

**REGIONAL EMERGENCY MEDICAL ADVISORY COMMITTEE  
NEW YORK CITY**



*Est. 1974*

# **UNIFIED PREHOSPITAL TREATMENT PROTOCOLS**

Effective April 8, 2025

2024-02

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GENERAL OPERATING  
PROCEDURES**

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## Purpose

- The Regional Emergency Medical Advisory Committee (REMAC) of New York City Unified Protocols include the statewide Basic Life Support Adult and Pediatric Treatment Protocols as the current minimum standards for basic life support (BLS) delivered by Certified First Responders (CFR), and Emergency Medical Technicians (EMT) in New York State. Paramedic (advanced life support [ALS]) protocols have been included in the unified format to ensure a continuous transition of care from CFR through ALS
- These protocols reflect both the curriculum and certification requirements of the New York State Department of Health (NYSDOH) Bureau of Emergency Medical Services and the New York City REMAC; and, have been endorsed by the Regional Emergency Medical Services Council of New York City (REMSCO)

## Scope

- These protocols apply to all prehospital providers (i.e. CFRs, EMTs and Paramedics) who are certified by NYSDOH and New York City REMAC who operate within the New York City region. These protocols also include those providers in supervisory and/or administrative roles
- These protocols are intended to guide and direct patient care by EMS. They reflect the current evidence-based practice and consensus of content experts. These protocols are not intended to be absolute treatment mandates. Rather, they constitute principles and guidelines which are sufficiently flexible to accommodate the complexity of patient management. No protocol can be written to cover every situation that a provider may encounter, nor are protocols a substitute for good judgment and experience. Providers are expected to utilize their best clinical judgment and deliver care and procedures according to what is reasonable and prudent for specific situations

## Responsibilities

- CFRs, EMTs and Paramedics shall provide appropriate care in accordance with these Prehospital Treatment Protocols as indicated by the patient's complaint and/or condition without exceeding their respective scope of practice

## Definitions

- **Alternative Destination:** A regionally-approved 911 system receiving facility that may have limited and/or specialized capabilities but is NOT a 911 system ambulance destination emergency department
- **Continuous Quantitative Waveform Capnography:** Continuous quantitative measurement of the partial pressure of carbon dioxide during respiration. This monitoring is required for all patients who have received advanced airway management (i.e. endotracheal intubation or use of a supraglottic airway) EXCEPT for the use of a supraglottic airway device in cases of insufficient resources (GOP: Airway Monitoring)

- **Discretionary Orders:** Medications, treatments, or procedures that are within the scope of practice of a provider's certification level that differ from its use in a specific protocol. This includes medications that are within the REMAC formulary at doses other than what is delineated in the protocols or used for purposes other than that described in the protocols
- **Hyperactive Delirium:** Behavioral syndrome that includes psychomotor agitation (aggression, reduced sensitivity to pain, violent struggling), physiologic excitation (tachycardia, tachypnea, diaphoresis), and delirium
- **High Index of Suspicion:** The concern that a patient may have an acute medical, traumatic, psychiatric, behavioral, or other condition that could result in a life-threatening or life-altering outcome. Indications for a high index of suspicion may include, but are not limited to:
  - Mechanism of injury (i.e. the manner in which traumatic injuries likely occurred)
  - Injury/illness severity
  - Abnormal vital signs
  - Concerns regarding the patient's health based on a change in the patient's condition from a patient's acquaintances or family members who have frequent contact with the patient
  - Concerns from a caller to 911 who reports expressed or actual suicidal or homicidal behavior by the patient (regardless of whether the caller is with the patient)
  - Requests for assistance originating from a health care provider (regardless of whether the health care provider is with the patient) who indicates that there has been a significant change in the patient's medical condition
- **Low Index of Suspicion:** Any condition that does not meet the criteria for a high index of suspicion
- **Medication Administration:** Administration of ANY medication to a patient by prehospital providers, other healthcare providers, bystanders, or the patient themselves during or just preceding the event for which the request for emergency medical aid was made
  - Oxygen is only considered a medication if it is used for the treatment of a patient condition that would be considered a high index of suspicion (e.g. congestive heart failure, major trauma)
  - Bandages, gauze, ice packs, splints, immobilizers, cardiac monitors and oxygen are NOT considered as medication/treatment ONLY when used for a case of low index of suspicion
- **Medical Control Options:** Treatments and procedures that may only be administered or performed after contacting OLMC. Aside from a few exceptions which are explicitly listed, these treatments and procedures are only within the Paramedic scope of practice
- **Online Medical Control (OLMC):** Real-time communication between a REMAC OLMC certified physician and prehospital providers via radio, telephone, telemetry, video, or face-to-face. The purpose is to provide medical control options, assist in the refusal for medical aid (RMA) process or assist in determining appropriate transportation decisions
  - For instances when prehospital providers are unable to contact OLMC, the providers may only administer standing order medications and treatments

- OLMC approval is NOT required for the decision to begin Telehealth for treat-in-place with patient release or for transport to an alternative destination if patients meet criteria (Appendix P: Alternate Destination/Treat-in-Place Patient Selection Criteria); but, OLMC may be contacted if guidance is needed
- OLMC shall be contacted for approval for the following:
  - Telehealth contact for patients who prehospital providers feel are appropriate for treat-in-place with patient release or transport to an alternative destination despite the patient not fulfilling criteria according to GOP: Alternative Treatment/Alternative Transport Destination Decisions
  - High index RMA
- **Procedural Sedation:** Procedure for the administration of medications for patients who are conscious and require either short-term analgesic and/or anxiolysis for procedures such as synchronized cardioversion, transcutaneous pacing, or sedation for advanced airway management
- **REMAC Telemedicine Certified Physicians:** Physicians that are affiliated with a hospital or health care system who may direct their affiliated prehospital providers operating on non-NYC 911 EMS ambulance units in the treatment of their known and established patients
- **REMAC OLMC Certified Physicians:** Physicians who have knowledge of the REMAC GOP and REMAC Prehospital Treatment Protocols and are credentialed by REMAC to provide online medical control to prehospital providers in the New York City region
- **Spinal Motion Restriction:** Procedures used to minimize potential or further injury in patients with suspected spinal injury
- **Standing Orders:** Medications and treatments that may be performed without contacting OLMC; however, OLMC may be contacted at any time for additional guidance
- **Telehealth:** Real-time two-way interactive communication between a patient and a distant site high-level medical provider (e.g. physician, nurse practitioner, physician assistant). This interaction, which requires audio-visual communication, allows for a broad array of healthcare services that include treat-in-place with patient release and transport decisions to an alternative destination

### On Scene Medical Control-Operations

- In accordance with Article 30 of the New York State Public Health Law, REMSCO is responsible for the coordination of emergency medical services within the region; and, REMAC is responsible for the medical oversight of the emergency medical service system within the region
- In accordance with the REMAC General Operating Procedures (GOP) on the Coordination of Prehospital Resources, the prehospital provider with the highest level of certification from the EMS agency which arrives first at the scene of a medical emergency is responsible for the coordination of patient care resources. In addition, when a NYC 911 participating EMS agency is not the first EMS agency on the scene, and is not acting in the role of the primary care provider, it shall act as an operational resource for information regarding hospital diversions, specialty referral center bed

availability, and other specialized resources, in addition to mitigating potential incident scene safety risks (e.g. environmental conditions, crowd/traffic control)

- The Fire Department City of New York (FDNY) is responsible for the coordination of patient care resources and medical control at the scene of multiple casualty incidents (MCIs), unscheduled medevac transports, hazardous material (HAZMAT) situations which require decontamination, fires/crimes in progress, or other unusual public health/safety emergencies. Incident command procedures are in effect at the point that FDNY assumes operational control

### **On Scene Medical Control-Physicians**

- Physicians providing on scene medical control are differentiated in their scope of direction to prehospital providers based on their REMAC certification level as described in the following sections
- Physicians providing direct medical control at the scene must have their names and New York State license number or REMAC physician number documented on the electronic patient care report (ePCR)
- Under no circumstances may CFRs, EMTs or Paramedics provide emergency care that exceeds their level of certification and scope of practice
- Prehospital providers shall contact OLMC and proceed as directed by OLMC for any conflicts that may occur with the on scene physician. For instances where the prehospital provider is unable to contact OLMC, the prehospital provider shall provide treatment under standing orders only
- Other non-physician health care providers (e.g. nurse practitioner, physician assistant) may NOT provide on scene medical control and prehospital providers are to maintain patient care responsibilities

### **REMAC OLMC CERTIFIED PHYSICIANS**

- REMAC OLMC certified physicians are able to provide on scene medical control for prehospital providers to their respective level of training and scope of practice
- For procedures performed by the REMAC OLMC certified physician:
  - If the procedures are within the scope of practice of the transporting prehospital providers, the physician does not need to accompany the patient
  - If the procedures are not within the scope of practice of the transporting prehospital providers, the physician needs to accompany the patient

### **NON-REMAC OLMC CERTIFIED PHYSICIANS**

- Basic Life Support Orders
  - Non-REMAC OLMC certified physicians who appropriately identify themselves on scene and who request to intervene in BLS care, may do so provided they do not conflict with BLS standing orders, policies and procedures

- Advanced Life Support Orders
  - Non-REMAC OLMC certified physicians who appropriately identify themselves on scene and who request to intervene in ALS care, MUST have prior approval from OLMC. After OLMC approval, the on scene physician may provide direction in ALS care so long as that care does not conflict with REMAC prehospital treatment protocol standing orders, policies and procedures
  - Non-REMAC OLMC physicians may NOT approve medical control options or discretionary orders
- For any procedures performed by the non-REMAC OLMC certified physician, the physician is required to accompany the patient

### **REMAC TELEMEDICINE CERTIFIED PHYSICIANS**

- REMAC Telemedicine certified physicians may ONLY provide on scene medical direction to their affiliated non-NYC 911 prehospital providers in the care of their known and established patients
- For the care of any other patients, on scene REMAC Telemedicine certified physicians shall be considered as a non-REMAC OLMC certified physician

### **PHYSICIANS REQUESTING ASSISTANCE OR EQUIPMENT**

- Prehospital providers may ONLY assist a physician at a healthcare facility if the procedure is within their scope of practice and the procedure is within their respective standing orders. OLMC shall be contacted if there are any questions or issues
- Prehospital providers shall advise the physician that any intervention that requires monitoring or maintenance that is outside the providers' scope of practice will require the physician to accompany the patient during transport
- Equipment or medication should not be given to the physician or the facility to carry out patient care if it is not authorized by your EMS agency Medical Director or OLMC. OLMC should be contacted for any further clarification as needed

## Scene Safety

- It is the responsibility of the CFRs, EMTs, and Paramedics to assess the scene for safety. Safety factors include, but are not limited to, environmental conditions; crowd and/or traffic control; potentially dangerous patient(s) or family member(s) to themselves or others; HAZMAT situations; fires or criminal acts in progress; or other unusual public health or safety emergencies. Such conditions may be a threat to the health and/or safety of all providers, patients, and other persons at the scene. CFRs, EMTs, and Paramedics must use caution in situations that they are not trained or equipped to handle
- In accordance with the REMAC GOP: Coordination of Prehospital Resources Procedure, prehospital providers may use a NYC 911 system participating agency as an operational resource for incident scene safety. In addition, FDNY must be notified for situations involving multiple casualty incidents (MCIs), unscheduled medevac transports, HAZMAT situations which require decontamination, fires or crimes in progress, or unusual public health or safety emergencies

## Universal Approach to Patient Care

1. Perform initial scene survey including assessment of scene safety. Refrain from making direct contact with patients exposed to hazardous materials until they have been decontaminated
2. Perform basic cardiac life support as needed
3. Perform initial assessment (i.e. primary survey)
4. Administer oxygen, if appropriate
5. Monitor breathing for adequacy
6. Determine if ALS assistance is required
7. Obtain at least two sets of vital signs and monitor as necessary. Obtaining vital signs should not interfere with treatment or delay transport of the critically ill or injured patient
8. Obtain a focused medical history
9. Complete a physical examination as the patient's condition indicates
10. Treat the patient according to the appropriate REMAC Prehospital Treatment Protocol
11. Provide emotional support
12. Maintain body temperature

13. While continuing to monitor and treat the patient, the patient shall be transported as soon as possible to the nearest appropriate facility
- Patients may be moved to the ambulance by stair chair, scoop stretcher, long board, ambulance stretcher, or other appropriate means
  - The method of transportation should not aggravate the patient's condition or injuries
14. Document all findings and information as they pertain to patient condition or care in the ePCR

**Requesting Additional Assistance**

- Prehospital providers shall request additional appropriate resources as soon as possible

**Initiating Transport**

- When EMTs and Paramedics are on scene of an assignment and request additional assistance or resources, patient transport procedures shall begin in accordance with their level of training. For non-transporting EMS agencies, ambulance transport shall begin once an appropriate transport vehicle is available
- When EMTs are on the scene of an assignment and request ALS assistance, transport procedures should begin. If the time of arrival of Paramedics exceeds the transport time to the destination facility, transport from the scene should not be delayed unless otherwise specified in a particular protocol

## Transportation Decisions and Procedures

- Wherever the term “transport” appears throughout these protocols, it refers to BLS and ALS transportation procedures and decisions as follows:

### TRANSPORT DECISIONS

- Patients with an unmanageable airway **MUST** be taken to the nearest NYC 911 ambulance destination emergency department
- OLMC may direct transport to a facility that differs from the closest specialty center

### TRANSPORT PROCEDURES

- Patient extrication as needed and preparation of the patient for transport
- Safe conveyance of the patient from the scene to the ambulance in a clinically appropriate position on appropriate equipment
- Transportation of the patient in a properly equipped ambulance in accordance with current NYC REMAC staffing policies
- Initiation of transport in consultation with OLMC as needed when using medical control options or discretionary orders
- Appropriate transfer of care to another unit for transport (GOP: Coordination of Prehospital Resources Procedure)

### TRANSPORTATION TO SPECIALTY CARE FACILITIES

- After appropriate treatment has been initiated in accordance with these protocols, EMTs and Paramedics shall transport the patient as soon as possible to the nearest appropriate facility. If the patient meets criteria for the specialty facilities defined in Appendix I: Hospital Specialty Capabilities or as detailed in specific protocols, transport the patient according to the following guidelines:
  - **Major Trauma**
    - If the history or physical exam findings indicate major trauma, transport the patient to the nearest NYC 911 System Trauma Center as determined by Appendix E: Trauma Center Transport Criteria, unless the patient has an unmanageable airway

- **Major Burns**

- If the history or physical exam findings indicate major burns, transport the patient to the nearest NYC 911 System Burn Center as determined by Appendix F: Burn Center Transport Criteria, unless the patient has ANY of the following conditions:
  - Cardiac arrest OR unmanageable airway
  - Trauma Center transport criteria (i.e. patients with major burns and major trauma must be taken to the closest NYC 911 Trauma Center)
  - Activation of the NYC Burn Disaster Plan by FDNY, NYSDOH, New York City Emergency Management (NYCEM), or New York City Department of Health and Mental Hygiene (NYCDOHMH)

- **Acute Stroke**

- If the history or physical exam findings indicate an acute stroke, with symptoms < 24 hours, transport the patient to the closest appropriate Stroke Center as determined by Appendix G: Stroke Patient Assessment Triage and Transport, unless the patient has ANY of the following conditions:
  - Cardiac arrest OR unmanageable airway
  - Trauma Center transport criteria (i.e. patients with suspected acute stroke and major trauma must be taken to the closest NYC 911 Trauma Center)

- **ST Elevation Myocardial Infarction (STEMI)**

- If the history or physical exam findings indicate an acute myocardial infarction and the 12-lead EKG reveals at least one (1) mm ST-segment elevation in two (2) or more contiguous leads; transport the patient to the closest STEMI Center after consultation with OLMC unless the patient has ANY of the following conditions:
  - Unmanageable airway
  - Trauma Center transport criteria (i.e. patients with STEMI and major trauma must be taken to the closest NYC 911 Trauma Center)
- If the patient deteriorates into cardiac arrest during transport, the unit shall continue transport to the STEMI Center as previously directed by OLMC

- **Other Specialty Care**

- If the mechanism of illness/injury, history or physical exam findings indicates a need for another type of specialty care not previously listed, transport the patient to the nearest NYC 911 ambulance receiving facility with the required specialty care capability (Appendix I: Hospital Specialty Capabilities). These capabilities may include:
  - Hyperbaric
  - Replantation
  - Left ventricular assist device (LVAD)
  - Venomous bites
  - Sexual assault
  - Child abuse and neglect
  - Critical pediatric care

### Spinal Motion Restriction

- Patients shall be assessed for spinal cord injuries and require spinal motion restriction as indicated. Whenever the term spinal motion restriction is used in these protocols, it refers to the following:
  - Application of an appropriately-sized rigid cervical collar
  - Maintenance of patient in a supine position; if the patient is unable to tolerate a supine position, the head of the stretcher may be raised to position of comfort (maximum 45°)
  - Appropriate security of the patient's trunk and limbs to a padded stretcher
  - Minimal movement and transfers
  - Maintenance of inline stabilization during any movement
  - Extrication and conveyance of patients may be performed with a rigid longboard. If resources are sufficient, the longboard should be removed via logroll maneuver with manual inline stabilization after the patient is moved to the EMS stretcher. Patients in extremis may remain on the rigid longboard to expedite rapid transport

## Cardiopulmonary Resuscitation (CPR)

- Basic cardiac life support in adult and pediatric patients that is not specifically described in these protocols shall follow the current American Heart Association (AHA) guidelines
- CPR shall be initiated on all patients who are not breathing (apneic) and pulseless unless the patient has any of the following conditions:
  - Extreme dependent lividity
  - Rigor mortis
  - Tissue decomposition
  - Obvious mortal injury
  - Submersion > 1 hour
  - Valid do not resuscitate (DNR) order or medical orders for life-sustaining treatment (MOLST) form or eMOLST (Appendix C: Do Not Resuscitate (DNR) / Medical Orders for Life Sustaining Treatment (MOLST)
    - Terminal illness is not a contraindication to CPR
- Cardiac arrests secondary to drowning, hanging, or electrocution shall be treated as non-traumatic cardiac arrests
- **Pediatric:**
  - CPR is required for pediatric patients with severe bradycardia (heart rate < 60 beats/min AND signs of shock or altered mental status)
  - If available, pediatric AED/monitor pads and cables shall be used for all pediatric patients age < 9 years
  - If pediatric AED/monitor pads and cables are not available, the adult AED/monitor pads and cables shall be used
- CPR shall be continued until any of the following conditions are present
  - Return of spontaneous circulation (ROSC)
  - Resuscitative efforts have been transferred to providers of equal or higher level of training
  - Qualified, licensed physician assumes responsibility for the outcome of the patient
  - Presentation of a valid DNR order, MOLST, or eMOLST form after the initiation of CPR

## Oxygen Administration

- All patients who are in respiratory arrest must have ventilatory assistance unless a valid NYS prehospital DNR order, MOLST or eMOLST is presented
- Wherever the term “appropriate oxygen therapy” is used throughout these protocols, oxygen therapy shall be administered via a non-rebreather mask (NRB) at 10-15 liters/min, or a nasal cannula (NC) at 2-6 liters/min and is required for any of the following conditions:
  - SpO<sub>2</sub> < 92%
  - SpO<sub>2</sub> is unavailable
  - Other signs/symptoms of respiratory distress
- Wherever the term “administer oxygen” is used throughout these protocols, administer high concentration oxygen via a non-rebreather mask at 10-15 liters/min. The reservoir bag must remain at least one-third full following inspiration
  - If a mask is not tolerated by the patient, a nasal cannula at 6 liters/min should be used and properly documented
  - Patients who are chronically maintained on oxygen and who do not require high concentration oxygen shall be administered oxygen at their prescribed flowrate
  - Assisted ventilations may be required using a bag valve mask and reservoir with oxygen flowrate at 10-15 liters/min for patients with signs of hypoxia, inability to adequately protect their airway, or signs of inadequate respiration
- **Pediatric Patients:**
  - High concentration oxygen should always be used
  - Blow-by oxygen is an inadequate method of oxygenation. Use the closest age or size-appropriate oxygen delivery mechanism (e.g. nasal cannula, facemask, bag valve mask)
  - Do not allow the mask to press against the eyes
  - Chest rise is the best indication of adequate ventilation in pediatric patients
  - Do not overinflate the lungs when assisting ventilations

## Airway Management and Airway Monitoring

### AIRWAY MANAGEMENT

- All patients require continuous monitoring of their airway to ensure patency
- Utilize a PEEP valve, if available, when performing assisted ventilations
- Wherever the term "airway management" is used throughout these protocols, the following shall be considered:
  - Position of the patient's head
  - Need for airway adjuncts
  - Need for oropharyngeal suctioning
  - Need for ALS advanced airway management
- **Pediatric Patients:**
  - Do not hyperextend the neck

### AIRWAY MONITORING

- Use of pulse oximetry (SpO<sub>2</sub>) is mandatory for ALS and BLS units
- Continuous waveform capnography (ETCO<sub>2</sub>) is mandatory for ALS and must be used whenever advanced airway management (endotracheal intubation or use of a supraglottic device) is performed EXCEPT when a supraglottic device is used and there are insufficient resources available to provide continuous waveform capnography to all patients requiring advanced airway management (e.g. MCI event or other similar situations)
- Non-invasive capnography is optional for monitoring a patient's respiratory status due to medication administration (i.e. opioids, benzodiazepines) and/or medical condition (i.e. severe asthma, altered mental status)

### ADVANCED AIRWAY MANAGEMENT

- Advanced airway management refers to endotracheal intubation or the use of a supraglottic airway device (i.e. dual-lumen esophageal/tracheal tubes, laryngotracheal tubes, or other non-visualized airways as approved by an EMS agency Medical Director)
- For patients in cardiac arrest, there is no preference for the type of advanced airway intervention performed; however, do not interrupt chest compressions for placement of an advanced airway. If after two unsuccessful attempts at endotracheal intubation, a supraglottic airway device shall be used

- Nasal intubation is not an approved form of advanced airway management within the New York City region
- **Pediatric Patients**
  - Effective bag valve mask ventilation is a reasonable alternative to advanced airway interventions (endotracheal intubation or use of a supraglottic airway) in the management of pediatric cardiac arrests in the out-of-hospital setting
  - When noted in the protocols, or when other maneuvers used to ventilate the pediatric patient are inadequate, endotracheal intubation should be attempted with a cuffed endotracheal tube

## **OROGASTRIC TUBE**

- After performing advanced airway management and after the device is secured, consider placement of an orogastric tube

## **Blood Drawing**

- Blood drawing by Paramedics is permitted at the discretion of an EMS agency Medical Director

## **Medication Administration**

### **MEDICATION ADMINISTRATION**

- With few exceptions, the medications in the REMAC protocols are written as weight-based dosages with maximums that refer to the maximum weight-based dose for the patient. When calculating the appropriate dose, a patient's actual body weight should be used. It is understood that weight-based dosing may lead to calculated patient doses that are difficult to accurately measure and administer. Additionally, the prehospital setting oftentimes necessitates the use of estimated patient weights that may also be less accurate. Therefore, medication dosages may be rounded to the closest, practical-to-administer dose. The actual administered dose must be documented in the ePCR.

### **ENDOTRACHEAL MEDICATION ADMINISTRATION**

- Medication administration via the endotracheal tube is not the standard of care in the NYC region

### **INTRANASAL (IN) MEDICATION ADMINISTRATION**

- In the absence of intravascular access, the following medications are approved for intranasal administration when an appropriate atomizer device is available. Use the dosing as specified in the protocols for the following medications:
  - Glucagon
  - Fentanyl
  - Lorazepam
  - Midazolam
  - Naloxone
  - Ketamine
  - Diazepam
- The intranasal route of administration is contraindicated in patients with epistaxis

### **INTRAVASCULAR ACCESS AND MEDICATION ADMINISTRATION**

- The term “intravascular access” refers to either intravenous (IV) or intraosseous (IO) access. For adult and pediatric patients in shock in which IV access is not obtained after two attempts, IO access shall be attempted (maximum 2 attempts)
- Where ever the term “IV” is used in these Prehospital Treatment Protocols, medications may be administered with the same dosages via IV or IO as these are considered equivalent routes
- For a conscious patient, administer preservative-free 2% Lidocaine 0.5 mg/kg IO (maximum 50 mg) slowly over 2-3 minutes, PRIOR to the administration of any medication or fluid IO. If needed, administer additional preservative-free 2% Lidocaine 0.25 mg/kg IO (maximum 25 mg) slowly over 30 seconds

### **VASOPRESSOR MEDICATION ADMINISTRATION**

- All continuous vasopressor infusions MUST be administered using an IV flow regulating device or IV infusion pump
- These infusions should be preferably administered via an 18 gauge or larger IV catheter
- Standard IV administration sets are not considered to be IV flow regulating devices

## Pediatric Size Estimation

- A length-based dosing device may ONLY be used to estimate the weight, height or size of equipment used when treating pediatric patients
- Medication dosing shall follow the dosing specified in the REMAC Prehospital Treatment Protocols and NOT those listed on the length-based dosing device

## Shock

- **Adult:** Patients are considered to be in shock if they are hypotensive (mean arterial blood pressure (MAP) < 65 mmHg or systolic blood pressure (SBP) < 90 mmHg) AND symptomatic with signs of hypoperfusion, including the following:
  - Altered mental status
  - Tachycardia with heart rate > 110 beats/min
  - Tachypnea with respiratory rate > 20 breaths/min or ETCO<sub>2</sub> < 30 mmHg
  - Pallor
  - Diaphoresis
  - Delayed capillary refill
  - Orthostatic vital sign changes
- **Pediatric:** Patients are considered to be in shock if they have any of the above signs of hypoperfusion and is not dependent on blood pressure
  - Vital signs for pediatric patients are age-dependent. Abnormal heart rates, blood pressure, and respiratory rates may not necessarily follow the adult guidelines specified above (Appendix J: Normal Pediatric Vital Signs)
  - In general, pediatric patients are considered to be hypotensive if they have a SBP (mmHg) < 70 + (2 x [age in years])

## Stable Dysrhythmia

- **Adult:** Patients with a dysrhythmia NOT associated with signs of hypoperfusion
- **Pediatric:** Patients with a dysrhythmia NOT associated with depressed mental status and/or absent peripheral pulses and/or hypotension

### Unstable Dysrhythmia

- **Adult:** Patients with a dysrhythmia associated with ANY of the following:
  - Hypotension (SBP < 90 mmHg or MAP < 65 mmHg)
  - Altered mental status
- **Pediatric:** Patients with a dysrhythmia associated with ANY of the following:
  - Depressed mental status and absent peripheral pulses
  - Hypotension (SBP < 70 mmHg + [2 x age in years])

### Maintenance of IVs by EMTs

- In accordance with NYSDOH EMS Policy # 04-02, EMTs may transport a patient with secured intravascular access in place as long as fluids or medications are not attached. The EMT must ensure that the venous access site is secured and dressed prior to leaving the health care facility

### Use of Pre-Existing Central Venous Lines

- For unstable patients, including those in cardiac arrest, who require IV access and in whom peripheral IV access cannot be rapidly obtained, Paramedics may consider using already established peripherally inserted central venous catheters in the upper extremities (PICC) under standing orders
- All other types of central lines, including those with ports extending from the neck or chest, shall not be used under standing orders and requires OLMC approval prior to use
- Any catheter port requiring insertion of a needle through skin (i.e. Hickman Ports or Port-a-Caths) shall not be used. The use of these ports require techniques beyond the Paramedic's scope of practice; and as such, Paramedics should not use the patient's needles or equipment to access such devices. Dialysis catheters or shunts shall not be accessed in the out-of-hospital environment
- It is beyond the Paramedic's scope of practice to troubleshoot, maintain, remove, reinsert, or otherwise manipulate central lines. Patients with central line issues should be transported to the emergency department for further management. Under no circumstances shall Paramedics attempt to clear an obstructed or clogged line. Any line that cannot be easily flushed with 10 ml of crystalloid fluid, should be considered not functional

## Age Definitions for Pediatric Patients

- Any patient age  $\geq 15$  years is considered an adult patient, and the appropriate protocols shall be used
- To further define pediatric patients, the following age guidelines shall be used:
  - Preterm – birth prior to the 37<sup>th</sup> week of gestation
  - Newborn – Immediately following birth to the first few hours after birth
  - Neonate - After the first few hours following birth up to 28 days
  - Infant – age between 1 month - 1 year
  - Child – age between 1 - 9 years
  - Adolescent Child - age between 9 - 14 years
- Avoid agitating pediatric patients when conducting an assessment or providing treatment since this may provoke or increase respiratory distress
- Obtaining a blood pressure is not necessary when it agitates the patient or delays transport
- Every attempt should be made to keep pediatric patients warm during transport

## Minors

- For terms of consent, patients age  $< 18$  years are considered minors; while patients age  $\geq 18$  years are considered adults
- Any minor with a life-threatening condition shall be treated and transported without delay. A minor may request or refuse treatment without parental consent under the Laws of Emancipation if the minor has any of the following conditions:
  - Married
  - Pregnant (for purposes of consenting to medical, dental, health and hospital services related to prenatal care)
  - Parent
  - Request treatment for HIV or a sexually transmitted disease
  - Military enlistment
  - Self-supporting and has left their parents' home

### Suspected Child / Spouse / Elder Abuse

- For suspected child, spouse, or elder abuse, the prehospital provider shall visually assess the scene for evidence of possible abuse and record information in the ePCR. In addition to the ePCR, a verbal report summarizing the suspected abuse shall be given to hospital staff upon arrival at the emergency department
- EMTs and Paramedics are mandatory child abuse reporters under New York State Social Services Law. Failure to report suspected cases of child abuse to the New York State Child Abuse and Maltreatment Register (i.e. State Central Register) may subject the EMT or Paramedic to liability for criminal and civil prosecution and penalties. Notification of suspected child abuse is to be performed in accordance with agency policy. The State Central Register may be contacted by telephone at 1-800-635-1522
- Do not delay transport to obtain the information needed to complete the required reports. Do not use accusatory, confrontational, or threatening statements or attempt to conduct an investigation at the scene

