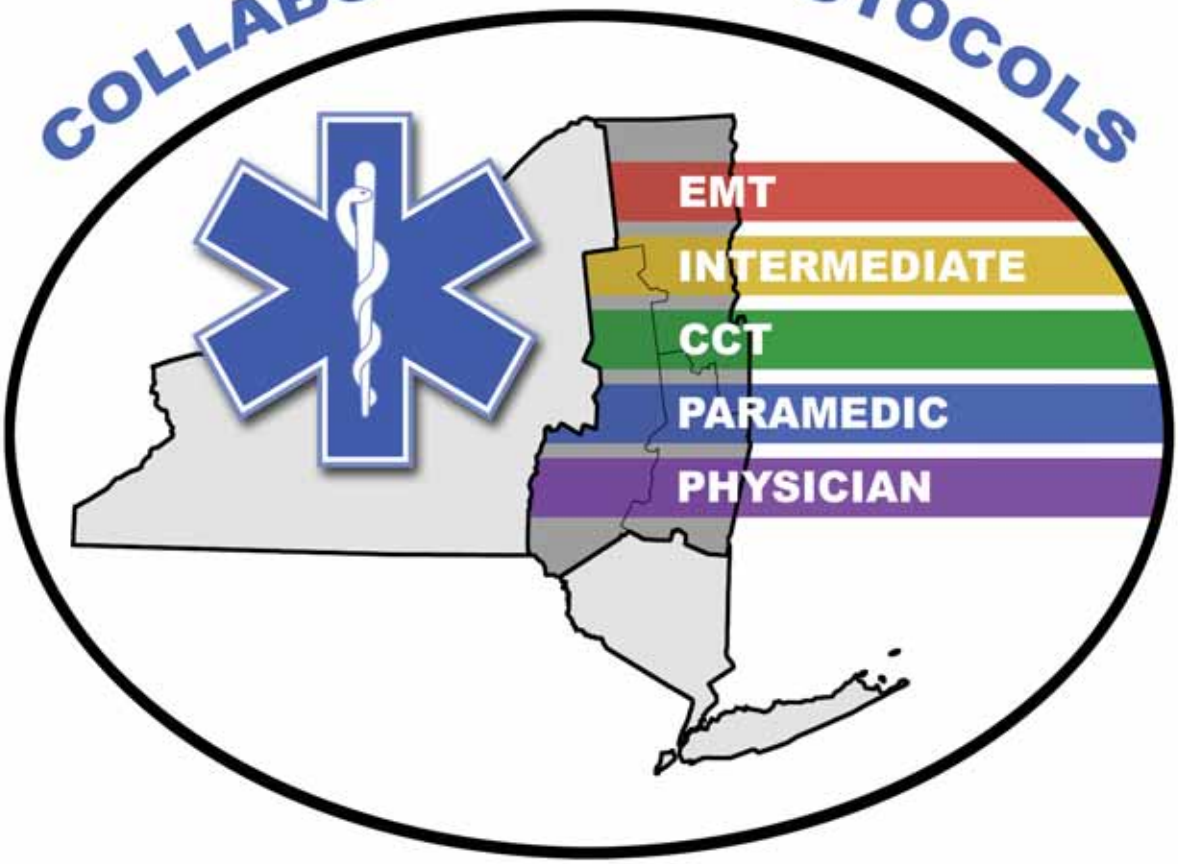
COLLABORATIVE PROTOCOLS



Adirondack Appalachian Region
Mountain Lakes Region
Hudson Mohawk Region

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Introduction from Regional Medical Directors

The Medical Advisory Committees for the Hudson-Mohawk Valley, Adirondack-Appalachian Regional EMS, and Mountain Lakes EMS Regions are proud to put forth these collaborative protocols. These have been developed after an extensive work between the Regions, protocols from other regions, local research, as well as relevant medical literature including the recent American Heart Association Guidelines.

These evidence-based protocols are designed to improve patient outcomes, while decreasing any potential risk to the patient and provider.

The color-coded format of the protocols has been a tremendous success. This has served to allow each EMS professional to easily follow the potential interventions that could be performed by advanced level care.

Criteria

- Any specific information regarding the protocol in general

EMT

- EMT, EMT-I, EMT-CC, and Paramedic standing orders

EMT STOP

INTERMEDIATE

- EMT-I, EMT-CC, and Paramedic standing orders

INTERMEDIATE STOP

CCT

- EMT-CC and Paramedic standing orders

CCT STOP

PARAMEDIC

- Paramedic standing orders
- Many CCT physician options

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Any order within the level of care for the provider

Key Points/Considerations

- Additional points specific to patients that fall within the protocol

As taught in every EMT class, BLS should be done before ALS, and advanced providers are responsible for all appropriate basic interventions. At all provider levels, standing orders are highlighted, while the corresponding STOP lines are clearly delineated.

There is a training module available that must be reviewed by every advanced provider prior to utilizing these protocols. Several sections contain very important changes from previous protocols:

- Cardiac Arrest Care has changed significantly: Airway management remains secondary to good quality CPR and defibrillation
- General Cardiac Arrest Care is defined for all provider levels
- Early transmission of 12 Lead EKGs is strongly encouraged if available
- Pain management has been redefined for both CCT and Paramedic providers.
    - Fentanyl is moved to a standing order for adult patients
    - Morphine is still in the formulary, as a long-lasting option
    - Ketorolac (Toradol) has been added as a physician option
- Midazolam has been defined as the only benzodiazepine in the formulary, decreasing the amount of controlled substances carried
- Anaphylaxis BLS EpiPen care has been clarified
- EpiPen has been added as a physician option for BLS/Intermediate for Asthma
- Pediatric ALS care has been redefined because of significant prehospital research
- Ondansetron (Zofran) has an oral administration option if agencies choose to stock
- Dextrose will be administered only as D10 to minimize chance for medical error
- Oxygen Administration and Airway Management has been modified from current practice to reflect the medical literature
- Vasoactive medications, such as dopamine, epinephrine, and lidocaine, given as drips must be on either pumps or dial-a-flow sets

There are also some interesting protocols for use by all providers, such as the Avulsed Tooth protocol, that every provider can train to perform. A tooth can only be saved if replaced immediately, and EMS providers are the perfect people to do this.

The Regions will continue to perform QI audits of patient care to develop training programs that will improve care, and the Medical Advisory Committees will continue to evaluate literature to update these protocols to optimize the outcomes of our patients.

We hope that these collaborative protocols make your job easier and assist you in the care of your patients.

Sincerely,

John Broderick, MD
Mountain Lakes EMS Medical Director

Michael W. Dailey, MD
REMO EMS Medical Director

William Fisher, MD
AAREMS EMS Medical Director

Acknowledgements

The 2010-11 AAREMS, REMO and Mountain Lakes Medical Advisory Committees, regional providers, and program agency staff all contributed to this update.

Thanks to:

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Richard Beebe, RN, NREMT-P
Tiffany Bombard, NREMT-P
Carol Brandt, RN, EMT
John Broderick, MD
Michael Dailey, MD
Todd Duthaler, DO
Deborah Funk, MD
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Brian Taft, NREMT-P
Bruce Ushkow, MD
Sarah Vogel, MD
David Battini, EMT-I
Peter Berry, NREMT-P
Sam Bosco, MD
Arthur Breault, RN, NREMT-P
Jeremy Cushman, MD MPH
Donald Doynow, MD
William Fisher, MD
Jonathan Halpert, MD, EMT-P
Ray Hughes, III, EMT-P
August Leinhart, MD
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Jon Politis, NREMT-P
John Silvernail, MD
Craig Stanger, MD
Storm Treanor, RN, EMT-CC
Paul Vinsel, MD
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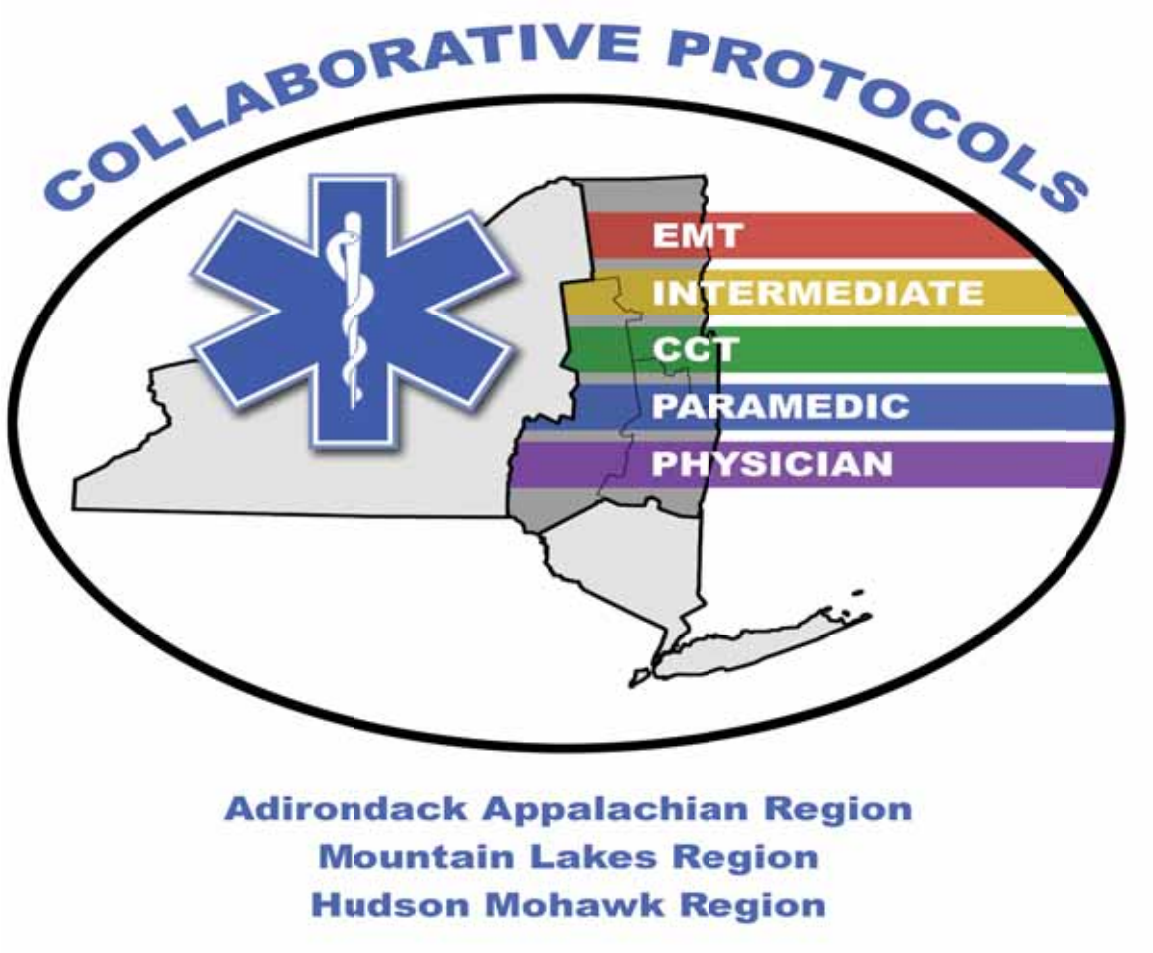
NYS DOH Bureau of EMS Staff

Special thanks to Carol Brandt and Ray Hughes, III, for copy-editing, and Robin Snyder-Dailey for the protocol design.



