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Introduction from Regional Medical Director

The Regional Medical Advisory Committee is proud to put forth these protocols for the Hudson Mohawk Valley REMO EMS Region. They have been developed by a working group which included EMS providers, EMS educators, ED nurses and ED physicians and critical care pediatricians. They represented large urban and suburban agencies, commercial agencies, aeromedical critical care as well as small rural agencies. The educators were from the major institutions that provide EMS education in our region and the physicians were from a wide variety of hospitals. This has been an exciting collaborative process.

At first glance they appear very different from previous protocols, and indeed there are many changes. These have been developed after an extensive review of protocols from other regions, as well as recent relevant medical literature. There are three important parts for every protocol; the level of training of the provider, the safety of the patient, and the outcome of the patient. These evidence based guidelines for care are designed to improve patient outcomes, while decreasing any potential risk to the patient, while maximizing the interventions appropriate for each level of care.

The new color coded format of the protocols has been redesigned to make it easy to follow for all providers, and at the same time, to allow each EMS professional to easily follow the potential interventions which could be performed by advanced level care.

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

Importantly, these protocols are designed to guide care, to assist the provider, but not as an educational tool. Educational objectives that are a part of the NYS EMS program have not been repeated in our protocols. State guidelines created by the SEMAC or the BLS Committee are followed or appended. Current ACLS and PALS guidelines are also followed as appropriate.

The protocols are designed to serve the region as a whole, and include all levels of field providers. 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, the standing orders are highlighted, while the corresponding standing order STOP line is clearly delineated. For Critical Care Technicians, there are interventions below the STOP line that are physician options for that level of care. It is the provider's responsibility and duty to inform the physician of their level of training, and to decline any order that they feel is inappropriate for their level of training or current situation.

The protocols create a standard of evidence based care that will serve all of the citizens of the six counties of the REMO region. Several sections contain very important changes from previous protocols. Pediatric ALS care has been redefined because of very significant prehospital research. Pain Management and Procedural Sedation have been redefined for Paramedic level providers. Interhospital Specialty Care Transport has been changed significantly to increase clarity, particularly for transferring physicians.

The Medical Advisory Committee will continue to evaluate current EMS and Medical Literature to update the protocols to optimize the outcomes of our patients Also, REMO will continue to perform QI audits of patient care to develop training programs that will improve care as a whole throughout the region.

To all of the providers in the Region from all of the participants who contributed to the development of these new protocols, thank you for the patient care you provide every day. We hope that these protocols make your job easier, and assist you in the care of your patients.

Michael W. Dailey, MD
Regional EMS Medical Director

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Cardiac Arrest: Asystole

EMT

- ABC AED and CPR

EMT STOP

INTERMEDIATE

- Secure airway
- Vascular access, with bloods drawn; Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT
PARAMEDIC

- Cardiac Monitor
- Consider transcutaneous pacing if bystander CPR or downtime < 10 minutes
- Epinephrine 1:10,000 dose 1.0 mg IV; repeat every 3 minutes
- Atropine 1 mg IV; repeat every 3 minutes to max of 0.04 mg/kg

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Sodium Bicarbonate 1 mEq/kg IV
- Termination of resuscitation

Key Points/Considerations

- Check asystole in more than 1 lead
- Continue CPR during pacing unless pacing produces measurable pulse
- Refer to the Termination of Resuscitation Protocol as needed
- Consider and treat causes, including: Hypoxemia, Hypovolemia, Hypoglycemia, Hypothermia, Hyperkalemia, Acidosis, Tension Pneumothorax, Cardiac Tamponade, Overdose
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac Arrest: Pulseless Electrical Activity (PEA)

EMT

- ABC AED and CPR

EMT STOP

INTERMEDIATE

- Secure airway
- Vascular access, with bloods drawn; normal saline bolus

INTERMEDIATE STOP

CCT
PARAMEDIC

- Cardiac Monitor
- Consider and treat causes of PEA
- Epinephrine 1:10,000 dose 1.0 mg IV; repeat every 3 minutes
- If rate < 60 bpm: Atropine 1 mg IV; repeat every 3 minutes to max of 0.04 mg/kg
- If not responsive to medication, consider transcutaneous pacing if rate < 60 bpm

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Sodium Bicarbonate 1 mEq/kg IV
- Termination of resuscitation

Key Points/Considerations

- Refer to the Termination of Resuscitation Protocol as needed
- Consider and treat causes, including: Hypoxemia, Hypovolemia, Hypoglycemia, Hypothermia, Hyperkalemia, Tension Pneumothorax, Cardiac Tamponade, Overdose
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac Arrest: Termination of Resuscitation

EMT

- 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)
  - The patient or family can present a signed NYS Out of Hospital DNR (Do Not Resuscitate) Order Form #3474
  - 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, in whom appropriateness of resuscitation is questionable, the EMS provider MUST start BLS care, including defibrillation, and contact Medical Control for direction.

EMT STOP

INTERMEDIATE

- Secure airway
- Vascular access, with bloods drawn; normal saline bolus

INTERMEDIATE STOP

CCT
PARAMEDIC

- Complete standing orders appropriate to presenting rhythm

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, transport must be initiated.
- 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 on the scene, other than NYS DOH #3474, 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.
- Any certified EMS provider may contact Medical Control to request termination of resuscitation.
- 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 Fibrillation / Pulseless V-Tach

EMT

- ABC AED and CPR; defibrillate as necessary

EMT STOP

INTERMEDIATE

- Secure airway
- Vascular access, with bloods drawn; Normal Saline 500 ml IV bolus

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Epinephrine 1:10,000 dose 1.0 mg IV; repeat every 3 minutes
- Defibrillate after each medication administration
- Consider ONE of the following:
  - Lidocaine 1.5 mg/kg IV. Repeat once in 3 minutes, to a max dose of 3.0 mg/kg
  - Amiodarone (Cordarone) 300 mg IV. Repeat 150 mg in 3 – 5 minutes
  - Magnesium 2 grams IV if suspected hypomagnesemic or torsades de pointes
- If pulses return administer another dose of the antiarrhythmic given:
  - Lidocaine 1.5 mg/kg IV to max of 3.0 mg/kg OR
  - Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline over 10 minutes (10 ml/min)
- 12 Lead EKG

CCT STOP

PARAMEDIC

- Consider Sodium Bicarbonate 1 mEq/kg for patients with renal failure or suspected hyperkalemia

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Lidocaine infusion
- Amiodarone (Cordarone) infusion

Key Points/Considerations

- Contact Medical Control if patient has return of pulses (even transiently)
- Transport patient to the closest hospital
- Maximize dose of each antiarrythmic before considering using another
- Refer to the Termination of Resuscitation Protocol as needed
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac: Acute Coronary Syndrome - Suspected

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Assist patient with their own prescribed Nitroglycerin (1 dose), if SBP is >120 mmHg

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Aspirin 324 mg (4 x 81 mg tabs)
- 12 Lead EKG
- For ST Elevation MI, with ½ mm or more of elevation in 2 contiguous leads, do not delay transport; notify Medical Control as soon as possible to discuss transporting patient to facility capable of Primary Angioplasty
- Nitroglycerin 0.4 mg per dose, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 100 mmHg
- If systolic BP drops below 100 mmHg: Normal Saline 250 ml IV bolus
- Nitroglycerin Paste, 1 –2 inches transdermally, if resolution of chest pain and systolic BP above 100 mmHg

CCT STOP

PARAMEDIC

- Metoprolol (Lopressor) 5 mg slow IV, provided heart rate above 60 and systolic BP greater than 100 mmHg; may repeat every 5 minutes to a total of 3 doses