### Abandoned Infant Protection Act

- New York State Social Services Law states that infants age  $\leq 30$  days may be abandoned by their parents or caretakers in a safe location, such as a hospital, ambulance, police station, or fire house, or with an appropriate person. Some parents or caretakers may request to remain anonymous; but, if their contact information is freely given, record these in the ePCR
- If an infant is abandoned to the care of a prehospital provider, administer appropriate treatment as needed and transport the infant to the nearest appropriate hospital. The parents or caretakers should be informed of the hospital destination, and told they may contact the hospital for further information should they wish to do so
- The Abandoned Infant Protection Act does not relieve the EMT or Paramedic of the responsibility to report abandonment to the State Central Register (800-635-1522)
- The Abandoned Infant Protection Act provides the parent or caretaker with an acceptable defense against prosecution for infant abandonment

**Coordination of Prehospital Resources Procedure**

**INTRODUCTION**

1. This procedure sets forth the NYC regional guidelines for the coordination of prehospital resources at the scene when multiple EMS agencies are present. An EMS agency is any NYS DOH or NYC REMAC approved ambulance or first response service, including municipal, hospital, volunteer or commercial entities that are authorized to provide patient care and/or transport in NYC
2. This procedure addresses who has the authority to determine:
  - Who provides patient care
  - Who accompanies the patient
  - Which ambulance(s) provide transport
  - Appropriate destination(s)
  - Need for additional resources

**PARTICIPATION GUIDELINES**

3. All providers must properly and reasonably identify themselves and their respective certification levels. Providers must provide their name, agency, and provider number (shield or NYS DOH certification number). If available, written identification (i.e. patch, agency ID) is preferable to avoid confusion
4. All providers present at an incident must function as part of a response by the EMS agency with which they are affiliated and remain within their scope of training and practice
5. The EMS agency must be authorized to provide prehospital care within the New York City region and operate under REMAC approved protocols specific to the provider’s level of care

**RESPONSIBILITY FOR PATIENT CARE**

6. The prehospital provider with the highest level of certification who first establishes patient contact at the scene assumes responsibility for providing initial patient care. The provider retains responsibility for patient care until relinquished to a prehospital provider as determined by patient condition/medical necessity, mutual consent, operational necessity, or patient request

## TRANSFER OF CARE BETWEEN ALS AND BLS PROVIDERS

7. The following is intended to guide prehospital providers to determine the appropriate level of care that a patient requires for transport to the hospital. This will facilitate safe transport of patients, as well as optimize the availability of resources
8. When ALS and BLS providers are both providing care for the same patient, the Paramedics may transfer care to the BLS unit for purposes of transporting the patient to the hospital if the patient has ALL of the following conditions:
  - Hemodynamically stable
  - Ability to follow simple commands (patients with suspected intoxication who are able to follow simple commands and have a BGL > 60 mg/dl may be transported by BLS)
  - NOT received any medications or treatments under ALS protocols
  - NOT expected to require any ALS interventions during transport
  - NO reports of acute coronary syndrome either ongoing or within the past 24 hours
9. When an ALS and BLS unit are both providing care for the same patient, and the patient requires the ALS unit for transport, BOTH units shall transport the patient if the patient has ANY of the following conditions:
  - Placement of an advanced airway or assisted ventilations
  - Cardiac arrest or there is concern for deterioration in the patient's condition
  - Paramedic feels the need for additional assistance during transport
10. When ALS and BLS units are both caring for the same patient, each shall complete an ePCR to document the care provided
11. When ALS and BLS units are both caring for the same patient, and only one of the units will transport, both units must discuss the patient's condition and care provided to ensure that there is agreement about the transport plan
12. Under no circumstances should patients be transferred between ambulance units that is medically unnecessary or have transport be delayed

## COORDINATION OF PREHOSPITAL RESOURCES

13. The prehospital provider with the highest level of certification who first establishes patient contact at the scene assumes responsibility for decisions related to the coordination of prehospital resources
14. Higher level prehospital providers must assume responsibility for the coordination of prehospital resources if they assume responsibility for patient care

15. Responsibility for coordination of prehospital resources may be relinquished to later arriving prehospital providers based on mutual consent
16. When a NYC 911 participating EMS agency is not the first EMS agency on the scene and is not acting in the role of primary care provider, it shall act as an operational resource for information regarding hospital diversions, specialty referral center bed availability, and other specialized resources, as well as incident scene safety (i.e., environmental conditions, crowd/traffic control, potentially dangerous patient or family member to self and/or others)
17. The Fire Department City of New York (FDNY) is responsible for the coordination of patient care resources and medical control at the scene of multiple casualty incidents (MCIs), unscheduled medevac transports, hazardous material (HAZMAT) situations which require decontamination, fires/crimes in progress, or unusual public health/safety emergencies. At the point that FDNY assumes operational responsibility for coordination of prehospital resources, incident command procedures are in effect

#### **MULTIPLE CASUALTY INCIDENTS (MCIs)**

18. The criteria for the definition of MCIs are not primarily dependent upon the number of patients; however, MCIs are generally defined as five (5) or more patients with the potential need for extraordinary resources
19. The NYC REMSCO and FDNY should include all involved EMS agencies when planning and coordinating training for MCIs

#### **PATIENT TRANSPORTATION**

20. Due to the potential need for the coordination of available specialty centers and receiving facilities, transport decisions during an MCI shall be determined by FDNY

#### **IMPLEMENTATION / EVALUATION**

21. Each EMS agency shall develop guidelines and policies to ensure the implementation of this procedure, including continuing education. Complaints shall be first addressed between involved agencies, and then to the REMAC Quality Assurance Committee. Evaluation of the effectiveness of the procedure shall be ongoing as part of each EMS agency's QA processes and integrated into system-wide QA activities pursuant to Article 30 of the New York State Public Health Law

**Alternative Treatment / Alternative Transport Destination Decisions**

- If the mechanism of illness/injury, history or physical exam findings do not indicate major trauma, burns, or a need for other types of specialty care, the patient must be offered either treat-in-place with patient release or transport to an alternate destination if that patient meets criteria in Appendix P: Alternative Destination/Treat-in-Place Patient Selection Criteria. If the patient refuses despite appropriate explanations, then the patient may be offered transport to the nearest NYC 911 System Ambulance Destination Emergency Department (Appendix I), unless the patient has any of the following conditions:
  - The patient is stable and remains stable throughout transport, and the patient requests transport to an alternative 911 system ambulance destination emergency department or regionally approved alternative destination if the patient meets criteria established for that destination type or to an equivalent destination less than or equal to an additional ten minutes
  - The patient requires specialty care as described previously that is available at an alternative 911 system ambulance destination emergency department, but is unavailable at the nearest New York City 911 system ambulance destination emergency department, or OLMC so directs

**TREAT-IN-PLACE WITH PATIENT RELEASE**

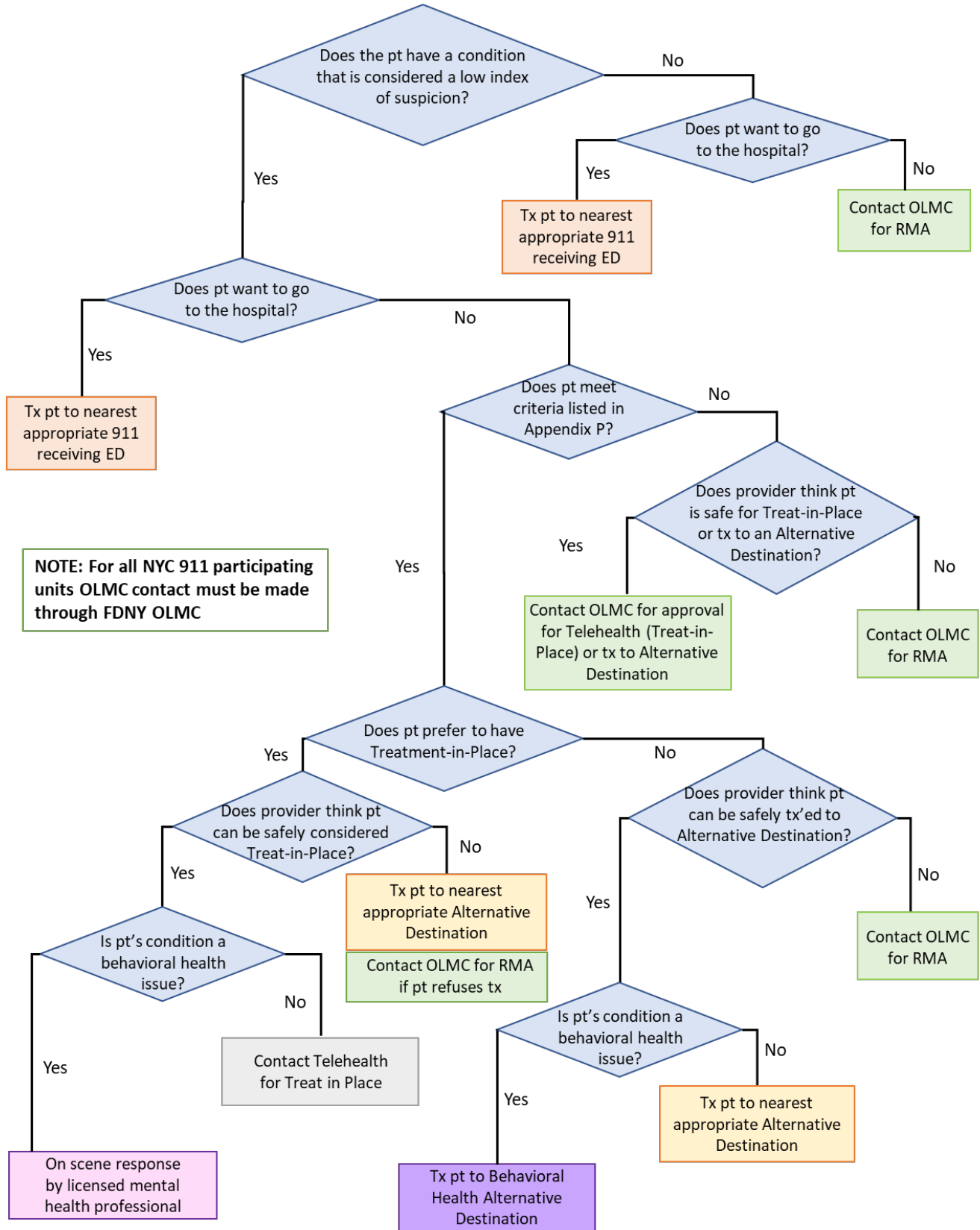
1. Medical Issue/Complaint (i.e. physical injury/illness/complaint):

- 1.1 All patients considered for treat-in-place with patient release must be offered a choice between treat-in-place, transport to the nearest appropriate alternative destination, or transport to the nearest appropriate 911 receiving emergency department. Prehospital providers must not refuse a patient’s request for transport. For patients agreeing to treat-in-place, the provider shall:
  - Contact Telehealth if the patient meets criteria as specified in Appendix P: Alternative Destination/Treat-In-Place Patient Selection Criteria AND whom the provider thinks may be safely considered for this option
  - Contact OLMC for approval of a Telehealth consultation for patients who do not fulfill the criteria as specified in Appendix P: Alternative Destination / Treat-In-Place Patient Selection Criteria
- 1.2 If Telehealth determines that the patient is not appropriate for treat-in-place then Telehealth can direct the prehospital provider to follow their standard protocol, policy and procedures for transport. If the patient refuses transport, then the RMA shall be processed through OLMC

- 1.3 The prehospital provider is responsible for monitoring patient stability during the Telehealth interaction. If at any time the provider determines that the patient is unstable, the provider is to announce this to Telehealth and immediately suspend Telehealth and follow 911 system protocol(s) to provide patient stabilization and transport to the nearest appropriate 911 system ambulance destination emergency department. OLMC contact is not required unless the provider has questions or requires medical control direction
  - 1.4 Telehealth cannot provide medical control direction and cannot direct the prehospital providers to administer medications
  - 1.5 Either Telehealth or OLMC may refer patients to the other as appropriate
2. Behavioral Health Issue/Complaint:
- 2.1 If the prehospital provider believes that the patient meets behavioral health criteria as specified in Appendix P: Alternative Destination/Treat-In-Place Patient Selection Criteria AND whom the provider thinks may be safely considered for treat-in-place; (On scene evaluation by a licensed mental health professional when available, details to be provided in a separate directive)
  - 2.2 Behavioral health issues/complaints are not appropriate for Telehealth

**ALTERNATIVE TRANSPORT DESTINATIONS**

3. For patients that fulfill the criteria listed in Appendix P: Alternative Destination/Treat-In-Place Patient Selection Criteria, AND who the provider feels are not appropriate for treat-in-place with patient release or refuse treat-in-place may be transported to the nearest appropriate alternative destination without contacting OLMC
4. For patients that do not fulfill the criteria as specified in Appendix P: Alternative Destination/Treat-In-Place Patient Selection Criteria, the provider must contact OLMC for consultation/approval to transport the following patients whom the provider thinks may still be appropriately transported to an alternative destination
5. The provider must contact OLMC for RMAs



**Mutual Aid Mobilization Procedure**

**INTRODUCTION**

1. This procedure sets forth the guidelines for the request and utilization of voluntary hospital, volunteer, and proprietary ambulance resources for mutual aid during times when these resources are needed to manage an incident within the New York City region

**PROCEDURE AUTHORITY**

2. This procedure is authorized by the New York State Public Health Law

**PARTICIPATION GUIDELINES**

3. In accordance with the NYC REMAC GOP Coordination of Prehospital Resources Procedure, prehospital providers shall not respond to any incident outside of their community or primary operating territory without a specific request from Fire Department City of New York (FDNY) and/or NYC Emergency Management (NYCEM)
4. In the event of a major incident when mutual aid is requested by FDNY and/or NYCEM, ambulance service participants shall at the minimum, staff and field ambulance units to maintain or enhance service to the provider’s primary operating territory, and then if possible provide units for MCI response by contacting FDNY Resource Communication Center (RCC) as follows:
  - Voluntary hospital services – Contact FDNY RCC to identify any need for additional 911 units. After ensuring all essential and contract services are appropriately staffed, provide additional units for mutual aid as requested
  - Volunteer Services – staff community-based ambulances and log on the units with FDNY RCC. Provide additional units for mutual aid as available
  - Proprietary Services – After ensuring all essential and contract services are appropriately staffed, log on with FDNY RCC. Provide additional units for mutual aid as available
5. Ambulance units shall respond to mobilization points identified by FDNY and are not to respond directly to any incident scene unless specifically directed by the FDNY Incident Command. Ambulance units will be dispatched from mobilization points to specific assignments as needed

## Weapons of Mass Destruction Procedure

### INTRODUCTION

1. This procedure sets forth the New York City regional guidelines regarding Hazardous Materials (HAZMAT) and/or Weapons of Mass Destruction (WMD) (Chemical, Biological, Radiological, Nuclear, and high yield explosives [CBRNE])

### PROCEDURE

2. The safety of both providers and the public is paramount
3. Patients must be decontaminated prior to being removed from the scene
4. EMS providers shall wear appropriate personal protective equipment (PPE) as determined by the FDNY Incident Commander
5. When a HAZMAT or WMD situation is suspected, prehospital providers shall:
  - Immediately notify 911 and respective agency dispatcher and provide an initial scene survey report
  - If not exposed or contaminated, immediately withdraw to a safe distance upwind
  - If exposed or contaminated, isolate the ambulance unit and providers, and await decontamination instructions
  - Operate within the Incident Command System under FDNY's operational coordination of prehospital resources and patient care
6. Only those resources specifically designated by FDNY incident command shall initially be utilized on scene or within the immediate vicinity of the incident. Ambulances not already on scene shall report to an established mobilization or staging area as directed
7. Any non-911 ambulance inadvertently responding to such an event, will upon recognizing the situation as HAZMAT or WMD, immediately withdraw to a safe distance upwind and notify 911 and their respective agency dispatcher

**REGIONAL EMERGENCY MEDICAL ADVISORY COMMITTEE  
NEW YORK CITY**



*Est. 1974*

# **PREHOSPITAL TREATMENT PROTOCOLS**

Effective April 8, 2025

2024-02

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## INTRODUCTION

- The Regional Unified Protocols of New York City include the statewide Basic Life Support Adult and Pediatric Treatment Protocols as the current minimal standards for basic life support (BLS) delivered by Certified First Responders (CFR), and Emergency Medical Technicians (EMT) in New York State. Paramedic (advanced life support [ALS]) protocols have been included in the unified format to ensure a continuous transition of care from CFR through ALS
- Each level provider shall start from the beginning of any given protocol and complete the treatments in the order listed while using good clinical judgment. The order of treatments may require modification based on the patient's clinical condition. When there are multiple providers, some treatments may be administered simultaneously
- Standing orders for each provider level follows a colored header with a **STOP** indicating the end of the respective treatments and procedures for that provider level
- Definitions of each section are described below

### CFR and All Provider Levels

1. Standing order treatments start in this section and applies to CFRs and all provider levels

#### CFR STOP

### EMT

2. EMT and Paramedic standing orders continue in this section after performing the treatments in the CFR and all provider levels section listed above

#### EMT STOP

### Paramedic

3. Paramedic standing orders continue in this section after performing the treatments in the CFR and all providers level and EMT sections listed above

#### Paramedic STOP

### Medical Control Options

4. Treatments and procedures listed in this section may only be administered or performed after contacting online medical control (OLMC). Aside from a few exceptions which are explicitly listed, these treatments and procedures are only within the Paramedic scope of practice

### Key Points / Considerations

- This section applies to all provider levels and contains additional guidance and information pertinent to the protocol

## Non-Traumatic Cardiac Arrest (Adult)

### CFR and All Provider Levels

1. Begin CPR as per AHA guidelines
2. Turn on the Automated External Defibrillator (AED)
3. Apply the AED pads to the patient's bare chest with minimal interruption of chest compressions
4. Connect AED pads and follow the AED voice prompts
5. Continue CPR, re-analyze every two (2) minutes and shock as indicated

### CFR STOP

### EMT

6. Request ALS assistance
7. Continue CPR and AED analysis with minimal interruption of chest compressions
8. Transport after a total of three (3) cycles of CPR and AED analysis

### EMT STOP

### Paramedic

9. Continue CPR and defibrillation cycles with minimal interruption of chest compressions
10. If an AED is in place, transition from the AED to an ALS monitor after AED analysis and begin cardiac monitoring. Use the maximum joule setting possible when defibrillating
11. Perform needle decompression for a suspected tension pneumothorax (Appendix M: Needle Decompression of Tension Pneumothorax) as needed
12. Obtain intravascular access
13. Administer Epinephrine 1 mg IV (10 ml of a 1:10,000 concentration). Repeat every 3-5 minutes until patient achieves return of spontaneous circulation (ROSC)
14. Perform advanced airway management after second rhythm analysis
15. Obtain blood glucose level and treat as needed
16. If the rhythm is ventricular fibrillation/pulseless ventricular tachycardia, administer one of the following:
  - OPTION A: Amiodarone 300 mg IV
  - OPTION B: Lidocaine 100 mg IV
17. If on scene and after 20 minutes of ALS treatment, consider contacting OLMC for medical control options if indicated, or for termination of resuscitation

### Paramedic STOP

### Medical Control Options

18. For suspected tricyclic antidepressant overdose, salicylate toxicity, or hyperkalemia, administer Sodium Bicarbonate 44-88 mEq IV. Repeat Sodium Bicarbonate 44 mEq IV as needed every 10 minutes
19. For suspected hyperkalemia or calcium channel blocker overdose, administer Calcium Chloride 1 g IV slowly followed with a crystalloid fluid flush
20. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)
21. For persistent or recurring ventricular fibrillation or pulseless ventricular tachycardia, administer one of the following:
  - OPTION A: Amiodarone 150 mg IV
  - OPTION B: Lidocaine 50 mg IV
  - OPTION C: Magnesium Sulfate 2 g IV diluted in 10 ml Normal Saline over 2 minutes

### Key Points / Considerations

- Do not interrupt compressions for placement of an advanced airway
- Minimize interruption in compressions for placement of a mechanical CPR device
- Do not delay compressions to begin ventilations
- Do not delay ventilations to connect supplemental oxygen
- An AED should be placed as soon as possible without interrupting compressions
- Artifact from vibrations in a moving ambulance may compromise the effectiveness of an AED
- Maximum joule setting may vary depending on the defibrillator used
- Consider the possibility of conditions with reversible causes masquerading as PEA/asystole that require immediate treatment
- Routine use of Calcium Chloride and/or Sodium Bicarbonate in cardiac arrest has not been shown to improve outcomes
- Calcium Chloride and Sodium Bicarbonate should be given in separate IV lines or separated by a flush of at least 20 ml of crystalloid fluid to prevent precipitation
- As per AHA, the benefit of double sequential defibrillation for refractory shockable rhythms has not been established

## Non-Traumatic Cardiac Arrest (Pediatric)

### CFR and All Provider Levels

1. Begin CPR as per AHA guidelines
2. Turn on the Automated External Defibrillator (AED)
3. Apply appropriately-sized AED pads to the patient's bare chest with minimal interruption of chest compressions
4. Connect AED pads and follow the AED voice prompts
5. Continue CPR, re-analyze every two (2) minutes and shock as indicated

### CFR STOP

### EMT

6. Request ALS assistance
7. Continue CPR and AED analysis with minimal interruption of chest compressions
8. Transport after a total of three (3) cycles of CPR and AED analysis

### EMT STOP

### Paramedic

9. Continue CPR and defibrillation cycles with minimal interruption of chest compressions
10. If an AED is in place, transition from the AED to an ALS monitor after AED analysis and begin cardiac monitoring
11. Obtain intravascular access
12. Administer Epinephrine 0.01 mg/kg IV (maximum 1 mg) (0.1 ml/kg of a 1:10,000 concentration). Repeat every 3-5 minutes until patient achieves return of spontaneous circulation (ROSC)
13. Perform advanced airway management after second rhythm analysis only if unable to provide effective bag valve mask ventilations
14. If the rhythm is ventricular fibrillation/pulseless ventricular tachycardia:
  - 14.1 Defibrillate with the following energy settings using appropriately-sized AED/monitor pads:
    - Initial defibrillation: 2 joules/kg
    - Second defibrillation as needed: 4 joules/kg
    - Subsequent defibrillations as needed: 10 joules/kg
  - 14.2 Administer one of the following medications:
    - OPTION A: Amiodarone 5 mg/kg IV (maximum 300 mg)
    - OPTION B: Lidocaine 1 mg/kg IV (maximum 100 mg)
15. Obtain blood glucose level (BGL). If BGL < 60 mg/dl, administer Dextrose 0.5 g/kg IV (maximum 25 g)
16. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)

### Paramedic STOP

### Medical Control Options

17. For suspected tricyclic antidepressant overdose, salicylate toxicity, or hyperkalemia, administer Sodium Bicarbonate 1 mEq/kg IV (maximum 44 mEq). Repeat as needed every 10 minutes
18. For suspected hyperkalemia or calcium channel blocker overdose, administer Calcium Chloride 20 mg/kg IV (maximum 1 g) slowly, followed with a crystalloid fluid flush
19. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)
20. For persistent or recurring ventricular fibrillation or pulseless ventricular tachycardia, administer one of the following:
  - OPTION A: Amiodarone 5 mg/kg IV (maximum 150 mg). Repeat as needed (maximum cumulative 3 doses, maximum cumulative 450 mg)
  - OPTION B: Magnesium Sulfate 25-50 mg/kg IV (maximum 2 g)

### Key Points / Considerations

- Defibrillation should not be delayed or withheld for any reason
- If the cardiac monitor is unable to deliver the desired weight-based joule setting, use the closest setting without exceeding the desired setting
- Do not interrupt chest compressions for placement of an advanced airway
- Effective bag valve mask ventilation is a reasonable alternative to advanced airway interventions (endotracheal intubation or use of a supraglottic airway) in the management of pediatric cardiac arrests in the out-of-hospital setting
- Utilize a PEEP valve, if available, when performing assisted ventilations
- 10% Dextrose is strongly preferred for patients with age  $\leq$  1 month; 5% Dextrose may be used if 10% Dextrose is unavailable. For patients with age between 1 month – 14 years, 5% Dextrose, 10% Dextrose or 25% Dextrose may be used
- Magnesium Sulfate must be diluted prior to administration. An example method uses Magnesium Sulfate 2 g diluted in 50 ml Normal Saline (final concentration 40 mg/ml). Agitate the solution prior to withdrawing the desired volume
- If the provider is uncertain whether a patient should be treated under adult or pediatric cardiac arrest protocols, begin CPR and consult OLMC

## Severe Bradycardia (Pediatric)

### CRITERIA

- This protocol is for pediatric patients who have severe bradycardia that is defined as having ALL of the following:
  - Heart rate < 60 beats/min
  - Signs of shock OR altered mental status

### CFR and All Provider Levels

1. Ventilate for one (1) minute
2. If the heart rate < 60 beats/min, begin chest compressions and ventilations as per AHA guidelines
3. Check for a pulse every two (2) minutes and perform the following:
  - Heart rate  $\geq$  60 beats/min AND patient is NOT breathing adequately, assist ventilations at a rate of 20 breaths/min using a bag valve mask and oxygen. Check for a pulse every one (1) minute
  - Heart rate  $\geq$  60 beats/min AND patient is adequately breathing (age-appropriate respiratory rate and tidal volume), administer oxygen via non-rebreather mask

### CFR STOP

### EMT

4. Request ALS assistance
5. Transport

### EMT STOP

### Paramedic

5. Begin cardiac monitoring
6. Obtain intravascular access
7. Administer Epinephrine 0.01 mg/kg IV (maximum 1 mg) (0.1 ml/kg of a 1:10,000 concentration). Repeat as needed every 3-5 minutes
8. If severe bradycardia is caused by an increase in vagal tone or a primary AV block, administer Atropine 0.02 mg/kg IV (minimum 0.1 mg; maximum 0.5 mg)
9. Perform advanced airway management only if unable to provide effective bag valve mask ventilations

### Paramedic STOP

### Medical Control Options

10. Administer Atropine 0.02 mg/kg IV (minimum 0.1 mg; maximum 0.5 mg)
11. Begin transcutaneous pacing

**Key Points / Considerations**

- Utilize a PEEP valve, if available, when performing assisted ventilations
- Consider contacting OLMC for procedural sedation prior to any electrical therapy for conscious patients
- Evaluate for evidence of ingestions (i.e. beta-blockers, calcium-channel blockers) and treat in accordance to respective protocols

## Obstructed Airway (Adult and Pediatric)

### CFR and All Provider Levels

1. If the patient is conscious and can breathe, cough, speak, or cry; encourage the patient to cough
2. If the patient is unconscious or cannot breathe, cough, speak, or cry; perform airway maneuvers or CPR, as per current AHA guidelines
3. ABCs and vital signs
4. Airway management and appropriate oxygen therapy

### CFR STOP

### EMT

5. Request ALS assistance
6. Transport
7. Perform obstructed airway maneuvers enroute to the hospital as needed

### EMT STOP

### Paramedic

8. Perform direct laryngoscopy and attempt to remove the foreign body with Magill forceps
9. Perform advanced airway management as needed
10. If intubation is confirmed with direct visualization, but unable to ventilate:
  - 10.1 Note the depth of the endotracheal tube
  - 10.2 Deflate the endotracheal tube cuff, if using a cuffed tube
  - 10.3 Advance the endotracheal tube to its deepest depth
  - 10.4 Return the endotracheal tube to its originally noted depth
  - 10.5 Re-inflate the endotracheal tube cuff, if using a cuffed tube, and attempt ventilations
  - 10.6 If unable to effectively ventilate the patient using the above maneuvers, immediately initiate transport

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

## Respiratory Distress / Respiratory Failure (Adult)

### CRITERIA

- This protocol is for patients who have respiratory distress or respiratory failure from an unclear etiology or who have persistent respiratory distress or respiratory failure despite treatment under other existing protocols
- Patients with respiratory distress or respiratory failure due to specific reasons (e.g. obstructed airway, anaphylaxis/severe allergic reaction) should be treated accordingly

### CFR and All Provider Levels

1. ABCs and vital signs
2. Use airway adjuncts as needed and administer oxygen as follows:
  - For respiratory distress, administer oxygen and allow the patient to maintain a position of comfort
  - For respiratory failure, assist ventilations at a rate of 10 breaths/min with supplemental oxygen
3. Assess and treat for an overdose as needed

### CFR STOP

### EMT

4. Request ALS assistance
5. For patients with persistent respiratory distress, begin continuous positive airway pressure (CPAP) therapy (Appendix N: Continuous Positive Airway Pressure Therapy), if available
6. Transport

### EMT STOP

### Paramedic

7. Perform advanced airway management as needed
8. Assess and treat for a tension pneumothorax as needed (Appendix M: Needle Decompression of a Tension Pneumothorax)
9. Begin cardiac monitoring
10. Perform, record and evaluate EKG rhythm
11. Obtain intravascular access
12. For patients with suspected acute cardiogenic pulmonary edema AND who have a SBP > 120 mmHg, administer Nitroglycerin 0.4 mg SL/IV. Repeat every 5 minutes as needed
13. Monitor vital signs every 2-3 minutes

### Paramedic STOP

### Medical Control Options

14. Administer Furosemide 20-80 mg IV

**Key Points / Considerations**

- All patients who are in respiratory arrest must receive ventilatory assistance unless a valid New York State Prehospital DNR Order and/or MOLST/eMOLST form is presented to the crew
- Patients who require supplemental oxygen should receive high concentration oxygen via a non-rebreather mask set at 10-15 liters/min:
  - If a mask is not tolerated by the patient, a nasal cannula set at 6 liters/minute should be used and properly documented
  - There is no reason to withhold high concentration oxygen when required in adult or pediatric patients
  - Patients who are chronically maintained on oxygen and who do not require high concentration oxygen shall be administered oxygen at their prescribed flowrate
- Monitor breathing continuously and assess for signs of hypoxia and/or increasing respiratory distress
- Nitroglycerin shall not be administered to patients who have used erectile dysfunction medications within the past 72 hours, unless otherwise directed by OLMC