These collaborative protocols were made possible through the leadership and direction of the following:

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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
- Push hard and fast (100/min)
- Ensure full chest recoil
- Minimize interruptions in chest compressions
- Cycle of CPR = 30 compressions then 2 breaths, 5 cycles = 2 minutes
- Avoid hyperventilation
- Rhythm check or AED "check patient" every 5 cycles of CPR
- Defibrillation as appropriate
- Rotate compressors every two minutes with rhythm checks
- Make every effort to not do CPR in moving ambulances, as it is a significant danger to providers, and has limited opportunity for success
- Use mechanical CPR adjuncts when available for provider safety in moving ambulance (e.g. AutoPulse®, LUCAS® device, LifeStat® or Thumper®)

Advanced Providers

- Secure airway and confirm placement with end-tidal capnography
- Check rhythm every two minutes
- SEE RHYTHM SPECIFIC PROTOCOLS
- 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:
    - Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hyperkalemia, Toxins, Tension pneumoThorax, Trauma

Cardiac Arrest: Asystole

EMT

- General Cardiac Arrest Care

EMT STOP

INTERMEDIATE

- Secure airway. Initial use of naso and/or oropharyngeal airway and bag-mask device is acceptable, with advanced airway deferred for initial care
- Vascular access; Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac monitor
- Epinephrine 1:10,000 dose 1 mg IV; repeat every 3 minutes

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Sodium Bicarbonate 50 mEq IV
- Termination of resuscitation

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway during the first 4 minutes of CPR
- Check asystole in more than 1 lead
- Refer to the Termination of Resuscitation Protocol as needed
- Consider and treat causes that EMS can manage: Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hyperkalemia, Toxins, Tension pneumoThorax, Trauma

Cardiac Arrest: Pulseless Electrical Activity (PEA)

EMT

- General Cardiac Arrest Care

EMT STOP

INTERMEDIATE

- Secure airway. Initial use of oropharyngeal airway and bag-mask device is acceptable, with advanced airway deferred for initial care
- Vascular access; Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac monitor
- Consider and treat causes of PEA
- Epinephrine 1:10,000 dose 1 mg IV; repeat every 3 minutes

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Sodium Bicarbonate 50 mEq IV
- Termination of resuscitation

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway during the first 4 minutes of CPR
- Refer to the Termination of Resuscitation Protocol as needed
- Consider and treat causes that EMS can manage: Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hyperkalemia, Toxins, Tension pneumoThorax, Trauma

Cardiac Arrest: Termination of Resuscitation

EMT

INTERMEDIATE

CCT

PARAMEDIC

Resuscitative efforts for patients in cardiac arrest should not be initiated if:

- The patient presents with significant dependent lividity, rigor mortis, decomposition and/or injuries incompatible with life (such as decapitation)
- There is a signed NYS Out-of-Hospital DNR (Do Not Resuscitate) Order Form DOH #3474 or MOLST form indicating DNR
- The patient is in a health care facility (as defined in NYS Public Health Law Article 28) and has a DNR order appropriate to that facility
- For all other patients in respiratory or cardiac arrest, the EMS provider MUST initiate 'General Cardiac Arrest Care' and consult physician for termination order

EMT INTERMEDIATE CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

Field termination of resuscitation, if cardiac arrest patient meets all of the following:

- Non-hypothermic
- Failed response to appropriate treatment
- Scene is appropriate for termination order

Key Points/Considerations

- Resuscitative efforts must be initiated while attempting to contact a Physician. If there is an extended time required to contact a Physician, try another facility
- Health Care Facilities (as defined in NYS Public Health Law Article 28) may have DNR forms appropriate to the level of facility. If identified by the facility staff as correct, these forms should be honored
- If a patient presents in respiratory or cardiopulmonary arrest and there is any other form of advanced directive, the EMS Provider must start BLS care (including Defibrillation), and contact Medical Control
- Other forms of advanced directives include: Living Wills, Health Care Proxies, and In-Hospital Do Not Resuscitate orders
- Copies of the MOLST form should be honored
- If a patient with a DNR is a resident of a Nursing Home and expires during transport contact the receiving facility to determine if they are willing to accept the patient. If not, return the patient to the sending facility. A copy of the DNR must be attached to the PCR and retained by the agency

Cardiac Arrest: Ventricular Fib / Pulseless V-Tach

EMT

- General Cardiac Arrest Care

EMT STOP

INTERMEDIATE

- Secure airway. Initial use of oropharyngeal airway and bag-mask device is acceptable, with advanced airway deferred for initial care
- Vascular access; Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT

- Cardiac monitor
- Epinephrine 1:10,000 dose 1 mg IV; repeat every 3 minutes
- Defibrillate after each medication administration
- Amiodarone (Cordarone) 300 mg IV. Repeat 150 mg in 3 – 5 minutes
- **If pulses return:**
  - Amiodarone (Cordarone) 150 mg in 100 ml NS over 10 min (10 ml/min)
  - 12 lead EKG

CCT STOP

PARAMEDIC

- Consider: Sodium Bicarbonate 50 mEq for renal failure or suspected hyperkalemia
- Consider: Magnesium 2 grams IV if suspected hypomagnesemic or torsades de pointes

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Lidocaine 1.5 mg/kg bolus and/or infusion
- Additional Amiodarone (Cordarone) infusion

Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway during the first 4 minutes of CPR
- Consult physician if patient has return of pulses (even transiently)
- Maximize dose of each antiarrythmic before considering using another
- Refer to the Termination of Resuscitation Protocol as needed

Cardiac Arrest: ROSC – Therapeutic Hypothermia

EMT

- Airway management and appropriate oxygen therapy
- Ice packs in axilla, groin, and neck; change every 10-15 minutes

EMT STOP

INTERMEDIATE

- Vascular access at 2 sites (no more than one IO)
- Infuse chilled normal saline to a total of 30 ml/kg or 2 L max

INTERMEDIATE STOP

CCT

PARAMEDIC

- Treatment for appropriate presenting rhythm
    - Antiarhythmic drip if patient was in a shockable rhythm
- Cardiac Monitor with 12 lead EKG acquired and transmitted as soon as possible
- Complete neurologic exam including specific GCS items and pupillary response
- Maintain MAP > 65 (SBP >80)
- Consider Dopamine 5 mcg/kg/min if needed after fluid bolus complete
- Treat shivering and sedation:
    - Fentanyl 50 mcg every 5 minutes as needed (SBP > 100)
    - Versed 2.5 mg IV every 5 minutes as needed (SBP > 100)

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Fentanyl 50 mcg IV over 5 minutes every 10 minutes as needed (SBP > 80)
- Vecuronium 0.1 mg/kg to a max of 10 mg if shivering or ventilatory problems
  *ONLY IF ADVANCED AIRWAY has been placed
- Antiarrhythmic (additional Amiodarone or Lidocaine)
- Dopamine titration
- Management of hypertension SBP > 200 with either
    - Nitroglycerin 0.4 mg SL or 1-2” TD
    - Metoprolol 5 mg IV over 5 minutes, up to four doses

Key Points/Inclusion and Exclusion Criteria

INCLUSION CRITERIA:

- Patients with ROSC following cardiac arrest who are not following commands

EXCLUSION CRITERIA:

- Patients known to be pregnant, trauma patients, suspected sepsis, other causes of coma (such as drug intoxication or status epilepticus), recent major surgery within 14 days.
- Contact receiving facility for clarification if needed.

Key Points/Considerations

- Treatment for presenting rhythm should include antiarrythmic to any patient who has been in a shockable rhythm.
- Care and transport must be performed with on-line medical control from receiving facility 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
- ALL Patients who remain in ROSC must be transported to a facility that can maintain the therapeutic hypothermia as long as transport time is projected to be less than 60 minutes
- Patients who are in recurrent cardiac arrest should be transported to the closest hospital
- Documentation must include accurate pupilary exam, and initial GCS recorded by element, not as a total: Eyes _/4, Verbal _/5, Motor _/6

Cardiac: Acute Coronary Syndrome – Suspected

EMT

- ABC and vital signs
- Aspirin 324 mg (4 x 81 mg tabs) chewed
- Airway management and appropriate oxygen therapy
- Assist patient with their prescribed Nitroglycerin up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 120 mmHg

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor with 12 Lead EKG (transmit to physician if any question)
- Nitroglycerin 0.4 mg per dose, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 120 mmHg or MAP > 80 mmHg
- If systolic BP drops below 100 mmHg: Normal Saline 250 ml IV bolus

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Repeat Nitroglycerin 0.4 mg every 5 minutes

Key Points/Considerations

- Focus on maintaining ABC, pain relief, rapid identification, rapid notification and rapid transport to an appropriate facility
- Vitals, including 12 Lead EKG, should be monitored frequently during transport
- The first dose of Nitroglycerin may be administered while preparing to establish vascular access
- A total of 3 doses of Nitroglycerin may be administered by pre-hospital providers, prior to consulting physician
- If the patient does not have prescribed Nitroglycerin, a 12 lead EKG should be obtained prior to administering any Nitroglycerin

Cardiac: ST Elevation MI – CONFIRMED

EMT

- ABC and vital signs
- Aspirin 324 mg (4 x 81 mg tabs) chewed
- Airway management and appropriate oxygen therapy
- Assist patient with their prescribed Nitroglycerin up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 120 mmHg

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor with 12 Lead EKG
- Notify receiving hospital ASAP for ST elevation myocardial infarction (STEMI)
- Strongly recommend transport to facility capable of primary angioplasty if transport time is less than one hour
- Notify receiving hospital as soon as possible to discuss transport options if patient requests facility not capable of primary angioplasty
- Nitroglycerin 0.4 mg per dose, up to 3 doses, 5 minutes apart, BP > 120 mmHg or MAP > 80 mmHg
- If systolic BP drops below 100 mmHg: Normal Saline 250 ml IV bolus, may repeat up to 2 L provided lung sounds remain clear
- Pain management

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Repeat 0.4 mg doses of Nitroglycerin every 5 minutes
- Additional saline
- Metoprolol (Lopressor) 5 mg slow IV, IF HR > 80 and BP > 120 mmHg or MAP > 80 mmHg to a total of 3 doses

Key Points/Considerations

- Focus on rapid identification, notification and transport to appropriate facility
- 12 Lead EKG should be transmitted to receiving facility if possible
- Vitals, including 12 Lead EKG, should be monitored frequently during transport
- Caution with Nitroglycerin in inferior wall MI for bradycardia and hypotension

Cardiac: Cardiogenic Shock

Criteria

- For patients with STEMI or Acute Coronary Syndrome - Suspected and signs of hypoperfusion

EMT

- ABC and vital signs
- 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

INTERMEDIATE

- Vascular access
- Normal Saline 250 ml IV bolus; recheck lung sounds and repeat if unchanged

INTERMEDIATE STOP

CCT

- Cardiac Monitor with 12 Lead EKG
- Notify hospital physician AS SOON AS POSSIBLE for ST elevation myocardial infarction (STEMI)
- Additional Normal Saline bolus, to a total of 2L

CCT STOP

PARAMEDIC

- If UNSTABLE, Dopamine infusion 5 micrograms/kg/min

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Dopamine infusion at 5 – 20 micrograms/kg/min
- Additional Normal Saline

Key Points/Considerations

- UNSTABLE is defined as systolic BP less than 90 mmHg and/or decreased level of consciousness
- Refer to Dysrhythmia protocols as needed

Cardiac: Ventricular Assist Device

Criteria

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

EMT

- ABC 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:
    - Listen to motor of pump over heart and observe green light on 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 blood pressure
    - DO NOT PERFORM CPR
    - Notify appropriate facility ASAP, regardless of the patient's complaint
    - Bring patient's power unit and batteries to the Emergency Department
    - Trained support member must remain with patient
    - Do not delay transport to hospital

EMT STOP

INTERMEDIATE

CCT

PARAMEDIC

- If hypotensive (defined as poor perfusion based on mental status, capillary refill, or skin color):
- Establish IV/IO access and administer 500ml NS bolus
- Reassess and repeat up to 1000ml total. Contact Medical Control for additional fluid boluses

INTERMEDIATE, CCT, AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Termination of resuscitation
- Dopamine 5-20 mcg/kg/min

Key Points/Considerations

- Community patients are entirely mobile and independent
- Keep device and components dry
- 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 and are 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

Cardiac: Wide Complex Tachycardia with a Pulse

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG
- If UNSTABLE, consider sedation (see Procedural Sedation Protocol)
- Synchronized cardioversion. Repeated as needed, maximum 3 times
- If rhythm is converted: Amiodarone (Cordarone) 150 mg in 100 ml NS IV, over 10 minutes

CCT STOP

PARAMEDIC

- If STABLE, Amiodarone (Cordarone) 150 mg in 100 ml NS, over 10 minutes

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Synchronized or unsynchronized cardioversion
- Adenosine (Adenocard) 6 mg or 12 mg IV with rapid NS flush
- Lidocaine 1.5 mg/kg IV
- Repeat Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, over 10 minutes
- Magnesium 2 gm IV, over 20 minutes for STABLE patient, over 2 minutes for UNSTABLE patient

Key Points/Considerations

- If no pulse treat as V-Fib
- UNSTABLE is defined as ventricular rate > 150 bpm with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic BP < 90 mmHg)
- Wide Complex is defined as a QRS complex greater than .12 seconds
- Start cardioversion at 100 Joules or the equivalent biphasic setting

Cardiac: Narrow Complex Tachycardia

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Vagal Maneuver
- 12 Lead EKG
- If Regular Rhythm: Adenosine (Adenocard) 6 mg IV with rapid NS flush, may repeat Adenosine (Adenocard) 12 mg IV if needed
- If UNSTABLE Irregular Rhythm, consider sedation (see Procedural Sedation Protocol)
    - Synchronized cardioversion starting at 100 Joules or equivalent biphasic

CCT STOP

PARAMEDIC

- If STABLE Irregular Rhythm: Diltiazem 0.25 mg/kg (max 25 mg) slow IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Adenosine (Adenocard)
- Additional Diltiazem (Cardizem) slow IV
- Metoprolol (Lopressor) 5 mg slow IV
- Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, infused over 10 minutes
- Synchronized cardioversion

Key Points/Considerations

- Do NOT use carotid sinus massage as vagal maneuver
- UNSTABLE is defined as ventricular rate > 150 bpm with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic bp < 90 mmHg)
- If Diltiazem is not available, contact physician for medication choice

Cardiac: Symptomatic Bradycardia / Heart Blocks

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG
- Atropine 0.5 mg IV
- Transcutaneous pacing, consider sedation (see Procedural Sedation Protocol)