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Repeat 0.4 mg doses of Nitroglycerin every 5 minutes
- Morphine 0.05-0.1 mg/kg slow IV push

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 establishing Medical Control

Cardiac: Cardiogenic Shock

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Place patient supine unless dyspnea is present

EMT STOP

INTERMEDIATE

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

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG

CCT STOP

PARAMEDIC

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

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Dopamine infusion at 5 – 20 micrograms/kg/min
- Epinephrine infusion (1 mg in 250 ml Normal Saline), at 5 micrograms/min
- Additional Normal Saline

Key Points/Considerations

- For patients with Suspected Acute Coronary Syndrome and signs of hypoperfusion
- UNSTABLE is defined as systolic BP less than 90 mmHg and/or decreased level of consciousness
- Refer to Dysrhythmia protocols as needed

Cardiac: Wide Complex Tachycardia with a Pulse

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Have AED available

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG

CCT STOP

PARAMEDIC

- If STABLE, Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, infused over 10 minutes
- If UNSTABLE, consider sedation (see Procedural Sedation Protocol)
  - Synchronized cardioversion. Repeated as needed, maximum 3 times
  - Amiodarone (Cordarone) 150 mg in 100 ml NS IV, over 10 minutes (10 ml/min)
- If rhythm is converted: Amiodarone (Cordarone) 150 mg in 100 ml NS IV, over 10 minutes

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Synchronized or unsynchronized cardioversion
- Lidocaine 1.5 mg/kg IV
- Repeat Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, infused 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
- Consider a precordial thump prior to cardioversion
- Start cardioversion at 100 Joules or the equivalent biphasic setting
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac: Narrow Complex Tachycardia

EMT

- ABC and vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Vagal Maneuver
- 12 Lead EKG
- If UNSTABLE, Adenosine (Adenocard) 6 mg rapid IV while contacting Medical Control

CCT STOP

PARAMEDIC

- If STABLE Regular Rhythm: Adenosine (Adenocard) 6 mg IV, then Adenosine (Adenocard) 12 mg IV, may repeat Adenosine (Adenocard) 12 mg once in 1 – 2 minutes
- If STABLE Irregular Rhythm: Diltiazem (Cardizem) 0.25 mg/kg slow IV
- If UNSTABLE, consider sedation (see Procedural Sedation Protocol)
    - Synchronized cardioversion starting at 100 Joules or equivalent biphasic setting

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Synchronized cardioversion
- Repeat Diltiazem (Cardizem) 0.35 mg/kg slow IV
- Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, infused over 10 minutes
- Metoprolol (Lopressor) 5 mg IV

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)

Cardiac: Symptomatic Bradycardia / Heart Blocks

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Have AED available

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Atropine 0.5 mg IV
- 12 Lead EKG
- 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 0.04 mg/kg
- Dopamine infusion 5 micrograms/kg/min

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Epinephrine infusion 1 microgram/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: Nausea and/or Vomiting

EMT

- ABC and vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Normal Saline 250 ml bolus IV

CCT STOP

PARAMEDIC

- Promethazine (Phenergan) 12.5 mg IV or 25 mg IM
- If a dystonic reaction occurs administer Diphenhydramine (Benadryl) 50 mg IV or IM

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Midazolam (Versed) .05 mg/kg IV or IM

Key Points/Considerations

- Contact Medical Control if patient has any of the following: systolic BP less than 90, allergies to medications other than antibiotics, pregnancy or head trauma
- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue

General: Pain Management

EMT

- ABC and vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- No standing orders

CCT STOP

PARAMEDIC

- Morphine 0.05 mg/kg IV or IM (SEE KEY POINTS BELOW)
- Morphine may be repeated once after 5 minutes, with a maximum total given not to exceed 10 mg
- Promethazine (Phenergan) 12.5 mg IV or 25 mg IM, if patient becomes nauseous

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Morphine IV or IM
- Additional Promethazine (Phenergan) IV or IM
- Midazolam (Versed) .05 mg/kg IV, IM or atomized intranasally
- Diazepam (Valium) 2 - 10 mg IV

Key Points/Considerations

- For patients with:
  - Severe burns without hemodynamic compromise
  - Suspected isolated extremity fractures or dislocations with severe pain
- For all other painful conditions, paramedics must contact Medical Control for orders
- Contraindications to standing order pain management: altered mental status, hypoventilation, hypotension, other traumatic injuries
- This protocol may NOT be used in conjunction with the Procedural Sedation Protocol, unless Medical Control is established.

General: Patient Restraint

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn if possible and safe for provider

INTERMEDIATE STOP

CCT

PARAMEDIC

- No standing orders

CCT and PARAMEDIC STOP

PHYSICIAN OPTIONS

- If patient less than age 70: Haloperidol (Haldol) 5mg mixed with Midazolam (Versed) 2mg IM
- If patient greater than age 70: Haloperidol (Haldol) 5mg IM
- Additional Haloperidol (Haldol)
- Additional Midazolam (Versed)

Key Points/Considerations

- For patients at risk of causing physical harm to emergency responders, the public and/or themselves
- Patient must NOT be transported in a face-down position
- If the patient is in police custody and/or has handcuffs on, a police officer must 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

General: Procedural Sedation

EMT

- ABC and vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- Continuous pulse oximetry

CCT STOP

PARAMEDIC

- Etomidate (Amidate) 0.1 mg/kg IV for brief procedures
- Midazolam (Versed) 0.05 mg/kg IV for transcutaneous pacing or post-intubation
  - May be repeated every 5 minutes as needed if SBP > 100

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Morphine IV or IM
- Promethazine (Phenergan) 12.5 mg IV or 25 mg IM
- Midazolam (Versed) IV, IM or atomized intranasally

Key Points/Considerations

- For patients with the following anxiety producing or painful procedures including:
  - Cardioversion
  - Transcutaneous pacing
  - Post-Intubation Sedation, following confirmed endotracheal intubation
- Not for disentanglement or management of suspected fractures without Medical Control
- This protocol may NOT be used in conjunction with the Pain Management Protocol, unless Medical Control is established

Medical: Anaphylaxis

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Determine if patient has utilized his/her own Epi Pen
- Implement BLS Epi Pen Protocol

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn
- Normal Saline 500 ml IV bolus

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 or ET tube; may repeat to a total of three doses
- Diphenhydramine (Benadryl) 50 mg IV or IM
- Epinephrine 1:1,000 dose 0.5 mg subcutaneously, if patient has hypotension and/or respiratory distress w/airway swelling, hoarseness, stridor or wheezing

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 125 mg IV
- Epinephrine 1:10,000 dose 0.5 mg via ET tube if intubated

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer
- Dopamine infusion 5 – 20 micrograms/kg/min
- Epinephrine infusion (1 mg in 250 ml Normal Saline), at 5 micrograms/min

Key Points/Considerations

- If an EMT has administered an Epi Pen, or the patient utilized his/her own epinephrine autoinjector, contact Medical Control prior to administering additional epinephrine subcutaneously

Medical: Diabetic Emergencies

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low and patient is able to self administer and swallow on command, give oral glucose one unit dose (19-24 grams)
- Call for ALS Intercept if unable to swallow on command, or mental status remains altered following administration of oral glucose

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn
- If glucose level is below 80 and patient cannot swallow on command, administer D5W 500 ml IV bolus

INTERMEDIATE STOP

CCT
PARAMEDIC

- If glucose level is below 80 and patient cannot swallow on command, administer Dextrose 50% 25 grams IV; may redose if hypoglycemia recurs during transport
- If unable to obtain vascular access, Glucagon 1 mg IM or SQ
- If glucose level is above 400, administer Normal Saline 250 ml IV bolus

