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هيئة الهلال الأحمر السعودي
SAUDI RED CRESCENT AUTHORITY

المدوّنة الإسعافية

Clinical Practice Guidelines of Emergency Medical Services

Version 2.1

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Pediatric care procedure

Patient safety procedure

Clinical key performance indicator procedure

A procedure that requires online medical direction

General Patient Care Protocol

PARAMEDIC

EMT

Respond to the scene in a safe manner. For scene safety guidelines go to **G-4.**

Perform scene size up. For scene size up guidelines go to **G-3.**

Consider the need for Body Surface Isolation (BSI). For BSI guidelines go to **G-2**.

Determine the age group of the patient. Ask the patient or their relatives about their age.
- Pediatric patients are <14 years old.
- Adults are >14 years old. If a patient is of undetermined age, look of secondary sexual features and if they are present then the patient is an adult. Secondary sexual features include developing breasts in female patients and facial hair for male patients. If still in doubt or the patient has growth irregularity, treat the patient based on their body built. If they look small treat them as pediatric patients.

Treat life threatening conditions as soon as they are identified.

Perform a primary assessment by assessing the patient's ABCs. Assess the airway patency and protection. Assess the breathing rhythm, rate and equality on both sides. Assess the patient circulation and whether an active bleeding is present.

Introduce yourself and ask the patient for permission to provide medical care. If the patient is altered or unable to give permission, inform attendance of your intention to examine and treat the patient. If you believe a medical emergency exist or might exist, proceed to manage the patient even without permission. If the patient refuse care, refer to refusal of care guidelines S-4.

Evaluate the mechanism of injury for trauma patients. Consider the need for immobilization of the spine.

Obtain the patient's vital signs. Assess the patient heart rate, respiratory rate, oxygen saturation, blood pressure and respiratory rate. Assess the patient temperature, pain score and mental status.

Obtain a chief complaint and history of present illness. Ask for past medical and or surgical history. Ask about allergy. Obtain a list of current medications. If the patient has a drug cabinet or bag, ask permission to look at it and take note of medications and medical documents. Take all relevant documents and medications to the hospital.

Perform a secondary assessment guided by the chief complaint including examination.

Establish an IV/IO access for unstable patients or patients who are potentially unstable. Refer to IV and IO access guidelines **P-7** and **P-8**.

Do not allow patients who are unstable to stand or walk to the ambulance.

PARAMEDIC

EMT

Assess and prepare the patient for transportation within 15 minutes!

- If the patient doesn't need to be supine for transport, load the patient safely into a stair chair.
- If the patient needs to be supine for transport, load the patient safely to the stretcher. Lower the stretcher as much as possible during transport to minimize fall risk.
- If the patient is entrapped, continue providing medical care while the patient is being extricated. .

Restrain the patient appropriately. Make sure the patient is secured to the transportation device before moving.

Secure all devices and equipment in the ambulance before driving. All passengers should wear seatbelts all the time.

Do not use lights and siren unless the transport has been authorized as "hot" by dispatch or medical director; or the patient has an acute life-threatening condition requiring time sensitive intervention.

Transport the patient to the closest hospital except if there a valid reason for hospital bypass. Refer to hospital bypass guidelines **S-8**.

Give a verbal endorsement using the following method:

- Brief report for critical patients using SBAR, followed by detailed report once the treating team has the mental capacity to receive it.
- Detailed report for stable patients using SBAR.

If the hospital team is busy or not available, continue to care for the patient until they are.

Document all events of care in the patient care report.

Clean the ambulance for the next patient. If the ambulance needs terminal cleaning, contact operations.

Written By:

Dr. Fahd Alhajjaj

Reviewed By:

Dr. Fahad Samarkandy

Dr. Haitham Alhaiti

Dr. Mohammed Altuwaijri

Dr. Mohammed Alshehri

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

!

Body surface isolation/ Personal protective equipment (PPE) Protocol

PARAMEDIC

EMT

Wear gloves on all calls where contact with blood or body fluid (including wound drainage, urine, vomit, feces, diarrhea, saliva, nasal discharge) is anticipated or when handling items or equipment that may be contaminated with blood or other body fluids.

Wash your hands often and after every call. Wash hands even after using gloves:

a) Use water with soap and wash for 40 seconds before rinsing and drying.

b) If water is not available, use alcohol or a hand-cleaning germicide.

Keep all open cuts and abrasions covered with adhesive bandages that repel liquids. (e.g. cover with commercial occlusive dressings or medical gloves).

Use goggles or glasses when spraying or splashing of body fluids is possible. (e.g. spitting or arterial bleed). As soon as possible, the EMS practitioner should wash face, neck and any other body surfaces exposed or potentially exposed to splashed body fluids.

Use pocket masks with filters/ one-way valves or bag-valve-masks when ventilating a patient.

Prevent exposure to respiratory diseases:

a. Respiratory precautions must be used when caring for any patient with a known or suspected infectious disease that is transmitted by respiratory droplets. (e.g., tuberculosis, influenza, SARS or Covid-19)

b. Surgical mask (N-95 during an aerosol generating procedure (AGP) such as perform CPR or Endotracheal intubation or administer high flow Oxygen), gowns, goggles/face shield and gloves should be worn during patient contact.

c. A mask should be placed upon the patient if his/her respiratory condition permits.

d. Notify receiving facility of patient's condition so appropriate isolation room can be prepared.

Thoroughly clean and disinfect equipment after each use following agency guidelines that are consistent with Weqaya recommendations.

Place all disposable equipment and contaminated trash in a clearly marked yellow plastic Biohazard bag and dispose of appropriately.

a. Contaminated uniforms and clothing should be removed, placed in an appropriately marked yellow Biohazard bag and laundered / decontaminated.

b. All needles and sharps must be disposed of in a sharp container and disposed of appropriately.

Key Points:

a. These guidelines should be used whenever contact with patient body substances is anticipated and/or when cleaning areas or equipment contaminated with blood or other body fluids.

b. Your patients may have communicable diseases without you knowing it; therefore, these guidelines should be followed for care of all patients

c. These guidelines provide general information related to body substance isolation and the use of universal precautions. These guidelines are not designed to supersede an EMS agency's infection control policy

d. These guidelines do not comprehensively cover all possible situations, and EMS practitioner judgment should be used when the EMS agency's infection control policy does not provide specific direction.

e. At-risk exposure is defined as "a percutaneous injury (e.g. needle stick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g. exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue or other body fluids that are potentially infectious." Other "potentially" infectious materials (risk of transmission is unknown) are CSF (cerebral spinal fluid), synovial, pleural, peritoneal, pericardial and amniotic fluid, semen and vaginal secretions. Feces, nasal secretions, saliva, sputum, sweat, tears, urine and vomitus are not considered potentially infectious unless they contain blood.

f. An Aerosol Generating Procedure (AGP) is any procedure likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking, or breathing. AGPs potentially put healthcare personnel and others at an increased risk for pathogen exposure and infection, including to COVID-19.

g. **Some common AGPs:**

- Open suctioning of airways
- Sputum induction
- Cardiopulmonary resuscitation
- Endotracheal intubation and extubation
- Non-invasive ventilation (e.g., BiPAP, CPAP)
- Bronchoscopy
- Manual ventilation
- High flow oxygen delivery
- Nebulizer administration

References:

- Pennsylvania Statewide
- VIRGINIA DEPARTMENT OF HEALTH

Written By:

Dr. Abdulaziz Alhaddab

Dr. Abdullah Asiri

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Scene Size-Up Protocol

PARAMEDIC

EMT

Scene Safety:

Assess for hazards upon approach to and within the scene:

- Common hazards:

1. Environmental
2. Hazardous substances (Chemical, Biological)
3. Violence (patient, bystanders, crime scenes)
4. Rescue (motor vehicle collisions: extrication hazards / roadway operation dangers)

Evaluation of the scene – Is the scene safe?

1. **Yes** – establish patient contact and proceed with your patient assessment.
2. **No** – is it possible to quickly and safely make the scene safe?
   a) **Yes** – proceed with your patient assessment once scene is safe
   b) **No** – do not enter any unsafe scene until hazards are minimized and you have deemed the scene safe.
3. Request specialized resources as soon as possible, i.e. police, fire, etc.

Scene Management:

A- Impact of the environment of patient care:

1. Medical (Determine nature of illness, Hazards at medical emergency scenes).
2. Trauma (Determine mechanism of injury, Hazards at trauma emergency scenes).
3. Environmental considerations (Weather conditions, Toxins and gases, Secondary collapse and falls, Unstable conditions).

B- Addressing Hazards:

1. **Protect the patient:** After declaring the scene is safe for responders, the safety of the patient becomes the next priority, if you cannot alleviate the conditions that represent a health or safety threat to the patient, move the patient to a safer environment.
2. **Protect bystanders:** Minimize conditions that represent a hazard for bystanders, If you cannot minimize hazards, remove bystanders from the scene.
3. **Request additional resources:** (Multiple patients – multiple ambulances, Fire hazard – fire department, Traffic or violence issues – law enforcement).
4. **Survey the scene for information related to:** Mechanism of injury and Nature of illness

C- Violence:

1. Personnel should not enter a scene or approach a patient if the threat of violence exists.
2. Park away from the scene (safe distance and/or not visible to people at the scene) and wait for the appropriate law enforcement to minimize the danger and deem the scene safe.

D- Need for additional or specialized resources:

1. A variety of specialized protective equipment and gear is available for specialized situations. You need to know what is available to you within your area:
   a) Chemical and biological suits can provide protection against hazardous materials and biological threats of varying degrees.
   b) Specialized rescue equipment may be necessary for difficult or complicated extrications.
   c) Ascent or descent gear may be necessary for specialized rescue situations.
2. Only trained responders should wear or used specialized equipment.

E- Standard precautions:

1. **Overview:**
   a) Beware that All blood, body fluids, secretions, non-intact skin, and mucous membranes may contain transmissible infectious agents.
   b) Always include a group of infection prevention practices that apply to all patients, regardless of suspected or confirmed infection status, in any healthcare delivery setting.
   c) Universal precautions are designed to protect healthcare personnel.
   d) Standard precautions are designed to protect the patient
2. **Implementation:**
   - The extent of standard precautions used is determined by the anticipated blood, body fluid, or pathogen exposure (Hand washing, Gloves, Gowns, Masks, Protective eyewear).
3. **Personal protective equipment (PPE):**
   a) PPE includes clothing or specialized equipment that provides some protection to the wearer from substances that may pose a health or safety risk.
   b) Wear PPE appropriate for the potential hazard(s) (Steel-toe footwear, Helmets, Heat-resistant outwear, Self-contained breathing apparatus, Leather/work gloves).

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F- Multiple-patient situations:

1. Determine the number of patients and need for additional resources
   a) Does dispatch information suggest the need for additional resources?
   b) How many patients?
   c) Protection of the patient (Weather conditions, Unstable conditions).
   d) Protection of bystanders (Isolate, Remove, Barricade).
2. Need for other additional resources
   a) Incident Command System (ICS or IMS).
   b) Consider what level of commitment is required for the situation.

Code: G-3 | **Title: Scene Size-Up Protocol** **END**

References:

- New York State Collaborative Advanced Life Support Adult and Pediatric Treatment Protocols.

Written By:

Dr. Wael Bunian
Dr. Osama mashal

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti
Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan
Dr. Bader Alossaimi
Dr. Nofal Aljerian
Dr. Omar Alothman
Dr. Abdulrahman Aldhabib
Dr. Naser Alrajeh
Dr. Mohammed Arafat
Dr. Fahad Samarkandy
Dr. Fahad Alhajjaj
Dr. Jameel Abualenain

Scene safety Protocol

PARAMEDIC

EMT

Consider scene unsafe if dispatch information or initial scene size-up suggests:

1. The location of the incident suggests an unsafe environment
2. Weapons involved
3. Industrial accident or MVA with potential hazardous materials
4. Patient(s) contaminated with chemicals
5. The scene has an active fire
6. Violent patient or bystanders
7. The discretion of pre-hospital providers

A. If violence or weapons are anticipated:

1. Wait for law enforcement officers to secure scene before entry.
2. Avoid entering the scene alone.

B. If violence is encountered or threatened:

1. Retreat to a safe place if possible and await law enforcement.

MVAs, Industrial Accidents, Hazardous Materials situations:

1. General considerations:

a. Obtain as much information as possible prior to arrival to the scene.
b. Look for hazardous materials, placards, labels, spills, and/or containers (spilling or leaking). Consider entering scene from uphill/upwind.
c. Look for downed electrical wires.
d. Call for assistance, as needed.

2. Upon approach to the scene, look for place to park vehicle:

a. Upwind and uphill of possible fuel spills and hazardous materials.
b. Park in a manner that allows for rapid departure.
c. Allows for access for fire/rescue and other support vehicles.
d. Use the vehicle as a speed reduction tool.
e. Assume the role of traffic control until further public safety agencies arrive to the scene.

3. Safety:

a. Consider placement of flares/warning devices.
b. Avoid entering a damaged/disabled vehicle until it is stabilized.
c. Do not place your EMS vehicle so that its lights blind oncoming traffic.
d. Use all available lights to light up scene on all sides of your vehicle.
e. PPE is suggested for all responders entering vehicle or in area immediately around involved vehicle(s).
f. All EMS providers should wear high-visibility reflective outerwear at scenes all EMS all times when on an EMS call and outside of a vehicle.

C. Parked Vehicles (non-crash scenes):

1. Position EMS vehicle:

a . Behind parked vehicle, if possible, in a manner that allows rapid departure and maximum safety of EMS providers.
b. Turn headlights on high beam and utilize spotlights aimed at rear view mirror.
c. Inform the dispatch center, by radio, of the vehicle type, state and number of license plate and number of occupants prior to approaching the suspect vehicle.

2. One person approaches vehicle:

a. If at night, use a flashlight in the hand that is away from the vehicle and your body.
b. Proceed slowly toward the driver's seat; keep your body as close as possible to the vehicle (Less of a target). Stay behind the "B" post and use it as cover.
c. Ensure trunk of vehicle is secured; push down on it as you walk by.
d. Check for potential weapons and persons in back seat.

1) Never stand directly to the side or in front of the persons in the front seat
e. Never stand directly in front of a vehicle.
3. Patients:
a. Attempt to arouse victim by tapping on roof/window.
b. Identify yourself as an EMS practitioner.
c. Ask what the problem is.
d. Don't let patient reach for anything.
e. Ask occupants to remain in the vehicle until you tell them to get out.

D. Residence scenes with suspected violent individuals:
1. Approach of scene:
a. Attempt to ascertain, via radio communications, whether authorized personnel have declared the scene under control prior to arrival.
b. Do not enter environments that have not been determined to be secure or that have been determined unsafe.
1) Consider waiting for police if dispatched for an assault, stabbing, shooting, etc.
c. Shut down warning lights and sirens one house or more before reaching destination.
d. Park in a manner that allows rapid departure.
e. Park 20 meters prior to or past the residence.
2. Arrival on scene:
a. Approach residence on an angle.
b. Listen for sounds; screaming, yelling, gunshots.
c. Glance through window, if available. Avoid standing directly in front of a window or door.
d. Carry portable radio, but keep volume low.
e. If you decide to leave, walk backward to vehicle.
3. Position at door:
a. Stand on the knob side of door; do not stand in front of door.
b. Knock and announce yourself.
c. When someone answers door – have him or her lead the way to the patient.
d. Open door all the way and look through the doorjamb.
4. Entering the residence:
a. Scan room for potential weapons.
b. Be wary of kitchens (knives, glass, caustic cleaners, etc.)
c. Observe for alternative exits.
d. Do not let anyone get between you and the door, or back you into a corner.
e. Do not let yourself get locked in.
5. Deteriorating situations:
a. Leave (with or without patient).
b. Walk backwards from the scene and do not turn your back.
c. Meet police at an intersection or nearby landmark, not a residence.
d. Do not take sides or accuse anyone of anything.

E. Lethal weapons:
1. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat.
2. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders
a. Guns should be handed over to a law enforcement officer if possible or placed in a locked space, when available.
1) If necessary for scene security, safely move firearm keeping finger off of the trigger and hammer and keeping barrel pointed in a safe direction away from self and others.

PARAMEDIC | EMT

2) Do not unload a gun.
b. Knives should be placed in a locked place, when available.

Notes:
1) Each responder should carry a portable radio, if available.
2) Flares should not be used in the vicinity of flammable materials.
3) Avoid side and rear doors when approaching a van. Vans should be approached from the front right corner.

Code: G-4 | **Title: Scene safety Protocol** **END**

Key Points:

1- Definitions of car posts.

• An A-post is part of the bodywork of a vehicle that supports the roof at the front corner of the passenger compartment next to the windshield.

• A B-post is part of the bodywork of a vehicle that supports the roof and against which the front door closes. The B-posts are located between the front and rear doors of a vehicle.

References:

- Pennsylvania Department of Health
- Bureau of Emergency Medical Services

Written By:

Dr. Faleh Alqahtani • Dr. Murad Salem

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan
Dr. Omar Alothman
Dr. Mohammed Arafat
Dr. Jameel Abualenain
Dr. Bader Alossaimi
Dr. Abdulrahman Aldhabib
Dr. Fahad Samarkandy
Dr. Nofal Aljerian
Dr. Naser Alrajeh
Dr. Fahad Alhajjaj

Poisoned patient care Protocol

Code: G-5 | Title: Poisoned patient care Protocol **START**

PARAMEDIC	EMT	Follow general patient care protocol. Go to **G-1**.
		If inadequate respirations (e.g. RR < 10): Administer Naloxone 2 mg-4 mg via Nasal Atomizer (IN) or 0.4 mg via auto-injector (IM).
		If no response after 3-5 minutes, administer second dose. Target is restoring adequate oxygenation and ventilation, not regaining consciousness.
		If suspected or confirmed hypoglycemia, treat per protocol. Go to **M-6**.
		Do 12-Lead ECG, Establish IV line and Connect to cardiac monitor.
	Administer Naloxone: ADULT: 0.4-4 mg IV/IO/IM/IN. May be repeated as indicated. (Max 10mg)	
	If patient hypotensive, administer Normal Saline 500ml. Repeat as needed to a maximum of 2 liters.	

Code: G-5 | Title: Poisoned patient care Protocol **END**

Toxin	Antidote
Acetaminophen	N-Acetylcysteine
Digoxin	Ag Binding Fragment
Narcotics	Naloxone
Benzodiazepines	Flumazenil
Nitrates	Methylene Blue
Iron	Deferoxamine
Carbon Monoxide	Oxygen
Ethylene Glycol/Methanol	EtOH
Organophosphates	Atropine/Pralidoxime
Cyanide	Nitrites, Sodium Thiosulfate, & Hydroxycobalamin

Key Points:

- Naloxone should only be administered in suspected overdose patients with inadequate respirations and respiratory rate. Treatment should progress toward the restoration of adequate respirations. Patients with inadequate respiratory rates may need to be ventilated until their respiratory rate increases.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols.

Written By:

Dr.Sultan Zubaidy

Dr. Adel Arishi

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Osama Alqarni

Approved By:

Dr. Mohammed Alsultan

Dr. Omar Alothman

Dr. Naser Alrajeh

Dr. Nofal Aljerian

Dr. Mohammed Arafat

Dr. Abdulrahman Aldhabib

Dr. Bader Alossaimi

Dr. Jameel Abualenain

Dr. Fahad Alhajjaj

Dr. Fahad Samarkandy

Interfacility Transport Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to **G-1**.

During transport at a minimum, 2 licensed EMS providers in the vehicle, of which 1 may be the driver.

Nothing in this protocol shall preclude EMS personnel from providing any medication or therapy that is already within their scope of practice unless it is explicitly forbidden by the transferring facility provider's written orders for transport.

Refer to the appropriate SRCA EMS Protocol If at any time during transport a patient develops new signs/symptoms or has a change in status.

If there is a conflict between SRCA EMS Protocols and the transferring facility provider's written orders for transport, the transferring facility provider's written orders shall take over.

Transferring Facility Responsibilities:

- Certify benefits of transfer outweigh all expected risks.
- Ensure that patient has an accepting provider and bed assignment at destination facility
- Transferring provider must ensure ongoing care will be sufficient and appropriate, and provide resources as necessary.
- Transferring provider point of contact who will be immediately available to serve as medical control for transporting agency during transfer.
- Provide complete set of patient care orders for the transporting agency.
- In any case where the number of patients requiring transport exceeds the number of available EMS resources, the transferring institution shall decide the order in which patients are transported.

Transporting Agency Responsibilities:

- Assign personnel and resources that are most appropriate (consider training/experience, environmental factors, equipment needs).
- Decline transports when proper resources cannot or will not be provided and/or their level of training/experience is not compatible with patients' acuity or if acceptance papers from receiving facility are incomplete.
- Consult medical control as necessary during transport.
- Seek education or information about therapies or medications outside of normal formulary as necessary.

Shared Responsibilities:

- Assign the appropriate transport agency level for patient transport including sending hospital staff, if necessary.
- Receive and relay a complete patient care report.

		• Ensure every effort has been made to reduce risk, including environmental factors.
CAPABILITIES		
PARAMEDIC	EMT	**Care and treatment of stable patients:**
		Therapies within the EMT scope of practice.
		Medications within EMT scope of practice.
		Non-invasive monitoring (BP, HR, RR, Spo2, EtCo2, temperature).
		Previously inserted Foley catheter, suprapubic tube, established feeding tube (NG, PEG, J-tube not connected to infusion or suction).
		Saline lock permitted.
		Any crystalloid infusion.
		Chest tube capped and without need for suction during transport.
		Maintenance of stable, long term ventilated patients with any mode of ventilation so long as the patient is familiar and capable of operating the equipment OR patient is accompanied by a care provider who is capable of the same.
		Patient-controlled analgesic (PCA) pump.
		Cardiac monitoring with non-cardiac diagnoses (4 lead ECG as vital sign, noninterpretive) with no anticipated need for ACLS intervention.
		CPAP.
	Care and treatment of potentially unstable patients:	
	Therapies within the Paramedic scope of practice.	
	Medications within Paramedic scope of practice.	
	Continuation of any infusion started prior to departure, including blood products.	
	Repeat administration of any medications given prior to departure.	
	Maximum 1 vasopressor infusion.	
	Cardiac monitoring of 4 lead ECG with anticipated need for ACLS intervention.	
	Invasive monitoring equipment which has been capped or locked for transport.	
	Epidural catheter if secured, capped, and labeled.	
	Transcutaneous pacing.	
	Intubated non-complex vent setting.	
	Deep suctioning.	
Advanced paramedic	**Care and treatment of unstable patients:**	
	Greater than one vasopressor infusions.	
	Initiation of additional blood products.	
	Managing uncorrected shock.	
	Continuation of invasive monitoring.	
	Continuation of balloon pump/impella pump.	

Advanced paramedic	Transvenous pacing.
	Rapid sequence or delayed sequence induction.
	Intubated/ventilated patients with complex vent settings.

Key Points:

- Interfacility Transfer: An interfacility transfer is defined as any EMS ambulance transport from one healthcare facility to another. Examples include hospital-to-hospital, hospital-to-rehabilitation, and hospital-to-long-term care.
- Nothing in this protocol shall preclude EMS personnel from providing any medication or therapy that is already within their scope of practice unless it is explicitly forbidden by the transferring facility provider's written orders for transport.
- Unstable Patient: A critically ill or injured patient who cannot be stabilized at the transporting facility, who is deteriorating or likely to deteriorate during transport.
- Potentially Unstable: A critically ill or injured patient who is currently stable (as defined below) but whose disease process will likely lead to instability or an acute change in condition enroute.
- Stable Patient: Hemodynamically stable patient with a secure airway and who is NOT in acute distress or likely to deteriorate during transport.
- Resources: Could refer to personnel, equipment, medications or therapies.
- Sufficient & Appropriate: Transferring facilities are responsible for the coordination of ongoing care during transfer until the patient arrives at the destination facility. Patient must continue receiving care that is commensurate with their condition and potential for deterioration throughout transfer within the limits of the system. This may mean providing additional transferring facility or transporting agency personnel, up to and including physicians if necessary.
- Non-complex vent settings: Volume or pressure modes of ventilation provided that:
  - No inverse I:E ratios
  - No PEEP > 20 cmH20
  - No pediatric patients < 5 years of age
  - No High frequency oscillation
  - No Mode of ventilation without apnea backup
- Complex vent settings: Any mode of ventilation outside the above parameters.

References:

- State of New Hampshire Patient Care Protocols Version 8.0

Written By:

Dr. Wael Bunian

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti
Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan
Dr. Jameel Abualenain
Dr. Nofal Aljerian
Dr. Omar Alothman
Dr. Mohammed Arafat
Dr. Naser Alrajeh
Dr. Abdulrahman Aldhabib
Dr. Bader Alossaimi
Dr. Fahad Alhajjaj
Dr. Fahad Samarkandy

Cardiac arrest (Adult) Protocol:

Asystole/Pulseless Electrical Activity and Ventricular Fibrillation/Pulseless Ventricular Tachycardia

Code: R-1 | **Title: Cardiac arrest (Adult) Protocol: Asystole/Pulseless Electrical Activity and Ventricular Fibrillation/Pulseless Ventricular Tachycardia** **START**

EMT	Follow General Patient Care Protocol go to **G-1**.
	Follow last updated Saudi Heart Association (SHA) Guidelines, or as otherwise noted in these protocols and other advisories.
	Perform High-Quality CPR; Go to (P-4), until Automated External Defibrillator (AED) is attached and operable.
	Attach Automated External Defibrillator (AED) immediately.
	Use AED according to Saudi Heart Association (SHA) Guidelines or as otherwise noted in these protocols and other advisories.
	If properly trained, use mechanical cardiopulmonary resuscitation device.
	If suspected opioid overdose administer Naloxone, see (G-5) Poisoned patient care protocol.
	Consider underlying causes for Asystole/PEA.
	At all times, minimize interruptions of chest compressions, especially during IV/IO placement.
PARAMEDIC	**For Asystole/ Pulseless Electrical Activity:**
	Verify Asystole in 2 leads, if possible.
	Consider and treat underlying causes for Asystole/PEA.
	If properly trained and authorized, insert an supraglottic airway device, see SGA protocol.
	If cause unknown and Asystole/PEA persists administer: Epinephrine 1:10,000 1 mg IV/IO every 3-5 minutes.
	For suspected hyperkalemia administer **calcium gluconate** 2g IV.
	Contact On-Line medical control for additional doses of above medications.
	Sodium bicarbonate 1 mEq/kg IV/IO.
	For Ventricular Fibrillation/Pulseless Ventricular Tachycardia:
	Document presenting cardiac rhythm in two separate leads, if possible.
	Defibrillation when available, with minimum interruption in chest compressions (use manufacturer's recommended energy consistent with ACLS guidelines); then High-Quality CPR for 3 cycles/2 minutes; then rhythm check; Charge defibrillator while performing chest compressions to minimize hands-off-time.
	Administer Epinephrine 1:10,000 1 mg IV/IO; repeat every 3-5 minutes.
	Continue High-Quality CPR and defibrillate (each shock at the energy recommended by the manufacturer consistent with ACLS guidelines) per Saudi Heart Association (SHA) guidelines if ventricular fibrillation/pulseless ventricular tachycardia is persistent.
	If properly trained and authorized, insert a supraglottic airway device, see SGA protocol
	If properly trained, use mechanical cardiopulmonary resuscitation device

PARAMEDIC	
	Additional doses of above medications.
	Sodium bicarbonate 1 mEq/kg IV/IO.
	Amiodarone 150 mg. slow IV/IO if one dose already given or 300 mg slow IV/IO if not already given.
	Lidocaine 1.5 mg/kg IV/IO; subsequent dosage: 0.5 to 0.75 mg/kg IV/IO every 3-5 minutes to a total dose of 3 mg/kg IV/IO.

Code: R-1 | **Title: Cardiac arrest (Adult) Protocol: Asystole/Pulseless Electrical Activity and Ventricular Fibrillation/Pulseless Ventricular Tachycardia** **END**

Key Points:

- Early HQCPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression
- Switch compressors at least every two minutes to minimize fatigue.
- Consider "hands on defibrillation."
- Compress when charging and resume compressions immediately after the shock is delivered.
- Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart.
- Ventilate at a rate of 8 – 10 breaths per minutes, with enough volume to produce adequate chest rise.
- Consider requesting additional units' response as needed.

REVERSIBLE CAUSES OF CARDIAC ARREST INCLUDE:

- Hypothermia: initiate 2 large bore IVs (warm) normal saline
- Hyperkalemia: Contact Medical Control
- Hypoxia: provide high flow oxygen
- Hypovolemia: 250mL fluid bolus.
- Hydrogen Ion/Acidosis: Contact Medical Control
- Toxins/Tablets: see Toxicology protocol
- Thrombus (Coronary/Pulmonary): Contact Medical Control
- Tension Pneumothorax: Perform needle chest decompression.
- Tamponade (Pericardial): Contact Medical Control

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1



Adult OHCA Chain of Survival

Written By:

Dr. Mamdouh Alreweli

Dr. Saud Alzahrani

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Yousef Alsufayan

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Post arrest care Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to **G-1.**

initiate ventilation at rate of 14 - 16 BPM for adults and 20 – 24 bpm for pediatrics.

Use extraglottic devices to secure the airway.

Titrate oxygen levels to between 94 – 98 % SaO2

For post resuscitation hypotension:

Maintain systolic blood pressure of >90 mmHg OR MAP ≥ 65 mmHg.

- Administer IV fluid in 250 mL boluses not to exceed 2000 mL.

1 – 10 years of age: Maintain systolic blood pressure 70 mmHg + (2 x age)
-Administer fluid bolus of 10 - 20 mL/kg of 0.9% NaCl by syringe push method (may repeat to a maximum 60 mL/kg)

Perform a 12-lead ECG.

Consider treatable causes such as overdose, cardiogenic shock and STEMI.

Consider treatable causes such as respiratory arrest.

Manage dysrhythmias according to specific protocols.

If STEMI is present and the patient is stable enough, follow the Department – approved STEMI POE plan.

Hypotension:
- Administer **Norepinephrine** infusion by pump 0.1-0.5 mcg/kg/min IV/IO; titrate to goal Systolic Blood Pressure of 90mmHg, **OR**
-**Dopamine** 2-20mcg/kg/min IV/IO.

Hypotension:
Administer Norepinephrine infusion by pump: 0.1-0.5 mcg/kg/min IV/IO via pump, titrate to goal Systolic blood pressure of 70mmHg+ (2 × age in years) .

Medical control may order additional doeses of the above medication or:
Epinephrine infusion : administer 2 mcg to 10 mcg per minute IV or IO, (for pediatrics 0.1 to 1 mcg/kg/min IV or IO by pump with titration to goal SBP of 70mmHg+ {2 × age in years}).
Amiodarone bolus (150mg slow over 8-10 minutes), followed by 1 mg/min IV/IO drip. For example: 100mg/100mL - 1mg/minute (Amiodarone 5 mg/kg may repeat x2 times for pediatrics).
Lidocaine 1-1.5 mg/kg IV/IO followed by drip at 2-4 mg/min.

Key Points:

- This is an extremely unstable period. The patient should be monitored closely and frequently. Recurrent dysrhythmias, hypotension and re-arrest are not uncommon occurrences. Avoid hyperthermia and hyperventilation.
- Avoid hyperoxygenation; oxygen administration should be titrated to patient condition, and withheld unless evidence of hypoxemia, dyspnea, or an SpO2 less than 94%, especially in the prescence of a suspected CVA/TIA or ACS.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1
- New Hampshire Protocols

Written By:

Dr. Mamdoh Alreweli | Dr. Saud Alzahrani | Dr. . Yousef Alsofayan

Reviewed By:

Dr. Mohammed Altuwaijri | Dr. Haitham Alhaiti | Dr. Saud Mazi

Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan | Dr. Mohammed Arafat | Dr. Jameel Abualenain

Dr. Omar Alothman | Dr. Abdulrahman Aldhabib | Dr. Fahad Alhajjaj

Dr. Naser Alrajeh | Dr. Bader Alossaimi | Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Death Declaration Protocol

PARAMEDIC

EMT

1

The EMS Unit begins an emergency case and the EMS Unit checks for signs of life:

The EMS Unit begins an emergency case by checking for signs of life:

- Patient response.
- Pulse for 5-10 seconds.
- Breathing for 5-10 seconds.
- Eye pupils.
- Heart sounds by listening to the chest wall with a stethoscope.