CCT STOP

PARAMEDIC

- Repeat Atropine 0.5 mg IV, every 3 min, up to a max of 3 mg
- Dopamine infusion 5 micrograms/kg/min

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Dopamine infusion 5-20 micrograms/kg/min
- Epinephrine infusion (1 mg in 100 ml Normal Saline), at 5 micrograms/min

Key Points/Considerations

- Only treat bradycardia if patient is symptomatic
- Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic BP < 90 mmHg)

General Care: Agitated Patient Restraint / Excited Delirium

Criteria

- For agitated patients at risk of causing physical harm to emergency responders, the public and/or themselves

EMT

- Call for Law Enforcement
- ABC and vital signs as tolerated
- Airway management and appropriate oxygen therapy, if tolerated
- Check blood glucose level, if equipped and tolerated. If level is abnormal refer to Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access if possible and safe for provider

INTERMEDIATE STOP

CCT

PARAMEDIC

- Patient AGE less than 70: Midazolam (Versed) 2.5mg IV or 5 mg IM or IN may repeat once in 5 minutes

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Midazolam (Versed) IV, IM or IN

Key Points/Considerations

- **Patient must NOT be transported in a face-down position**
- If agitated patient goes into cardiac arrest, consider possibility of acidosis, and administer Sodium Bicarbonate as part of initial resuscitation
- Verbal de-escalation of situation should be attempted prior to chemical restraint
- A team approach should be attempted at all times for the safety of the patient and the providers
- 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
- EMS personnel may only apply “soft restraints” such as towels, cravats or commercially available soft medical restraints
- All uses of this protocol must have review by the Regional QI Coordinator and the Agency Medical Director

General Care: Nausea and/or Vomiting

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access
- Normal Saline 500 ml bolus IV; may repeat if lung sounds remain clear

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Consider 12 Lead EKG
- Ondansetron (Zofran) 4 mg PO, IV or IM, may repeat x 1 in 10 minutes

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Midazolam (Versed) IV, IM or IN
- Diphenhydramine (Benadryl) 12.5 IV or 25 mg IM for motion sickness

General Care: Pain Management

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

SEE KEY POINTS BELOW – CHOOSE ONE PAIN MEDICATION

- Morphine 2.5 or 5 mg IV OR 5 or 10 mg IM
  - Morphine may be repeated in 5 min with total not to exceed 10 mg
- Fentanyl 25 or 50 mcg slow IV, IM or IN
  - Fentanyl may be repeated in 5 min with total not to exceed 100mcg
- Ondansetron (Zofran) 4 mg IV or IM as needed for nausea

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Morphine IV or IM
- Additional Fentanyl IV, IM, or IN
- Additional Ondansetron (Zofran) IV or IM
- Midazolam (Versed) IV, IM or IN
- Ketorolac 30 mg IV or IM
- Diphenhydramine (Benadryl) 25 or 50 mg IM or IV for histamine reaction

Key Points/Considerations

- Contraindications to standing order pain management: altered mental status, hypoventilation, pregnancy, SBP < 100
- **ONE** pain medication may be given under standing orders. For additional dosing, or switching to another agent, you must consult a physician.
- Lower dosing should be used patients less than 50 kg or the elderly
- Fentanyl should be considered if there is allergy to morphine, undifferentiated abdominal pain or potential hemodynamic instability
- Morphine should be considered if there is an isolated extremity injury or a long-acting medication would be more efficacious for the patient

This protocol may NOT be used in conjunction with the Procedural Sedation Protocol unless physician is consulted

General: Procedural Sedation

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor with continuous pulse oximetry

CCT STOP

PARAMEDIC

- Etomidate 0.1 mg/kg IV for cardioversion or other brief intervention
  - May not be administered more than once
- Midazolam (Versed) 2.5 mg IV or 5 mg IM or IN for transcutaneous pacing or post-intubation
  - May be repeated every 5 minutes as needed if SBP > 100 or MAP > 65

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Etomidate 0.3 mg/kg for intubation ONLY
- Morphine IV or IM
- Fentanyl IV, IM or IN
- Midazolam (Versed) IV, IM, or IN

Key Points/Considerations

- This protocol may only be used for intubation upon physician order
- For patients with the following anxiety producing or painful procedures including:
  - Cardioversion
  - Transcutaneous pacing
  - Post-intubation sedation, following confirmed endotracheal intubation
- One medication may be given under standing orders. For additional dosing, or switching to another agent, you must consult a physician.
- Not for disentanglement or management of suspected fractures without physician consultation

  This protocol may NOT be used in conjunction with the Pain Management Protocol unless physician is consulted

Medical: Allergic Reaction and Anaphylaxis

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Determine if patient has utilized their own EpiPen

Patient **prescribed** EpiPen and severe respiratory distress, edema, hypotension:

- Administer appropriate EpiPen

Patient **NOT prescribed** EpiPen and severe respiratory distress, edema, hypotension:

- Contact Medical Control for orders to administer appropriate EpiPen
- IF UNABLE to contact Medical Control:
    - Administer appropriate EpiPen

EMT STOP

INTERMEDIATE

- Vascular access
- Normal Saline 500 ml IV bolus if SBP < 120 or MAP < 65 and may repeat if patient remains hypotensive

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.5 mg IM, **ONLY** if patient has hypotension and/or developing respiratory distress w/airway swelling, hoarseness, stridor or wheezing
- Albuterol 2.5 mg in 3 ml (unit dose) & Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer or ET tube; may repeat to a total of three doses for wheezing
- Diphenhydramine (Benadryl) 50 mg IV or IM
- Methylprednisolone (Solu-Medrol) 125 mg IV

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer
- Dopamine infusion 5 – 20 micrograms/kg/min
- Epinephrine infusion (1 mg in 100 ml Normal Saline), at 5 micrograms/min

Key Points/Considerations

- **NO IV Epinephrine without online medical control!**
- If an EMT has administered an EpiPen, or the patient utilized their own epinephrine autoinjector, consult physician prior to administering additional epinephrine
- If an EMT has administered an EpiPen, or the patient utilized their own epinephrine autoinjector, consult physician prior to allowing a patient to RMA

Medical: Diabetic Emergencies

EMT

- ABC 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 oral glucose one unit dose (15-24 grams) or available carbohydrate source
- Call for ALS Intercept if unable to swallow on command, or mental status remains altered following administration of oral glucose
- If blood glucose is CONFIRMED to be high do not administer oral glucose

EMT STOP

INTERMEDIATE

- Vascular access
- If glucose level is below 80, and patient cannot swallow on command, administer Dextrose 10% 250 mL, up to 25 gm; may redose if hypoglycemia recurs
- If glucose level is above 400, administer Normal Saline 250 ml IV bolus

INTERMEDIATE STOP

CCT

PARAMEDIC

- If unable to obtain vascular access, Glucagon 1 mg IM

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Normal Saline IV bolus, if patient is hyperglycemic
- 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 you must contact a Physician prior to leaving the patient or completing the RMA
- If the patient's blood glucose level is below 80 and the patient is able to self administer and swallow on command, administer oral glucose or equivalent rather than establishing vascular access, if possible
- If patient regains normal responsiveness prior to infusion of the complete dose, please stop infusion and record amount infused

Medical: Seizure

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal refer to Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Midazolam (Versed) 2.5 mg IV or 5 mg IM or IN may repeat x 1 in 5 minutes

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Magnesium 4 grams IV over 2 minutes, if patient is pregnant
- Additional Midazolam (Versed) 2.5 – 5 mg IV, IM or IN

Key Points/Considerations

- Protect the patient and EMS crew from injury during the seizure
- Standing orders are for tonic/clonic seizures (grand mal seizures) only
- Refer to the Eclampsia protocol if patient is pregnant

Medical: Shock / Hypoperfusion

Criteria

Potential causes of hypoperfusion excluding cardiogenic and septic shock – please refer to specific protocols

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access.
- Normal saline 500 mL IV if SBP < 100 or MAP < 65, may repeat if lung sounds remain clear
    - Goal SBP >100 and MAP >65

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Consider 12 Lead EKG
- Normal saline to a total of 2 L

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Normal Saline
- Dopamine infusion at 5 – 20 micrograms/kg/min

Key Points/Considerations

- Hypoperfusion is defined as SBP < 100, MAP < 65 with decreased level of consciousness
- BP to MAP conversion included in protocols
- Vitals should be monitored frequently during transport to avoid unnecessary prehospital overhydration
- If MAP not > 65 as approaching 2 liters NS infused call medical control for consideration of Dopamine
- Consider potential causes of hypoperfusion: anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ectopic pregnancy, ruptured abdominal aortic aneurysm, or others

Medical: Stroke

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal refer to Diabetic Protocol
- Perform neurological exam including Cincinnati Stroke Scale
- Determine the **exact time** patient was last in usual state of health and/or seen without symptoms by interviewing patient, family, and bystanders
- If time from symptom onset to estimated arrival in the ED will be less than 2 hours, transport patient to NYS DOH Designated Stroke Center, or consult physician to discuss appropriate destination facility
- Notify destination hospital ASAP

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- 12 lead EKG
- Maintain MAP > 80

If systolic BP > 220 or diastolic BP > 120 contact Medical Control

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Metoprolol (Lopressor) 5 mg slow IV push
- Nitroglycerin paste, 1 – 2 inches transdermally

Reference

Cincinnati Pre-Hospital Stroke Scale:

- Have the patient repeat "You can't teach an old dog new tricks"
  - Assess for correct use of words, without 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

Medical: Suspected Sepsis

Criteria

Protocol activated if concern for any new or worsening infection and any TWO of the following on TWO sets of vital signs: Pulse > 100, RR > 20, Systolic BP < 100, MAP < 65, RA O2 Sat < 92

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Obtain blood glucose if equipped

EMT STOP

INTERMEDIATE

- Large bore vascular access.
- Normal saline 500 mL IV, if needed may repeat x 1 if lungs sounds are unchanged
  - Goal is MAP > 65
- Notify destination hospital of potential sepsis patient with report

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor and continuous pulse oximetry
- Consider 12 Lead EKG if RA oxygen saturation < 92% or complaint of chest pain, short of breath
- Normal saline to a total of 2 L

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Dopamine infusion at 5 – 20 micrograms/kg/min

Key Points/Considerations

- Focus on rapid identification, IV hydration, and early notification of concern for potential sepsis patient to destination facility
- Concern for any new or worsening infection: Including reported fever, shaking chills, sweatiness, new cough, difficulty or less than usual urination, unexplained or new altered mental status, flush skin, pallor, new rash or mottling
- BP to MAP conversion included in protocols
- Vitals should be monitored frequently during transport to avoid unnecessary prehospital overhydration
- If MAP not > 65 as approaching 2 liters NS infused call medical control for consideration of Dopamine

Respiratory: Acute Asthma

EMT

- ABC and vital signs
- Airway management, and appropriate oxygen therapy
- Implement BLS Albuterol Protocol
- Assist patient with their own medications as appropriate

EMT STOP

INTERMEDIATE

- Vascular access, if not improving with nebulizer treatment
- CPAP if trained and equipped

INTERMEDIATE STOP

EMT AND INTERMEDIATE PHYSICIAN OPTION

- If patient is not improving contact Medical Control for use of EpiPen
    - Administer appropriate EpiPen

CCT

PARAMEDIC

- Albuterol 2.5 mg in 3 ml (unit dose) + 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 dose 0.3 –0.5 mg IM for severe distress
  *if severe distress persists may repeat in 5 minutes
- Consider Cardiac Monitor and 12 Lead EKG
- Methylprednisolone (Solu-Medrol) 125 mg IV
- Magnesium 2 gm in 100 ml NS IV over 10 minutes

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer
- Epinephrine 1:1,000 dose 0.5 mg mixed with 3 ml Normal Saline, via nebulizer
- Epinephrine infusion (1 mg in 100 ml Normal Saline), at 5 micrograms/min, if imminent respiratory arrest
- Repeat magnesium

Key Points/Considerations

- Remember, “all that wheezes is not asthma!” Consider allergic reaction, airway obstruction, pulmonary edema, COPD exacerbation
- A total of 3 doses of Albuterol may be administered by pre-hospital providers, prior to consulting Medical Control Physician
- Epinephrine should only be used if patient’s tidal volume is so small that nebulized medications can’t work
- If an ALS provider has administered any medications they must consult a physician prior to allowing a patient to RMA or before sending the patient BLS

Respiratory: Acute Pulmonary Edema

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Sit patient upright, if possible

EMT STOP

INTERMEDIATE

- Vascular access
- CPAP, if trained and equipped

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Nitroglycerin 0.4 mg SL or equivalent, every 2-5 minutes, if the patient's systolic BP is above 120 mmHg or MAP >80 mmHg
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer, only if wheezes are present
- 12 Lead EKG
- Only if unable to administer medication orally, Nitroglycerin Paste 1 – 2 inches transdermally

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Nitroglycerin or Nitroglycerin SL if no vascular access
- Furosemide (Lasix) 40 mg IV over 2 – 3 minutes, if peripheral edema is present

