1 mg/kg (only if succinylcholine is contraindicated)
 - Rocuronium is dosed based on the **ideal** body weight (Max 100 mg)
 - May round rocuronium dose to the nearest 20 mg for adults
- If the intubation is missed (3 attempts maximum) manage the airway and ventilate; consider inserting an alternative airway device
- If unable to adequately oxygenate and ventilate the patient with any other method, perform a cricothyroidotomy
- Attach a continuous EtCO₂ monitor, confirm advanced airway placement, and secure the



airway, as indicated

- See “General: Post Intubation Management”

MEDICAL CONTROL CONSIDERATIONS

- RSI in patients weighing < 30 kg
- RSI when other standing order criteria are not met

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- Rocuronium is to be used for paralysis only when succinylcholine is contraindicated. For example:
 - Known or suspected hyperkalemia (e.g. crush injuries, rhabdomyolysis, dialysis patients, severe burns > 24 hours old, pre-existing spinal cord injuries, and neuromuscular disorders, including ALS [amyotrophic lateral sclerosis / Lou Gehrig’s disease] and MS [multiple sclerosis])
 - Known history of malignant hyperthermia
- Consider hyperkalemia in patients who develop ventricular dysrhythmia after administration of succinylcholine. (General: Hyperkalemia, Cardiac Arrest: Ventricular Fibrillation or Pulseless Vent. Tachycardia)
- Consider time to definitive care when electing to utilize RSI procedure
 - In some cases, it may be more beneficial to implement BLS airway interventions and call ahead so the receiving hospital can prepare for RSI upon the patient’s arrival



(2-40) General: Seizures

For the pediatric patient, “Pediatric: Seizures”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check a blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated

 **EMT STOP**

ADVANCED

- Vascular access

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor
- Midazolam (Versed) 5 mg IV, IM, or IN; may repeat x 1 in 5 minutes
- Magnesium 4 grams IV over 20 minutes, if patient is pregnant

 **CC AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Additional midazolam (Versed) 2.5 – 5 mg IV, IM, or IN

Key Points/Considerations

- Seizures secondary to eclampsia in pregnancy occur because of a different mechanism than typical epileptic seizures
 - Pre-eclampsia is typically described as BP > 140/90 mmHg with severe headache, confusion, and/or hyperreflexia in a pregnant patient, or in one who has given birth within the past month
 - Pre-eclampsia may progress to eclampsia
- Protect the patient and EMS crew from injury during the seizure
- Any EMS provider may assist the patient’s family or caregivers with the administration of rectal diazepam (Valium/Diastat), if available. (General: Prescribed Medication Assistance)



(2-41) General: Septic Shock – Suspected

Criteria

Protocol activated for an adult patient with **all three** of the following:

- Suspected infection
- Hypotension (systolic BP < 90 mmHg) **OR** altered mental status
- At least two of the following:
 - Heart rate > 90
 - Respiratory rate > 20 **or** PaCO₂ < 32 mmHg
 - Temperature > 100.4° F (38° C), if available
 - White blood count > 12,000 cells/mm³ **or** < 4,000 cells/mm³ **or** > 10% bands, if available


EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated

 **EMT STOP**

ADVANCED

- Large bore vascular access
- Normal saline 500 mL, if needed; may repeat up to 2 L if there is no concern for pulmonary edema
 - Goal is MAP > 65 mmHg
- Notify the destination hospital of potential septic shock patient with a verbal report prior to your arrival

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor and continuous pulse oximetry
- Consider a 12-lead ECG
- Normal saline, to a total of 2 L, if there is no concern for pulmonary edema

 **CC AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Additional fluid administration
 - Patients in septic shock may require boluses of up to 3-4 L (or 30cc/kg) prior to initiating vasopressors, provided there are no contraindications to doing so, such as renal failure or pulmonary edema
- Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after the fluid bolus is completed to maintain MAP > 65 mmHg or SBP > 100 mmHg



Key Points/Considerations

- Focus on rapid identification, IV hydration, and early notification of concern for potential septic shock patient to destination facility
- Norepinephrine is a ***medical control consideration*** for septic shock because the patient may require additional fluid hydration prior to consideration of a pressor in this case
- Concern for any new or worsening infection includes reported fever, shaking chills, diaphoresis, new cough, difficult or less than usual urination, unexplained or newly altered mental status, flushed skin, pallor, new rash, or mottling
- Vitals should be frequently assessed during transport to avoid prehospital over-hydration



(2-42) General: Shock / Hypoperfusion

For the pediatric patient, “Pediatric: Shock / Hypoperfusion”

Criteria

- This protocol *excludes* traumatic hypovolemia, cardiogenic, and septic shock
 - For cardiogenic shock, “General: Cardiogenic Shock”
 - For septic shock, “General: Septic Shock – Suspected”
 - For trauma, “General: Trauma Associated Hypovolemia/Hypoperfusion”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Obtain blood glucose, if available



EMT STOP

ADVANCED

- Vascular access
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
 - Goal SBP > 100 mmHg and MAP > 65 mmHg



ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor
- Consider 12-lead ECG
- Normal saline, to a total of 2 L, if there is no concern for pulmonary edema
- Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after the fluid bolus is completed
 - Goal SBP >100 mmHg and MAP > 65 mmHg



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline
- Consider dexamethasone (Decadron) 10 mg PO, IM, or IV

Key Points/Considerations

- Hypoperfusion is defined as SBP < 100 mmHg, MAP < 65 mmHg with decreased level of consciousness.
- Vitals should be frequently assessed during transport to avoid unnecessary prehospital overhydration
- Consider potential causes of hypoperfusion: anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ectopic pregnancy, ruptured abdominal aortic aneurysm, adrenal crisis, or others



(2-43) General: Smoke Inhalation – Symptomatic

EMT

- ABCs and vital signs
- Oxygen via non-rebreather mask (NRB) at 15 LPM
- Apply a carbon monoxide monitor, if equipped
 - See also “General: Carbon Monoxide Exposure – Suspected,” protocol as indicated.
- If the patient is in respiratory distress or rales are present, consider CPAP 5-10 cm H₂O

EMT STOP

ADVANCED

- Airway management, as appropriate
- Vascular access
- Normal saline 500 mL bolus

ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor with 12-lead ECG, when possible
- ADULT: If cardiac or respiratory arrest, seizing, or SBP < 80 mmHg with signs of hypoperfusion after exposure to smoke in an enclosed space:
- Hydroxycobalamin (CyanoKit) 5 grams IV over 15 minutes
- PEDIATRIC: If cardiac or respiratory arrest:
- Hydroxycobalamin (CyanoKit) 70 mg/kg IV over 15 minutes

CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Repeat dose hydroxycobalamin (CyanoKit) 5 grams IV over 15 minutes to 2 hours (depending on clinical condition)

Key Points/Considerations

- Hydroxycobalamin (CyanoKit) is not available in all ambulances, and may not be available in all regions. It may be available for response to scenes through County Fire, EMS Coordinators, or as otherwise regionally established
- Although hydroxycobalamin (CyanoKit) may alter subsequent laboratory values, it is often not practical to obtain specimens in the field. The risk incurred from altered laboratory results does not outweigh the risk of withholding hydroxycobalamin (CyanoKit) when it is indicated
- Suspect cyanide toxicity in patients who were in enclosed spaces during a fire, have soot in their nares or oropharynx, and exhibit altered mental status
- Disorientation, confusion, and severe headache are potential indicators of cyanide poisoning IN THE SETTING of smoke inhalation
- Hypotension without other obvious cause IN THE SETTING of smoke inhalation increases the likelihood of cyanide poisoning