## Respiratory Distress / Respiratory Failure (Pediatric)

### CRITERIA

- This protocol is for patients who have respiratory distress or respiratory failure from an unclear etiology or who have persistent respiratory distress or respiratory failure despite treatment under other existing protocols
- Patients with respiratory distress or respiratory failure due to specific reasons (e.g. obstructed airway, anaphylaxis/severe allergic reaction) should be treated accordingly

### CFR and All Provider Levels

1. ABCs and vital signs
2. Use airway adjuncts as needed and administer oxygen as follows:
  - For respiratory distress, administer oxygen and allow the patient to maintain a position of comfort
  - For respiratory failure, assist ventilations at a rate of 20-30 breaths/min with supplemental oxygen
3. Assess and treat for an overdose as needed

### CFR STOP

### EMT

4. Request ALS assistance
5. Transport

### EMT STOP

### Paramedic

6. Perform advanced airway management if unable to provide effective bag valve mask ventilations
7. Assess and treat for a tension pneumothorax as needed (Appendix M: Needle Decompression of a Tension Pneumothorax)
8. Begin cardiac monitoring
9. Obtain intravascular access as needed

### Paramedic STOP

### Medical Control Options

**Key Points / Considerations**

- Respiratory distress is characterized by increased respiratory effort (work of breathing) WITHOUT central cyanosis, including anxiety, nasal flaring, elevated respiratory rate, use of accessory muscles of respiration (e.g. retractions)
- Respiratory failure is characterized by:
  - Ineffective respiratory effort and symptoms of respiratory distress WITH central cyanosis, including agitation, lethargy, severe dyspnea, labored breathing, head bobbing, grunting, or significant suprasternal, substernal, intercostal and/or parasternal retractions, bradypnea leading to ineffective oxygenation or ventilation
  - Presence of hypoxia and/or hypercapnia
- Monitor breathing continuously and assess for signs of hypoxia and/or increasing respiratory distress
- Bradycardia is an ominous sign that indicates hypoxic cardiac arrest may be imminent
- High concentration oxygen should always be used in pediatric patients
- Do not allow the mask to press against the eyes
- Chest rise is the best indication of adequate ventilation in pediatric patients
- Do not overinflate the lungs when assisting ventilations
- Do not hyperextend the neck
- Blow-by oxygen is an inadequate method of oxygenation. Use the closest age or size-appropriate oxygen delivery mechanism (e.g. nasal cannula, facemask, bag valve mask)
- Effective bag valve mask ventilation is a reasonable alternative to advanced airway interventions (endotracheal intubation or use of a supraglottic airway) in the management of pediatric patients with severe respiratory distress or respiratory failure
- Utilize a PEEP valve, if available, when performing assisted ventilations
- For the tachypneic child with abnormal respirations, consider a glucose check to evaluate for hyperglycemia
- Tension pneumothorax in a pediatric patient in respiratory arrest may develop after resuscitative efforts have begun

## Altered Mental Status (Adult and Pediatric)

### CFR and All Provider Levels

1. Assess the scene for potential or actual danger and establish a safe zone, if necessary
2. ABCs and vital signs
3. Airway management
4. Administer oxygen
5. Assess and treat for an overdose as needed

### CFR STOP

### EMT

6. Request ALS assistance
7. Obtain blood glucose level (BGL)
8. If BGL < 60 mg/dl AND the patient is conscious AND able to drink without assistance, administer a glucose solution or other sugar containing beverage
9. Transport

### EMT STOP

### Paramedic

10. Obtain intravascular access
11. For patients with a glucometer reading < 60 mg/dl, administer Dextrose OR Glucagon as follows. Repeat as needed if there is no change in symptoms or if symptoms fail to improve significantly:
  - **ADULT:** Dextrose up to 25 g IV
  - **PEDIATRIC:** Dextrose 0.5 g/kg IV (maximum 25 g)
  - For **ADULT** and **PEDIATRIC** patients, administer Glucagon 1 mg IM/IN if intravascular access is unavailable

### Paramedic STOP

### Medical Control Options

**Key Points / Considerations**

- For pediatric patients, no more than 2 (two) attempts at obtaining intravascular access shall be made before administering Glucagon. Intranasal (IN) Glucagon is the preferred administration route
- 10% Dextrose is strongly preferred for patients with age  $\leq$  1 month; 5% Dextrose may be used if 10% Dextrose is unavailable. For patients with age between 1 month – 14 years, 5% Dextrose, 10% Dextrose or 25% Dextrose may be used
- Consider underlying causes of altered mental status (e.g. trauma, medical, behavioral) and treat appropriately
- Do not administer oral solutions to unconscious patients or to patients with head injuries
- Diabetic patients with a blood glucose level reading between 60-80 mg/dl may still be symptomatic secondary to hypoglycemia. In the presence of such signs and symptoms, treat accordingly

**Anaphylaxis / Severe Allergic Reaction (Adult and Pediatric)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management
3. Administer oxygen
4. If patient is suspected to have anaphylaxis, perform the following:
  - Assist the patient with administration of their prescribed Epinephrine auto-injector IM
  - If Epinephrine has not been prescribed, administer Epinephrine auto-injector IM according to age and/or weight, if available and trained to do so:
    - Age < 9 years and weight < 30 kg: Pediatric Epinephrine (0.15 mg) auto-injector IM
    - Age ≥ 9 years or weight ≥ 30 kg: Adult Epinephrine (0.3 mg) auto-injector IM
5. Assess for respiratory distress/respiratory failure, shock, cardiac arrest and treat as needed

**CFR STOP**

**EMT**

6. Request ALS assistance
7. If patient has symptoms of anaphylaxis, administer Epinephrine as follows:
  - Age < 9 years and weight < 30 kg:
    - OPTION A: Epinephrine 0.15 mg IM via syringe
    - OPTION B: Pediatric Epinephrine auto-injector IM
  - Age ≥ 9 years or weight ≥ 30 kg:
    - OPTION A: Epinephrine 0.3 mg IM via syringe
    - OPTION B: Adult Epinephrine auto-injector IM
8. Transport
9. For continued symptoms after 3-5 minutes, administer a repeat dose of Epinephrine IM (maximum 2 doses, including Epinephrine dose that was administered by CFR)
10. For wheezing, administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) mixed with 0.02% Ipratropium Bromide 2.5 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)

**EMT STOP**

**Paramedic**

11. Perform advanced airway management as needed
12. For patients with symptoms of anaphylaxis, administer Epinephrine 0.01 mg/kg IM (maximum 0.3 mg) of a 1:1,000 concentration. For continued symptoms after 3-5 minutes, repeat as needed [maximum 3 doses, including Epinephrine doses administered by BLS and/or CFR]
13. For patients with signs of shock:
  - 13.2 Obtain intravascular access

- 13.3 Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)
14. Administer one of the following:
- OPTION A: Dexamethasone 0.6 mg/kg IV/IM/PO (maximum 12 mg)
  - OPTION B: Methylprednisolone 1 mg/kg IV/IM (maximum 60 mg)
15. Administer Diphenhydramine 1 mg/kg IV/IM (maximum 50 mg)
16. Administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)
17. Begin cardiac monitoring

**Paramedic STOP**

**Medical Control Options**

**EMT:**

18. Administer weight-appropriate dose of Epinephrine IM, if available as follows:
- Age < 9 years and weight < 30 kg:
    - OPTION A: Epinephrine 0.15 mg IM via syringe, if available
    - OPTION B: Pediatric Epinephrine auto-injector IM
  - Age ≥ 9 years or weight ≥ 30 kg:
    - OPTION A: Epinephrine 0.3 mg IM, if available
    - OPTION B: Adult Epinephrine auto-injector IM
19. Administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes

**Paramedic:**

20. Administer Epinephrine 0.01 mg/kg IM (maximum 0.3 mg) of a 1:1,000 concentration
21. Administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes
22. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)

**Key Points / Considerations**

- Do not delay transport for any reason, including waiting for a potential second dose of Epinephrine
- Anaphylaxis is considered as an allergic reaction with any of the following:
  - Respiratory compromise (dyspnea, wheezing, stridor, hypoxemia)
  - Signs of shock
  - Two or more signs/symptoms from the following systems:
    - Skin (urticaria, itchy skin)
    - Mucosal (swollen tongue or lips)
    - Gastrointestinal (vomiting, abdominal pain)
  - History of anaphylaxis AND exposure to a known allergen AND one of the mucosal or gastrointestinal signs/symptoms listed above

- Anaphylaxis can be a potentially life-threatening situation most often associated with a history of exposure to:
  - Inciting agent/allergen (bee sting or other insect venom)
  - Medication/drugs
  - Food (i.e. peanuts, seafood)
- IV formulation of Dexamethasone may be administered orally (PO)
- Administration of steroids via IV shall be performed slowly over 2 minutes
- Do not delay transport to the hospital
- Under standing orders:
  - CFR may administer one (1) dose of Epinephrine
  - BLS may administer up to a total of two (2) doses of Epinephrine, including any doses that were administered by CFR
  - ALS may administer up to a total of three (3) doses of Epinephrine, including any doses that were administered by CFR or BLS
  - If first on scene, ALS shall administer the appropriate weight-based dose of Epinephrine as their first dose

**Behavioral Emergencies (Adult and Pediatric)**

**CFR and All Provider Levels**

1. Assess the scene for potential or actual danger and establish a safe zone, if needed
2. Request law enforcement assistance if the patient presents a risk of physical harm to providers, public, or self
3. If safe to do so, attempt to verbally de-escalate the patient’s condition
4. Providers may participate in physically restraining a patient when it becomes necessary to protect the patient or others from harm. Providers shall only use:
  - The minimal amount of force required to effectively restrain the patient and protect them (and others) from harm
  - Soft restraints (such as towels, triangular bandages, or commercially available soft medical restraints) to restrain the patient to the stretcher
5. Identify and treat any underlying medical or traumatic condition that may be causing agitation or hyperactive delirium
6. Request ALS assistance if chemical restraint may be required
7. ABCs and vital signs, if able to do so safely
8. Airway management and appropriate oxygen therapy

**CFR STOP**

**EMT**

9. Obtain blood glucose level and treat as needed, if able to do so safely
10. Transport

**EMT STOP**

**Paramedic**

11. For **ADULT** patients with **Hyperactive Delirium** AND continue to violently struggle despite being physically restrained AND are in danger of injuring themselves or others, administer one of the following:
  - OPTION A: Midazolam 0.2 mg/kg IM/IN (maximum 10 mg)
  - OPTION B: Midazolam 0.2 mg/kg IV (maximum 5 mg)
12. After adequate sedation:
  - 12.1 Obtain intravascular access
  - 12.2 Begin cardiac and pulse oximetry monitoring
  - 12.3 Begin non-invasive capnography monitoring, if available

**Paramedic STOP**

### Medical Control Options

12. For **ADULT** patients who are persistently agitated, administer one of the following:
  - OPTION A: Ketamine 2-4 mg/kg IM (maximum 400 mg) OR Ketamine 1-2 mg/kg IN (maximum 200 mg)
  - OPTION B: Midazolam 0.2 mg/kg IM/IN (maximum 10 mg) OR Midazolam 0.2 mg/kg IV (maximum 5 mg)
  - OPTION C: Lorazepam 0.1 mg/kg IM (maximum 4 mg) OR Lorazepam 0.1 mg/kg IV/IN (maximum 2 mg)
  - OPTION D: Diazepam 0.2 mg/kg IV/IN/IM (maximum 5 mg)
13. For **PEDIATRIC** patients who are persistently agitated, administer one of the following medications:
  - OPTION A: Ketamine 2-4 mg/kg IM (maximum 400 mg) OR Ketamine 1-2 mg/kg IN (maximum 200 mg)
  - OPTION B: Midazolam 0.1 mg/kg IM/IN (maximum 5 mg) OR Midazolam 0.1 mg/kg IV (maximum 2 mg)
  - OPTION C: Lorazepam 0.1 mg/kg IM (maximum 4 mg) OR Lorazepam 0.1 mg/kg IV/IN (maximum 2 mg)

### Key Points / Considerations

- Chemical restraint is defined as the administration of a sedative or dissociative medication to prevent injury
- Chemical restraint is intended for patients who are suffering from Hyperactive Delirium. This is a syndrome that includes psychomotor agitation (aggression, reduced sensitivity to pain, violent struggling), physiologic excitation (tachycardia, tachypnea, diaphoresis), and delirium
- Medication for chemical restraint shall NOT be administered as a standing order if the patient is either:
  - Agitated or non-compliant with requests or directions, but does not require physical restraint
  - Physically restrained and not struggling against the restraints
- The preferred route for standing order Midazolam administration is intramuscular due to the speed of administration. Intravenous administration should only be done if IV access has already been established
- Agitated patients should be presumed to have an underlying medical or traumatic condition
- Refer to heat emergencies protocol for concern of hyperthermia
- All suicidal or violent threats or gestures must be taken seriously
- Diabetic patients with a blood glucose level reading between 60-80 mg/dl may still be symptomatic secondary to hypoglycemia. In the presence of such signs and symptoms, treat accordingly

- Patients must NOT be transported in a prone (face-down) position
- If the patient is in police custody and/or has handcuffs on, a police officer must accompany the patient in the patient compartment of the ambulance to the hospital. The provider must have the ability to immediately remove any mechanical restraints that may hinder patient care at all times
- It is preferable for patients to have their handcuffs secured to the stretcher and NOT be handcuffed behind their back when on a stretcher
- EMS providers are responsible for determining the need for chemical restraint. EMS providers may not be ordered to administer chemical restraint by law enforcement. Contact OLMC if there are any questions about the appropriateness of chemical restraint

**Acute Coronary Syndrome / Suspected Myocardial Infarction / Chest Pain (Adult)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Place patient in a position of comfort
4. Administer chewable Aspirin 324 mg PO, if available and trained to do so

**CFR STOP**

**EMT**

5. Request ALS assistance, do NOT delay transport
6. Transport
7. If available, assist the patient with their prescribed Nitroglycerin SL for chest pain every 5 minutes as needed (maximum 3 doses) only if the patient's SBP > 120 mmHg

**EMT STOP**

**Paramedic**

8. Begin cardiac monitoring
9. Perform, record and evaluate 12-lead EKG
10. Transport to the closest appropriate STEMI-PCI Center (Appendix I: Hospital Specialty Capabilities) as needed
11. Obtain intravascular access
12. Monitor vital signs every 2-3 minutes
13. Administer Nitroglycerin 0.4 mg SL every 5 minutes as needed for chest pain only if the patient's SBP > 120 mmHg

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Acute coronary syndrome is a term used for any condition brought on by sudden reduced blood flow to the heart
- Transport patients with criteria as determined by the General Operating Procedures to the closest appropriate STEMI-PCI Center
- Treat any unstable dysrhythmia prior to initiation of a 12-lead EKG
- Aspirin should NOT be enteric coated
- Aspirin shall not be administered to patients with known hypersensitivity to aspirin. Gastrointestinal complaints are not considered a contraindication
- Nitroglycerin shall not be administered to patients who have used erectile dysfunction medications within the past 72 hours, unless otherwise directed by OLMC
- If available, Fentanyl is preferred over morphine for pain management

## Dysrhythmia (Adult)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy

### CFR STOP

### EMT

3. Request ALS assistance
4. Transport

### EMT STOP

### Paramedic

5. Begin cardiac monitoring
6. Obtain intravascular access
7. Assess and treat specific dysrhythmias according to the following sub-protocols:
  - Atrial Fibrillation/Atrial Flutter (Adult)
  - Brady-dysrhythmia (Adult)
  - Supraventricular Tachycardia (Adult)
  - Ventricular Tachycardia with a Pulse / Wide Complex Tachycardia of Uncertain Type (Adult)
8. Perform, record and evaluate 12-lead EKG
9. Monitor vital signs every 2-3 minutes

### Paramedic STOP

### Medical Control Options

**Key Points / Considerations**

- Stable Dysrhythmia:
  - **ADULT:** Patients with a dysrhythmia NOT associated with signs of hypoperfusion
- Unstable Dysrhythmia:
  - **ADULT:** Patients with a dysrhythmia associated with ANY of the following:
    - Hypotension (SBP < 90 mmHg or MAP < 65 mmHg)
    - Altered mental status
- Consider procedural sedation prior to any electrical therapy for conscious patients
- When using a monitor for which the maximum joule setting is less than 360 joules, utilize biphasic equivalent synchronized energy settings
- Further repeated attempts at synchronized cardioversion should be performed using the monitor's maximum setting if the device cannot deliver more than 200 joules in place of the consecutive joule settings listed in the protocols
- Diltiazem should be used with caution in patients with liver or kidney disease, congestive heart failure, atrioventricular conduction abnormalities, and/or hypotension. OLMC should be alerted to these conditions, and the dose should be reduced to half the predicted weight-based dose
- Calcium Chloride and Sodium Bicarbonate should be given in separate IV lines or separated by a flush of at least 20 ml of crystalloid fluid
- Treat any unstable dysrhythmia prior to the initiation of a 12-lead EKG
- Intravascular access may be delayed if necessary to allow for emergent synchronized cardioversion of an unstable dysrhythmia.

## Atrial Fibrillation / Atrial Flutter (Adult)

### Paramedic

1. Unstable Atrial Fibrillation/Atrial Flutter
  - 1.1 Perform initial synchronized cardioversion using 100 joules
  - 1.2 Repeat synchronized cardioversion as needed using 200, 300, and 360 joules
2. Stable Atrial Fibrillation/Atrial Flutter
  - 2.1 Consider contacting OLMC for medication administration options

### Paramedic STOP

### Medical Control Options

3. For unstable atrial fibrillation/atrial flutter
  - OPTION A: Administer Amiodarone 150 mg IV (diluted in 100 ml D<sub>5</sub>W) over 10 minutes
  - OPTION B: Repeat synchronized cardioversion at maximum joule setting
4. For patients with stable atrial fibrillation/atrial flutter with a persistently elevated heart rate administer one of the following:
  - OPTION A: Crystalloid fluids 10 ml/kg IV
  - OPTION B: Diltiazem 0.25 mg/kg IV slowly over 2 minutes while continuously monitoring blood pressure
  - OPTION C: Amiodarone 150 mg IV (diluted in 100 ml of D<sub>5</sub>W) over 10 minutes

### Key Points / Considerations

- Treat the underlying cause of the dysrhythmia if it is due to a non-cardiac etiology (i.e. infection, fever, asthma, behavioral)

## Brady-Dysrhythmia (Adult)

### Paramedic

1. Unstable Brady-Dysrhythmia (ventricular rate < 50 beats/minute AND signs of shock)
  - 1.1 Administer Atropine Sulfate, 1mg IV
  - 1.2 Consider performing, evaluating and recording 12 lead EKG
  - 1.3 Begin transcutaneous pacing
2. Stable Brady-Dysrhythmia (ventricular rate < 50 beats/minute without signs of shock)
  - 2.1 Consider contacting OLMC for medication administration options

### Paramedic STOP

### Medical Control Options

3. Administer Atropine Sulfate 1 mg IV every 3-5 minutes as needed (maximum cumulative dose 3 mg)
4. Administer Dopamine 5 mcg/kg/min continuous IV infusion (maximum 20 mcg/kg/min). Titrate as needed every 3-5 minutes
5. Administer Epinephrine 2 mcg/min continuous IV infusion (maximum 10 mcg/min). Titrate as needed every 3-5 minutes
6. In cases of suspected hyperkalemia or calcium channel blocker overdose, administer Calcium Chloride 1 g IV slowly, followed with a crystalloid fluid flush
7. For pre-existing acidosis, administer Sodium Bicarbonate 44-88 mEq IV. Repeat Sodium Bicarbonate 44 mEq IV every 10 minutes as needed

### Key Points / Considerations

## Supraventricular Tachycardia (SVT) (Adult)

### Paramedic

1. Unstable SVT
  - 1.1 Perform initial synchronized cardioversion using 100 joules
  - 1.2 Repeat synchronized cardioversion as needed using 200, 300, and 360 joules
2. Stable SVT
  - 2.1 Perform vagal maneuver
  - 2.2 Administer Adenosine 6 mg IV rapidly, followed with a crystalloid fluid flush and observe EKG monitor for 1-2 minutes for evidence of cardioversion
  - 2.2 For persistent SVT, administer Adenosine 12 mg IV rapidly, followed with a crystalloid fluid flush. Repeat after 1-2 minutes if there is no evidence of cardioversion

### Paramedic STOP

### Medical Control Options

3. For narrow complex-width tachycardia, administer Diltiazem 0.25 mg/kg IV slowly over 2 minutes while continuously monitoring blood pressure
4. Administer Amiodarone 150 mg IV (diluted in 100 ml D<sub>5</sub>W) over 10 minutes

### Key Points / Considerations

- Modified Valsalva is the preferred adult vagal maneuver. This is performed by having the patient lay supine with the head of bed elevated and blow through a straw or end of an empty, clean 10 cc syringe for 15 seconds followed by supine repositioning with 15 seconds of passive leg raise at a 45 degree angle

**Ventricular Tachycardia with a Pulse / Wide-Complex Tachycardia of Uncertain Type (Adult)****Paramedic**

1. Unstable Ventricular Tachycardia with a Pulse
  - 1.1 Perform initial synchronized cardioversion using 100 joules
  - 1.2 Repeat synchronized cardioversion as needed using 200, 300, and 360 joules
  - 1.3 For persistent unstable ventricular tachycardia with a pulse, administer one of the following:
    - OPTION A: Amiodarone 150 mg IV (diluted in 100 ml D<sub>5</sub>W) over 10 minutes
    - OPTION B: Lidocaine 1 mg/kg IV (maximum 100 mg) over 2 minutes
2. Stable Ventricular Tachycardia with a Pulse, administer one of the following:
  - OPTION A: Amiodarone 150 mg IV (diluted in 100 ml D<sub>5</sub>W) over 10 minutes
  - OPTION B: Lidocaine 1 mg/kg IV (maximum 100 mg) over 2 minutes

**Paramedic STOP****Medical Control Options**

3. Administer Magnesium Sulfate 2 g IV diluted in 10 ml Normal Saline over 2 minutes
4. In cases of suspected hyperkalemia or calcium channel blocker overdose, administer Calcium Chloride 1 g IV slowly, followed with a crystalloid fluid flush
5. For pre-existing acidosis, administer Sodium Bicarbonate 44-88 mEq IV. Repeat Sodium Bicarbonate 44 mEq IV every 10 minutes as needed
6. For persistent or recurring ventricular tachycardia with a pulse, administer one of the following:
  - OPTION A: Amiodarone 150 mg IV (diluted in 100 ml D<sub>5</sub>W) over 10 minute
  - OPTION B: Lidocaine 1 mg/kg IV (maximum 100 mg) over 2 minutes

**Key Points / Considerations**

- Tricyclic antidepressant overdose may cause QRS-widening leading to wide-complex tachycardia which may be worsened by anti-dysrhythmic medications. Consider administering Sodium Bicarbonate or Magnesium Sulfate for these cases. If ventricular tachycardia is persistent, an anti-dysrhythmic is indicated. Amiodarone should be avoided as it may cause additional dysrhythmias
- For patients who have persistent or recurring ventricular tachycardia with a pulse despite antiarrhythmic medication administration, it is preferential to continue additional dosing of the same antiarrhythmic medication, rather than switch to a different medication

## Dysrhythmia (Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy

### CFR STOP

### EMT

3. Request ALS assistance, do NOT delay transport
4. Transport

### EMT STOP

### Paramedic

5. Begin cardiac monitoring
6. Assess and treat for severe bradycardia as needed
7. For stable supraventricular tachycardia, perform vagal maneuvers
8. For unstable supraventricular tachycardia or ventricular tachycardia with a pulse:
  - 8.1 Contact OLMC for treatment options
  - 8.2 Obtain intravascular access
  - 8.3 Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)
9. Perform, record and evaluate 12-lead EKG
10. Monitor vital signs every 2-3 minutes

### Paramedic STOP

### Medical Control Options

11. For unstable supraventricular tachycardia or ventricular tachycardia with a pulse, perform synchronized cardioversion at the following energy settings using appropriately-sized AED/monitor pads:
  - 11.1 Initial cardioversion: 0.5-1 joules/kg
  - 11.2 Subsequent cardioversions as needed: 1-2 joules/kg
12. For stable supraventricular tachycardia
  - 12.1 Administer Adenosine 0.1 mg/kg IV rapidly (maximum 6 mg), followed with a crystalloid fluid flush and observe EKG monitor for 1-2 minutes for evidence of cardioversion
  - 12.2 For persistent SVT, administer Adenosine 0.2 mg/kg IV rapidly (maximum 12 mg), followed with a crystalloid flush. Repeat after 1-2 minutes if there is no evidence of cardioversion

**Key Points / Considerations**

- Stable Dysrhythmia:
  - **PEDIATRIC:** Patients with a dysrhythmia NOT associated with depressed mental status and/or absent peripheral pulses and/or hypotension
- Unstable Dysrhythmia:
  - **PEDIATRIC:** Patient with a dysrhythmia associated with ANY of the following:
    - Depressed mental status and absent peripheral pulses
    - Hypotension (systolic blood pressure  $< 70 \text{ mmHg} + [2 \times \text{age in years}]$ )
- Consider contacting OLMC for procedural sedation prior to electrical therapy for conscious patients
- High concentration oxygen should be used in pediatric patients
- If the cardiac monitor is unable to deliver the desired weight-based joule setting, use the closest setting without exceeding the desired setting

## Obstetric Emergencies

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Check for crowning if the mother is having contractions, the urge to push, or has the sensation of having a bowel movement. If crowning is present, prepare for imminent delivery
4. If delivery has begun, treat appropriately
5. If delivery is not imminent, place the patient in a LEFT lateral recumbent position
6. Assess for shock and treat as needed

### CFR STOP

### EMT

7. Request ALS assistance if delivery is imminent or for any special emergency childbirth considerations
8. For vaginal bleeding in pregnancy:
  - Place dressings over the vagina to help estimate the quantity of blood loss
  - If the patient is immediately post-partum, massage the mother's abdomen over the uterus
9. Transport

### EMT STOP

### Paramedic

10. Obtain intravascular access for patients with severe pre-eclampsia, eclampsia or post-partum hemorrhage
11. For patients with eclampsia (i.e. seizures secondary to elevated blood pressures during pregnancy), administer Magnesium Sulfate 4 g IV (diluted in 50-100 ml Normal Saline) over 10 minutes

### Paramedic STOP

### Medical Control Options

12. For severe pre-eclampsia, administer Magnesium Sulfate 2 g IV (diluted in 50-100 ml Normal Saline) over 10 minutes

### Key Points / Considerations

- Consider supine hypotension syndrome as a cause of shock
- Severe pre-eclampsia is when pregnant patients have BOTH of the following conditions:
  - Systolic blood pressure  $\geq$  160 mm Hg OR a diastolic blood pressure  $\geq$  110 mm Hg
  - Symptoms of a headache, visual disturbances, pulmonary edema or lower extremity edema
- Eclampsia and pre-eclampsia do not occur prior to 20 weeks of gestation
- Eclampsia and pre-eclampsia may occur up to one (1) month post-partum

## Emergency Childbirth

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. If the patient is in active labor, visually inspect the vagina for bulging or crowning
4. If delivery is imminent, proceed as follows:
  - 4.1 Apply gentle pressure against the delivering newborn's head to prevent tearing of the perineum
    - DO NOT apply pressure to the soft spots (fontanelles)
    - Support the bony parts of the head as it presents
  - 4.2 As the head presents, gently clear the airway of secretions using the bulb syringe as follows:
    - Depress the bulb syringe prior to insertion
    - Suction the mouth first by inserting the syringe no more than 1.5 inches into the newborn's mouth
    - Suction the nose by inserting the syringe no more than 0.5 inches into the newborn's nose
  - 4.3 Nuchal Cord
    - If the umbilical cord is loose enough, gently slip it over the newborn's head immediately
    - If the umbilical cord is wrapped tightly around the neck such that it prevents manipulation, place two clamps on the cord and cut between the clamps
  - 4.4 Support the head and chest as the newborn delivers
  - 4.5 Repeat suctioning as necessary prior to spontaneous or stimulated respirations
  - 4.6 Gently guide the head downward until the shoulder appears. Deliver the other shoulder with gentle upward traction
  - 4.7 Thoroughly but rapidly dry the newborn with a clean, dry towel
5. Delay clamping of the umbilical cord for up to one (1) minute after uncomplicated delivery, if safe to do so. Cut the umbilical cord by performing the following:
  - 5.1 Place the first clamp 8-10 inches from the newborn
  - 5.2 Place the second clamp 3 inches from the first clamp toward the mother
  - 5.3 Cut between the clamps and check both ends for bleeding. If continuous bleeding is seen from either end of the cord, add a second clamp to the bleeding end
  - 5.4 If umbilical clamps are not available, tie the umbilical cord with gauze at the same landmarks, but DO NOT cut the cord

6. Wrap the newborn in a dry, warm blanket/towel with a layer of foil or plastic wrap over the blanket/towel, or use a commercial infant swaddler, if available. Do not use foil alone
7. Cover the newborn's scalp with a warm covering
8. Assess the mother for shock and treat as needed
9. Assess for postpartum hemorrhage and treat as needed
10. Place newborn on mother's chest, if safe to do so
11. Assess and treat newborn appropriately as indicated