Key Points/Considerations

- All patients with rales do not have pulmonary edema — consider the possibility of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation
- May administer first dose of Nitroglycerin while preparing to establish vascular access. Contact Medical Control Physician for Nitroglycerin orders if no vascular access

Respiratory: COPD Exacerbation

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Assist patient with their own medications as appropriate

EMT STOP

INTERMEDIATE

- Vascular access if not improving
- CPAP, if trained and equipped

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer or ET tube; may repeat to a total of three doses
- 12 Lead EKG
- Methylprednisolone (Solu-Medrol) 125 mg IV or IM

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer
- Magnesium 2 grams IV over 10 minutes in 100 ml Normal Saline

Respiratory: Upper Airway Obstruction / Stridor

EMT

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Consider mechanical obstruction and treat accordingly

EMT STOP

INTERMEDIATE

- If unconscious and suspected mechanical obstruction, attempt removal of object with Magill forceps
- Consider using smaller than usual ET tube
- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer
- Epinephrine 1:1,000 dose 1 mg mixed with 3 ml Normal Saline, via nebulizer

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 125 mg IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer

Toxicology: Opiate Overdose

EMT

- ABC 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 Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access only if necessary

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG if bradycardic or tachycardic (for QRS widening or QT prolongation)
- Naloxone (Narcan) 0.4 – 2 mg IV, IM or IN if hypoventilation or respiratory distress, may repeat once in 5 minutes

CCT AND PARAMEDIC STOP

Key Points/Considerations

- BLS Intranasal Naloxone protocol is only for agencies and providers that have been trained and equipped. Each utilization of BLS Naloxone must be reported to the appropriate Region and to the Medical Director as soon as possible.
- Only administer Naloxone to suspected opiate overdoses with hypoventilation. For provider and patient safety, do not administer if there are adequate ventilations without physician order
- ALS providers should titrate Naloxone dose to respiratory rate
- If suspected narcotic overdose, providers may administer Naloxone prior to checking blood glucose level
- Do NOT give Naloxone (Narcan) to any patient who is intubated without physician order unless they are in cardiac arrest
- If suspected isolated opiate overdose, please consider giving Naloxone intranasally for provider safety

Toxicology: Overdose or Toxic Exposure

EMT

- Decontamination as needed
- ABC 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 Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG if bradycardic or tachycardic
  (to evaluate for QRS widening or QT prolongation)
- Sympathomimetic OD (cocaine/amphetamines):
  - Midazolam (Versed) 2.5mg IV or 5mg IM or atomized IN may repeat x 1 in 5 minutes

CCT STOP

PARAMEDIC

For symptomatic patients with:

- Organophosphate poisoning: See separate protocol
- Dystonic reaction:
  - Diphenhydramine (Benadryl) 50 mg IV or IM
- Calcium channel blocker OD:
  - Glucagon 2 mg IV
  - Calcium Chloride 1 gram IV
- Beta blocker OD:
  - Glucagon 2 mg IV
  - Calcium Chloride 1 gram IV
- Tricyclic antidepressant OD (if tachycardiac and QRS complex > 120 mSec):
  - Sodium Bicarbonate 1 mEq/kg IV until QRS complex < 120 mSec

PARAMEDIC STOP

Key Points/Considerations

- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue
- See also: Opiate Overdose, Organophosphate Exposure, Suspected Nerve Agent

Toxicology: Organophosphate Exposure

EMT

- Decontamination as needed
- ABC 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 Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG if bradycardic or tachycardic (for QRS widening or QT prolongation)

CCT STOP

PARAMEDIC

- For symptomatic patients with Organophosphate poisoning:
    - Atropine 2 mg IV per dose every 5 minutes until secretions dry
    - Midazolam 2.5 mg IV or 5 mg IM or atomized IN for seizures

PARAMEDIC STOP

Key Points/Considerations

- If suspected WMD refer to Medical: Suspected Nerve Agent or NYS Advisory on Mark 1 Kits, #03-05

Toxicology: Suspected Nerve Agent

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

INTERMEDIATE

CCT

PARAMEDIC

- Don personal protective equipment.
  DO NOT APPROACH WITHOUT ADEQUATE PROTECTION!
- Contact dispatch to declare incident; Request appropriate response
- Request ALS if not already present or en route
- Contact Medical Control to request EMS CHEMPACK
- Decontaminate as needed
- ABC 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) 2-PAM CL 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) 2-PAM CL auto-injectors in rapid succession (stacked). Atropine MUST be administered first!

ALL 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 EMS CHEMPACK are NOT to be used for self-administration or prophylaxis
- Children should be decontaminated and have expedited transport off scene especially if they are demonstrating ANY signs and symptoms of exposure
- Consult physician before administering medication to children less than 8 years old
- **CHEMPACK medications may be used regardless of expiration date**

ChemPack Dosing Chart

Triage - Initial Treatment – Antidote Dosing Schedules

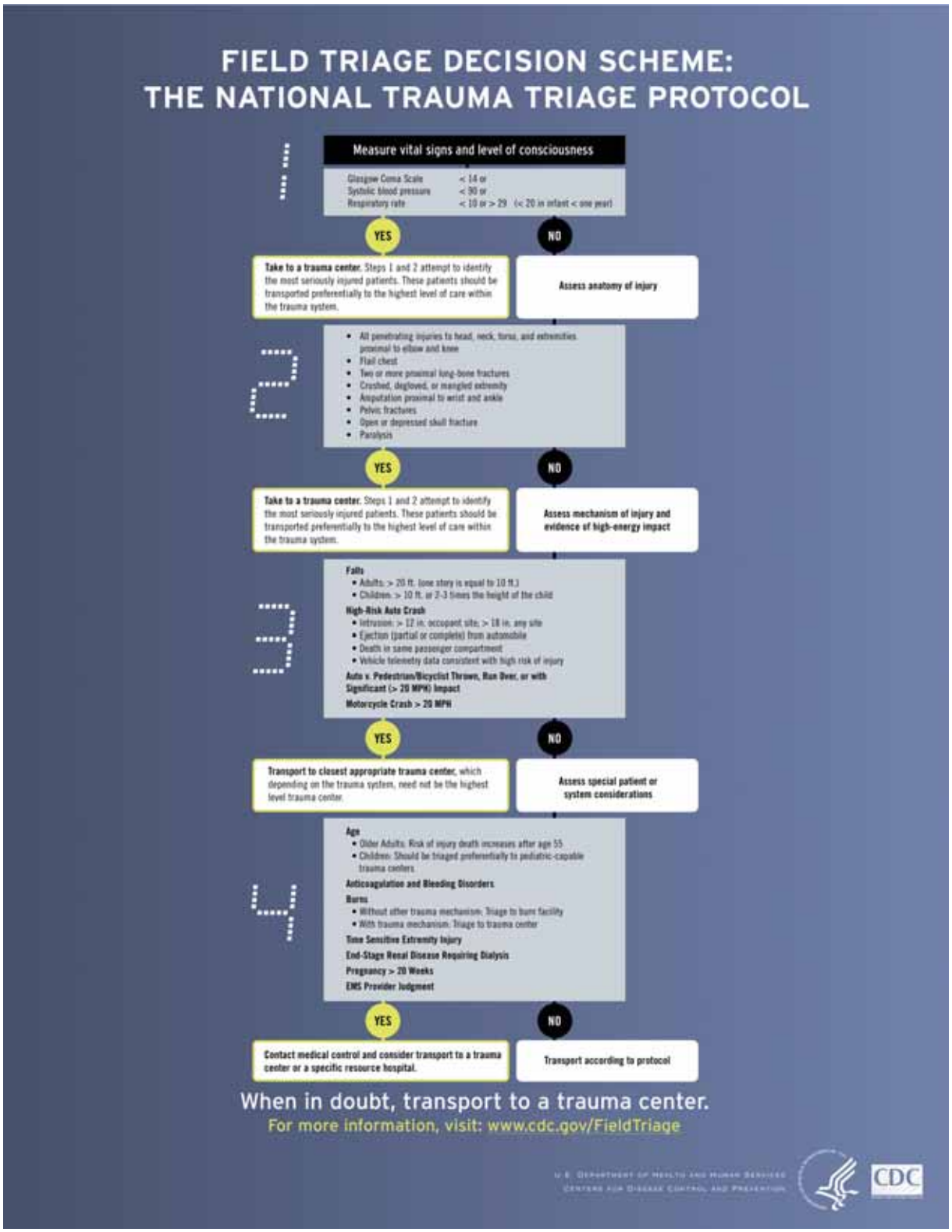
Signs and Symptoms	Atropine Dose Monitor Interval	Pralidoxime Chloride (2-PAM CL) Dose
SEVERE Respiratory Distress Agitation/Seizures SLUDGEM	3 Auto-injectors (6 mg total) Monitor every 5 minutes	3 Auto-injectors (1.8 Gm)
MODERATE Respiratory Distress SLUDGEM	2 Auto-injectors (4 mg total) Monitor every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

From NYS DOH ChemPack

Key Points/Considerations

- ChemPack Assets: Valium, Atropine & Pralidoxime [2PAM CL] 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
- Valium auto-injectors should be administered as directed on packaging only to patients who are having active tonic-clonic seizures
- **CHEM PACK medications may be used regardless of expiration date**

Trauma: CDC Trauma Triage Flowchart



Trauma: Adult Trauma Triage and Transport

Trauma Criteria

Major trauma is present if on examination the patient is unstable as defined below or their physical findings are as defined below

Unstable Patient

Major trauma is present if the patient is unstable by any of the following criteria:

- Glasgow Coma Scale is less than 14
- Systolic blood pressure is less than 90 mmHg
- Respiratory rate less than 10 or more than 29 breaths per minute

Physical Findings

Major trauma is present if the physical findings meet any of the following criteria:

- Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee
- Suspected flail chest
- Two or more suspected proximal long bone fractures
- Crushed, degloved or mangled extremity
- Amputation proximal to wrist or ankle
- Suspected pelvic fracture
- Suspected open or depressed skull fracture
- Paralysis

Mechanism of Injury

Major trauma may be present if mechanism of injury meets any of the following:

- Falls > 20 feet
- Vehicle collision resulting in 12 inches of intrusion into the passenger compartment
- Ejection or partial ejection from an automobile
- Death in the same passenger compartment secondary to trauma
- Motorcycle crash > 20 MPH
- Vehicle vs. pedestrian or bicycle thrown, run-over, or collision above 20 MPH

High Risk Patients

- If a patient does not meet the criteria for Major Trauma, but has sustained an injury and has one or more of the following criteria, they are considered a "High Risk Patient". Consider transportation to a Trauma Center and/or consulting Medical Control Physician:
    - Patients with bleeding disorders or patients on anticoagulant medications
    - Patients with renal, cardiac disease and/or respiratory disease
    - Patients with insulin dependent diabetes, cirrhosis, or morbid obesity
    - Immunosuppressed patients (HIV disease, transplant patients and patients on chemotherapy treatment)
    - Age > 55

Trauma: Pediatric Trauma Triage and Transport

Pediatric Major Trauma Criteria

Major trauma is present if on examination the patient is unstable as defined below or their physical findings are as defined below

Unstable Patient

Major trauma is present if the patient is unstable by any of the following criteria:

- Glasgow Coma Scale is less than 14
- Respiratory status: cyanosis or respiratory rate either low or high for patient's age

Physical Findings

Major trauma is present if the physical findings meet any of the following criteria:

- Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee
- Suspected flail chest
- Two or more suspected proximal long bone fractures
- Crushed, degloved or mangled extremity
- Amputation proximal to wrist or ankle
- Suspected pelvic fracture
- Suspected open or depressed skull fracture
- Paralysis

Mechanism of Injury

Major trauma may be present if mechanism of injury meets any of the following:

- Falls > 10 feet or 2 times the height of the child
- Vehicle collision resulting in 12 inches of intrusion into the passenger compartment
- Ejection or partial ejection from an automobile
- Death in the same passenger compartment secondary to trauma
- Motorcycle crash > 20 MPH
- Vehicle vs. pedestrian or bicycle thrown, run-over or collision above 20 MPH

High Risk Patients

- If a patient does not meet the criteria for Major Trauma, but has sustained an injury and has one or more of the following criteria, they are considered a "High Risk Patient". Consider transportation to a Trauma Center and/or consulting a Medical Control Physician:
    - Patients with bleeding disorders or on anticoagulant medications
    - Patients with renal, cardiac disease and/or respiratory disease
    - Patients with insulin dependent diabetes, cirrhosis, or morbid obesity
    - Immunosuppressed patients (HIV disease, transplant or chemotherapy)

Trauma: General

Key Points/Considerations

- Trauma Arrest patients go to the closest appropriate hospital
- All other major trauma patients go to closest appropriate Trauma Center
- Patients with unmanageable airway go to the closest hospital or call for Aeromedical or advanced airway assistance while enroute to closest hospital
- **UNSTABLE patients should be enroute to the hospital/landing zone within 10 minutes of disentanglement/extrication**
- If more than 30 minutes from a Trauma Center consider Aeromedical assistance. Refer to the Aeromedical Utilization Policy
- If more than 45 minutes from Trauma Center and Aeromedical assistance is not available, transport patient to the closest hospital
- All times start at the time the EMS provider determined the patient to meet major trauma criteria
- Notify the receiving facility as early as possible giving brief description of 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