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Normal Saline IV bolus, if patient is hyperglycemic
- Additional Dextrose 50 %, if patient is hypoglycemic

Key Points/Considerations

- If the patient wishes to refuse transportation to a hospital and you have administered any medications you must contact a REMO Physician prior to leaving the patient or completing the RMA
- If the patient's blood glucose level is below 80 and the patient is a known diabetic with a patent airway, who is able to self administer and swallow on command, administer oral glucose or equivalent rather than establishing vascular access, if possible

Medical: Overdose or Toxic Exposure

EMT

- Decontamination as needed
- ABC and vital signs
- Airway management with high concentration oxygen
- Determine what was taken, when and how much, if possible
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- For symptomatic opiate overdose: Naloxone (Narcan) 0.4 – 2 mg IV, IM or atomized intranasally
- Consider 12 Lead EKG if tachycardic

CCT STOP

PARAMEDIC

- For symptomatic patients with:
  - Organophosphate poisoning: Atropine 2 – 5 mg IV per dose until secretions dry
  - Dystonic reaction: Diphenhydramine (Benadryl) 50 mg IV or IM
  - Calcium channel blocker OD: Calcium Chloride 1 gram IV, Glucagon 2 mg IV
  - Beta blocker OD: Glucagon 2 mg IV, Calcium Chloride 1 gram IV
  - Tricyclic antidepressant OD: Sodium Bicarbonate 1 mEq/kg IV until QRS complex narrows

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Sympathomimetic OD (cocaine or amphetamines): Midazolam (Versed) .05 mg/kg IV or IM

Key Points/Considerations

- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness
- If patient is a suspected narcotic overdose (due to history and/or physical findings) administer naxolone prior to checking blood glucose level
- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue
- Examine 12 Lead EKG for QRS widening or QT prolongation
- If suspected WMD refer to NYS Advisory on Mark I Kits, SEMAC Advisory 03-05.

Medical: Seizures

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Diazepam (Valium) 5 mg IV, if patient continues to seize
- If vascular access cannot be obtained:
  - Midazolam (Versed) 5 mg IM or atomized intranasal OR
  - Diazepam (Valium) or Diazepam Gel (Diastat) 10 mg rectally

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Diazepam (Valium) IV
- Magnesium 4 grams IV over 2 minutes, if patient is pregnant
- Additional Midazolam (Versed) 2 – 5 mg IV, IM or atomized intranasally

Key Points/Considerations

- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations
- Refer to the Eclampsia protocol if patient is pregnant

Medical: Shock / Hypoperfusion

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Place patient in supine position unless dyspnea is present
- Place patient in modified Trendelenburg position, if tolerated
- Consider MAST, if available

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn
- If no pulmonary edema:
  - Additional vascular access for fluid
  - Normal Saline 500 ml bolus IV; check lung sounds, repeat NS Bolus if lung sounds unchanged

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG

CCT STOP

PARAMEDIC

- Repeat Normal Saline 500 ml bolus IV, up to 3 times
- Consider Dopamine infusion 5 micrograms/kg/minute

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Normal Saline IV Bolus
- Dopamine infusion 5 - 20 micrograms/kg/minute
- Epinephrine infusion 2 - 10 micrograms/minute

Key Points/Considerations

- UNSTABLE is defined as Systolic BP < 90 mmHg and/or decreased level of consciousness
- Consider and treat causes of hypoperfusion, including anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ruptured AAA, ectopic pregnancy, trauma, etc.

Medical: Suspected Stroke

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Perform neurological exam including Cincinnati Stroke Scale
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol
- 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 contact Medical Control to discuss appropriate destination facility
- Notify destination hospital ASAP

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

INTERMEDIATE STOP

CCT
PARAMEDIC

- Cardiac Monitor
- 12 lead EKG
- If systolic BP is greater than 220 or diastolic BP is greater than 120 contact Medical Control

CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

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

Key Points/Considerations

- 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
- Refer to NYS BLS Stroke Protocol

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. Suction meconium in amniotic fluid as needed. Suction oropharynx and nostrils with a bulb syringe. Depress the bulb syringe before placing in the baby's mouth or nose.
- 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.
- If the cord is around the neck, clamp it with two clamps, cut the cord between the clamps, and unwrap the cord from around the neck.
- Clamp the umbilical cord with two clamps and cut the cord between them.
- Assess APGAR score.

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 and apply gentle traction with your fingers.
- Gentle downward compression of the uterus will assist in head delivery. Swing the legs upward until the body is in a vertical position. This will permit delivery of the head.

Management of Prolapsed Cord or Limb Presentation

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

APAGAR Score

- Score should be recorded at 1 minute and 5 minutes after birth
- Do not withhold resuscitation efforts to determine APAGAR score

SIGN	0	1	2
A- Appearance	Blue, pale	Body pink, extremities blue	Completely pink
P – Pulse	Absent	Below 100 bpm	Above 100 bpm
G- Grimace (reflexes – flick soles of feet)	No response	Grimace	Vigorous cry
A- Activity (muscle tone)	Limp	Some flexion	Active motion
R- Respirations	No effort	Weak, irregular	Strong cry

OB/Gyn: Childbirth (continued)

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 gently massage the uterus
- Bring the placenta and any other tissue to the hospital for inspection
- Suction thick meconium as soon as possible, using no more than 100 mmHg of suction.

OB/Gyn: Eclampsia

EMT

- ABC vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE
CCT

- Vascular access, with bloods drawn

INTERMEDIATE AND CCT STOP

PARAMEDIC

- If patient is seizing administer ONE of the following:
  - Magnesium 4 grams over 2 minutes, IV
  - Diazepam (Valium) 5 mg IV
  - Midazolam (Versed) 5 mg IV, IM or atomized intranasally

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Magnesium infusion 1 - 2 grams per hour, IV
- Metoprolol (Lopressor) 5 mg Slow IV every 5 minutes (max 3 doses)
- Diazepam (Valium) 5 mg IV
- Midazolam (Versed) 2-5 mg IV

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

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

EMT

- ABC vital signs
- Airway management with high concentration oxygen

EMT STOP

INTERMEDIATE
CCT

- Vascular access, with bloods drawn.
- Normal saline 500ml IV bolus

INTERMEDIATE AND CCT STOP

PARAMEDIC

- Additional Normal Saline 500ml IV bolus

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Magnesium 4 grams IV over 20 minutes

Key Points/Considerations

- Transport to the closest appropriate hospital.
- Notify destination hospital ASAP
- If patient unwilling to go to closest hospital, contact Medical Control for assistance in determining appropriate destination

Pediatric Emergencies

- For these protocols, pediatric patients are defined as children 8 years of age or less
- Procedures for Paramedics and Critical Care Technicians are only for the following clinical situations:
  - Cardiac or Respiratory Arrest
  - Cardiac Dysrhythmias (Bradycardia, Supraventricular Tachycardia)
  - Asthma/Acute Bronchospasm
  - Anaphylaxis/Allergic Reaction
  - Stridor
  - Seizures
  - Pain Management
  - Sedation
  - Altered Mental Status/Overdose
  - Diabetic Emergencies
  - Major Trauma
  - Hypoperfusion
- In all other clinical situations you must contact Medical Control
- Have a Broselow Pediatric Tape or similar device available to accurately determine the correct medication dosage
- 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 years)	22 – 34	80-140	>75
School-aged (6 – 8 years)	18 – 30	70-120	>80