- Do not delay transport awaiting a hydroxycobalamin (CyanoKit); it is available in most EDs
- For IO administration, placing a stopcock on the IV tubing will allow use of a syringe to draw medication from the bottle and inject it into the IO line
- BiPAP may be used in place of CPAP, as training and equipment allow



(2-44) General: ST Elevation MI (STEMI) – CONFIRMED

EMT

- ABCs and vital signs
- Aspirin 324 mg (4 x 81 mg tabs) chewed, if able to chew
- Acquire and transmit 12-lead ECG, if equipped and regionally approved
- Airway management and appropriate oxygen therapy
- Assist the patient with his or her prescribed nitroglycerin SL up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 120 mmHg
- Additional nitroglycerin may be given by an EMT with a medical control order
- For patients with signs of hypoperfusion “General: Cardiogenic Shock”

 **EMT STOP**

ADVANCED

- Vascular access
- Refer to the “General: Pain Management” protocol, as indicated

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor with 12-lead ECG
- Notify the receiving hospital ASAP for ST elevation myocardial infarction (STEMI)
- Strongly recommend transport to a facility capable of primary angioplasty, if transport time is less than 90 minutes, or as otherwise directed by medical control or regional procedure
- Notify the receiving hospital ASAP to discuss transport options, if the patient requests a facility not capable of primary angioplasty
- Nitroglycerin 0.4 mg SL per dose, as needed, 5 minutes apart, BP > 120 mmHg or MAP > 90 mmHg
- If systolic BP drops below 100 mmHg, place the patient in a supine position, if possible
 - Consider a normal saline 500mL IV bolus; may repeat up to 2 L provided lung sounds remain clear

 **CC ANDPARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Additional nitroglycerin 0.4 mg SL every 5 minutes for EMTs
- Additional saline
- Metoprolol 5 mg slow IV, IF HR > 80 and BP > 120 mmHg or MAP > 90 mmHg to a total of 4 doses

Key Points/Considerations

- Focus on rapid identification, notification, and transport to appropriate facility
- A 12-lead ECG should be transmitted to the receiving facility, if possible



- Vitals, including 12-lead ECG, should be frequently assessed during transport
- Use caution when administering nitroglycerin to a patient with an inferior wall MI. Monitor carefully for bradycardia and hypotension
- If the patient becomes hypotensive after nitroglycerin administration, place the patient in a supine position, if there is no contraindication to doing so such as severe pulmonary edema
 - An IV is not required for nitroglycerin administration, particularly in the absence of pulmonary edema because positioning is the primary intervention for nitroglycerin-induced hypotension
- Consider a right-sided ECG in the setting of a suspected inferior STEMI
- Aspirin should not be enteric coated
- The patient may have been advised to take aspirin prior to arrival by emergency medical dispatch. You may give an additional dose of aspirin (324 mg chewed) if there is any concern about the patient having received an effective dose prior to your arrival



(2-45) General: Stroke

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia” or “General: Hypoglycemia” protocol, as indicated
- Perform a neurological exam, including Cincinnati Stroke Scale or other regionally approved stroke scale
- Determine the **exact time** the patient was **last in his or her usual state of health and/or seen without symptoms** by interviewing the patient, family, and bystanders
- If time from symptom onset to estimated arrival in the ED will be less than 5 hours, transport the patient to a NYS DOH Designated Stroke Center, or consult medical control to discuss an appropriate destination facility
- Notify the destination hospital ASAP
- Request ALS, if available, but do not delay transport to appropriate hospital

 **EMT STOP**

ADVANCED

- Vascular access

 **ADVANCED STOP**

CC

PARAMEDIC

- Cardiac monitor
- 12-lead ECG when possible
- Maintain systolic BP > 120 mmHg or MAP > 90 mmHg
If systolic BP > 220 mmHg or diastolic BP > 120 mmHg, contact medical control

 **CC AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Metoprolol 5 mg slow IV push

Reference

Cincinnati Prehospital Stroke Scale:

- Have the patient repeat, “You can’t teach an old dog new tricks”
 - Assess for correct use of words and lack of slurring
- Have the patient smile
 - Assess for facial droop
- Have the patient close eyes and hold arms straight out for 10 seconds
 - Assess for arm drift or unequal movement of one side



(2-46) General: Tachycardia – Narrow Complex

For the pediatric patient, “Pediatric: Tachycardia”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



EMT STOP

ADVANCED

- Vascular access
- Consider normal saline if there is concern for a secondary tachycardia (secondary to dehydration / hypovolemia)
 - 500 mL bolus; recheck lung sounds and repeat bolus if necessary up to 2L providing lung sounds remain clear
- Vagal maneuver



ADVANCED STOP

CC

PARAMEDIC

- Cardiac monitor
- **UNSTABLE** and if the rhythm is **REGULAR**:
 - Consider sedation (General: Procedural Sedation)
 - Synchronized cardioversion starting at 100 Joules or equivalent biphasic
 - 12-lead ECG, when possible
- **UNSTABLE** and if the rhythm is **IRREGULAR**:
 - Consider sedation (General: Procedural Sedation)
 - Synchronized cardioversion 200 Joules or equivalent biphasic
 - 12-lead ECG, when possible
- **STABLE** and if the rhythm is **REGULAR**:
 - Adenosine 6 mg IV with rapid NS flush, may repeat Adenosine 12 mg IV, if needed
 - 12-lead ECG, when possible
- **STABLE** and if the rhythm is **IRREGULAR**:
 - Diltiazem (Cardizem) 0.25 mg/kg (max 25 mg) IV infused over 2 minutes
 - Metoprolol 5mg IV infused over 2 minutes **instead of** diltiazem (Cardizem) if patient is on a prescribed beta-blocker
 - 12-lead ECG, when possible
- If the patient remains **STABLE** and rhythm remains uncontrolled or unconverted by diltiazem (Cardizem) after 15 minutes, adenosine, vagal maneuvers, or if SVT is recurrent:
 - Diltiazem (Cardizem) 0.35 mg/kg (max 35 mg) IV infused over 2 minutes
 - Substitute metoprolol 5 mg IV infused over 2 minutes **instead of** diltiazem (Cardizem) if metoprolol was administered initially



CC AND PARAMEDIC STOP



MEDICAL CONTROL CONSIDERATIONS

- Additional adenosine
- Additional diltiazem (Cardizem) slow IV
- Additional Metoprolol 5 mg slow IV (or initial dose, if not covered under standing order)
- Amiodarone 150 mg in 100 mL normal saline, infused over 10 minutes (10 mL/min or 3 drops every 5 seconds using 10 drop/mL chamber)
- Synchronized cardioversion outside standing orders

Key Points/Considerations

- Protocol generally applies to $HR \geq 150$
- Do NOT use carotid sinus massage as a vagal maneuver
- **UNSTABLE** includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Combined use of IV metoprolol and diltiazem (Cardizem) may precipitate hypotension and may not be done on standing order



(2-47) General: Tachycardia – Wide Complex with a Pulse

For the pediatric patient, “Pediatric: Tachycardia”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 EMT STOP

ADVANCED

- Vascular access

 ADVANCED STOP

CC

- Cardiac monitor
- If UNSTABLE, consider sedation (General: Procedural Sedation)
- Synchronized cardioversion starting at 100 Joules or the equivalent biphasic setting
Repeated as needed, to a maximum of 3 times
 - If the rhythm is converted, discuss the administration of antiarrhythmics with medical control
- 12-lead ECG, when possible