In the absence of all five signs of life, the EMS Unit begins to search for signs of certain death and injuries incompatible with life and asks about the presence of a written medical decision not to resuscitate (DNR).

2

1- The EMS Unit starts high-quality CPR and transfers the case to the hospital except in the following cases:

- There was an absence of the five signs of life combined in addition to one of the signs of certain death.
- There was an absence of the five signs of life combined in addition to the presence of a medical order (Do Not Resuscitate (DNR)) that is effective / valid / and after confirming with the case's relatives their desire not to resuscitate at this moment (now) - and in the event of noticing any disagreement between the case's relatives regarding the medical order (Do Not Resuscitate (DNR)) and regardless of the age of the case (it is not necessary to be an adult or a guardian), high-quality CPR is started and the case is transferred to the hospital emergency room.
- There is a directive to use the Crisis Standards of Care and disasters

Where death can be declared on site and after contacting the medical control physician if the following conditions are met:

First: The presence of the five signs together (1- Absence of response with 2- Absence of pulse with 3- Absence of breathing with 4- Dilation and fixation of the pupils with 5- Absence of heart sounds upon auscultation) with

Second: The presence of one of the following points:

PARAMEDIC

EMT

3

• The presence of at least one of the clear signs of certain death, which are:

1. Livor Mortis
2. Rigor Mortis
3. Decay and signs of decomposition of body tissues
4. The presence of a clear fatal injury incompatible with life (massive crushing, decapitation and separation of the head from the body, cutting the body in half, crushing of the skull and exit of parts of the brain matter, complete charring of the body)

• In the event that there is only one EMS Unit at the site and there is more than one injury, the Crisis Standards of Care are activated and the command and control room is notified in the following two cases:

1- The presence of at least one red case at the site.

2- The presence of 6 or more injuries at the site and there is at least one yellow case.

(During the activation of the standards of care in crises, the medical control is not contacted to declare death, but rather START triage is used)

The first EMS Unit (triage officer) requests a number of EMS Unit teams to support the site, achieving the following:

- One EMS Unit for each case carrying a black card and no signs of certain death.
- At least one EMS Unit for each case carrying a red card in triage.
- One EMS Unit for every two cases at most, each carrying a yellow card.
- OneEMS Unit for every 5 cases, each carrying at least a green card.

• In the event that the number of supporting EMS Units on site is complete, the ambulance teams begin cardiopulmonary resuscitation for:

• Cardiac and respiratory arrest cases carrying a black card and not showing any signs of certain death.

As the triage officer team continues to re-sort, it must contact the medical control physician to make death decisions on site for each:

1- Cardiac and respiratory arrest case carrying a black card with at least one sign of certain death if it appears.

2- For each case that was given a black card instead of a red, yellow or green card and showed at least one sign of certain death.

- High-quality resuscitation includes effective chest compressions, optimal use

of respiratory support devices, opening the airway, and the use of a defibrillator according to the approved medical protocol in cases of cardiac and respiratory arrest, or the use of the LUCAS device if available.

The following cases are exempt from the conditions for declaring death on site, even if the professional judgment of the case indicates that the patient does not benefit from resuscitation and cardiopulmonary resuscitation must be started immediately and without the need to contact the medical control (the medical control is contacted to help complete the resuscitation process and assist the EMS Unit from a scientific and administrative coordination perspective, not to request a medical opinion regarding the declaration of death or the start of resuscitation).

These exceptional cases are:

• In cases where the expected cause of cardiac and respiratory arrest is hypothermia.

• Expectation or occurrence of violent reactions by the patient's family members.

• In cases of pregnant women whose pregnancy is expected to be more than /20/ weeks, where pregnant women who are suspected of having a fetus of a gestational age of more than /20/ weeks are transferred to hospital emergency rooms regardless of the number and type of certain signs of death and fatal injuries present - with or without cardiopulmonary resuscitation according to the assessment of the EMS Unit or the opinion of the medical control doctor - in order to save the fetus or confirm its death by more specialized means in the hospital

• Patients who have ventricular assist devices.

• A special exceptional case (excluding part of the conditions for declaring death and applying another part) is:

*Children aged / 14 / years or less, infants and newborns, where high-quality cardiopulmonary resuscitation is initiated without the need to contact the medical control physician unless they have ((1 - Decay and decomposition of body tissues - 2 - Decapitation and separation of the head from the body - 3 - Cutting the body in half - 4 - Smashing the skull with part or all of the brain matter coming out of the head / It is necessary to distinguish between the brain matter and the cerebrospinal fluid, which is not considered a sign of

death / - 5 - Complete charring of the body (not a third-degree burn)), then the medical control physician is contacted to approve the death declaration.

- Livor Mortis: It is a change in the color of the skin to purple-red in the lower areas of the body (provided that the patient/injured person is not moved frequently, as livor mortis begins to appear after 20 minutes and up to three hours of stopping the heart and breathing due to blood accumulation due to the effect of gravity, and it is a certain sign of death that is not useful for cardiopulmonary resuscitation if it appears. It differs from central cyanosis and peripheral cyanosis, which are considered signs of a critical condition for the patient and not death.

- Rigor Mortis: It is a stiffness in the muscles due to chemical changes that occur two to four hours after stopping the heart and breathing, which makes the body rigid and difficult to move, and it is a sign of certain death that is not useful for cardiopulmonary resuscitation if it appears.

- Rotting of the Corpse: The rotting of the corpse occurs due to the proliferation of bacteria and fungi (as a result of the absence of the body's defenses) that are naturally present inside the body after the leakage of cellular contents, which creates a suitable environment for this reproduction and putrefaction begins with a change in the color of the skin and swelling of parts of the body such as the face, abdomen, breasts, and scrotum. The first sign of putrefaction appears after 18 hours of stopping the heart and breathing, which is the green discoloration of the skin of the abdomen. There are other signs of certain death (saponification and mummification), which are very late signs.

• The final decision to continue resuscitation or stop resuscitation efforts and declare death is in the hands of the medical control physician on duty, based on the information provided to him by the EMS Unit.

2- In order to declare the death, the EMS Unit communicates with the medical control doctor through the Authority's approved means of communication and using video communication if the medical control doctor requests this (the informant or the patient's first-degree relative must ask for permission before visual imaging).

PARAMEDIC

EMT

5- In the event that an EMS Unit deals with a case of cardiac and respiratory arrest in a health facility and there is a doctor next to the case who has declared the death - the EMS Unit shall verify that the person announcing the death is a doctor (by reviewing the work card), announce the death, document the name of the doctor announcing the death and his place of work, obtain his signature on the e-PCR or medical report, and leave the site without transferring the case unless it receives a directive from the directors or chief paramedic or there are humanitarian circumstances that require cooperation to transfer the case. The same decision shall be applied in the event that an EMS Unit deals with a case of cardiac and respiratory arrest that was previously dealt with by the air ambulance and the death was declared based on the opinion of the air ambulance doctor, after reviewing the air ambulance team's medical report to verify this.

Code: R-3 | **Title: Death declaration Protocol**

END

Pediatric cardiac arrest Protocol

PARAMEDIC

EMT

Follow General patient care protocol, Go to (**G-1**) with focus on High-Quality CPR.

Follow last updated Saudi Heart Association (**SHA**) Guidelines, or as otherwise noted in these protocols and other advisories.

Ventilate with 100% oxygen.

If unable to ventilate child after repositioning of airway: assume upper airway obstruction and follow Airway obstruction protocol (**R-6**).

Apply AED and use as soon as possible (with minimum interruption of chest compressions). From birth to age, 8 years use pediatric AED pads.

Use adult AED pads if pediatric AED pads are unavailable, provided the pads do not overlap.

Use AED according to the guidelines of Saudi Heart Association (SHA) or as otherwise noted in these protocols and other advisories.

If No Shock Advised, resume CPR if appropriate.

If suspected opioid overdose administer Naloxone, Go to (G-5).

Consider 20 ml/kg Normal Saline bolus.

Consider treating for reversible causes.

Epinephrine: 0.01 mg/kg (1:10,000) IV/IO every 3-5 minutes, (**For Ventricular Fibrillation/Pulseless Ventricular Tachycardia, Bradycardia, Asystole or PEA**).
Epinephrine infusion: initial dose, 0.1 mcg/kg/min IV/IO. Titrate to desired effect to maximum dose of 1 mcg/kg/min, (**For Asystole/PEA**).

Consider transcutaneous pacing for a heart rate of less than 60 beats/minutes.

Defibrillate once at 2-4J/kg for shockable rhythms (VF/VT).
Defibrillate 4-10 J/kg (do not exceed 10J/kg) every 2 minutes.
Consider Amiodarone 5 mg/kg IV/IO for shockable rhythms (VF/VT).
Defibrillate 4 J/kg 30-60 seconds after each medication

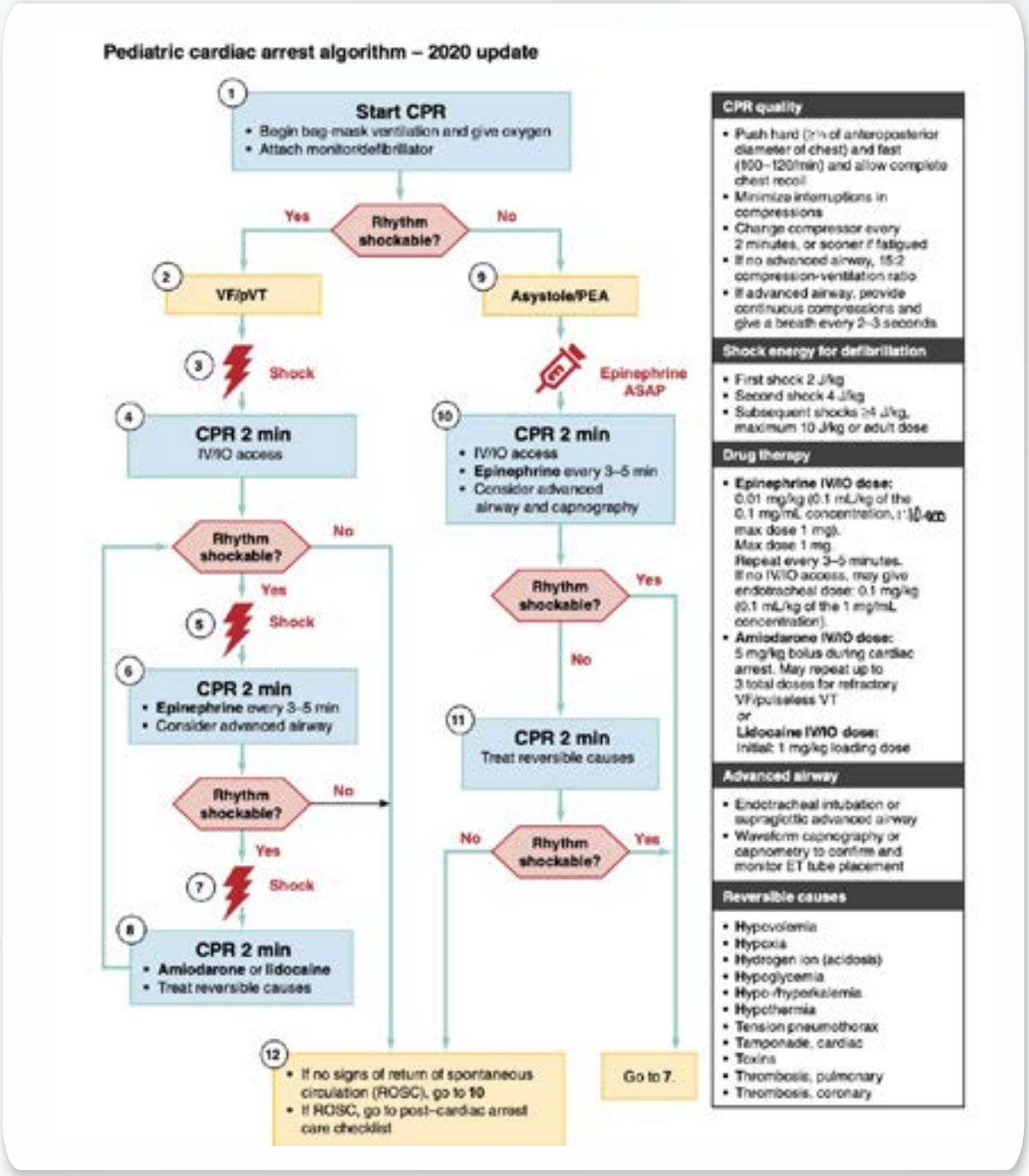
- Additional doses and additional medications that can be ordered by a medical director. Sodium bicarbonate 1 mEq/kg IV/IO.
- Atropine 0.02mg/kg IV/IO (minimum single dose 0.1mg, maximum combined doses 1
- mg.) for non-shockable rhythms (Asystole/PEA)
- All other treatment modalities based upon suspected etiology for cardiopulmonary arrest.

Key Points:

- For patients under 12 years old, the airway is in most cases best managed with a BVM or SGA. In some cases, intubation may be preferred. This is at the discretion of the treating paramedic.
- The need for early defibrillation is clear and should have the highest priority. Since these patients will all be in cardiopulmonary arrest, use of adjunctive equipment should not divert attention or effort from Basic Cardiac Life Support (BCLS) resuscitative measures, early defibrillation and Advanced Cardiac Life Support (ACLS). Remember: rapid defibrillation and high-quality CPR is the major determinant of survival.
- Early CPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Switch compressors at least every two minutes to minimize fatigue.
- Consider "hands on defibrillation." (Compress when charging and resume compressions immediately after the shock is delivered).
- Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart. Ventilate at an appropriate rate, with enough volume to produce adequate chest rise.

Note: Reversible Causes of Cardiac Arrest include:

- Hypothermia: initiate 2 large bore IVs (warm) normal saline
- Hyperkalemia: Contact Medical Control
- Hypoxia: provide high flow oxygen
- Hypovolemia: 20ml/kg fluid bolus.
- Hydrogen Ion/Acidosis: Contact Medical Control
- Toxins/Tablets: see Toxicology protocol
- Thrombus (Coronary/Pulmonary): Contact Medical Control
- Tension Pneumothorax: Perform needle chest decompression.
- Tamponade (Pericardial): Contact Medical Control



Written By:

Dr. Mamdoh Alreweli

Dr. Saud Alzahrani

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Mohammed Alshehri

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Newborn Resuscitation Protocol

PARAMEDIC

EMT

Follow General Patient Care protocol go to **G-1**.

Follow last updated Saudi Heart Association (SHA) Guidelines, or as otherwise noted in these protocols and other advisories.

Maintain an open airway and suction the mouth, then nose. If meconium (brown stained fluid) is present, suction the hypopharynx only if the infant is not vigorous (Contact medical control immediately if available for possible need of endotracheal intubation).

Dry the infant, place on a dry blanket, cover the head and keep the infant warm.

If ventilations are inadequate or chest fails to rise, reposition head and neck, suction and initiate positive pressure ventilation at room air for term newborns or for preterm (less than 38 weeks gestation) newborns at 40-60 breaths per minute, as clinically indicated.

For heart rate less than 60, initiate positive pressure ventilation with 100% oxygen for 1 minute and if heart rate remains at 60 start CPR at a 3:1 ratio (for a rate of 90 compressions/minute and 30 ventilations/minute).

If meconium is present, consider early endotracheal intubation and suctioning. (Note: Do not suction or intubate a neonate with a vigorous cry).

For heart rate 60-80 and rapidly rising:

Continue manual ventilation at room air for term newborns or for preterm (less than 38 weeks gestation) newborns at 40-60 breaths per minute

Connect the newborn to Cardiac Monitor – Manage dysrhythmias per protocol

For heart rate less than 60:

Initiate CPR as indicated.

Initiate positive pressure ventilation with 100% oxygen for 1 minute and if heart rate remains at 60, start chest compressions.

Continue manual ventilation with 100% oxygen after CPR is initiated.

Advanced airway management if not already done and perform capnography.

Connect the newborn to Cardiac Monitor. Manage dysrhythmias per protocol.

If defibrillation is indicated: initial energy level: 2 joules/kg subsequent: 4 joules/kg.

If synchronized cardioversion is indicated: 0.5-1 joules/kg

Establish IV or IO access, if indicated. (Note: appropriately trained and authorized Para-medics may utilize umbilical lines when necessary). Treat for shock with 10cc/kg of Normal Saline over 5-10 minutes.

Medical Control may order:
Epinephrine 1:10,000 (0.01-0.03 mg/kg) IV/IO
Epinephrine Infusion: Administer 0.1-1 mcg/kg/min IV/IO

Initial Evaluation of a Newborn

Three questions are part of every newborn baby's initial evaluation, which is done immediately after birth:

1. Is the baby looks term?
2. Does the baby cry or breathe?
3. Is the infant's has good muscle tone?

- If the response to each of these three questions is "yes," the infant may remain with the mother when the first procedures are carried out on her chest or abdomen. If any of the three questions has a negative response, move on to the next step of the assessment.

Further Evaluation (Initial Steps) :

Provide Warmth, Dry, Stimulate, Open the Airway.

Remove the secretions if the infant is gasping or not breathing, if the airway is blocked, if the baby is having trouble clearing their secretions, if PPV is predicted, or if they have weak muscle tone. Routine suctioning is not advised if the baby is active

Assessing the Infant's Reaction to The First Steps:

It shouldn't take more than 30 seconds to monitor the newborn's respirations to see if the baby is responding to the first steps.

Is the Infant Gasping or Apneic?

Call for more assistance If the infant is not reacting to the first steps and is still not breathing, gasping for air, or has a heart rate of less than 100 bpm despite breathing, start the PPV right away.

Heart rate is measured by:

- The most accurate way to perform a physical examination is to use a stethoscope and listen to the baby's left side of the chest.
- To calculate the heart rate, multiply the number of beats in six seconds by ten.

Indications of Effective Positive Pressure Ventilation

Is your technique effective?

If Your Ventilation Technique Is Effective, three signs are observed:

1. An increase in heart rate
2. Chest is moving.
3. Increase in Oxygenation

Table 2.5 Target Oxygen Saturation	
Time from birth	Target saturations for newborns during resuscitation in %
1 min	60-65 %
2 min	65-70 %
3 min	70-75 %
4 min	75-80 %
5 min	80-85 %
10 min	85-95 %

The recommended breathing rate is 40 to 60 breaths per minute.

The infant should see an increase in heart rate within 15 seconds after beginning PPV.

If the baby's heart rate does not increase and the chest does not move, you will need to make a sequence of changes known as the ventilation corrective steps (MR.SOPA).

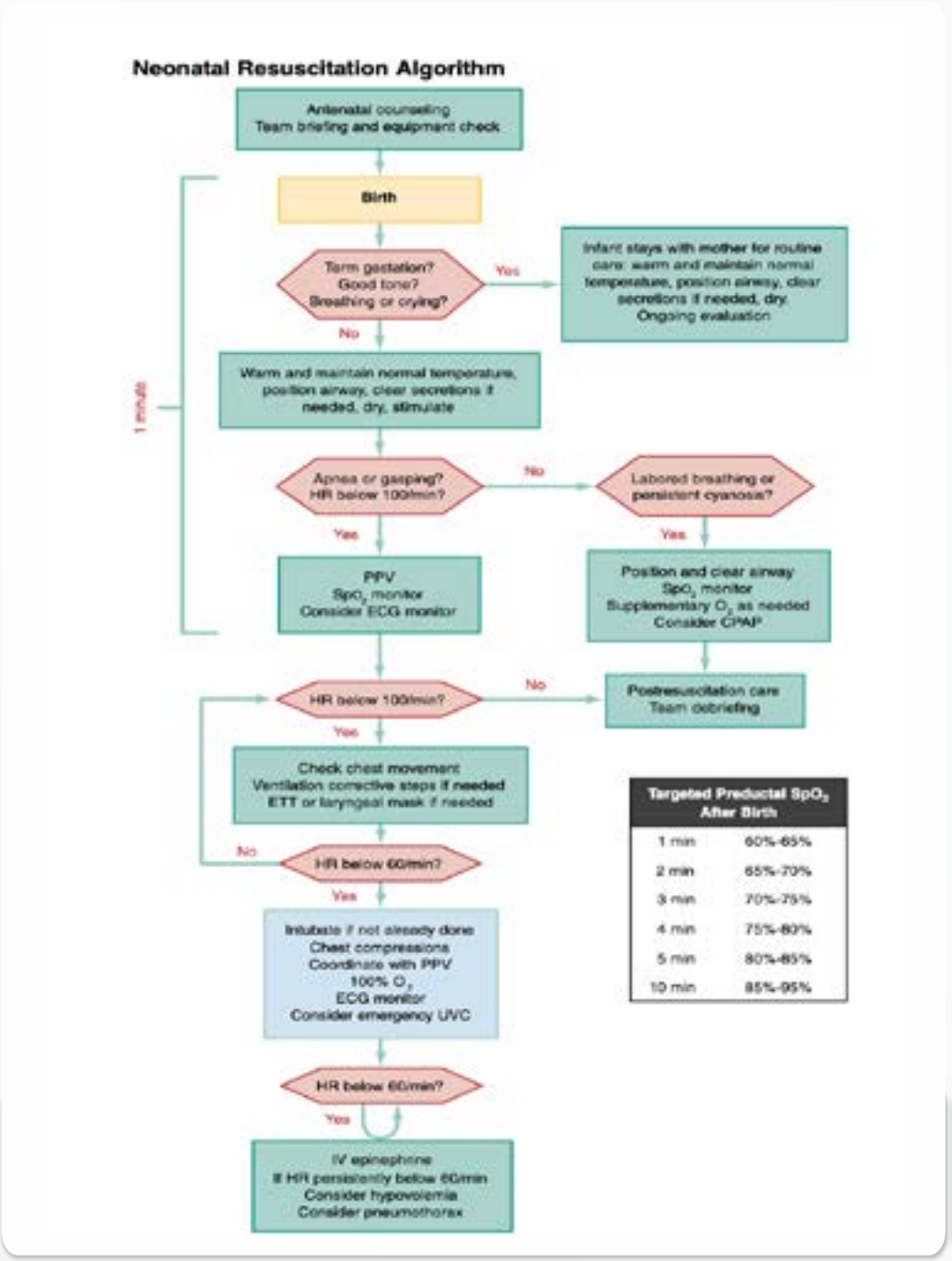
Table 2.7 The Corrective Steps for the MR. SOPA Ventilation	
Corrective Step	**Actions**
M: Mask adjustment.	Reapply the mask, then forward the jaw. Think about the two-hand hold.
R: Reposition the head and neck	Place head neutral or slightly extended.
Give 5 breaths, then assess chest movement. Do the following if there is no chest movement.	
S: Suction the mouth and nose.	Use a suction catheter or a bulb syringe.
O: Open the mouth.	To softly open the mouth, use a finger.
Give 5 breaths and assess chest movement. If no chest movement, do the next step.	
P: Pressure increases.	Increase pressure in 5-10 cm H_2O steps. 40 cm H_2O maximum term and 30 cm H_2O maximum preterm.
Take 5 breaths, then assess chest movement. if no chest movement, do the next step.	
A: Alternative airway.	Insert an endotracheal tube or laryngeal mask.
Examine chest movement and breath sounds during PPV.	

Key Points:

- The newly born should be evaluated for central cyanosis. Peripheral cyanosis is common and may not be a reflection of inadequate oxygenation. If central cyanosis is present in a breathing newborn during stabilization, early administration of 100% oxygen is important while the newborn is being assessed for need of additional resuscitative measures.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1



Written By:

Dr. Wael Bunian

Dr. Osama mashal

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Mohammed Alsheh-

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Airway Obstruction Protocol

PARAMEDIC

EMT

Follow General Patient Care protocol go to G-1.

Follow Saudi heart association (SHA) guidelines for foreign body obstruction.

Assess for airway obstruction severity: Mild: (Partial obstruction or effective cough) or severe: (significant obstruction or ineffective cough.

If the obstruction due to a foreign body is complete or is partial with inadequate air exchange, Go to Difficult Airway protocol P-2

Maintain an open airway, remove secretions (by gentle suction), vomitus and assist ventilations as needed.

Transport the patient to appropriate medical facility if partial obstruction due to foreign body is suspected and there is adequate air exchange.

If the patient has tracheostomy tube, follow Tracheostomy Tube Obstruction Management Protocol P-16.

Provide airway management if indicated for mechanical obstruction if unable to remove obstructing foreign body, continue BLS airway management by providing positive pressure ventilations if needed.

Maintain an open airway, place child in position of comfort and avoid upper airway stimulation if suspected croup (barking cough, no drooling) or epiglottitis (stridor, drooling).

Nebulized racemic epinephrine 11.25 mg in 2.5ml Normal Saline, for suspected severe croup, with stridor at rest and respiratory distress.

If complete airway obstruction, perform direct laryngoscopy if foreign body suspected. If visualized and easily accessible, attempt removal with Magill Forceps.

If unable to remove obstructing foreign body, continue BLS airway management by providing positive pressure ventilations.

If foreign body is removed, proceed with endotracheal intubation if necessary and perform capnography.

In pediatrics, if unable to clear airway obstruction, unable to intubate as needed or unable to perform positive pressure ventilations, perform a needle cricothyrotomy, if permitted. Consult Medical Control.

Key Points:

- For patients under 12 years old, the airway is in most cases best managed with a BVM or SGA.
- In some cases, intubation may be preferred. This is at the discretion of the treating paramedic.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols.

Written By:

Dr. Faleh Alqahtani

Dr. Murad Salem

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Chest pain and acute coronary syndrome Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to **G-1**.

Obtain 12-Lead ECG for all patients with chest pain, epigastric discomfort, or suspected acute coronary syndrome before leaving the scene and transmit to medical director.

- Administer oxygen to patients with dyspnea, hypoxia (O2 saturation <94%), or signs of heart failure at a rate to keep O2 sat ≥ 94%.
- Be cautious if the patient known to have COPD (target O2 saturation 88-92%).

Administer Aspirin 300 mg. Check allergy status.

Establish IV before administration of Nitroglycerin.

Facilitate administration of patient's own Nitroglycerin.

- Confirm absence of contraindications.
- Must be patient's own Nitroglycerin.
- Include doses self-administered PTA (prior to arrival).
- SBP must be >120mmHg.

Contact Medical Control for other treatment options.

Connect the patient to Cardiac Monitor.

If SBP >120 mmHg, administer one (1) **Nitroglycerin** 0.4 mg SL every 5 minutes until pain relieved OR to a maximum of 3 doses; hold NTG if SBP <90 mmHg.

If pain unrelieved by NTG, administer **Fentanyl** 1 mcg/kg slow IV/IO weight based (kg) to a max of 150mcg (150kg)

If pain unrelieved by NTG, and Fentanyl is not available administer Morphine Sulfate 4 mg IV initial dose, and administer 2 mg every 5 minutes until pain relieved OR to maximum dose of 10 mg; Hold Morphine if SBP <90 mmHg,

If systolic BP <90 mmHg– place patient in supine position with legs elevated (shock position) & give 250 ml NS fluid bolus.

For nausea and vomiting go to M-8.

Contact Medical Control for Additional doses of above medications.

If patient appears to be having a ST-elevation MI (STEMI), refer to the appropriate STEMI-Point of Entry (POE) plan, and transport accordingly. Follow bypass protocol go to **S-8**.

Key Points:

-Exclude other life-threatening causes of chest pain.

- contraindications of aspirin are:

- Aspirin allergy or aspirin induced asthma.
- Active GI bleeding.
- If patient has taken 300 mg within the last 24 hours.

-Not all patients with complaints of chest pain should be treated with aspirin, nitrates and oxygen. Consider the likelihood of ACS based on the nature of the symptoms, the patient's age, cardiac risk factors, past medical history, etc.

-Chest wall tenderness does not rule out cardiac ischemia.

-Have a high index of suspicion for cardiac disease in women, diabetics, and all patients >50 years old who have any symptoms might be attributed to acute coronary syndrome (e.g. nausea, neck, jaw, or arm pain, chest pain, diaphoresis, syncope).

-Avoid nitroglycerin in ALL patients who have used a phosphodiesterase inhibitor such as sildenafil (Viagra), Tadalafil (Cialis) within the last 48 hours. These medications are often used for erectile dysfunction and pulmonary hypertension.

-Avoid hyperoxygenation, oxygen administration should be titrated to patient condition, and administered with evidence of hypoxemia, dyspnea, or an SpO2< 94%.

-Avoid administration of nitrates to patients with inferior-wall STEMI or suspected right ventricular (RV) involvement.

-All patients with ACS like symptoms of a non-traumatic etiology should be considered to be of cardiac origin until proven otherwise.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.
- Arizona Emergency Medical Services Council (saemscouncil.com)
- Alabama Statewide

Written By:

Dr. Wael Bunian

Dr. Osama mashal

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Syncope Protocol

Code: C-2 | **Title: Syncope Protocol** **START**

PARAMEDIC	EMT	Follow General Patient Care protocol go to **G-1**.
		Maintain oxygen saturation 94 - 98%.
		Establish IV line.
		Obtain blood glucose analysis; refer to Hyperglycemia **M-5** or Hypoglycemia **M-6** Protocols, if indicated.
		Attempt to determine the cause of syncope.
		Perform cardiac monitoring; obtain 12-Lead EKG, if available.
		If acute coronary syndrome is suspected, refer to Acute Coronary Syndrome Protocol **C-1**.
		Assess for trauma either as the cause of the syncope or as a consequence of the syncopal event; refer to Spinal Injury **T-2** Protocol if indicated.
		Prevent and treat for shock.
		Administer 500 ml Normal Saline if systolic BP <90 mmHg.
		Contact medical control for additional IV fluid administration as indicated.
	Establish IV/IO line.	
	Observe for, and treat dysrhythmias (follow C-3 and C-4 protocols) as indicated.	

Code: C-2 | **Title: Syncope Protocol** **END**

Key Points:

- Consider all syncope to be of cardiac\Neuro origin until proven otherwise. Refer to stroke protocol if suspected stroke.
- While often thought as benign, syncope can be the sign of more serious medical emergency.
- Syncope that occurs during exercise often indicates an ominous cardiac cause. Patients
- should be evaluated at the ED. Syncope that occurs following exercise is almost always vasovagal and benign.
- Prolonged QTc (generally >500ms) and Brugada Syndrome (incomplete RBBB pattern in V1/

- Myocardial infarction
- Pulmonary embolism
- Cardiac arrhythmias,
- Vaso-vagal reflexes
- Diabetic emergencies
- Poisoning/drug effects
- Dehydration
- Hypovolemia
- Seizures
- Ectopic pregnancy

References:

- State of New Hampshire Patient Care Protocols Version

Written By:

Dr. Wael Bunian

Dr. Osama mashal

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Bradycardia Protocol

EMT

Follow General Patient Care protocol, go to **G-1**.

Consider the underlying causes of bradycardia (e.g., acute coronary syndrome, hyperkalemia, hypoxia, hypothermia).

Obtain 12 lead ECG.

Consider the underlying causes of bradycardia in pediatrics (e.g., hypoxia, hypoglycemia, hypovolemia, and hypothermia).

Obtain 12 lead ECG if available, Establish an IV line.

PARAMEDIC

If symptomatic and hemodynamically unstable: Consider **Atropine** 1 mg IV/IO every 3-5 minutes to a total of 3 mg.

(If Atropine is ineffective): Consider Transcutaneous pacing. Follow Cardiac pacing protocol **P-6.**

Administer one of the following before transcutaneous pacing if feasible:

Ketamine 1 mg/kg , May repeat dose once if dissociative effect not achieved, (3)**OR**

Fentanyl 1 mcg/kg IV/IO/IM/IN to a maximum initial dose of 200 mcg. (4)

For Pain management protocol, go to M-1.