From American Academy of Pediatrics, Pediatric Education for Prehospital Professionals

Pediatric Cardiac Arrest: Asystole or PEA

EMT
INTERMEDIATE

- ABC and CPR
- Airway management with high concentration oxygen via BVM

EMT AND INTERMEDIATE STOP

CCT

- Vascular access
- Cardiac Monitor
- Normal Saline 20 ml/kg rapid IV or IO bolus

CCT STOP

PARAMEDIC

- Secure airway
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO or Epinephrine 1:1,000 dose 0.1 mg/kg ET
- Repeat Epinephrine every 3 – 5 minutes

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 Medical Control and begin transport to the closest hospital as soon as possible
- Confirm asystole in more than 1 lead
- Perform CPR for up to 3 minutes between medication doses
- Consider and treat causes of PEA: Hypoxemia, Hypovolemia, Hypoglycemia, Hypothermia, Hyperkalemia, Pulmonary Embolism, Tension Pneumothorax, Cardiac Tamponade, Overdose

Pediatric Cardiac Arrest:
Ventricular Fibrillation / Pulseless V-Tach

EMT
INTERMEDIATE

- ABC and CPR
- Defibrillation, if equipped
- Airway management with high concentration oxygen via BVM

EMT AND INTERMEDIATE STOP

CCT

- Vascular access
- Cardiac Monitor

CCT STOP

PARAMEDIC

- Secure airway
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO or Epinephrine 1:1,000 dose 0.1 mg/kg ET
- Repeat Epinephrine every 3 – 5 minutes
- Defibrillate at 4 J/kg between doses of medication
- Consider the use of ONE of the following:
  - Lidocaine, 1 mg/kg IV, IO or ET. Repeat twice as needed
  - Amiodarone (Cordarone) 5 mg/kg (Amiodarone 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; repeat twice as needed

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points/Considerations

- Call Medical Control and begin transport to the closest hospital as soon as possible
- 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.

Pediatric Cardiac: Bradycardia

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- 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
- Vascular access
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO or Epinephrine 1:1,000 dose 0.1 mg/kg ET
- Repeat Epinephrine every 3 – 5 minutes
- Atropine 0.02 mg/kg, with a minimum dose 0.1 mg IV, IO or ET
- Repeat Atropine once in 5 minutes, to maximum total dose of 0.04 mg/kg

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Transcutaneous pacing

Key Points/Considerations

- Call Medical Control as soon as possible
- Newborn/Infant bradycardic if pulse less then 80 bpm; child over 1 year of age 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 with high concentration oxygen

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

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

PARAMEDIC STOP

PHYSICIAN OPTIONS

- 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 (Amiodarone 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; over 20 minutes
  - Lidocaine 1 mg/kg IV
- Stable patient, narrow QRS:
  - Adenosine (Adenocard) 0.1 mg/kg (max 6 mg); may repeat at 0.2 mg/kg (max dose 12 mg)

Key Points/Considerations

- Call Medical Control 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
- The most common causes of Sinus Tachycardia in children are fever and dehydration
- 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 with high concentration oxygen
- Implement BLS Albuterol Protocol
- Determine if patient has been given his/her own asthma medications

EMT AND INTERMEDIATE STOP

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.
- Cardiac Monitor

CCT STOP

PARAMEDIC

- Epinephrine 1:1,000 dose 0.01 mg/kg subcutaneously, if patient in severe distress; max 0.5 mg
- Epinephrine 1:10,000 dose 0.01 mg/kg via ET tube
- If patient not improving, vascular access

PARAMEDIC STOP

PHYSICIAN OPTIONS

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

Key Points/Considerations

- Call Medical Control as soon as possible
- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest

Pediatric: Anaphylaxis

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- Implement BLS Epi Pen Protocol
- Determine if patient has been given his/her own Epi Pen

EMT AND 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 0.01 mg/kg subcutaneously; max 0.5 mg

CCT STOP

PARAMEDIC

- Vascular access
- Diphenhydramine (Benadryl)1 mg/kg IV or IM; max dose 25 mg
- Normal Saline 20 ml/kg IV or IO bolus

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Methylprednisolone (Solu-Medrol) 1 mg/kg IV
- For cardiovascular collapse: Epinephrine 1:10,000 dose 0.01 mg/kg IV, IO or ET; max dose 0.5 mg

Key Points/Considerations

- Call Medical Control as soon as possible
- If an EMT has administered an Epi Pen, or the patient has administered their own epinephrine auto injector, contact Medical Control prior to administering additional epinephrine subcutaneously

Pediatric: Diabetic Emergencies

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low and patient is able to self administer and swallow on command, give oral glucose one unit dose (19-24 grams)
- Call for ALS Intercept if unable to swallow on command, or mental status remains altered following administration of oral glucose

EMT AND INTERMEDIATE STOP

CCT

- Glucagon 1 mg IM

CCT STOP

PARAMEDIC

- Vascular access
- If blood glucose below 80 (60 for neonates):

Patient's Age	Amount of Dextrose
Less than 1 year old	D10 or D12.5 - 2 ml/kg IV
1 – 8 years old	D25 - 2 ml/kg IV

- If blood glucose above 400 and signs of dehydration administer fluid bolus:

Patient's Age	Amount of Normal Saline
Less than 1 year old	10 ml/kg
1 – 8 years old	20 ml/kg

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points/Considerations

- If the patient's guardian wishes to RMA the patient and you have administered any medications you must contact a REMO Physician prior to completing the RMA

Pediatric: Hypoperfusion

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Normal Saline 20 ml/kg IV bolus

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points/Considerations

- For patients with hypovolemia due to bleeding, vomiting, diarrhea or septic shock. Call Medical Control if you suspect cardiogenic shock.
- Diagnostic criteria for hypotension 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: Overdose or Toxic Exposure

EMT
INTERMEDIATE

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

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- For symptomatic opiate overdose: Naloxone (Narcan) 0.1 mg/kg IM or atomized intranasally. Max 2 mg

PARAMEDIC STOP

PHYSICIAN OPTIONS

- For symptomatic patient with:
  - Organophosphate poisoning: Atropine 1 mg IV per dose every 3 – 5 minutes, until secretions dry
  - Dystonic reaction: Diphenhydramine (Benadryl) 1.0 mg/kg IV or IM.
  - Beta blocker OD: Glucagon 1 mg IV
  - Sympathomimetic ingestion (cocaine or amphetamines): Midazolam (Versed) 0.1 mg/kg IV or IM
  - Calcium channel blocker OD: Calcium Chloride 1 gram IV, or Glucagon 1 mg IV

Key Points/Considerations

- Call Medical Control as soon as possible
- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness
- Dystonic reaction is uncontrolled contractions of face, neck or tongue
- 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 with high concentration oxygen

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Morphine 0.05 mg/kg IV or IM (SEE KEY POINTS BELOW)
- Morphine may be repeated once after 5 minutes with a maximum total dose 0.1 mg/kg
- Promethazine (Phenergan) 0.1 mg/kg IV or IM, if patient becomes nauseous

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Morphine IV or IM
- Additional Promethazine (Phenergan) IV or IM

Key Points/Considerations

- Standing order pain management is only for patients with suspected long bone fractures or burns, with no additional injuries. For all other instances, you must contact Medical Control.
- Call Medical Control as soon as possible
- This protocol may NOT be used in conjunction with the Pediatric Procedural Sedation Protocol, unless Medical Control is established.

Pediatric: Procedural Sedation

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Morphine 0.05 mg/kg IV or IM
- Midazolam (Versed) 0.05 mg/kg IV or IM

Key Points/Considerations

- Call Medical Control as soon as possible
- This protocol may NOT be used in conjunction with the Pediatric Pain Management Protocol, unless Medical Control is established.