 CC STOP

PARAMEDIC

- If STABLE, amiodarone 150 mg in 100 mL normal saline, over 10 minutes (10 mL/min or 3 drops every 5 seconds using 10 drop/mL chamber)

 PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Unsynchronized cardioversion or synchronized cardioversion outside standing orders
- Adenosine 6 mg or 12 mg IV with rapid normal saline flush
- Lidocaine 1.5 mg/kg IV
- If the rhythm is converted, consider amiodarone 150 mg in 100 mL normal saline IV, over 10 minutes
 - May consider repeat amiodarone 150 mg in 100 mL normal saline, over 10 minutes
- Magnesium 2 grams IV, over 10 minutes for STABLE patient, over 2 minutes for UNSTABLE patient

Key Points/Considerations

- If no pulse, treat as ventricular fibrillation
- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Wide complex is defined as a QRS complex > 0.12 sec / 120 msec / 3 small boxes



(2-48) General: Trauma

Key Points/Considerations

- Traumatic arrest patient: refer to the “Cardiac Arrest: Determination of Obvious Death” protocol. If the patient does not meet criteria of obvious death as defined in the protocol, refer to the appropriate cardiac arrest protocol
- All other trauma patients meeting CDC criteria for transport to a trauma center go to closest appropriate trauma center
 - See “Resource: Trauma Triage – CDC”
- Patients with an *unmanageable* airway: go to the closest hospital, or call for air medical or other advanced airway assistance while transporting to the closest hospital
 - An airway does not necessarily require the placement of an endotracheal tube to be adequately managed
- **UNSTABLE patients should have transport initiated to the appropriate hospital/landing zone within 10 minutes of disentanglement/extrication**
- Notify the receiving facility as early as possible; give a brief description of the mechanism of injury, status of patient(s), and estimated time of arrival
- Tourniquets are approved for use in extremity trauma in New York State at the BLS level
- Hemostatic dressings are approved for use in New York State at the BLS level
- For spinal motion restriction guidelines, see “Resource: Spinal Motion Restriction”



(2-49) General: Trauma Associated Hypoperfusion / Hypovolemia

For the pediatric patient, “Pediatric: Shock / Hypoperfusion”

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Position the patient in a supine position, if possible (e.g. no evidence of pulmonary edema)

 **EMT STOP**

ADVANCED

CC

PARAMEDIC

- Vascular access

If COMPENSATED SHOCK:

- Normal saline, one (1) liter, then 500 mL/hour

IF DECOMPENSATED SHOCK:

- Additional vascular access, infuse normal saline, up to 2 liters, then 500 mL/hour
- Monitor for signs of pulmonary edema

 **ADVANCED, CC, AND PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline
- Norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed after fluid bolus is completed, to maintain MAP > 65 mmHg or SBP >100 mmHg

Key Points/Considerations

COMPENSATED SHOCK in trauma is defined as significant mechanism of injury AND tachypnea, tachycardia, pallor, or restlessness, AND Systolic BP > 90 mmHg, MAP > 60 mmHg

DECOMPENSATED SHOCK is defined as clinical picture of shock AND Systolic BP < 90 mmHg, MAP < 60 mmHg

- A falling BP is a LATE sign of shock
- Contact the receiving hospital early with a “trauma alert” call, giving a brief description of the mechanism of injury, status of the patient, and estimated time of arrival



(2-50) General: Vascular Access

EMT

- No options

EMT STOP

ADVANCED

- Adult IV
- Adult IO
- Pediatric IO

ADVANCED STOP

CC

- Critical pediatric IV (cardiac arrest/respiratory arrest/diabetic emergency/or similar situation where intervention is critical **ONLY**)
- Need to maintain critical IV infusion in pediatric patient (such as Flolan [epoprostenol]) (General: Prescribed Medication Assistance)
- If IO access is started in a conscious patient, the IO should be instilled with lidocaine (2%) 40 mg (2 mL) for adults, or 1 mg/kg for pediatric patients in the method described by the manufacturer

CC STOP

PARAMEDIC

- Access to pre-existing vascular devices standing order is for patients in extremis requiring a lifesaving intervention **ONLY**. (General: Vascular Devices – Pre-Existing)
- Pediatric IV
 - There are no prophylactic vascular access procedures performed in children
 - Do not initiate vascular access in children unless
 - They require IV/IO fluid
 - They require IV/IO medication
 - They meet step one or step two trauma triage criteria (Resource: Trauma Triage – CDC)
 - For patient safety, IV fluid bags of no greater than normal saline 100 mL bags may be hung on patients weighing < 20 kg

PARAMEDIC STOP

Key Points

- Intraosseous infusion may only be used in cases of critical patients where IO access may be lifesaving
- Any IV medication in these protocols may be given IO, if required
- IV sites include peripheral veins, including upper extremities and lower extremities (below the knees) and the external jugular vein. The scalp veins may be used in infants
- Pediatric vascular access should only be obtained if there is a critical intervention to perform, such as a fluid bolus in patients in decompensated shock, or glucose administration in a hypoglycemic patient with diabetes
- The number of vascular access attempts, the provider making the attempts, the site of the attempts, the catheter sizes, the solution, the infusion rate (e.g. KVO, 250 mL/hr, open) and total fluid infused should be noted on the PCR
- Good clinical judgment will dictate the maximum number of vascular access attempts
- Do not delay transport solely to attempt vascular access



(2-51) General: Vascular Devices – Pre-Existing

PARAMEDIC ONLY

Procedure

- Identify the device
- If the patient is in EXTREMIS and a lifesaving intervention will be performed, establish access to the device
- If the patient is not in extremis, consult medical control for orders to access the device.
 - No prophylactic IV lines / access may be established using pre-existing vascular devices
- Procedure to establish access to Pre-Existing Vascular Access Device:
 - Discontinue any solution flowing into the pre-existing vascular device (providing continuous infusion is not necessary to maintain such as epoprostenol [Flolan]; contact medical control in these cases prior to initiating access)
 - Put on sterile gloves, if available
 - Clean injection site with iodine solution or chlorhexidine wipe. Do not remove or unscrew the cap, unless no other means of accessing the device is possible
 - Remove any clamps on the vascular access device, and slowly withdraw 10 mL of fluid from the port
 - Inject 5 mL normal saline. If the bolus does not inject freely, the access must not be used
 - If the device is patent, inject the remaining 5 mL from the syringe
 - Secure an administration set to the access site
 - Maintain normal saline KVO through the device
 - Administer a fluid bolus and/or medications as you would for a peripheral IV
 - If the access device is damaged and begins to leak, clamp it one inch from the skin entry site with a padded, non-serrated hemostat, if available

Key Points

- EXTREMIS includes, but is not limited to: cardiac arrest, respiratory arrest, status epilepticus, decompensated shock, and life threatening arrhythmias
- Pre-existing vascular devices include central venous catheters (CVC), peripheral inserted central catheters (PICC), and renal dialysis lines (**NOT** fistulas)
- Implanted ports and fistulas are **not** considered pre-existing vascular devices, and cannot be accessed by the prehospital provider
- Percutaneous catheters below the nipple are not for vascular access and should not be used
- Once the device is accessed, continuous flow of normal saline must be maintained



(2-52) General: Ventricular Assist Device

Criteria

- Any request for service that requires evaluation and transport of a patient with a Left Ventricular Assist Device (VAD)

EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Treat airway obstruction or respiratory distress per protocol. Treat medical or traumatic condition per protocol
 - Assess pump function and circulation by listening to the motor of the pump over the heart and observing the green light on the system control device
 - Assess perfusion, based on mental status, capillary refill, and skin color. The absence of a palpable pulse is normal for patients with a functioning VAD; they may not have a detectable blood pressure
 - Perform CPR only if there is no evidence of the pump functioning (no pump noise) and the patient is unresponsive
 - Notify the appropriate receiving facility ASAP of an incoming patient with a VAD, regardless of the patient's complaint
 - Take the patient's power unit and batteries to the emergency department
 - Trained support member must remain with the patient
 - Do not delay transport to the hospital



EMT STOP

ADVANCED

CC

PARAMEDIC

If hypotensive (defined as poor perfusion, based on mental status, capillary refill, or skin color):

- Place patient in a supine position, if possible
- Establish IV/IO access and administer a 500 mL normal saline bolus
- If a patient does not have evidence of adequate perfusion and oxygenation with treatments, follow conventional resuscitation protocols
- Reassess and repeat up to 1000 mL total. Contact medical control for additional fluid boluses



ADVANCED, CC, AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation
- Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after the fluid bolus is complete to maintain MAP > 65 mmHg or SBP >100 mmHg
- Consider consultation with a VAD program provider



Key Points/Considerations

- Community patients with VADs are typically entirely mobile and independent
- Keep device and components dry
- Fully charged batteries and the emergency power pack can provide 24-36 hours of power
- Trained support members include family and caregivers who have extensive knowledge of the device, its function, and its battery units. They may act as a resource to the EMS provider when caring for a VAD patient
- Patients are frequently on three different anticoagulants, and are prone to bleeding complications
- Patient may have VF/VT and be asymptomatic. Contact medical control for treatment instructions
 - The rhythm may appear abnormal at the patient's baseline. Interventions should be directed toward the primary presenting problem, rather than the rhythm itself



(3-1) Pediatric: General Pediatric Emergencies

For these protocols, pediatric patients are as defined by the AHA as “children without secondary signs of puberty.” Use appropriate judgment to determine the presence or absence of these signs in the field.

Use a regionally approved length-based resuscitation tape or similar device to estimate the child’s weight for calculation of a medication dosage. In cases of obesity, utilize the ideal weight (as indicated by the length) for dose calculations.

See also “Resource: Normal Vital Signs for Infants and Children”.



(3-2) Pediatric: Acute Asthma

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- CC and paramedic may skip to the CC section at this point
- Implement BLS albuterol protocol:
 - Albuterol 2.5 mg in 3 mL (unit dose), via nebulizer, if trained and equipped
 - May repeat to a total of three doses if symptoms persist
 - If not trained and equipped to administer a nebulizer treatment, and the patient has a prescribed metered dose inhaler containing albuterol, you may assist the patient in administering his or her own medication
 - If the patient is not improving, the EMT may **contact medical control** to consider use of EMT epinephrine kits or an autoinjector (e.g. EpiPen[®]), as available and as trained
 - Adult autoinjector 0.3 mg IM (e.g. EpiPen[®]) if ≥ 30 kg
 - Pediatric autoinjector 0.15 mg IM (e.g. EpiPen Jr[®]) if < 30 kg

EMT AND ADVANCED STOP

CC

- Albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer; repeat to a total of three doses
- If patient is not improving:
 - Epinephrine (1:1,000 / 1mg/mL) 0.01 mg/kg IM, if patient is in severe distress; max 0.3 mg
 - Cardiac monitor

CC STOP

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Dexamethasone (Decadron) 10 mg PO, IM, or IV for patients ≥ 2 years old

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- EMT and AEMT autoinjector (e.g. EpiPen[®]) use, if patient is in severe distress
- CC vascular access
- Epinephrine (1:1,000 / 1 mg/mL) 0.01 mg/kg IM, max 0.3 mg (repeat doses)
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg via nebulizer
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
 - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
 - Max 1.5 mcg/kg/minute
- Magnesium 50 mg/kg over 10 minutes IV, max 2 grams
- Continuous albuterol administration via nebulizer
- Dexamethasone (Decadron) 0.6 mg/kg PO, IM, or IV for patients < 2 years old



Key Points/Considerations

- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together



(3-3) Pediatric: Allergic Reaction and Anaphylaxis

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- CC and paramedic may skip to the CC section at this point
- If SEVERE respiratory distress, facial or oral edema, and/or hypotension:
 - Administer the EMT epinephrine kit or an autoinjector (e.g. EpiPen[®]), as available and as trained
 - Adult autoinjector 0.3 mg IM (e.g. EpiPen[®]) if ≥ 30 kg
 - Pediatric autoinjector 0.15 mg IM (e.g. EpiPen Jr[®]) if < 30 kg



EMT AND ADVANCED STOP

CC

- Epinephrine (1:1,000 / 1 mg/mL) 0.01 mg/kg IM; max dose 0.3 mg. May repeat if the patient continues to display SEVERE respiratory distress, facial or oral edema, and/or hypotension
- Cardiac monitor
- Albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer, for wheezing; repeat to a total of three doses
- Diphenhydramine (Benadryl) 1 mg/kg IM; max dose 50 mg



CC STOP

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Diphenhydramine (Benadryl) 1 mg/kg IM/IV; max total dose 50 mg
- Dexamethasone (Decadron) 10 mg PO, IM, or IV for patients ≥ 2 years old
- Normal saline 20 mL/kg IV bolus



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
 - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
 - Max 1.5 mcg/kg/minute
- Cardiovascular collapse: Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
- Dexamethasone (Decadron) 0.6 mg/kg PO, IM, or IV for patients < 2 years old

Key Points/Considerations

- If an EMT has administered an autoinjector (e.g. EpiPen[®]) or the patient has utilized his or her own epinephrine autoinjector, regional procedure may require consultation with medical control prior to honoring a request for refusal of medical care
- A combination unit dose (such as a DuoNeb[®]) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Refer to the “Pediatric: Stridor” protocol, as indicated



(3-4) Pediatric: Bradycardia

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- If the heart rate is markedly bradycardic, and the patient's mental status and respiratory rate are decreased, ventilate with a BVM
- If symptomatic bradycardia persists, start CPR



EMT AND ADVANCED STOP

CC

- Cardiac monitor



CC STOP

PARAMEDIC

- Atropine 0.02 mg/kg, with a minimum dose of 0.1 mg IV and a maximum dose of 1 mg
- Repeat atropine once in 5 minutes, to a maximum total dose of 0.04 mg/kg
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV, maximum dose 0.3 mg
 - Repeat epinephrine every 3 – 5 minutes



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Transcutaneous pacing
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
 - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
 - Max 1.5 mcg/kg/minute

Key Points/Considerations

- Newborn/Infant bradycardic if pulse less than 60 bpm
- Altered mental status with mild bradycardia this for age group is likely not secondary to the bradycardia; consider alternate etiologies
- “Symptomatic” includes poor systemic perfusion, hypotension, respiratory difficulty, or altered level of consciousness
- If you suspect bradycardia is due to increased vagal tone, primary AV block, or organophosphate exposure, give atropine before giving epinephrine
- Do not treat asymptomatic bradycardia; contact medical control
- Alert receiving hospital as early as practical



(3-5) Pediatric: Hyperglycemia

EMT

ADVANCED

- Airway management and appropriate oxygen therapy
- Check the blood glucose level



EMT AND ADVANCED STOP

CC

PARAMEDIC

- If blood glucose is above 400 and **ONLY** if signs of dehydration are present, fluid bolus:
 - Normal saline 20 mL/kg



CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Additional fluid hydration



(3-6) Pediatric: Hypoglycemia

EMT

ADVANCED

- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low < 60 mg/dL, and patient can self-administer and swallow on command, give oral glucose, or another available carbohydrate source
- Call for an ALS intercept, if the patient is unable to swallow on command, or mental status remains altered following administration of oral glucose

EMT AND ADVANCED STOP

CC

PARAMEDIC

If no response to oral glucose:

- IV access, and dextrose 10% 5 mL/kg IV via syringe (**NOT** via drip)
 - If vascular access is limited: glucagon 0.5 mg IM if < 20 kg, otherwise, 1 mg IM*
 - **Consider IO access only if there is no response to glucagon**

CC AND PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

Key Points/Considerations

- If the patient's parent or guardian wishes to refuse medical care for the patient, and you have administered any medications, including oral glucose, regional procedure may require consultation with medical control prior to completing the refusal
- Do **NOT** hang a dextrose 10% drip on a pediatric patient
- *Preschool aged children and infants may have limited response to glucagon



(3-7) Pediatric: Nausea and/or Vomiting (> 2 y/o)

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT AND ADVANCED STOP**

CC

- Ondansetron (Zofran) 2 mg IM or 4 mg ODT/PO
- Consider use of a cardiac monitor

 **CC STOP**

PARAMEDIC

- Ondansetron (Zofran) 2 mg IM or 4 mg ODT/PO
- Vascular access, if indicated (General: Vascular Access)

 **PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

Key Points/Considerations

- This protocol does not apply to patients under the age of two years
- A single dose of ondansetron (Zofran) may be given to the pediatric patient prior to seeking medical consultation



(3-8) Pediatric: Neonatal Resuscitation

EMT

ADVANCED

CC

- Assess the infant's respiratory status, pulse, responsiveness, and general condition

If the infant is breathing spontaneously and crying vigorously, and has a pulse > 100/min:

- Clamp the umbilical cord with two clamps, three inches apart, and cut the cord between them at least 1 min after delivery. The first clamp should be 8 – 10 inches from the baby. Place the second clamp 3 inches from the first clamp toward the mother
- Cover the infant's scalp with an appropriate warm covering
- Wrap the infant in a dry, warm blanket or towels and a layer of foil or plastic wrap over the layer of blankets or towels or use a commercial-type infant swaddler, if one is provided with the OB kit. Do not use foil alone
- Keep the infant warm and free from drafts. Continuously monitor the infant's respirations

If the infant is not breathing spontaneously or not crying vigorously:

- Gently rub the infant's lower back
- Gently tap the bottom of the infant's feet

If the respirations remain absent, gasping, or become depressed (< 30/min) despite stimulation, if the airway is obstructed, or if the heart rate is < 100/min:

- Clear the infant's airway by suctioning the mouth and nose gently with a bulb syringe, and then ventilate the infant at a rate of 40 – 60 breaths/minute with an appropriate BVM as soon as possible. Start with room air. If no response after 90 seconds, add oxygen
- Gently insert the proper size oral airway
- Each ventilation should be given gently, over one second per respiratory cycle, assuring that the chest rises with each ventilation
- Monitor the infant's pulse rate (by palpation at the base of the umbilical cord or by auscultation over the heart), and apply continuous pulse oximetry using (ideally the right) wrist or palm

If the pulse rate drops < 60 beats per minute at any time:

- Perform chest compressions with assisted ventilations at a 3:1 compression to ventilation ratio



EMT, ADVANCED, AND CC STOP

PARAMEDIC

- Consider intubation.
- If the heart rate < 60 seconds and there is no improvement in the heart rate within 60



seconds of chest compressions, administer epinephrine (1:10,000 / 0.1mg/mL) 0.01 mg/kg

- IV every 3 minutes until HR > 60
- Treat blood glucose < 40 mg/dL
 - Dextrose 10% 5 mL/kg IV via syringe **NOT** via drip



PARAMEDIC STOP

Key Points/Considerations

- Begin transport to the closest appropriate hospital as soon as possible
- Place the pulse oximeter probe on right wrist/palm



(3-9) Pediatric: Overdose / Toxic Exposure

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what was taken, when and how much, if possible
- Check blood glucose level, if equipped. If abnormal, refer to the “Pediatric: Hyperglycemia” or “Pediatric: Hypoglycemia” protocol, as indicated
- Suspected opioid overdose with hypoventilation or respiratory distress:
 - Naloxone (Narcan) 1 mg IN, 0.5 mL per nare
 - May repeat in 3-5 minutes

EMT AND ADVANCED STOP

CC

- Cardiac monitor
- Suspected opioid overdose with hypoventilation or respiratory distress:
 - Naloxone (Narcan) 0.1 mg/kg IM or IN. Max 2 mg
- See the “Toxicology: Suspected Smoke Inhalation – Symptomatic” protocol, if needed

CC STOP

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Suspected opioid overdose with hypoventilation or respiratory distress:
 - Naloxone (Narcan) 0.1 mg/kg IV, IM, or IN. Max 2 mg

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

For a symptomatic patient with:

- Organophosphate poisoning:
 - Atropine 1 mg IV every 3 – 5 minutes, until secretions dry
- Dystonic reaction:
 - Diphenhydramine (Benadryl) 1 mg/kg IV or IM
- Sympathomimetic ingestion (cocaine/amphetamine):
 - Midazolam (Versed) 0.1 mg/kg IV, IM, or IN
- Calcium channel blocker OD:
 - Calcium chloride 20 mg/kg IV

Key Points/Considerations

- Advise the receiving hospital as soon as possible
- This protocol includes patients who are unconscious/unresponsive without suspected trauma or other causes
- If suspected WMD, refer to the “General: Nerve Agent – Suspected” protocol or the NYS Advisory on Mark I Kits, #03-05



(3-10) Pediatric: Pain Management

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

EMT AND ADVANCED STOP

CC

- Cardiac monitor
- Morphine 0.1 mg/kg IM
 - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
- Fentanyl 1-1.5 mcg/kg IN
 - Fentanyl may be repeated after 5 minutes once; maximum total dose of 100 mcg

CC STOP

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Morphine 0.05 mg/kg IV or 0.1 mg/kg IM
 - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
- Fentanyl 1-1.5 mcg/kg IV or IM
 - Fentanyl may be repeated after 5 minutes; maximum total dose of 100 mcg

PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Additional Fentanyl IN, IV, or IM
- Additional Morphine IV or IM

Key Points/Considerations

- Morphine or fentanyl, up to the maximum dose, may be given via standing orders
- **ONE** pain medication may be given under standing orders. For dosing that exceeds the standing order maximum, or to switch to another agent, you must consult medical control
- Contraindications to standing order pain management: altered mental status, hypoventilation, and/or hypoperfusion
- Fentanyl should be used if there is concern for potential hemodynamic instability
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl and administer either 25 or 50 mcg; consider approximating the dose of morphine and administer either 2.5 or 5 mg
- Refer to the “Pediatric: Nausea and/or Vomiting (>2 y/o)” protocol, if needed



(3-11) Pediatric: Procedural Sedation

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT AND ADVANCED STOP**

CC

- Cardiac monitor

 **CC STOP**

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)

 **PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Morphine 0.1 mg/kg IV or IM
- Fentanyl 1-1.5 mcg/kg IV, IM, or IN
- Midazolam (Versed) 0.1 mg/kg IV, IM, or IN
- Ketamine* 1 mg/kg IV or IM

Key Points/Considerations

- ***Ketamine may be administered by paramedics only**
- Consult medical control as soon as possible



(3-12) Pediatric: Seizures

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal, refer to the “Pediatric: Hyperglycemia” or “Pediatric: Hypoglycemia” protocol, as indicated