Consider vasopressor: Administer Epinephrine (1:10,000) concentration 10-20 mcg boluses (1 – 2 mL) every 2 minutes.

Q: How to prepare Epinephrine boluses? By adding 1 mL 0.1 mg/mL Epinephrine of concentration 1:10,000 to 9 ml normal saline. Then administer (1-2 mL) every 2 minutes. Every 1 mL = 10 mcg "see image below", **OR**

- Administer Epinephrine 1:1000 concentration 2-10 micrograms/minute via pump by A combination of 1 mg of epinephrine (1 mL of 1: 1,000 solution) to 250 mL or 500 mL of normal saline, via IV infusion drip **OR**
- Administer Norepinephrine 1 - 30 mcg/minute via the pump. Titrate 2-5 mcg/minute every 5 minutes as needed. Maximux 80 mcg/minute.

Medical control may order:

- Additional doses of above medications
- Dopamine 2-20 mcg/kg/min IV/IO.
- For symptomatic beta blocker overdose, consider glucagon 5 mg IV over 3 – 5 minutes
- For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker/beta blocker overdose consider:

PARAMEDIC

• Calcium gluconate (10% solution) 2 grams IV over 10 minutes, with continuous cardiac monitoring, may repeat in 10 minutes if clinical indication persists.

If symptomatic and hemodynamically unstable: Administer Epinephrine of 1:10,000 cocentration (0.1mg/mL) 0.01 mg/kg IV (0.1 ml/kg of 0.1mg/mL) every 3–5 minutes.

Consider Atropine 0.02 mg/kg IV for increased vagal tone or AV blocks, may repeat once (minimum single dose: 0.1 mg; maximum single dose 0.5 mg.).
Consider Transcutaneous pacing, administer procedural sedation prior to/during pacing,if feasible: Ketamine 1 mg/kg , May repeat dose once if dissociative effect not achieved, (3) OR Fentanyl 1 mcg/kg IV/IO/IM/IN to a maximum initial dose of 200 mcg. (4)

For hypoglycemia Go to hypoglycemia protocol M-6.

For pedatrics Medical control may order:
For symptomatic beta blocker overdose: or calcium channel blocker overdose, consider glucagon: 0.025 – 0.05 mg/kg
- **1 mg IV (20-40 kg), every 5 minutes as necessary,**
- **0.5 mg IV (less than 20 kg), every 5 minutes as necessary**

For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker/beta blocker overdose consider:
Calcium gluconate (10% solution) 100 mg/kg IV (maximum dose 2 gm) with a maximum 2 gm/dose over 10 minutes; may repeat in 10 minutes if clinical indication persists.
Additional doses of the above medications.
Additional fluid boluses (10-20mL/kg).
Epinephrine 1:10,000 – 0.01-0.03 mg/kg IV/IO (max. single dose of 0.5 mg).
Epinephrine Infusion 0.1-1 mcg/kg/min IV/IO.

Code: C-3 | **Title: Bradycardia Protocol** **END**

Key Points:

- For IN administration of midazolam use a 5 mg/mL concentration.
- For calcium chloride administration, ensure IV patency and do not exceed 1 mL per minute
- Hyperkalemia should be suspected in dialysis or renal failure patients with ECG changes such as tall peaked T waves, loss of P waves, QRS widening and bradycardia.
- When pushed too quickly, glucagon can cause nausea and vomiting.
- Combine age specific heart rates with signs of respiratory failure and shock while assessing. If child is asymptomatic, consider no treatment.



References:

- Massachusetts EMERGENCY MEDICAL SERVICES PRE-HOSPITAL STATEWIDE TREATMENT PROTOCOLS
- State of New Hampshire Patient Care Protocols
- Summa health protocols , summa region 8, ohio.
- Maryland statewide EMS protocols.

Written By:

Dr. Abdulaziz Alhaddab

Dr. Abdullah Asiri

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Tachycardia Protocol

EMT

- Follow general patient care protocol go to (**G-1**).
- Maintain patent airway; assist breathing as needed
- Give oxygen as needed to maintain pulse oximetry ≥ 94%.
- Establish IV, particularly if vital signs abnormal.
- IV Normal Saline (KVO). If hypovolemic component is suspected, administer 10 mL/kg IV Bolus of normal saline.
- Connect patient on cardiac monitor to identify rhythm; monitor blood pressure and oximetry.

PARAMEDIC

If Systolic BLOOD PRESSURE is unstable (less than 100mm Hg): Synchronized cardioversion at:

For narrow regular rhythm: 50 – 100J biphasic or 200J monophasic.

For narrow irregular rhythm: 120 – 200J biphasic or 200J monophasic.

For wide regular rhythm: 100J biphasic or monophasic.

For wide irregular/polymorphic VT: 120 – 200J biphasic or 360 monophasic, using unsynchronized defibrillation doses if unable to sync.

SVT

Perform Vagal Maneuvers: Valsalva's and/or cough. And/or modified Valsalva's maneuvers.

Check rhythm and pulse between each attempted cardioversion.

Consider sedation if cardioversion is warranted.

Administer **adenosine 6 mg** rapid IV/IO over 1-3 seconds.

If previous dose failed to resolve rhythm disturbance, administer adenosine 12mg rapid IV/IO over 1-3 seconds.

Repeat **adenosine 12 mg** rapid IV/IO over 1-3 seconds if previous doses failed to resolve rhythm disturbance.

Follow all **Adenosine** with a 20 mL Normal Saline bolus and elevate extremity.

Consider **diltiazem HCL as a second line**:
Initial bolus: **0.25 mg/kg** IV/IO over two (2) minutes

If inadequate response after 15 minutes, re-bolus **0.35 mg/kg** IV/IO over two minutes
OR:
Amiodarone **150 mg** IV/IO slowly over 10 minutes.

PARAMEDIC

In pediatric patient Synchronized cardioversion 0.5 joules/kg for symptomatic patients. Subsequent cardioversion may be done at up to 2 joules/kg

In pediatric patient, consider sedation if cardioversion is warranted
Adenosine 0.1 mg/kg rapid IV/IO. If no effect, repeat adenosine 0.2 mg/kg Rapid IV push.
MAXIMUM single dose of Adenosine must not exceed 6 mg for the first dose, 12 mg for the second dose.
Consider Vagal maneuvers. See below Key points.

Ventricular Tachycardia
If the patient is unstable perform synchronized cardioversion at:
100 J (If regular)

Defibrillation dose not synchronized (If irregular and unable to sync).

Check rhythm and pulse between each attempted cardioversion.

Consider sedation if **cardioversion** is warranted

In Pediatric patients, synchronized cardioversion at **0.5 joules/kg**, then **2 joules/kg.**

If the patient is stable administer:

Amiodarone **150 mg** slow IV/IO over 8-10 minutes; repeat as needed if VT recurs. Follow by maintenance infusion of **1 mg/min IV/IO**. (For example: 100mg/100ml – 1mg/minute)

Procainamide IV 20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases more than 50%, or maximum dose **17 mg/kg** given. Maintenance infusion 1- 4 mg/min.

Sotalol IV 100 mg (1.5mg/ kg) over 5 minutes.

Magnesium sulfate (for Torsades de Pointes or suspected hypomagnesemic state or severe refractory Ventricular Tachycardia) **2-4 grams IV/IO** over 5 minutes.

Lidocaine 1 – 1.5 mg/kg IV/IO; subsequent dosage: **0.5 – 0.75 mg/kg** IV/IO every 3 – 5 minutes to a total dose of **3 mg/kg**.

If dysrhythmia is successfully converted after administration of Lidocaine bolus, consider IV infusion of Lidocaine **2 – 4 mg/ min.**

Adenosine 6 mg or 12 mg IV push; in selected cases **ONLY.**

Contact Medical Control after 3 attempts of cardioversions.
IF need for additional doses of above medications.

Administer medications as ordered by Medical Control.

Code: C-4 | **Title: Tachycardia Protocol** **END**

Key Points:

- **Vagal maneuvers may precipitate asystole and therefore should be employed with caution in the field and only in a cardiac-monitored child with IV access.**
- **In case of SVT:**
  1- Diltiazem HCL is contraindicated in Wolff-Parkinson-White Syndrome, second- or third-degree heart block and sick sinus syndrome (except in the presence of a ventricular pacemaker), severe hypotension or cardiogenic shock.
  2- öSynchronized cardioversion should be considered for only those children whose heart rate is in excess of 220, and who demonstrate one or more of the following signs of hypoperfusion: Decreased level of consciousness, weak and thready pulses, capillary refill time of more than 4 seconds, or no palpable BLOOD PRESSURE.
- **In case of Ventricular Tachycardia:**
  1- Magnesium sulfate is contraindicated in Heart Block, renal disease.
  2- Avoid **procainamide** if prolonged QT or CHF.
  3- Avoid **sotalol** if prolonged QT.
- **Unstable patients are patients with:**
  1- hypotension
  2- Acutely altered mental status
  3- Signs of shock
  4- Ischemic chest discomfort
  5- Acute heart failure

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1
- New Hampshire Protocols

Written By:

Dr.Sultan Zubaidy • Dr. Adel Arishi • Dr. Yousef Alsofayan

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan
Dr. Omar Alothman
Dr. Naser Alrajeh
Dr. Nofal Aljerian
Dr. Mohammed Arafat
Dr. Abdulrahman Aldhabib
Dr. Bader Alossaimi
Dr. Jameel Abualenain
Dr. Fahad Alhajjaj
Dr. Fahad Samarkandy

Pain management Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to **G-1**.

Use pain scale (Wong-Baker faces pain rating scale).

Transport patient in position of comfort.

If pain scale ≥6 insert I.V cannula, Go to (**P-7**) Intravenous access protocol.

Monitor vitals and conscious level continuously.

Administer Oxygen if spo2 less than 94%, or as needed.

For EMT, contact medical control to administer following medications and notify E.D.

In adults:
Paracetamol (Acetaminophen) 1000 mg IV or PO.
Ibuprofen 400 mg PO.

In pediatrics:
Paracetamol (Acetaminophen) 15 mg/kg IV or PO to max 1000 mg.
Ibuprofen 10 mg/kg PO to max 400 mg.

Paracetamol (Acetaminophen) 650-1000 mg IV or PO.

Ibuprofen 600 mg PO or **Lornoxicam** 16mg IV or **Diclofenac** 75mg IM

Consider Fentanyl or Ketamine for severe pain

Fentanyl 1 mcg/kg slow IV/IO/IM weight based (kg) to a max. Of 100 mcg or Fentanyl 1 mcg/kg IN weight based (kg) to a max. Of 100mcg.

Morphine Sulfate 0.1mg/kg IV/IO/IM/SC (max. dose 10 mg).

Ketamine 0.15 mg/kg IV/IO slowly over 15 minutes 25mg MAX-may repeat dose one time in 15 minutes or 0.5 mg/kg IM/IN-50mg MAX may repeat IM/IN dose one time in 20 minutes.

If isolated traumatic extremity pain consider administrating **Morphine** or **Fentanyl**.

For patients requiring electrical therapy (cardioversion or pacing) Go to cardiac pacing protocol (P6), consider:
Midazolam 0.5 mg-2 mg Slow IV/IO/IM OR Midazolam 0.5 mg-2 mg IN; **AND Fentanyl** 1 mcg/kg slow IV/IO/IM weight based (kg) to a max of 150 mcg (150kg);

Acetaminophen 15 mg/kg IV or PO to max 1000 mg.

Ibuprofen 10 mg/kg PO to max 600 mg.

Ketorolac 0.5 mg/kg IV or IM to max 15 mg.

Fentanyl 1 mcg/kg. To max. 50 mcg slow IV/IO/IM OR Fentanyl 1 mcg/kg. To max. 50 mcg IN.

Morphine Sulfate 0.1 mg/kg IV/IO/IM/SC (maximum individual 5 mg).

Contact medical control for additional doses of above medications

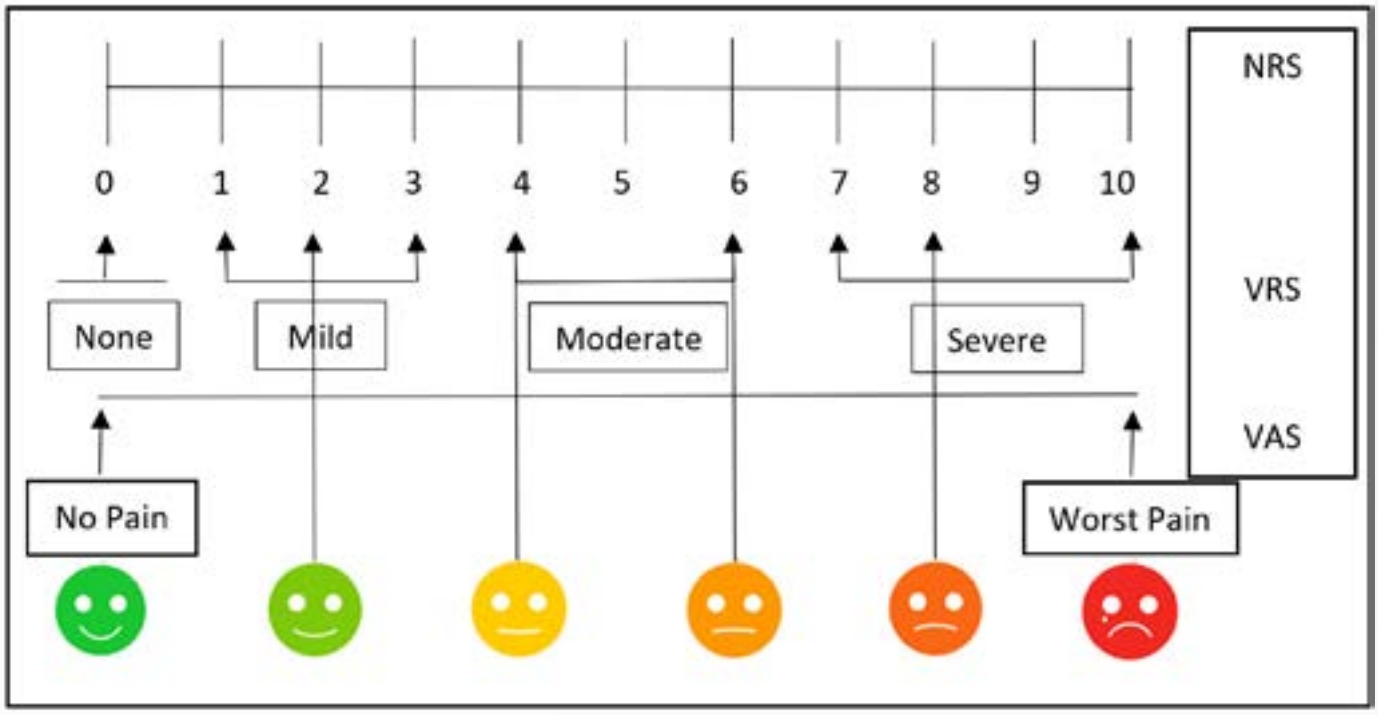


Figure 1 NRS: Numeric rating scales (11 points), VRS: Verbal Rating Scale (4 points), VAS: Visual Analogous Scale

Key Points:

- Pain Management can include positioning, ice packs and other non-pharmacological treatments.
- All pain medications have contraindications do not administer medications in such circumstances. These contraindications include but are not limited to: ibuprofen is contraindicated in chest pain, or in any patient with potential for bleeding, ulcer, or renal injury; likely to need surgery.
- Ibuprofen is contraindicated in pregnancy specially second and third trimester.
- Special consideration for ibuprofen in patient with head injury or asthma.
- Paracetamol (Acetaminophen) is cautioned in patients with liver failure.
- Special considerations narcotics (Morphine or Fentanyl, etc.…) in patient with hypotension, head injury, or respiratory depression
- Morphine Sulfate initial dose 2-4 mg IV

References:

- Massachusetts Statewide

Written By:

- Dr. Mamdoh Alreweli
- Dr. Saud Alzahrani

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Anaphylaxis and Allergic reaction Protocol

PARAMEDIC

EMT

Follow General Patient Care protocol go to **G-1**

Remove the allergen if applicable.

Keep NPO (do not give anything by mouth).

Administer Oxygen if spo2 ≤ 94%.

Do Not Delay Transport.

MILD Distress: is defined by: itching, urticaria, nausea, and no respiratory distress.

Monitor for severe distress.

Consider **Diphenhydramine** 25-50 mg IV/IM

EMT

Severe distress: is defined by: stridor, bronchospasm, severe abdominal pain, respiratory distress, tachycardia, shock, edema of lips, tongue, or face.

Administer **Epinephrine** auto-injector 0.3mg IM.

Contact medical control if second dose is required after 5 minutes.

EMTs must contact medical control if patient greater than 65 yrs.

Establish IV normal saline, keep vein open (KVO).

If the patient has signs of shock, follow non-traumatic shock protocol **M-16**

Administer Albuterol 2.5mg via nebulizer. Repeat every 5 minutes up to 4 doses

Check vital signs after administering any medication.

If patient is over 6 months age and under 25kg, Administer **epinephrine** 0.15mg via auto-injector IM.

If body weight is over 25 kg, Administer epinephrine 0.3mg via auto-injector IM.

For pediatrics: Contact Medical Control if second epinephrine dose required after 5 minutes.

Administer **Albuterol** (via nebulizer):

- If age less than 2 years, 1.25 mg by nebulizer
- If age 2 years or greater, 2.5-3 mg by nebulizer

Consider **Hydrocortisone** 100 mg IV/IO/IM, or **methylprednisolone** 125 mg IV/IO/IM.

Consider **hydrocortisone** 2 mg/kg to max. 100 mg IV/IO/IM, or

Methylprednisolone 2 mg/kg to max. 125 mg IV/IO/IM

Consider **Diphenhydramine** 1 mg/kg up to max. single dose of 50 mg IV/IO/IM

Medical control may order additional doses of above medications. OR

- Epinephrine 1:10,000: 0.1 mg – 0.5 mg IV/IO.
- Epinephrine Infusion – 2-10 mcg/min IV/IO.

PARAMEDIC	• Norepinephrine infusion by pump, 0.1-0.5 mcg/kg/min IV/IO, titrate to goal Systolic blood pressure of 90mmHg • Dopamine infusion: 2-20 mcg/kg/min IV/IO
	For Pediatric: • Epinephrine infusion 0.1-1 mcg/kg/min IV/IO • Epinephrine 1:10,000; 0.01mg/kg IV/IO to max. single dose 0.3 mg.

Code: M-2 | **Title: Anaphylaxis and Allergic reaction Protocol** **END**

Key Points:

1. Remove the allergen if applicable.
2. Epinephrine for anaphylaxis must be administered by Auto-Injector or IM if trained and authorized to do so in accordance with Medical director.
3. Epinephrine is associated with many adverse reactions including hypertension, tachycardia, arrhythmias, tremor, anxiety, vomiting, and chest pain.
4. Epinephrine should be used with caution in the elderly, in patients with known heart disease, and in patients with uncontrolled hypertension except in life-threatening allergic reactions
5. The two forms of Epinephrine must not be confused, or over-dosage may occur. The 1:1000 dilution is appropriate for intramuscular injection. The 1:10,000 dilution is for intravenous injection, which require On-line medical direction. The 1:1,000 dilution is NEVER given intravenously. An Epi Pen Auto Injector is approved for administration of 1:1,000 dose IM.
6. The use of Epinephrine in patients over the age of 40 or with known cardiac disease and patients who have already taken high dosage of inhalant bronchodilator medications may result in cardiac complications
7. Epinephrine for bronchospasm must be administered by Auto-Injector ONLY, except by medical control order or department authorization.
8. Mild distress in children is evidenced by minor wheezing and good air entry.
9. Severe distress in children is evidenced by poor air entry, extreme use of accessory muscles, nasal flaring, grunting, cyanosis and/or altered mental status (weak cry, somnolence, poor responsiveness). REMEMBER: Severe bronchospasm may present without wheezes, if there is minimal air movement.
10. Respiratory Distress is defined as inadequate breathing in terms of rate, rhythm, quality and/or depth of breathing. Children who are breathing too fast or slow, or in an abnormal pattern or manner, may not be receiving enough oxygen to support bodily functions and may allow an increase in carbon dioxide to dangerous levels. Cyanosis is usually a late sign and requires immediate treatment.

11. Criteria for epinephrine administration in pediatric:

- Age greater than or equal to 6 months, AND
- Known history of asthma or reactive airway disease or bronchospasm or bronchodilators prescribed, AND
- Patient in respiratory arrest or approaching respiratory arrest (requiring BVM), AND
- Oxygen saturation less than 92% despite supplemental oxygen or unmeasurable.

Clinical Criteria for Anaphylaxis:

If **one** of these criteria is fulfilled, treat for anaphylaxis.

1. **Acute onset of skin or mucosal involvement with at least one of the following:**

a. Respiratory compromise

b. Decreased SBP or evidence of end-organ hypoperfusion (e.g., syncope, collapse).

2. **Two or more of these occurring rapidly after exposure to a likely allergen for that patient:**

a. Skin or mucosal involvement

b. Respiratory compromise

c. Decreased SBP or evidence of end-organ hypoperfusion (e.g., syncope, collapse).

d. Persistent GI symptoms (e.g., crampy abdominal pain, vomiting).

3. **Decreased BP after exposure to a known allergen for that patient.**

References:

- Massachusetts Statewide
- New Hampshire Protocols
- San Francisco EMS Protocols

Written By:

Dr. Faleh Alqahtani

Dr. Murad Salem

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Approved By:

Dr. Mohammed Alsultan

Dr. Omar Alothman

Dr. Naser Alrajeh

Dr. Nofal Aljerian

Dr. Mohammed Arafat

Dr. Abdulrahman Aldhabib

Dr. Bader Alossaimi

Dr. Jameel Abualenain

Dr. Fahad Alhajjaj

Dr. Fahad Samarkandy

Behavioral Emergencies Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to **G-1**.

Consider all possible medical/trauma causes for behavior (e.g., hypoglycemia, overdose, substance abuse, hypoxia, seizure, head injury). Follow the appropriate protocol as applicable.

One EMT should manage the patient while the other handles scene control, but no EMT or First Responder should be left alone with the patient.

Avoid areas/patients with potential weapons (e.g., kitchen, workshop), and avoid areas with only a single exit; do not allow patient to block exit.

Keep environment calm by reducing stimuli (may need to ask family/friends to leave room, ask patient to turn off music/TV). Transport in a non-emergent mode unless the patient's condition requires lights and sirens.

Respect the dignity and privacy of the patient.

Make eye contact when speaking to the patient. Maintain eye-level if possible.

Speak calmly and in a non-judgmental manner; do not make sudden movements.

Maintain non-threatening body language (hands in front of your body, below your chest, palms out and slightly to the sides).

Establish expectations for acceptable behavior, if necessary.

Ask permission to touch the patient before taking vital signs, and explain what you are doing.

Assess the patient to the extent that they allow without increasing agitation, maintain a safe distance from a violent patient.

Stop talking with patient if they demonstrate increased agitation; allow time for them to calm down before attempting to discuss options again.

Provide reassurance by acknowledging the crisis and validating the patient's feelings and concerns; use positive feedback, not minimization.

Determine risk to self and others ("Are you thinking about hurting/killing yourself or others?").

Encourage patient to cooperatively accept transport to the hospital for a psychiatric evaluation and treatment.

Consider asking friends/relatives on scene to encourage patient to accept transport, if needed; but only if they are not a source of agitation.

Ask law enforcement or Online Medical Control to complete application for uncooperative patients who acknowledge intent to self-harm or harm others, but do not delay transport in the absence of this document.

Use restraint if de-escalation strategy fails and the patient is a danger to him/herself or others. Follow behavioral emergencies restraint protocol S-5

PARAMEDIC

Initiate an IV of Normal Saline at a KVO rate.

Apply cardiac monitor if clinically feasible, obtain 12 lead ECG, and manage dysrhythmias per protocol.

Position patient to ensure breathing is not impaired.

Administer:

Haloperidol 5 mg IM; and/or

Midazolam 2-6 mg IV/IM/IN. Use lower dose for IV route and higher dose for IM/IN route.

Ketamine 4mg/kg IM only, to a maximum dose of 400mg IM only, as a single dose.

NOTE: In patients >70 years of age, limit medication to half these Doses

For pediatric patient, Administer Midazolam 0.1mg/kg IV/IM/IN, to maximum dose of 4 mg.

Medical Control may order additional doses of above medications

Code: M-3 | **Title: Behavioral Emergencies Protocol** **END**

Key Points:

1- Acute risk factors for violence include:

- **Male gender**
- **Homicidal or violent intent or plans**
- **Intoxication or recent substance use**
- **Actions taken on plans/threats**
- **Unconcerned with consequences**
- **No alternatives to violence seen**
- **Intense fear, anger, or aggressive speech/behavior**
- **Specified victim (consider proximity, likelihood of provocation)**

2-Haloperidol should be administered by INTRAMUSCULAR injection ONLY.

3-Haloperidol is preferable for psychotic patients; but do not administer to patients with a history of seizures or prolonged QT intervals.

Written By:

Dr. Faleh Alqahtani
Dr. Murad Salem

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti
Dr. Mohammed

Approved By:

Dr. Mohammed Alsultan
Dr. Mohammed Arafat
Dr. Jameel Abualenain
Dr. Omar Alothman
Dr. Abdulrahman Aldhabib
Dr. Fahad Alhajjaj
Dr. Naser Alrajeh
Dr. Bader Alossaimi
Dr. Fahad Samarkandy
Dr. Nofal Aljerian

Altered mental status Protocol

Code: M-4 | Title: Altered mental status Protocol **START**

PARAMEDIC / EMT
Follow general patient care protocol. Go to G-1.
If patient is unconscious, check the pulse for cardiac arrest go to R-1, R-4, R-5
If patient is unconscious (have pulse) or seizing, transport on left side (recovery position).
Assess for Hypoglycemic emergency. Go to Hypoglycemia protocol M-6.
Assess for Hyperglycemic emergency. Go to Hyperglycemia protocol M-5.
Assess for Stroke. Go to Stroke protocol (M-15).
Assess for head injury. Go to Head injuries protocol T-3.
Assess patient for opioid overdose. Go to Poisoned patient care protocol G-5.
Nothing per mouth unless the patient is conscious and able to drink without assistance.
Manage airway/Ventilate, if needed. Go to Airway Management protocol P-1.
Administer high concentration oxygen.
Establish IV/IO.
Reassess the patient.

Code: M-4 | Title: Altered mental status Protocol **END**

Altered Mental status differential diagnosis: t

AEIOU TIPS	
A	Alcohol, other toxins, drugs
E	Endocrine, electrolytes
I	Insulin (diabetes)
O	Oxygen, opiates
U	Uremia (renal, including HTN)
T	Trauma, temperature
I	Infection
P	Psychiatric, porphyria
S	Subarachnoid hemorrhage, space-occupying lesion, seizure

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References:

Commonwealth of Massachusetts Department of Public Health.

Written By:

Dr. Abdulaziz Alhaddab

Dr. Abdullah Asiri

Reviewed By:

Dr. Haitham Alhaiti

Dr. Alshamoos Alwassel

Dr. Mohammed Altuwaijri

Dr. Mohammed Alshehri

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Hyperglycemia Protocol

Code: M-5 | **Title: Hyperglycemia Protocol** **START**

PARAMEDIC / EMT	Follow General Patient Care protocol, go to **G-1**.
	Check Blood Glucose.
	Establish IV line.
	Administer 1000 ml fluid bolus IV (0.9% Normal Saline).
	Administer 10 mL/kg IV bolus of IV fluid (0.9% Normal Saline).
	Provide oral hydration with water if the patient is not vomiting, and must be alert enough to swallow and protect airway.

Contact online medical control for possible additional doses.
- May repeat 500 mL fluid bolus, as needed, in adults.
- May repeat fluid bolus two times for a total of 3 fluid boluses, not to exceed 20 mL/kg, in pediatrics.

Code: M-5 | **Title: Hyperglycemia Protocol** **END**

Key Points:

- Check signs of volume overload before administering fluids since some patients have heart failure or renal impairment, example: check for pitting edema and lung crepitation.
- Hyperglycemia is defined as blood glucose greater than or equal to 250 mg/dL. Patient with associated signs and symptoms such as altered mental status, increased respiratory rate, or dehydration may require treatment.
- Diabetic Ketoacidosis (DKA) is a life-threatening emergency defined as uncontrolled hyperglycemia with the signs and symptoms of ketoacidosis.
- Signs and symptoms of DKA include uncontrolled blood glucose greater than or equal to 250 mg/dL, weakness, altered mental status, abdominal pain, nausea, vomiting, polyuria (excessive urination), polydipsia (excessive thirst), a fruity odor on the breath (from ketones), and tachypnea (Kussmaul respirations).
- Common causes of DKA include infection, acute coronary syndrome, and medication non-compliance. Hyperglycemic Hyperosmolar Nonketotic Syndrome (HHNS) is characterized by blood glucose levels greater than 600 mg/dL and profound dehydration without significant ketoacidosis. Most patients present with severe dehydration and focal or global neurologic deficits e.g., coma, altered mental status.
- Hyperglycemia may be detrimental to patients at risk for cerebral ischemia such as victims of stroke, cardiac arrest, and head trauma.

References:

1) New Hampshire Protocols.

Written By:

Dr. Abdulaziz Alhaddab

Dr. Abdullah Asiri

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Alshamoos Alwassel

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Hypoglycemia Protocol

PARAMEDIC / EMT

Follow General Patient Care go to **G-1**

Transport the patient on left side (recovery position) if unconscious or seizing

Obtain a blood sugar reading (RBS).

If glucose is known to be less than 70 mg/dL and the patient is conscious and can speak and swallow, administer oral glucose or other sugar source as tolerated.

- **Oral glucose**: One dose is one tube. Other sugar sources are acceptable.
- A second dose may be necessary after 10 minutes if patient remains symptomatic

- If patient <20kg (44 lbs), oral glucose ½ tube PO
- If patient >20kg (44 lbs), oral glucose 1 tube PO
- A second dose may be necessary after 10 minutes if patient remains symptomatic

For hypoglycemic emergency administer:
Dextrose 10% 100ml IV/IO. Recheck glucose 5 minutes after administration of dextrose.

May repeat **Dextrose** 10% up to 200ml IV/IO if glucose level is <70mg/dL with continued altered mental status

Administer dextrose 10% 0.5 gm/kg IV/IO, may repeat every 5 minutes until mental status returns to baseline and glucose level is greater than 70 mg/dl.

If unable to establish IV access, administer Glucagon 1mg IM if available and prepare for transportation to nearest facility.
o Recheck glucose 15 minutes after administration of glucagon.