Pediatric: Seizures

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped. If level is abnormal refer to Pediatric Diabetic Protocol

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Secure airway
- Vascular access
- If patient continues to seize:
  - Diazepam (Valium) 0.2 mg/kg IV or IO. Max dose 10 mg.
  - Diazepam (Valium) or Diastat 0.5 mg/kg rectally if vascular access cannot be obtained; max dose 10 mg.

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Midazolam (Versed) 0.1 mg/kg IV, IO, IM

Key Points/Considerations

- Call Medical Control as soon as possible
- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations

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

CCT STOP

PARAMEDIC

- If patient unconscious attempt removal of object with Magill forceps
- Secure airway; consider using smaller than usual ET tube

PARAMEDIC STOP

PHYSICIAN OPTIONS

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

Key Points/Considerations

- Call Medical Control as soon as possible

Respiratory: Acute Asthma

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Implement BLS Albuterol Protocol
- Determine if patient has utilized his/her own asthma medications
- Assist patient with their own medications as appropriate

EMT STOP

INTERMEDIATE

- Vascular access, if not improving with first nebulized treatment

INTERMEDIATE STOP

CCT

- 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
- Consider Cardiac Monitor
- Consider 12 Lead EKG

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 125 mg IV
- Magnesium 2 grams IV in 50 ml NS over 10 minutes
- Epinephrine 1:1,000 dose 0.3 –0.5 mg subcutaneously, if severe distress
- Epinephrine 1: 10,000 dose 0.5 mg via ET tube if intubated

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 1:10,000 dose 0.5 mg IV, if imminent respiratory arrest

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 establishing Medical Control
- Epinephrine should only be used if patient’s tidal volume is so small that nebulized medications can’t work

Respiratory: Acute Pulmonary Edema

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Sit patient upright, if possible

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn

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, if wheezes are present
- CPAP, if equipped
- 12 Lead EKG

CCT STOP

PARAMEDIC

- Aspirin 324 mg (4 x 81 mg tablets)
- Nitroglycerin 0.4 mg, every 2-5 minutes, if the patient's systolic BP is above 100 mmHg
- If unable to administer medication orally, Nitroglycerin Paste 1 – 2 inches transdermally
- Furosemide (Lasix) 40 mg IV over 2 – 3 minutes, if peripheral edema is present

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Furosemide (Lasix)
- Morphine 0.05 mg/kg mg IV

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

Respiratory: COPD Exacerbation

EMT

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

EMT STOP

INTERMEDIATE

- Vascular access, with bloods drawn if not improving

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 or ET tube; may repeat to a total of three doses
- 12 Lead EKG

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 125 mg IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Additional Albuterol unit dose, via nebulizer
- Magnesium 2 grams IV over 20 minutes in 50 ml Normal Saline
- CPAP

Respiratory: Upper Airway Obstruction / Stridor

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Consider mechanical obstruction and treat accordingly

EMT STOP

INTERMEDIATE

- If unconscious attempt removal of object with Magill forceps
- Consider using smaller than usual ET tube
- Vascular access, with bloods drawn

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

CCT STOP

PARAMEDIC

- Methylprednisolone (Solu-Medrol) 125 mg IV

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

Trauma: Adult Trauma Triage and Transport

Trauma Patient Characteristics

Major trauma is present if the patient's physical findings meet any one of the following criteria:

UNSTABLE PATIENT

- Glasgow Coma Scale is less than or equal to 13
- Respiratory rate less than 10 or more than 29 breaths per minute
- Sustained pulse rate is less than 50 or more than 120 beats per minute
- Systolic blood pressure is less than 90 mmHg

PHYSICAL FINDINGS

- Penetrating injuries to head, neck, torso, or proximal extremities
- Two or more suspected proximal long bone fractures
- Suspected flail chest
- Suspected spinal cord injury or limb paralysis
- Amputation (except digits)
- Suspected pelvic fracture
- Suspected open or depressed skull fracture

Mechanism of Injury

Major trauma is present if the patient's mechanism of injury meets any one of the following criteria

- Ejection or partial ejection from an automobile
- Death in the same passenger compartment secondary to trauma
- Extrication time in excess of 20 minutes
- Vehicle collision resulting in 12 inches of intrusion into the passenger compartment
- Motorcycle crash > 20 MPH or with separation of rider from motorcycle
- Falls from greater than 20 feet
- Vehicle rollover (90 degree vehicle rotation or more) with unrestrained passenger
- Vehicle vs. pedestrian or bicycle collision above 5 MPH

High Risk Patients

If a patient does not meet the above 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
- Consider contacting Medical Control:
  - Patients with bleeding disorders or patients on anticoagulant medications
  - Patients with cardiac disease and/or respiratory disease
  - Patients with insulin dependent diabetes, cirrhosis, or morbid obesity
  - Immunosupressed patients (HIV disease, transplant patients and patients on chemotherapy treatment)
  - Age > 55

Trauma: Pediatric Trauma Triage and Transport

Pediatric Trauma Patient Characteristics

Pediatric patients are defined as children 8 years of age or less

Major trauma is present if the patient's physical findings meet any one of the following criteria:

UNSTABLE PATIENT

- Glasgow Coma Scale is less than or equal to 13
- Respiratory status inadequate: cyanosis or respiratory rate either low or high for patient's age
- Capillary refill time greater than 2 seconds
- Pulse rate either low or high for patient's age

PHYSICAL FINDINGS

- Penetrating injuries to head, neck, torso, groin or proximal extremities
- Combined system trauma involving two or more body systems, or blunt trauma to the chest or abdomen
- Two or more suspected proximal long bone fractures
- Suspected flail chest
- Suspected spinal cord injury or limb paralysis
- Amputation (except digits)
- Suspected pelvic fracture
- Suspected open or depressed skull fracture

Mechanism of Injury

Major trauma is present if the patient's mechanism of injury meets any one of the following criteria

- Ejection or partial ejection from an automobile
- Death in the same passenger compartment secondary to trauma
- Extrication time in excess of 20 minutes
- Vehicle collision resulting in 12 inches of intrusion into the passenger compartment
- Motorcycle crash > 20 MPH or with separation of rider from motorcycle
- Falls from greater than 10 feet
- Vehicle rollover (90 degree vehicle rotation or more) with unrestrained passenger
- Vehicle vs. pedestrian or bicycle collision above 5 MPH

High Risk Patients

If a patient does not meet the above 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.
- Consider contacting Medical Control:
  - Patients with bleeding disorders or on anticoagulant medications
  - Patients with cardiac disease and/or respiratory disease
  - Patients with insulin dependent diabetes, cirrhosis, or morbid obesity
  - Immunosupressed patients (HIV disease, transplant patients and patients on chemotherapy treatment)

Trauma: General

Key Points/Considerations

- Trauma Arrest patients go to the closest hospital
- Patients with unmanageable airway go to the closest hospital or call for aeromedical or advanced airway assistance while enroute to closest hospital
- All other UNSTABLE patients with airway managed go to closest Trauma Center:
  - If more than 30 minutes from Regional Trauma Center consider aeromedical assistance. Refer to the Aeromedical Utilization Policy.
  - If more than 45 minutes from Regional 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 be UNSTABLE
- Notify the receiving facility as early as possible giving brief description of mechanism of injury, and estimated time of arrival
- UNSTABLE patients should be enroute to the hospital/landing zone within 10 minutes of disentanglement/extrication
- The Regional Trauma Center (Level I) is Albany Medical Center. In the surrounding area the following hospitals are Level II Trauma Centers:
  - St. Elizabeth (Utica, NY)
  - Bassett Hospital (Cooperstown, NY)
  - St. Francis (Poughkeepsie, NY)
  - Berkshire Medical Center (Pittsfield, Massachusetts)
- Do not use MAST in pediatric patients, children 8 years of age or less