**CFR STOP**

**EMT**

12. Request ALS assistance if delivery is imminent. Do not delay transport if delivery is not imminent or to wait for the placenta to deliver
13. Transport
14. If miscarriage or stillbirth occurs, bring all fetal material to the hospital with the mother. If the viability of the fetus is uncertain, begin neonatal resuscitation
15. Special Considerations:
  - 15.1 Breech Presentation
    - Place the mother in a face-up position with hips elevated
    - Support the newborn's thorax during delivery
    - Be prepared as a full delivery may occur
    - If the head does not deliver immediately:
      - Place sterile, gloved fingers between the newborn's face and the wall of the birth canal to establish an air passageway. This position must be maintained until the head delivers
      - Fetal body should be supported at or below the angle of the birth canal. Presenting parts should not be raised upward
      - Do not apply traction while the newborn is in the birth canal
  - 15.2 Prolapsed Cord
    - Place the mother in a knee to chest position
    - Encourage the mother not to push
    - If the cord is not pulsating, place sterile, gloved fingers into the birth canal and push the head back 1-2 inches towards the cervix until the cord begins to pulsate
    - Wrap saline-moistened, sterile dressings around the cord
    - Do not attempt to insert the cord back into the birth canal
    - The cord should be continuously monitored for the presence of a pulse

- This position will most likely need to be maintained during transport to allow for umbilical blood circulation
- 15.3 Intact (not ruptured) Amniotic Sac
- Immediately remove the sac from around the face using sterile, gloved fingers only
- 15.4 Shoulder Dystocia (wedged shoulders)
- Encourage the mother not to push
  - Place the mother in a knee to chest position. This may require having providers assist the mother to maintain a hyperflexed position of the legs (McRoberts maneuver)
  - Place the mother in Trendelenburg position or place the head of the bed lower than the legs
  - Apply firm, steady suprapubic pressure. Avoid fundal pressure as this will worsen the condition
  - If these maneuvers fail to deliver the newborn, reposition the mother on her hands and knees
  - Guide the head downward to aid in the delivery of the upper shoulder
- 15.5 Multiple Births
- Deliver each birth accordingly, making sure to tie each umbilical cord between births
  - Clamp and cut the cord of the first newborn prior to the next birth
  - If the second birth does not occur within 10 minutes, begin transport

**EMT STOP**

**Paramedic**

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Consider supine hypotension syndrome as a cause of shock
- Newborns are subject to rapid heat loss and must be kept warm and dry
- Miscarriage usually occurs at less than 20 weeks of gestation. Begin resuscitative efforts of the newborn if the gestational period is unknown
- The turtle sign is when the newborn's head retracts back into the vagina, and is an indication of shoulder dystocia
- It is no longer suggested to perform aggressive suctioning of the newborn when meconium is present
- Do not aggressively suction premature newborns

**Neonatal Care / Resuscitation**

**CRITERIA**

- This protocol applies to neonates within one (1) hour after birth

**CFR and All Provider Levels**

1. Warm, dry and stimulate the neonate

**One (1) Minute After Birth**

2. Assess neonate and if there is poor respiratory effort or poor tone, stimulate breathing by rubbing the lower back and gently flicking the soles of the feet
3. Ventilate at a rate of 40-60 breaths/min with room air, if the neonate has ANY of the following:
  - Persistent central cyanosis
  - Respiratory rate < 30 breaths/min
  - Heart rate < 100 beats/min

**Two (2) Minutes After Birth**

4. Assess the neonate’s heart rate and perform the following:
  - Heart rate > 100 beats/min and the newborn has good respiratory effort, continue with supportive care
  - Heart rate is between 60-100 beats/min OR there is poor respiratory effort, continue ventilations
  - Heart rate < 60 beats/min after 30 seconds of providing ventilations, start compressions while continuing ventilations in a 3:1 compression to ventilation ratio
5. Reassess neonate every one minute and perform the following:
  - If the heart rate > 60 beats/min, do not perform chest compressions and continue ventilating at a rate of 40–60 breaths/min
  - Provide supplemental oxygen, but do not perform ventilations or compressions, when ALL of the following are present:
    - Respiratory rate > 30 breaths/min
    - Heart rate > 60 beats/min
    - Absence of central cyanosis

**CFR STOP**

**EMT**

6. Request ALS assistance
7. Determine APGAR scores at one (1) minute and five (5) minutes after birth (Appendix K: APGAR Scoring System)
8. Transport while keeping the neonate warm

9. If possible, obtain oxygen saturation on neonate’s right hand, and administer oxygen via non-rebreather mask if SpO<sub>2</sub> is below its predicted value as follows:

Time After Birth (min)	SpO <sub>2</sub> %
1	60-65%
2	65-70%
3	70-75%
4	75-80%
5	80-85%
10	85-95%

- If neonatal pulse oximetry is not available, administer oxygen via non-rebreather mask if the neonate has central cyanosis or is in respiratory distress

**EMT STOP**

**Paramedic**

10. Begin cardiac monitoring
11. Perform advanced airway management if unable to provide effective bag valve mask ventilations
12. Do not delay transport for advanced airway management
13. If transport is delayed and the neonate is in cardiac arrest with a heart rate < 60 beats/min OR if assisted ventilations are required:
  - 13.1 Obtain intravascular or intraosseous access
  - 13.2 Administer Epinephrine 0.01 mg/kg IV (0.1 ml/kg of a 1:10,000 solution) every 3-5 minutes as needed
  - 13.3 Obtain blood glucose level via heel stick. If BGL < 40 mg/dl, administer Dextrose 10% 0.5 g/kg IV via syringe
  - 13.4 Administer crystalloid fluids 10 ml/kg IV

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Cardiopulmonary resuscitation in a neonate is performed with chest compressions and ventilations in a 3:1 ratio at a rate of 120 per minute (90 compressions, 30 ventilations)
- Spontaneous respirations should begin within 30 seconds after birth
- Reposition the airway if unable to ventilate the neonate
- Each ventilation should be administered gently over one second per respiratory cycle, ensuring that the chest rises with each ventilation
- Neonates are subject to rapid heat loss and must be kept warm and dry
- Do not delay transport or resuscitation in order to obtain an APGAR Score
- The proximal tibia is the only site acceptable for intraosseous access in the neonate
- Heart rate in neonates is best assessed at the abdomen or the umbilical stump
- Acrocyanosis (cyanosis of the hands and feet) is a common finding in neonate. If this is present, ensure that the neonate is warm and dry

**Asthma / COPD / Wheezing (Adult and Pediatric)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management
3. Administer oxygen
4. Place the patient in a position of comfort
5. Assist the patient with administering their prescribed Albuterol (metered dose inhaler or nebulizer), if available and trained to do so
6. Evaluate for any respiratory distress/respiratory failure, shock, cardiac arrest and treat as needed

**CFR STOP**

**EMT**

7. For **ADULT** and **PEDIATRIC** patients (age  $\geq 2$  years or age  $\geq 18$  months with a history of Albuterol use), administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) mixed with 0.02% Ipratropium Bromide 2.5 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)
8. Transport
  - Initiate transport after starting nebulizer treatment
  - Do not delay transport to complete medication administration
9. For **ADULT** patients with persistent respiratory distress, begin continuous positive airway pressure (CPAP) therapy (Appendix N: Continuous Positive Airway Pressure Therapy), if available
10. For patients who are in severe respiratory distress/respiratory failure and/or shock, administer Epinephrine as follows:
  - Age  $< 9$  years and weight  $< 30$  kg:
    - OPTION A: Epinephrine 0.15 mg IM via syringe, if available
    - OPTION B: Pediatric Epinephrine auto-injector IM
  - Age  $\geq 9$  years or weight  $\geq 30$  kg:
    - OPTION A: Epinephrine 0.3 mg IM via syringe, if available
    - OPTION B: Adult Epinephrine auto-injector IM

**EMT STOP**

**Paramedic**

11. For **ADULT** and **PEDIATRIC** patients (age  $\geq 2$  years or age  $\geq 18$  months with a history of Albuterol use), administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)
12. For patients with persistent symptoms:
  - 12.1 Obtain intravascular access

- 12.2 For **ADULT** patients, administer Magnesium Sulfate 2 g IV (diluted in 50-100 ml Normal Saline) over 10 minutes
- 12.3 For **ADULT and PEDIATRIC** patients  $\geq 2$  years old, administer one of the following:
  - OPTION A: Dexamethasone 0.6 mg/kg IV/IM/PO (maximum 12 mg)
  - OPTION B: Methylprednisolone 1 mg/kg IV/IM (maximum 60 mg)
13. For patients who are in severe respiratory distress/respiratory failure and/or shock:
  - 13.1 Perform advanced airway management as needed
  - 13.2 If not already administered, or for persistent symptoms despite prior administration, administer Epinephrine 0.01 mg/kg IM (maximum 0.3 mg) of a 1:1,000 concentration [maximum 2 doses, including Epinephrine administered by BLS. Multiple Epinephrine doses shall be given at least 20 minutes apart]
14. Monitor vital signs every 5 minutes
15. Begin cardiac monitoring

**Paramedic STOP**

**Medical Control Options**

**EMT:**

16. Administer additional weight-appropriate dose of Epinephrine IM, if needed and as available:
  - Age  $< 9$  years and weight  $< 30$  kg:
    - OPTION A: Epinephrine 0.15 mg IM, if available
    - OPTION B: Pediatric Epinephrine auto-injector IM
  - Age  $\geq 9$  years or weight  $\geq 30$  kg:
    - OPTION A: Epinephrine 0.3 mg IM, if available
    - OPTION B: Adult Epinephrine auto-injector IM
17. Administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)

**Paramedic:**

18. Administer Epinephrine 0.01 mg/kg IM (maximum 0.3 mg) of a 1:1,000 concentration
19. Administer 0.083% Albuterol Sulfate 3 ml (1 unit dose) nebulized over 5-15 minutes. Repeat as needed (maximum 3 doses)
20. For **PEDIATRIC** patients, administer Magnesium Sulfate 50 mg/kg IV (maximum 2 g) diluted in 50-100 ml Normal Saline over 10 minutes
21. For **PEDIATRIC** patients age  $< 2$  years, administer one of the following:
  - OPTION A: Dexamethasone 0.6 mg/kg IV/IM/PO (maximum 12 mg)
  - OPTION B: Methylprednisolone 1 mg/kg IV/IM (maximum 60 mg)

**Key Points / Considerations**

- Children < 2 years with their first episode of wheezing likely have viral bronchiolitis. There is no role for racemic Epinephrine, Albuterol, Ipratropium Bromide or steroids in bronchiolitis
- The management of bronchiolitis includes supplemental oxygen for hypoxic or dyspneic patients, intravenous fluids for signs of severe dehydration, or ventilatory support as needed
- For children ≥ 18 months for whom there is a history of Albuterol use, or a strong family history of asthma, atopy or eczema; Albuterol may be administered followed by evaluation for clinical response
- Epinephrine should be used with caution in patients with COPD
- A silent chest is an ominous sign that indicates respiratory failure and arrest are imminent
- Under standing orders, ALS may administer a total of 2 doses of Epinephrine, if it was not previously administered by BLS
- IV formulation of Dexamethasone may be administered orally (PO)
- Administration of steroids via IV shall be performed slowly over 2 minutes
- When administering steroids to pediatric patients, Dexamethasone is preferred over Methylprednisolone

**Stridor / Croup / Epiglottitis (Pediatric)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management
3. Administer high concentration blow-by oxygen (humidified, if available) delivered by nasal cannula or face mask held 3-5 inches from face, as tolerated
4. Assess and treat for an obstructed airway as needed
5. Assess and treat for anaphylaxis as needed
6. Assess and treat for respiratory distress/respiratory failure, or shock as needed

**CFR STOP**

**EMT**

7. Request ALS assistance if the patient is unconscious
8. Transport

**EMT STOP**

**Paramedic**

9. For a child with stridor at rest, administer Epinephrine as follows:
  - OPTION A: L-Epinephrine 3 mg (3 ml of a 1:1,000 concentration) nebulized
  - OPTION B: 2.25% Racemic Epinephrine 0.5 ml mixed with 3 ml Normal Saline nebulized
10. Obtain intravascular access
11. For pediatric patients age  $\geq 2$  years, administer one of the following medications for ANY of the following conditions: stridor at rest, respiratory distress, or persistent barky cough:
  - OPTION A: Dexamethasone 0.6 mg/kg IV/IM/PO (maximum 12 mg)
  - OPTION B: Methylprednisolone 1 mg/kg IV/IM (maximum 60 mg)
12. If there is clinical concern for Epiglottitis, do NOT attempt advanced airway management and ventilate using a bag valve mask

**Paramedic STOP**

**Medical Control Options**

13. For pediatric patients age  $< 2$  years, administer one of the following medications for ANY of the following conditions: stridor at rest, respiratory distress, or persistent barky cough:
  - OPTION A: Dexamethasone 0.6 mg/kg IV/IM/PO (maximum 12 mg)
  - OPTION B: Methylprednisolone 1 mg/kg IV/IM (maximum 60 mg)

**Key Points / Considerations**

- Croup should be suspected in a child with stridor, retractions, barking cough, normal or slightly elevated temperature, sternal retractions, or a history of upper respiratory infection
- Epiglottitis should be suspected in a child with stridor, retractions, muffled voice, high fever, tripod position, or drooling, and toxic appearance
- Avoid agitating the child, particularly if there is concern for epiglottitis or upper airway edema
- If the patient has inspiratory stridor, it is often an upper airway problem (physiologic or mechanical obstruction)
- Unvaccinated children are at higher risk of epiglottitis and a vaccination history should be obtained
- IV formulation of Dexamethasone may be administered orally (PO)
- Administration of steroids via IV shall be performed slowly over 2 minutes
- When administering steroids to pediatric patients, Dexamethasone is preferred over Methylprednisolone

## Heat Emergencies (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Move the patient to a cooler environment, if possible
4. Remove outer clothing
5. Place in recovery position
6. Assess for shock and treat as needed
7. If the patient is conscious and able to drink without assistance, provide water if available

### CFR STOP

### EMT

8. If the patient has altered mental status:
  - 8.1 Obtain blood glucose level and treat as needed
  - 8.2 Request ALS assistance
9. Cool the patient rapidly if they have hot, flushed and dry skin
10. Transport

### EMT STOP

### Paramedic

11. Obtain intravascular access
12. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L)

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- Do not aggressively lower body temperature since this may induce shivering
- Cooling of the patient should NOT delay transport
- Patients who are experiencing a heat emergency with signs of shock should be treated and transported rapidly
- Special populations who are at high risk for adverse outcomes:
  - Elderly patients
  - Patients with comorbidities, on diuretics, or psychiatric medications
  - Athletes

## Cold Emergencies (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Move the patient to a warmer environment, if possible
4. If the patient is conscious and able to drink without assistance, provide warm beverages if available
5. Special Considerations:
  - 5.1 Localized Cold Injury:
    - Remove clothing and jewelry from affected area(s)
    - Protect affected area(s) from pressure, trauma, and friction; wrap area in dry, bulky dressings. If affected, wrap digits individually
  - 5.2 Generalized Hypothermia:
    - When evaluating a patient with generalized hypothermia, assess central pulses for one minute if not immediately palpable and perform resuscitation if indicated
    - Dry the patient and gently remove any wet clothing and jewelry
    - If available, place heat packs in the patient's groin area, lateral chest and neck
    - Wrap the patient in dry blankets

### CFR STOP

#### EMT

6. If the patient has altered mental status:
  - 6.1 Obtain blood glucose level and treat as needed
  - 6.2 Request ALS assistance
7. Transport

### EMT STOP

#### Paramedic

8. Perform advanced airway management as needed
9. Begin cardiac monitoring
10. Perform, record and evaluate EKG rhythm
11. Obtain intravascular access
12. Administer crystalloid fluids (warmed, if available) 20 ml/kg IV (maximum 2 L)

### Paramedic STOP

#### Medical Control Options

**Key Points / Considerations**

- Generalized Hypothermia
  - Vital signs may be extremely depressed and difficult to obtain
  - Patients with hypothermic immersion may remain viable with prolonged exposures
  - Head coverings effectively reduce heat loss
  - Rough handling may precipitate cardiac dysrhythmias and/or cardiac arrest
  - Use caution with heat packs to prevent burns, particularly with unconscious patients
- Localized Hypothermia
  - Do NOT rub affected area(s) or break blisters

**Poisoning (Adult and Pediatric)**

**CFR and All Provider Levels**

1. Assess the scene for potential or actual danger and establish a safe zone, if necessary
2. ABCs and vital signs
3. Airway management and appropriate oxygen therapy
4. If an opioid overdose is suspected, treat as needed
5. Assess for shock and treat as needed
6. Special Considerations:
  - 6.1 Ingestion: Do not induce vomiting or attempt to neutralize the substance
  - 6.2 Inhalation: Ensure that the scene is safe prior to entering and treating the patient; remove the patient from the contaminated environment
  - 6.3 Absorption:
    - Take precautions to avoid contamination
    - Remove contaminated clothing
    - Brush off any dry agents or blot any excess liquid agents from the skin
    - Irrigate the area with clean fluid as tolerated until transport
    - Treat any wounds similar to burns with sterile, saline-moistened dressings
  - 6.4 Envenomation:
    - Do NOT attempt to capture the envenomating animal or attempt to remove the venom
    - Assess for signs of anaphylaxis and treat as needed
    - 6.4.1 Insect Stings:
      - If insect debris is obviously seen, attempt to remove debris by scraping with a firm-edged card, if available
      - Cover with sterile dressing
      - Apply cold compress
    - 6.4.2 Marine:
      - Remove bristles by patting area with adhesive tape and then wipe with alcohol
      - Remove stinging spine
      - Cover with sterile dressing
    - 6.4.3 Snakebite:
      - Keep affected site(s) lower than heart as tolerated
      - Cover site(s) with sterile dressing
      - Stabilize the area and restrict patient activity

**CFR STOP**

**EMT**

7. If the patient has altered mental status:
  - 7.1 Obtain blood glucose level and treat appropriately as needed
  - 7.2 Request ALS assistance
8. Special Considerations:
  - 8.1 Inhalation: Obtain carbon monoxide level (SpCO), if available
  - 8.2 Envenomation: Request ALS assistance but do NOT delay transport
9. Transport to closest Venomous Bite Center (Appendix I: Hospital Specialty Capabilities) as needed

**EMT STOP**

**Paramedic**

10. Perform advanced airway management as needed
11. Obtain intravascular access
12. Begin cardiac monitoring

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Transport patients with envenomation as determined by the General Operating Procedures to the closest appropriate Venomous Bite Center
- Maintain scene safety including concerns for ambient hazardous materials
- Utilize appropriate personal protective equipment (PPE)
- Document the name of the substance(s) involved, the amount taken, and the time and duration of exposure
- Attempt to obtain information about the product from the container label. If possible, bring the product and its container with the patient to the hospital

**Overdose (Adult and Pediatric)**

**CFR and All Provider Levels**

1. Assess the scene for potential or actual danger and establish a safe zone, if necessary
2. ABCs and vital signs
3. Airway management
4. Administer oxygen
5. **CFRs only:** If an opioid overdose is suspected AND the patient's respiratory rate is inadequate, AND Paramedics are not on scene, administer Naloxone IN via mucosal atomizer device (MAD), if available, as follows:
  - **ADULT:** Naloxone 1 mg IN in each nostril (cumulative dose 2 mg). Repeat as needed after 5 minutes if there is no improvement in symptoms (final cumulative dose 4 mg)
  - **PEDIATRIC:** Naloxone 0.5 mg IN in each nostril (cumulative dose 1 mg). Repeat as needed after 5 minutes if there is no improvement in symptoms (final cumulative dose 2 mg)
6. Assess for shock and treat as needed
7. Do not induce vomiting for ingested substances

**CFR STOP**

**EMT**

8. If the patient has altered mental status:
  - 8.1 Obtain blood glucose level and treat appropriately as needed
  - 8.2 Request ALS assistance
9. **EMTs only:** If an opioid overdose is suspected AND the patient's respiratory rate is inadequate, AND Paramedics are not on scene, administer Naloxone IN via MAD as follows:
  - **ADULT:** Naloxone 1 mg IN in each nostril (cumulative dose 2 mg). Repeat as needed after 5 minutes if there is no improvement in symptoms (final cumulative dose 4 mg)
  - **PEDIATRIC:** Naloxone 0.5 mg IN in each nostril (cumulative dose 1 mg). Repeat as needed after 5 minutes if there is no improvement in symptoms (final cumulative dose 2 mg)
10. Transport

**EMT STOP**

**Paramedic**

11. Perform advanced airway management as needed
12. Obtain intravascular access
13. For symptomatic patients with suspected cardiac medication overdose treat as needed

14. If an opioid overdose is suspected AND the respiratory rate is inadequate, administer Naloxone as follows:
- **ADULT:** Titrate Naloxone in 0.5 mg increments IV/IM/IN (maximum 4 mg) as needed to response
  - **PEDIATRIC:** Titrate Naloxone in 0.5 mg increments IV/IM/IN as needed to response according to age as follows:
    - Age < 2 years: Maximum 1 mg
    - Age ≥ 2 years: Maximum 2 mg
15. Begin cardiac monitoring
16. Administer Sodium Bicarbonate 1 mEq/kg IV (maximum 44 mEq) for any of the following:
- Suspected Salicylate overdose
  - Any suspected overdose with prolonged QTc > 500 ms or QRS > 100 ms

**Paramedic STOP**

**Medical Control Options**

17. Administer Diphenhydramine 1 mg/kg IV/IM (maximum 50 mg) for dystonic reaction from suspected antiemetic, antipsychotic, or antidepressant medications
18. For suspected sympathomimetic overdose (e.g. cocaine, amphetamines), administer one of the following:
- OPTION A: Midazolam 0.2 mg/kg IV/IN/IM (maximum 5 mg)
  - OPTION B: Lorazepam 0.1 mg/kg IV/IN/IM (maximum 2 mg)
  - OPTION C: Diazepam 0.2 mg/kg IV/IN/IM (maximum 5 mg)

**Key Points / Considerations**

- Paramedics should not administer the CFR or EMT dosage of Naloxone, and should start with the titration listed in the Paramedic section
  - It is safest to use the lowest dose of Naloxone that reverses the respiratory depression of an opioid overdose patient. This lowers the risk of precipitating opioid withdrawal and pulmonary edema. If Paramedics are on scene, the higher doses listed in the CFR and EMT sections should be withheld in favor of the titration of smaller increments as listed in the Paramedic section
- Document the name of the substance(s) involved, the amount taken, and the time and duration of exposure
- Attempt to obtain information about the product from the container label. If possible, bring the product and its container with the patient to the hospital
- CFRs and EMTs may administer a maximum of two (2) Naloxone doses as described in their respective protocol sections

- If approved by an agency Medical Director, Naloxone Nasal Spray 4 mg (0.1 ml) IN in one nostril may be substituted for the above Naloxone IN doses for both adult and pediatric patients
- Naloxone relative contraindications:
  - Cardiopulmonary arrest
  - Active seizure
  - Evidence of nasal trauma, nasal obstruction, or epistaxis

**Seizures (Adult and Pediatric)**

**CFR and All Provider Levels**

1. Protect the patient from injury
2. ABCs and vital signs
3. Perform airway management with the following special considerations:
  - Position the patient to maintain airway patency
  - Do not attempt placement of OPA during convulsions
  - Consider use of NPA during active seizures, if available
4. Administer oxygen
5. Avoid unnecessary or excessive restraint
6. Treat injuries as needed

**CFR STOP**

**EMT**

7. Obtain blood glucose level and treat as needed
8. Request ALS assistance for ongoing seizures at time of patient contact
9. Transport

**EMT STOP**

**Paramedic**

10. For patients experiencing generalized seizures that are ongoing or recurring AND if the patient is actively seizing, administer one of the following:
  - OPTION A: Midazolam 0.2 mg/kg IV/IN/IM (maximum 5 mg). Repeat as needed after 5 minutes (maximum cumulative dose 10 mg)
  - OPTION B: Lorazepam 0.1 mg/kg IV/IN/IM (maximum 2 mg). Repeat as needed after 5 minutes (maximum cumulative dose 4 mg)
  - OPTION C: Diazepam 0.2 mg/kg mg IV (maximum 5 mg) slowly over 1 minute. Repeat as needed after 5 minutes (maximum cumulative dose 10 mg)
11. Perform advanced airway management as needed
12. Obtain intravascular access
13. Begin cardiac monitoring

**Paramedic STOP**

**Medical Control Options**

14. If the patient continues to actively seize, administer an additional dose of any standing order medication

**Key Points / Considerations**

- Status epilepticus (prolonged or repetitive seizures) is a critical medical emergency. Anticonvulsant medication should be administered as soon as possible, preferably starting no later than 5 minutes after the onset of the seizure
- Intravascular access is the preferred route for benzodiazepine administration if it has already been established. If intravascular access has not been established, utilize the most appropriate and quickest route of administration available, with the intranasal (IN) route preferred over the intramuscular (IM) route
- The order of preference of medications when treating seizures is determined by a quick onset of action. Because of its fastest onset of action, Midazolam is the preferred medication; followed by Lorazepam and then Diazepam
- For patients who continue to seize despite benzodiazepine administration, it is preferential to continue additional dosing of the same benzodiazepine, rather than switching to a different medication
- Diabetic patients with a blood glucose level reading between 60-80 mg/dl may still be symptomatic secondary to hypoglycemia. In the presence of such signs and symptoms, treat accordingly
- Consider eclampsia as a cause of seizures for pregnant patients in their third trimester or who have delivered within one month and treat as needed
- When using any of the above medications, monitor the patient using non-invasive capnography, if available
- Do not administer medications for seizures that have stopped

**Severe Sepsis and Septic Shock (Adult and Pediatric)**

**CRITERIA**

- This protocol is for patients with systemic inflammatory response syndrome (SIRS) due to a presumed infection (i.e. sepsis). Patients with shock due to specific reasons (e.g. trauma, cardiac, dysrhythmia, anaphylaxis) should be treated accordingly
- Adult and pediatric patients are considered to be severely septic and/or in septic shock if they have the following criteria:
  - Presumed infection AND
  - ANY TWO of the following clinical abnormalities:

	ADULT	PEDIATRIC
<b>Abnormal Vital Signs</b>	Heart rate > 110 beats/min	High heart rate (age dependent)
	Respiratory rate > 20 breaths/min OR ETCO <sub>2</sub> < 30 mmHg	High respiratory rate (age dependent)
	SBP < 90 mmHg OR MAP < 65 mmHg	
<b>Abnormal Temperature</b>	Skin: Tactile fever OR hypothermia; OR temperature > 100.4°F (38°C), if thermometer is available	
<b>Signs/Symptoms/ Abnormal Laboratory Values</b>	Altered mental status	Altered mental status (lethargy, irritability)
	White blood count > 12,000 cells/mm <sup>3</sup> or < 4,000 cells/mm <sup>3</sup> or > 10% bands, if available	Poor perfusion
		Need for high concentration oxygen
	Point of care lactate > 4 mmol/l	

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Administer oxygen

**CFR STOP**

**EMT**

3. Obtain blood glucose level and treat as needed
4. Request ALS assistance
5. Transport

**EMT STOP**

### Paramedic

6. Perform advanced airway management as needed
7. Begin cardiac monitoring
8. Perform, record and evaluate EKG rhythm
9. For adult patients, obtain intravascular access via either large bore IV or IO. Consider intraosseous access for pediatric patients if needed
10. Administer crystalloid fluids 20 ml/kg IV
11. For **ADULT** patients who remain in shock after the initial 20 ml/kg IV bolus, administer one of the following to maintain SBP > 90 mmHg or MAP > 65 mmHg:
  - OPTION A: Additional crystalloid fluids 20 ml/kg IV (cumulative fluid bolus 40 ml/kg)
  - OPTION B: Norepinephrine 2 mcg/min continuous IV infusion (maximum 20 mcg/min).  
Titrate as needed every 3-5 minutes
  - OPTION C: Epinephrine 10 mcg IV over 1 minute. Repeat as needed every 3-5 minutes
11. Monitor vital signs every 2-3 minutes

### Paramedic STOP

### Medical Control Options

12. Administer additional dosing of any standing order medication
13. For **ADULT** patients administer Vasopressin 0.02 units/min continuous IV infusion (maximum 0.04 units/min) to maintain SBP > 90 mmHg or MAP > 65 mmHg. Titrate as needed every 3-5 minutes
14. For **PEDIATRIC** patients administer one of the following to maintain minimum age-appropriate blood pressure:
  - OPTION A: Additional crystalloid fluids 20 ml/kg IV (cumulative fluid bolus 40 ml/kg)
  - OPTION B: Epinephrine 5 mcg IV over 1 minute. Repeat as needed every 3-5 minutes
  - OPTION C: Norepinephrine 0.05 mcg/kg/min continuous IV infusion  
(maximum 20 mcg/min). Titrate as needed every 3-5 minutes

### Key Points / Considerations

- Other parameters such as pale or cool skin, delayed capillary refill, altered mental status, or lack of a radial pulse are signs of hypoperfusion that should be considered as an indication for treatment within this protocol even if a patient has an age-appropriate minimum SBP
- Peri-intubation hypotension may lead to patient decompensation and/or cardiac arrest. Attempt to improve blood pressure via crystalloid fluid infusion and/or vasopressors prior to intubation
- Continuous vasopressor infusions must be administered using an IV flow regulating device or IV infusion pump

**Shock (Adult)****CRITERIA**

- This protocol is for patients who are persistently hypotensive (SBP < 90 mmHg or MAP < 65 mmHg) despite treatment under other existing protocols, or are hypotensive from an unclear etiology.