Contact online medical direction if need for additional doses of above medications.
If cerebrovascular accident is suspected, follow M-15 stroke protocol and notify Medical Control

Key Points:

***Hypoglycemic Emergency:**

- Glucose <70mg/dL with associated altered mental status.
- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults (e.g., myocardial infarction, arrhythmia), or changes in activity (e.g., exercise).
- Sulfonylureas (e.g., glyburide, glipizide) have long half-lives ranging from 12-60 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent symptoms and frequently require hospital admission.
- Dextrose may be administered in any concentration (D10, D25, D50), as long as the correct dose is given
- Intraosseous (IO) administration of dextrose should be reserved for hypoglycemic patients with severe altered mental status or active seizures and IV access cannot be obtained.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2020.2.
- New Hampshire Protocols

Written By:

Dr.Sultan Zubaidy

Dr. Adel Arishi

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Rawaa alfilali

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Seizure Protocol

PARAMEDIC	EMT	For General Patient Care go protocol to G-1
		Keep NPO (do not give anything by mouth) if the patient has an altered level of consciousness.
		Administer Oxygen if spo2 ≤ 94%.
		Establish IV Normal Saline KVO.
		Check blood sugar and temperature
		If Glucose is less than 70mg/dL treat as hypoglycemia protocol (M-6).
		Evaluate the need for spine immobilization devices such as backboards and c-collars.
		If active seizure:
		Protect airway.
		Position Patient on left lateral decubitus recovery position if no C-spine injury suspected.
		Remove sharp objects and other potential sources of injury from the vicinity of the patient Perform Suction as needed.
		If suspected drug over dose or abuse follow Poisoned Patient Care Protocol G5
		Administer Midazolam 5-10 mg IM (preferred route) every 10 minutes or 2 – 6 mg IV/IN every 5 minutes OR Diazepam 5 – 10 mg IV (then 2.5 mg every 5 minutes to total of 20 mg) OR Lorazepam 2-4 mg IV If the patient is in active seizure.
		Administer Magnesium sulfate, 2-4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion if you suspect eclampsia
		Connect the patient to Cardiac Monitor and if feasible 12 lead ECG – Manage dysrhythmias per protocols C3&C4
		Administer Midazolam 0.1 mg/kg IV (single maximum dose 4 mg) or 0.2 mg IM/IN (single maximum dose 8 mg). OR Diazepam 0.1mg/kg IV (single maximum dose 10 mg IV) repeat every 5 minutes OR Lorazepam 0.1 mg\kg if the patient is in active seizure.
		Check vital signs after administering any medication.
		Connect the patient to a cardiac monitor in patients where the cause of the seizure might be cardiac.
		Manage dysrhythmias per C-3 & C-4 protocols.
		Contact Medical Control if additional doses are needed.

KEY POINTS:

• Post-partum patients may experience eclamptic seizures up to several weeks after giving birth.

• Suspect eclampsia if the patient is ≥20 weeks pregnant or ≤6 week's post-partum.

• Seizures may be caused by arrhythmias, particularly in patients over 50.

• Seizure activity may be caused by cerebral hypoxia from cardiac arrest, always check a pulse when seizures terminate.

•Status epilepticus is defined as any generalized seizures lasting more than 5 minutes or 2 or more episodes of seizure without regaining consciousness. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.

• Seizures in pediatric patients are commonly febrile seizures and are usually benign and short-lived.

• There is an increased risk of apnea with >2 doses of benzodiazepines.

• IM midazolam should be administered to the lateral thigh.

• Diazepam is not well absorbed IM and should be given IV.

• For IN administration of midazolam use a 5 mg/mL concentration.

• Magnesium can cause respiratory depression and hypotension.

References:

- Massachusetts Statewide
- New Hampshire Protocols
- San Francisco EMS Protocols

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Mohammed Alshehri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Nausea & Vomiting Protocol

EMT

- Follow General Patient Care Protocol go to G-1.
- Establish IV line.
- Obtain blood glucose reading and choose fluid type accordingly (follow M5&M6)
- Check signs of volume overload before giving fluids since some patients have heart failure or renal impairment, example: check for pitting edema and lung crepitation.
- Consider 500 ml IV fluid bolus for dehydration even if vital signs are normal. May repeat 250 ml IV bolus if transport exceeds 15 minutes and patient's condition has not improved.
- Contact medical control for the additional NS fluid boluses.

PARAMEDIC

Administer **Ondansetron** 4 mg by PO/SL/IV/IM. OR

Prochlorperazine 5 – 10 mg IV slowly over 1-2 minutes, or 5-10 mg IM, OR

Metoclopramide 10 mg IV slowly over 1-2 minutes.

May repeat any of the above medications once after 10 minutes if nausea/vomiting persists.

For motion sickness: administer **diphenhydramine** 25 mg by mouth.

Antidote: For dystonic reactions caused by EMS administration of Prochlorperazine or Metoclopramide:
Administer Diphenhydramine 25 – 50 mg IV/IM

Consider administration 10 ml/kg IV fluid bolus for dehydration even if vital signs are normal.

Ondansetron 2 mg ODT SL for patients 8-15 kg, 4 mg ODT SL for patients ≥ 16 kg OR

Ondansetron 0.1 mg/kg IV (maximum single dose 4 mg) OR

For motion sickness: administer Diphenhydramine:

Ages 2 – 5 years: 6.25 mg by mouth

Ages 6 – 11 years: 12.5 - 25 mg by mouth

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Abdulaziz altoub
- Dr. Haitham Alhaiti
- Dr. Saud Alhabib

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Abdominal Pain Protocol

PARAMEDIC	EMT	Follow General Patient Care Protocol go to G-1.
		Do your general impression: age, sex, weight, position
		Obtain History of presenting illness by using the Mnemonic OPQRST (Onset, Palliation/ Provocation, Quality, Radiation, Severity, and Time Began) and SAMPLE history. (Symptoms, Allergies, Medications, Past medical history, Last meal and Events). Ask about related symptoms such as: Nausea, vomiting (coffee-ground or bright red blood), diarrhea, constipation, melena, rectal bleeding, vaginal bleeding, urinary symptoms, fever. For female patient in child-bearing age: Ask about possibility of pregnancy.
		Manage and assess the score of pain. For pain management protocol go to M-1.
		Examine the abdomen: look, listen and feel. e.g. (distention, tenderness, hernia, old surgery).
		Obtain a blood sugar reading (RBS). Follow hyperglycemia & hypoglycemia protocols M-5, M-6
		Administer Oxygen if spo2 less than 94%, or as needed.
		Administer IV fluid if signs of hypovolemia: 500 ml NS, may repeat up to 2000ml.
		Administer IV fluid if hypotension due to internal bleeding to keep permissive hypotension, to a target SBP 90 mmHg.
		20 ml/kg NS, may repeat up to 60 ml/kg if signs of hypovolemia
		Repeat vital signs after each fluid bolus.
		Consider pregnancy in women of childbearing age with abdominal pain until proven otherwise and be cautious for risk of ectopic pregnancy.
		Perform 12-lead ECG If patient ≥ 35 years old Consider doing 12-lead ECG if patient has epigastric pain or have risk factors: Previous CHD, DM, HTN, DLP, or has history of drug abuse
	Administer if nausea or vomiting:	
	Ondansetron 4.0 mg PO/IV/IM/IO or Granisetron 1mg PO/IV	
	Metoclopramide 10 mg slow IV bolus over 1-2 minutes or	
	Ondansetron 0.15 mg /kg PO/IV/IM/IO or	
	Metoclopramide 5 mg slow IV/IO bolus over 1-2 minutes or IM (if ≥ 8 years old)	
	Keep patient NPO.	
	Document mental status and vital signs prior to administration of anti-emetics & pain management medications.	
	Contact medical control if need for additional doses of above medications	

KEY POINTS:

All pain medications have contraindications and do not administer medications in such circumstances. These contraindications include but are not limited to:

Ketorolac and ibuprofen are contraindicated in head injury, chest pain, or in any patient with potential for bleeding, ulcer, or renal injury; likely to need surgery.

Acetaminophen is cautioned in patients with liver failure.

Ketorolac and ibuprofen are contraindicated in pregnancy.

Ondansetron is contraindicated in patients with prolonged QT interval

Red flags: old ages – severe pain – sudden onset – hypotension – fever – hematemesis and melena – previous surgery

Written By:

- Dr.Sultan Zubaidy
- Dr. Adel Arishi

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Urinary Retention Protocol

Code: M-10 | **Title: Urinary Retention Protocol** **START**

EMT	Follow General Patient Care go to G-1.
	Transport in position of comfort.
	Establish IV line.
	Connect patient to cardiac monitor as needed.
PARAMEDIC	Assess for any history of trauma or neurologic disability or symptoms of infection.
	Do not insert catheter if there is suspicion of trauma to the urethra, either secondary to a traumatic event or recent instrumentation or recent urologic surgery.
	Contact medical control to get the approval to insert urethral catheter. Follow urethral catheterization protocol P-5
	Use a 14 – 18 gauge French catheter as first line, The catheter should be passed to its fullest extent to obtain free urine flow before inflating the balloon.
	Do one trial of insertion of urine catheter.
	Make sure of urine flow after insertion of urine catheter and ask patient about relieving the discomfort of retention and pain.
	Leave the catheter indwelling and connected to a drainage bag.
	Record the initial urine volume drained in the first 10 – 15 minutes.
	Contact medical control if you fail to insert the urethral catheter. Medical control may order: - Using a 20 – 22 gauge French catheter with a firm coude tip in case of enlarged prostate. - Using a 10 – 12 gauge French catheter in other cases.

Code: M-10 | **Title: Urinary Retention Protocol** **END**

Key Points:

- If hematuria is present after insertion of urethral catheter, maintain catheter inserted and in place.

References:

- Tintinalli's Emergency Medicine Manual 9th Edition
- www.uptodate.com

Written By:

- Dr. Wael Bunian
- Dr. Adel Arishi

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Respiratory Distress Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

If symptoms and signs of anaphylaxis follow Anaphylaxis and allergic reactions protocol go to M-2.

IF the patient has not taken the prescribed maximum dose of their own inhaler prior to the arrival of EMS, AND the inhaler is present:
Encourage and/or assist patients to self-administer their own prescribed inhaler medication if indicated.

Observe for fatigue, decreased mentation, and respiratory failure
For patients ≤ 2 who present with increased work of breathing and rhinorrhea, provide nasal suctioning with saline drops and bulb syringe; no more than 2 attempts

Attempt to keep oxygen saturation between 94 - 98% (90% in COPD); increase the oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure

Administer Albuterol sulfate 5 mg via nebulizer.

Administer Albuterol sulfate 1.25 mg via nebulizer if less than 2 years of age.

Administer Albuterol sulfate 2.5 mg via nebulizer if age 2 years or greater.

Additional albuterol treatments may be administered as necessary

Combine Ipratropium Bromide 0.5mg with the albuterol treatment.

Additional albuterol treatments may be administered as necessary with or without ipratropium bromide.

Administer Albuterol sulfate 2.5 mg with Ipratropium Bromide 250 mcg via nebulizer if less than 11 kg.

Administer Albuterol sulfate 3.75 mg if weight 11-19 kg and 5 mg if more than 20 kg with Ipratropium Bromide 500 mcg via nebulizer.

A second dose of Albuterol with or without Ipratropium Bromide may be administered as necessary.

In a patient with a known diagnosis of asthma or COPD, who does not have history or findings concerning for congestive heart failure, administer dexamethasone 8 mg PO/IM/IV max 16 mg.

For Asthma only, consider magnesium sulfate 2-4 grams IV/IO over 20 minutes.

For a child age 2 years old or more who has a known diagnosis of asthma, administer Dexamethasone 0.6 mg/kg IV or PO max 16 mg.

PARAMEDIC

For patients who do not respond to treatment or for impending respiratory failure administer:

- Magnesium sulfate 25 mg/kg IV/IO over 10 min. (maximum dose 2 grams).
- Epinephrine:

If < 25 kg, epinephrine (1 mg/mL) 0.15 mg IM, lateral thigh preferred.

If > 25 kg, epinephrine (1 mg/mL) 0.3 mg IM, lateral thigh preferred

For bronchiolitis in patients who do not respond to suctioning or for impending respiratory failure administer:

Nebulized epinephrine (1 mg/mL) 3 mg (3 mL) in 3 mL 0.9% NaCl.

For croup administer:

Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred) maximum 10 mg.

For croup with stridor at rest:

Nebulized epinephrine (1 mg/mL) 3 mg (3 mL) in 3 mL 0.9% NaCl, repeat in 20 minute as needed or Nebulized racemic epinephrine (2.25% solution) 0.5 mL in 2.5 mL 0.9% NaCl, may repeat in 20 minutes as needed

If symmetrical crackles present (pulmonary edema) administer:

Furosemide: 40-80mg IV/IO

Be cautious when treating congestive heart failure patients with albuterol since a side effect is tachycardia, which may worsen the congestive heart failure.

For patients in severe respiratory distress consider use of CPAP. Go to P-12

Contact online medical control if need for additional doses of above medications.

Code: M-11 | Title: Respiratory Distress Protocol

END

KEY POINTS:

1. Beware of patients with a "silent chest" as this may indicate severe bronchospasm and impending respiratory failure
2. Respiratory distress in children must be promptly recognized and treated.
3. Respiratory arrest is the most common cause of cardiac arrest in children.
4. Child with a "silent chest" may have severe bronchospasm with impending respiratory failure.
5. In patients with suspected croup or stridor, provide necessary interventions while attempting to minimize noxious stimuli that may induce agitation.
6. The IV formulation of dexamethasone may be given by mouth in pediatric.
7. For suspected epiglottitis, transport the patient in an upright position and limit your assessment and interventions.

8. Bronchiolitis:

• Signs and symptoms include: tachypnea, rhinorrhea, wheezes and / or crackles.
• Incidence peaks in 2-6 month old infants.

9. Croup:

• Signs and symptoms include: hoarseness, barking cough, inspiratory stridor, signs of respiratory distress.
• Avoid procedures that will distress child with severe croup and stridor at rest.

10. Pneumonia:

• Signs and symptoms include: tachypnea, fever, intercostal retractions, cough, hypoxia and chest pain.

11. Tachypnea in children is defined as:

- < 2 months: 60 bpm
- 2-12 months: 50 bpm
- 1-5 years: 40 bpm
- >5 years: 20 bpm

References:

- Massachusetts Statewide
- New Hampshire Protocols

Written By:

- Dr.Sultan Zubaidy
- Dr. Adel Arishi

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Abdulaziz Altoub
- Dr. Osama Alqarni
- Dr. Saud Alshahrani
- Dr. Rawaa alfilali
- Dr. Saud Alhabib
- Dr. Abdullah Alhamdan

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Sepsis – Adult Protocol

Code: M-12-A | **Title: Sepsis – Adult Protocol** **START**

EMT

Follow General Patient Care protocol go to G-1.

Administer oxygen to keep O2 sat ≥ 94%.

Notify hospital of incoming Sepsis Alert prior to arrival if applicable

Obtain blood glucose reading and Correct glucose if < 70 mg/dL via Hypoglycemia Protocol, go to M-6.

Establish large bore IV line.

Check signs of volume overload before administering fluids since some patients have heart failure or renal impairment, example: check for pitting edema and lung crepitation.

Administer 0.9% NaCl 500 ml one bolus only.

Contact medical control for additional Normal Saline fluid boluses.

PARAMEDIC

IV 0.9% NaCl en-route: administer 500 ml boluses up to 30cc/kg

Assess lung sounds frequently to ensure volume overload does not occur.

MEDICAL CONTROL MAY ORDER:

-Norepinephrine or Epinephrine push dose of 10 mcg, Dose can be repeated every 10-20 min.

-Norepinephrine infusion by pump 0.1-0.5 mcg/kg/min IV/IO, titrate to goal MAP ≥ 65 mmHg (systolic blood pressure > 90 mmHg), OR

-Epinephrine infusion 2-10 mcg/min IV/IO OR

-Dopamine 2-20 mcg/kg/min IV/IO.

-Additional Fluid boluses.

Code: M-12-A | **Title: Sepsis – Adult Protocol** **END**

KEY POINTS :

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK:

-Suspected infection – YES

-Evidence of sepsis criteria-YES (2 or more):

- Temperature less than 36 ° C or greater than 38 ° C
- Heart Rate greater than 90 bpm
- Respiratory rate greater than 22 bpm
- Systolic BP less than 90 mmHg OR Mean Arterial Blood Pressure (MAP) less than 65 mm Hg
- New onset altered mental status OR increasing mental status change with previously altered mental status.
- Serum Lactate level greater than 4 mmol/l- (if trained and equipment available)- ETCO2 less than or equal to 25 mmHg

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1
- Hampshire Patient Care Protocols

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alhabib

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Sepsis – Pediatric Protocol

Code: M-12 - B | **Title: Sepsis – Pediatric Protocol** **START**

NOTE: Consider early consultation with Medical Control for suspected pediatric septic shock patients

PARAMEDIC	EMT	Follow General Patient Care go to G-1.
		Notify hospital of incoming Sepsis Alert prior to arrival if applicable.
		Administer oxygen and continue regardless of oxygen saturation levels.
		Monitor and maintain airway and breathing as these may change precipitously.
		Obtain blood glucose reading and Correct glucose if < 60 mg/dL via Hypoglycemia Protocol, go to M-6.
		Check signs of volume overload before administering fluids since some patients have heart failure or renal impairment, example: check for pitting edema and lung crepitation.
		Establish IV line and do not delay transportation if IV establishment is difficult.
		Administer fluid boluses of 10 mL/kg of 0.9% NaCl by syringe push method.
		Contact medical control for additional fluid boluses.
		IV/IO fluids should be titrated to attain normal capillary refill, peripheral pulses, and level of consciousness.
		Reassess patient immediately after completion of bolus and repeat boluses (MAX 60 mL/kg) if inadequate response to boluses.
		If there is no response after fluid boluses, contact Medical Control to consider: Additional fluids OR Epinephrine infusion: 0.1 mcg/kg/min IV/IO, titrate to maintain perfusion with a max dose of 1 mcg/kg/min. Recommended administration via infusion pump.

Code: M-12 - B | **Title: Sepsis – Pediatric Protocol** **END**

KEY POINTS :

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK:

-Suspected infection – YES

-Evidence of sepsis criteria-YES (2 or more):

• Temperature less than 36° C or greater than 38° C

• Heart Rate greater than normal limit for age (heart rate may not be elevated in septic hypothermic patients)

• AND at least one of the following indications of altered organ function:

- Altered mental status (decreased, irritable, confused)
- Capillary refill time < 1 second(flash) or > 3 seconds
- Mottled cool extremities

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
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- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Obstetric emergencies Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Follow local OB Diversion Protocols.

Establish IV access.

Fluids must not to exceed 2000 mL without consultation with Medical Control.

For third trimester bleeding:

• Suspect Placenta Previa (placenta is implanted in the lower uterine segment).

• Suspect placental abruption (placenta is separated from the uterine wall before delivery); because hemorrhage may occur into the pelvic cavity, shock can develop despite relatively little vaginal bleeding.

• Do not perform digital examination.

• Place patient in the left lateral position.

• Monitor hemodynamic stability.

For breech birth (presentation of buttock):

• Do not pull on newborn. Support newborn and allow delivery to proceed normally.

• If the legs have delivered, gently elevate the trunk and legs to aid delivery of the head.

• If the head is not delivered within 30 seconds of the legs, place two fingers into the vagina to locate the infant's mouth. Press the vaginal wall away from the infant's mouth to maintain the fetal airway.

For limb presentation:

• Place mother in knee-chest or Trendelenburg position.

• Do not attempt delivery; transport emergently as surgery is likely.

For prolapsed cord:

• Discourage pushing by the mother.

• Place mother in knee-chest or Trendelenburg position.

• If umbilical cord pulse is absent, place a gloved hand into the mother's vagina and decompress the umbilical cord by elevating the presenting fetal part off the cord.

• Wrap cord in warm, sterile saline soaked dressing.

For shoulder dystocia:

• Suspect if newborn's head delivers normally and then retracts back into perineum because shoulders are trapped.

• Discourage pushing by the mother.

• Support the baby's head, do not pull on it.

• Suction the nasopharynx and oropharynx, as needed.

• Position mother with buttocks dropped off end of stretcher and thighs flexed upward (Extreme knee-chest position/McRoberts's maneuver). Apply firm pressure with an open hand immediately above pubic symphysis.

PARAMEDIC

EMT

• If the above method is unsuccessful, consider rolling the patient to all fours position.

For postpartum hemorrhage:

• Vigorously massage fundus until uterus is firm.

• If possible, initiate breast-feeding.

• If blood loss is > 500 mL or patient is hemodynamically unstable, treat according to Non-Traumatic Shock Protocol M-16

For preterm labor:

20 mL/kg 0.9% NaCl, may repeat once

For cardiac arrest in the pregnant patient (regardless of etiology):

Go to Cardiac arrest protocol R-1, Neonatal resuscitation protocol R-5.

For patient ≥ 20-week gestation or if the fundus is palpable at or above the level of the umbilicus, apply left lateral uterine displacement (LUD) with the patient in the supine position to decrease aortocaval compression. LUD should be maintained during CPR. If ROSC is achieved, the patient should be placed in the left lateral decubitus position.

Pre-eclampsia / Eclampsia:

• Ensure quiet environment / dim lights / limited use of siren.

• Place patient in left lateral recumbent position.

• Establish IV access.

For patients in the third trimester of pregnancy or post-partum who are seizing, postictal or have symptoms of severe preeclampsia (SBP> 160 or DBP>110, new onset confusion, severe headache, visual disturbances, severe & persistent RUQ pain or pulmonary edema): Administer magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, and then consider 1 gram/hr continuous infusion.

Key Points:

1. The amount of bleeding is difficult to estimate. Menstrual pad holds between 5 - 15 mL depending on type of pad. Maternity pad holds 100 mL when completely saturated. Chux pad holds 500 mL. Estimate the amount of bleeding by number of saturated pads in last 6 hours. Consider transporting the soiled linen to the hospital to help estimate blood loss.

2. Pre-eclampsia/Eclampsia is most commonly seen in the last 10 weeks of gestation, during labor, or up to 48 hours post-partum. It also may occur up to several weeks post-partum.

3. Recognition:

- 3rd trimester bleeding: vaginal bleeding occurring ≥ 28 weeks of gestation.
- Preterm labor: onset of labor/contractions prior to the 37th week of gestation.
- Malpresentation: presentation of the fetal buttocks or limbs.
- Prolapsed umbilical cord: umbilical cord precedes the fetus.
- Shoulder dystocia: failure of the fetal shoulder to deliver shortly after delivery of the head.
- Postpartum hemorrhage: Active bleeding after uterine message and oxytocin administration.
- Pre-eclampsia/Eclampsia: BP> 160/100, severe headache, visual disturbances, edema, RUQ pain, seizures.

References:

State of New Hampshire Patient Care Protocols Version 8.0

Written By:

- Dr. Abdulaziz Alhaddab
- Dr. Abdullah Asiri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Suspected respiratory infectious diseases Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

Put on appropriate PPE before entering the scene. Follow body surface isolation protocol G-2

Initial assessment should begin from a distance of at least 6 feet from the patient, if possible.

Patient contact should be minimized to the extent possible until a facemask is on the patient.

If COVID-19 is suspected, all PPE, as described below, should be used. If COVID-19 is not suspected, EMS clinicians should follow standard procedures and use appropriate PPE for evaluating a patient with a potential respiratory infection.

A facemask should be worn by the patient for source control. If a nasal cannula is in place, a facemask should be worn over the nasal cannula. Alternatively, an oxygen mask can be used if clinically indicated.

During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures.

Consult with medical control before performing aerosol-generating procedures for specific guidance.

An N-95 or higher-level respirator, instead of a facemask, should be worn in addition to the other PPE described above, for EMS providers present for or performing aerosol-generating procedures.

EMS providers should exercise caution if an aerosol-generating procedure (e.g., bag valve mask [BVM] ventilation, oropharyngeal suctioning, endotracheal intubation, nebulizer treatment, continuous positive airway pressure [CPAP], bi-phasic positive airway pressure [BiPAP], or resuscitation involving emergency intubation or cardiopulmonary resuscitation [CPR]) is necessary.

If possible, the rear doors of the transport vehicle should be opened (after stopping the vehicle), and the HVAC system (Heating, Ventilation, and Air Conditioning) activated during aerosol-generating procedures. This should be done away from pedestrian traffic.

EMS providers should notify the receiving health care facility the patient has an exposure history and signs and symptoms suggestive of contagious disease so that appropriate infection control precautions can be taken prior to patient arrival.

Keep the patient separated from other people as much as possible.

Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle, if possible. If riding in the transport vehicle, they should wear a cloth face covering.

PARAMEDIC	
	Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut. When possible, use vehicles that have isolated driver and patient compartments that can provide separate ventilation to each area.
	During transport, vehicle ventilation in both compartments should be on non-recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.
	If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient-care area, and out the back end of the vehicle.
	If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
	Follow routine procedures for a transfer of the patient to the receiving health care facility (e.g., wheel the patient directly into an examination room).
	Documentation of patient care should be done after EMS providers have completed transport, removed their PPE, and performed hand hygiene.
	If the case is not suspected as contagious disease, follow the appropriate protocol.

Code: M-14 | Title: Suspected respiratory infectious diseases Protocol **END**

References:

- CDC: Centers for Disease Control and Preventio

Written By:

Dr. Wael Bunian

Reviewed By:

Dr. Mohammed Altuwaijri
Dr. Haitham Alhaiti
Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan
Dr. Mohammed Arafat
Dr. Jameel Abualenain
Dr. Omar Alothman
Dr. Abdulrahman Aldhabib
Dr. Fahad Alhajjaj
Dr. Naser Alrajeh
Dr. Bader Alossaimi
Dr. Fahad Samarkandy
Dr. Nofal Aljerian

Stroke Protocol

Code: M-15 | **Title: Stroke Protocol** **START**

EMT	Follow General Patient Care go to G-1.
	Correct glucose if < 70 mg/dL via Hypoglycemia Protocol, go to M-6.
	Perform Field Assessment Stroke Triage for Emergency Destination (FAST-ED) Stroke Scale, or equivalent nationally recognized stroke scale.
	Clearly determine last time known well.
	If the patient wakes from sleep or found with symptoms of stroke, the time is defined as the last time the patient was observed to be normal. Notify the emergency department as soon as possible.
	If any one of the signs of the stroke scale is abnormal and onset of symptoms are less than 4.5 hours, notify medical control of a "Stroke Alert".
	Consider transporting a witness, family member, or caregiver with the patient to verify the time of the onset of stroke symptoms. It is preferred that you bring the patient's medications to the receiving ED but if unable to do so, a list will suffice.
	Administer oxygen to maintain SPO2 between 94% - 98%.
	Elevate head of stretcher to 30 ° (unless patient requires spinal motion restriction).
	Minimize on-scene time; do not delay for ALS intercept.
	Establish IV (18-gauge catheter & right Antecubital Fossa (AC) preferred site) and administer 250 mL IV Fluid.
	Transport to a Department approved Stroke Point-of-Entry (POE) hospital.
PARAMEDIC	Acquire and transmit 12-lead ECG, if available while in transport as not to cause delay.

Code: M-15 | **Title: Stroke Protocol** **END**

Key Points:

SUSPECT STROKE:

With any of the following new or sudden symptoms and/or complaints:

- Unilateral motor weakness or paralysis to face, limb or side of body, including facial droop
- Unilateral numbness.
- Vertigo.
- Acute visual disturbance, loss of vision in one eye or one side of vision.
- Difficulty with balance or uncoordinated movements of a limb, gait disturbance.
- Difficulty with speech understanding or production (slurred or inappropriate use of words)
- Severe headache for no obvious reason.
- Altered mental state.

If you suspect stroke, perform FAST-ED stroke to determine probability of large vessel occlusion

FAST-ED Stroke Scale	
Item	**Score**
Facial Palsy	
Normal or minor paralysis	0
Partial or complete paralysis	1
Arm weakness	
No drift	0
Drift or some effort against gravity	1
No effort against gravity or no movement	2
Speech changes	
Absent	0
Mild to moderate	1
Severe, global aphasia or mute	2
Eye deviation	
Absent	0
Partial	1
Forced deviation	2
Denial/Neglect	
Absent	0
Extinction to bilateral simultaneous stimulation in only 1 sensory modality	1
Does not recognize own hand or orients only to one side of the body	2

References:

- State of New Hampshire Patient Care Protocols Version 8.0.
- Massachusetts Statewide.

Written By:

Dr. Wael Bunian

Dr. Osama mashal

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Saud Alhabib

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Non-Traumatic Shock Protocol

EMT

Follow General Patient Care Protocol go to G-1.

Keep the patient supine. Do not elevate feet.

If not febrile, prevent heat loss with blankets and warm environment.

Consider acquiring and transmitting ECG.

ADULT: Administer IV fluid in 500 mL boluses to return the patient to a coherent mental status or palpable radial pulse. Monitor for volume overload signs and symptoms such as pulmonary edema and shortness of breath.

Fluids must not to exceed 2000 mL without consultation with Medical Control.

PEDIATRIC: Administer fluid bolus of 10 mL/kg of IV fluid by syringe push method (may repeat to a maximum 60 mL/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal Pulses, improved mental status, normal breathing.

PARAMEDIC

ADULT: If there is no adequate hemodynamic response after 2,000 ml IV fluid infused consider: Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10-20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical), AND/OR

Norepinephrine infusion 5 – 20 microgram/minute (preferred) via pump, OR

Epinephrine infusion 2-10 micrograms/minute, via pump.

PEDIATRIC: If there is no adequate hemodynamic response after 60 mL/kg IV fluid infused contact Medical Control.

Consider administration of 100 mg IV/IM Hydrocortisone if known history of adrenal insufficiency.

Pediatric dose of Hydrocortisone is 2 mg/kg, to a maximum of 100 IV/IM.

For shock caused by systemic response to an allergen, follow Anaphylaxis and allergic reactions protocols, go to M-2.

For shock caused by overwhelming response to an infection, follow Sepsis protocol go to M-12.

KEY POINTS :

- SHOCK: Inadequate tissue perfusion that impairs cellular metabolism
- Recognize Compensated Shock (Adult: Anxiety, Tachycardia, Tachypnea Diaphoresis)
- Recognize Compensated Shock (Pediatric: Delayed capillary refill, Decreased or bounding peripheral pulses, Palpable central pulse with decreased distal pulse, Cool extremities, Altered mental status, Mild tachypnea, skin mottling)

References:

State of New Hampshire Patient Care Protocols Version

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Epistaxis Protocol

Code: M-17 | Title: Epistaxis Protocol **START**

PARAMEDIC / EMT
Follow General Patient Care Protocol go to G-1.
Pinch entire soft part of nose (right under nasal bone), hold it firmly and may apply nose clamp to assist with prolonged application of direct pressure. Have patient sit leaning forward so blood is not swallowed or aspirated.
Advise patient do not sniff or blow.
If still bleeding, have patient blow his/her nose to clear blood clots from nasal passage.
Use hemostatic dressing in anterior nostril(s) if indicated.
In adult and pediatric older than 12 years of age: Administer oxymetazolin or xylometazolin sprays. OR\AND, Administer phenylephrine spray 2 sprays in affected nostril(s), compress nose immediately after administrating of phenylephrine spray.
Establish IV access normal saline.
Obtain history to include if patient taking antiplatelet agents (eg. Aspirin) or anticoagulant (eg. Warfarin).
Keep continuous assessment and treatment per applicable protocols
Contact medical control for additional fluids or additional doses of medications.
Keep monitoring the patient status until handover is completed.
Consider using epistaxis control devices if available and benching for 15 minutes failed to stop bleeding.

Code: M-17 | Title: Epistaxis Protocol **END**

KEY POINTS :

- oxymetazolin or xylometazolin sprays are preferred over phenyleephrin spray in terms of less side effects such as tachycardia and elevated blood pressure.

References:

- STATE OF OKLAHOMA EMERGENCY MEDICAL SERVICES PROTOCOLS
- Uptodate

Written By:

- Dr. Haitham Alhaiti
- Dr. Abdulaziz Alyami

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani
- Dr. Mohammed Alshehri

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Brief Resolved Unexplained Event (BRUE) Protocol

PARAMEDIC / EMT

Follow General Patient Care Protocol go to G-1.

Perform blood glucose analysis and manage per hyper/hypoglycemia protocols M-5, M-6.

* Obtain history of event with particular attention to:
- Who observed the event?
- Activity at onset and history of the event.
- Determine the severity, nature, and duration of the episode.
- State during the event (cyanosis, apnea, coughing, gagging, vomiting).
- Was the patient awake or sleeping at the time of the episode?
- End of the event (duration, gradual or abrupt cessation, treatment provided). Include details of the resuscitation, if applicable.
- Infant's condition after the event (normal, not normal).
- Recent history (illness, injuries, exposure to others with illness, use of OTC medications, recent immunizations, new or different formula).

* Obtain a past medical history and history of prior similar event; gestational age, pre-/perinatal history, chronic disease (including seizures), current or recent infection, gastroesophageal reflux, recent trauma, medications, new or different mixture of formula, previous BRUE.
* Obtain family history (sudden unexplained deaths, prolonged QT, arrhythmias).
* Medications present in the residence.
* Sleeping position.
* Co-sleeping with parent in the same bed.