Trauma: Burn Care Considerations

Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- Be alert for smoke inhalation and airway burns
- Assure 100% oxygen. Oxygen saturation readings may be falsely elevated.
- If hazardous materials, notify the destination hospital immediately to allow for decontamination
- When considering total area of a burn, DO NOT count first degree burns
- Burns > 10% are only to be dressed with simple sterile dressings

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 a Medical Control Physician

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
- Third degree burns
- Electrical burns, including lightning injuries
- Chemical burns
- Inhalation injury (ONLY if endotracheally intubated)

Trauma: Burns

EMT

- Stop the burning. Remove any clothing, jewelry, etc.
- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Consider Aeromedical intercept for direct transport to a Burn Center (See Trauma: Burn Center Transport Criteria)
- If the burn is less than 10% BSA use moist sterile dressings
- If the burn is more than 10% BSA use dry sterile dressings

EMT STOP

INTERMEDIATE

- Vascular access at 2 sites
- Normal saline 500 ml bolus IV

INTERMEDIATE STOP

CCT

PARAMEDIC

- If patient has signs of airway involvement be prepared to intubate
- Refer to PAIN MANAGEMENT protocol

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional fluid

Trauma: Chest Trauma

EMT

- ABC 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 receiving hospital as soon as possible

EMT STOP

INTERMEDIATE

- Vascular access; use the side opposite the injury if possible
- Normal saline per the Traumatic Hypoperfusion Protocol

INTERMEDIATE

CCT

- If patient is in cardiac arrest, proceed with needle chest decompression
- If patient is not in cardiac arrest, contact Medical Control for consideration of needle chest decompression

CCT STOP

PARAMEDIC

- Paramedics may proceed with needle decompression if there are signs and symptoms of tension pneumothorax including hemodynamic compromise

PARAMEDIC STOP

PHYSICIAN OPTIONS

- If patient has signs and symptoms consistent with Tension Pneumothorax AND hemodynamic compromise, consider needle chest decompression for CCT

Key Points/Considerations

- Begin transportation as soon as possible and perform ALS treatment enroute
- Signs and symptoms of a Tension Pneumothorax: absent lung sounds on one side, extreme dyspnea AND hemodynamic compromise, and may include jugular vein distention, cyanosis, tracheal deviation
- Hemodynamic compromise: hypotension, narrowed pulse pressure and tachycardia
- Thoracic decompression is a serious medical intervention that requires a chest tube in the hospital
- Every thoracic decompression performed must be reviewed with the medical director and flagged for Regional QI review
- Thoracic decompression can only be performed with a > 3.25” 14G IV catheter

Trauma: Crush Injuries

EMT

- ABC and vital signs every 5 minutes if possible
- Airway management and appropriate oxygen therapy

EMT STOP

INTERMEDIATE

- Vascular access at 2 sites
- Normal saline 1 liter IV bolus

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG repeated at 30 minute intervals
- Pain management

CCT STOP

PARAMEDIC

- If 1 complete extremity crushed > 2 hours or 2 extremities crushed >1 hour:
    - Sodium Bicarbonate 50 mEq IV slow push every 30 minutes
    - One minute prior to extrication: Sodium Bicarbonate 50 mEq IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- If hyperkalemia is suspected and EKG changes: Calcium Chloride 1 gram IV (over 5 minutes). Repeat in 10 minutes if no resolution
- Sodium Bicarbonate infusion (150 mEq in 1 liter D5W), at 1.5L per hour
- Albuterol via nebuilizer
- Midazolam (Versed) IV, IM or IN
- Morphine IV or IM
- Fentanyl IV, IM or IN

Key Points/Considerations

- Contact the Regional Trauma Center early and consider physician presence at scene if anticipated prolonged extrication.
- Use one dedicated IV for Sodium Bicarbonate, the other IV for other medications
- Hyperkalemia is indicated by PVC's, peaked T-waves or widened QRS complexes
- After extrication immobilize the extremity and apply cold therapy. Do not elevate the extremity
- *D5W is not on the standard formulary. Must obtain from hospital and have brought to the scene if needed.

Trauma: Eye Injuries and Exposures

EMT

- Stop the burning
- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Consider Aeromedical intercept for direct transport to a Burn Center for severe burns to the eye (See Trauma: Burn Center Transport Criteria)
- Burns to the eye require copious irrigation with Normal Saline — do not delay irrigation
- Stabilize any object lodged in the eye, and cover both eyes to prevent consensual movement

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- Tetracaine 0.5% 2 drops in the affected eye for pain
- For chemical exposure to the eye: Morgan Lens for irrigation
- Pain management

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Tetracaine

Key Points/Considerations

- If hazardous materials, notify the destination hospital immediately to allow for decontamination

Do not put any pressure on the eye when covering with a shield or patch

Trauma: 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

INTERMEDIATE

CCT

PARAMEDIC

Immediate intervention for severe arterial bleeding

- Apply pressure directly on the wound with a sterile dressing
- Apply a pressure dressing to the wound
- If bleeding soaks through the dressing, apply additional dressings and reapply pressure
- If severe bleeding persists, remove all dressings, expose site of bleeding, and apply hemostatic dressing according to manufacturer's instructions and squad training (if equipped)
- Cover the dressed site with a pressure bandage
- Splints and pressure splints may also be used to control bleeding
- Use a tourniquet for uncontrollable bleeding from an extremity
- ABC and vital signs
- Refer to the hypoperfusion protocol
- Airway management and appropriate oxygen therapy

EMT, INTERMEDIATE, CCT, AND PARAMEDIC STOP

Trauma: Hypoperfusion / Hypovolemia

EMT

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

EMT STOP

INTERMEDIATE

CCT

PARAMEDIC

- Vascular access

If COMPENSATED SHOCK:

- Normal Saline, 1 liter, then 500 ml/hour

IF DECOMPENSATED SHOCK:

- Additional vascular access, infuse Normal Saline, 2 liters, then 500 ml/hour

INTERMEDIATE, CCT, AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Normal Saline
- Dopamine 5-20 micrograms/kg IV

Key Points/Considerations

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

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

- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with "Trauma Alert" call, giving brief description of mechanism of injury, status of patient and estimated time of arrival
- Consult physician if guidance of care or orders are needed

Trauma: Smoke Inhalation – Symptomatic

EMT

- ABC and AED
- Apply carbon monoxide monitor if equipped

EMT STOP

INTERMEDIATE

- Airway management as appropriate
- Vascular access, WITH bloods drawn if available
- Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT

PARAMEDIC

- Cardiac Monitor with 12 lead EKG

ADULT: If cardiac or respiratory arrest, seizing, or SBP < 80 with signs of hypoperfusion after exposure to smoke in an enclosed space:

- Hydroxycobalamin (CyanoKit) 5 grams IV/IO over 15 minutes

PEDIATRIC: If cardiac or respiratory arrest:

- Hydroxycobalamin (CyanoKit) 70 mg/kg IV/IO over 15 minutes

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- 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. It may be available for response to scenes through County Fire and EMS Coordinators.
- Drawing bloods is of increased importance prior to CyanoKit administration, as it can alter laboratory test results
- Suspect cyanide toxicity in patients who were in enclosed spaces during a fire and have soot in their nares or oropharynx and exhibit altered mental status
- Disorientation, confusion, and severe headache are potential indications 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 CyanoKit. It is available at most EDs.
- For IO administration, placing a stopcock on the IV tubing will allow use of syringe to draw medication from the bottle and inject into the IO line

Trauma: Suspected Carbon Monoxide Exposure

Criteria

- Any patient with suspected carbon monoxide poisoning should receive oxygen via NRB mask
- The Masimo RAD-57 or other objective carbon-monoxide evaluation tool may be used to guide therapy

ASYMPTOMATIC potentially exposed people:

- If there is a CO alarm in a residence, the Masimo RAD-57 may be used to test for levels on the occupants of the location
- Any asymptomatic patient with a level of greater than 15% should receive oxygen for 30 minutes; then reassess the patient

SYMPTOMATIC patients:

- If there is a CO alarm in a residence, the Masimo RAD-57 may be used to test for levels on the ill occupants of the location
- Carbon monoxide poisoning does not have specific, clear cut symptoms, and other medical conditions may present with dizziness, nausea or confusion
- All symptomatic patients should be transported, regardless of CO level

MULTIPLE patients:

- Consult a physician 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 a physician to the scene

PHYSICIAN OPTION

- CONSIDER direct transport to a hyperbaric center if patient's SpCO reading is > 30% AND/OR the patient is unconscious, has significant altered mental status or the patient is pregnant

Key Points/Considerations – Massimo RAD-57

- Pediatrics – The Masimo RAD-57 is not intended for patients weighing <30 kg
- 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

Key Points/Considerations

- The Massimo RAD-57 or other FDA approved objective carbon-monoxide evaluation tool may be used to guide therapy
- There is no commercial endorsement implied by this protocol

OB/Gyn: Eclampsia

EMT

- ABC vital signs
- Airway management and appropriate oxygen therapy

EMT STOP

INTERMEDIATE

- Vascular access

INTERMEDIATE STOP

CCT

PARAMEDIC

- If patient is seizing or has had a witnessed seizure, administer:
    - Magnesium 4 grams over 2 minutes, IV

PARAMEDIC AND CCT STOP

PHYSICIAN OPTIONS

- Additional Magnesium infusion or bolus
- Metoprolol (Lopressor) 5 mg Slow IV every 5 minutes (max 3 doses)
- Midazolam (Versed) 2.5 mg IV or 5 mg IM or IN

Key Points/Considerations

- Pre-eclampsia is defined as BP greater than 140/90 in a pregnant patient or one who has recently given birth, with severe headache, confusion and/or hyper-reflexia
- Eclampsia is the above with seizure activity
- If the patient has a known seizure history, refer to “Seizure Protocol”

OB/Gyn: Pre-term Labor (24 – 37 weeks)

EMT

- ABC vital signs
- Airway management and appropriate oxygen therapy

EMT STOP

INTERMEDIATE

CCT

PARAMEDIC

- Vascular access
- Normal saline 500ml IV bolus

INTERMEDIATE, CCT, AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Magnesium 2 grams in 100 ml IV over 20 minutes
- Additional normal saline

Key Points/Considerations

- Transport to the closest appropriate hospital
- Notify destination hospital ASAP
- If patient unwilling to go to closest hospital, consult physician for assistance in determining appropriate destination

OB/Gyn: Childbirth

Management of a Normal Delivery

- Support the baby's head over the perineum
- 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

- This 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
    - 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 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
- Keep the cord moist using a sterile dressing and sterile water
- Transport as soon as possible to closest appropriate facility

Key Points

- Determine the estimated date of expected birth, the number of previous pregnancies and # of live births
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding or 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
- Bring the placenta and any other tissue to the hospital for inspection
- Do not await the delivery of the placenta for transport

Neonatal Resuscitation

EMT

INTERMEDIATE

CCT

- 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 will be 8 – 10 inches from the baby. Place the second clamp 3 inches from the first clamp towards 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. Monitor the infant's respirations continuously.

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

- Rub the infant's lower back gently
- Snap the bottom of the infant's feet gently

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

- 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 /minute with appropriate BVM as soon as possible. Start with room air. If no response after 90 seconds, add oxygen.
- Insert the proper size oral airway gently
- Each ventilation should be given gently over one second assuring that the chest rises with each ventilation
- Monitor the infant's pulse rate and pulse oxygenation continuously using wrist or palm

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

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

EMT, INTERMEDIATE, and CCT STOP

PARAMEDIC

- Consider intubation

PARAMEDIC STOP

Key Points/Considerations

- Begin transport to the closest appropriate hospital as soon as possible

Pediatric Emergencies

For these protocols, pediatric patients are as defined by the AHA, children without secondary signs of puberty. Use a length based resuscitation tape or similar device to determine the correct medication dosage.

Vascular Access
There are no prophylactic vascular access procedures performed in children.

For patient safety, all pediatric IVs must be started with NS 100 mL bags.

Vascular access procedures for Critical Care Technicians are only for Cardiac or Respiratory Arrest, Unstable Major Trauma and Diabetic Emergency when intervention is critical. In all other clinical situations you must contact Medical Control.

Airway Management
Only paramedics may intubate pediatric patients. CCT may use age-appropriate pediatric laryngoscope and Magill forceps in cases of obstructed airway.