Trauma: Burns

EMT

- Stop the burning. Remove any clothing, jewelry, etc.
- ABC and vital signs
- Airway management with high concentration oxygen
- Consider aeromedical intercept for direct transport to a Burn Center
- If the burn is less than 10% BSA use moist sterile dressings
- If the burn is more than 10% BSA use dry sterile dressings
- Burns to the eye require copious irrigation with Normal Saline — do not delay irrigation waiting for Tetracaine

EMT STOP

INTERMEDIATE

- Vascular access at 2 sites, with bloods drawn

INTERMEDIATE STOP

CCT

- If patient has signs of airway involvement be prepared to intubate

CCT STOP

PARAMEDIC

- Refer to the Pain Management protocol
- For burns to the eye(s):
  - Tetracaine 0.5% 2 drops in affected eye, prior to irrigation
  - Insert Morgan Lens under eyelid of affected eye

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Morphine 0.05-0.1 mg/kg IV

Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- If hazardous materials, notify the destination hospital immediately to allow for decontamination

Trauma: Chest Trauma

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- 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

CCT

- Vascular access, with bloods drawn; use the side opposite the injury if possible
- Normal saline per the Traumatic Hypoperfusion Protocol
- If patient in cardiac arrest: consider needle decompression bilaterally

INTERMEDIATE AND CCT STOP

PARAMEDIC

- Needle decompression if patient has signs and symptoms consistent with Tension Pneumothorax AND hemodynamic compromise

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points/Considerations

- Begin transportation as soon as possible and perform ALS treatment enroute to the hospital
- Penetrating chest trauma is a contraindication for use of Anti-Shock Trousers (MAST)
- Signs and symptoms of a Tension Pneumothorax: absent lung sounds on one side, extreme dyspnea, jugular vein distention (JVD), cyanosis (even with 100% oxygen), tracheal deviation AND hypotension
- Hemodynamic compromise is defined as: hypotension, narrowed pulse pressures and tachycardia
- Thoracic decompression is a serious medical intervention that requires a chest tube in the hospital

Trauma: Crush Injuries

EMT

- ABC and vital signs every 5 minutes if possible
- Airway management with high concentration oxygen.

EMT STOP

INTERMEDIATE

- Vascular access at 2 sites, with bloods drawn
- Normal saline (preferably warmed) 1 liter IV bolus

INTERMEDIATE STOP

CCT

- Cardiac Monitor
- 12 Lead EKG repeated at 30 minute intervals
- Normal saline (preferably warmed) 500 ml IV bolus as needed for perfusion

CCT STOP

PARAMEDIC

- If 1 complete extremity crushed more than 2 hours or 2 extremities crushed more than 1 hour:
  - Sodium Bicarbonate 50 mEq IV
  - Sodium Bicarbonate infusion (50 mEq in 1 liter NS), run at 1.5L per hour
  - One minute prior to extrication: Sodium Bicarbonate 50 mEq IV

PARAMEDIC STOP

PHYSICIAN OPTIONS

- If hyperkalemia is suspected:
  - Calcium Chloride 1 gram IV (over 5 minutes). Repeat in 10 minutes if no resolution
  - Albuterol 2.5 mg in 3 ml (unit dose) via nebuilizer. Repeat as needed
- Midazolam (Versed) 0.05 mg/kg IV or IM
- Morphine 0.05 mg/kg IV or IM

Key Points/Considerations

- Contact the Regional Trauma Center early and consider physician presence at scene if anticipated prolonged extrication.
- Refer to the Pain Management protocol
- Use a dedicated IV for Sodium Bicarbonate, the other IV for all 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.

Trauma: Hypoperfusion / Hypovolemia

EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Use appropriate splinting devices as available including MAST
  - If Systolic BP less than 50 mmHg apply and inflate Anti-Shock Trousers (MAST)
  - If Systolic BP less than 90 mmHg and pt has suspected pelvic fracture apply and inflate Anti-Shock Trousers (MAST)

EMT STOP

INTERMEDIATE
CCT
PARAMEDIC

- Vascular access, with bloods drawn
- 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 is defined as significant mechanism of injury AND tachypnea, tachycardia, pallor, or restlessness, AND Systolic BP greater than 90 mmHg
- DECOMPENSATED SHOCK is defined as clinical picture of shock AND Systolic BP less than 90 mmHg
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with “Trauma Alert” call, giving brief description of mechanism of injury and estimated time of arrival
- Contact Medical Control if guidance of care or orders are needed

Trauma: Pediatric Hypoperfusion / Hypovolemia

EMT
INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen

EMT AND INTERMEDIATE STOP

CCT

- Cardiac Monitor

CCT STOP

PARAMEDIC

- Vascular access
- Normal Saline 20 ml/kg IV bolus

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points/Considerations

- Diagnostic criteria for UNSTABLE 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).
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with “Trauma Alert” call, giving brief description of mechanism of injury and estimated time of arrival
- Do not use MAST in pediatric patients

Aeromedical Utilization

Criteria to use when 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 burn 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 establish Medical Control and discuss the situation with the on-line physician

Destination

- 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 on-line Medical Control has been established 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.

Airway Management

EMT

- Oxygen therapy using non-rebreather mask 10-15 lpm, NRB
- Oxygen therapy using nasal cannula, 2-6 lpm, if patient will not tolerate NRB
- Oxygen therapy using bag valve mask 15-25 lpm, BVM
- Nasopharyngeal airways
- Oropharyngeal airways
- BVM assisted ventilation
- Portable transport ventilators, if trained

EMT STOP

INTERMEDIATE

- Oral endotracheal intubation in unresponsive ADULTS
- Alternative rescue airway device (LMA or Combitube) in unresponsive ADULTS

INTERMEDIATE STOP

CCT

- Continuous Positive Airway Pressure (CPAP)

CCT STOP

PARAMEDIC

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

PARAMEDIC STOP

PHYSICIAN OPTIONS

Key Points

- Pediatric intubation is only to be performed if the EMS unit is equipped with continuous endtidal capnography or capnometry and it is working and appropriately connected to the patient
- 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
- Reason for nasal cannula use must be documented
- Tidal Volume settings for portable transport ventilators: 5 – 7 ml/kg
- Always have a BVM available when using a portable transport ventilator
- Intubation may be attempted on a patient 2 times by one AEMT and one more time by a second AEMT. If unsuccessful utilize a rescue airway device or ventilate with BVM.
- A cervical collar should be placed on all intubated patients to assist secure placement of the airway device.
- Contraindications for use of Combitube:
    - 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

Blood Draw for Law Enforcement

Key Points

- AEMT may draw bloods for the purpose of Blood Alcohol Content Analysis, upon request of an on-scene law enforcement personnel
- There must be direction from on-line Medical Control
- Do not delay care of patient.
- Do not use alcohol on the patient's skin prior to drawing blood samples.
- If the patient requires vascular access, draw blood samples per the Vascular Access Policy, and then draw blood tubes for law enforcement.
- If the patient does not require vascular access draw only the blood tubes requested by law enforcement.
- Note on the PCR the REMO # of the on-line Medical Control Physican, as well as the name of the law enforcement officer requesting the blood draw.
- The AEMT performing the vascular access must not be the same person as the requesting law enforcement officer.