Perform a comprehensive physical exam including neurological assessment. Keep the child warm and transport to hospital.

Contact Medical Control for assistance if the parent/guardian refuses medical care and/or transport.

Key Points:

- Brief Resolved Unexplained Event (BRUE):

An event involves a frightening episode occurring in an infant < 1 year old when the observer reports a sudden, brief and now resolved episode of 1 or more of the following:

• Cyanosis or pallor
• Absent, decreased or irregular breathing
• Marked change in tone (hyper or hypotonia)
• Choking
• Altered level of responsiveness.

- BRUE is not a disease, but a constellation of symptoms. Potential etiologies include central apnea (immature respiratory center), obstructive apnea (structural), gastroesophageal reflux (laryngospasm, choking, gagging), respiratory (pertussis, RSV), cardiac (congenital heart disease, arrhythmia), seizures.
- Always consider non-accidental trauma in any infant who presents with BRUE.
- Although children who experience BRUE have a normal physical exam upon assessment by prehospital personnel, they should be transported to the emergency department for further assessment and treatment as they often have a serious underlying condition. Assume history provided by the family/witness is accurate.

References:

- Connecticut Statewide Protocols.
- State of New Hampshire Patient Care Protocols Version 9.0.

Written By:

- Dr. Haitham Alhaiti

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani
- Dr. Mohammed Alshehri

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Drowning Protocol

PARAMEDIC

EMT

Follow general Patient Care protocol go to G-1.

Avoid water rescue unless professionally trained.Contact operations immediately for civil defense support.

Move the patient to a safe and dry area.

Remove wet clothes, warm and dry the patients' chest before applying AED electrode pads.

Use caution and protect the airway if drowning patients are likely to vomit.

Clear upper airway.

Stabilize cervical spine if suspected neck trauma. Go to Spinal Injury Protocol T-2.

Give a few breaths,check for a pulse and anticipate vomiting for victims with only respiratory arrest, where they usaually respond after a few artificial breaths are given. (2)

For patients in cardiac arrest, provide immediate CPR, Follow protocols R-1, R-4, R-5 (Utilize the sequence ABC, not CAB, i.e., start with airway and breathing before compressions). (2)

Administer Oxygen 15 L/M, by non-rebreather mask to maintain oxygen saturation >95%, assist with Bag Valve Mask (BVM) and suction, as necessary.

Check Blood sugar and Treat hypoglycemia according to Hypoglycemia Protocol M-6. (1)

Monitor for hypothermia and if detected go to Hypothermia protocol E-9.

Document Approximate temperature of water and length of submersion.

All near-drowning patients should be transported rapidly.

Establish IV line normal saline KVO.

Attach cardiac monitor, perform 12-Lead ECG.

Evaluate the need for advanced airway. (1)

Monitor closely for pulmonary edema.

Consider early intubation for unconscious patients in distress.

Contact Medical Control before withholding or terminating resuscitation efforts.

KEY POINTS :

- Coldwater offers enhanced survival only where the patient becomes cold before cardiac arrest.
- There is no need to clear the airway of aspirated water; only a modest amount of water is aspirated by most drowning victims, and aspirated water is rapidly absorbed into the central circulation.
- Unnecessary cervical spine immobilization can impede the adequate opening of the airway and delay the delivery of rescue breaths.
- Patients are in the water with the head above water and they continue to breathe while they cool down before they eventually arrest. Prognosis can be good with patients surviving after prolonged CPR.
- Children may survive despite A clear history of prolonged submersion.
- Conscious patients who survive any form of drowning are at risk of deterioration and should be transported to the hospital.

References:

1- Alabama Protocols.

2- New Hampshire Protocols.

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Mohammed Alshehri

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Bites and Stings Protocol

EMT

- Follow General Patient Care Protocol go to G-1.
- Assess degree of bite/sting marks, outline edematous, erythematous, and ecchymotic areas with a pen, noting the time.
- Check and note for Rash, wound, soft tissue swelling, redness, amount of pain.
- Observe the Evidence of allergic reaction such as itching, hives, difficulty breathing, wheezing, hypotension or shock
- Irrigate and cleanse wound.
- Control bleeding, go to bleeding control protocol (T-6).
- Connect the patient to Cardiac Monitor.
- Administer oxygen by appropriate device to keep O2 sat ≥ 94%. .
- Establish IV line.
- Immobilize and elevate any extremities that was bitten at or above heart level.
- Keep patient supine and calm.
- Remove stingers if present, taking care to avoid compressing the site.
- For marine sting, use vinegar if available to flush site, or use salty sea water.
- For hospital bypass decision, contact medical control.

PARAMEDIC

- Establish IV/IO line.
- Provide continuous cardiac monitoring.
- If systolic BP <90 mmHg– place patient in supine position with legs elevated (shock position) & administer 250 ml NS fluid bolus.
- For pediatric patients hypotensive for age, administer 10ml/kg NS fluid bolus.
- Contact medical control if BP still below 90 mmHg for more NS boluses and additional treatment.
- For nausea and vomiting go to M-8.
- For pain, administer Fentanyl 1 mcg/kg slow IV/IO weight based (kg) to a max of 100mcg.
- Pediatric dose: 1 mcg/kg slow IV push, 50 mcg MAX.
- If Fentanyl is not available administer Morphine Sulfate 4 mg IV initial dose, and administer 2 mg every 5 minutes until pain relieved OR to maximum dose of 10 mg; Hold Morphine if SBP <90 mmHg.
- Pediatric dose: 0.1 mg/kg, 5 mg MAX.
- Contact Medical Control for Additional doses of above medications.
- Follow Anaphylaxis & Allergic Reaction protocol as needed, go to M-2.

Key Points:

- Gather as much information on the animal as possible.
- Do not use tourniquets, electric shock, or alcohol.
- Do not incise the site of sting.
- Do NOT apply ice or cold packs to snake bites or marine stings.
- Bites from coral snakes, elapids related to cobras, usually do not present with early symptoms. All bites are considered envenomated.
- Human bites have higher infection rates than animal bites due to normal mouth bacteria.
- Cat bites may progress to infection rapidly due to specific bacteria in their mouths.
- Carnivore bites (such as dogs) have potential for progression to infection and risk of Rabies exposure.

References:

- ALABAMA EMS PATIENT CARE PROTOCOLS EDITION 9.01.
- Brevard County Fire Rescue Medical Protocol Third Edition.

Written By:

- Dr. Osama Mashal
- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Heat illness Protocol

PARAMEDIC

EMT

Follow general patient care protocol got to G-1.

Move patient to cool area and shield from the sun or any external heat source.

Loosen or remove all unnecessary clothing, while protecting privacy.

Provide rapid cooling as soon as possible

If alert and oriented, give small sips of cool liquids.

Monitor and record vital signs and level of consciousness.

Obtain temperature – rectal temperature preferred as appropriate.
If temperature is 40°C (>104°F) or if altered mental status is present, begin active cooling
Apply cool packs to armpits, neck and groin.
- Keep skin wet by applying water with wet towels or sponges.
- Use evaporation techniques if possible (fans, open windows).

CAUTION: Do not over-chill patient, observe for shivering. If shivering occurs, discontinue active cooling procedures when the patient reaches 38.9°C (102°F).

Administer oxygen to maintain pulse oximetry >95%.

Establish large bore IV access.

Give 500mL fluid bolus for dehydration even if vital signs are normal.

Administer oxygen to maintain pulse oximetry >95%.

Pediatrics: 20mL/kg bolus, if indicated.

If patient is actively seizing treat using Seizure Protocol guidelines go to M-7.

For Heat Cramps and/or Heat Exhaustion: administer water or oral re-hydration-electrolyte solution if patient is alert and has a normal gag reflex and can swallow easily. Elevate legs of supine patient with heat exhaustion.

In Adult patients,

If uncontrolled shivering occurs during cooling:

o Midazolam 2.5 mg IV, may repeat once in 5 minutes, OR

o Midazolam 5 mg IM/IN may repeat once in 5 minutes, OR

o Lorazepam 1 mg IV, may repeat once in 5 minutes, OR

o Diazepam 5 mg IV, may repeat once in 5 minutes

In pediatric patients,

If uncontrolled shivering occurs during cooling:

o Midazolam 0.05 mg/kg IV (single maximum dose 2.5 mg), may repeat once in 5 minutes, OR

PARAMEDIC

o Midazolam 0.1 mg IM/IN (single maximum dose 5 mg) may repeat once in 5 minutes, OR

o Lorazepam 0.05 mg/kg IV (maximum dose 1 mg); may repeat once in 5 minutes, OR

o Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

Code: E-3 | Title: Heat illness Protocol **END**

KEY POINTS:

1) Definitions:

• Heat cramps: are painful, involuntary muscle spasms that usually occur during heavy exercise in hot environments. The spasms may be more intense and more prolonged than are typical night-time leg cramps. Fluid and electrolyte loss often contribute to heat cramps. Muscles most often affected include those of calves, arms, abdominal wall and back, although heat cramps may involve any muscle group involved in exercise.

• Heat exhaustion: is a condition whose symptoms may include heavy sweating and a rapid pulse, a result of body overheating. It's one of three heat-related syndromes, with heat cramps being the mildest and heatstroke being the most severe. Causes of heat exhaustion include exposure to high temperatures, particularly when combined with high humidity, and strenuous physical activity. Without prompt treatment, heat exhaustion can lead to heatstroke, a life-threatening condition. Fortunately, heat exhaustion is preventable.

• Heatstroke: is a condition caused by body overheating, usually as a result of prolonged exposure to or physical exertion in high temperatures. This most serious form of heat injury, heatstroke, can occur if your body temperature rises to 104 F (40 C) or higher. The condition is most common in the summer months. Heatstroke requires emergency treatment. Untreated heatstroke can quickly damage your brain, heart, kidneys and muscles. The damage worsens the longer treatment is delayed, increasing your risk of serious complications or death.

2) Persons at great risk of hyperthermia are infants, elderly, individuals in athletic endurance events, and persons taking medications that impair the body's ability to regulate heat (e.g. many psychiatric medications, diuretics, alcohol).

3) Heat exhaustion may progress to heat stroke without obvious external signs/symptoms.

4) Heat stroke is associated with altered mental status and temperature > 41.1 degrees (Celsius 106 degrees Fahrenheit)

References:

- New Hampshire Protocols

Written By:

- Dr. Mamdoh Alreweli
- Dr. Saud Alzahrani

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Murad Salim

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Diving emergencies Protocol

Code: E-4 | Title: Diving emergencies Protocol START

EMT	Follow general patient care protocol got to G-1.
	Take full history and should include circumstances leading to the complaint, details of mechanism of injury, time under water, depth of dive, compliance with dive tables/decompression stops, gas mixture used, and water temperature (if available).
	Assess patient for ear/sinuses barotrauma (facial or oral pain, nausea, headache, ear pain, vertigo, deafness).
	Assess patient for pulmonary barotrauma (pneumothorax; dyspnea, chest pain, hemoptysis) Go to Thoracic injury protocol T-7
	Assess patient for injuries to the head or spine. Go to spinal injuries protocol T-2 and head injuries protocol T-3
	Assess patient for hyperthermia/hypothermia. Go to Hypothermia Protocol E-9, or Hyperthermia Protocol E-3.
	For Drowning protocol go to E-1
	Manage Airway as indicated, follow airway management protocol P-1
	Contact medical control for discussing need for hyperbaric treatment and primary transport to facility with HBOT capability - include discussion regarding factors such as submersion time, greatest depth achieved, ascent rate, and gas mix.
	If patient still in the water, seek safest and most rapid means of removal from water (within your capabilities and training)
	Seek assistance early for special rescue/extrication and transportation needs
	Check for multiple patients
	Connect patient to cardiac monitor and check cardiac rhythm and Monitor vital signs
	Administer oxygen as appropriate with a target of achieving 94-98% saturation
	Establish IV line
PARAMEDIC	Use positive pressure ventilation (e.g. CPAP) carefully in patients for whom pulmonary barotrauma is a consideration. Go to CPAP/BiPAP protocol P-12

Code: E-4 | Title: Diving emergencies Protocol END

References:

1. National Model EMS Clinical Guidelines. Page 300-302.
2. Queensland Ambulance Service.

Written By:

- Dr. Abdulaziz Alhaddab
- Dr. Abdullah Asiri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Chemical Exposure Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Initial Actions/On – Scene Arrival:

1. Request appropriate resources (HazMat specialists, law enforcement officers, etc.)
2. Approach upwind and uphill of the incident;
3. Stop at an apparent safe distance away from incident location;
4. Alert subsequent arriving responders;
5. Direct all personnel to use full PPE, including self-contained breathing apparatus (SCBA) a. At a minimum, respiratory protection;
6. Be aware of possible secondary devices;
7. Treat as a crime scene/Consider that alleged perpetrator may still be on the scene;
8. Avoid contact with liquids.

Note: Your safety is priority

EMS Principles: (Follow Specific Directives of Incident Commander)

Work with appropriate HazMat specialists to determine proper level of PPE and respiratory protection needed for EMS personnel and what areas are appropriate for EMS care activities.

- a. Be alert for secondary devices and perpetrators;
- b. Avoid contact with liquids other than non-contaminated water;
- c. Rapid prioritization of number of patients;
- d. Triage victims based on medical necessity, using MCI protocols;
- e. Establish patient identification and tracking.
- f. Establish:

i. Communications with command post and hospitals;
ii. Staging for EMS personnel, ambulances, supplies, and resources;
iii. Transportation area – avoid transporting any contaminated patient(s)

KEY POINTS:

Indicators of a Possible Chemical Weapons Incident:

- Explosion with little or no structural damage;
- Reports of a device that dispersed a mist or vapor;
- Multiple casualties exhibiting similar symptoms (may be without apparent reason);
- Reports of unusual odors, liquids, spray devices, or cylinders;
- Dead animals;
- Discarded personal protective equipment (PPE)

References:

STATE OF OKLAHOMA 2018 EMERGENCY MEDICAL SERVICES PROTOCOLS Chemical weapons (15 C) page 395, 396 397,398

Written By:

Dr.Sultan Zubaid

- Dr. Adel Arishi

Reviewed By:

Dr. Mohammed Altuwaijri

- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Topical Chemical Burns Protocol

Code: E-6 | **Title: Topical Chemical Burns Protocol** **START**

EMT	Follow General Patient Care Protocol go to G-1.
	Determine offending agent(s) and follow HAZMAT intervention, if indicated.
	Decontaminate the patient as appropriate: • Brush off dry powders if present, before washing. • Scrape viscous material off with rigid device, e.g., tongue depressor. • Flush with copious amounts of clean water or sterile saline for 10 – 15 minutes, unless contraindicated by type of chemical agent (e.g., sodium, potassium or dry lime and/or phenols).
	Contact MEDICAL CONTROL for further advice.
	Administer Oxygen if spo2 ≤ 94%.
	If patient has wheezing, follow respiratory distress protocol M-11.
	Assess extent of burn and begin fluid resuscitation for treatment of the burn. Follow burns protocol E-10
PARAMEDIC	After a complete patient assessment, if pain management is indicated, follow pain management protocol. Go to M-1

Code: E-6 | **Title: Topical Chemical Burns Protocol** **END**

Key Points:

- CAUTION: Primary water irrigation is contraindicated for sodium, potassium, dry Lime/Lye and/or Phenol exposure (may produce further chemical reactions).

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols.
- New Hampshire Protocols

Written By:

- Dr.Sultan Zubaidy
- Dr. Adel Arishi

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Electrical and lightening Injuries Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Ensure your own safety.

Disconnect electrical source before touching the patient is case of electrical injury.

Seek shelter inside an enclosed building in case of lightening struck injury.

Keep patient in position of comfort if conscious.

Put the patient in recovery position if unconscious

Follow Cardiac Arrest protocol if patient has no pulse or apneic, go to R-1

If the patient has respiratory difficulty, or altered level of consciousness follow airway management protocol P-1

Administer oxygen as indicated.

Insert large bore IV line or IO line.

Put dry sterile dressing on any exposed injured area.

Check the patient for burns or any injuries. If burns present, go E-10.

If the patient has wound or bleeding, refer to Bleeding control protocol.

Connect the patient to cardiac monitor.

Obtain 12 lead ECG.

Treat serious dysrhythmias as indicated.

Administer 20 ml\kg of Normal saline as indicated if the patient in shock or dehydrated.

For pain, use medications:

Fentanyl:

1 mcg/kg slow IV/IO weight based (kg) to a max of 100mcg.

Pediatric dose: 1 mcg/kg slow IV push, 50 mcg MAX

Morphine Sulfate:

5 mg IV initial dose, titrate to pain relief in 2.5 mg doses, every 3-5 minutes, 10 mg MAX.

Pediatric dose: 0.1 mg/kg, 5 mg MAX

If pain not relieved after 10 mg, call Medical Control for further doses.

Transfer patient with serious electrocution burn (if need) to burn center.

Contact with medical control to know the destination facility of the patient.

KEY POINTS:

The same basic scientific principles of electricity apply to lightning.

-Lightning may strike a person directly or indirectly. A person's chances of being struck are increased by wearing or carrying metal objects (such as golf clubs or umbrellas) or other conductors. Current from lightning may reach the body indirectly by traveling through a tree or other object (contact voltage) .

- Most electrical and lightening injuries result in skin burns.
- The most severe effects of lightning strike are cardiac and respiratory arrest.

Tips to Avoid Lightning Strike :

• Seek shelter inside an enclosed building or metal-topped automobile.
• Avoid large flat, open areas or hilltops.
• Avoid contact with metal objects and remove metal objects, such as jewelry or hairpins.
• Avoid trees, boats, and open water.
• If caught on open ground, curl up on your side with hands and feet close together to reduce contact points, or squat with feet together. If possible, place a rubber raincoat under your body or feet to reduce ground current effects.
• If in a forest, seek shelter under a thick growth of shorter trees.
• If indoors, avoid the use of wired phones and contact with plumbing or electrical appliances.

References:

- State of New Hampshire Patient Care Protocols
- San Francisco EMS Protocols
- Rosen's Emergency medicine

Written By:

- Dr. Wael Bunia
- Dr. Mohammed Alshehri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Hypothermia Protocol

Code: E - 8 | **Title: Hypothermia Protocol** **START**

PARAMEDIC / EMT
Follow General patient care protocol. Go to G-1.
Avoid Rough Movement and Prevent Further Heat Loss.
Insulate from the ground and shield from wind/water.
Move to a warm environment as soon as practical.
Remove any wet clothing.
Start rewarming the patient, Cover with warm blankets, particularly the axilla and groin. Use heat-reflecting blanket if available.
Determine patient's hemodynamic status: Assess pulse and respiratory rates for a period of 60 seconds to determine pulselessness or profound asystole, for which CPR would be required.
For patient is in cardiopulmonary arrest go to cardiac arrest protocol R-1, R-4 and R-5.
Whenever possible, use warmed, humidified oxygen (40°C – 42°C) by non-re-breather mask, during resuscitation procedures for hypothermic patients.
Monitor and record vital signs
Establish IV access and Warm IV 0.9% NaCl should be used if needed.
Do NOT administer anything orally if patient has altered level of consciousness
Manage hypoglycemia and narcotic overdose per protocol. Go to G-5 for poisoned patient care protocol & M-6 for hypoglycemia protocol.
Do NOT massage extremities in an attempt to actively rewarm the patient.

Code: E - 8 | **Title: Hypothermia Protocol** **END**

Key Points:

• Apparent rigor mortis, dependent lividity or fixed and dilated pupils are NOT a contraindication for CPR in hypothermia

• AED/defibrillate, if indicated, once per cycle of CPR up to three times. Consider limiting further defibrillation attempts until core temperature known to be > 30°C (86°F).

• Hypothermic patients without contraindications to CPR should have continuous CPR and should not be considered for Termination of Resuscitation until the core temperature is above 32°C (90°F) without ROSC

• When feasible, patients in severe or profound hypothermia with or without continuing CPR should be transported directly to a center capable of providing cardiopulmonary bypass (CPB) or extracorporeal membrane oxygenation (ECMO). Consider air medical transport.

• If pulse and breathing are absent and esophageal or rectal temperature core temperature is < 32°C (89.6°F): - Continue CPR.

- Give IV medications based on dysrhythmia (consider limiting epinephrine doses to 3 and increasing interval dosing time to 6 – 10 minutes.

•STAGE: COLD STRESSED: Conscious, shivering, functioning normally, able to care for self. Core Temp > 35oC (95o F)

Treatment: Warm environment and clothing, warm sweet drinks, and active movement after 20 minutes.

-MILD (STAGE: I) Conscious, shivering Core Temp 35 to 32°C (95 to 89.6°F)

Treatment: Same as Cold Stressed

-MODERATE (STAGE: II) Impaired consciousness, not shivering

Core Temp <32 to 28°C (<89.6 to 82.4°F)

Treatment: Cardiac monitoring, minimal and cautious movements to avoid arrhythmias, horizontal position and immobilization, full-body insulation, active external and minimally invasive rewarming techniques (warm environment; chemical, electrical, or forced- air heating packs or blankets; warm parenteral fluids)

SEVERE (STAGE: III) Unconscious, not shivering, vital signs present-

Core Temp <28 to 24°C (<82.4 to 75.2°F)

Treatment: HT II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management

PROFOUND (STAGE: IV) No vital signs

Core Temp <24°C (<75.2°F)

Treatment: HT II and III management plus CPR and up to three doses of epinephrine (at an intravenous or intraosseous dose of 1 mg) and defibrillation, with further dosing guided by clinical response; rewarming with ECMO or CPB (if available) or CPR with active external and alternative internal rewarming.

References:

- -EMERGENCY MEDICAL SERVICES PRE-HOSPITAL STATEWIDE TREATMENT PROTOCOL, 2024.1
- -New Hampshire Protocols

Burns Protocol

PARAMEDIC / EMT

Follow general patient care protocol, go to G-1

Do NOT place yourself or your crew in danger

Appropriately manage Thermal vs. Chemical burns, Inhalation or Electrical.

For Chemical Burns go to E-6

For Lightning injuries go to E-7. For Electrical injuries go to E-8.

For pain management, go to M-1.

Assess for evidence of smoke inhalation or burns; soot around mouth or nostrils, singed hair, carbonaceous sputum.

If the patient has respiratory difficulty, inhalation injury, altered level of consciousness and /or hemodynamic compromise, follow Airway Management Protocol P1.

Initiate high flow oxygen for any suspicion of CO poisoning

If patient has wheezing, follow respiratory distress protocol M-11.

1- Use "stop drop and roll" if active burning process on-going.

Irrigate thermal burns with room temperature water or normal saline.

Remove non-adherent clothing and jewelry.

Do not remove skin or tissue. ·

Cover burns with clean, dry, sterile dressing or sheets. ·

Keep patient warm and prevent hypothermia due to large thermal injuries.

Determine extent of the burn using Rules of Nine

Determine depth of injury. Do not include 1st degree burns in burn surface area (BSA) percentage.

Begin fluid resuscitation for treatment of the burn.

Administer bolus 1 Liter Normal Saline if burn injury >20%.

Administer bolus 500 mL Normal Saline if burn injury <20%

Transport time greater than 1 hour:

Administer warm fluids* at 1 – 2 mL/kg x % burn/8 = hourly rate x first 8 hours

For pediatric patients:

Administer 20 mL/kg Normal Saline over 10 – 30 minutes if burn injury >20%.

Administer 10mL/kg Normal Saline over 10 – 30 minutes if burn injury <20%

Consult medical control for transport times GREATER THAN 1 HOUR or patient has signs of shock in pediatric.

Consult medical control for further fluid administration.

PARAMEDIC

EMT

Transport to the appropriate health care facility. Burn Unit is indicated for the criteria shown below the protocol.

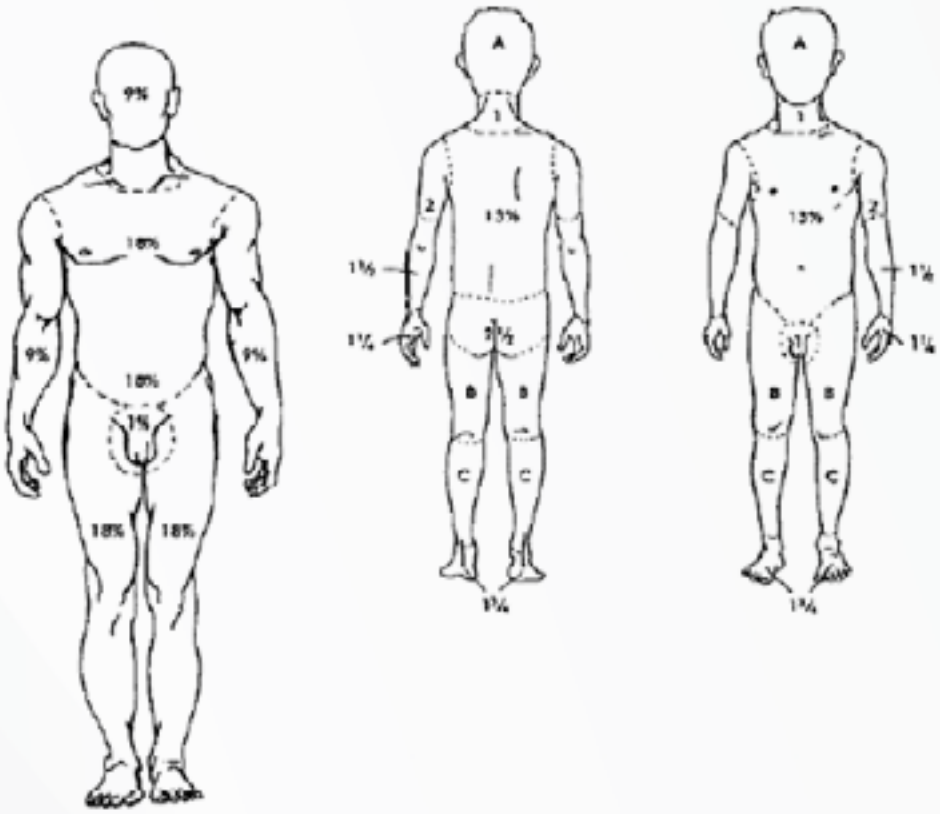
In a patient who may have experienced smoke inhalation with suspected cyanide toxicity (e.g. hypotension, altered mental status, seizure), if carried, consider hydroxocobalamin 5 gm IV/IO over 15 minutes in an adult, and

70 mg/ kg (to maximum 5 gm) IV/IO over 15 minutes in a pediatric patient

Code: E-9 | **Title: Burns Protocol**

END

Rule of Nines



Estimation of Burn Size (Children)					
Area	Age 0	1 yr.	5 yr.	10 yr.	15 yr.
A - ½ of head	9 ½ %	8 ½ %	6 ½ %	5 ½ %	4 ½ %
B - ½ of one thigh	2 ¾ %	3 ¼ %	4 %	4 ¼ %	4 ½ %
C - ½ of one leg	2 ½ %	2 ½ %	2 ¾ %	3 %	3 ¼ %

Key Points:

- **The following injuries generally require referral to a burn unit:**

1. Partial thickness burns greater than 10% total body surface area (TBSA)
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third-degree burns in any age group
4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality. Burns in any patients with concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses a greater immediate risk than the burns, it may be necessary to stabilize the patient in a trauma center before being transferred to a burn unit.

- Prolonged cooling may result in hypothermia
- Inhalation injuries are burn injuries and may cause delayed, but severe airway compromise.
- Pulse oximeter gives false high reading in presence of carbon monoxide poisoning or cyanide poisoning
- Consider the possibility of abuse when certain burns are encountered. These include cigarette burns, iron burns, grill burns, and any burns in the elderly or children where the described mechanism of injury appears to be unlikely
- Smoke is a combination of many dangerous toxins produced by incomplete combustion. Patients exposed to smoke should be considered for carbon monoxide (CO) and hydrogen cyanide (HCN) poisoning.

References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2020.2.
- New Hampshire Protocols
- Alabama Protocols

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Multisystem Trauma Protocol

Code: T - 1 | **Title: Multisystem Trauma Protocol** **START**

PARAMEDIC

EMT

- Follow General Patient Care protocol go to G-1.
- Assess Airway, Breathing, Circulation and responsiveness.
- Administer Oxygen as indicated to keep O2 sat ≥ 94%. .
- stop any identified life-threatening hemorrhage (direct pressure on the bleeding site, wound packing, tourniquet etc.), follow Bleeding Control protocol go to T-6
- Provide Spinal Motion Restriction as indicated.
- Splint suspected fractures/instability as indicated.
- Minimize scene time for unstable patients or patients who meet trauma triage criteria.
- Initiate 1-2 large bore IV(s) Normal Saline (KVO) while en-route to the hospital.
- Administer of 1000 mL Normal Saline as a fluid bolus, If SBP < 90 mm/Hg
  Titrate up until SBP>90.
- Follow Hospital Bypass Protocol As needed go to S-8

In patients who require emergent intubation who cannot be intubated by conventional means follow difficult airway protocol go to P-2
IV/IO Normal Saline at KVO.

administer Normal Saline fluid bolus, If SBP < 90 mm/Hg.

Administer Tranexamic Acid (TXA) 15 mg/kg to maximum dose of 1 gram IV over 10 minutes (mix 1 gram of TXA in 100 ml of Normal saline).
Tranexamic Acid is used for patient over 5 years of age, who has SBP < 90 or HR > 110, or the provider determines the patient to be at high risk for significant hemorrhage.

Contact medical control for patient under 5years for the use of Tranexamic Acid (TXA).

Code: T - 1 | **Title: Multisystem Trauma Protocol** **END**

Key Points:

For patients under 12 years old, the airway is in most cases best managed with a BVM or SGA (supraglottic airway). In some cases, intubation may be preferred. This is at the discretion of the treating paramedic.

- References:
- Massachusetts Statewide.
- San Francisco EMS Protocols

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Spinal injuries Protocol

PARAMEDIC

EMT

Follow general Patient Care protocol go to G-1.

Ensure cervical spine stabilization.
Establish manual c-spine stabilization in the position that the patient is found.
Assess for correct size and properly apply a cervical collar.

Determine presence or absence of significant neurologic signs and symptoms: decreased motor function, decreased sensory function, priapism, and loss of bladder/bowel control.

Move patient from the position found to the location of the ambulance stretcher utilizing a device such as a scoop stretcher, long spine board, or if necessary, by having the patient stand and pivot to the stretcher.

DO NOT permit the patient to struggle to their feet from a supine position.

Position patient on the ambulance stretcher.

Remove scoop or logroll patient off long spine board or other device (if such device was utilized).

A blanket roll or blocks and tape attached to the stretcher may be used to minimize lateral movement of head during transport.

Instruct patient to lie still once he/she on the ambulance stretcher.

May elevate the head of the stretcher 20-30 degrees in a position of comfort.

Secure cross stretcher straps and over-the-shoulder belts firmly.

Utilize a Slide board, if available, at the destination to move the patient smoothly to the hospital stretcher.

Ensure appropriate documentation of procedure in patient care report.