EMT AND ADVANCED STOP

CC

- Cardiac monitor
- Midazolam (Versed) 0.1 mg/kg IM or IN. Maximum dose 5 mg



CC STOP

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- If patient continues to seize:
 - Midazolam (Versed) 0.1 mg/kg IV, IM, or IN. Maximum dose 5 mg



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Additional Midazolam (Versed) 0.1-0.2 mg/kg IV, IM, or IN

Key Points/Considerations

- Consult medical control, if seizures persist, as soon as possible
- Protect the patient and EMS crew from injury during the seizure
- Any EMS provider may assist the patient’s family or caregivers with the administration of rectal diazepam (Valium/Diastat), if available (see “General: Prescribed Medication Assistance” protocol)



(3-13) Pediatric: Shock / Hypoperfusion

Criteria

- For patients with hypoperfusion because of trauma, bleeding, vomiting, diarrhea, or sepsis

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT AND ADVANCED STOP**

CC

- Cardiac monitor

 **CC STOP**

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Normal saline 20 mL/kg bolus IV (Use normal saline 100 mL bag if patient < 20 kg)

 **PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

Key Points/Considerations

- Consult medical control if you suspect cardiogenic shock
- Do not use normal saline 1000 mL (one liter) bags for pediatric patients unless they weigh ≥ 20 kg
- Diagnostic indications for hypoperfusion include: cool / clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP < 70 mmHg (2 years and older), or systolic BP < 60 mmHg (less than 2 years old)
- Contact receiving hospital as soon as appropriate



(3-14) Pediatric: Stridor

EMT

ADVANCED

- ABCs and vital signs
- Airway management with high concentration, humidified, blow-by oxygen (as tolerated)
- Consider mechanical obstruction / airway foreign body and treat accordingly



EMT AND ADVANCED STOP

CC

- Cardiac monitor
- If the patient is unconscious and mechanical obstruction is suspected, attempt to remove the object with Magill Forceps



CC STOP

PARAMEDIC

- If SEVERE respiratory distress (severe stridor especially with drooling), epinephrine (1:1,000 / 1mg/mL) 3 mg via nebulizer
- Dexamethasone (Decadron) 10 mg PO or IM for patients ≥ 2 years old (may give the IV formulation orally, if tolerated)



PARAMEDIC STOP

MEDICAL CONTROL CONSIDERATIONS

- Vascular access
- Dexamethasone (Decadron) 0.6 mg/kg up to 10 mg PO, IM, or IV
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg, via nebulizer for CC or additional doses for CC or paramedic

Key Points/Considerations

- Avoid agitating the child, particularly if there is concern for upper airway edema (croup/epiglottitis)



(3-15) Pediatric: Tachycardia

EMT

ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **EMT AND ADVANCED STOP**

CC

- Cardiac monitor

 **CC STOP**

PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Consider a 12-lead ECG
- Normal saline 20 mL/kg bolus IV; may repeat once

 **PARAMEDIC STOP**

MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

UNSTABLE patient:

- Synchronized cardioversion 0.5 – 1 J/kg
- Consider sedation, if vascular access is available (Pediatric: Procedural Sedation)

STABLE patient, wide QRS:

- Amiodarone 5 mg/kg IV; over 20 minutes
(Amiodarone 150 mg diluted in 100 mL, 1.5 mg/mL)
- Lidocaine 1 mg/kg IV

STABLE patient, narrow QRS:

- Vagal maneuvers
- Adenosine 0.1 mg/kg IV (max 6 mg); may repeat at 0.2 mg/kg

Key Points/Considerations

- Newborn/Infant SVT: if pulse > 220 bpm; child > 1 year of age SVT: if pulse > 180 bpm and has no discernible p-waves and regular R-R interval on PRINTED ECG strip
- The most common causes of sinus tachycardia in children are fever and dehydration, not cardiac etiology
- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Do not treat asymptomatic tachycardia. Contact medical control
- Alert the receiving hospital as early as practical



(4-1) Resource: Automatic Transport Ventilator

General Parameters

FiO₂: Maintain SaO₂ 92-96%

PEEP: 5 cm H₂O (increase up to 10 cm H₂O as needed to improve oxygenation).

Mode: A/C or SIMV

Pressure Support: 5 – 10 cm H₂O, if in SIMV (if available)

Volume Control: Tidal volume (Vt) 6 – 8 mL/kg ideal body weight (maintain plateau pressure [Pplat] < 30 cm H₂O or PIP < 35 cm H₂O)

Rate: Child: 16 – 20 breaths/min; Adult: 12 – 14 breaths/min

I-Time: Child: 0.7 – 0.8 seconds; Adult: 0.8 – 1.2 seconds

Please refer to the manufacturer's ventilator operation manual for specific directions on how to operate your ventilator.

Recommended Minimum Requirements for Automated Ventilator

- Pressure limit / safety relief at a maximum of 40 cmH₂O
- Ability to adjust volume to 4-8 mL/kg ideal body weight
- Ability to adjust rate in the minimum range of 10-30 breaths/min
- Ability to add PEEP or PEEP valve in the minimum range of 5 - 10 cmH₂O
- Ability for patient triggered breaths (complete control ventilation is prohibited)

Initiating Mechanical Volume Ventilation

- Use EtCO₂ detection and pulse oximetry to evaluate the effectiveness of the ventilation technique and to verify artificial airway patency and position
- Prepare the BVM device for emergent use in case of a ventilator failure
- Assure a secondary oxygen source with a minimum of 1000psi in a D tank
- Attach a ventilator to appropriate oxygen/air source
- Attach a disposable ventilator circuit to ventilator
- Attach a gas outlet, pressure transducer, and exhalation valve tubes to corresponding connectors
- Select the appropriate mode, if applicable
- Select the appropriate respiratory rate (RR). Titrate to appropriate EtCO₂
 - Adult: 12 – 14 breaths/min
 - Child: 16 – 20 breaths/min
- Select the appropriate tidal volume (Vt) of 6 – 8 mL/kg ideal body weight
- Select the appropriate inspiratory time (It), if applicable
- Select the desired FiO₂ if applicable. An FiO₂ of 1.0 (100% O₂) is a standard start and then should be titrated down to maintain SpO₂ > 92%
- Verify a high pressure alarm no higher than 40 cm H₂O
- Set PEEP to 5 cmH₂O
- Observe the delivery of several breaths
 - Evaluate the patient for adequate chest rise, ETCO₂ and SpO₂
 - Adjust the ventilator settings, as necessary, to improve clinical parameters
- Record all set parameters on the patient transport record
- Monitor and record PIP, if applicable



Key Points

- If at any time the ventilator should fail, or an alarm is received that cannot be corrected, the patient should be immediately ventilated with a BVM device attached to a 100% oxygen source
- Automated transport ventilators will not be used with CPR
 - Ventilate with a BVM during CPR



(4-2) Resource: Child Abuse Reporting

- Emergency Medical Technicians (all levels) are *required* to report cases of suspected child abuse they come across while performing their jobs
- Document observations, thoroughly and objectively on the patient care report (PCR)
- Notify the emergency department staff of concerns and your intent to report
- An immediate oral report shall be made to:
 - NYS Child Abuse and Maltreatment Register: 1-800-635-1522
 - This is a number for mandated reporters only and should not be provided to the public
- All oral reports must be followed up with a written report within 48 hours, using form DSS-2221-A, “Report of Suspected Child Abuse or Maltreatment”, and sent to the local child protective services office for where the child resides