Normal Vital Signs for Infants and Children:

Age	Respirations	Pulse	Systolic BP
Newborn	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*

Pediatric Cardiac Arrest: Asystole or PEA

EMT

INTERMEDIATE

- General Cardiac Arrest Care
- Airway management and appropriate oxygen therapy via BVM

EMT AND INTERMEDIATE STOP

CCT

- Vascular access
- Cardiac Monitor
- Normal Saline 20 ml/kg rapid IV or IO bolus
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO
- Repeat Epinephrine every 3 – 5 minutes

CCT STOP

PARAMEDIC

- Consider intubation

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Epinephrine 1:1,000 dose 0.1 mg/kg IV or IO
- Sodium Bicarbonate 1 mEq/kg IV

Key Points/Considerations

- Call physician and begin transport to the closest hospital as soon as possible
- Do not interrupt compressions for placement of an advanced airway during the first 4 minutes of CPR
- Confirm asystole in more than 1 lead
- Perform CPR for up to 3 minutes between medication doses
- Consider and treat causes that EMS can manage: Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hyperkalemia, Toxins, Tension pneumoThorax, Trauma

Pediatric Cardiac Arrest:
Ventricular Fibrillation / Pulseless V-Tach

EMT

INTERMEDIATE

- General Cardiac Arrest Management
- Defibrillation as indicated (AED or for CCT/Paramedic manual 2 J/kg)
- Airway management and appropriate oxygen therapy via BVM

EMT AND INTERMEDIATE STOP

CCT

- Vascular access
- Cardiac Monitor
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO
- Repeat Epinephrine every 3 – 5 minutes
- Defibrillate at 4 J/kg between doses of medication

CCT STOP

PARAMEDIC

- Consider intubation
- Amiodarone (Cordarone) 5 mg/kg bolus IV or IO; repeat twice as needed (Amiodarone should be mixed as 150 mg in 100ml, 1.5 mg/ml)

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Lidocaine, 1 mg/kg IV or IO

Key Points/Considerations

- Call physician and begin transport to the closest hospital as soon as possible
- Do not interrupt compressions for placement of an advanced airway during the first 4 minutes of CPR
- Treat V-Tach without a pulse as V-fib
- Use the small (pediatric) pads for patients less than 10 kg
- Initial defibrillation 2 J/kg
- Defibrillate at 4 J/kg after each medication administration
- V-fib cardiac arrest is rare in children
- Consider toxic ingestions including tricyclic antidepressants
- Consider and treat causes that EMS can manage: Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hyperkalemia, Toxins, Tension pneumoThorax, Trauma

Pediatric Cardiac: Bradycardia

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Secure airway as appropriate
- Vascular access
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO
- Repeat Epinephrine every 3 – 5 minutes
- Atropine 0.02 mg/kg, with a minimum dose 0.1 mg IV, IO
- Repeat Atropine once in 5 minutes, to maximum total dose of 0.04 mg/kg

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access
- Transcutaneous pacing
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip

Key Points/Considerations

- Call Physician as soon as possible
- Newborn/Infant bradycardic if pulse less than 60 bpm
- Symptomatic includes poor systemic perfusion, hypotension, respiratory difficulty or altered level of consciousness
- If bradycardia is due to increased vagal tone or primary AV block give atropine before giving epinephrine
- Do not treat asymptomatic bradycardia. Contact Medical Control

Pediatric Cardiac: Tachycardia

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Consider 12 Lead EKG
- Normal Saline 20 ml/kg bolus IV or IO; may repeat once

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access

UNSTABLE patient

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

STABLE patient, wide QRS:

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

STABLE patient, narrow QRS:

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

Key Points/Considerations

- Call physician as soon as possible
- Newborn/Infant SVT if pulse greater than 220 bpm; child over 1 year of age SVT if pulse greater than 180 bpm, with no discernable p-waves on PRINTED EKG strip
- The most common causes of Sinus Tachycardia in children are fever and dehydration, not cardiac etiology
- UNSTABLE includes cardio-respiratory compromise, hypotension, or altered level of consciousness
- Do not treat asymptomatic tachycardia. Contact Medical Control.

Pediatric: Acute Asthma

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Determine if patient has been given their own asthma medications
- Implement BLS Albuterol Protocol

EMT AND INTERMEDIATE STOP

EMT AND INTERMEDIATE PHYSICIAN OPTIONS

- If patient is not improving contact Medical Control for use of EpiPen
    - Administer appropriate EpiPen or EpiPen Jr if < 30 kg

CCT

- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer; repeat to a total of three doses

If patient not improving:

- Epinephrine 1:1,000 dose 0.01 mg/kg IM, if patient in severe distress; max 0.5 mg
- Cardiac Monitor

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 2 mg/kg IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- EMT and Intermediate EpiPen if patient is in severe distress
- CCT vascular access
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV
- Epinephrine 1:1,000 dose 0.01 mg/kg IM, max 0.5 mg (repeat doses)
- Epinephrine 1:1,000 dose 0.3 mg mixed with 3 ml Normal Saline, via nebulizer
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
- Magnesium sulfate 50 mg/kg over 10 minutes IV
- Albuterol nebulized continuously

Key Points/Considerations

- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest
- EpiPen use by EMT or Intermediate is Medical Control option only and must be reported for Regional QI by the agency

Pediatric: Allergy and Anaphylaxis

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Patient previously prescribed EpiPen and severe respiratory distress, edema, hypotension:
    - Administer appropriate EpiPen or EpiPen Jr if < 30 kg
- Patient NOT previously prescribed EpiPen and severe respiratory distress, edema, hypotension:
    - Administer appropriate EpiPen or EpiPen Jr if < 30 kg

EMT AND INTERMEDIATE STOP

CCT

- Epinephrine 1:1,000 dose 0.01 mg/kg IM; max 0.5 mg
- Cardiac Monitor
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer for wheezing
- Diphenhydramine (Benadryl)1 mg/kg IM; max dose 50 mg

CCT STOP

PARAMEDIC

- Vascular access
- Diphenhydramine (Benadryl)1 mg/kg IV; max total dose 50 mg
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV
- Normal Saline 20 ml/kg IV or IO bolus

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
- Cardiovascular collapse: Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO

Key Points/Considerations

- If an EMT has administered an EpiPen, or the patient has administered their own epinephrine, consult physician prior to administering additional epinephrine
- If an EMT has administered an EpiPen, or the patient utilized their own epinephrine autoinjector, consult physician prior allowing a patient to RMA

Pediatric: Diabetic

EMT

INTERMEDIATE

- Airway Management and appropriate oxygen therapy
- Blood Glucose Check
- If under 80 mg/dl and patient can swallow on command then oral glucose

EMT AND INTERMEDIATE STOP

CCT

PARAMEDIC

If no response to oral glucose then:

- If vascular access is limited, Glucagon 0.5 mg if < 20 kg, otherwise, 1 mg IM
- IV access, and D10 5 mL/kg IV or IO via syringe NOT via drip
- **Consider IO access only if no response to Glucagon**

- **If blood glucose above 400: NO STANDING ORDERS**

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- If blood glucose if above 400 and ONLY if signs of dehydration are present, fluid bolus:
    - Normal saline 10 ml/kg; ONLY for suspected dehydration

Key Points/Considerations

- If the patient's parent or guardian wishes to RMA the patient and you have administered any medications **including** oral glucose you must contact a Medical Control Physician prior to completing the RMA
- Do NOT hang D10 drip on a pediatric patient

Pediatric: Hypoperfusion

Criteria

- For patients with hypoperfusion due to trauma, bleeding, vomiting, diarrhea or sepsis

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Normal Saline 20 ml/kg bolus IV or IO using NS 100 ml bag if patient < 50 kg

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access

Key Points/Considerations

- Consult Medical Control Physician if you suspect cardiogenic shock
- Do not use Normal Saline 1000 ml (liter) bags for pediatric patients unless > 50 kg
- Diagnostic criteria for hypoperfusion includes: capillary refill time > 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).
- Contact receiving hospital early

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

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Ondansetron (Zofran) 2 mg IM or 2mg PO (1/2 of 4mg dissolving tablet)
- Consider Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Ondansetron (Zofran) 2mg IV or IM or dissolving tablet PO
- SEE Pediatric Hypoperfusion protocol

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access

Key Points/Considerations

- Protocol does not apply to patients under the age of 2 years old
- A single dose of medication may be given prior to seeking medical consultation

Pediatric: Overdose or Toxic Exposure

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Determine what was taken, when and how much, if possible
- Check blood glucose, if equipped. If abnormal refer to Pediatric Diabetic Protocol

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor
- For symptomatic opiate overdose:
    - Naloxone (Narcan) 0.1 mg/kg IM or IN. Max 2 mg

CCT STOP

PARAMEDIC

- Vascular access

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access

For symptomatic patient with:

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

Key Points/Considerations

- Consult Medical Control Physician as soon as possible
- Only give Naloxone if the patient has hypoventilation or respiratory distress,
- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness
- If suspected WMD refer to NYS Advisory on Mark I Kits, SEMAC Advisory 03-05

Pediatric: Pain Management

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Morphine 0.1 mg/kg IM
  Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
- Ondansetron (Zofran) 2 mg IM or PO, only if patient becomes nauseous

CCT STOP

PARAMEDIC

- 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

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access
- Fentanyl 1-1.5 mcg/kg slow IV, IM or IN
- Additional Morphine IV or IM
- Additional Ondansetron (Zofran) 0.1 mg/kg IV or IM

Key Points/Considerations

- Morphine up to maximum dose may be given on standing orders. Providers may not give Fentanyl to pediatric patients without consultation with a physician
- Contraindications to standing order pain management: altered mental status, hypoventilation, hypoperfusion, other traumatic injuries
- Fentanyl should be used if there is concern for potential hemodynamic instability
- For ease of administration, if clinically appropriate, consider Fentanyl dosing to nearest of 25 or 50 mcg and consider Morphine dosing of 2.5 or 5 mg
  This protocol may NOT be used in conjunction with the Procedural Sedation Protocol, unless a physician is consulted

Pediatric: Procedural Sedation

EMT

INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access

PARAMEDIC STOP

PHYSICIAN OPTIONS

- CCT vascular access
- Morphine 0.05 mg/kg IV, IO or IM
- Fentanyl 1-1.5 mcg/kg IV, IO, IM, or IN
- Midazolam (Versed) 0.05 mg/kg IV, IO, IM, or IN

Key Points/Considerations

- Consult Medical Control Physician as soon as possible

Pediatric: Seizures

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose, if equipped. If abnormal refer to Pediatric Diabetic Protocol

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Midazolam (Versed) 0.1 mg/kg IM, or IN

CCT STOP

PARAMEDIC

- Consider vascular access
- If patient continues to seize:
    - Midazolam (Versed) 0.05 mg/kg IV or IO

PARAMEDIC STOP

PHYSICIAN OPTIONS

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

Key Points/Considerations

- One dose of Midazolam may be given prior to consulting a Medical Control Physician
- Consult Medical Control Physician as soon as possible if seizures persist
- Protect the patient and EMS crew from injury during the seizure
- Any EMS provider may assist the patient's family or caregivers with administration of rectal Valium (Diastat) if available

Pediatric: Stridor

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration, humidified, blow-by oxygen (as tolerated)
- Consider mechanical obstruction and treat accordingly

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor
- If patient unconscious and suspected mechanical obstruction, attempt removal of object with Magill forceps

CCT STOP

PARAMEDIC

- Secure airway only if necessary; consider using smaller than usual ET tube

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Vascular access
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV
- Epinephrine 1:1,000 dose 0.3 mg mixed with 3 ml Normal Saline, via nebulizer

Key Points/Considerations

- Consult Medical Control Physician as soon as possible

General Practice: Airway Management and Oxygen Delivery

Criteria

Providers may operate as outlined below. They may not proceed below their stop-line 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 > 95%
- Oxygen therapy using bag valve mask (BVM) 15-25 lpm
- Nasopharyngeal airways (NPA)
- Oropharyngeal airways (OPA)
- BVM assisted ventilation
- Portable automated transport ventilators, if trained (ATV)

EMT STOP

INTERMEDIATE

CCT

- Oral endotracheal intubation in unresponsive ADULTS
- Alternative rescue airway device in unresponsive ADULTS
- Continuous Positive Airway Pressure (CPAP) if EQUIPPED and TRAINED

INTERMEDIATE AND CCT STOP

PARAMEDIC

- Nasal endotracheal intubation in ADULTS, if trained
- Pediatric intubation
- Medication facilitated intubation, if equipped and credentialed
- Surgical airway, if equipped

PARAMEDIC STOP

Key Points

- Providers may only perform endotracheal intubation if they have end-tidal capnography
- Only paramedics may intubate pediatric patients
- Medication facilitated intubation is to be performed only by paramedics who have received specific training and are approved by the agency medical director, within agencies that have been approved by the Medical Advisory Committee
- Only Aeromedical agencies may perform pediatric medication facilitated intubation on standing orders
- Tidal Volume settings for portable automated transport ventilators: 5 – 7 ml/kg
- Always have a BVM available when using a portable automated transport ventilator (ATV)
- Intubation may be attempted on a patient a maximum of 2 times by one AEMT and one more time by a second AEMT. If unsuccessful utilize an alternative rescue airway device or ventilate with BVM
- A cervical collar should be placed on all intubated patients to assist maintaining secure placement of the airway device
- Approved list of alternative rescue airway device is available through each Regional Program Agency
- Contraindications for use of alternative rescue airway device:
    - Patients with esophageal disease, pharyngeal hemorrhage, tracheostomy or laryngectomy
    - Patients who have ingested a caustic substance
    - Patients with known obstruction of larynx and/or trachea