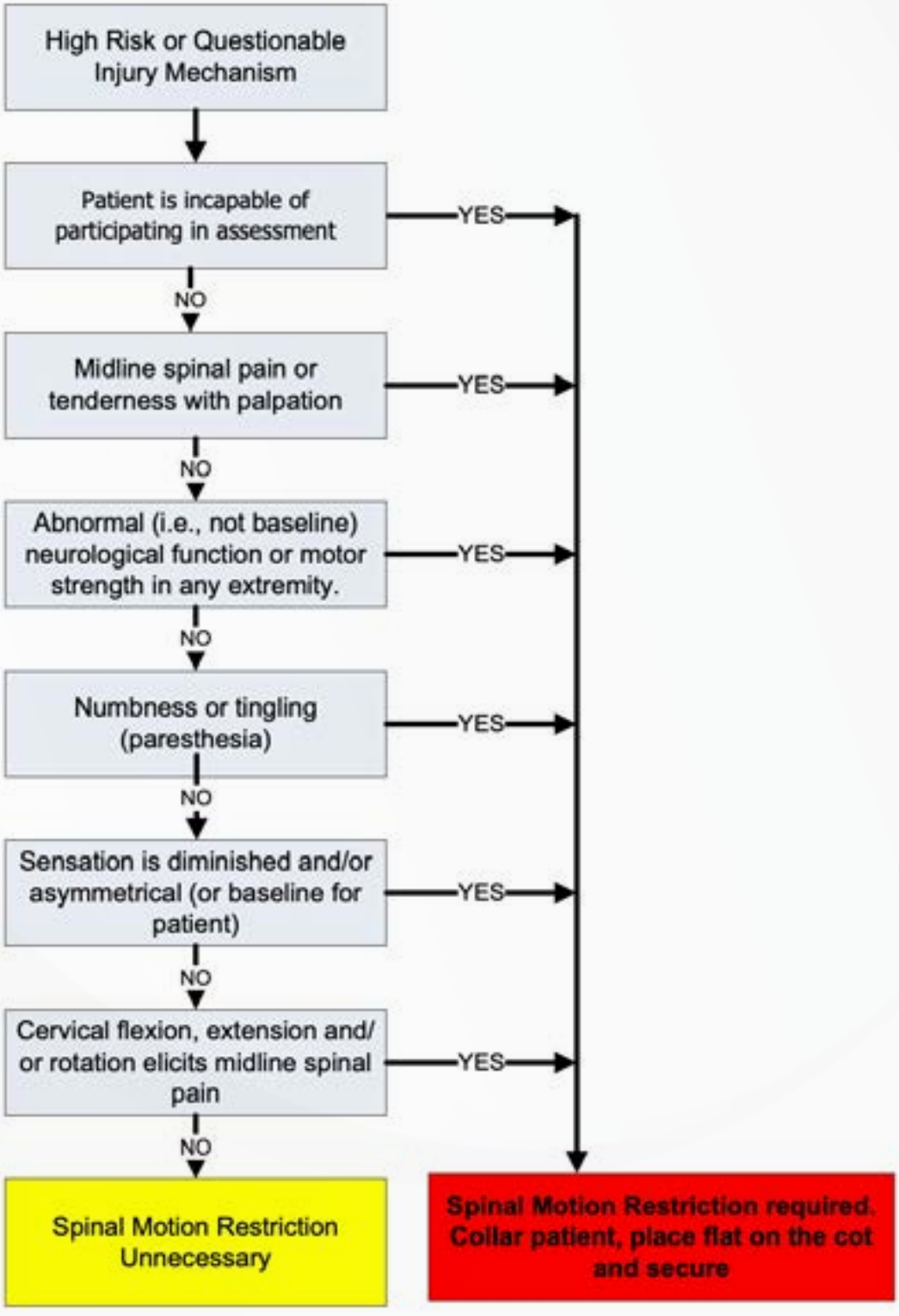
Follow Hospital Bypass Protocol As needed go to S-8

Consider connecting the patient to 12 lead ECG.

For suspected neurogenic shock (without hypovolemia):
Norepinephrine infusion: 0.1-0.5 mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, OR
Dopamine 2-20 mcg/kg/min IV/IO

KEY POINTS :

- Note that: Bradydysrhythmias are commonly seen in high-level spinal injuries.
- Long backboards are NOT considered standard of care in most cases of potential spinal injury
- Note that there are exceptions, such as a patient with a potential spinal injury who cannot be logrolled while being transported and may be at risk of a compromised airway.



Written By:

- Dr. Mamdoh Alreweli
- Dr. Saud Alzahrani

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Head Injuries Protocol

PARAMEDIC / EMT

Follow General Patient Care Protocol go to G-1.

Transport early. Limit scene time to less than 10 minutes.

Keep NPO (do not give anything by mouth).

Control external bleeding with direct pressure. Follow bleeding control protocol (T-6).

Administer Oxygen if spo2 ≤ 95%.

Indications for using advance airway:

- If the patient is unable to protect his airway.
- Watch for GCS, If GCS ≤8 in a traumatic brain injury, use advance airway.

Establish IV Normal Saline KVO.

If SBP<100 mmHg administer Normal Saline Fluid Boluses Until SBP>100mmHg.

Ensure cervical spine stabilization and immobilization.

Elevate head of patient to 20° - 30° unless contraindicated (suspected neck injury, hypotension).

Bandage wounds/control bleeding as indicated.

Stabilize impaled objects with bulky damp dressing.

Monitor for airway obstruction (Only impaled objects that obstruct the airway can be removed).

Cover the injured eye with dressings. Follow Eye Injury Protocol (T-10).

Evaluate visual acuity in both eyes. Assess if pupils are equal, round & reactive to light & accommodation).

Cover the ear by dry goose for any discharge from the ear.

Keep avulsed teeth in saline and transport with patient. Follow Dental Injuries Protocol (T-11).

If shock syndrome present, follow Traumatic Shock Protocol (T-12).

Monitor for changes in the patient's level of consciousness and vital signs.

Connect the patient to cardiac Monitor.

Do Not Delay Transportation.

Follow Hospital Bypass Protocol As needed go to S-8

Consider administration of 3% Hypertonic Saline in the patients less than 15 years old exhibiting signs of tentorial herniation (Decreasing LOC, pupil inequality, Contralateral hemiparesis and decerebrate posturing) or Cushing's Reflex (Hypertension, bradycardia and irregular respirations): 3mL/kg (to max 250mL) 3% saline over 20 minutes

PARAMEDIC	If the patient has nausea or vomiting administer Ondansetron 0.15mg/kg IV or metoclopramide 0.1 to 0.15mg/kg iv slowly for age 1 to 18 years.
	Check vital signs after administering any medication.
	Reassess airway, breathing or circulation if the patient deteriorates.
	If intubated, maintain ETCO2 at 35-40 mmHg.
	Sedate the patient if he/she is combative and may cause further harm to self and others
	Administer Midazolam 2.5 mg IV/IN may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes OR Administer Diazepam 2 mg IV; may repeat once in 5 minutes
	Administer fluid bolus 20 mL/kg; may repeat x2 (maximum total 60 ml/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
	Sedate the patients that are combative and may cause further harm to self and others.
	Administer Midazolam 0.05 mg/kg IV/IM or 0.1 mg/kg IN (maximum dose 3 mg); may repeat once in 5 minutes OR Administer Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes

Code: T-3 | **Title: Head Injuries Protocol** **END**

KEY POINTS:

Brain Injury as a result of head trauma occurs by both:

1. Primary "impact" damage as the immediate consequence of the injury; and
2. Secondary complications of impact such as blood accumulation or cerebral swelling, sometimes with herniation syndromes.

GCS is the most reliable indicator of brain injury in the field:

GCS 13-15 Minor TBI (traumatic brain injury)

GCS 9-12 Moderate TBI

GCS 3-8 Severe TBI

• Progressively increasing ICP (increased intracranial pressure) can lead to tentorial herniation. This condition is manifested by a decreasing level of consciousness, ipsilateral pupil dilation, contralateral hemiparesis, and decerebrate posturing

• Cushing's Reflex (bradycardia, irregular respirations, and hypertension) is a late clinical indication of herniation.

• Head injury does not cause shock in adults. If shock is present in an adult patient with head trauma, consider that there is probably another cause of shock.

• Head injury can cause shock in infants.

References:

- Massachusetts Statewide Protocols
- San Francisco EMS Protocols
- Alabama protocol
- New Hampshire Protocols

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Amputations Protocol

PARAMEDIC

EMT

Follow General Patient Care protocol go to G-1

Control bleeding using direct pressure and elevation

Using a tourniquet: should be applied as close as practical to the injury site ONLY IF bleeding cannot be controlled using direct pressure and elevation. The tourniquet should not be covered. Note on the patient the time of tourniquet application and document in the record.

Establish IV Normal Saline KVO.

Stump: Control bleeding and cover with sterile dressing

Amputated Part: Wrap in sterile dressing moistened with sterile saline and place in a plastic bag, place the bag in ice water (use ice packs to provide some level of cooling) Transport the part with the patient if possible. DO NOT place amputated extremity directly on ice or in water.

If the patient is trapped and extrication time will be prolonged, consider sending the amputated part ahead to be surgically prepared for reimplantation.

For Partial Amputation: Control bleeding. Saturate wound with sterile saline and cover with dry sterile dressing, splint in anatomical position and elevate the part.

Note Time and mechanism of amputation and Amount of blood loss

Do not apply tourniquet over joints.

Do Not Delay Transport.

Reassess for re-bleeding frequently, especially after any patient movement.

Transport to a hospital with reimplantation capability.

If shock syndrome present, proceed to Traumatic Shock Protocol (T-12).

Connect the patient to cardiac monitor.

Use a Hemostatic Agent If the tourniquet does not control the bleeding.

Consider Tranexamic Acid If bleeding is severe.

Manage the pain. Go to M-1 for Pain management protocol

Tranexamic Acid: Adult >18 years old: 2 g over 20 mins, MAX 100mg per min. Mix 2g in 100 mL (NS, D5W, or LR) and administer by IV flow regulator or pump infusion (300mL/hr) over 20 mins

Check vital signs after Administration any medication.

Contact Medical Control if additional doses of above.

KEY POINTS:

• Do not immerse the amputated part directly in liquid or dry ice.

• Time is of the greatest importance to assure viability. If the extrication time will be prolonged, consider sending the amputated part ahead to be surgically prepared for reimplantation.

• Tranexamic Acid Not Indicated for Pediatric and is contraindicated after 3 hours of bleeding.

References:

- Alabama protocol
- San Francisco EMS Protocols

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Traumatic Cardiac Arrest Protocol

EMT	Follow general patient care protocol, go to G-1 with focus on continuous manual chest compressions and AED use.
	Treat according to appropriate Cardiac Arrest Protocol, go to R-1, R-4, and R-5.
	Attempt to maintain spinal motion restriction by minimizing head movement. Do not apply a cervical collar before ROSC
	Provide early airway intervention using oral and/or nasal airways and suction. See Airway management protocol P-1. Consider placing a supraglottic airway device, follow supraglottic airway protocol-20.
	Control hemorrhage, follow Bleeding control protocol T-6.
	Provide appropriate management for identified injuries: - Spinal injurie protocol, follow T-2 - Head injuries protocol, go to T-3 - Thoracic injuries protocol, go to T-7
	Obtain 1-2 points of vascular access (IV, IO) while en route to the hospital, without interrupting chest compressions.
	Administer 1000 mL of IV fluid, repeat as needed.
	Administer fluid bolus 20mL/kg of 0.9% NaCl by syringe method (may repeat to a maximum 60 mL/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
	If ROSC occurs, follow Post arrest care protocol R-2 and transport to a Level I or Level II trauma center.
	Consider not initiating resuscitation or early termination of efforts if there are obvious signs of death, injuries that are not compatible with life, or if there has been a prolonged downtime.
PARAMEDIC	Consider early placement of an endotracheal tube without interrupting chest compression. Follow Airway Management & Difficult Airway Protocols, P-1, P-2.
	Perform bilateral needle chest decompression. If indicated, go to P-9

Key Points:

- Epinephrine and antidysrhythmics are not recommended in traumatic cardiac arrest.
- For patients under 12 years old, the airway is in most cases best managed with a BVM. In some cases, intubation may be preferred. This is at the discretion of the treating paramedic.
- Always remember that a medical cardiac arrest can lead to trauma. For example, a cardiac arrest while driving causing a crash

References:

- State of New Hampshire Patient Care Protocols Version 8.0.
- Massachusetts Pre-Hospital Statewide Treatment Protocols 2020.2

Written By:

- Dr. Abdulaziz Alhaddab
- Dr. Abdullah Asiri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Bleeding Control Protocol

PARAMEDIC / EMT

Follow General Patient Care Protocol, go to G-1.

Apply direct pressure/pressure dressing to injury (including use of a mechanical pressure dressing [e.g. IT clamp]).

If direct pressure is ineffective or impractical:

If the wound is amenable to tourniquet placement (e.g. extremity injury), apply a hemostatic tourniquet.

- Apply directly to the skin 2-3 inches above the bleeding site. If bleeding is not controlled with the first tourniquet, apply a second tourniquet side-by-side with the first.
- Document time of tourniquet application and communicate this clearly with receiving facility.

If the wound is not amenable to tourniquet placement (e.g. junctional injury), Apply regular or pressure gauze with direct pressure. If available, apply hemostatic agent (combat gauze), with direct pressure.

For junctional hemorrhage:

If available, consider use of a junctional tourniquet.

For hemorrhage originating from a dialysis shunt/fistula:

Apply firm finger tip pressure to bleeding site.

Apply a pressure dressing (avoid bulky dressing; dressing should not compress the entire shunt/fistula for risk of clotting).

If direct pressure and dressing are not effective, (i.e. significant hemorrhage continues): Apply a tourniquet to the affected extremity. The tourniquet should be applied as remotely from the location of the shunt/fistula as possible.

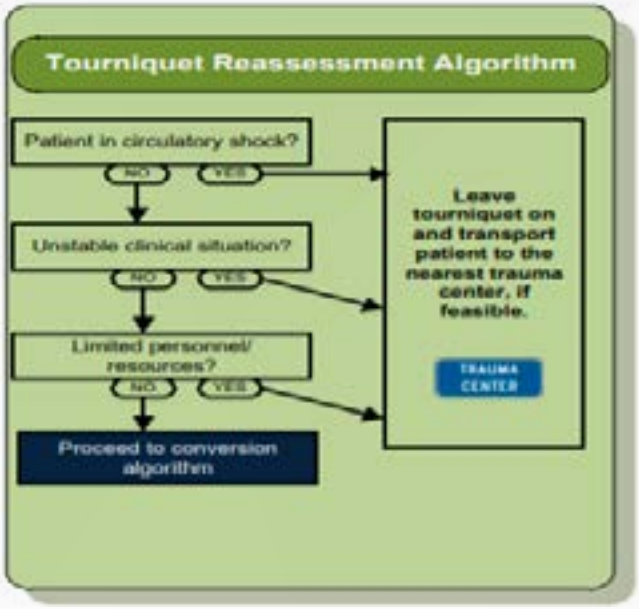
Consult Medical Control, if tourniquet application is not according the above mentioned standard.

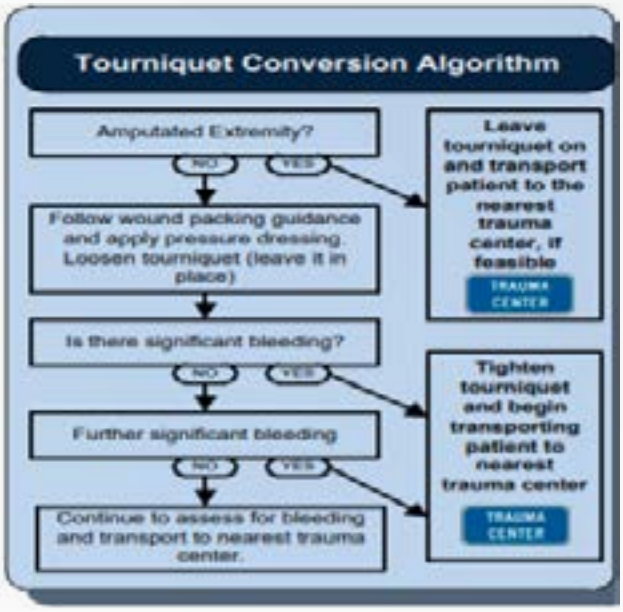
If tourniquet has been in place for greater than 6 hours, do not remove.

If less than 6 hours consider Tourniquet Reassessment and Tourniquet Conversion Algorithms.

Administer fluids for shock, Follow traumatic shock protocol T-12.

Assess pain level and consider pain control measures, Follow pain management protocol M-1.





KEY POINTS:

- In the event of diminished scene safety (indirect threat, warm zone etc.), limb tourniquets should be placed as high on the limb as possible and over clothing.
- In the absence of a commercial tourniquet (preferred), an improvised device e.g., cravat with windlass, blood pressure cuff could be used. The device must be a minimum of 2 inches wide, otherwise it can cut through the skin.
- Tourniquets applied prior to EMS arrival should be evaluated for effectiveness and appropriateness. If tourniquet can be safely removed, remove the tourniquet, and apply pressure dressing.
- Do not apply tourniquet over joints.
- Reassess for re-bleeding frequently, especially after any patient movement.
- Delay in placement of a tourniquet for life threatening hemorrhage significantly increases mortality. Do not wait for hemodynamic compromise to apply a tourniquet.
- If feasible, transport patients directly to trauma center and provide earliest possible notification / trauma alert.
- Damage to the limb from tourniquet application is unlikely if removed in several hours.

References:

1-san Francesco Protocols

2-New Hampshire Protocols

Written By:

- Dr. Faleh Alqahtani
- Dr. Saud Alzahrani

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Thoracic Injury Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Control/stop any identified life threatening hemorrhage (direct pressure, wound packing, tourniquet etc.), Follow bleeding control protocol T-6.

Provide appropriate management for identified thoracic injuries:

Open pneumothorax:

-Immediately apply an occlusive dressing sealing 3 sides.

-Monitor patient closely for evidence of tension pneumothorax.

Tension pneumothorax: (Respiratory distress or apnea, Difficult to ventilate with bag, distended neck veins, unilateral decreased or absent breath sounds, tracheal deviation away from the side without breath sounds.)

• Immediately relieve tension by inserting a large bore needle in the mid-clavicular line in the second intercostal space. Use needle chest decompression if indicated. Go to Needle thoracostomy protocol P-9

• If present following closure of open pneumothorax, release occlusive dressing temporarily.

Flail chest: (paradoxical movement of portion of chest wall)

-Position patient with injured side down, unless contraindicated.

-Provide manual stabilization of the flail segment.

Impaled Objects :

Secure in place with a bulky dressing.

Open chest wound:

- Cover with an occlusive dressing, sealed on 3 sides, or use a commercial device.

- If the patient's condition deteriorates, remove the dressing momentarily, then reapply.

Flail segment with paradoxical movement and in respiratory distress:

-Consider positive-pressure ventilation.

-Do not splint the chest.

Obtain 1-2 points of vascular access (IV) while en route to the hospital

Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM. Go to Airway management protocol P-1

Obtain 1-2 points of vascular access (IV/IO) while en route to the hospital.

KEY POINTS:

- NOTE that Assisted positive pressure ventilations using a BVM device may be indicated and may also serve as an "internal splinting" of the flail segment due to lung expansion.

Written By:

Dr. Mamdouh Alreweli

Dr. Saud Alzahrani

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Saud Mazi

Dr. Haitham Alhaiti

Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Extremity Injuries Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Manually stabilize the injury.

Control bleeding (direct pressure, wound packing, tourniquet etc.) Go to Bleeding control protocol T-6 and treat and administer fluids for shock, Go to Traumatic Shock Protocol T-12

Medical control may order additional fluid boluses

If crush injury: Go to T-14

Remove obvious debris, irrigate open wounds with high volume with saline solution, and cover with a dry sterile dressing.

Assess: Circulation, Sensation, Motor, and joints distal and proximal to injury before and frequently after immobilization.

- Splint extremity as required
- Consider Traction splinting for isolated adult and pediatric closed mid-shaft femur fractures (unless contraindicated by associated injury)
- For pain relief apply ice and elevate

In a patient with a high-risk mechanism of injury, follow spinal injuries protocol T-2

Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.

For impaled objects of the extremities, Stabilize the object and transfer the patient.

Consult medical control for possible object removal and tourniquet application.

For dislocated patella, shoulder, or digits from indirect force: Contact medical control

After thorough patient assessment, consider use of Pain and Nausea Management, follow M-1 +M-8 Protocols.

References:

• If no palpable, distal pulse is present following suspected extremity fracture, position injured extremity in correct anatomic position, and apply gentle traction along the axis of the extremity distal to the injury until the distal pulse is palpable and immobilize in place. Note: This does not apply to dislocations.

• For dislocations due to direct impact, such as falls, the injury is more likely to be complicated by a fracture. Reducing these involves more risk. Splinting in place and urgent evacuation is ideal.

• Use ample padding when splinting possible fractures, dislocations, sprains, and strains. Elevate injured extremities, if possible. Consider the application of a cold pack for 30 minutes.

• Musculoskeletal injuries can occur from blunt and penetrating trauma. Fractures of the humerus, pelvis and femur, as well as fractures or dislocations involving circulatory or neurological deficits, take priority over other musculoskeletal injuries.

• Hip dislocations, pelvic, knee, and elbow fracture / dislocations have a high incidence of vascular compromise.

• Lacerations should be evaluated for repair within 6 - 12 hours.

• Blood loss may be concealed or not apparent with extremity injuries.

References:

- Massachusetts Statewide
- New Hampshire Protocols

Written By:

- Dr.Sultan Zubaidy
- Dr. Adel Arishi

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Soft tissue injuries Protocol

Code: T-9 | **Title: Soft tissue injuries Protocol** **START**

PARAMEDIC / EMT

Follow General Patient Care Protocol go to G-1.

Control/stop any identified life-threatening hemorrhage (direct pressure, wound packing, tourniquet etc.) follow Bleeding control protocol go to T-6.(2)

Fluids must not to exceed 2000 mL without consultation with Medical Control.

Place dry sterile dressing on all open wounds and bandage as needed: (2)

If wound is grossly contaminated, irrigate with sterile water or Normal Saline. (2)

Do not remove any protruding foreign bodies (impaled objects).

Stabilize all protruding foreign bodies (impaled objects) if noted. (2)

If severe crushing injury/compartment syndrome is suspected and injury permits: (2)

Remove all restrictive dressings. (2)

Close monitoring of distal pulse, sensation, and motor function (CSM). (2)

Splint/immobilize injured areas as indicated. (2)

Treat shock as indicated. (1) Go to Traumatic Shock protocol T-12.

Assess distal neurovascular status: (1)

Before and after application. (1)

Anytime adjustment is made or every 15-30 minutes. (1)

Medical control may order additional fluid boluses.

After patient assessment, consider pain management & nausea and vomiting management. Go to pain management protocol M-1 & nausea and vomiting protocol M-8.

Code: T-9 | **Title: Soft tissue injuries Protocol** **END**

KEY POINTS :

Signs and symptoms of Acute Compartment Syndrome:

Six P's of Compartment Syndrome:

- Pain
- Paresthesia
- Pallor
- Paralysis
- Pulselessness
- poikilothermia

References:

1. Central California EMS Policies and Procedures.
2. Massachusetts Emergency Medical Services Pre-Hospital Statewide Treatments Protocols
3. www.EMS1.com

Written By:

- Dr. Abdulaziz Alhaddab
- Dr. Abdullah Asiri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Eye Emergencies Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Obtain visual history (e.g., use of corrective lenses, surgeries, use of protective equipment).

Obtain visual acuity, if possible.

Assist patient with the removal of contact lens, if applicable.

Both eyes should be patched and protected if eye or orbit receives blunt trauma and if blood is noted in anterior chamber (hyphemia), transport with head elevated at least 60 degrees if patient has no cervical spine injuries.

Chemical irritants: flush with copious amounts of water, or 0.9% NaCl for a period of fifteen minutes.

Thermal burns to eyelids: patch both eyes with cool saline compress.

Impaled object: immobilize object and patch both eyes to reduce eye movements.
Place a roll of gauze bandage or folded gauze pads on either side of the impaled object, along the vertical axis of the head. These rolls or pads are placed so they stabilize the object.
Fit an eye shield around the impaled object. The protective shield should not press the impaled object.
Secure the dressings and shield in place with self-adherent roller bandage or wrapping of gauze.
DO NOT secure bandage over the top of the shield.
Patch and bandage the uninjured eye to reduce eye movements.

Puncture wound: place rigid eye shield over both eyes. Do not apply pressure.

Foreign body: patch both eyes.

If the patient cannot close their eyelids, keep their eye moist with a sterile saline dressing.

Topical anesthetic: tetracaine 1-2 eye drops as needed, if available.

For nausea/vomiting. Go to M-8 for dosing.
For pain. Go to M-1 for dosing.

If chemical eye burn suspected in patients who wear contact lenses, contact medical control regarding removing contact lenses.
If sudden painless visual loss: contact medical control for instructions

KEY POINTS :

• Injuries to the eye may also cause a related injury to the central nervous system.

• Always consider cervical spine injuries with any eye injury.

• Special consideration: Sudden painless loss of vision: If suspect central retinal artery occlusion in patient with acute non-traumatic, painless loss of vision in one eye (most common in elderly patient): under medical control instructions: apply vigorous pressure using heel of hand (massage) to affected eye for three (3) to five (5) seconds, then release. The patient may perform this procedure. Repeat as necessary. NOTE: 12-lead ECG is required for this procedure (i.e., vagal stimulus: asystole). CAUTION: If tetracaine has been administered, do not apply pressure to eye.

References:

- Brevard County Fire Rescue Medical Protocol Third Edition
- Massachusetts Statewide

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Dental Injuries Protocol

Code: T-11 | **Title: Dental Injuries Protocol** **START**

EMT	Follow General Patient Care Protocol go to G-1.
EMT	If the patient has trauma and signs of shock follow traumatic shock protocol T-12
EMT	If there is active oral bleeding: Control bleeding with direct pressure. Fashion gauze into a small square and place into socket with patient closing teeth to exert pressure. Do suction and remove foreign body fragments as needed.
EMT	If gross contamination present, gently rinse. Do not rub or scrub tooth.
EMT	Place dental avulsions in an obviously labeled container with saline soaked dressing, milk or hanks solution
EMT	Handle the tooth carefully. Avoid touching the root of the tooth (the part of the tooth that was embedded in the gum) because it can be damaged easily.
EMT	Penetrating Injury/Impaled Object: Stabilize impaled object. Do not move loosened teeth. If active bleeding, position patient to avoid aspiration.
EMT	Tooth Fracture: Replace in socket (If able without aspiration risk). If unable to replace in socket, place in a commercial tooth carrier or container of milk (if available). Otherwise, wrap in a saline or sterile water dampened sterile dressing.
EMT	Establish IV access if indicated.
EMT	Continue assessment & treatment per applicable protocol(s).
PARAMEDIC	Follow Pain Management protocol when indicated, go to M-1
PARAMEDIC	If dental pain suspected to be radiated from cardiac origin (e.g. jaw pain with sweating), perform 12-lead ECG.

Code: T-11 | **Title: Dental Injuries Protocol** **END**

References:

- STATE OF OKLAHOMA 2018 EMERGENCY MEDICAL SERVICES PROTOCOLS, Dental injury (10 C) page 269, 270
- State of New Hampshire Patient Care Protocols Version 8.0

Written By:

- Dr. Adel Arishi
- Dr.Sultan Zubaidy

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Traumatic Shock Protocol

Code: T-12 | **Title: Traumatic Shock Protocol** **START**

EMT	Follow General Patient Care Protocol go to G-1.
	Follow appropriate Trauma Protocols go to T-1 8 Keep patient supine.
	Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial preferred), follow hemorrhage Control Protocol T-6.
	Keep warm and prevent heat loss.
	Assess blood glucose and treat per protocol, follow M-5 & M-6
	Adult: Administer IV fluid in the form of boluses (e.g., 1000 mL) to return the patient to a coherent mental status or palpable radial pulse. In the setting of traumatic brain injury, however, fluids should be titrated to maintain systolic blood pressure greater than 110 mm Hg.
	Pediatric: Administer IV fluid bolus 10mL/kg by syringe method (may repeat to a maximum 60 mL/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
	Follow Hospital Bypass protocol As needed go to S-8.
PARAMEDIC	Consider tranexamic acid, follow Hemorrhage Control Protocol go to T-6. If tension pneumothorax is suspected, consider needle thoracostomy, follow P-9. If cardiac tamponade is suspected, rapid transport and treat arrhythmias, follow Cardiac Arrhythmia Protocols go to C-3 and C-4

Code: T-12 | **Title: Traumatic Shock Protocol** **END**

KEY POINTS :

- Hemorrhagic shock: Locations of blood loss include the chest, abdomen, pelvis, and multiple long bone fractures. Signs include pale, cool, clammy skin, tachycardia, and or hypotension.
- Neurogenic shock: May occur after an injury to the spinal cord disrupts sympathetic outflow resulting in unopposed vagal tone. Signs include warm, dry skin, bradycardia, and/or hypotension.
- US is playing a major role in a trauma patient, Please refere to US use in trauma patient.

References:

State of New Hampshire Patient Care Protocols Version 9.0

Written By:

- Dr. Wael Bunian
- Dr. Osama mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Abdominal & Pelvic Trauma Protocol

PARAMEDIC	EMT	Follow General Patient Care Protocol go to G-1.
		Stabilize head and neck in position found.
		Keep NPO (do not give anything by mouth).
		Control/stop any identified hemorrhage (direct pressure, wound packing, tourniquet etc.). Follow bleeding control protocol (T-6).
		Appropriately splint suspected fractures/instability as indicated.
		Stabilize impaled objects.
		Stabilize suspected pelvic fractures with sheet tied low around pelvis (or with commercial binder).
		Cover any exposed eviscerated organs with sterile moist saline gauze dressing prior to layering with dry dressing
		If patient has signs of shock, proceed to Traumatic Shock Protocol (T-12).
		Administer Oxygen if spo2 less than 94%, or as needed.
		Establish venous access above the waist (two lines) and use normal saline to KVO if SBP ≥ 100 without hypotensive symptoms.
		Administer normal saline fluid bolus 500 ml if SBP <100 mmHg with hypotensive symptoms and no signs of pulmonary edema, repeat up to 2 L NS if SBP remains <100 mmHg with hypotensive symptoms and no signs of pulmonary edema.
		Administer normal saline fluid bolus 10 ml/kg if SBP < (70 + 2x age in years) mmHg with hypotensive symptoms and no signs of pulmonary edema, repeat up to 60 ml/kg NS if SBP remains < (70 + 2x age in years) mmHg with hypotensive symptoms and no signs of pulmonary edema.
		For pregnancy 20 weeks or greater, place in left lateral position. If spinal motion restriction initiated, tilt spine board to the left.
		Manage pain and nausea, follow M-1+M-8 Protocols
	Connect the patient to cardiac monitor.	
	Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM. Go to Airway management protocol P-1.	
	Contact medical control for additional fluids.	

KEY POINTS:

• Significant intra-thoracic or intra-abdominal injury may occur without external signs of injury, particularly in children

References:

- STATE OF OKLAHOMA EMERGENCY MEDICAL SERVICES PROTOCOLS
- San Francisco EMS Protocols

Written By:

- Dr. Haitham Alhaiti

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Crush Injury Protocol

EMT

Follow General Patient Care Protocol go to G-1.

For signs/symptoms of shock, follow traumatic shock protocol T-12.

Control/stop any identified hemorrhage (direct pressure, wound packing, tourniquet etc.), follow bleeding control protocol T-6.

Evaluate for additional trauma, potentially masked by other painful injuries.

Establish IV/IO access,(or if indicated two lines if possible).

Initiate IV fluid 500 - 1000 mL bolus, followed by 500 mL/hr infusion (warm preferred), prior to extrication, if prolonged entrapment and extrication is difficult.

Initiate10-20 mL/kg IV fluid bolus, followed by 10 mL/kg/hr infusion (warm preferred), prior to extrication, if prolonged entrapment and extrication is difficult.

Extricate patient and transport him/her to a Trauma Center.

Do not delay transport, consider hospital destination per trauma triage protocol S-9, contact Medical Control.

Consider early ALS and/or Air Medical Transport.

PARAMEDIC

Perform cardiac monitoring and obtain 12 - lead ECG, if available.

Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM. Go to Airway management protocol P-1.

After thorough patient assessment, consider use of Pain and Nausea Management, follow M-1 +M-8 Protocols.

For significant crush injuries or prolonged entrapment, consider starting sodium bicarbonate 5 minutes prior to release:

Sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) IV/IO bolus over 5 minutes

Secondary to initial bolus, consider sodium bicarbonate infusion: 150 mEq in 1000 mL D5W at a rate of 250 mL/hr or 4 mL/min.

Sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) IV/IO bolus over 5 minutes.

Consider the following post extrication:

Monitor for dysrhythmias or signs of hyperkalemia before and after extrication.