Blood Transfusion Maintenance

EMT

INTERMEDIATE

- EMT and Intermediate providers may not transport patients with blood products infusing

EMT AND INTERMEDIATE STOP

CCT

PARAMEDIC

- Only Agency credentialed Specialty Care Critical Care Technicians and Paramedics may transport a patient between health-care facilities with blood products being transfused

SCT CREDENTIALED CCT AND PARAMEDIC STOP

PHYSICIAN OPTIONS

- Diphenhydramine (Benadryl) 25 - 50 mg IV or IM
- Methylprednisolone (Solu-Medrol) 125 mg IV
- Epinephrine 1:1,000 dose 0.3 mg SQ

Key Points/Considerations

- Critical Care Technicians and Paramedics that have attended regionally-approved supplemental training (SCT) and have been credentialed by their Agency Medical Director may transport a patient between health-care facilities with blood being transfused.
- The Paramedic or Critical Care Technician MUST Confirm the order for blood transfusion
- Only accept a blood transfusion that has been started by the sending facility.
- Make sure the patient is wearing an ID bracelet with his/her name and hospital ID number from the sending hospital. Confirm the patient's name and ID number on the bracelet match those on the unit of blood
- Verify that the unit of blood has not been issued for more than four hours.
- If more than one unit is to be transfused, all of the units should be hung by the nurse at the originating facility. Paramedics and Critical Care Technicians MAY NOT initiate any units for transfusion.
- Assess and confirm the patency of the transfusion site prior to leaving the hospital. If the site becomes red and shows signs of infiltration during transport, the Paramedic or Critical Care Technician should start a new IV as soon as possible. This IV should be as large bore as possible. The blood may be restarted using this new IV for the transfusion.
- The following criteria must be met:
    - Blood transfusions must be infused through a primary IV of Normal Saline.
    - Blood must be transfused through a filter, using only hospital issued tubing for transfusions.
    - Empty blood bags and the attached tubing must be saved for disposal by the staff at the receiving hospital.

Blood Transfusion Maintenance (continued)

Key Points/Considerations

- Vital signs, including lung sounds should be assessed at the following intervals:
    - 5 minutes and 15 minutes after the start of each unit of blood.
    - Every hour the blood is running and at the completion of the unit of blood
- Make sure to document the time the transfusion was started at the originating hospital so that these parameters are accurate. Vitals may also include temperature if a thermometer is available.
- If the patient develops any of the following the transfusion should be stopped and the patient treated as per the Hypoperfusion Protocol. Contact Medical Control as soon as possible.
    - Shortness of breath or chest pain
    - Flushing of the torso and/or itching
    - Sudden and unexplained pain in the neck, chest or lumbar area
    - Hives and/or rash
    - Pulmonary edema and/or wheezing
    - Shaking chills
    - Signs and symptoms of shock

Clinician on the Scene

NON-REMO 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 and contact Medical Control as soon as possible. The clinician on the scene may speak to the REMO 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 his/her treatment and 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.

Key Points

- Clinicians include, but are not limited to: physicians, physician assistants, nurse practitioners, midwives
- Pertains to contact prior to or after the arrival of the EMS unit if the clinician wants to assume control of the patient

REMO Credentialed Physician

- Verify the REMO Physician's credentials.
- If the REMO Physician is able to accompany the patient in the ambulance advise Re/MAC of the REMO Physician's presence. Use the REMO Physician's number on the PCR.
- If the REMO Physician is not able to accompany the patient in the ambulance contact Medical Control and request the 2 physicians confer. Transport as appropriate and contact on-line Medical Control if further orders are needed. Document both physician's REMO Numbers on the PCR.

Emergency Incident Rehab

Key Points

- For events, 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 exhaustion or fatigue. If the person exhibits any signs of heat exhaustion or fatigue, take their vital signs.
  - If any vital signs is out of the range listed below, protective gear should be removed, and the person should rest for at least 15 minutes, with continued oral hydration.

    Blood Pressure: Systolic >150 mm Hg or Diastolic > 100 mm Hg.
    Respirations: >24 per minute.
    Pulse: >110 per minute.
    Temperature > 100.6 (If monitoring equipment available)
  - 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 an altered mental status follow the appropriate protocol. The person may not return to duty.
- An irregular pulse mandates ALS intervention, cardiac monitoring, and removal from duty or the event.
- Names and vital signs 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 (NYS BEMS Policy 02-05)
- More aggressive treatment should be used during extremes of temperature.
- Consider carbon monoxide poisoning during prolonged exposure to smoke.
- If any questions exist regarding the treatment of a patient according to this protocol, contact Medical Control for advice.
- 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.

Inter-Hospital Transport

EMT

INTERMEDIATE

- An EMT or EMT-I may transport stable patients with a secured saline lock device in place, as long as no fluids or medications are attached to the port. The EMT or EMT-I must assure that the venous access site is secured and dressed prior to leaving the medical facility.

EMT AND INTERMEDIATE STOP

CCT

PARAMEDIC

- Paramedics and Critical Care Technicians may transport a patient between hospitals with the following IV Infusions, provided the medication is ordered and provided by the transferring physician
- Be certain to clarify orders regarding medication titration prior to departure
- The 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
- Slow infusion rate by one-half or discontinue if hypotension or symptomatic bradycardia occurs

DILTIAZEM (CARDIZEM)

- Usual dose: 10-15 mg/hr infusion
- Discontinue if hypotension or symptomatic bradycardia occurs

GP IIb/IIIa RECEPTOR INHIBITORS

- Aggrastat (tirofiban): 0.1-0.15 micrograms/kg/min
- Integrilin (eptifibatide): 0.5-2 micrograms/kg/min
- Reopro (abciximab): 10 micrograms/min
- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, and/or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

HEPARIN

- Usual dosage: 18 units/kg/hr
- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, and/or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

NITROGLYCERIN

- Usual dosage: 10-200 micrograms/min
- 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. If systolic blood pressure returns to above 100 mm Hg prior to REMO MD contact, follow the Suspected AMI Protocol

CCT AND PARAMEDIC WITHOUT SCT CREDENTIALLING STOP

Inter-Hospital Transport (continued)

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 IV Infusions, advanced modalities and blood products, provided the medication is ordered and provided by the transferring physician.
- 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
- Refer to the Blood Transfusion Protocol

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 REMO 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. If a total failure of communications occurs and the patient is unstable and decompensating, follow standing orders and go to the closest hospital emergency department.
- An appropriately trained nurse, respiratory therapist, physician assistant, nurse practitioner or physician from the sending facility must accompany the patient for any prescribed treatments or modalities for which the designated provider is not credentialed by their agency.
- There must an appropriate communication device in the transporting vehicle.
- 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.

Medication and Medical Control

Key Points/Considerations - Medications

- Only medications listed may be carried by an ALS agency within the REMO region. Medications not listed may not be carried without application to and 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 REMAC, through the Regional Medical Director, prior to use.
- 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 REMO Physician prior to completing the RMA.
- Pre-mixed solutions for infusion are NOT to be carried.
- Use a micro drip administration set for Dopamine infusions
- Specific concentrations and total quantities of controlled substances (Diazepam, Diazepam Gel, Midazolam, and Morphine should be in accordance with the Agency's Controlled Substance Plan.
- Medications are only to be carried in NYSDOH Approved Vehicles and cannot be carried in a private/personally owned vehicle at any time.