General Practice: Medication and Medical Control

Key Points/Considerations - Medications

- Only medications listed in the formulary may be carried by an ALS agency
- Medications not listed may not be carried without clearance from the Regional Medical Advisory Committee
- Local variations in concentration and volume may exist because of restocking necessity
- Alternative concentrations and volumes of medications must be approved by the MAC, through the Regional Medical Director, prior to use
- In cases of medication shortages, please see approved substitutions or appropriate emergent advisory
- Medications must be kept locked in a secure environment when not being used.
- Medications should be protected from extremes of temperature at all times
- If you have administered any medications and the patient wishes to RMA you must contact a Physician prior to completing the RMA
- A controlled administration set or pump must be used for all drip medications
- Controlled Substances carried must be in accordance with the Agency's NYS Approved Controlled Substance Plan
- Medications are only to be carried in NYS-DOH Approved Vehicles and cannot be carried in a private/personally owned vehicle at any time

Key Points/Considerations – Medical Consultation

- For the protection of the patient, the provider, and the Medical Control Physician, communication over recorded lines is suggested

Key Points/Considerations – Communications Failure

- If unable to contact a Medical Control Physician, initiate all Standing Orders, and then continue care of the patient as medically appropriate
    - Describe the situation that prevented you from contacting Medical Control on the PCR
    - You must notify your ALS coordinator and the Regional QI Coordinator as soon as possible after the call
    - All cases of Communications Failure that cause a provider to perform interventions below their stop lines must be reviewed by the Agency Medical Director and reported to the Regional Medical Advisory Committee

Key Points/Considerations – Medical Consultation

- Optimal Medical Consultation will be from a regionally credentialed Medical Control Physician
- Medical consultation may be obtained from the ED physician who will be receiving the patient from the EMS crew, but only if a credentialed physician is not available
- Advanced providers may only obtain Medical Consultation from physicians
- Orders may be relayed from a Medical Control Physician by RNs, NPs or PAs if absolutely necessary

General Practice: Medication Formulary

Medication	Administration Route	Concentration /ml or tab	Total per unit	Minimum Number
Adenosine	Rapid IV	3 mg	6 mg	3
Afrin	Intranasal		variable	1
Albuterol	Nebulized	0.83 mg	2.5 mg	5
Amiodarone	IV bolus, drip	50 mg	150 mg	4
Aspirin	PO chewed	81 mg	variable	1
Atropine*	IV bolus	0.1 mg	1 mg	4
Atrovent	Nebulized	0.2 mg	0.5 mg	3
Calcium Chloride	IV bolus	100 mg	1 gram	2
Diltiazem	IV slow	5 mg	25 mg	3
Diphenhydramine	IV slow	50 mg	50 mg	2
Epinephrine 1:1,000	IM, IV gtt	1 mg	1 mg	2
Epinephrine 1:10,000	IV	0.1 mg	1 mg	6
Etomidate	IV	2 mg	40 mg (varies)	2 (total 80 mg)
Furosemide	IV	10 mg	40 mg	2
Glucagon	IM, IV, IN	1 mg	1 mg	2
Ketorolac	IM, IV	varies	30 mg	1
Lidocaine 2%	IV, IV gtt	20 mg	100 mg	3
Lidocaine 2% (Gel)	Intranasal	20 mg	600 mg	1
Magnesium	IV, IV gtt	500 mg	5 grams	2
Methylprednisolone	IV	62.5 mg	125 mg	2
Metoprolol	IV slow	1 mg	5 mg	4
Naloxone	IM, IV, IN	1 mg	2 mg	2
Nitroglycerin (paste)	Transdermal			
Nitroglycerin (PO)	SL, lingual	0.4 mg	Spray or tabs	1
Ondansetron (inj)	IM, IV slow	2 mg	4 mg	2
Ondansetron (PO)	SL dissolve	4 mg tab	Tab	2
Sodium Bicarbonate	IV, IV gtt	1 mEq/ml	50 mEq	2
Tetracaine	Ophthalmic		Bottle	1

* Does not include atropine included in DOH field deployment stock

General Practice: Medication Infusion Formulary

Dextrose 10%	25 gm/unit	250 ml	2
Dopamine	1600 mcg/ml	250 ml	1
DOPAMINE **MUST** BE IN SEALED SILVER COLORED IDENTIFYING WRAP			
Normal Saline 0.9%		100 ml	5
Normal Saline 0.9%		1000 ml	4

General Practice: Medication Formulary Controlled Substances

Medication	Administration Route	Concentration/ml	Total per unit	Minimum number
Fentanyl	IM, IV, IN	50 mcg	100 mcg	2
Midazolam (Versed)	IM, IV, IN	5 mg	5 mg	4
Morphine	IM, IV	10 mg	10 mg	2

General Practice: Medication Formulary MFI

Succinylcholine	IV rapid	20 mg	200 mg	2
Vecuronium	IV	1 mg	10 mg	2

General Practice: Medication Infusion

Amiodarone (Cordarone): 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	150 drops/min

Lidocaine: 200 mg in 100 ml Normal Saline = 2 mg/ml
(Must use pump or dial-a-flow)

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 100 ml Normal Saline = 10 micrograms/ml
(Must use pump or dial-a-flow)

Infusion Rate	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml	Admin Set: 60 drops/ml
1 microgram/min	1 drops/min	1.5 drops/min	6 drops/min
2 micrograms/min	2 drops/min	3 drops/min	12 drops/min
4 micrograms/min	4 drops/min	6 drops/min	24 drops/min
6 micrograms/min	6 drops/min	9 drops/min	36 drops/min
8 micrograms/min	8 drops/min	12 drops/min	48 drops/min
10 micrograms/min	10 drops/min	15 drops/min	60 drops/min

Magnesium: 2 gm in 100 ml Normal Saline = 20 mg/ml

Infusion Rate (over 20 min)	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml
5 ml/min	50 drops/min	75 drops/min

Dopamine: Premix Solution at concentration of 1600 micrograms/ml
(Must use pump or dial-a-flow)
Drip rates/min, using a 60 drops/ml administration set

	Weight in kilograms											
Infusion Rate (micrograms/kg/min)	50	55	60	65	70	75	80	85	90	95	100	105
5	9	10	11	12	13	14	15	16	17	18	19	20
10	18	20	22	24	26	28	30	32	34	36	38	39
15	28	31	34	37	39	42	45	48	51	53	56	59
20	38	41	45	49	53	56	60	64	68	71	75	79

General Practice: Vascular Access

EMT

- No options

EMT STOP

INTERMEDIATE

- Adult IV

INTERMEDIATE STOP

CCT

- Pediatric IO
- Adult IO
- Critical Pediatric IV (cardiac arrest/respiratory arrest/diabetic emergency/unstable major trauma ONLY)

CCT STOP

PARAMEDIC

- Pediatric IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Access Pre-Existing Vascular Devices

Key Points

- Intraosseous infusion may only be used in cases of critical patients where IO access may be lifesaving. If IO access is started in a conscious patient, the IO should be flushed with Lidocaine (2%) 40 mg (2 mL) for adults, or 1 mg/kg for pediatric patients
- IV sites include peripheral veins, including upper and lower extremities (below the knees) the external jugular veins in adults and the scalp in infants
- Pediatric vascular access should only be obtained if there is a critical intervention to perform, such as a fluid bolus in a decompensated shock patient or glucose administration in a hypoglycemic diabetic
- There are no “prophylactic” IV lines placed in children
- For pediatric vascular access 100 ml NS for all patients under 50 kg
- If vascular access is attempted by a provider and is unsuccessful, an equal or higher level of provider must accompany the patient to the hospital or a Medical Control Physician must be consulted.
- The number of vascular access attempts, the provider making the attempt, the site of the attempt, the catheter size, the solution, the infusion rate (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

General Practice: Vascular Devices, Pre-Existing

Procedure

- Identify 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 Physician for orders to access the device. No prophylactic IV lines may be established into pre-existing vascular devices.
- Procedure to establish access to Pre-Existing Vascular Access Device:
    - Discontinue any solution flowing into the pre-existing vascular device
    - Put on sterile gloves
    - Clean injection site with iodine solution or chloroprep. Do not remove or unscrew cap, unless no other means of accessing the device is possible
    - Remove any clamps on vascular access and slowly withdraw 10 ml of fluid from the port
    - Inject 5 ml Normal Saline. If 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 administration set to access site
    - Maintain Normal Saline KVO through device
    - Administer fluid bolus and/or medications as you would for peripheral IV
    - If the access device is damaged and begins to leak, clamp it 1 inch from the skin entry site with a padded, non-serrated hemostat

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
- Implanted ports and fistulas are not considered pre-existing vascular devices and cannot be accessed by the pre-hospital 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

Operations: Aeromedical Utilization

Criteria for considering use of air medical services

- Patient's condition requires expeditious transport to a hospital capable of providing definitive care
- Patient's condition requires specialized services offered by the air medical crew, prior to arrival at the hospital
- The patient's condition is a "life or limb" threatening situation demanding intensive multi-disciplinary treatment and care
- Unstable trauma patients as defined by the physiologic criteria such as vital signs and physical findings
- Critical burn patients as defined in the Trauma: Burn Care Consideration protocol
- Acutely ill, unstable medical patients as defined in the medical protocols
- When use of air medical services is not specifically defined by the protocols, the on-scene provider should consult with a physician
- The destination facility will be determined by the air medical crew, based upon medical appropriateness, with consideration of patient preference and on-line medical direction (when Medical Control Physician has been consulted by ground EMS)
- Do not delay on the scene for the helicopter
- If it is considered critical for the individual patient and the patient is packaged and ready for transport, start enroute to the hospital and reassign the Landing Zone either closer to the hospital or at the hospital's designated Landing Zone; the helicopter can intercept with you

Key Points

- This is a guideline and is not intended to specifically define every condition in which air medical services may be requested. Good clinical judgment should be used at all times
- Police, Fire or EMS will evaluate the situation/patient condition and if necessary place the helicopter on standby
- The helicopter can be requested to respond to the scene when:
    - ALS personnel request the helicopter
    - BLS personnel request the helicopter, when ALS is delayed or unavailable
    - In the absence of an EMS agency, any emergency agency may request the helicopter if felt to be medically necessary
- When EMS arrives, they must assess the situation. If it is determined by the most highly trained EMS provider ON THE SCENE that the helicopter is not needed, it should be cancelled as soon as possible

Operations: Emergency Incident Rehab

Key Points

- For events where people are expected to be working for 1 hour or more, including drills, fire ground operations, hazardous materials incidents, lengthy extrications and any other event where personnel are wearing protective gear and fluid loss is a concern
- When a person arrives in rehab with no significant complaints:
    - Encourage the person to drink at least 8 ounces of fluid
    - An EMT should do a visual evaluation for signs of heat or cold related stress, fatigue, or signs indicative of a medical emergency. If any of these are present, take their vital signs.
- If any vital sign is out of the range listed below, protective gear should be removed, and the person should rest for at least 10 minutes, with continued oral hydration.
    - BP: Systolic >160 mm Hg or
    - BP: Diastolic > 100 mm Hg.
    - Respirations: >24 per minute.
    - Pulse: >110 per minute.
    - O2 saturation $\leq$ 92%
    - SpCO $\leq$ 5% (if available)
    - Temperature > 100.6 (if available)
      (Note: normal measured temperature does not exclude heat related illness)
- If vital signs return to within criteria limits, the person may be released
- If vital signs are still beyond the limits, continue rehab for another 15 minutes and determine if further intervention may be needed
- If after 30 minutes the vital signs are above the limits, transport to the hospital should be initiated
- If a person arrives at the rehab area with complaints of chest pain, shortness of breath or altered mental status follow the appropriate protocol. The person may not return to duty
- An irregular pulse mandates ALS assessment, cardiac monitoring, and removal from duty or the event
- Names and vital signs (if measured) for each person evaluated should be recorded on a log sheet for the incident
- A PCR should be written on any person transported to the hospital or receiving any ALS care
- More aggressive treatment should be used during extremes of temperature
- Consider carbon monoxide poisoning with any exposure to smoke
- If any questions exist regarding the treatment of a patient according to this protocol, consult Medical Control Physician for advice
- For any ongoing event with high potential for injury to public safety personnel consider requesting a physician to the scene
- Agency procedures may be used in place of these guidelines as appropriate if developed from industry standard models such as the NFPA or USFA or others

Operations: Inter-Hospital 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

INTERMEDIATE

- An EMT-I may transport stable patients with simple IV fluids such as D5W, Normal Saline or Lactated Ringers. The solution may not contain potassium or any medications

EMT AND INTERMEDIATE STOP

CCT

PARAMEDIC

- Paramedics and Critical Care Technicians may transport a patient between hospitals with standard IV infusions flowing, including antibiotics, provided they are ordered and provided by the transferring physician.
- Be certain to clarify orders regarding medication titration prior to departure. Any medication in the formulary is permissible for transport.
- All fluids containing potassium must be run on an infusion pump
- All IV medication must be run on an infusion pump

AMIODARONE (CORDARONE) Usual Dose: 1 mg/min infusion for first 6 hours, then 0.5 mg/min infusion

- Discontinue if hypotension or symptomatic bradycardia occurs. Consult ED physician.