If ECG suggestive of hyperkalemia, consider administering the following:

- Calcium gluconate 1 grams IV/IO over 10 minutes, may repeat in 10 minutes OR
- Calcium chloride 1 gram IV/IO over 10 minutes, may repeat in 10 minutes
- Albuterol continuous 10 - 20 mg nebulized

Calcium gluconate 100 mg/kg IV/IO with a maximum of 1 gm/dose, over 5 minutes; may repeat in 10 minutes OR

PARAMEDIC

Calcium chloride 1 gram IV/IO with a maximum of 1 gm/dose over, 5 minutes; may repeat in 10 minutes.

Albuterol nebulized as follow:

- < 25 kg 2.5 mg
- 25 -50 kg 5mg
- >50 kg 10 mg

Contact medical control for additional fluids or additional doses of above medications.

In the event that adequate fluid resuscitation is not available, consider applying a tourniquet on the affected limb and do not release until adequate IV fluids and/or medications are available

If extrication is prolonged > 1 hour, contact medical control for additional considerations prior to extricating the patient.

Code: T-14 | Title: Crush Injury Protocol **END**

KEY POINTS:

- If possible 0.9% NaCl should be administered prior to extrication.
- A patient with a crush injury may initially present with very few signs and symptoms, therefore, maintain a high index of suspicion for any patient with a compressive mechanism of injury.

References:

State of New Hampshire Patient Care Protocols Version 8.0

Written By:

- Dr. Haitham Alhaiti

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Saud Alshahrani
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Airway Management Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Assess for airway obstruction or risk of impending obstruction due to facial injuries, mass, foreign body, swelling, etc. Assess for presence/absence of gag reflex

Establish airway patency.

- Open the airway (Head Tilt-Chin-Lift/Jaw-Thrust).*
- Suction as needed.
- Clear foreign body obstructions, apply BLS maneuvers as indicated.

Consider patient positioning by placing padding under shoulders to ensure sternal notch and ear are at the same level.

Assess for adequate respiratory effort and impending fatigue/failure/apnea. Assess for accessory muscle use, tripod positioning, the ability of the patient to speak in full sentences.

Assess for difficulty of mask seal. Patients with facial hair, facial fractures, obesity, no teeth, pregnancy, extremes of age, and pathologically stiff lungs (COPD, acute respiratory distress syndrome, etc.) may require special mask techniques or alternatives.

Observe in pediatric for fatigue, decreased mentation, and respiratory failure.

If patient has a tracheostomy tube, follow the tracheostomy obstruction protocol P-16

Titrate oxygen saturation to 94% - 98%.

For patients with chronic lung disease, maintain or increase home oxygen level to patient's target saturations

Consider inserting an oropharyngeal and/or nasopharyngeal airway as indicated (see protocol oropharyngeal and/or nasopharyngeal).

Assist ventilations with a bag-valve-mask device and supplemental oxygen as needed.

For adult Cardiac Arrest: consider insertion of a supraglottic airway

For respiratory distress:

- Administer high concentration oxygen (preferably humidified) via mask positioned on face or if child resists, held near face.
- Titrate oxygen saturation to 94% - 98%; observe for fatigue, decreased mentation, and respiratory failure.
- For children with chronic lung disease or congenital heart disease, maintain or increase home oxygen level to patient's target saturations

PARAMEDIC / EMT	For respiratory failure or for distress that does not improve with oxygen administration: • Assist ventilations at rate appropriate for child's age. • If unable to maintain an open airway through positioning, consider placing an oropharyngeal and/or nasopharyngeal airway. Determine if child's respiratory distress/failure is caused by a preexisting condition: • For Allergic Reaction/Anaphylaxis, follow to the Allergic Reaction/Anaphylaxis protocol • For Asthma/Reactive Airway Disease/Croup follow respiratory distress protocol For Pediatric Cardiac Arrest: consider insertion of a supraglottic airway; see procedures follow supraglottic airway protocol P-20
	The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used.
	For adults in severe respiratory distress (Asthma/COPD/Pulmonary Edema/ Near Drowning) consider use of CPAP/ BiPAP and follow the appropriate protocol P-12.
	For pediatrics in severe respiratory distress due to asthma consider use of CPAP.
	For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation
	For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider supraglottic airway device or intubation
	For adults with immediate, airway compromise where respiratory arrest is imminent and other methods of airway management are ineffective: consider Rapid Sequence Intubation, follow Rapid Sequence Intubation Protocol P-13
	If feasible for adults and pediatrics, place an orogastric tube to decompress the stomach.
	If you cannot establish an airway or ventilate consider Cricothyrotomy

KEY POINTS:

- Contraindication for head tilt chin lift.

References:

State of New Hampshire Patient Care Protocols Version 8.0.

San Francisco EMS Protocols

Written By:

- Dr. Murad Salem
- Dr. Abdulaziz alhaddab

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Difficult Airway Protocol

Code: P-2 | **Title: Difficult Airway Protocol** **START**

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Maintain Grading of the patient's airway (see below for figure 1 and 2).

For foreign body, Follow airway obstruction protocol R-6

Continue Bag-Valve-Mask (BVM) management with supplemental oxygen with oropharyngeal or nasopharyngeal adjuncts, (OPA or NPA) in place.

If BVM failure is the result of a manageable cause (Not properly positioning the airway, pushing the mask into the face, pushing the mask down on the face, Not maintaining an effective seal, Over-ventilating and hyperventilating) Apply countermeasures if applicable.

If the patient can be ventilated, but the airway is unstable insert the supraglottic device.

For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation follow nasotracheal intubation protocol P-19.

For patient with immediate, severe airway compromise where respiratory arrest is imminent and other methods of airway management are ineffective: consider Rapid Sequence Intubation P-13.

If the airway is unstable and the adult patient cannot be ventilated, and if approved to do so, consider Needle Cricothyrotomy.

Code: P-2 | **Title: Difficult Airway Protocol** **END**



figure 1

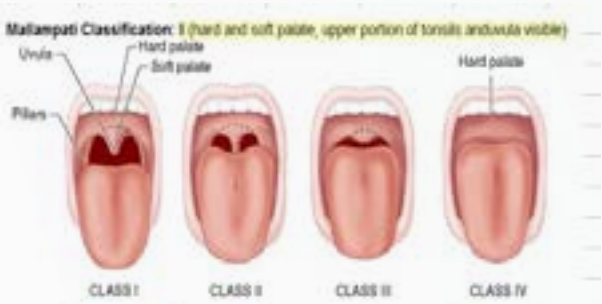


figure 2

KEY POINTS:

The Difficult Airway protocol is to be used only after conventional attempts at airway management have failed and the patient cannot be ventilated by ordinary means such as with the insertion of an oral or nasal pharyngeal airway and bag-valve mask ventilation or by insertion of a supraglottic airway device. The patient care report must include all attempts at airway management, including failed attempts in order to illustrate the need for the use of this protocol.

References:

- State of New Hampshire Patient Care Protocols Version 8.0.
- San Francisco EMS Protocols.

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Mechanical CPR devices Protocol

PARAMEDIC / EMT

Follow General Patient Care Protocol go to G-1.

During use the device, CPR shall continue to be performing in accordance with Cardiac Arrest protocols.

Do not delay manual CPR for the device. Continue manual CPR until the device can be placed.

If properly trained, use mechanical cardiopulmonary resuscitation device.

Indication:

- When a decision is made by Paramedics or Base Physician to transport a cardiac arrest patient with CPR in-progress, following prior initiation of CPR on scene
- Cardiac arrest patients located in a confined space
- Applied to ROSC patients for use if pulses are lost during extrication or transport
- Other circumstances where use has been approved by online medical control
- STEMI patients authorized by online medical control

Contraindications:

- Patients<12years
- If it is not possible to position the device safely or correctly on the patient's chest
- Patients who do not fit within the device:
- Lucas device:
  - The patient is too small: you cannot press the pressure pad down 2 inches
  - The patient is too large: you cannot pull the pressure pad down to touch the sternum

Procedure

1. Please follow manufacturer's instructions. https://www.lucas-cpr.com/-files/5496926_100925-01%20Rev%20E%20LUCAS%203%20IFU%20EN_lowres.pdf

KEY POINTS:

• This protocol to establish standards for the use of a chest compression and cardiac catheterization lab capable mechanical CPR device. In each step of application, minimizing interruptions in compressions is paramount.

• All therapies related to the management of cardiopulmonary arrest should be continued as currently defined.

• Initiate resuscitative measures following protocol – Do not delay manual CPR for the device. Continue manual CPR until the device can be placed.

• **Lucas device:**

- Defibrillation can and should be performed with the LUCAS device in place and in operation
- One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position.
- The pads and wires should not be underneath the suction cup
- If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes.
- If the rhythm strip cannot be assessed during compressions, one may stop the compressions for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm).
- Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume compressions while the defibrillator is charging and then the defibrillator should be discharged.

• **NOTE:** Do not stop the device for more than 10 seconds after at least 2 minutes of compressions per American Heart Association's (AHA) CPR guidelines. Intravenous cannulation, endotracheal intubation, or any other procedure should either be attempted during chest compressions or during the 10 second pause. Approved alternatives to those procedures, such as intraosseous infusion and a BLS airway (example: Supraglottic airway device) should be considered. Cardiac defibrillation should be attempted during a 10 second pause.

References:

- San Francisco Protocol
- Dane County Protocol
- Northwest Community Emergency Medical Services

Written By:

- Dr. Murad Salem
- Dr. Abdulaziz Alhaddab
- Dr. Yousef Alsofayan

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

High Quality CPR Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Follow current Saudi Heart Association recommendations for cardiac arrest management, follow cardiac arrest protocol as appropriate go to R-1 or R-4 or R-5.

Perform Immediate chest compressions at a rate of 100-120 per minute.
Do compression depth of at least 5 cm (2 inch) in adults, and at least 1/3 the A/P dimension of the chest in infants and children.

Allow complete chest recoil after each compression.

Use AED as soon as possible with minimal interruption of chest compressions.

Continue 2-minute cycles of uninterrupted chest compressions followed by AED analysis and shock for 3 cycles (6 minutes)

If properly trained, use mechanical cardiopulmonary resuscitation device.

Place an oral or nasal airway.
If properly trained, insert a supraglottic airway device, see SGA protocol

Ventilation / oxygenation options during 3 cycles (6 minutes):

- BVM ventilation during recoil and without interrupting compressions, OR
- If part of a care bundle, apply high flow oxygen via NRB

After 3 cycles (6 MINUTES):

- Continue 2-minute cycles of uninterrupted chest compressions
- If passive insufflation was used, switch to BVM ventilation.

Avoid excessive ventilation.

Switch compressors at least every two minutes to minimize fatigue.

Perform chest compressions while defibrillator is charging and resume compressions immediately after the shock delivered.

Place IV/ IO without interrupting chest compressions

If utilizing a BVM, monitor quantitative waveform capnography throughout resuscitation to assess CPR quality and to monitor for signs of return of spontaneous circulation (ROSC).

Provide manual defibrillation as indicated after each 2-minute cycle.

After 4 cycles (8 minutes):
Consider endotracheal intubation or use an alternative airway without interrupting chest compressions.

If authorized and trained Paramedics may use mechanical ventilators in rate control mode with the following settings:

- Rate of 8-12 breaths per minute

PARAMEDIC

- Tidal volume 300-500mL
- Start at FiO2 1.0 (100%) then titrate to maintain SpO2 > 94% (88-92% for COPD patients)
- Relief pressure 45-60 cmH2O

Consider mechanical ventilator following the initiation of respiratory component at least 8 minutes after start of resuscitation even if ROSC has occurred

Code: P-4 | **Title: High Quality CPR Protocol** **END**

KEY POINTS:

- Only for arrests of Cardiac etiology:

o Perform 2 minutes cycles of uninterrupted chest compressions

o Interrupt chest compressions only after each 2-minute cycle for 10 seconds only.

o Follow current SHA recommendations for cardiac arrest management.

- For primary respiratory etiology, ventilate immediately as part of CPR.
- It is expected, unless special circumstances are present, initial 6 minutes of resuscitation will be performed on scene.
- Early CPR and defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Recognizing the goal of immediate uninterrupted chest compressions, consider delaying application of mechanical CPR devices until after the first three cycles (6 minutes). If applied during the first 3 cycles, the goal is to limit interruptions. Mechanical devices should only be used by services that are practiced and skilled at their application.

References:

Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1

Written By:

- Dr. Murad Salem
- Dr. Yousef Alsufayan

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Urethral Catheterization Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

Indications:

• Urinary retention

Contraindications:

• Inability to observe aseptic technique

• Structural abnormality in the urethra or urinary tract

• Trauma patient with suspected urethral injury as evidenced by:

- Blood at the urethral meatus
- High-riding prostate on rectal examination
- Penile, scrotal, perineal hematoma
- Postoperative urological patients.

Considerations:

• Verify that the patient is not allergic to latex, iodine, or betadine. A silicone catheter should be used if sensitivity exists. Hibiclens may be used as an alternative to iodine or betadine.

• If patient discomfort noted with inflation of balloon, consider the catheter to be in the urethra. Deflate the balloon and advance the catheter.

• If catheter insertion is in question (no urine return or unable to fully insert the catheter in males), do not inflate the balloon.

• If resistance is met do not attempt forceful catheter insertion; apply continuous gentle pressure while instructing the patient to void to open the sphincter.

Preparation:

• Select the smallest appropriate sized urethral catheter for insertion. Size 12–14F is usually adequate for males and females.

• If genitalia visibly soiled, clean are using non-sterile gloves. Remove gloves and sanitize hands with a hand sanitizing solution.

• Don protective eyewear.

• Using aseptic technique, open the outer plastic wrap to form a sterile field and place the under pad beneath the patient, plastic side down.

• Apply sterile gloves; observe strict sterile technique until completion of procedure, and inspect the catheterization kit to ensure its contents are complete and free of defects.

• Position the sterile drape around the patient's genitals and clean the periurethral region.

PARAMEDIC

• Before insertion, dispense the lubricating gel into the kit tray, pour cleansing solution over three cotton balls, and remove the plastic sleeve for the catheter, and, if applicable, lock the sterile water syringe into the port.
• Using the dominant hand, cover 2-5 cm of the tip of the catheter with lubricant
• Use a copious intraurethral lubrication including a topical anesthetic (2% lidocaine jelly).

Technique:

• Female Catheter Insertion:

- Position the patient in the supine position with legs apart and feet together, the lower extremities are frog-legged to maximize exposure of the periurethral region, and Adequate lighting is essential.
- Separate the labia using the non-dominant hand to facilitate cleansing the periurethral region and viewing the urethral meatus. The gloved dominant hand is used to place the catheter into the urethral meatus and steady gentle pressure used to advance the catheter.
- Use sterile forceps to grasp one cotton ball, wipe one side of the labia from top to bottom, and discard the cotton ball away from the sterile field.
- Repeat on the opposite side and then wipe down the middle using the third cotton ball. Wipe the area dry with the dry cotton balls.
- Insert the catheter approximately three inches, wait for return of urine, and then advance another 1 inch.
- The catheter should be inserted to the flared portion of the catheter.
- Inflate catheter balloon slowly with sterile water.
- For the unconscious female or those with decreased sensation, insert the catheter slightly further than 3 inches to ensure placement is in the bladder.

• Male Catheter Insertion:

- Position into a supine position.
- Retract the foreskin, if present, and hold the shaft of the penis firmly with the non-dominant hand, and apply tension directed toward the ceiling, straightening the urethra.
- The gloved dominant hand is used to place the catheter into the urethral meatus and steady gentle pressure used to advance the catheter. When a coudé catheter is used, the curved tip of the catheter should be oriented toward the dorsal surface of the penis.

- Use sterile forceps to grasp one cotton ball, wipe the glans from the meatus outward using a circular motion, and then discard the cotton ball away from the sterile field.
- Repeat with two more cotton balls. Wipe the area dry with the dry cotton balls.
- Grasp the penis in an upright position and insert the lubricated catheter to the bifurcation of the catheter.
- When the catheter tip approaches the external sphincter in men, resistance will be felt. It is often helpful to pause momentarily to let the sphincter relax before continuing insertion.
- The catheter should be inserted to the flared portion of the catheter.
- Inflate the balloon slowly with sterile water. Withdraw the catheter slowly to the point of resistance at the bladder neck.

• The balloon is inflated with sterile water only after the flow of urine is seen. Saline should not be used to inflate the balloon, because crystal formation may obstruct the balloon channel and prevent balloon deflation.

• Once the balloon is inflated, the catheter is withdrawn until slight resistance is felt.

• Connect catheter to a drainage system then secure the catheter to the patient's thigh to prevent movement and irritation, as well as decrease risk of infection.

• Position the bag to avoid urine reflux into the bladder, kinking, or gross contamination of the bag. Evaluate catheter function and amount, color, odor, and quality of urine.

• Document size of catheter inserted, amount of water in balloon, patient's response to procedure, and assessment of urine.

Key Points:

- If no urine is obtained, an assistant can be asked to apply gentle pressure to the suprapubic region, which may initiate urine flow. In women, the insertion site of the catheter is examined; vaginal catheterization may have occurred. If this is the case, the catheter is removed and a new sterile catheter used.
- If the patient complains of pain during catheter insertion, the catheter should be removed. If blood appears at the meatus or on the tip of the catheter, a urethral injury may have occurred. The procedure is abandoned.
- Both indwelling and intermittent urethral catheters are placed in a similar fashion. The catheter used for intermittent catheterization is easier to insert; it is less bulky at the tip because there is no balloon. While indwelling catheter placement is always performed with sterile technique, intermittent catheterization can be performed with either sterile or non-sterile, clean technique.
- A typical urethral catheterization kit, it must include sterile gloves, drapes, antiseptic solution and sponges for periurethral cleansing, a single-use lubricant gel packet, urinary catheter, 5 mL syringe filled with sterile water for balloon inflation, and urine drainage system.

References:

- Tintinalli's Emergency Medicine Manual 8th Edition
- www.uptodate.com
- STATE OF OKLAHOMA 2018 EMERGENCY MEDICAL SERVICES PROTOCOLS

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Cardiac Pacing Protocol

PARAMEDIC

Follow General Patient Care go protocol to G-1

Indication:

1. Persistent bradycardia typically <50 bpm, causing one or more of the following:

a. Altered mental status

b. Hypotension (Systolic <90mmHg)

c. Signs of shock

d. Chest pain

2. When IV/IO access may be delayed/unavailable OR

3. Bradycardia in heart transplant patients.

Contraindications:

1. Severe Hypothermia

2. Asystole

Procedure:

1. Identify an indication for transcutaneous pacing.

2. Consider Sedation Protocol as appropriate. Follow pain management protocol (M-1)

3. Attach standard cardiac monitor.

4. Place pacing electrodes on the chest according to package instructions. (One pad to left mid chest next to sternum, one pad to left mid posterior back next to spine).

5. Apply pads to clean, dry skin according to manufacturer's instructions: (Use pediatric pacing pads if weight < 10 kg)

6. Turn the unit on.

7. Observe the monitor to determine the rhythm [LEAD II].

8. Place defibrillator in the pace mode, as specified by manufacturer

9. Adjust pacing rate to:

• Patient >12-year-old: 60-80bpm (ideally >30 bpm above patient's initial rate).

• Patient <12-year-old: 100 bpm

This rate can be adjusted up or down (based on patient clinical response) once pacing is established.

10. Note pacer spikes on ECG screen

11. Set initial current at Zero mA, slowly increase mA (Max 120 mA) until pacing spike precedes each QRS. This represents electrical capture.

12. If capture observed on monitor, check for corresponding pulse and assess vital signs.

13. Confirm mechanical capture by checking for pulses.

14. If unable to capture while at maximum current output, stop pacing immediately.
15. Reassess patient for signs of improved perfusion. If no improved perfusion or mechanical capture - discontinue pacing.
16. Modify the current as needed to maintain effective pacing with both electrical and mechanical capture.
17. Document the dysrhythmia and the response to external pacing with ECG strips in the electronic Patient Care Report (EPCR).

KEY POINTS:

• The authorization of transcutaneous pacing is at the sole discretion of the Medical Direction Authority and must be appropriately documented when used.

• Most sedation/analgesia medications worsen hypotension

• Mechanical capture occurs when paced electrical spikes on the monitor correspond with palpable pulse

- Video explanation: https://www.emrap.org/episode/emrap2023may/transcutaneous

References:

- BLUE RIDGE EMERGENCY MEDICAL SERVICES COUNCIL
- SOUTHERN ARIZONA EMERGENCY MEDICAL SERVICES COUNCIL
- Dane county protocols
- FASTLANE
- EM-RAP

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Intravenous access Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Prepare All Procedure Specific Materials:

- Appropriate tubing or IV lock
- 14-24 catheter over the needle, or butterfly needle
- Venous tourniquet
- Antiseptic swab
- Gauze pad or adhesive bandage
- Tape or commercially available securing device

Use the largest catheter bore necessary based upon the patient's condition and size of veins

Fluid and set up choice is preferably:

Normal Saline with macro drip (10 drops/mL) for medical/trauma conditions

Normal Saline with a micro drip (60 drops/mL) for medication infusions or for patients at risk of fluid overload.

Assemble IV solution and tubing:

- Open IV bag and check for clarity, expiration date, etc.
- Verify correct solution
- Open IV tubing and assemble according to manufacturer's guidelines

Insertion:

- Explain to the patient that an IV is going to be started
- Place the tourniquet around the patient's arm proximal to the IV site, if appropriate
- Palpate veins for resilience
- Clean the skin with the antiseptic swab in an increasing sized concentric circle and follow it with an alcohol swab
- Stabilize the vein distally with the thumb/fingers
- Enter the skin with the bevel of the needle facing upward
- Enter the vein, obtain a flash, and advance the catheter into the vein while stabilizing the needle
- Remove the needle while compressing the proximal tip of the catheter to minimize blood loss
- Remove the tourniquet
- Connect IV tubing to the catheter, or secure the IV lock to the catheter to minimize blood loss

PARAMEDIC | EMT

•Open the IV clamp to assure free flow (no infiltration, pain, etc) and set infusion rate

• Secure the IV catheter and tubing

• Recheck IV drip rate to make sure it is flowing at appropriate rate

Trouble shoot the IV, (if the IV is not working well):

• Make sure the tourniquet is off

• Check the IV insertion site for swelling

• Check the IV tubing clamp to make sure it is open

• Check the drip chamber to make sure it is half full

• Lower the IV bag below IV site and watch for blood to return into the tubing

Code: P-7 | **Title: Intravenous access Protocol** **END**

References:

Dane County Protocols

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Intraosseous access Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

Indication:

Drug or fluid resuscitation of a patient in need of immediate life-saving intervention and unable to rapidly obtain peripheral IV access and May be used as a primary vascular device in cardiac arrest.

Contraindications;

- Placement in or distal to a fractured bone.
- Previous intraosseous insertion or Placement near prosthetic limb, joint or orthopedic procedure.
- Placement at an infected site.
- Inability to find landmarks.

Complications:

- Incorrect identification of landmarks
- A bent needle (more common with longer needles)
- Clogging of the needle with marrow, clot or bone spicules. -Can be avoided by flushing the needle or continuous infusion
- Through and through penetration of both anterior and posterior cortices caused by excess force after the needle has penetrated the cortex.
- Subcutaneous or subperiosteal infiltration, caused by incomplete placement or dislodgement of needle.
- Fractures caused by excess force or fragile bones.
- Compartment syndrome
- Infusion rate may not be adequate for resuscitation of ongoing hemorrhage or severe shock, extravasation of fluid, fat embolism, and osteomyelitis (rare).

Equipment:

- 15 – 25-gauge bone marrow needle or FDA-approved commercial intraosseous infusion device.
- Povidone-iodine or chlorhexidine solution and gloves.
- Primed IV tubing, IV stopcock, solution.
- 10 ml syringe with 0.9% NaCl.
- Pressure pump/bag or 60 ml syringe for volume infusion or slow push.
- 1 vial of 2% lidocaine (preservative free).
- 5 mL syringe.

Select the appropriate insertion site and palpate the appropriate bony landmarks to identify the site of insertion:

Anterior Tibia: Anteromedial aspect of the proximal tibia (bony prominence below the kneecap). The insertion location will be 1-2cm (2 finger widths) below this

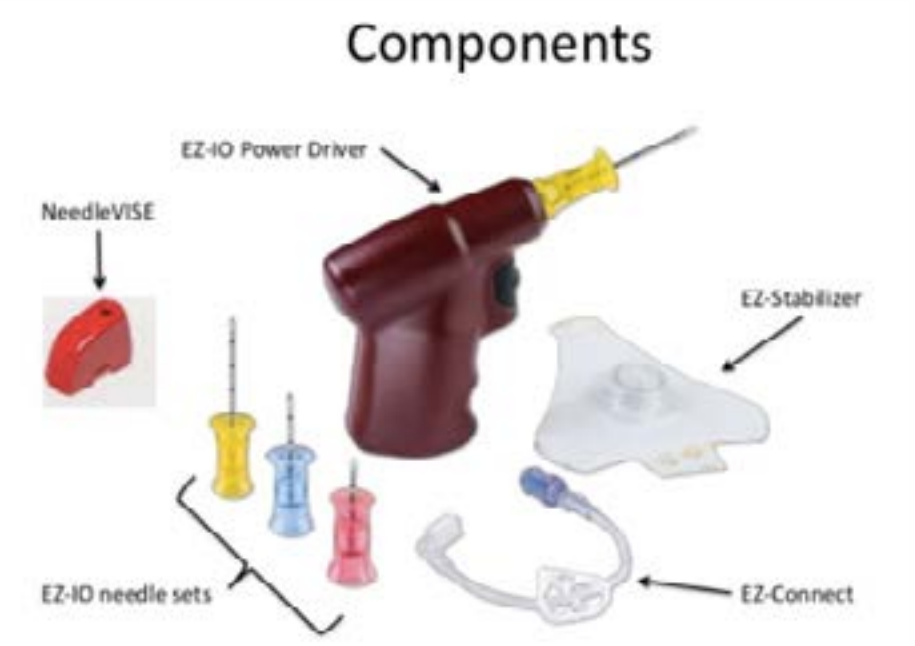
Proximal Homarus (Hand Over Umbilicus Technique): Keeping the elbow flat on the floor and close to the side of the body, rotate the palm over the umbilicus (belly button) and palpate the greater tubercle of the humerus. The insertion location will be 1-2cm (2 finger widths) above the surgical neck.

Proximal Humerus ("Thumb-to-Bum" Technique): With the arm fully extended and tight to the body, rotate the hand medially (inward) until the palm is facing out. Palpate the greater tubercle of the humerus approximately 1-2cm (2 finger widths) above the surgical neck.

Device insertion:

Powered Intraosseous Device (EZ-IO):

1. Hold the intraosseous needle at a 90o degree angle to the bony surface, aimed away from the nearby joint and epiphyseal plate.
2. Provide pressure to push the needle tip through the skin until resistance form the bone is felt.
3. Power the driver until a "pop" or loss of resistance is felt.
4. Do not advance more than 1cm after the loss or resistance is felt.



PARAMEDIC

Procedure:

1) Place the patient in a supine position.
2) Identify the bony landmarks as appropriate for device.
3) Prep the site. Cleanse the site with chlorhexidine, iodine or alcohol prep pad
4) Needle is appropriately placed if the following are present:

- Aspiration with syringe yields blood with marrow particulate matter.
- Infusion of saline does not result in infiltration at the site.
- Needle stands without support.

5) Attach IV tubing, with or without stopcock.
6) For alert patients prior to IO syringe bolus (flush) or continuous infusion:

- Ensure that the patient has no allergies or sensitivity to lidocaine.
- If using an extension tubing without stopcock, prime with lidocaine 2% (preservative free).
- SLOWLY administer lidocaine 2% (preservative free) through the IO device catheter into the medullary space.
- Allow 2 – 5 minutes for anesthetic effects, if feasible:

- Adult: 1 – 2.5 ml (20 – 50 mg) 2% lidocaine.
- Pediatric: 0.5 mg/kg 2% lidocaine.

7) Flush with 10 ml of 0.9% NaCl rapid bolus prior to use:

- Use of a stop cock inline with syringe for bolus infusions.
- Use a pressure bag for continuous 0.9% NaCl infusions.
- Infuse emergent pressors using an IV pump.

8) Stabilize needle:

- Consider utilizing a commercially available stabilization device as recommended by the manufacturer, OR
- Stabilize needle on both sides with sterile gauze and secure with tape (avoid tension on needle).

KEY POINTS:

• The PROXIMAL HUMERUS is contraindicated in patients <18years old, unless authorized by Medical Control

References:

- Dane County Protocol

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Needle Thoracostomy Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1.

Indication:

Tension Pneumothorax: Air leak into pleural space through a hole in lung, acting as a one-way valve.

Assessment suggest tension pneumothorax by the following:

- Decreased breath sound, uni-or bilaterally
- Tracheal shift away from affected side
- Extreme dyspnea
- Neck vein distension
- Agitation
- Possible cyanosis
- Persistent Hypotension
- Hyper resonance to percussion

Location:

- PREFERRED: 4th or 5th intercostal space, mid-axillary, on the affected side.
- ALTERNATE: 2nd intercostal space in the mid-clavicular line on the affected side.

Equipment:

- 10-gauge angiocath or other appropriate 14 gauge over the catheter needle.
- Large syringe

OR

Heimlich valve or similar one-way valve device.

Procedure:

1. Maintain airway and administer oxygen by non-rebreather face mask at 15 LPM.
2. Expose the entire chest.
3. Clean the affected side
4. Introduce either angiocath or other appropriate over the catheter needle (attached to large syringe) just above the rib margin during expiration.
5. Continue until lack of resistance or "pop" as needle enters pleural space.
6. Once air returns under pressure or is aspirated with ease

a) Remove plunger.

b) Listen for air escaping.

7. Once air has ceased escaping:

a) Remove syringe barrel from needle.

b) Advance the catheter.

c) Secure catheter with needle guard or tape.

d) Attach one-way valve device or Heimlich valve with BLUE end toward patient.

PARAMEDIC | EMT

8. Reassess lung sounds, pulses, tracheal deviation and patient clinical condition
9. Dress area with occlusive dressing then cover with sterile gauze pad
10. Reassess breath sounds and respiratory status
11. Document Procedure, patient response, Vital signs and change in clinical condition in the electronic Patient Care Report

Code: P-9 | **Title: Needle Thoracostomy Protocol** **END**

Key Points:

- Confirmation of a successful decompression would include improved hemodynamic status with improved respiratory effort, improved ETCO2 and/or pulse oximetry, equal rise & fall of the chest, clear bi-lateral breath sounds.
- Tension pneumothorax is rare, but when present it must be treated immediately.
- Non-tension pneumothorax is relatively common, is not immediately life threatening and should not be treated in the field.
- Positive pressure ventilation may lead to the development of a pneumothorax and to rapid progression to tension pneumothorax.
- A needle decompression performed on a patient without a pneumothorax will cause a pneumothorax.

References:

- San Francisco EMS Protocols

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Delivery Protocol

- 3rd trimester bleeding: vaginal bleeding occurring ≥ 28 weeks of gestation.
- Preterm labor: onset of labor/contractions prior to the 37th week of gestation
- Malpresentation: presentation of the fetal buttocks or limbs.
- Prolapsed umbilical cord: umbilical cord precedes the fetus.
- Shoulder dystocia: failure of the fetal shoulder to deliver shortly after delivery of the head.
- Postpartum hemorrhage: Active bleeding after birth up to 6 weeks post-partum.
- Pre-eclampsia/Eclampsia: BP> 160/100, severe headache, visual disturbances, edema, RUQ pain, seizures

PARAMEDIC	EMT	Follow General Patient Care Protocol go to G-1.
		Obtain obstetrical (OB) history
		Administer oxygen to maintain pulse oximetry >95%. Administer 15 L/M non-rebreather mask for any abnormal delivery.
		Establish bilateral large bore IV, particularly in cases of abnormal delivery or excessive bleeding.
		If shock present, treat According to non-traumatic Shock Protocol M-16.
		If not pushing or bleeding, transport in left lateral recumbent position.
		For Normal Delivery:
		Follow clean technique.
		Guide and control delivery: With palm of hand, apply gentle perineal pressure for a slow, controlled delivery.
		As the baby's head begins to emerge support the head as it turns. Do not pull on head.
		Suction mouth (not throat), then nose with bulb syringe after head delivers and before torso delivers.
		Check for cord around the neonate's neck when head is visible and after suctioning. If possible, remove the cord from around the neck.
		Guide the baby's head downward to allow delivery of the upper shoulder. Then guide the baby's head upward to allow delivery of the lower shoulders.
		Delivery of trunk and legs occurs quickly; be prepared to support infant as it emerges.
		The cord is clamped and cut.
		Clamps should be placed 4 or 5 cm apart, with the proximal clamp 10 cm from the infant's abdomen.