**CFR and All Provider Levels**

- ABCs and vital signs
- Administer oxygen
- Control external bleeding
- Maintain body temperature

**CFR STOP****EMT**

- Obtain blood glucose level and treat as needed
- Request ALS assistance
- Transport

**EMT STOP****Paramedic**

- Perform advanced airway management as needed
- Begin cardiac monitoring
- Perform, record and evaluate EKG rhythm
- Obtain intravascular access via either large bore IV or IO
- Administer crystalloid fluids 20 ml/kg IV
- For patients who remain in shock after the initial 20 ml/kg IV bolus, administer one of the following to maintain SBP > 90 mmHg or MAP > 65 mmHg:
  - OPTION A: Additional crystalloid fluids 20 ml/kg IV (total fluid bolus 40 ml/kg)
  - OPTION B: Norepinephrine 2 mcg/min continuous IV infusion (maximum 20 mcg/min).  
Titrate as needed every 3-5 minutes
  - OPTION C: Epinephrine 10 mcg IV over 1 minute. Repeat as needed every 3-5 minutes
- Monitor vital signs every 2-3 minutes

**Paramedic STOP****Medical Control Options**

- Administer additional dosing of any standing order medication
- Administer Vasopressin 0.02 units/min continuous IV infusion (maximum 0.04 units/min) to maintain SBP > 90 mmHg or MAP 65 mmHg. Titrate as needed every 3-5 minutes

**Key Points / Considerations**

- Patients with shock due to a specific etiology addressed in other protocols that do not include vasopressors (e.g. trauma, dysrhythmia) should be treated accordingly prior to utilizing this protocol. Providers who are managing patients who remain hypotensive despite treatment in these protocols should utilize medical control options listed in the respective protocols rather than utilizing this protocol.
- Peri-intubation hypotension may lead to patient decompensation and/or cardiac arrest. Attempt to improve blood pressure via crystalloid fluid infusion and/or vasopressors prior to intubation
- Continuous vasopressor infusions must be administered using an IV flow regulating device or IV infusion pump

**Stroke [Cerebrovascular Accident (CVA)] (Adult and Pediatric)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy

**CFR STOP**

**EMT**

3. Obtain blood glucose level (BGL) and treat as follows:
  - For BGL  $\geq$  60 mg/dl evaluate for possible stroke using NYC S-LAMS scale
    - Determine each component and total score of the NYC S-LAMS scale by interviewing the patient, family and/or bystanders
    - Determine the “last known well” (LKW) and the exact time the patient was in their usual state of health and/or last seen without symptoms. Note that this may be different than “time of symptom onset”
  - For BGL  $<$  60 mg/dl, treat accordingly and perform the following:
    - For neurological symptoms that have resolved after appropriate hypoglycemia treatment, transport patient to the closest appropriate 911-receiving hospital
    - For neurological symptoms that persist after appropriate hypoglycemia treatment and BGL  $\geq$  60 mg/dl evaluate for possible stroke using NYC S-LAMS scale
4. Transport to the closest appropriate Stroke Center (Appendix I: Hospital Specialty Capabilities) as needed

**EMT STOP**

**Paramedic**

5. Do NOT delay transport
6. Begin cardiac monitoring
7. Obtain intravascular access

**Paramedic STOP**

**Medical Control Options**

8. Administer Metoprolol 5 mg IV slow push for blood pressure  $\geq$  210/120 mmHg, if available

**Key Points / Considerations**

- Transport patients to the closest appropriate Stroke Center as determined by the General Operating Procedures and Appendix G: Stroke Patient Assessment, Triage and Transportation
- For pediatric patients with symptoms of acute stroke, contact OLMC for transport decision to a hospital with pediatric critical care capabilities
- Patients who have a complaint of stroke-like symptoms with a last known well (LKW) < 24 hours that have resolved should be evaluated for a stroke. These patients may have a transient ischemic attack (TIA) and may present with a NYC S-LAMS score of zero. These patients should be transported to a Primary Stroke Center
- If the patient has a NYC S-LAMS score  $\leq 3$ , transport the patient to the closest appropriate Primary Stroke Center (Appendix I: Hospital Specialty Capabilities)
- If the patient has a NYC S-LAMS score  $\geq 4$ , contact OLMC for a transport decision to the closest appropriate Thrombectomy Stroke Center (Appendix I: Hospital Specialty Capabilities). OLMC will determine the transport destination based on the patient having any one of the following exclusion criteria:
  - Total time from onset of patient's symptoms to EMS patient contact > 24 hours
  - Patient is wheelchair or bed-bound
  - Seizure is cause of patient's neurologic symptoms
  - Loss of Consciousness (LOC)
  - Trauma is cause of patient's neurologic symptoms
  - Transport time to Thrombectomy Stroke Center > 30 minutes

**Severe Nausea / Vomiting (Adult and Pediatric)**

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Assess for any specific cause of the patient’s symptoms (i.e. trauma, poisoning, acute coronary syndrome) and treat as needed
4. Do not allow the patient to eat or drink
5. Place patient in position of comfort
6. Assess for shock and treat as needed

**CFR STOP**

**EMT**

7. Place isopropyl alcohol prep pad under patient’s nose and allow patient to inhale vapor
8. Transport

**EMT STOP**

**Paramedic**

8. Obtain intravascular access
9. Monitor vital signs every 5 minutes
10. For signs of dehydration, administer crystalloid fluids 20 ml/kg IV (maximum 1 L)
11. For patients age ≥ 6 months with severe nausea and/or vomiting, administer Ondansetron 0.1 mg/kg PO/IV/IM (maximum 8 mg)

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- IV formulation of Ondansetron may be administered orally (PO)
- Ondansetron has been associated with prolongation of the QT interval, possibly resulting in Torsades de Pointes. Considerations for Ondansetron administration:
  - Do not administer to patients with a personal or family history of QT prolongation
  - Cautious use in patients with either a cardiac history or in those patients who take medications known to cause QT prolongation
  - Begin cardiac monitoring and obtain a 12-lead EKG for possible detection of prolonged QT or possible cardiac etiology of symptoms

## Hyperglycemia (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Evaluate and treat for shock as needed

### CFR STOP

### EMT

4. Obtain blood glucose level (BGL) and request ALS assistance for patients with a BGL > 300 mg/dl AND any of the following conditions: altered mental status, tachypnea, or signs of dehydration
5. Transport

### EMT STOP

### Paramedic

6. Perform advanced airway management as needed
7. Obtain intravascular access for patients with any of the following:
  - BGL > 300 mg/dl AND any of the following conditions: altered mental status, tachypnea, or signs of dehydration
  - BGL > 500 mg/dl
  - Glucometer reading of “high”, “HI”, or “check ketones”
8. If intravascular access was obtained, administer crystalloid fluid 20 ml/kg IV (maximum 1 L)
9. Begin cardiac monitoring

### Paramedic STOP

### Medical Control Options

10. Administer crystalloid fluids 20 ml/kg IV (maximum 1 L)

### Key Points / Considerations

- Document the amount of crystalloid fluids administered

## Decompression Sickness (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management
3. Administer oxygen
4. Assess for shock and treat as needed

### CFR STOP

### EMT

5. Transport patients with any of the following signs and symptoms of decompression sickness after diving AND their companion divers to the closest Hyperbaric Center (Appendix I:Hospital Specialty Capabilities):
  - Neurologic: abnormal gait, dizziness, extremity weakness/numbness
  - Cardiac/Respiratory: chest pain, difficulty breathing, hypoxia
  - Gastrointestinal: abdominal pain, nausea, vomiting
  - Musculoskeletal: joint/muscle pain, painful range of motion
  - Skin: rashes or itching

### EMT STOP

### Paramedic

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- Transport patients as determined by the General Operating Procedures to the closest appropriate Hyperbaric Center
- Bring the patient's dive computer/dive watch, if available
- If possible, obtain the following information regarding the dive:
  - Specific information for the dive(s) including:
    - Maximum depth
    - Total time spent underwater
    - Bottom time
    - Time of ascension to the surface
  - Mixture of compressed gases used during the dive(s)
  - Any improvement of symptoms since ascension to the surface
  - Time since last dive was completed and any air travel history since the last dive

**General Pain Management (Adult and Pediatric)**

**CRITERIA**

- This protocol is for patients who require analgesic medications for pain of any etiology
- OLMC shall be contacted **PRIOR** to the administration of analgesic medications for **ANY** of the following conditions:
  - Altered mental status
  - Hypoventilation
  - Hemodynamically unstable
  - Pregnant or suspected of being pregnant
- Patients should be monitored using non-invasive capnography, if available

**CFR and All Provider Levels**

**CFR STOP**

**EMT**

**EMT STOP**

**Paramedic**

1. Begin cardiac and pulse oximetry monitoring
2. Obtain intravascular access, as indicated
3. Monitor vital signs every 5 minutes
4. Administer one of the following, as available:
  - **OPTION A:** Acetaminophen 15 mg/kg PO/IV (maximum 1000 mg). Administration of an additional opioid analgesic (**OPTION C** or **OPTION D**) may be considered for persistent severe pain
  - **OPTION B: ADULT:** Ketorolac 15 mg IV/IM. Administration of an additional opioid analgesic (**OPTION C** or **OPTION D**) may be considered for persistent severe pain
  - **OPTION C:** Morphine in incremental doses titrated to effect. Initial dose up to 0.1 mg/kg IV/IM (maximum 5 mg). Repeat as needed up to an additional 0.1 mg/kg (maximum cumulative dose 10 mg) for patients with SBP > 110 mmHg
  - **OPTION D:** Fentanyl in incremental doses titrated to effect. Initial dose up to 1 mcg/kg IV/IM/IN (maximum 100 mcg). Repeat as needed up to an additional 1 mcg/kg (maximum cumulative dose 200 mcg)
5. Transport

**Paramedic STOP**

**Medical Control Options**

6. Administer one of the following:
  - OPTION A: Morphine 0.1 mg/kg IV/IM
  - OPTION B: Fentanyl 1 mcg/kg IV/IM/IN

7. Administer Ketamine 0.2 mg/kg IV (maximum 25 mg) slowly OR Ketamine 0.4 mg/kg IM/IN (maximum 50 mg)

**Key Points / Considerations**

- The maximum doses for all medications in the REMAC protocols refer to the maximum weight-based dose for the patient
- Administer Acetaminophen IV over 15 minutes
- Contraindications for Ketorolac:
  - Renal failure and/or hemodialysis
  - Age  $\geq$  65 years
  - Pregnancy
  - Abdominal pain
  - Injuries with a risk for bleeding or suspected fracture
- Assess for hypoventilation after opioid medication administration and treat as needed

**Procedural Sedation / Sedation for Advanced Airway Management (Adult and Pediatric)**

**CRITERIA**

- This protocol is for patients who are conscious and require medications for:
  - Procedural sedation: Short-term analgesic, sedation, and/or anxiolysis for procedures such as synchronized cardioversion or transcutaneous pacing
  - Sedation for advanced airway management: Analgesic and/or sedation to perform or maintain an advanced airway (endotracheal intubation or use of a supraglottic airway device)
- In order to sedate the patient under standing orders to perform advanced airway management, the patient must meet **ALL** of the following criteria:
  - Adult
  - Altered mental status
  - Respiratory rate < 10 breaths/min
  - SpO<sub>2</sub> < 90% without supplemental oxygen
  - No immediate reversible cause of symptoms (e.g. opiate overdose responding to Naloxone)
- Adult patients who do not meet the above criteria **MUST** have prior approval of medications through OLMC
- Pediatric patients requiring procedural sedation or sedation for advanced airway management **MUST** have prior approval of medications through OLMC
- Continuous waveform capnography **MUST** be used whenever advanced airway management is performed EXCEPT when a supraglottic airway device is used and there are insufficient resources available (e.g. MCI event or other similar situations)
- Other procedures should be monitored using non-invasive capnography, if available

**CFR and All Provider Levels**

**CFR STOP**

**EMT**

**EMT STOP**

**Paramedic**

1. ABCs and vital signs
2. Administer oxygen
3. Obtain intravascular access
4. Begin cardiac monitoring
5. Monitor vital signs every 2-3 minutes

### Procedural Sedation

6. For an **ADULT** patient requiring procedural sedation (e.g. synchronized cardioversion, transcutaneous pacing), administer one of the following:
- OPTION A: Etomidate 0.15 mg/kg IV (maximum 20 mg)
  - OPTION B: Ketamine 1 mg/kg IV (maximum 100 mg)
  - OPTION C: Midazolam 0.1 mg/kg IV (maximum 5 mg)
  - OPTION D: Diazepam 0.1 mg/kg IV (maximum 10 mg)
  - OPTION E: Lorazepam 0.02 mg/kg IV (maximum 4 mg)

### Sedation for Placement of an Advanced Airway

7. For induction to perform advanced airway management of an **ADULT** patient with ALL OF THE FOLLOWING CRITERIA:
- Altered mental status
  - Respiratory rate < 10 breaths/min
  - SpO<sub>2</sub> < 90% without supplemental oxygen
  - No immediate reversible cause of symptoms (e.g. opiate overdose responding to Naloxone)

Administer one of the following:

- OPTION A: Etomidate 0.3 mg/kg IV (maximum 40 mg)
- OPTION B: Ketamine 2 mg/kg IV (maximum 200 mg)

### Sedation for ADULT Patients with an Advanced Airway in Place

8. For sedation of an **ADULT** patient with an advanced airway in place, administer one of the following:
- OPTION A: Fentanyl 1 mcg/kg IV (maximum 100 mcg). Administration of a sedative (OPTION B-OPTION E) may be considered for additional sedation
  - OPTION B: Ketamine 1 mg/kg IV (maximum 100 mg)
  - OPTION C: Midazolam 0.2 mg/kg IV (maximum 5 mg)
  - OPTION D: Diazepam 0.2 mg/kg IV (maximum 10 mg)
  - OPTION E: Lorazepam 0.1 mg/kg IV (maximum 4 mg)

### Paramedic STOP

### Medical Control Options

9. For an **ADULT** patient who does not meet the criteria for standing order sedation for advanced airway management, administer medication options for induction and/or sedation with an advanced airway in place according to the dosing options as listed above

10. For a **PEDIATRIC** patient requiring procedural sedation, sedation for advanced airway management, including induction and/or sedation with an advanced airway in place, administer medication options according to the weight-based dosing for adult patients

**Key Points / Considerations**

- Due to its short duration of action, consider using Etomidate as a single sedative agent only for short-term procedures such as synchronized cardioversion
- Consider contacting OLMC for analgesia when performing potentially painful procedures such as transcutaneous pacing or synchronized cardioversion
- Medications may be administered to a patient to maintain an advanced airway, even if an induction agent was not used to place the airway
- If a difficult intubation is anticipated, and the patient can be effectively ventilated, consider managing the patient's airway without performing advanced airway management
- Peri-intubation hypotension may lead to patient decompensation and/or cardiac arrest. Attempt to improve blood pressure via crystalloid fluid infusion and/or vasopressors prior to intubation

**Vaccine Administration (Adult and Pediatric)**

**INTRODUCTION**

- This protocol applies to the administration of regionally approved vaccines and is to be used at the discretion of an agency Medical Director

**CFR and All Provider Levels**

**CFR STOP**

**EMT**

1. Assess patient for need of vaccination
2. Screen for contraindications and precautions (Appendix Q: Vaccinations)
3. Provide all patients (parent/legal representative) with a copy of the most current Federal Vaccine Information Statement (VIS). Document the publication date of the VIS and the date it was given to the patient (parent/legal representative). If available and preferred, a copy of the VIS should be given in the patient’s (parent/legal representative) native language ([www.immunize.org/vis](http://www.immunize.org/vis))
4. Administer vaccine
  - Refer to Appendix Q: Vaccinations for the appropriate vaccine preparation instructions
  - Intranasal vaccines shall be administered according to directions in Appendix Q: Vaccinations
  - Intramuscular vaccines shall be administered using the needle gauge, needle length, and injection site according to the following:

ADULT FEMALE			
Patient Weight	Needle Gauge	Needle Length (inches)	Injection Site
< 130 lbs. (59 kg)	22 - 25	5/8 - 1	Deltoid muscle
130 – 152 lbs. (59-69 kg)		1	
153 – 200 lbs. (69-91 kg)		1 - 1.5	
> 200 lbs. (91 kg)		1.5	

ADULT MALE			
Patient Weight	Needle Gauge	Needle Length (inches)	Injection Site
< 130 lbs. (59 kg)	22 - 25	5/8 - 1	Deltoid muscle
130 – 152 lbs. (59-69 kg)		1	
153 – 260 lbs. (69-118 kg)		1 - 1.5	
> 260 lbs. (118 kg)		1.5	

PEDIATRIC			
Patient Age (years)	Needle Gauge	Needle Length (inches)	Injection Site
< 5	22 - 25	5/8 - 1	Anterior thigh
≥ 5			Deltoid muscle

- When using a 5/8 inch needle for injections into the deltoid muscle, ensure that the needle is perpendicular (90° angle) to the skin and that the skin is stretched taut

5. Documentation shall include the date of immunization, immunizations administered, dose, injection site, lot number, manufacturer, VIS date, and the identification of the provider administering the vaccine. If the vaccine was not administered, record the reason for the non-receipt
6. Patients shall be monitored for any adverse reactions for fifteen (15) minutes after vaccine administration. If the patient has a history of allergies that is not severe enough to be a contraindication for the vaccine, observe the patient for thirty (30) minutes

**EMT STOP**

**Paramedic**

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Patient records shall be reported to the New York State Immunization Information System (NYSIIS) database within 24 hours
- Adverse events occurring after administration of any vaccine should be reported to the Vaccine Adverse Event Reporting System (VAERS) online at <https://vaers.hhs.gov>. Additional information about VAERS is available by telephone at 800-822-7967

## General Trauma Care (Adult and Pediatric)

### CFR and All Provider Levels

1. Control external bleeding
2. Perform spinal injury precautions as needed
3. ABCs and vital signs
4. Airway management and appropriate oxygen therapy
5. For evisceration injuries:
  - Do NOT reinsert or reduce the protruding organ
  - Do NOT pour liquid directly onto the wound
  - Place saline-moistened, sterile dressings over the organ
  - Secure dry, bulky dressings over the moistened dressings
  - Place an occlusive dressing over the moistened dressings to maintain body heat
  - Position the patient appropriately with knees slightly bent
6. For open chest injuries, cover with occlusive dressing; if dyspnea increases, release the dressing momentarily during exhalation
7. For impaled objects:
  - Unless it compromises the airway, DO NOT remove the object
  - Support and secure the object with bulky dressings
8. Treat extremity injuries

### CFR STOP

### EMT

9. Stabilize potentially unstable pelvic fractures
10. Transport patient to the closest appropriate Trauma Center (Appendix I: Hospital Specialty Capabilities) as needed

### EMT STOP

### Paramedic

11. Perform needle decompression for a suspected tension pneumothorax (Appendix M: Needle Decompression of Tension Pneumothorax) as needed
12. Begin cardiac monitoring
13. Obtain intravascular access
14. Administer crystalloid fluids 20 ml/kg IV (maximum 2 L) as needed to maintain SBP > 90 mmHg or MAP > 65 mmHg
15. Treat for pain as needed

### Paramedic STOP

### Medical Control Options

**Key Points / Considerations**

- Transport patients with criteria as determined by General Operating Procedures and Appendix: E Trauma Center Transport Criteria to the closest appropriate Trauma Center
- Decreased breath sounds or muffled heart sounds indicate life-threatening chest injuries. The patient should be transported immediately
- The first priority for trauma patients is to stop further external bleeding
- Crystalloid fluid is a temporizing measure for patients in shock from blood loss and require definitive care at a hospital. Do not delay transport to obtain intravascular access or administer crystalloid fluids
- Stabilize any unstable pelvic fractures by using conventional methods or a commercial pelvic binder if available

## Traumatic Cardiac Arrest (Adult and Pediatric)

### CFR and All Provider Levels

1. Begin CPR as per AHA guidelines
2. Control any bleeding as needed without interrupting CPR
3. Turn on the Automated External Defibrillator (AED)
4. Apply appropriately-sized AED pads to the patient's bare chest with minimal interruption of chest compressions
5. Connect AED pads and follow the AED voice prompts
6. Continue CPR, re-analyze every two (2) minutes and shock as indicated

### CFR STOP

### EMT

7. Request ALS assistance
8. Continue CPR and AED analysis with minimal interruption of chest compressions
9. Transport

### EMT STOP

### Paramedic

10. Continue CPR and defibrillation cycles with minimal interruption of chest compressions
11. If an AED is in place, transition from the AED to an ALS monitor after AED analysis and begin cardiac monitoring. Defibrillate with the following energy settings using appropriately-sized AED/monitor pads:
  - **ADULT:** Maximum joule setting possible
  - **PEDIATRIC:**
    - Initial defibrillation: 2 joules/kg
    - Second defibrillation as needed: 4 joules/kg
    - Subsequent defibrillations as needed: 10 joules/kg
12. If the cause of the cardiac arrest is suspected to be secondary to a medical condition that is non-traumatic, treat accordingly as a non-traumatic cardiac arrest
13. Perform needle decompression for a suspected tension pneumothorax (Appendix M: Needle Decompression of Tension Pneumothorax) as needed
14. Perform advanced airway management after second rhythm analysis
15. Obtain intravascular access via either large bore IV or intraosseous site. Consider intraosseous access for pediatric patients if needed
16. Administer crystalloid fluid 20 ml/kg IV (maximum 2 L)

### Paramedic STOP

### Medical Control Options

18. Administer additional crystalloid fluid 20 ml/kg IV (maximum 1 L)

**Key Points / Considerations**

- Do not interrupt compressions for placement of an advanced airway
- Traumatic arrests should be transported as soon as possible
- AED should be placed as soon as possible without interrupting compressions
- Artifact from vibrations in a moving ambulance may compromise the effectiveness of an AED
- Maximum joule setting may vary depending on the defibrillator used
- As per AHA, the benefit of double sequential defibrillation for refractory shockable rhythms has not been established
- If the cardiac monitor is unable to deliver the desired weight-based joule setting, use the closest setting without exceeding the desired setting

## Amputation (Adult and Pediatric)

### CFR and All Provider Levels

1. Control external bleeding
2. ABCs and vital signs
3. Elevate and wrap the amputated extremity with moist sterile dressings and cover with dry bandage
4. Care for amputated part:
  - Moisten sterile dressing with sterile saline solution and wrap amputated part
  - Place the amputated part in a water-tight container, such as a sealed plastic bag
  - Label the bag with the patient's name and time of the injury
  - Place the container on ice or cold packs, using caution to avoid freezing the amputated part

### CFR STOP

### EMT

5. Transport

### EMT STOP

### Paramedic

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- If possible, transport the amputated part with the patient, but do not delay transport to search for the amputated part

**Avulsed Tooth (Adult and Pediatric)**

**CRITERIA**

- This protocol applies only for permanent teeth

**CFR and All Provider Levels**

1. ABCs and vital signs
2. Hold the tooth by the crown (not the root)
3. Rinse the tooth with saline before reimplantation, but do not brush off or clean the tooth of tissue
4. Remove the clot from the socket; and suction the clot, if needed
5. Reimplant the tooth firmly into its socket with digital pressure
6. Have the patient hold the tooth in place using gauze and bite pressure

**CFR STOP**

**EMT**

8. Transport

**EMT STOP**

**Paramedic**

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Report to hospital staff that a tooth has been reimplanted
- As appropriate, the best transport medium for an avulsed tooth is in the socket
- Reimplantation is most successful when it occurs within five minutes of the injury
- Do not reimplant the tooth if the patient has any of the following conditions:
  - Altered mental status
  - Requires transportation in a supine position
  - Alveolar bone/gingiva are not present or if the root is fractured
  - Immunosuppression or if the patient has a cardiac condition requiring antibiotics prior to procedures
- If the patient is not a candidate for reimplantation and has avulsed a permanent tooth, place the avulsed tooth in interim storage media (commercial tooth preservation media, low fat milk, patient’s saliva, or saline) and keep cool. Do not allow the permanent tooth to dry, but avoid tap water as a storage medium if possible

## Bleeding / Hemorrhage Control (Adult and Pediatric)

### CFR and All Provider Levels

1. Assess site of injury and control external bleeding accordingly:
  - Uncontrolled life-threatening external bleeding from an extremity
    - Place tourniquet 2-3 inches proximal to the wound
    - If bleeding continues, place a second tourniquet proximal to the first. If the wound is distal to the knee or elbow, place the second tourniquet proximal to these joints. If the bleeding site cannot be rapidly identified, place a tourniquet “high and tight”
  - Uncontrolled life-threatening external bleeding from an anatomical junction
    - Pack the wound with gauze or hemostatic dressing, if available. Place pressure over the dressing and secure in place
  - Severe external bleeding
    - Apply direct pressure on the wound with gauze or hemostatic dressing, if available
    - Pack wound and hold pressure, using additional dressings as needed
    - If severe bleeding persists when using conventional dressings and hemostatic dressing becomes available, remove initial dressings and replace with hemostatic dressing at site of bleeding
    - Cover with a pressure bandage and secure in place
  - Severe external bleeding from a dialysis shunt or fistula
    - Apply digital pressure to the bleeding site
    - Cover with a pressure dressing and secure in place
2. ABCs and vital signs
3. Airway management and appropriate oxygen therapy
4. Assess for shock and treat as needed

### CFR STOP

### EMT

5. Transport

### EMT STOP

### Paramedic

### Paramedic STOP

### Medical Control Options

**Key Points / Considerations**

- Use of tourniquets for severe bleeding from a dialysis shunt or fistula should only be used when other means of hemorrhage control have been unsuccessful
- Infection control precautions must be followed with all patients, especially with the patient's blood
- Hemostatic dressings shall be used according to manufacturer's instructions and/or respective agency training
- Rolled gauze may be used in place of hemostatic dressing if hemostatic dressings are not available
- DO NOT remove a tourniquet that was used to control life-threatening hemorrhage
- Note the time of tourniquet application and location of tourniquet(s)
- If clinical judgment of the provider indicates that the tourniquet was placed inappropriately (e.g. minor wound) or there is a significant delay in transport, consider releasing tourniquet. Caution shall be made to ensure the ability to immediately re-apply the tourniquet and control any possible recurrent hemorrhage

## Burns (Adult and Pediatric)

### CFR and All Provider Levels

1. Stop the burning process
2. ABCs and vital signs
3. Airway management and appropriate oxygen therapy
4. Remove smoldering clothing that is not adherent to the patient's skin
5. If possible, remove rings, bracelets, and constricting objects on the burned extremity
6. Cover the burn with dry sterile dressings or sterile non-adherent dressings, if available
7. Immediately irrigate burns to the eye with Normal Saline or water
8. Assess and treat for smoke inhalation appropriately as needed
9. Maintain patient's body temperature

### CFR STOP

### EMT

10. Cover burns with moist sterile dressings only if the burn is  $\leq 10\%$  of total body surface area (TBSA)
11. Transport patient to the closest appropriate Burn Center (Appendix I: Hospital Specialty Capabilities) as needed

### EMT STOP

### Paramedic

13. Perform advanced airway management for any evidence of burns to the upper airway or if upper airway compromise is anticipated
14. Begin cardiac monitoring
15. Obtain intravascular access
16. For partial and full thickness burns (2<sup>nd</sup> degree burns or higher)  $> 20\%$  TBSA, administer crystalloid fluids 20 ml/kg IV (maximum 1 L)
17. Assess and treat for chemical eye injuries/burns as needed

### Paramedic STOP

### Medical Control Options

18. For a delay in transport, administer crystalloid fluids 20 ml/kg IV (maximum 1 L)

**Key Points / Considerations**

- Transport patients with criteria as determined in the General Operating Procedures and Appendix F: Burn Center Transport Criteria to the closest appropriate Burn Center
- Assure scene safety and patient decontamination for chemical burns/HAZMAT exposure
  - For liquid chemical burns: flush with copious amounts of water or saline, ideally for a minimum of 20 minutes
  - For dry powder burns: brush powder off before flushing
  - Use caution to avoid the spread of the contaminant to unaffected areas (especially from one eye to the other)
  - If hazardous material involvement is suspected, notify the destination hospital to allow for appropriate decontamination
- Consider other injuries, including cardiac dysrhythmias
- Oxygen saturation readings may be falsely elevated in suspected smoke inhalation
- When considering the total area of a burn, DO NOT include superficial (1<sup>st</sup> degree) burns
- For burns > 10%, use only dry sterile dressings or sterile non-adherent dressings, if available, once the burning process has stopped
- Most burn patients do not need aggressive pre-hospital fluid resuscitation
- Hypothermia is a significant concern in burn patients

## Eye Injuries (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management and appropriate oxygen therapy
3. Do not apply pressure to the globe of the eye
4. Loosely bandage both eyes
5. For non-penetrating foreign object/chemical eye injuries, immediately and continuously flush the affected eye(s) with Normal Saline for a minimum of 20 minutes
6. For impaled objects to the eye, stabilize the object with bulky dressings and cover both eyes to prevent consensual eye movement
7. For an avulsed eye:
  - Do not attempt to replace the eye into the socket
  - Cover the eye with saline-moistened, sterile dressings
  - Stabilize dressings with a paper cup or similar object

### CFR STOP

### EMT

8. Assist the patient with removal of contact lenses as needed
9. Transport

### EMT STOP

### Paramedic

10. For chemical eye injuries, administer one of the following medications to assist with irrigation as needed:
  - OPTION A: Proparacaine 0.5% 1-2 gtts topically in affected eye(s). Repeat as needed
  - OPTION B: Tetracaine 0.5% 1-2 gtts topically in affected eye(s). Repeat as needed

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

## Bone and Joint Injuries (Adult and Pediatric)

### CFR and All Provider Levels

1. Control external bleeding
2. ABCs and vital signs
3. Airway management and appropriate oxygen therapy
4. Assess for shock and treat as needed
5. Manually stabilize the injury
6. Cover protruding bones and wounds with dry sterile dressings
7. Assess for peripheral pulses, motor function, and sensation to the injured extremity
8. Apply cold pack(s) to closed injury sites

### CFR STOP

### EMT

9. Immobilize the extremity injury:
  - 9.1 Assess for peripheral pulses, motor function, and sensation to the injured extremity before and after immobilization
  - 9.2 Align the extremity by applying gentle manual traction prior to splinting if the distal extremity has ANY of the following conditions: cyanotic, pulseless or if the long bone is severely deformed. If there is increased pain or resistance, stop and splint extremity in its original position
  - 9.3 Immobilize an injured joint in its position of function. If unable to move the joint due to increased pain or resistance, splint the joint in its original position
  - 9.4 Elevate the extremity
10. For isolated, closed mid-thigh fractures, apply a traction splint as indicated
11. Stabilize potentially unstable pelvic fractures
12. Transport