Key Points/Considerations

- Notifying hospital staff of concern for child abuse or maltreatment is *not* sufficient to meet the obligation of reporting. *All* of these steps are required:
 - PCR completion
 - Notification of emergency department staff
 - Oral report to NYS Child Abuse and Maltreatment Register
 - Written report submitted within 48 hours
- If multiple EMTs are on scene, it is only necessary for one EMT (the EMT of record and in charge of patient care) to complete the reporting process
- EMTs are not expected to complete form DSS-2221-A in its entirety, although they should fill out as much as possible, in accordance with available information
- Mandated reporters who file a report of suspected child abuse or maltreatment in good faith are immune from liability for reporting such a case (§ 419 of the Social Services Law)



(4-3) Resource: Mean Arterial Pressure Chart

Calculation:

- $MAP = \frac{(2 \times DBP) + SBP}{3}$

OR

- $MAP = 2/3 DBP + 1/3 SBP$

		MEAN ARTERIAL PRESSURE															
		SYSTOLIC							PRESSURE								
		120	118	116	114	112	110	108	106	104	102	100	98	96	94	92	90
DIASTOLIC PRESSURE	80	93	93	92	91	91	90	89	89	88	87	87	86	85	85	84	83
	78	92	91	91	90	89	89	88	87	87	86	85	85	84	83	83	82
	76	91	90	89	89	88	87	87	86	85	85	84	83	83	82	81	81
	74	89	89	88	87	86	86	85	84	84	83	83	82	81	81	80	79
	72	88	87	87	86	85	84	84	82	82	82	81	80	80	79	78	78
	70	87	86	85	85	84	83	83	82	81	81	80	79	79	78	77	77
	68	85	85	84	83	82	82	81	81	80	79	79	78	77	77	76	75
	66	84	83	83	82	81	81	80	79	79	78	77	77	76	75	75	74
	64	83	82	82	81	80	79	79	78	77	77	76	75	75	74	73	73
	62	81	81	80	79	78	78	77	77	76	75	75	74	73	73	72	71
	60	80	79	79	78	77	77	76	75	75	74	73	73	72	71	71	70
	58	79	78	77	77	76	75	75	74	73	73	72	71	71	70	69	69
	56	77	77	76	75	75	74	73	73	72	71	71	70	69	69	68	67
	54	76	75	75	74	73	73	72	71	71	70	69	69	68	67	67	66
	52	75	74	73	73	72	71	71	70	69	69	68	67	67	66	65	65
	50	73	73	72	71	71	70	69	69	68	67	67	66	65	65	64	63
	48	72	71	71	70	69	69	68	67	67	66	65	65	64	63	63	62
46	71	70	69	69	68	67	67	66	65	65	64	63	63	62	61	61	
44	69	69	68	67	67	66	65	65	64	63	63	62	61	61	60	59	
42	68	67	67	66	65	65	64	63	63	62	61	61	60	59	59	58	
40	67	66	65	65	64	63	63	62	61	61	60	59	59	58	57	57	
38	65	65	64	63	63	62	61	61	60	59	59	58	57	57	56	55	



(4-4) Resource: Medication Formulary

Medication	Administration Route	Concentration /mL or tab
Adenosine	Rapid IV	3 mg
Albuterol	Nebulized	0.83 mg
Amiodarone	IV bolus, drip	50 mg
Aspirin	PO chewed	81 mg
Atropine*	IV bolus	0.1 mg
Ipratropium (Atrovent) [†]	Nebulized	0.2 mg
Calcium Chloride	IV bolus	100 mg
Dexamethasone (Decadron)	PO, IM, IV	10 mg
Diltiazem (Cardizem)	IV slow	5 mg
Diphenhydramine (Benadryl)	IV slow	50 mg
Epinephrine 1:1,000 (1 mg/mL)	IM, IV gtt	1 mg
Epinephrine 1:10,000 (0.1 mg/mL)	IV	0.1 mg
Etomidate (Amidate)**	IV	2 mg
Glucagon	IM, IV	1 mg
Glucose, oral	PO	varies
Haloperidol**	IM, IV	1 mg
Ketorolac (Toradol)**	IM, IV	varies
Lidocaine 2%	IV, IV gtt	20 mg
Magnesium	IV, IV gtt	500 mg
Metoprolol	IV slow	1 mg
Naloxone (Narcan)	IM, IV, IN	1 mg
Nitroglycerin (PO)	SL, lingual	0.4 mg
Nitrous oxide**	Inhaled	N/A
Norepinephrine	IV gtt	4 mg/4mL
Ondansetron (Zofran) (inj)	IM, IV slow	2 mg
Ondansetron (Zofran) (ODT/PO)**	SL dissolve	4 mg tab
Sodium Bicarbonate	IV, IV gtt	1 mEq/mL
Tetracaine***	Ophthalmic	

* Does not include atropine included in DOH field deployment stock

** Etomidate (Amidate), ketorolac (Toradol), nitrous oxide, haloperidol (Haldol), and ondansetron ODT may not be required by every region

*** Tetracaine is required only if Morgan Lenses are utilized

The minimum number of medications will be determined by regional procedure

[†]A combination unit dose (such as a DuoNeb[®]) may be carried in place of ipratropium (Atrovent)



Medication Infusion Formulary

Medication	Concentration	Volume
Dextrose 10%	25 grams/unit	250 mL
Normal saline 0.9%*		100 mL
Normal saline 0.9%**		1000 mL

* D5W 100 mL bags may be substituted for normal saline 100 mL, if there is a persistent shortage and normal saline is not available.

**Lactated Ringers may be substituted for normal saline, if there is a persistent shortage and normal saline is not available.

Minimum number of infusions will be determined by regional procedure

Resource: Medication Formulary Controlled Substances

Medication	Administration Route	Concentration/mL
Fentanyl	IM, IV, IN	50 mcg
Ketamine (Access must be restricted to paramedics only)	IM, IV, IN	100 mg
Midazolam (Versed)	IM, IV, IN	5 mg
Morphine	IM, IV	10 mg

Not all controlled substances are required; please refer to state and regional policy
The minimum number of medications will be determined by regional procedure

Medication Formulary RSI (Optional)

Medication	Administration Route	Concentration/mL
Succinylcholine	IV rapid	20 mg
Vecuronium	IV	1 mg (reconstituted)
Rocuronium	IV	10 mg

RSI is not required

If utilized, the minimum number of medications will be determined by regional procedure



(4-5) Resource: Medication Infusion

Amiodarone: 150 mg in 100 mL normal saline = 1.5 mg/mL

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
10 mL/min (over 10 min)	100 drops/min or 5 drops every 3 seconds	150 drops/min or 5 drops every 2 seconds

Lidocaine: 200 mg in 100 mL normal saline = 2 mg/mL

Infusion Rate	Admin Set: 60 drops/mL
1 mg/min	30 drops/min
2 mg/min	60 drops/min
3 mg/min	90 drops/min
4 mg/min	120 drops/min

Epinephrine: 1 mg in 1000 mL normal saline = 1mcg/mL

(Must use pump or dial-a-flow)

Either concentration of epinephrine may be used to make the solution

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL	Admin Set: 60 drops/mL
1 mcg/min	10 drops/min	15 drops/min	60 drops/min or 1 drop/sec
2 mcg/min	20 drops/min	30 drops/min	120 drops/min or 2 drops/sec
4 mcg/min	40 drops/min	60 drops/min	240 drops/min or 4 drops/sec
6 mcg/min	60 drops/min	90 drops/min	360 drops/min or 6 drops/sec
8 mcg/min	80 drops/min	120 drops/min	480 drops/min or 8 drops/sec
10 mcg/min	100 drops/min	150 drops/min	600 drops/min or 10 drops/sec