Key Points/Considerations – Medical Control

- First line of Medical Control communication must be through Re/MAC via radio or telephone
- If contact with Re/MAC is unavailable, hospitals may be contacted directly via telephone
- For the protection of the patient, the provider and the REMO physician, communication over recorded lines is recommended
- Communications failure includes:
  - A REMO Physician is not available,
  - Radio or telecommunications failure,
  - Medical Control is not established by the time of your arrival at the hospital;
- If unable to obtain Medical Control over the radio or telephone, utilize Standing Orders to the appropriate stop line. Describe the situation that prevented you from contacting Medical Control on the PCR.
- If a communication breakdown occurs after Medical Control has been established, Standing Orders **ONLY** must continue to be utilized.

Medication Formulary

Medication Name	Volume/Unit (ml)	Concentration (mg/ml)	Total/unit	Total Units
Adenosine (Adenocard)	2 ml	3 mg	6 mg	5
Afrin			150 mg	1
Amiodarone (Cordarone)	3 ml	50 mg	150 mg	4
Albuterol (Proventil)	3 ml	0.83 mg	2.5 mg	5
Aspirin	Tablet	81 mg	36 tablets	1
Atropine	10ml	0.1 mg	1 mg	4
Atrovent (Ipratropium bromide)	2.5 ml	0.5 mg	1.25 mg	3
Calcium Chloride	10 ml	100 mg	1 gram	2
Dextrose 50%	50 ml	500 mg	25 grams	2
Dextrose 25%	10 ml	250 mg	2.5 grams	1
**D5W	500 ml			1
Diazepam (Valium)	20 mg total, see agency's controlled substance plan			
Diazepam Gel (Diastat)	Optional, see agency's controlled substance plan			
Diltiazem (Cardizem)	5 ml	5 mg	25 mg	3
Diphenhydramine (Benedryl)	1 ml	50 mg	50 mg	2
Dopamine	5 ml	80 mg	400 mg	2
Epinephrine 1:1,000	1 ml	1 mg	1 mg	2
Epinephrine 1:1,000	30 ml	1 mg	30 mg	1
Epinephrine 1:10,000	10 ml	0.1 mg	1 mg	6
Etomidate (Amidate)	10 ml	2 mg	20 mg	2
Furosemide (Lasix)	4 ml	10 mg	40 mg	3
Glucagon	1 ml	1 mg	1 mg	2
Haloperidol (Haldol)	1 ml	5 mg	5 mg	2
Lidocaine 2% (IV)	5 ml	20 mg	100 mg	3
Lidocaine 2% Gel (Xylocaine)	30 ml	20 mg	600 mg	1
Magnesium	10 ml	500 mg/ml	5 grams	2
Methylprednisolone (Solu-Medrol))	2 ml	62.5 mg	125 mg	2
Metoprolol (Lopressor)	5 ml	1 mg/ml	5 mg	4
Midazolam (Versed)	10 mg, see controlled substance plan for concentration			
Morphine	20 mg, see agency's controlled substance plan			
Naloxone (Narcan)	Varies		2 mg	2
Nitroglycerin (spray or tablets)		0.4 mg		1
Nitroglycerin paste				1
Normal Saline 0.9%			1000 ml	5
Normal Saline 0.9%			250 ml	2
Normal Saline 0.9%			100 ml	2
Promethazine (Phenergan)	1 ml	25 mg	25 mg	2
Sodium Bicarbonate	50 ml	1 mEq/ml	50 mEq	2
*Succinylcholine (Anectine)	10 ml	25 mg	250 mg	2
Tetracaine Ophthalmic Solution			1 ml	1
*Vecuronium (Norcuron)	10 ml	1 mg	10 mg	2

* For agencies approved for MFI only

** For Intermediate Agencies

Medication Infusions

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
5 ml/min (over 10 min)	50 drops/min	75 drops/min

Lidocaine: 200 mg in 100 ml Normal Saline = 2 mg/ml

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

Epinephrine: 1 mg in 250 ml Normal Saline = 4 micrograms/ml

Infusion Rate	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml	Admin Set: 60 drops/ml
1 microgram/min	2.5 drops/min	3.5 drops/min	15 drops/min
2 micrograms/min	5 drops/min	7 drops/min	30 drops/min
4 micrograms/min	10 drops/min	15 drops/min	60 drops/min
6 micrograms/min	15 drops/min	22 drops/min	90 drops/min
8 micrograms/min	20 drops/min	30 drops/min	120 drops/min
10 micrograms/min	25 drops/min	37 drops/min	150 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: 400 mg in 250 ml Normal Saline = 1600 micrograms/ml

	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

Drip rates/min, using a 60 drops/ml administration set

Procedure: Medication Facilitated Intubation

INDICATIONS

- For use only within a REMAC approved agency, by agency Medical Director Credentialed Paramedics, 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 and requires the use of sedative or neuromuscular blockade agents

CONTRAINDICATIONS / PRECAUTIONS

- The use of neuromuscular blockage agents is contraindicated in patients that 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 with high flow oxygen 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:
  - Lidocaine 1.5 mg/kg, maximum dose 100 mg, if increased intracranial pressure is suspected
  - Vecuronium 0.01 mg/kg for defasciculation
- Have a second rescuer apply and maintain cricoid pressure
- Administer Etomidate (Amidate) 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 rapid IV push
- Intubate the patient
- 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:
  - Midazolam (Versed) 0.03 - 0.05 mg/kg IV every 15 minutes if hemodynamically stable, or:
  - Etomidate (Amidate) 0.15 mg/kg repeated every 5-10 minutes
- Administer Vecuronium 0.1 mg/kg if necessary for patient or crew safety
- Continuously monitor ETT placement including effectiveness of oxygenation and ventilation

PHYSICIAN OPTIONS

- Pediatric MFI

Transfer of Care

Key Points

- Each provider is responsible for the patient while in his/her 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 REMO 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 REMO 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 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 he/she was in their care. The same REMO run number should be used on both PCRs.
- 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 Medical Control.

Vascular Access

EMT

- No options

EMT STOP

INTERMEDIATE

- Adult IV

INTERMEDIATE STOP

CCT

- Pediatric IO in cardiac arrest

CCT STOP

PARAMEDIC

- Pediatric IV
- Adult IO

PARAMEDIC STOP

PHYSICIAN OPTIONS

- Access Pre-Existing Vascular Devices

Key Points

- IV sites include peripheral veins, including upper and lower extremities (below the knees) and external jugular veins in adults. Pediatric sites include upper and lower extremities (below the knees) and the scalp. External jugular veins may be used if peripheral sites lack perfusion
- Intraosseous access is to be used only in cases of critical patients where it may be life saving.
- 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 use burette or 100 ml NS for patients 10 kg or less. If patient is 11 – 25 kg use 100 or 250 ml NS.
- Blood tubes should be drawn on every patient who has an IV placed, unless the patient’s condition is critical. Blood tubes drawn should include 2 red tops, 1 green top, 1 blue top and 1 purple top, in that order. If other tubes are requested by a particular hospital, an agency may enter into an agreement with that hospital to draw those tubes, when possible. The hospital must agree to restock the additional tube types they request.
- If vascular access is attempted but unsuccessful, the provider must accompany the patient to the hospital.
- The number of vascular access attempts, the provider making the attempt, the site of the attempt, the catheter size, the solution and the infusion rate and total fluid administered must be noted on the PCR.
- Good clinical judgment will dictate the maximum number of vascular access attempts.
- Pre-existing Vascular Access Devices, including central lines, PICC lines and dialysis catheters can be accessed with Medical Control, for unstable patients. See Vascular Devices.

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 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.
  - Cleanse injection site with iodine solution. 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 may not be for vascular access and must not be used
- Once the device is accessed, continuous flow of Normal Saline must be maintained