ANTIBIOTICS:

- Discontinue if signs of allergic reaction

DILTIAZEM (CARDIZEM)

- Discontinue if hypotension or symptomatic bradycardia occurs. Consult ED physician.

GP IIb/IIIa RECEPTOR INHIBITORS or other ANTICOAGULANT AGENTS

- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

HEPARIN

- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

NITROGLYCERIN

- Monitor blood pressure every 5 minutes
- Discontinue if systolic blood pressure falls below 90 mm Hg, or if diminishing mental status occurs with diminishing blood pressure

CCT AND PARAMEDIC WITHOUT SCT CREDENTIALING STOP

Operations: Specialty Care Transport

- Critical Care Technicians and Paramedics that have attended regionally-approved supplemental training focused on Specialty Care Transports and have been credentialed by the agency's Medical Director may transport a patient between hospitals with other IV Infusions, and advanced modalities, provided the medication is ordered and provided by the transferring physician or facility
- All medications and interventions utilized must be covered within Agency protocols
- Be certain to clarify orders regarding medication titration prior to departure
- The IV medications must be run on an infusion pump that the provider is trained to operate
- NYS DOH Regulation:
  BLOOD TRANSFUSIONS OR BLOOD PRODUCTS MAY NOT BE INITIATED OR TRANPORTED WITHOUT A NURSE PRESENT* Regulation review pending

Key Points/Considerations

- Requests for inter-hospital transfer must be screened by appropriately trained personnel to determine the transport requirements
- After assessing the patient and reviewing the patient's records and transfer orders, determine if the patient's current condition is appropriate for the provider's level of training, experience and available equipment
- Evaluate the patient's airway status prior to departing the transferring facility. Secure the airway as indicated
- Prior to or during the transport, contact a physician, the agency's medical director, the transferring/sending physician or the receiving physician for clarification, or to discuss any concerns
- If there are any changes in the patient's condition that are not covered by the prescribed orders or agency protocols contact Medical Control Physician. If a total failure of communications occurs and the patient is unstable and decompensating, follow these protocols and go to the closest hospital emergency department
- An appropriately trained nurse, respiratory therapist, physician assistant, nurse practioner 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 their agency
- 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. Credentialing must include a Regionally approved training program in Specialty Care Transports.
- Each Inter-hospital transport must be reviewed by the agency as part of the QI program

Operations: Transfer of Care

Key Points—Transfer Between EMS Providers

- Providers are responsible for the patient while in their care. The transferring or receiving provider will not be responsible for their counterpart's actions
- Patients may be transferred to a provider with the same or higher level of training and the same or higher level of on-line privileges within the region
- Stable patients may be transferred to a provider with a lower level of training and a lower level of on-line privileges within the region
- When transferring patients both the receiving and transferring providers should:
    - Ensure that all patient information is transferred to the receiving provider including:
      chief complaint, past medical history, current history, vital signs and care given prior to the arrival of the receiving provider
    - Assist the receiving provider until they are ready to assume total patient care
    - Be willing to accompany the receiving provider to the hospital if the patient's condition warrants or if the receiving provider requests it
- The receiving provider must briefly document patient care given prior to receiving the patient
- Both providers will complete a PCR, as appropriate, detailing the care given to the patient while in their care
- ALS transferring provider PCR documentation must be delivered to the receiving hospital within two hours of the call
- BLS agencies transferring a patient to a higher level of care must comply with NYS DOH EMS Policy 02-05 and provide paperwork to the transporting agency prior to the patient leaving the scene
- Any disparity between the providers needs to be resolved by contacting a Medical Control Physician

Key Points—Transfer at Hospital

- Documentation left at the hospital must include:
    - Agency ID, Crew ID
    - Patient Demographics: Name, Date of Birth, Address, Last 4 Digits of SSN (if available)
    - Initial assessment: chief complaint and pertinent initial vital signs
    - Interventions: Medications, procedures performed and patient response
- Specimens left at the hospital:
    - If available, label specimens, monitor strip and EKG with hospital stickers
    - Do NOT leave unlabeled specimens or EKG at the hospital
    - Immediately upon arrival at the ED, notify the receiving nurse if EKG has been performed

Procedure: Avulsed Tooth

Criteria

- Only reimplant permanent teeth
- Best chance for success is when reimplantation occurs less than 5 minutes from injury
- 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
- Do not reimplant if the patient requires spinal immobilization
- If not candidate for reimplantation, place tooth in interim storage media (lowfat milk, patients' saliva, or saline) and keep cool. Avoid tap water storage but do not allow the permanent tooth to dry.

EMT

INTERMEDIATE

CCT

PARAMEDIC

- ABC
- **If altered mental status, do not reimplant**
- **If spinal immobilization needed, do not reimplant**
- Hold the tooth by the crown
- Quickly rinse the tooth with saline before reimplantation but do not brush off or clean tooth of tissue
- Rinse and suction the clot from the socket
- Reimplant tooth firmly into socket with digital pressure
- Have the patient hold tooth in place using gauze and bite pressure
- Report to hospital staff the efforts made to reimplant tooth

ALL STOP

Key Points/Considerations

- Agency training is available through the Program Agencies
- Automatic reporting of every use of this protocol by participating agencies is expected to the Program Agencies

Procedure: Medication Facilitated Intubation

INDICATIONS

- For use only within a Regional MAC approved agency, by Paramedics credentialed by the agency Medical Director, with the assistance of a second MFI trained Paramedic at the scene
- Medication facilitated intubation (MFI) may be utilized on standing orders when definitive airway control is necessary in an adult

CONTRAINDICATIONS / PRECAUTIONS

- The use of paralytic agents is contraindicated if patients cannot be ventilated with a bag-valve-mask (BVM) due to anatomy, facial/airway trauma or other reasons
- If unable to adequately ventilate the patient, perform cricothyroidotomy

PROCEDURE

- Position the patient appropriately
- Attach SaO2, NIBP and Cardiac Monitor
- Oxygenate via NRB or with a BVM if SaO2 is below 95% or unobtainable
- Assemble and test all basic and advanced airway equipment including suction
- Draw appropriate medications into labeled syringes
- Pre-treat the patient as follows:
    - Vecuronium 0.01 mg/kg for defasciculation
    - Fentanyl 1 mcg/kg, maximum dose 100 mcg, if increased intracranial pressure
    - Lidocaine 1.5 mg/kg, maximum dose 100 mg, if increased intracranial pressure
- Have a second rescuer apply and maintain cricoid pressure
- Administer Etomidate 0.3 mg/kg rapid IV push
- If ideal intubating conditions are obtained, intubate the patient
- If ideal intubating conditions are not obtained, administer Succinylcholine 1.5 mg/kg IV
- If intubation fails (3 attempts maximum) manage the airway and ventilate, consider inserting a rescue airway device
- If unable to adequately ventilate the patient, perform cricothyroidotomy
- Attach a continuous EtCO2 monitor, confirm ETT placement and secure the ETT
- Administer continual sedation with:

  if hemodynamically stable,
    - Midazolam (Versed) 0.05 mg/kg IV every 15 minutes alternating with:
    - Fentanyl 1 mcg/kg IV every 10 minutes

  OR if SBP < 100
    - Etomidate 0.1 mg/kg repeated every 5-10 minutes
- Administer Vecuronium 0.1 mg/kg ONLY if necessary for patient or crew safety
- Continuously monitor ETT placement including effectiveness of oxygenation and ventilation

PHYSICIAN OPTIONS

- Pediatric MFI

Resource: Mean Arterial Pressure Chart

Calculation:

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

  OR

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

MEAN ARTERIAL PRESSURE

DIASTOLIC PRESSURE \ SYSTOLIC PRESSURE	120	118	116	114	112	110	108	106	104	102	100	98	96	94	92	90
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

Resource: Clinician on the Scene

NON-REGIONALLY Credentialed Clinician

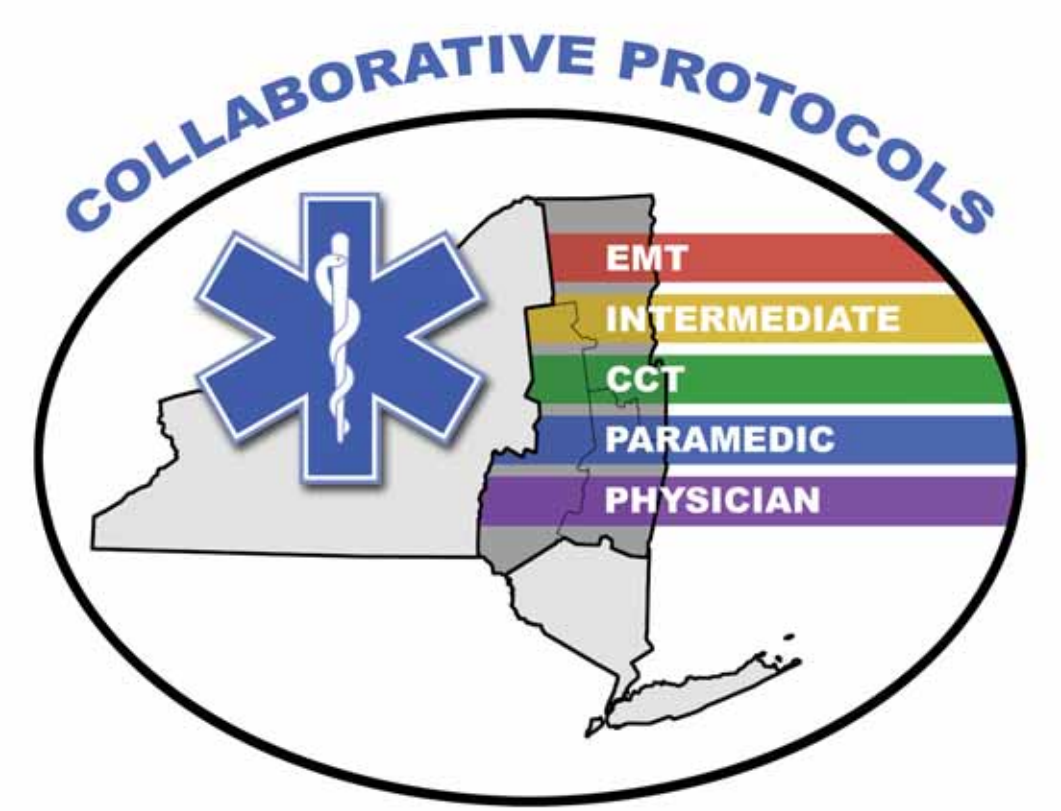
- Verify the identity and specialty of the clinician with the patient, family members or through any written credentials
- If the identity CANNOT be verified, initiate any treatment indicated per protocol, and consult REGIONAL Medical Control Physician as soon as possible. The clinician on the scene may speak to the REGIONAL Medical Control Physician if he/she desires
- If the identity CAN be verified, request the clinician to sign the Clinician Release Form and go with the patient in the ambulance
- If the clinician is willing to sign the Clinician Release Form and accompany the patient in the ambulance, make equipment available to the clinician for their treatment, and assist with the transportation of the patient
- If the clinician is not willing to both sign the Clinician Release Form and accompany the patient in the ambulance, initiate treatment per the protocols and contact Medical Control
- If you are called to a clinician's office, the patient is under the clinician's care until the clinician releases the patient to your care
- If there are any conflicts or questions, contact Medical Control Physician

Key Points

- Clinicians include, but are not limited to: physicians, physician assistants, nurse practitioners, midwives

REGIONALLY Credentialed Medical Control Physician

- Verify the REGIONAL Physician's credentials
- If the Physician is able to accompany the patient in the ambulance add the REGIONAL Physician's name and identification on the PCR
- If the on scene Physician is not able to accompany the patient in the ambulance consult Medical Control Physician and request the 2 physicians confer
- Transport as appropriate and contact Medical Control Physician as needed
- Document both physicians' identification on the PCR



Adirondack Appalachian Region
Mountain Lakes Region
Hudson Mohawk Region

The printing of these protocol manuals was made possible by the support and generosity of the following regional hospitals, physician groups, and program agencies:

Adirondack Appalachian Region
Adirondack Medical Center
Albany Medical Center
Alice Hyde Medical Center
Bassett Medical Center
Champlain Valley Physicians Hospital
Ellis Hospital
Elizabethtown Community Hospital
Glens Falls Hospital
Pegasus Emergency Medicine Group
Saratoga Hospital
St. Peter's Hospital