### EMT STOP

### Paramedic

### Paramedic STOP

**Medical Control Options**

**EMT and Paramedic**

13. For reduction of a clinically obvious, isolated medial or lateral patella dislocation:

- Gradually extend the knee while a second provider simultaneously applies pressure on the patella towards the midline of the knee
- Immobilize the lower extremity when the leg is fully extended
- If there is increased pain or resistance, splint the joint in its original position
- If a patella dislocation is uncertain or if the patient’s body habitus prevents accurate assessment, immobilize the joint in its original position

**Key Points / Considerations**

- Splinting should not delay transport of the critical or unstable patient
- Depending on the traction splint device used, evaluate for any suspected injuries to the pelvis, knee, lower leg, or ankle on the same side of the injury prior to use
- Do not attempt to reduce intra-articular or superior patella dislocations

## Head, Neck, and Spine Injuries (Adult and Pediatric)

### CFR and All Provider Levels

1. Control external bleeding
2. ABCs and vital signs
3. Airway management and appropriate oxygen therapy
4. Cover open neck wounds with an occlusive dressing while ensuring not to bandage completely around the neck
5. Assess for shock and treat as needed
6. Perform spinal motion restriction for patients who have a mechanism for spinal injury AND any of the following:
  - Altered mental status, including intoxication
  - Distracting injury or unreliable physical exam/history
  - Neck/spine pain, tenderness or deformity
  - Weakness, paralysis, numbness or tingling
  - High risk mechanism of injury

### CFR STOP

### EMT

7. Transport

### EMT STOP

### Paramedic

8. Perform advanced airway management as needed
9. Begin cardiac monitoring
10. Obtain intravascular access

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- Do not use a nasopharyngeal airway in patients with suspected facial or skull fractures
- Do not hyperventilate patients when assisting ventilations
- Do not hyperventilate patients when assisting ventilations as this may worsen outcomes, especially in patients with closed head injuries
- Patients with isolated, penetrating injuries to the back, chest, abdomen, or pelvis should not have a cervical collar applied
- Examples of high-risk mechanisms for spinal injury include: ejection from a vehicle or motorcycle, diving injuries, falls > 10 feet, or being struck by a vehicle at high speed

## Carbon Monoxide Poisoning (Adult and Pediatric)

### CFR and All Provider Levels

1. Ensure that the scene is safe to enter
2. Remove the patient from the contaminated environment
3. ABCs and vital signs
4. Airway management
5. Administer oxygen via non-rebreather
6. Assess for shock and treat as needed

### CFR STOP

### EMT

7. Obtain patient's carbon monoxide level (SpCO) if available
8. Transport patients with continuous high concentration oxygen to the closest Hyperbaric Center (Appendix I: Hospital Specialty Capabilities) for ANY of the following conditions:
  - Asymptomatic patient with SpCO > 25%
  - Patients with a high index of suspicion for carbon monoxide poisoning AND any of the following symptoms: altered mental status, headache, or syncope
  - Pregnant patients with SpCO > 15%

### EMT STOP

### Paramedic

11. Perform advanced airway management as needed
12. Begin cardiac monitoring
13. Obtain intravascular access

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- Transport patients with criteria as determined by the General Operating Procedures to the closest appropriate Hyperbaric Center
- Cyanide poisoning should be considered for patients who have been exposed to smoke from a burning substance in an enclosed space
- Patients shall be transported with continuous high concentration oxygen even if signs and symptoms of carbon monoxide poisoning resolve
- Oxygen saturation (SpO<sub>2</sub>) obtained from pulse oximetry monitoring is not accurate and may be falsely elevated in a patient with carbon monoxide poisoning

## Smoke Inhalation (Adult and Pediatric)

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management
3. Administer oxygen via non-rebreather
4. Assess for shock and treat as needed
5. Treat any burns as needed

### CFR STOP

### EMT

9. Obtain patient's carbon monoxide level (SpCO) if available
10. Request ALS assistance
11. Transport

### EMT STOP

### Paramedic

12. Perform advanced airway management as needed
13. Begin cardiac monitoring
14. Obtain intravascular access
15. Treat for cyanide poisoning as needed for patients with ANY of the following conditions:
  - Cardiac arrest
  - Respiratory arrest
  - Altered mental status
  - Seizures
  - Hypotension not attributable to obvious causes

### Paramedic STOP

### Medical Control Options

### Key Points / Considerations

- Cyanide poisoning should be considered for patients who have been exposed to smoke from a burning substance in an enclosed space
- Patients shall be transported with continuous high concentration oxygen even if signs and symptoms of carbon monoxide poisoning resolve

## Cyanide Poisoning (Adult and Pediatric)

### CRITERIA

- This protocol is for critical patients with exposure to cyanide
- A class order is required when operating at a scene with suspected cyanide exposure secondary to weapons of mass destruction (WMD)
- The class order may be issued by a FDNY OMA Medical Director who is on scene or as relayed through an FDNY OMA Medical Director via online medical control or FDNY Emergency Medical Dispatch
- The issuance of any class order shall be conveyed to all regional online medical control facilities for relay to units in the field
- Treatment within the “hot” and “warm” zones is to be performed only by appropriately trained personnel wearing appropriate chemical protective clothing (CPC) as determined by the FDNY Incident Commander
- If providers encounter a patient who has not been appropriately decontaminated from liquid cyanide, the providers should leave the area immediately until appropriate decontamination has been performed

### CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management
3. Administer oxygen via non-rebreather
4. Assess for shock and treat as needed
5. Assess and treat for burns as needed

### CFR STOP

### EMT

6. Request ALS assistance
7. Transport

### EMT STOP

### Paramedic

8. Perform advanced airway management as needed
9. Begin cardiac monitoring
10. Obtain at least two sites of intravascular access

11. Administer Hydroxocobalamin and Sodium Thiosulfate, if available, for patients with ANY of the following conditions:

- Cardiac arrest
- Respiratory arrest
- Altered mental status
- Seizures
- Hypotension not attributable to obvious causes

Obtain three blood samples using the tubes provided in the Cyanide Toxicity Kit PRIOR to the administration of Hydroxocobalamin as soon as possible

11.1 Administer Hydroxocobalamin, if available, as follows:

- **ADULT:** Hydroxocobalamin 5 g IV over 15 minutes. Repeat if patient has persistent symptoms
- **PEDIATRIC:** Hydroxocobalamin 75 mg/kg IV (3 ml/kg of prepared solution) (maximum 5 g) over 15 minutes. Repeat if patient has persistent symptoms

11.2 Administer Sodium Thiosulfate, if available, as follows:

- **ADULT:** Sodium Thiosulfate 12.5 g IV (150 ml of prepared solution) over 10 minutes
- **PEDIATRIC:** Sodium Thiosulfate 250 mg/kg IV (3 ml/kg of prepared solution) (maximum 12.5 g) over 10 minutes

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

**Cyanide Toxicity Kit**

Item	Quantity
Hydroxocobalamin 5 g bottle (crystalline powder)	1
Sodium Thiosulfate 12.5 g bottle (25% solution)	1
Normal Saline or D <sub>5</sub> W (100 ml bag)	3
20 ml syringe	1
Three-way stopcock connector	1
2 ml fluoride oxalate whole blood tube	1
2 ml K2 EDTA tube	1
2 ml lithium heparin tube	1

- Hydroxocobalamin solution is prepared by adding 200 ml of Normal Saline or D<sub>5</sub>W to Hydroxocobalamin 5 g powder in the bottle provided. The vented macro-drip tubing that accompanies the Cyanide Toxicity Kit should be used to administer the Hydroxocobalamin solution. For an adult dose, use in wide-open position to ensure the correct administration time of approximately 15 minutes
- Sodium Thiosulfate solution is prepared by adding Sodium Thiosulfate 12.5 g (50 ml) to a 100 ml bag of Normal Saline or D<sub>5</sub>W
- In the event that only one intravascular access line is established, administer Hydroxocobalamin BEFORE Sodium Thiosulfate since Sodium Thiosulfate will inactivate Hydroxocobalamin
- Whenever Hydroxocobalamin is administered, follow with a 20 ml flush of crystalloid fluid prior to administering other medications
- A class order is a general order given by a FDNY OMA Medical Director to perform a specific intervention or interventions at a specific location(s) during a specified time period. This order is generally reserved for disaster situations

**Weapons of Mass Destruction: Nerve Agent Exposure (Adult and Pediatric)**

**CRITERIA**

- A class order issued by the FDNY Office of Medical Affairs is required for the use of this protocol
- This protocol applies only to 9-1-1 participating units
- The class order may be issued by a FDNY OMA Medical Director who is on scene or as relayed through an FDNY-OMA Medical Director via online medical control or FDNY Emergency Medical Dispatch
- The issuance of any class order shall be conveyed to all regional online medical control facilities for relay to units in the field
- Only providers who are trained and who are wearing appropriate chemical protective clothing (CPC) may operate in the treatment zones as directed by the FDNY Incident Commander:
  - Hot Zone (Exclusion Zone): FDNY CFR, FDNY HazTac EMTs and Paramedics, FDNY Rescue Paramedics
  - Warm Zone (Contamination Reduction Zone): FDNY providers
  - Cold Zone (Support Zone): All EMS providers

**CFR and All Provider Levels**

1. Assign triage tags according to the patient’s signs and symptoms and administer the nerve agent antidote kit (NAAK) auto-injector IM and/or Atropine 0.5 mg auto-injector IM, if available, according to symptom severity and weight as follows:

Tag Color	Signs and Symptoms	Weight (kg)	NAAK (unit)	Atropine 0.5 mg auto-injector
RED	SLUDGEM AND one of the following: AMS or Respiratory Distress	< 18	1	
		18-40	2	
		> 40	3	
YELLOW	SLUDGEM OR Respiratory Distress	< 18	0	1
		18-40	1	
		> 40	2	
GREEN	Asymptomatic		0	

- If multiple doses of NAAK are required, administer each unit in rapid succession
- NAAK refers to either the dual-injector set [Mark-1 (one atropine auto-injector and one pralidoxime auto-injector)] or a single injector containing both medications [DuoDote® (Atropine and Pralidoxime)]
- NAAK auto-injectors contain Atropine 2 mg and Pralidoxime 600 mg

2. Treat patients according to tag color as follows:
  - Red and Yellow tag patients: do not delay treatment for decontamination
  - Green tag patients: decontaminate and observe closely
3. Monitor the patient every 5 minutes
4. For patients with persistent symptoms of excessive secretions or respiratory distress after initial management, administer Atropine auto-injector IM, if available, according to weight as follows. Repeat Atropine auto-injector IM every 5 minutes as needed

Signs and Symptoms	Weight (kg)	Atropine auto-injector (mg)
Excessive Secretions or Respiratory Distress	< 18	0.5
	18-40	1
	> 40	2

**CFR STOP**

**EMT**

5. Transport

**EMT STOP**

**Paramedic**

6. For patients who are actively seizing, administer one of the following:

Weight (kg)	OPTION A: Diazepam	OPTION B: Midazolam
< 18	<ul style="list-style-type: none"> <li>• 0.5 mg/kg IM (0.1 ml/kg of a 5 mg/ml concentration) [maximum 5 mg]</li> <li>• Repeat Diazepam 0.5 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 10 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• 0.2 mg/kg IM (0.04 ml/kg of a 5 mg/ml concentration) [maximum 3 mg]</li> <li>• Repeat Midazolam 0.15 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 10 mg)</li> </ul>
18-40	<ul style="list-style-type: none"> <li>• 0.5 mg/kg IM (0.1 ml/kg of a 5 mg/ml concentration) [maximum 10 mg]</li> <li>• Repeat Diazepam 0.5 mg/kg IM (maximum 10 mg) every 10 minutes as needed (maximum cumulative dose 30 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• 0.2 mg/kg IM (0.04 ml/kg of a 5 mg/ml concentration) [maximum 5 mg]</li> <li>• Repeat Midazolam 0.15 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 20 mg)</li> </ul>
> 40	<ul style="list-style-type: none"> <li>• 10 mg auto-injector IM</li> <li>• Repeat Diazepam 10 mg auto-injector IM every 10 minutes as needed (maximum cumulative dose 30 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• 5 mg IM (1ml of a 5 mg/ml concentration)</li> <li>• Repeat Midazolam 5 mg IM every 10 minutes as needed (maximum cumulative dose 20 mg)</li> </ul>

**Paramedic STOP**

**Medical Control Options**

**FDNY OMA Response Physician Medical Control Options**

7. Administer additional dosing of any standing order medication

**Key Points / Considerations**

- Symptoms for nerve agent exposure are described using the acronym SLUDGEM:
  - Salivation
  - Lacrimation
  - Urination
  - Defecation/diarrhea
  - Gastrointestinal upset
  - Emesis
  - Miosis/muscle twitching
- Any discretionary orders or medical control options **MUST** be approved by the FDNY OMA Response Physician
- The goal of treatment for patients is the drying of secretions and resolution of other symptoms
- Diazepam is the medication of choice when treating a patient with seizures secondary to nerve agent exposure
- Do not administer more than 3 NAAK units to any patient
- Asymptomatic patients do not require treatment
- Record the number and/or amount of Atropine, NAAK, and benzodiazepines administered on the patient's triage tag
- Victims whose skin or clothing is contaminated with liquid nerve agent can contaminate rescuers by direct contact or through off-gassing vapor
- Victims who have ingested nerve agents may off-gas dangerous levels of vapor, including from vomit if ingested, even after skin decontamination

**REGIONAL EMERGENCY MEDICAL ADVISORY COMMITTEE  
NEW YORK CITY**



*Est. 1974*

**PREHOSPITAL TREATMENT PROTOCOLS**

**APPENDICES**

Effective April 8, 2025

2024-02

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Appendix A: Telephone Directory

**NYC and NYS EMS Offices**

Regional Emergency Medical Services Council of NYC (REMSCO)	212-870-2301
Regional Emergency Medical Advisory Committee of NYC (REMAC)	212-870-2301
NYS Dept. of Health (Central Office)	518-402-0996
NYS Dept. of Health – NYC Field Office	212-417-4455

**Abuse / Domestic Violence**

NYS Child Abuse/Maltreatment Register (Mandated Reporter Express Line)	800-635-1522
NYS 24 Hour Child Abuse Hotline	800-342-3720
Domestic Violence 24 Hour Hotline	800-621-4673 (HOPE)

**Crime Victims**

Crime Victims 24 Hour Hot-Line	212-577-7777
State Crime Victims Compensation Board	212-417-5160
Sex Crimes Report Line (NYPD)	212-267-7273

**Geriatric**

NYC Department for the Aging Central Information and Referral	212-442-1000
Social Security (MEDICARE)	800-772-1213
Alzheimer's Resource Center	212-442- 3086

**Social Services**

Human Resources Administration General Information	877-474-8411
Utility Cut-Off Emergencies (Public Service Assistance)	800-342-3355
Legal Services (Legal Aid Society)	212-577-3300

**Other Services**

ASPCA (Injured Animals)	718-649-8600
NYC Transit Authority	718-330-1234
Gas Leaks	718-643-4050
Poison Control	212-764-7667 (POISONS)

**Appendix B: Universal Approach to the EMS Call**

- The following is intended to provide a standardized framework to the EMS call
- Follow common sense, apply good clinical judgment, and follow regional policies and protocols
- Consider dispatch information when responding, including:
  - Type of response (emergency vs. non-emergency)
  - Weather
  - Road conditions
  - Time of day
  - Location of call
  - EMD determinant/mechanism of illness or injury
  - Number of anticipated patients
  - Potential need for additional resources
- Survey the scene
  - Do not approach the scene unless acceptably safe to do so
  - Stage proximate to the scene until the scene is rendered acceptably safe from any of the following:
    - Environmental hazards
    - Chemical, biological, radiological, nuclear, and high yield explosives hazards (CBRNE)
    - Evidence of unknown powders, unknown substances or sharps
    - Indicators of a chemical suicide
    - Mechanical hazards
    - Violence or threat of violence
    - Traffic hazards
    - Number of actual patients
    - Activation of local multiple casualty incident (MCI) plan as needed
  - Consider shelter-in-place or evacuation based on hazards
- Consider additional support resources:
  - Additional prehospital providers (CFRs, EMTs, Paramedics)
  - Additional ambulance(s)
  - EMS physician
  - FDNY Special Operations
  - Law enforcement
  - Utilities
- Ensure universal precautions/personal protective equipment appropriate to the task

**PRIMARY PATIENT ASSESSMENT**

	<b>Assessment</b>	<b>Management</b>
<b>Scene Size-Up</b>	<ul style="list-style-type: none"> <li>• Body substance isolation</li> <li>• Scene safety</li> <li>• Mechanism of injury/nature of illness</li> <li>• Spinal precautions as needed</li> </ul>	<ul style="list-style-type: none"> <li>• Goggles, gloves, gown, mask as needed</li> <li>• Ensure safety of self, partner, patient and bystanders</li> </ul>
<b>General</b>	<ul style="list-style-type: none"> <li>• General patient impression</li> <li>• Level of consciousness</li> <li>• Chief complaint</li> </ul>	<ul style="list-style-type: none"> <li>• A: alert</li> <li>• V: responds to verbal stimuli</li> <li>• P: responds to painful stimuli</li> <li>• U: unresponsive (no gag or cough)</li> </ul>
<b>Airway and Breathing</b>	<ul style="list-style-type: none"> <li>• Airway management</li> <li>• Oxygen therapy as needed</li> <li>• Ensure adequate ventilation</li> <li>• Treat any life threatening airway or breathing problems</li> </ul>	<ul style="list-style-type: none"> <li>• Modified jaw thrust</li> <li>• Suction as needed</li> <li>• Airway adjuncts (OPA/NPA) as needed</li> <li>• CPR as needed</li> </ul>
<b>Circulation</b>	<ul style="list-style-type: none"> <li>• Skin color</li> <li>• Assess pulses</li> <li>• Estimation of systolic blood pressure</li> <li>• Major bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Control any external bleeding</li> <li>• Support circulation</li> </ul>
<b>Transport Decision</b>	<ul style="list-style-type: none"> <li>• Identify urgency of transport</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate or continued assessment</li> </ul>

## SAFETY RESTRAINING DEVICES

- All passengers including patients and EMS personnel should be restrained
- It is not acceptable or safe to have a parent or caregiver hold a child in their arms or lap. The child and parent/caregiver should each be restrained appropriately
- All patients on the stretcher must be secured using harness straps when the vehicle is in motion or when the stretcher is being carried or moved
- For the transportation of pediatric patients:
  - Pediatric patients shall ideally be transported using a size-appropriate child restraint system secured appropriately onto the stretcher
  - If a size-appropriate child restraint system is not available, secure the patient using one of the following methods:
    - If available and intact, use the pediatric patient's own safety seat to restrain the patient during transport
      - If the child is the patient, the device should be secured onto the stretcher with the child belted in the safety seat
      - If the child is not the patient, they should be placed in the safety seat with the device belted to an ambulance seat
    - Transport the child in the rear-facing EMS provider's seat/captain's chair in a size-appropriate child restraint system. This system can be a convertible or combination seat using a forward-facing belt path. Do not use a rear-facing-only seat in the rear-facing EMS provider's seat
    - Secure the pediatric patient to the stretcher with three horizontal restraints across the chest, waist, and knees, and one vertical restraint across each shoulder
- Agencies shall routinely train prehospital personnel in the use of various child safety seats/restraints and have a policy for how pediatric patients will be transported
- As an agency considers the purchase of new vehicles, or retro-fitting of current vehicles; design considerations, such as integrated child restraints, should be considered
- All safety seats/restraints should be used according to manufacturer's recommendations
- If a patient chooses to refuse safety restraints, refer to agency and regional policy

**Appendix C: Do Not Resuscitate/Medical Orders Life Sustaining Treatment/Health Care Agents**

- The wishes for conscious and alert patients are to be followed in accordance with standard consent procedures
- For patients unable to provide consent, including unconscious patients, determine the availability of a valid DNR, MOLST or identified health care agent and follow the guidance according to New York State Policy Statement 23-12 or its updated replacement:

<https://www.health.ny.gov/professionals/ems/pdf/23-12.pdf>

Appendix D: Glasgow Coma Scale

ADULT GLASGOW COMA SCALE		
Response		Points
<b>Eye Opening</b>	Spontaneous	4
	Responsive to voice	3
	Responsive to pain	2
	None	1
<b>Verbal Response</b>	Oriented	5
	Confused	4
	Inappropriate words	3
	Incomprehensible words	2
	None	1
<b>Motor Response</b>	Obeys commands	6
	Localizes to pain	5
	Withdraws to pain	4
	Flexion	3
	Extension	2
	None	1
<b>Total Glasgow Coma Scale</b>		3-15

INFANT GLASGOW COMA SCALE		
Response		Points
<b>Eye Opening</b>	Spontaneous	4
	Responsive to voice	3
	Responsive to pain	2
	None	1
<b>Verbal Response</b>	Coos, babbles	5
	Irritable cries	4
	Cries to pain	3
	Moans to pain	2
	None	1
<b>Motor Response</b>	Normal spontaneous movement	6
	Withdraws to touch	5
	Withdraws to pain	4
	Abnormal flexion	3
	Abnormal extension	2
	None	1
<b>Total Glasgow Coma Scale</b>		3-15

**Appendix E: Trauma Center Transport Criteria (Adult and Pediatric)**

- Patients are considered to have major trauma that require transport to a Trauma Center if they have ANY of the following criteria:
  - Physical findings:
    - Cardiopulmonary arrest secondary to trauma
    - Penetrating injuries to head, neck, torso or proximal extremities
    - Suspected fracture of two or more proximal long bone
    - Chest wall instability or deformity
    - Suspected spinal cord injury with new motor or sensory deficit
    - Amputation (except digits)
    - Suspected pelvic fracture
    - Skull deformity or suspected skull fracture
    - Crushed, degloved, mangled, or pulseless extremities
    - Severe bleeding, requiring tourniquet placement or wound packing
  - Vital signs
    - Unable to follow commands (Motor GCS < 6)
    - Room-air pulse oximetry < 90%
    - Respiratory distress or need for assisted ventilation
    - **ADULT:** Respiratory rate < 10 breaths/min OR respiratory rate > 29 breaths/min
    - Patients with vital signs in the following table:

VITAL SIGNS	AGE (years)		
	0-9	10-64	≥ 65
Heart Rate (beats/min)		HR > SBP	HR > SBP
SBP (mmHg)	< 70 + (2 x [age in years])	< 90	< 110

- Mechanism of injury
  - Ejection or partial ejection from an automobile
  - Death in the same passenger compartment
  - Need for extrication for an entrapped patient
  - Vehicle collision with > 12 inches of intrusion to the passenger compartment OR > 18 inches to any site
  - Rider separated from vehicle with significant impact
  - Falls > 10 feet
  - Pedestrian or bicycle rider thrown, run over or with significant impact

- Patients with ANY of the following conditions are considered high risk for severe injury and shall be considered for transport to a trauma center:
  - Bleeding disorders or patients who are on anticoagulant medications
  - Cardiac or respiratory disease
  - Special, high-resource healthcare needs (e.g. ventilator dependent, renal failure, cirrhosis, or morbid obesity)
  - Immunosuppressed patients (e.g. HIV disease, transplant patients, and patients on chemotherapy treatment)
  - Pregnancy > 20 weeks gestation
  - Suspicion of child abuse
  - Child (age 0 – 9) unrestrained or in unsecured child safety seat
  - Low-level falls with significant head impact in young children (age  $\leq$  5 years) or older adults (age  $\geq$  65 years)
- Contact medical control for further guidance on appropriate destination as needed
- Pediatric patients shall be transported to a pediatric trauma center if they have major trauma. If the transport time to the pediatric trauma center is more than 30 minutes, they shall be transported to the closest adult trauma center

**Appendix F: Burn Center Transport Criteria (Adult and Pediatric)**

- A patient is considered to have major burns that requires transport to a Burn Center if they have ANY of the following conditions:
  - Partial (2<sup>nd</sup> degree burns) or full thickness burns (3<sup>rd</sup> degree burns or higher) with the following conditions:
    - Burns  $\geq$  15% of the total body surface area (TBSA)
    - Full thickness burns (3<sup>rd</sup> degree burns or higher)  $\geq$  5% TBSA
    - Burns  $\geq$  9% TBSA in the following patients:
      - Age < 5 years
      - Age > 60 years
      - Presence of pre-existing diseases that may complicate recovery
  - Respiratory burns
  - Electrical burns
  - Burns involving the eyes, ears, face, hands, feet or genitalia

Appendix G: Stroke Patient Assessment Triage and Transportation

NYC S-LAMS SCALE

Element	Finding	Score
Facial Droop	Absent	0
	Present	1
Arm Drift	Absent	0
	Drifts Down	1
	Falls Rapidly	2
Speech Deficit	Absent	0
	Present	1
Grip Strength	Normal	0
	Weak Grip	1
	No Grip	2
TOTAL SCORE		0-6

STROKE ASSESSMENT

1. For patients exhibiting signs and symptoms of a stroke (cerebrovascular accident [CVA]), utilize the NYC S-LAMS scale and assess the patient as follows:
  - 1.1 Facial droop: Have the patient show their teeth or smile
    - Absent (score 0): If both sides of the face move equally
    - Present (score 1): If one side of the face does not move as well as the other
  - 1.2 Arm drift: Have the patient close their eyes and hold both arms straight out with their palms facing up for 10 seconds
    - Absent (score 0): If both arms remain up or move the same
    - Drifts down (score 1): If one arm drifts down slowly compared to the other arm
    - Falls rapidly (score 2): If one arm falls rapidly
  - 1.3 Speech deficit: Have the patient say a simple sentence (e.g. “you can’t teach an old dog new tricks”)
    - Normal (score 0): If the patient uses correct words with no speech slurring
    - Present (score 1): If the patient slurs words, uses incorrect words or is unable to speak
  - 1.4 Grip strength: Have the patient hold both of your hands and squeeze them at the same time
    - Normal (score 0): If the patient squeezes both hands equally
    - Weak grip (score 1): If one hand has a weaker grip than the other
    - No grip (score 2): If one hand does not grip at all

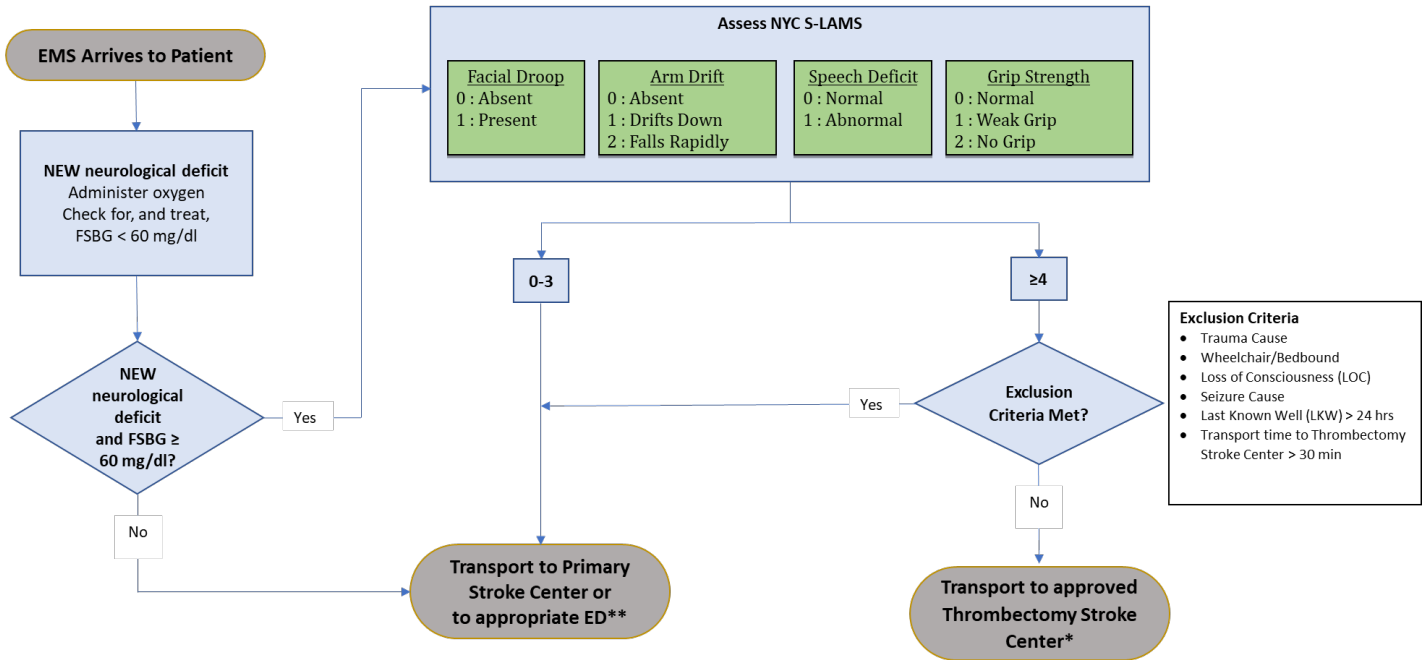
2. Document the scores for each of the four S-LAMS components and the total score in the ePCR narrative (or ePCR pre-assigned fields, if available)
3. If any of the elements of the NYC S-LAMS Stroke Scale are positive, establish onset of signs and symptoms, and document in the ePCR, by asking the following:
  - For the patient: “When was the last time you remember before you became weak, paralyzed, or unable to speak clearly?”
  - For the patient, family members, or bystanders: “When was the last time you remember before the patient became weak, paralyzed, or unable to speak clearly?”
  - For the above questions, if the patient woke from sleep with the deficit, the time of onset is the time the patient went to sleep

### EXCLUSION CRITERIA

- Transport the patient to the closest appropriate Primary Stroke Center if the patient has a NYC S-LAMS score  $\geq 4$  with ANY of the following exclusion criteria:
  - Total time from onset of patient’s symptom to EMS patient contact > 24 hours
  - Patient is wheelchair or bed-bound
  - Seizure
  - Loss of consciousness (LOC)
  - Trauma
  - Transport time to Thrombectomy Stroke Center > 30 minutes