Magnesium:

2 grams in 100 mL normal saline = 20 mg/mL; give 100 mL over 10 minutes

4 grams in 100 mL normal saline = 40 mg/mL; give 100 mL over 20 minutes

Infusion Rate (2 grams over 10 min)	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
10mL/min	100 drops/min	150 drops/min
Infusion Rate (4 grams over 20 min)	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
5 mL/min	50 drops/min	75 drops/min

Norepinephrine: 4 mg in 4 mL mixed in normal saline 1000 mL = 4 mcg/mL

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL	Admin Set: 60 drops/mL
2 mcg/min	5 drops/min	7drops/min	30 drops/min
4 mcg/min	10 drops/min	15 drops/min	60 drops/min or 1 drop/sec
6 mcg/min	15 drops/min	22 drops/min	90 drops/min or 1.5 drops/sec
8 mcg/min	20 drops/min	30 drops/min	120 drops/min or 2 drops/sec
10 mcg/min	25 drops/min	37 drops/min	150 drops/min or 2.5 drops/sec
12 mcg/min	30 drops/min	45 drops/min	180 drops/min or 3 drops/sec
14 mcg/min	35 drops/min	52 drops/min	210 drops/min or 3.5 drops/sec
16 mcg/min	40 drops/min	60 drops/min	240 drops/min or 4 drops/sec
18 mcg/min	45 drops/min	67 drops/min	270 drops/min or 4.5 drops/sec
20 mcg/min	50 drops/min	75 drops/min	300 drops/min or 5 drops/sec



(4-6) Resource: Needlestick / Infectious Exposure

Criteria

- This resource outlines the immediate actions to be taken following any percutaneous, non-intact skin, or mucous membrane contact with blood or body secretions

Cleansing for a Puncture Wound

- Immediately cleanse with Betadine
- Follow-up by soaking the site for five minutes in a solution of Betadine and sterile water

Cleansing for Skin Contact

- Wash the area with soap and water then clean the area with Betadine

Cleansing for Mucous Membranes

- If in the mouth, rinse mouth out with a large volume of tap water
- If in the eyes, flush with water from an eyewash station. If an eyewash station is not available, use tap water

Key Points/Considerations

- Thoroughly cleanse the area of exposure
- Decontamination may be limited because of the lack of available resources
- Report the exposure to a supervisor, immediately
- Seek immediate medical attention and exposure evaluation
- The clinician may test the exposed employee for HIV and hepatitis as indicated
- The clinician will determine if indications for post-exposure prophylactic medications are met
- Appropriate outpatient follow-up should also be arranged to discuss test results along with necessary counseling regarding the employee's health status, any needed treatment options, and any required additional follow-up
- The agency's designated infection control officer should seek any existing information on the source patient. This may be coordinated with the receiving hospital
- Inform the source patient of applicable laws and regulations concerning the disclosure of his or her infectious status
- Have the source patient's blood tested for HIV and hepatitis as soon as consent has been obtained
- A supervisor should ensure completion of all necessary documentation and required reports, such as those used for unusual incidents and workers' compensation



(4-7) Resource: Normal Vital Signs for Infants and Children

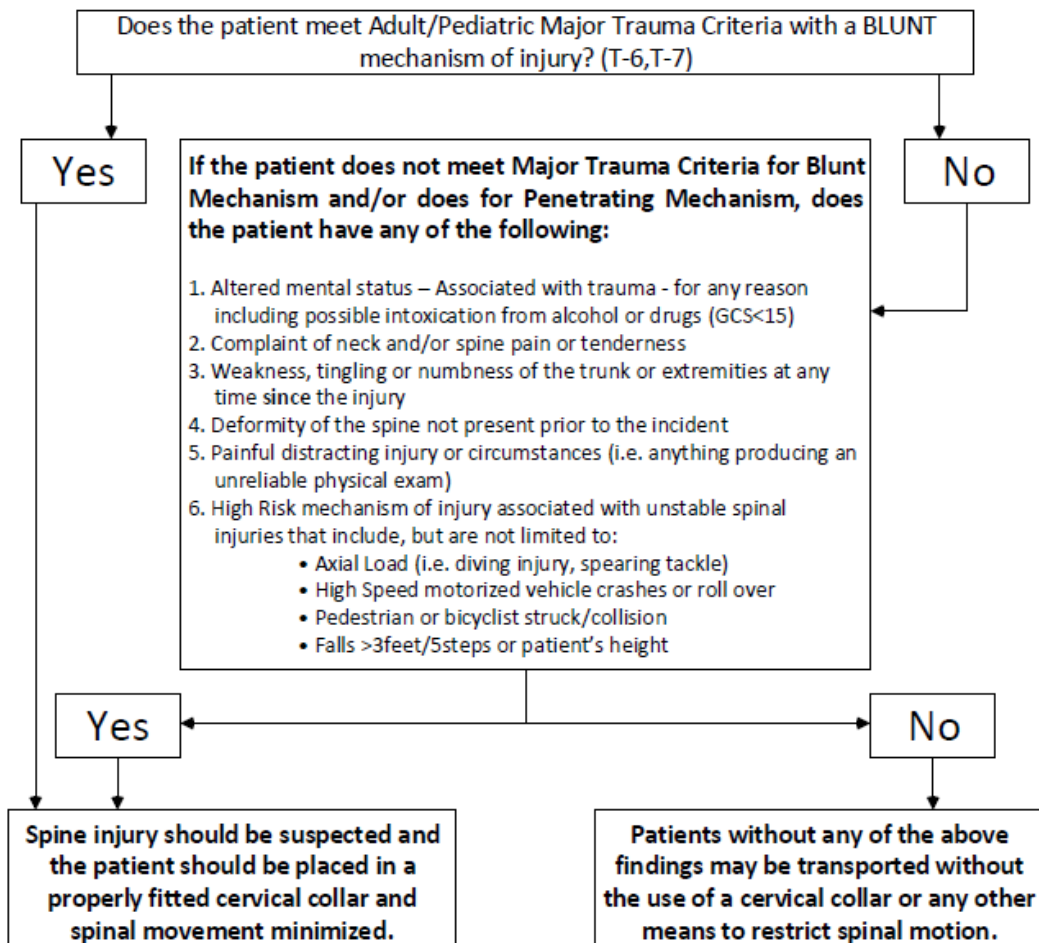
Age	Respirations	Pulse	Systolic BP
Newborn (<28 days)	30 – 60	100 – 180	>60
Infant (< 1 year)	30 – 60	100 – 160	>60
Toddler (1 – 3 years)	24 – 40	90 – 150	>70
Preschooler (3 – 5 yrs)	22 – 34	80 – 140	>75
School-aged (6 – 8 yrs)	18 – 30	70 – 120	>80

From: American Academy of Pediatrics, Pediatric Education for Prehospital Professionals



(4-8) Resource: Spinal Motion Restriction

Suspected Spinal Injuries



Notes:

- Spinal movement can be minimized by application of a properly fitting rigid cervical collar and securing the patient to the EMS stretcher.
- When spinal motion restriction has been initiated and a higher level of care arrives, patients should be reassessed for spinal injury (per this protocol).
- When possible, the highest level of care on scene will determine if spinal motion restriction is to be used or discontinued (collar removed, etc.)
- A long spine board is one of multiple modalities that can be used to minimize spinal movement. Electing not to use a long spine board will not constitute a deviation from the standard of care.
- Long spine boards do not have a role in transporting patients between facilities



(4-9) Resource: Trauma Triage – CDC