STROKE TRIAGE AND TRANSPORT ALGORITHM

NYC Stroke Triage Protocol



\* Per OLMC direction if transport time ≤ 30 min  
 \*\* e.g. trauma, treated hypoglycemia with resolved symptoms

Appendix H: Hospital Addresses

BRONX		
911 Hospital Designation	Facility	Address
27	NYC Health + Hospitals – Lincoln Medical & Mental Health Center	234 East 149th St Bronx, NY 10451
24	BronxCare Health System – Fulton Division	1276 Fulton Ave Bronx, NY 10456
23	BronxCare Health System – Concourse Division	1650 Grand Concourse Bronx, NY 10457
88	Montefiore Westchester Square	2475 Raymond Ave Bronx, NY 10401
22	Montefiore Medical Center – Einstein Campus	1825 Eastchester Rd Bronx, NY 10467
83	St. Barnabas Hospital	4422 Third Ave Bronx, NY 10457
26	Bronx VA – James J. Peters VA Medical Center	130 W Kingsbridge Rd Bronx, NY 10400
25	NYC Health + Hospitals – Jacobi	1400 Pelham Parkway South Bronx, NY 10461
70	NYC Health + Hospitals – North Central Bronx Hospital	3424 Kossuth Ave Bronx, NY 10467
29	Montefiore Medical Center – Moses Campus	111 East 210th St Bronx, NY 10467
28	Montefiore Medical Center – Wakefield Campus	600 East 233rd St Bronx, NY 10466

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<b>BROOKLYN</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
90	Department of Veterans Affairs – Harbor Healthcare – Brooklyn Campus	800 Poly Place Brooklyn, NY 11213
49	The Home Depot NYU Langone Health – Cobble Hill	83 Amity Street Brooklyn, NY 11201
93	Mount Sinai – Brooklyn	3201 Kings Highway Brooklyn, NY 11234
92	Maimonides Midwood Community Hospital	2525 Kings Highway Brooklyn, NY 11229
53	Maimonides Medical Center	4802 10th Ave Brooklyn, NY 11220
51	NYU Langone – Brooklyn	150 55th St Brooklyn, NY 11220
44	University Hospital of Brooklyn – SUNY Downstate Medical Center	445 Lenox Rd Brooklyn, NY 11203
41	Brookdale University Hospital Medical Center	1 Brookdale Plaza Brooklyn, NY 11212
48	NYC Health + Hospitals – Kings County	451 Clarkson Ave Brooklyn, NY 11203
54	NewYork-Presbyterian – Brooklyn Methodist Hospital	506 Sixth St Brooklyn, NY 11215
55	Interfaith Medical Center	1545 Atlantic Ave Brooklyn, NY 11213
95	The Brooklyn Hospital Center	121 DeKalb Ave Brooklyn, NY 11201
45	NYC Health + Hospitals – Woodhull	760 Broadway Brooklyn, NY 11206
58	Wyckoff Heights Medical Center	374 Stockholm St Brooklyn, NY 11237
42	NYC Health + Hospitals – Coney Island	2601 Ocean Parkway Brooklyn, NY 11235

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<b>MANHATTAN</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
01	NewYork Presbyterian – Lower Manhattan Hospital	170 William St New York, NY 10038
61	New York Eye & Ear Infirmary of Mount Sinai	310 East 14th St New York, NY 10003
06	Lenox Health Greenwich Village	30 Seventh Ave New York, NY 10011
10	Department of Veterans Affairs – Harbor Healthcare – New York Campus	423 East 23rd St New York, NY 10016
02	NYC Health + Hospitals – Bellevue	472 First Ave New York, NY 10016
15	NYU Langone Health – Tisch Hospital	550 First Ave New York, NY 10016
14	NewYork Presbyterian Hospital – Weill Cornell Medical Center	525 East 68th St New York, NY 10021
08	Memorial Sloan Kettering Cancer Center	1275 York Ave New York, NY 10021
05	Manhattan Eye/Ear/Throat Hospital	210 East 64th St New York, NY 10021
18	Mount Sinai – West	315 West 57th St New York, NY 10019
11	Lenox Hill Hospital	100 East 77th St New York, NY 10021
12	NYC Health + Hospitals – Metropolitan	1901 First Ave New York, NY 10029
13	Mount Sinai Hospital	1 Gustave L. Levy Plaza New York, NY 10029
20	Mount Sinai – Morningside	1111 Amsterdam Ave New York, NY 10025
07	NYC Health + Hospitals – Harlem	506 Lenox Ave New York, NY 10037
17	NewYork Presbyterian Hospital – Columbia University Irving Medical Center	622 West 168th St New York, NY 10032
16	NewYork Presbyterian Hospital – Allen Pavilion	5141 Broadway New York, NY 10034

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<b>QUEENS</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
71	Mount Sinai – Queens	25-10 30th Ave Long Island City, NY 11102
35	Long Island Jewish Medical Center	270-05 76th Ave New Hyde Park, NY 11042
33	Flushing Hospital Medical Center	45-00 Parsons Boulevard Flushing, NY 11355
31	NewYork Presbyterian Hospital – Queens	56-45 Main St Flushing, NY 11355
32	NYC Health + Hospitals – Elmhurst	79-01 Broadway Elmhurst, NY 11373
77	Long Island Jewish Forest Hills	102-01 66th Rd Forest Hills, NY 11375
38	NYC Health + Hospitals – Queens	82-68 164th St Jamaica, NY 11432
34	Jamaica Hospital Medical Center	8900 Van Wyck Expy Jamaica, NY 11418
40	St. John’s Episcopal Hospital – South Shore Division	327 Beach 19 <sup>th</sup> St Far Rockaway, NY 11691

<b>RICHMOND</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
60	Richmond University Medical Center	355 Bard Ave Staten Island, NY 10310
62	Staten Island University Hospital – North Campus	475 Seaview Ave Staten Island, NY 10305
59	Staten Island University Hospital – South Campus	375 Seguine Ave Staten Island, NY 10309

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<b>NASSAU</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
74	Long Island Jewish Valley Stream	900 Franklin Ave Valley Stream, NY 11580
68	Mercy Medical Center	1000 North Village Ave Rockville Centre, NY 11571
82	Nassau University Medical Center	2201 Hempstead Turnpike East Meadow, NY 11501
78	North Shore University Hospital	300 Community Dr Manhasset, NY 11030
66	Saint Francis Hospital	100 Port Washington Blvd Roslyn, NY 11576
67	NYU Langone Health – Long Island	259 First St Mineola, NY 11501

<b>WESTCHESTER</b>		
<b>911 Hospital Designation</b>	<b>Facility</b>	<b>Address</b>
99	NewYork Presbyterian – Westchester	55 Palmer Ave Bronxville, NY 10708
97	Saint John’s Riverside Hospital	967 North Broadway Yonkers, NY 10701
96	Saint Joseph’s Medical Center	127 South Broadway Yonkers, NY 10701
80	Montefiore Medical Center – New Rochelle Hospital	16 Guion Place New Rochelle, NY 10802
89	Montefiore Medical Center – The Mount Vernon Hospital	12 North 7 <sup>th</sup> Ave Mount Vernon, NY 10550

Appendix I: Hospital Specialty Capabilities

Hospital #	Hospital Name	ADULT ED	PEDS ED	ADULT TRAUMA	PEDS TRAUMA	BURN	STEMI	PRIMARY STROKE	LVO STROKE	OB	ADULT EDP	PEDS EDP	HBARIC	RPLANT	LVAD	VENOM	SAFE
1	NewYork-Presbyterian - Lower Manhattan Hospital	X	X					X		X							X
2	NYC Health + Hospitals - Bellevue	X	X	X	X		X	X	X	X	X	X		X			
5	Manhattan Eye / Ear / Throat Hospital																
6	Lenox Health Greenwich Village	X	X														X
7	NYC Health + Hospitals - Harlem	X	X	X	X	X		X		X	X	X					X
8	Memorial Sloan Kettering Cancer Center																
10	Dept. of Veteran's Affairs Harbor Healthcare - NY Campus																
11	Lenox Hill Hospital	X	X				X	X	X	X							
12	NYC Health + Hospitals - Metropolitan	X	X					X		X	X	X					X
13	Mount Sinai Hospital	X	X				X	X	X	X	X	X			X		X
14	NewYork-Presbyterian Hospital - NY Weill Cornell Medical Center	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
15	NYU Langone Health - Tisch Hospital	X	X				X	X	X	X					X		
16	NewYork-Presbyterian - Allen Pavilion	X	X					X		X							X
17	NewYork-Presbyterian - Columbia University Irving Medical Center	X	X		X		X	X	X	X	X	X			X		X
18	Mount Sinai - West	X	X					X	X	X	X	X					X
20	Mount Sinai - Morningside	X	X	X			X	X			X	X					X
22	Montefiore Medical Center - Einstein Campus	X	X				X	X	X	X							
23	BronxCare Health System - Concourse Division	X	X				X	X		X	X	X					
24	BronxCare Health System - Fulton Division										X	X					
25	NYC Health + Hospitals - Jacobi	X	X	X	X	X	X	X		X	X	X	X			X	X
26	Bronx VA - James J. Peters VA Medical Center																
27	NYC Health + Hospitals - Lincoln Medical & Mental Health Center	X	X	X				X	X	X	X	X					X
28	Montefiore Medical Center - Wakefield Campus	X	X							X	X	X					

THE REGIONAL EMERGENCY MEDICAL SERVICES COUNCIL OF NEW YORK CITY

Hospital #	Hospital Name	ADULT ED	PEDS ED	ADULT TRAUMA	PEDS TRAUMA	BURN	STEMI	PRIMARY STROKE	LVO STROKE	OB	ADULT EDP	PEDS EDP	HBARIC	RPLANT	LVAD	VENOM	SAFE
29	Montefiore Medical Center - Moses Campus	X	X				X	X	X		X	X		X	X		
30	Westchester Medical Center	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
31	NewYork-Presbyterian - Queens	X	X	X			X	X	X	X							X
32	NYC Health + Hospitals - Elmhurst	X	X	X			X	X	X	X	X	X					X
33	Flushing Hospital Medical Center	X	X					X		X							
34	Jamaica Hospital Medical Center	X	X	X			X	X	X	X	X						
35	Long Island Jewish Medical Center	X	X		X		X	X		X	X	X					
38	NYC Health + Hospitals - Queens	X	X					X		X	X	X					X
40	St. John's Episcopal Hospital - South Shore Division	X	X					X		X	X	X					
41	Brookdale University Hospital Medical Center	X	X	X			X	X	X	X	X	X					
42	NYC Health + Hospitals - South Brooklyn Health	X	X				X	X		X	X	X					X
44	University Hospital of Brooklyn - SUNY Downstate Medical Center	X	X				X	X		X							
45	NYC Health + Hospitals - Woodhull	X	X					X		X	X						X
48	NYC Health + Hospital - Kings County	X	X	X				X	X	X	X	X					X
49	The Home Depot Emergency Dept at NYU Langone Health - Cobble Hill	X	X														
51	NYU Langone Health - Brooklyn	X	X	X			X	X	X	X	X						X
52	Mount Sinai South Nassau	X	X	X			X	X		X	X						
53	Maimonides Medical Center	X	X	X	X		X	X	X	X	X	X			X		
54	NewYork-Presbyterian - Brooklyn Methodist Hospital	X	X	X			X	X	X	X	X	X					X
55	Interfaith Medical Center	X	X								X						
58	Wyckoff Heights Medical Center	X	X				X	X		X							
59	Staten Island University Hospital - South Campus	X	X					X									
60	Richmond University Medical Center	X	X	X	X		X	X	X	X	X	X					X
61	New York Eye & Ear Infirmary of Mount Sinai																
62	Staten Island University Hospital - North Campus	X	X	X	X	X	X	X	X	X							X
66	Saint Francis Hospital	X					X	X	X						X		
67	NYU Langone Health - Long Island	X	X	X			X	X	X	X							
68	Mercy Medical Center	X	X	X			X	X		X	X						

THE REGIONAL EMERGENCY MEDICAL SERVICES COUNCIL OF NEW YORK CITY

Hospital #	Hospital Name	ADULT ED	PEDS ED	ADULT TRAUMA	PEDS TRAUMA	BURN	STEMI	PRIMARY STROKE	LVO STROKE	OB	ADULT EDP	PEDS EDP	HBARIC	RPLANT	LVAD	VENOM	SAFE
70	NYC Health + Hospitals - North Central Bronx	X	X							X	X	X					X
71	Mount Sinai - Queens	X	X				X	X									
74	Long Island Jewish Valley Stream	X	X					X									
77	Long Island Jewish Forest Hills	X	X					X		X							
78	North Shore University Hospital	X	X	X			X	X	X	X	X			X	X		X
80	Montefiore Medical Center - New Rochelle Hospital	X	X					X		X							
82	Nassau University Medical Center	X	X	X		X				X	X	X	X	X			
83	St. Barnabas Hospital	X	X	X			X	X		X	X						
87	Montefiore White Plains Hospital	X	X					X		X	X						
88	Montefiore Westchester Square	X	X														
89	Montefiore Medical Center - The Mount Vernon Hospital	X	X					X			X						
90	Dept of Veterans Affairs - Harbor Healthcare - Brooklyn Campus																
92	Maimonides Midwood Community Hospital	X	X				X	X									
93	Mount Sinai - Brooklyn	X	X					X									
94	Maimonides Bay Ridge Emergency Department	X	X														
95	The Brooklyn Hospital Center	X	X				X	X		X							
96	Saint Joseph's Medical Center	X	X					X			X	X					
97	Saint John's Riverside Hospital	X	X					X		X							
99	NewYork-Presbyterian - Westchester	X	X					X		X							

**Appendix J: Normal Pediatric Vital Signs**

<b>Age</b>	<b>Pulse (beats/min)</b>	<b>Minimum SBP (mmHg)</b>	<b>Respirations (breaths/min)</b>
< 28 days	100-180	60	30-60
< 1 year	100-160	60	30-60
1-3 years	90-150	70	24-40
3-5 years	80-140	75	22-34
6-8 years	70-120	80	18-30

**Appendix K: Appearance, Pulse, Grimace, Activity, Respiration (APGAR) Scoring System**

- The newborn’s APGAR score is based on assigning up to two points for each clinical sign with a maximum score of 10
- The APGAR score is to be obtained at one (1) and five (5) minutes after birth

SIGN	APGAR SCORE		
	0	1	2
Appearance (skin color)	Blue or pale	Acrocyanotic (peripheral cyanosis)	Completely pink or typical color for newborn
Pulse (heart rate)	Absent	< 100	> 100
Activity	Limp	Some flexion	Active motion
Grimace (muscle tone)	No response	Grimace (minimal response to stimuli)	Prompt response to stimuli
Respirations	Absent	Slow and irregular	Vigorous crying

- APGAR score interpretation:
  - 8-10: Normal
  - 5-7: Need for supplemental oxygen
  - 3-4: Need for assisted ventilation with BVM
  - 0-2: Need for CPR
- An APGAR score  $\leq 7$  requires immediate intervention
- The management of respiratory distress and/or cardiovascular instability take priority over obtaining an APGAR score

**Appendix L: Modified START Triage**

- Modified START triage allows prehospital providers to quickly sort adult and pediatric patients at an MCI based on treatment and transport priority
- This triage system assigns treatment priorities to patients based on respiratory rate, perfusion status and mental status
- Patients shall be assigned a tag color based on the following:

Tag Color	Patient Presentation
<b>BLACK</b> (Deceased)	<b>ADULT:</b> No spontaneous or effective respirations present after one (1) attempt to reposition the airway <b>PEDIATRIC:</b> No signs of life or spontaneous or effective respirations Perform 5 breaths via BVM. If no response, then patient is a Black Tag
<b>RED</b> (Immediate)	<b>ADULT:</b> Respirations present only after repositioning the airway <b>PEDIATRIC:</b> Respirations after BVM breaths  Includes patients with the following conditions: <ul style="list-style-type: none"> <li>• Respiratory rate &gt; 30 breaths/min OR respiratory rate &lt; 10 breaths/min</li> <li>• Absent radial pulse</li> <li>• Failure to follow simple commands</li> </ul>
<b>ORANGE</b> (Urgent)	Includes patients with the following conditions: <ul style="list-style-type: none"> <li>• Respiratory distress</li> <li>• Chest pain</li> <li>• Bleeding controlled with tourniquet or hemostatic dressing</li> <li>• Infants (age &lt; 1 year) who do not meet Red or Black Tag criteria</li> <li>• Other clinical conditions the prehospital provider considers to be more urgent</li> </ul>
<b>YELLOW</b> (Delayed)	<ul style="list-style-type: none"> <li>• Patients who do not meet Red Tag or Green Tag criteria</li> <li>• Non-ambulatory patients who do not meet Red Tag or Orange Tag criteria</li> </ul>
<b>GREEN</b> (Minor)	Ambulatory patients (walking wounded) that are able to follow commands and be directed to walk from the scene to a designated safe area

## TRIAGE PROCEDURE

1. Assess patients and assign triage tags as follows:

- **Green Tag:** Ambulatory patients who are able to follow commands and are able to be directed to a designated safe area

### Respiratory

- Assess the patient's breathing and triage patients as follows:
  - If the patient is not breathing:
    - Remove foreign objects or other obstructions, including any loose dentures
    - Reposition the head using spinal motion restriction as needed
    - Reassess breathing and triage patients as follows:
      - **ADULT:**
        - **Red Tag:** Spontaneous respirations
        - **Black Tag:** No spontaneous respirations
      - **PEDIATRIC:** Administer five (5) breaths via BVM
        - **Red Tag:** Spontaneous respirations
        - **Black Tag:** No spontaneous respirations
  - **Red Tag:** If the patient is spontaneously breathing with a respiratory rate > 30 breaths/min OR respiratory rate < 10 breaths/min

### Perfusion

- Control external hemorrhage as needed
- Assess the patient's radial pulse and triage patients as follows:
  - **Red Tag:** No palpable radial pulse
  - **Orange Tag:** Life-threatening external hemorrhage was controlled using a tourniquet or hemostatic dressing AND the patient does not meet other Red Tag criteria

### Mental Status

- Assess the patient's mental status by testing their ability to follow simple commands
- Triage patients as follows:
  - **Red Tag:** Cannot follow simple commands
  - **Yellow Tag:** Able to follow simple commands

### Special Considerations

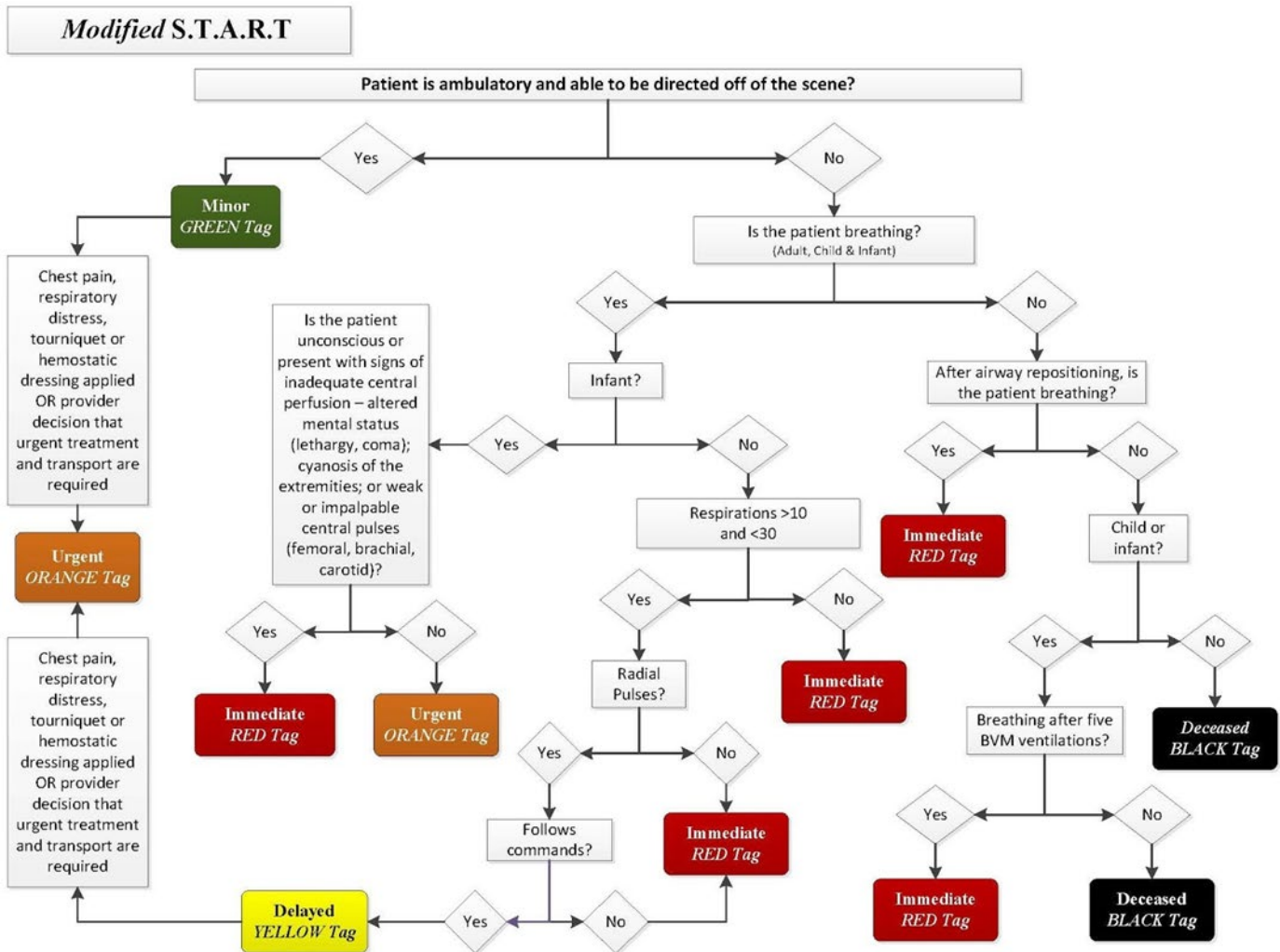
- Infants (age < 1 year):
  - Shall be triaged according to respiratory criteria for Red and Black Tag patients

- Infants shall be triaged as follows:
  - **Red Tag:** Infants who have ANY of the following conditions: altered mental status (e.g. unconscious, lethargic), peripheral cyanosis, weak or non-palpable central pulses (femoral, brachial, carotid)
  - **Orange Tag:** Infants who do not have any of the above Red Tag criteria
- Orange Tag:
  - For patients who have chest pain, respiratory distress, altered mental status or other symptoms that the prehospital provider feels who require urgent treatment and/or transport
  - Patients may be upgraded to an Orange Tag from Green or Yellow categories at any time of assessment
  - Patients CANNOT be downgraded to an Orange Tag or any other lower priority level

### DOCUMENTING TRIAGE TAGS

- Complete triage tags in the staging area or during transport, if possible
- Document on the triage tag as follows:
  - Triage time
  - Date
  - Patient's name, if possible
  - Patient's home address including city and state, if possible
  - Any medications or treatments administered to the patient
  - Patient's medical history, if possible
  - Prehospital provider's shield number or EMT number on the bottom line and on the yellow corners (marked with an ambulance and cross)
  - Any injuries on the diagram on the reverse side
  - Vital signs and time obtained
  - Tear off all **ALL COLORED AREAS BELOW THE ASSIGNED TRIAGE PRIORITY LEVEL AND RETAIN**
- Attach triage tag securely to the patient so that it is clearly visible
- Yellow triage tag corners (marked with an ambulance and cross)
  - Shield number or EMT number must be marked on BOTH corners
  - Remove both corners PRIOR to the patient being transported from the scene
  - Corner marked with cross: Hand off this corner to the treatment area supervisor
  - Corner marked with ambulance: Retain this corner and hand off to the treatment area supervisor at the conclusion of the MCI
- Retain top portions of the triage tags and hand off to the treatment area supervisor at the conclusion of the MCI

MODIFIED START TRIAGE ALGORITHM



**Appendix M: Needle Decompression of a Tension Pneumothorax**

1. Patients are considered to have a tension pneumothorax if they have the following criteria:
  - Absent or decreased breath sounds on the affected side **AND**
  - ANY of the following:
    - Severe dyspnea or tachypnea
    - Cyanosis or hypoxia
    - Hypotension
2. Identify one of the following appropriate sites for needle decompression on the AFFECTED side:
  - Second intercostal space on the mid-clavicular line
  - Fifth intercostal space on the anterior axillary line
3. Use the appropriate-sized over the needle catheter as follows:
  - **ADULT:** 14 gauge 3.25 inch (8.25 cm)
  - **PEDIATRIC:** 18-20 gauge 0.8-1.6 inch (2-4 cm)
4. Insert catheter through the skin perpendicular to the chest wall ABOVE and directly OVER the rib
5. Hold catheter in place for 5-10 seconds to allow for air decompression
6. Remove the needle and advance the catheter to the hub; secure in place
7. If the first attempt is NOT successful in decompressing the tension pneumothorax, a second attempt shall be made at the needle decompression site not previously used
8. If second needle decompression attempt does not resolve signs of the tension pneumothorax, begin rapid transport and consider other etiologies for the observed clinical findings
9. If the tension pneumothorax recurs, perform a second needle decompression using a new catheter

**Appendix N: Continuous Positive Airway Pressure Therapy (CPAP)**

- EMTs and Paramedics may utilize continuous positive airway pressure (CPAP) as detailed in the REMAC Prehospital Treatment Protocols if available and as authorized by their agency Medical Director
- CPAP must be immediately discontinued if ANY of the exclusion criteria develop
  
- **INCLUSION CRITERIA**
  - Age  $\geq$  15 years
  - Alert, cooperative and be able to maintain a patent airway
  - Respiratory distress
  
- **EXCLUSION CRITERIA**
  - Respiratory failure and/or need for immediate advanced airway management
  - SBP < 100 mmHg
  - Airway obstruction
  - Facial burns with possible airway involvement
  - Trauma
  - Suspected pneumothorax
  - Aspiration risk (i.e. active vomiting, upper GI bleeding)
  - Inability to tolerate the mask due to pain or discomfort
  - Inadequate mask seal

**Appendix O: Vasopressor Infusion Rates via Flow-Regulating Devices**

**EPINEPHRINE (4 mcg/ml solution)**

DOSE (mcg/min)	FLOW RATE (ml/hr)
2	30
4	60
6	90
8	120
10	150

**NOREPINEPHRINE (4 mcg/ml solution)**

DOSE (mcg/min)	FLOW RATE (ml/hr)
2	30
4	60
6	90
8	120
10	150
12	180
14	210
16	240
18	270
20	300

**VASOPRESSIN (1 unit/100 ml solution)**

DOSE (units/min)	FLOW RATE (ml/hr)
0.02	120
0.03	180
0.04	240

**DOPAMINE (800 mcg/ml solution)**

PATIENT WEIGHT (kg)	DOSE (mcg/kg/min)			
	5	10	15	20
	FLOW RATE (ml/hr)			
40	15	30	45	60
50	19	38	56	75
60	23	45	68	90
70	26	53	79	105
80	30	60	90	120
90	34	68	101	135
100	38	75	113	150
110	41	83	124	165
120	45	90	135	180
130	49	98	146	195
140	53	105	158	210
150	56	113	169	225
160	60	120	180	240
170	64	128	191	255
180	68	135	203	270

**Appendix P: Alternative Destination / Treat-In-Place Patient Selection Criteria**

**INCLUSION CRITERIA:**

Patients eligible for transport to an alternate destination or treat-in-place MUST meet criteria that are similar for low suspicion RMAs – those that do not require OLMC approval. Patients MUST have all of the following:

- Decisional capacity that is defined as not being impaired and being able to demonstrate that they understand the following:
  - Nature of presenting medical condition
  - Possible risks and benefits of choosing alternate destination/treat-in-place versus emergency medical transport for their acute or presenting medical condition, including where applicable, the risk of serious adverse health consequences or death
  - Treatment and transportation alternatives
- Low index of suspicion that medical treatment and/or transport to an emergency department is required
- No administration of medications and/or treatments EXCEPT for the following:
  - Bandages, gauze, icepacks, and oxygen
  - Medications for the treatment of hypoglycemia and who post-treatment have normal vital signs and mental status are normal
  - Nebulized medications for the treatment of reactive airway disease (e.g. Albuterol, Ipratropium Bromide) if post-treatment have normal vital signs and respiratory status are normal
- Safe environment that is defined as a setting which is not believed to be an immediate danger to the health or safety of a patient such that there would be adequate supportive care resources for the immediate future, or in its absence, a location with adequate assistance to reasonably ensure the safe return of the patient to such a setting

**BEHAVIORAL HEALTH INCLUSION CRITERIA:**

- Behavioral complaints without violent or self-destructive thoughts or symptoms
- Substance use without intoxication or withdrawal

**EXCLUSION CRITERIA:**

- Age < 5 years
- Patients unable to ambulate without assistance
- Patients without decision-making capacity
- Patients requesting transport to an ED
- Paramedic or EMT considers the patient critical or unstable
- Patients who have a high index of suspicion for an acute medical, traumatic, psychiatric, social or other condition that could result in a life-threatening or life-altering outcome. These include, but are not limited to the following:
  - Mechanism of injury
  - Severe injury/illness severity
  - Abnormal vital signs as seen below
  - Reports by patient or person to 911 or the on-scene EMS crew that the patient has expressed or attempted to injure self or other
  - Significant change in the patient’s health as communicated to 911 or on-scene EMS crew by patient or a person or healthcare provider who has frequent contact with the patient or otherwise has knowledge of their baseline condition
  - Administration of medications and/or treatments except for those specified in the treatment of hypoglycemia and reactive airway disease as seen above

<b>ADULT VITAL SIGN EXCLUSION</b>	
<b>SBP</b>	< 90 mmHg or > 200 mmHg
<b>DBP</b>	> 120 mmHg
<b>HR</b>	< 50 or > 100 beats/min
<b>RR</b>	< 10 or > 24 breaths/min
<b>SpO<sub>2</sub></b>	< 92% on room air
<b>BGL</b>	< 60 or > 300 mg/dl

<b>PEDIATRIC VITAL SIGN EXCLUSION</b>
Any vital signs that are not within the expected age-appropriate values (Appendix J: Normal Pediatric Vital Signs)

**BEHAVIORAL HEALTH EXCLUSION CRITERIA**

- Agitation
- Violence or homicidal ideation
- Suicidal ideation or self-destructive behaviors
- Hallucinations or other symptoms of psychosis
- Withdrawal from substances (i.e. alcohol, opiates, or other drugs)
- Intoxication from substances (i.e. alcohol, opiates, or other drugs) are excluded from treat-in-place but can be considered for transport to an alternative destination (i.e. Substance Abuse Treatment Center)

**Appendix Q: Vaccines**

- Below are the NYC REMAC approved vaccinations recommended by the Centers for Disease Control and Prevention (CDC). This appendix will be updated as new vaccines are approved by the NYC REMAC and is to be used as a reference. The type of vaccine, including concentration and dose, is to be determined by an agency Medical Director

**INFLUENZA**

1. Indications: assess the need of vaccination against influenza

- **ADULT:**

- All adults are recommended to receive influenza vaccination each year
- Women who are or will be pregnant during the influenza season: administer any recommended, age-appropriate trivalent or quadrivalent inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV4) to pregnant women in any trimester
- People who do not recall whether they received influenza vaccine in the current vaccination season should be vaccinated

- **PEDIATRIC:**

- All children and teens 6 months of age and older are recommended to receive the influenza vaccination each year
- A second dose of influenza vaccine is recommended 4 weeks or more after the first dose for children age 6 months through 8 years of age if they have not or do not know if they have received 2 doses in prior years (not necessarily in the same season)
- A second dose is needed for a 9-year-old child who received one dose in the current season when they were age 8 years, if they have not or do not know if they have received 2 doses in prior years

2. Screen for Contraindications and Precautions:

- **Contraindications for use of all influenza vaccines**

Do not administer the influenza vaccine to a person who has experienced a serious systemic or anaphylactic reaction to a prior dose of any influenza vaccine or to any of its components (except egg). For a list of vaccine components, refer to the manufacturer’s package insert ([www.immunize.org/fda](http://www.immunize.org/fda)) or [www.fda.gov/vaccines-blood-biologics/vaccines/vaccines-licensed-use-united-states](http://www.fda.gov/vaccines-blood-biologics/vaccines/vaccines-licensed-use-united-states)

- **Contraindications only for use of live attenuated influenza vaccine (LAIV4, FluMist® Quadrivalent, nasal spray)**

- Do not administer LAIV4 to a person who is:

- Pregnant
- Functional or anatomic asplenia, CSF leak, cochlear implant, or is immunocompromised due to any cause (including immunosuppression caused by medications or HIV infection)
- Age 50 years or older
- Received influenza antivirals *before* scheduled vaccination (Zanamivir or Oseltamivir within 48 hours; Peramivir within 5 days; Baloxavir within 17 days). If any of these antiviral drugs are taken within 14 days *after* LAIV, revaccinate with IIV or RIV4.
- In close contact of or who provides care for a severely immunosuppressed person who requires a protective environment
- Age 2 through 4 years who has received a diagnosis of asthma or who has experienced wheezing or asthma within the past 12 months, based on a healthcare provider's statement or medical record
- Age 6 months through 17 years and is receiving aspirin- or salicylate-containing medicine
- **Precautions for use of all influenza vaccines**
  - Moderate or severe acute illness with or without fever
  - History of Guillain-Barré syndrome within 6 weeks of a previous influenza vaccination
- **Precautions for use of LAIV4 only**
  - Age 5 years or older with Asthma
  - Other chronic medical conditions that might predispose the person to complications of influenza infection (e.g., other chronic pulmonary, cardiovascular [excluding isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus])

**For patients with egg allergy:** People with egg allergy of any severity can receive any recommended and age-appropriate influenza vaccine (i.e., any IIV, RIV4, or LAIV4) that is otherwise appropriate for their health status. Most influenza vaccines (except RIV4 and cell-cultured IIV4) are egg cultured and may have trace amounts of egg protein. If a vaccine other than cell-cultured IIV (Flucelvax® Quadrivalent; Seqirus) or RIV (Flublok® Quadrivalent; Sanofi Pasteur) is used, people with a history of severe allergic reaction to egg involving any symptom other than hives (e.g., angioedema or swelling, respiratory distress, lightheadedness, or recurrent emesis), or who required epinephrine or another emergency medical intervention, the selected vaccine should be administered in a medical setting (e.g., health department or physician office). Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions

**Note:** For children aged 6 months-8 years who are receiving influenza vaccine for the first time; have had fewer than two prior doses of influenza vaccine in all previous years; or don't know their influenza vaccine history, administer two doses separated by at least 4 weeks

ADULT				
Vaccine	Age	Dose	Route	Administration
Inactivated influenza vaccine (IIV)	All ages	0.5 ml	IM	Deltoid muscle
IIV-high dose	≥ 65 years old	0.7 ml	IM	
Adjuvanted inactivated influenza vaccine (aIIV4)		0.5 ml	IM	
Cell culture-based IIV (ccIIV4)	All ages	0.5 ml	IM	
Recombinant influenza vaccine (RIV4)	≥18 years old			
Live attenuated influenza vaccine (LAIV4)	< 50 years old (except pregnant women)	0.2 ml	IN	Spray 0.1 ml into each nostril while the patient is in an upright position

PEDIATRIC				
Vaccine	Age	Dose	Route	Instructions
Inactivated influenza vaccine (IIV)	6–35 months	Afluria®: 0.25 ml Fluarix®: 0.5 ml FluLaval®: 0.5 ml Fluzone®: 0.25 ml or 0.5 ml	IM	Anterolateral thigh; alternatively, children aged 12-35 months old may receive injections in deltoid muscle
Inactivated influenza vaccine (IIV)	≥ 3 years	0.5 ml	IM	Deltoid muscle or anterolateral thigh
Cell culture-based IIV (ccIIV4)	≥ 4 years			Deltoid muscle
Recombinant influenza vaccine (RIV4)	≥ 18 years			Deltoid muscle
Live attenuated influenza vaccine (LAIV4)	≥ 2 years	0.2 ml	IN	Spray half of vaccine into each nostril while the patient is in an upright position

## PFIZER BIO-N-TECH COVID-19 VACCINE

Pfizer-BioNTech COVID-19 Vaccine is authorized for use under an Emergency Use Authorization (EUA) for active immunization to prevent coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in individuals 16 years of age and older

### 1. Indications: assess the need of vaccination against COVID-19

- **ADULT:**

- FDA has authorized the emergency use of the Pfizer-BioNTech COVID-19 vaccine in individuals 12 years of age or older

### 2. Screen for Contraindications and Precautions:

- **Contraindications for use**

Do not administer the Pfizer-BioNTech COVID-19 vaccine to a person who has experienced a serious systemic or anaphylactic reaction to any component of the Pfizer-BioNTech COVID-19 vaccine. For a list of vaccine components, refer to the manufacturer's package insert

- **Precautions for use**

- Severe allergic reaction
- Fever
- Bleeding disorder or are taking anticoagulants
- Immunocompromised
- Pregnancy
- Breastfeeding
- Having received another COVID-19 vaccine

### 3. Dosage and Administration

- The Pfizer-BioNTech COVID-19 vaccine is administered intramuscularly of a 0.3 ml prepared solution to be administered as two doses three weeks apart. There are no data available on the interchangeability of the Pfizer-BioNTech COVID-19 Vaccine with other COVID-19 vaccines to complete the vaccination series. Individuals who have received one dose of Pfizer-BioNTech COVID-19 Vaccine should receive a second dose of Pfizer-BioNTech COVID-19 Vaccine to complete the vaccination series

#### 4. Preparation for Administration

##### 4.1 Prior to dilution

- The Pfizer-BioNTech COVID-19 Vaccine Multiple Dose Vial contains a frozen suspension that does not contain preservative and must be thawed and diluted prior to administration
- Pfizer-BioNTech COVID-19 vaccine may be thawed by either:
  - Allowing vial(s) to thaw in the refrigerator [2°C to 8°C (35°F to 46°F)]. A carton of vials may take up to 3 hours to thaw, and thawed vials can be stored in the refrigerator for up to five days (120 hours)
  - Allowing vial(s) to sit at room temperature [up to 25°C (77°F)] for 30 minutes
- Using either thawing method, vials must reach room temperature before dilution and must be diluted within 2 hours

##### 4.2 Dilution

- Before dilution, invert vaccine vial gently 10 times. Do not shake
- Inspect the liquid in the vial prior to dilution. The liquid is a white to off-white suspension and may contain white to off-white opaque amorphous particles
- Do not use if the liquid is discolored or if other particles are observed
- Dilute the vial contents using 1.8 ml of 0.9% Sodium Chloride Injection, USP to form the Pfizer-BioNTech COVID-19 Vaccine
- ONLY use 0.9% Sodium Chloride Injection, USP as the diluent. This diluent is not packaged with the vaccine and must be sourced separately. Do not use bacteriostatic 0.9% Sodium Chloride Injection or any other diluent
- Equalize vial pressure before removing the needle from the vial by withdrawing 1.8 ml air into the empty diluent syringe
- Gently invert the vial containing the Pfizer-BioNTech COVID-19 vaccine ten times. Do not shake
- Inspect the vaccine in the vial. The vaccine will be an off-white suspension. Do not use if vaccine is discolored or contains particulates
- Record the date and time of dilution on the vial label
- Store between 2°C to 25°C (35°F to 77°F)
- Discard any unused vaccine 6 hours after dilution

#### 5. Administration

- Visually inspect each dose in the dosing syringe prior to administration. The vaccine will be an off-white suspension. Confirm there are no particulates and that no discoloration is observed. Do not administer if vaccine is discolored or contains particulates

- Using aseptic technique, cleanse the vial stopper with a single-use antiseptic swab and withdraw 0.3 ml of the Pfizer-BioNTech COVID-19 vaccine
- Administer the vaccine intramuscularly immediately

6. Adverse reactions

- Reported adverse reactions in clinical trials include injection site pain, fatigue, headache, muscle pain, chills, joint pain, fever, injection site swelling, injection site redness, nausea, malaise, and lymphadenopathy (see Full EUA Prescribing Information)
- Severe allergic reactions have been reported following the Pfizer-BioNTech COVID-19 vaccine during mass vaccination outside of clinical trials
- Additional adverse reactions, some of which may be serious, may become apparent with more widespread use of the Pfizer-BioNTech COVID-19 vaccine

## MODERNA COVID-19 VACCINE

Moderna COVID-19 Vaccine is authorized for use under an Emergency Use Authorization (EUA) for active immunization to prevent coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in individuals 16 years of age and older

### 1. Indications: assess the need of vaccination against COVID-19

- **ADULT:** FDA has authorized the emergency use of Moderna COVID-19 vaccine in individuals 18 years of age or older

### 2. Screen for Contraindications and Precautions:

- Contraindications for use:
- Do not administer the Moderna COVID-19 vaccine to a person who has experienced a serious systemic or anaphylactic reaction to any component of the Moderna COVID-19 vaccine. For a list of vaccine components, refer to the manufacturer’s package insert
- Precautions for use
- Severe allergic reaction
- Fever
- Bleeding disorder or are taking anticoagulants
- Immunocompromised
- Pregnancy
- Breastfeeding
- Having received another COVID-19 vaccine

### 3. Dosage and Administration

- The Moderna COVID-19 vaccine is administered intramuscularly of a 0.5 ml solution to be administered as two doses four weeks apart. There are no data available on the interchangeability of the Moderna COVID-19 Vaccine with other COVID-19 vaccines to complete the vaccination series. Individuals who have received one dose of Moderna COVID-19 Vaccine should receive a second dose of Moderna COVID-19 Vaccine to complete the vaccination series

### 4. Preparation for Administration

#### 4.1 Thawing

- The Moderna COVID-19 Vaccine Multiple Dose Vial contains a frozen suspension that does not contain preservative and must be thawed prior to administration.
- Moderna COVID-19 vaccine may be thawed by either:
  - Allowing vial(s) to thaw in the refrigerator [2°C to 8°C (35°F to 46°F)] for 2.5 hours. After thawing, allow vial(s) to stand at room temperature for 15 minutes before administering

- Allowing vial(s) to sit at room temperature [15°C to 25°C (59°F to 77°F)] for 1 hour
- After thawing, do not refreeze
- Swirl vial gently after thawing and between each withdrawal. Do not shake. Do not dilute the vaccine
- The Moderna COVID-19 vaccine is a white to off-white suspension. It may contain white or translucent particulates. Visually inspect the Moderna COVID-19 vaccine vials for other particulate matter and/or discoloration prior to administration. If either of these conditions exist, the vaccine should not be administered
- After the first dose has been withdrawn, the vial should be stored between 2°C to 25°C (35°F to 77°F). Record the date and time of first use on the Moderna COVID-19 vaccine vial label. Discard vial after 6 hours. Do not refreeze

#### 5. Administration

- Visually inspect each dose in the dosing syringe prior to administration. The white to off-white suspension may contain white or translucent particulates. Do not administer if vaccine is discolored or contains other particulate matter
- Using aseptic technique, cleanse the vial stopper with a single-use antiseptic swab and withdraw 0.5 ml of the Moderna COVID-19 vaccine
- Administer the vaccine intramuscularly

#### 6. Adverse reactions

- Reported adverse reactions in clinical trials include injection site pain, fatigue, headache, myalgia, arthralgia, fever/chills, nausea/vomiting, axillary swelling/tenderness, swelling at the injection site, and erythema at the injection site (see Full EUA Prescribing Information)
- Additional adverse reactions, some of which may be serious, may become apparent with more widespread use of the Moderna COVID-19 vaccine

THE FOLLOWING APPENDIX IS INFORMATION FROM THE NEW YORK STATE BASIC LIFE SUPPORT ADULT AND PEDIATRIC TREATMENT PROTOCOLS. THESE ARE INCLUDED AS AN EDUCATIONAL REFERENCE FOR NYC PREHOSPITAL PROVIDERS

ANY INFORMATION CONTAINED IN THE FOLLOWING APPENDIX THAT IS IN CONFLICT WITH REGIONAL POLICIES, PROCEDURES OR PROTOCOLS SHALL BE TREATED AS EDUCATIONAL INFORMATION ONLY AND SHALL NOT BE USED AS PROTOCOLS

NYC PREHOSPITAL PROVIDERS SHALL NOT ATTEMPT TO MODIFY OR TROUBLESHOOT ANY OF THE LISTED MEDICAL DEVICES UNLESS SPECIFICALLY TRAINED AND AUTHORIZED TO DO SO BY THEIR AGENCY MEDICAL DIRECTOR

## Appendix R: New York State BLS Prehospital Protocol Educational References

### NEEDLESTICK / INFECTIOUS EXPOSURE

- This section outlines the immediate actions to be taken following any mucous membrane or open skin contact with blood or other body secretions
  - Puncture wounds
    - Immediately cleanse with betadine or chlorhexidine and then soak the affected area for five (5) minutes in a solution of betadine and sterile water
  - Skin exposure
    - Wash the area with soap and water then clean the area with Betadine or chlorhexidine
  - Mucous membrane exposure
    - Mouth: Rinse mouth out with a large volume of tap water
    - Eyes: Flush with water from an eyewash station. If an eyewash station is not available, use tap water
- Thoroughly cleanse the area of exposure
- Decontamination may be limited because of the availability of resources
- Immediately report the exposure to a supervisor
- Seek immediate medical attention and post-exposure evaluation at the same hospital where the source patient was transported, if possible

### PRESCRIBED MEDICATION ASSISTANCE (ADULT AND PEDIATRIC)

- This section is to guide prehospital providers when providing assistance to patients or caregivers of patients who require assistance with their previously prescribed medication
- The following medications, as stated in the NYS BLS Prehospital Protocols, may be administered by prehospital providers in accordance with the NYS BLS Prehospital Protocols:
  - Nitroglycerin SL
  - Beta-agonist inhalers

- Diazepam per rectum (PR)
- Epinephrine auto-injector IM
- Naloxone auto-injector IM or IN
- OLMC approval of assisted medication administration within the prehospital provider's scope of practice

### **PROVISION OF MEDICAL CARE**

- The provision of patient care is a responsibility given to certified individuals who have completed a medical training and evaluation program specified by the NYS Public Health or Education Laws and are subject to regional and State regulations or policy. Prehospital providers are required to practice to the standards of the certifying agency (DOH) and the medical protocols authorized by the local REMAC
- Patient care takes place in many settings, some of which are hazardous or dangerous. The equipment and techniques used in these situations are the responsibility of locally designated, specially trained, and qualified personnel. Emergency incident scenes may be under the control of designated incident commanders who are not emergency medical care providers. These individuals are generally responsible for scene administration, safe entry to a scene, or decontamination of patients or responders
- Pursuant to the provisions of Public Health Law, the individual having the highest level of prehospital medical certification, and who is responding with authority (duty to act) is responsible for providing and/or directing the emergency medical care and the transportation of a patient. Such care and direction shall be in accordance with all NYS standards of training, applicable state and regional protocols, and may be provided under medical control

### **TRANSFER OF PATIENT CARE**

- Providers are responsible for the patient while in their care
- Patients may be transferred to a provider with the equivalent or higher level of certification
- Patients may be transferred to a provider with a lower level of certification, only if the patient is not anticipated to require higher-level care and the lower level provider has formally accepted the transfer of care
- When transferring patients, both the receiving and transferring providers shall:
  - Ensure that all patient information is transferred to the receiving provider (i.e. chief complaint, past medical history, current history, vital signs, and any treatments or medications administered prior to transfer)
  - Assist the receiving provider until they are ready to assume patient care
  - Be willing to accompany the receiving provider to the hospital, if the patient's condition warrants or if the receiving provider requests, if possible
- All personnel and agencies must comply with NYSDOH BEMS policy statement 12-02 (or updated version) regarding documentation:

- Both providers will complete an ePCR, as appropriate, detailing the care administered to the patient while in their care
- The receiving provider must briefly document care given prior to receiving the patient
- Providers within the same agency may utilize the same ePCR as technology, agency, regional and state policy allow
- Contact OLMC for assistance with any disagreements between transferring and transporting providers
- Any disparity between prehospital providers shall be resolved by OLMC or the provider with higher certification must transport the patient
- In situations involving multiple patients or mass casualty incidents, prehospital providers may triage patients to other providers with lower level of certification as resources allow
- A standardized process of transfer of care may be implemented by regional systems

## **ADVANCED MEDICAL TECHNOLOGIES**

### **Technology-Assisted Pediatric Patients**

- Pediatric patients' special health care needs that require technological assistance for life support including the following:
  - Tracheostomy: Breathing tube in neck
  - Central venous catheters (i.e. tunneled catheter, Broviac catheter, Mediport, PICC): Catheters that enter a large (central) vein
  - CSF shunt (e.g. ventriculoperitoneal or V-P shunt): Internal tube that drains spinal fluid from the brain into the abdomen
  - Gastrostomy (i.e. PEG tube or J-tube): Feeding tube that goes through the abdominal wall
  - Colostomy or ileostomy: Bowel connected through abdominal wall for collection of waste in a bag
  - Ureterostomy or nephrostomy tube: Connection of the urinary system through the abdominal wall or through the back for collection of urine in a bag
  - Foley catheter: Catheter in urethra to collect urine from the bladder into a bag
- When treating these patients, prehospital providers shall perform the following:
  - ABCs and vital signs
  - Airway management and appropriate oxygen therapy
- Device-specific supportive measures:
  - Tracheostomy
    - If patient is ventilator-dependent and there are respiratory concerns, disconnect and attempt to ventilate with a BVM via tracheostomy adapter
    - Remove the tracheostomy tube if it is fully or partially dislodged and cover the tracheostomy stoma with an occlusive dressing; ventilate via mouth and nose via BVM

- Central venous catheters: If catheter is broken or leaking, clamp (pinch off) catheter between patient and site of breakage or leakage
- Gastrostomy tube or button, ureterostomy or nephrostomy tube: Cover the site with an occlusive dressing if tube or button is fully dislodged; and tape the device in place if it is partially dislodged
- Gastrostomy, colostomy, ileostomy, or nephrostomy: Apply gentle direct pressure with a saline-moistened dressing if stoma site is bleeding,
- Foley catheter: Tape dislodged catheter in place
- Notify the destination hospital and specify the patient's health care need that requires technological assistance
- Obtain frequent vital signs
- Allow caregivers to assist with patient care as needed
- Inquire caregivers about the following:
  - Presence of a Patient Care Plan (PCP)
  - Syndromes/diseases
  - Devices/medications
  - Child's baseline abilities
  - Usual vital signs
  - Symptoms
  - What is different today
  - Best way to move the child
- Look for medication-alert jewelry, emergency information form (EIF), or patient care plan (PCP), or other health care forms, if the patient's usual caregiver is not available
- Ensure to take the EIF, PCP, or other health care forms with the patient to the hospital
- Assess and communicate with the child based on developmental, not chronological, age
- Take necessary specialized equipment (e.g. patient trach/ventilator pack, G-tube connectors, etc.) to the hospital with the patient, if possible

### **TOTAL ARTIFICIAL HEART (TAH)**

- For any request for service that requires evaluation and transport of a patient with a total artificial heart (TAH), prehospital providers are to perform the following:
  - Assess airway and breathing as hypertension or volume overload can quickly cause pulmonary edema to develop
  - Do not use an AED or cardiac monitor
  - Assess pulse and artificial heart function:
    - If no pulse is present:
      - Consider early consult with TAH coordinator or medical control
      - Check for severed or kinked TAH driveline (troubleshoot if possible)

- Check battery position and power status (replace if possible)
- Use the backup driver or hand pump, if available
- Do not perform chest compressions or place an AED
- Assess blood pressure with a goal SBP between 90-150 mmHg
- Perform a secondary assessment and treat per protocol
  - If the patient is unresponsive with a pulse, evaluate for noncardiac etiologies
- Notify the receiving hospital that a patient has a TAH while on scene or promptly after initiation of transport regardless of patient's complaint
- Assure that patient has both drivers (compressors), hand pump, batteries, and power cords for transport
- Any trained support member should be transported with the patient
- Contact OLMC for termination of resuscitation or for consultation with a TAH program provider
- TAH patients have had their heart removed and replaced with a rigid device which
- pneumatically pumps blood throughout the body
- As these patients do not have a heart, there is no indication for an ECG or cardiac monitoring. A functioning TAH will not result in any measurable electrical activity
- TAH patients are on anticoagulation and may have significant bleeding with minor injuries
- A patient with a TAH has normal pulse and blood pressure detectable by conventional methods and are highly preload and afterload sensitive:
  - Target SBP between 90-150 mmHg
  - Pulse rate is set and regular, between 120-135 beats/min

### **VENTRICULAR ASSIST DEVICE (VAD)**

- For any request for service that requires evaluation and transport of a patient with a ventricular assist device (VAD), prehospital providers are to perform the following:
  - Assess airway and breathing
  - Treat medical or traumatic conditions per protocol
  - Assess circulation:
    - Auscultate over the precordial/epigastric area for a motorized “hum” and simultaneously visualize the controller for a green light or lit screen
    - Assess perfusion based on mental status, capillary refill, and skin color
    - In continuous flow VAD patients (i.e. HeartMate II<sup>®</sup>, Heartware<sup>®</sup>, axial flow device), the absence of a palpable pulse is normal even in the setting of a normally functioning device. Patients may not have a readily measurable blood pressure
    - In pulsatile flow VAD patients with a HeartMate 3<sup>®</sup> centrifugal device, patients may have a palpable pulse (pulse is generally set to 30 beats/min) in the setting of a normally functioning device, but may not have a readily measurable blood pressure

- Perform CPR only when there are no signs of flow or perfusion (unresponsive, pulseless, and there is no evidence of the pump functioning [eg: no motor “hum”])
- Assess pump function:
  - Ascertain, and make note of pump model, installing institution, and institution VAD coordinator phone number from a tag located on the pocket controller. Patients may also have a medical bracelet, necklace, or wallet card with this information
- Perform a secondary assessment and treat as needed
- Notify the receiving facility promptly and consider early consultation with the VAD coordinator or OLMC, regardless of the patient’s complaint
- Assure that patient has the power unit, extra batteries, and backup controller for transport
- A trained support member should be transported with the patient
- Unless otherwise directed by OLMC, transport patient to a facility capable of managing VAD patients
- Community patients with VADs are typically ambulatory and independent
- Trained support members include family and caregivers who have extensive knowledge of the device, its function, and its battery units and are useful resources to prehospital providers when caring for a VAD patient
- One set of fully charged batteries typically provides 8-10 hours of power:
  - If the battery or power is low, the batteries need to be replaced immediately
  - Assist with the replacement of batteries if directed by patient/caregiver
  - Never disconnect both batteries at once as this can cause complete loss of power to the VAD
- Keep the device components dry
- The most common complication in VAD patients is infection. VAD patients are susceptible to systemic illness, sepsis, and septic shock due to their abdominal driveline as a source of infection
- Patients with a VAD are highly preload dependent and afterload sensitive. Low-flow alarms are frequently due to MAP > 90 mmHg. The devices are sensitive to alterations in volume status and careful volume resuscitation is often necessary
- VAD patients are heavily anticoagulated and susceptible to bleeding complications
- Patients may have VF/VT and be asymptomatic

<b>Controller Device Normal Values</b>			
	<b>Heartmate II<sup>®</sup></b>	<b>Heartmate 3<sup>®</sup></b>	<b>HVAD<sup>®</sup></b>
Speed (RPM)	8000-10,000	5000-6000	2400-3200
Power (watts)	4-7	3-7	3-6
Flow (L/min)	4-8	3-6	3-6
Pulsatility Index (PI)	4-6	1-4	n/a

## AUTOMATIC TRANSPORT VENTILATOR (ATV)

- The following are general parameters and information regarding the use of automatic transport ventilators and does not supersede device-specific practice guidelines provided through individual agency education

### General Parameters

- FiO<sub>2</sub>: Maintain SaO<sub>2</sub> ≥ 94%
- PEEP: 5 cmH<sub>2</sub>O (increase up to 10 cmH<sub>2</sub>O as needed)
- Mode: A/C or SIMV
- Pressure Support (SIMV): 5-10 cmH<sub>2</sub>O, if available
- Volume Control: Tidal volume (V<sub>t</sub>) 6-8 ml/kg ideal body weight (maintain plateau pressure [P<sub>plat</sub>] < 30 cmH<sub>2</sub>O or PIP < 35 cmH<sub>2</sub>O)
- Rate: Pediatric: 16-20 breaths/min; Adult: 12-14 breaths/min
- I-Time: Pediatric :0.7-0.8 sec; Adult: 0.8 – 1.2 sec
- Refer to the manufacturer’s ventilator operation manual for specific directions

### Recommended Minimum Parameters for ATV

- Pressure limit/safety relief with 40 cm H<sub>2</sub>O maximum
- Ability to adjust volume to 4-8 ml/kg of ideal body weight
- Ability to adjust rate with a minimum range of 10-30 breaths/min
- Ability to add PEEP or PEEP valve with a minimum range of 5-10 cmH<sub>2</sub>O
- Ability for patient triggered breaths (complete control ventilation is prohibited)

### Initiating Mechanical Volume Ventilation

- Use ETCO<sub>2</sub> detection and pulse oximetry to evaluate the effectiveness of the ventilation technique and to verify artificial airway patency and position
- Prepare the BVM device for emergent use in case of a ventilator failure
- Assure a secondary oxygen source with a minimum of 1000 psi in the D tank
- Attach a ventilator to an appropriate oxygen/air source
- Attach a disposable ventilator circuit to ventilator
- Attach a gas outlet, pressure transducer, and exhalation valve tubes to corresponding connectors
- Select the appropriate mode, if applicable
- Select the appropriate respiratory rate and titrate to appropriate ETCO<sub>2</sub>
  - Adult: 12-14 breaths/min
  - Pediatric: 16-20 breaths/min
- Select the appropriate tidal volume (V<sub>t</sub>) of 6-8 ml/kg of ideal body weight
- Select the appropriate inspiratory time (I<sub>t</sub>), if applicable

- Select the desired FiO<sub>2</sub> if applicable. It is standard to set FiO<sub>2</sub> = 1.0 (100% O<sub>2</sub>) and then titrate to maintain SpO<sub>2</sub> ≥ 94%
- Verify a high pressure alarm no greater than 40 cmH<sub>2</sub>O
- Set PEEP = 5 cm H<sub>2</sub>O
- Observe the delivery of several breaths
- Evaluate the patient for adequate chest rise, ETCO<sub>2</sub>, and SpO<sub>2</sub>
- Adjust the ventilator settings as needed to improve clinical parameters
- Record all set parameters on the ePCR
- Monitor and record PIP, if applicable
- If at any time the ventilator should fail, or an alarm is received that cannot be corrected, the patient should be immediately ventilated with a BVM with high concentration oxygen

**PEDIATRIC ASSESSMENT: APPARENT LIFE-THREATENING EVENT (ALTE) / BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)**

- Applies to pediatric patients age < 2 years
- ALTE/BRUE are episodes in infants or children age < 2 years which may be frightening to the observer, but has resolved and are characterized by any of the following:
  - Apnea (central or obstructive)
  - Skin color change: cyanosis, erythema (redness), pallor, plethora (fluid overload)
  - Marked change in muscle tone
  - Choking or gagging not associated with feeding or a witnessed foreign body aspiration
  - Seizure-like activity
- Prehospital providers shall provide the following to their certification level:
  - Airway management and appropriate oxygen therapy
  - Assess for suspected opiate overdose and treat as needed
- Most patients will appear stable and have an unremarkable physical exam
- An ALTE/BRUE may be a sign of an underlying serious illness or injury and further evaluation by medical staff is strongly recommended