PARAMEDIC	EMT	
		Protect neonate from falls and temperature loss, wrap neonate in clean or sterile blanket.
		Check neonate's vital signs: if compromised initiate resuscitation, Follow neonatal resuscitation protocol go to R-5.
		Give neonate to mother, allow to nurse if mother wishes (aids in contracting uterus).
		If excessive maternal bleeding, massage uterus gently and proceed to Shock Protocol.
		Transport immediately, do not wait for placenta to delivery.
		If placenta delivers spontaneously, bring to hospital.
		Determine APGAR score at birth and five minutes later
		Monitor neonate and mother and ensure neonate remains warm.
		If obstetrical complication is present such as breech presentation, consider contacting Medical Control and transport to nearest appropriate hospital.

Code: P-10 | Title: Delivery Protocol **END**

Key Points:

- Do not delay transport particularly for patients with previous cesarean section, known imminent multiple births, abnormal presenting parts, excessive bleeding, and premature labor.
- In case of prolapsed umbilical cord, place the mother in Trendelenburg or knee chest position. Elevated presenting body part to relieve pressure on the cord and keep the cord moist with saline gauze if it is exposed. Do not delay transport.
- If thick meconium is present, aggressively suction and consider intubation for neonate. See neonatal resuscitation protocol go to R-5.
- If a non-viable premature fetus is delivered and the fetus is available, place the fetus in a clean container and transport to the hospital with the mother. Remember to treat the fetus with the same respect as to treat any deceased patient.

APGAR SCORE:

	Sign	2	1	0
A	Appearance (skin color)	Normal over entire body	Normal except extremities	Cyanotic or pale all over
P	Pulse	>100 bpm	<100 bpm	Absent
G	Grimace (reflex irritability)	Sneezes, coughs, or vigorous cry	Grimaces	No response
A	Activity (muscle tone)	Active	Arms and legs flexed	Absent
R	Respirations	Good, crying	Gasping, irregular	Absent

References:

- State of New Hampshire Patient Care Protocols Version 8.0
- ALABAMA EMS PATIENT CARE PROTOCOLS EDITION 9.01

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani
- Dr. Osama Alqarni

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Mass casualty Protocol

PARAMEDIC

EMT

A mass casualty incident (MCI) is an incident where the number of patients exceeds the amount of healthcare resources available.

The initial triage process should be performed by the first crew to arrive on scene and needs to be continuously reevaluated since the patient's triage status may change.

Maintain universal blood and body fluid precautions. Follow body surface isolation protocol G-2

The initial response team should assess the scene for potential hazards, safety, and number of victims to determine the appropriate level of response. Follow scene size up protocol G-3.

Notify the dispatch to declare an MCI and need for overwhelming response as defined by incident level. The dispatch should coordinate request for additional resources.

Identify and designate the following positions as qualified personnel become available:

- EMS Command responsible for overall command of all EMS resources and tactics.
- Triage Officer responsible for overseeing all triage group activities.
- Treatment Officer responsible for overseeing all treatment group activities.
- Staging Officer responsible for overseeing staging of all arriving ambulances and other mobile EMS resources.
- Loading Officer responsible for overseeing loading of all treated patients into ambulances, buses and helicopters and logging patient info, tag numbers and coordinating hospital destinations with medical direction.

Saudi red crescent authority in general using START adult triage and compatible tagging methods (see algorithm below)

For pediatrics patients (less than 14 year), Saudi red crescent is using JumpSTART pediatrcis triage (see algorithm below).

START triage categories:

RED tag -> Immediate: Immediately life-threatening problems, high potential for survival

YELLOW tag -> Delayed: Serious (not minor) injuries requiring care but management can be delayed without increasing morbidity or mortality

GREEN tag -> Minimal: Injuries require minor care or no care

PARAMEDIC

EMT

BLACK tag -> Expectant: Unlikely to survive given available resources.

Assess the first patient you encounter using the three objective criteria which can be remembered by RPM.

R: Respiratory

P: Perfusion

M: Mental Status

JumpSTART – Breathing

If breathing spontaneously, go on to the next step, assessing respiratory rate.

If apneic or with very irregular breathing, open the airway using standard positioning techniques.

If positioning results in resumption of spontaneous respirations, tag the patient immediate (Red tag) and move on.

If no breathing after airway opening, check for peripheral pulse. If no pulse, tag patient deceased (Black tag) and move on.

If there is a peripheral pulse, give 5 mouth to barrier ventilations. If apnea persists, tag patient deceased (Black tag) and move on.

• If breathing resumes after the "jumpstart", tag patient immediate (Red tag) and move on.

JumpSTART – Respiratory rate

If respiratory rate is 15-45/min, proceed to assess perfusion.

If respiratory rate is <15 or >45/min or irregular, tag patient as immediate and irregular, tag patient as immediate (Red tag) and move on.

JumpSTART – Perfusion

If peripheral pulse is palpable, proceed to assess mental status.

If no peripheral pulse is present (in the least injured limb), tag patient immediate (Red tag) and move on.

JumpSTART – Mental status

Use AVPU scale to assess mental status.

If Alert, responsive to Verbal, or appropriately responsive to Pain, tag as delayed (Yellow tag) and move on.

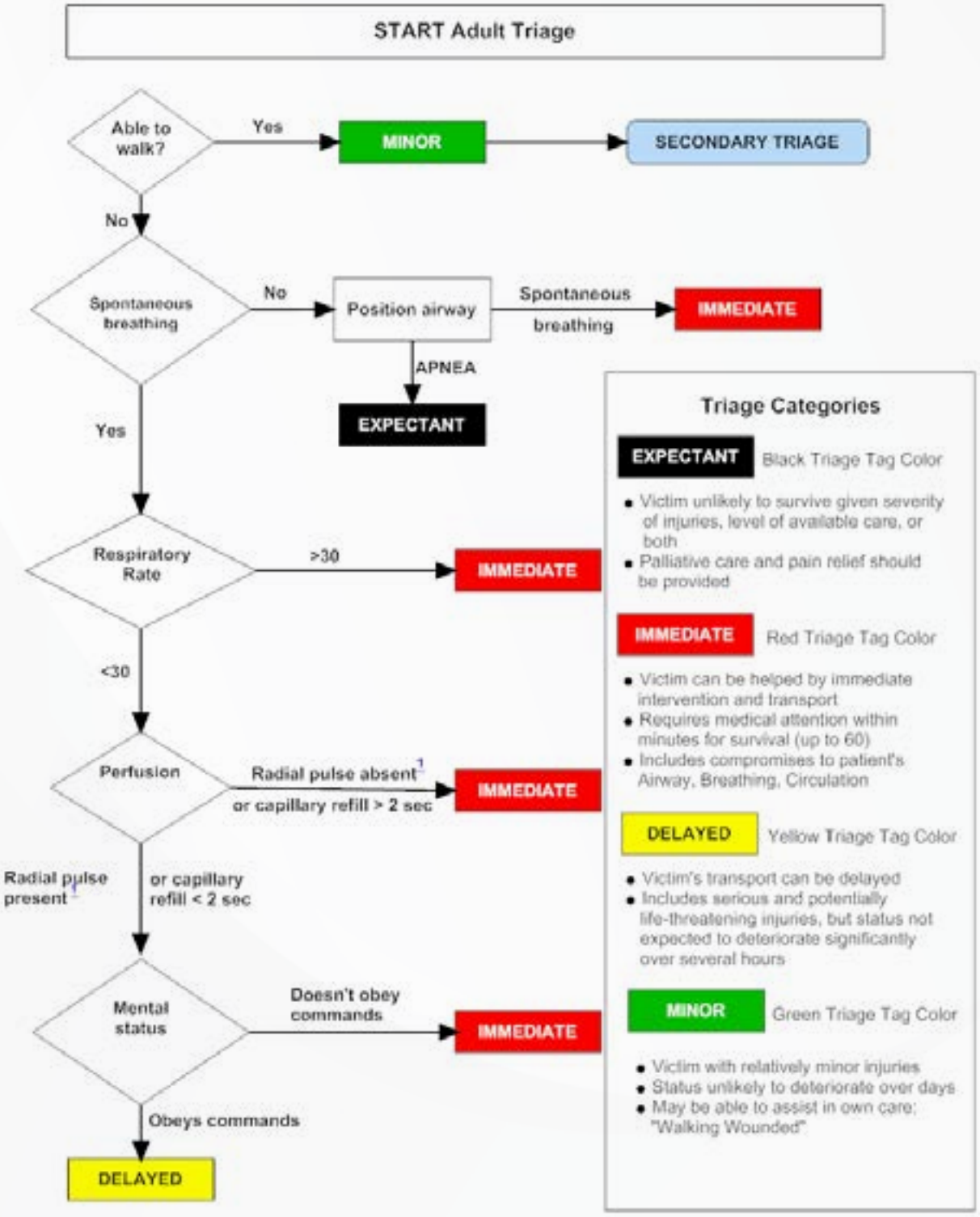
If inappropriately responsive to Pain or Unresponsive, tag as immediate (Red tag) and

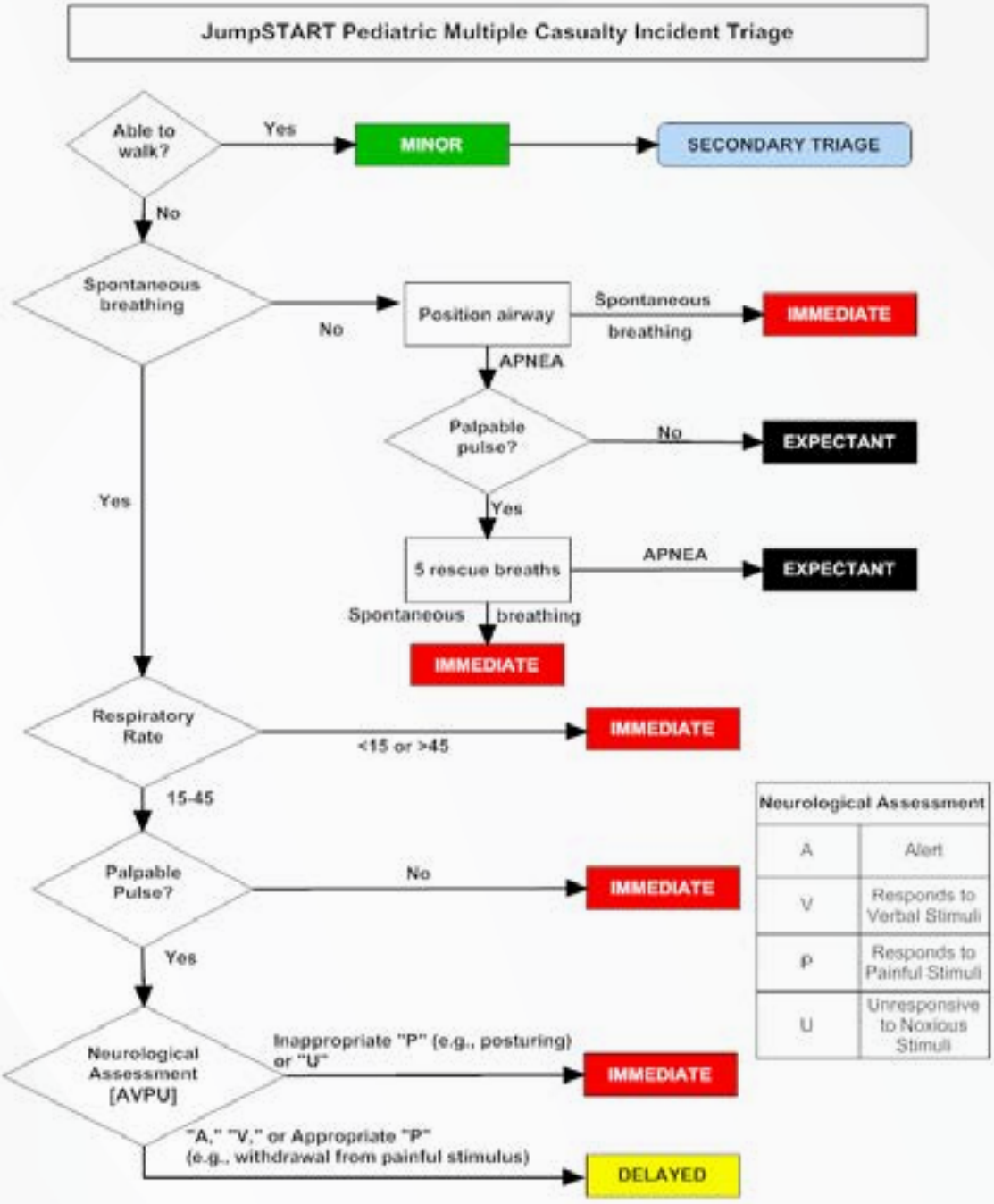
move on.

move on.

KEY POINTS:

• All EMT level personnel will eventually be involved in the management of an MCI. It is imperative that all EMTs implement the above incident command system (ICS) in all MCI situations. Every EMT must be aware and have a thorough knowledge of their particular role and responsibilities in the rescue effort.





Neurological Assessment	
A	Alert
V	Responds to Verbal Stimuli
P	Responds to Painful Stimuli
U	Unresponsive to Noxious Stimuli

Use JumpSTART if the Patient appears to be a child.

Use an adult system, such as START, if the patient appears to be a young adult.

Triage Categories

EXPECTANT Black Triage Tag Color

- Victim unlikely to survive given severity of injuries, level of available care, or both
- Palliative care and pain relief should be provided

DELAYED Yellow Triage Tag Color

- Victim's transport can be delayed
- Includes serious and potentially life-threatening injuries, but status not expected to deteriorate significantly over several hours

IMMEDIATE Red Triage Tag Color

- Victim can be helped by immediate intervention and transport
- Requires medical attention within minutes for survival (up to 60)
- Includes compromises to patient's Airway, Breathing, Circulation

MINOR Green Triage Tag Color

- Victim with relatively minor injuries
- Status unlikely to deteriorate over days
- May be able to assist in own care: "Walking Wounded"

References:

- Massachusetts Statewide

Written By:

Dr. Murad Salem
- Dr. Mohammed Alshehri

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Abdulaziz Al-haddab

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

CPAP-BIPAP Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

Continuous Positive Airway Pressure (CPAP):

Indications:

• Spontaneously breathing patient in severe respiratory distress due to Asthma/COPD, Congestive Heart Failure / Pulmonary Edema, Pneumonia or Drowning.

• Patients age 8 or older in moderate to severe respiratory distress secondary to:

- CHF with pulmonary edema
- Acute exacerbation of COPD or asthma
- Pneumonia
- Near drowning
- Any other cause of respiratory failure (not respiratory arrest)

Absolute contraindications (Do not use):

• Cardiac/Respiratory arrest.

• Agonal respirations

• Unable to maintain their own airway.

• Vomiting and/or active upper GI bleed.

• Respiratory distress secondary to trauma.

• Suspicion of pneumothorax.

• Pediatric patient who is too small for the mask sizes available.

Relative contraindications (Use cautiously):

• Unable to follow commands.

• Chest pain (by online medical control)

• Agitated or combative behavior.

Procedure:

1. Ensure adequate oxygen supply for CPAP device.
2. Managing patient anxiety is extremely important. Reduce patient anxiety by coaching and minimize external stimuli as much as possible.
3. Place patient in upright position. Apply pulse oximetry, capnography nasal capture device and ECG as available and trained.
4. Choose appropriate sized device mask for patient, assemble the CPAP device, attach to oxygen supply and insure oxygen is flowing (follow manufacturer's directions for preparation for your particular device).
5. Place mask over face and secure with straps until minimal air leak.

6. Adjust Positive End Expiratory Pressure (PEEP) to 5 - 15 cmH2O to effect for patient condition.

7. If device allows, titrate oxygen level to oxygen saturation of 94 – 98%. (Target 88-92% in COPD patients).

8. Recheck mask for leaks and adjust straps as needed to minimize air leaks.

9. Reassure anxious patient.

10. Monitor pulse oximetry, capnography and ECG as available and trained.

11. If patient stabilizes, maintain CPAP for duration of transport and notify receiving hospital to prepare for a CPAP patient.

12. If patient begins to deteriorate, discontinue CPAP and assist respirations by BVM with PEEP valve.

13. Document CPAP procedure, including time and provider. Document serial pulse oximetry and capnography readings to demonstrate effects3. Explain procedure to patient.

• Re-evaluate the patient every 5 minutes- normally the patient will improve in the first 5 minutes with CPAP as evidenced by:

o Decreased heart rate

o Decreased respiratory rate

o Decreased blood pressure

o Increased SPO2

• NTG and Albuterol may be administered as indicated during the use of CPAP.

• If a commercial device is not available you may consider using a BVM with PEEP **valve:**

a) Apply nasal cannula at 15 lpm

b) Attach PEEP valve to BVM at desired PEEP level (5 – 15 cmH2O).

c) Attach oxygen to BVM at least 15 lpm and ensure flow.

d) 4. Maintain continuous mask seal on patient to deliver CPAP.

Bi-level Positive Airway Pressure (BIPAP)

Indications:

• Spontaneously breathing patient in severe respiratory distress due to Asthma/COPD, Congestive Heart Failure / Pulmonary Edema, Pneumonia or Drowning.

Absolute contraindications:

• Cardiac/Respiratory arrest.

• Agonal respirations

• Unable to maintain their own airway.

PARAMEDIC

- Vomiting and/or active upper GI bleed.
- Respiratory distress secondary to trauma.
- Suspicion of pneumothorax.
- Not having a ventilator that is capable of delivering NPPV
- Unable to follow commands and can not tolerate.

Relative contraindications:

- Unable to follow commands.
- Active chest pain (by online medical control).

Procedure:

- Ensure adequate oxygen supply for the BiPAP device.
- Explain the procedure to the patient. Be prepared to coach the patient for claustrophobia or anxiety.
- Place the patient in an upright position.
- Monitor the patients SpO2, Capnography, ECG and Blood pressure.
- Choose the appropriate sized mask for the patient.
- Set the ventilator to the patient appropriate setting.
- IPAP: Set pressure to 10 cm H2O and titrate to work of breathing not to exceed 20 cmH2O.
- EPAP: Set to 5cmH2O and titrate of SpO2 of 94% - 98%; not to exceed 14 cmH2O.
- Target SpO2 of 88-92% in COPD patients.
- Pressure support to be no less than 5 cmH2O (Difference between IPAP/EPAP).
- Set back-up ventilatory rate of no less than 8 BPM.
- Set FiO2 to appropriate level to maintain an SpO2 of 94 – 98%.
- Recheck the mask for leaks and adjust as needed.
- If the patient deteriorates and meets one or more of the contraindications above then discontinue the use BiPAP.

Consider Supraglottic Airway or Intubation, follow appropriate protocols.

Consider administering anxiolytic in (CPAP)and (BIPAP):

Midazolam 2.5 mg IV/IN may repeat once in 5 minutes or 5 mg IM may repeat once in 10 minutes OR

Lorazepam 0.5 – 1 mg IV may repeat once in 5 minutes or 1 – 2 mg IM may repeat once in 10 minutes

OR

Diazepam 5 mg IV (then 2.5 mg every 5 minutes to total of 20 mg)

KEY POINTS:

• Keep in mind Bi-PAP uses large volumes of oxygen.

• Administer benzodiazepines with caution in elderly patients or those with signs of hypercarbia or respiratory fatigue.

References:

- New Hampshire Protocols
- San Francisco protocol.

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Rapid Sequence Intubation Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

INDICATIONS:

- Failure to maintain open and patent airway.
- Inadequate ventilation/oxygenation with basic airway procedures.

CONTRAINDICATIONS / PRECAUTIONS:

- Allergies to medications.
- Severe oral, mandibular, or anterior neck trauma.
- Airway obstruction.
- Significant hypotension, profound shock state.
- Age less than 3 Months.

PROCEDURE:

- Follow orotracheal intubation protocol P-18.
- Position the patient, appropriately
- Attach SaO2, NIBP, and cardiac monitor
- Establish an IV access.
- Oxygenate via non-rebreather mask (NRB) or utilize a BVM, as indicated, while preparing for the procedure
- Consider high flow nasal oxygen during intubation (15 LPM via nasal cannula) • Consider use of a Bougie on the initial attempt
- Prepare a continuous EtCO2 device
- Prepare for post intubation management (General: Post Intubation Management), go to P-21
- Assemble and test all basic and advanced airway equipment, including suction
- Ready backup airway devices
- Draw up appropriate medications
- Have a second provider assist with laryngeal manipulation, as indicated
- **Administer an induction agent: (Select one medication)**

Etomidate 0.3 mg/kg rapid IV push

- Etomidate (Amidate) is dosed on the total body weight
- May round etomidate (Amidate) dose to the nearest 10 mg for adults (Max 40 mg)

Ketamine 2 mg/kg rapid IV push

- Ketamine* is dosed based on the ideal body weight
- May round to the nearest 50 mg for adults.

PARAMEDIC

Administer Paralytic: (Select one medication)

- Succinylcholine 1.5 mg/kg rapid IV push

o Succinylcholine is dosed on the total body weight (Max 200 mg)

o May round succinylcholine dose to the nearest 50 mg for adults

Rocuronium 1 mg/kg (only if succinylcholine is contraindicated)

o Rocuronium is dosed based on the ideal body weight (Max 100 mg)

o May round rocuronium dose to the nearest 20 mg for adults

• If the intubation is failed (3 attempts maximum) manage the airway and ventilate; follow difficult airway protocol P-2.

• Attach a continuous EtCO2 monitor, confirm advanced airway placement, and secure the airway, as indicated.

Contact medical control if:

• RSI in patients weighing < 30 kg

Code: P-13 | Title: Rapid Sequence Intubation Protocol **END**

KEY POINTS:

• Rocuronium is to be used for paralysis only when succinylcholine is contraindicated. For example:

- Known or suspected hyperkalemia (e.g. crush injuries, rhabdomyolysis, dialysis patients, severe burns > 24 hours old, pre-existing spinal cord injuries, and neuromuscular disorders, including ALS [amyotrophic lateral sclerosis / Lou Gehrig's disease] and MS [multiple sclerosis])
- Known history of malignant hyperthermia

• Consider hyperkalemia in patients who develop ventricular dysrhythmia after administration of succinylcholine.

References:

New York State Collaborative Advanced Life Support Adult and Pediatric Treatment Protocols.

Written By:

- Dr. Mamdoh Alreweli
- Dr. Saud Alzahrani

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Weight Estimation Protocol

Code: P-14 | **Title: Weight Estimation Protocol** **START**

PARAMEDIC

EMT

For pediatrics:

- Use Broselow tape if available or
- Ask the parents about weight of their child, or if not applicable
- use the formula below According the WET FLAG:

o 0-12 months- (age x 0.5) + 4

o 1-5 years- (age x 2) + 4

o 6-12 years- (age x 3) +7

In Adult patients:

- Ask the patient or relatives about the his/her weight or
- If possible use electronic or mechanical scale if it is available in the scene and according to patient's health status. or
- use the formula: estimated body weight-eBW (kg) = (N – 1)100, where 'N' is the measured height in meters.

Code: P-14 | **Title: Weight Estimation Protocol** **END**

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Behavioral Emergencies Protocol: Restraint - Adult & Pediatric

PARAMEDIC / EMT
Follow General Patient Care Protocol go to G-1
Follow Behavioral Emergencies Protocol. Go to M-3
Use the least restrictive method that assures the safety of the patient and others.
Use only soft restraints.
Remind law enforcement that for ambulance transport, patients who are handcuffed must have handcuffs in front (not behind) or to the stretcher and that, the key must be readily available for removal; if needed.
Apply restraints in a way that allows for airway, breathing, and circulation assessment.
Never restrain a patient in a prone position or use equipment that forms a "sandwich" around the patient.
Have a minimum of four (4) trained personnel coordinate the restraint effort and consider involving parents if patient is a child.
Secure the patient so that major sets of muscle groups cannot be used together, restraining the lower extremities to the stretcher first around the ankles and across the thighs with soft restraints and stretcher straps.
Restrain the patient's torso and upper extremities with one arm up and one arm down with soft restraints and stretcher straps; do not impair circulation.
Consider cervical-spine immobilization to minimize violent head/body movements.
Put pad under patient's head to prevent self-harm.
Secure backboard or scoop stretcher (if used) to ambulance stretcher.
Transport OB patients in a semi-reclining or left lateral position.
Monitor/record vital signs every 5 minutes, ensuring patient's airway remains clear.
Consider placing a non-rebreather mask (use only at 15 lpm) or a face mask (NOT N95) on the spitting patient's face.
Unless necessary for patient treatment, do not remove restraints until care is transferred at the receiving facility or condition has changes to necessitate removal.
Notify receiving facility and tell them that patient is restrained.
Document restraint use details in the patient care report, including: a. reason for restraint use b. time of application c. type(s) of restraints used, in addition to cot straps d. patient position

PARAMEDIC | EMT

e. neurovascular evaluation of extremities
f. issues encountered during transport
g. other treatment rendered
h. police and/or other agency assistance

Code: P-15 | Title: Behavioral Emergencies Protocol: Restraint - Adult & Pediatric END

KEY POINTS:

These guidelines may be followed to restrain a patient only when the patient presents an immediate or serious threat of bodily harm to him/herself or others.

Adults (or emancipated minors) who are competent with the functional capacity to understand the nature and effects of their actions and/or decisions have the right to refuse treatment and/or transport. Do not restrain these individuals.

References:

Massachusetts Statewide.

Written By:

- Dr. Faleh Alqahtani
- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Tracheostomy tube obstruction Protocol

PARAMEDIC	EMT	Follow general patient care protocol got to G-1
		Consult with the patient's caregivers for assistance
		Assess tracheostomy tube: Look for possible causes of distress which may be easily correctable, such as a detached oxygen source
		If the patient's breathing is adequate but exhibits continued signs of respiratory distress, administer high-flow oxygen via non-rebreather mask or blow-by, as tolerated, over the tracheostomy
		If patient's breathing is inadequate, assist ventilations using bag-valve-mask device with high-flow oxygen
		If on a ventilator, remove the patient from the ventilator prior to using bag valve mask device as there may be a problem with the ventilator or oxygen source
		Suction if unable to ventilate via tracheostomy or if respiratory distress continues. Use no more than 100 mmHg suction pressure
	If the tracheostomy tube has a cannula, remove it prior to suctioning.	
	Determine proper suction catheter length by measuring the obturator.	
	If the obturator is unavailable, insert the suction catheter approximately 2 – 3 inches into the tracheostomy tube. Do not use force!	
	2 – 3 ml saline flush may be used to help loosen secretions.	
	If the patient remains in severe distress, continue ventilation attempts using bag valve mask with high-flow oxygen via the tracheostomy. Consider underlying reasons for respiratory distress and refer to the appropriate protocol for intervention.	
	If the patient continues in severe respiratory distress, remove tracheostomy tube and attempt bag valve mask ventilation.	
	If unable to replace tube with another tracheostomy tube or endotracheal tube, assist ventilations with bag valve mask and high-flow oxygen.	
	Contact Medical Control for additional advice.	

Key Points:

Signs of inadequate oxygenation/ventilation are:

- Falling pulse oximetry
- Change in patient's color
- Change in patient's vital signs
- Inability to deliver oxygenation by all other means

Tracheostomy procedure complications

Early (within 7 to 10 days)

1. Bleeding
2. Tube Obstruction
3. Subcutaneous emphysema and pneumothorax
4. Infection
5. Tracheostomy tube dislodgement

Late (≥7 to 10 days)

1. Tracheal and stoma stenosis
2. Tracheomalacia
3. Tracheoarterial fistula (most often a tracheoinnominate artery fistula)
4. Aspiration and nosocomial pneumonia
5. Tube Obstruction
6. Tracheoesophageal fistula
7. Tracheostomy tube dislodgement
8. Reduced phonation
9. Dysphagia

References:

- State of New Hampshire Patient Care Protocols Version 9.0

_____ Uptodate

Written By:

Dr. Faleh Alqahtani

Dr. Murad Salem

Reviewed By:

Dr. Mohammed Altuwaijri

Dr. Haitham Alhaiti

Dr. Nawaf Alqahtani

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

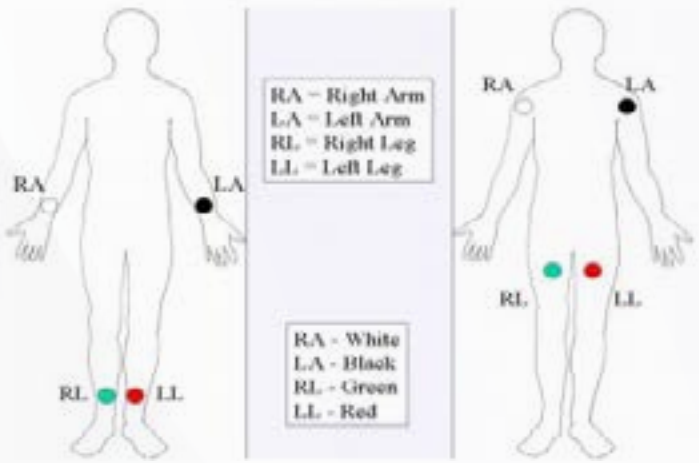
Dr. Nofal Aljerian

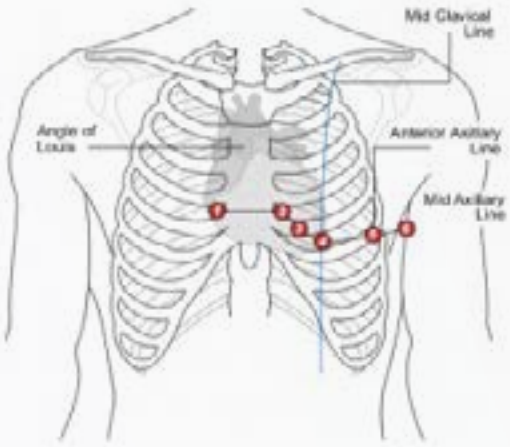
15 - Leads ECG Acquisition Protocol

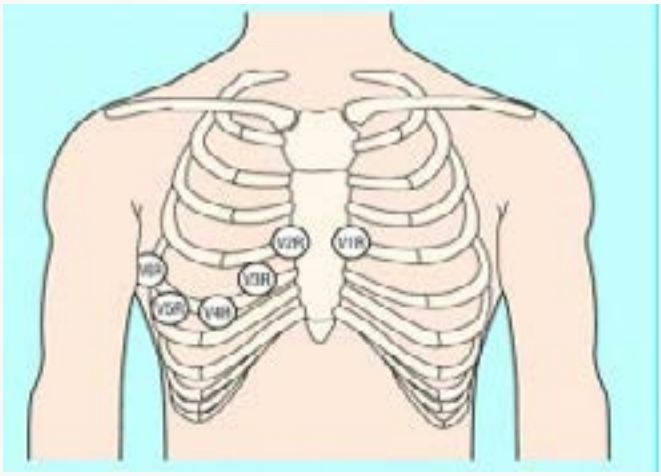
PARAMEDIC / EMT		Prepare ECG Monitor and connect cable with electrodes.
		Properly position the patient (supine or semi-reclined).
		Enter patient information (e.g. age, gender) into monitor
		Prep chest as necessary, (e.g. hair removal, skin prep pads).
		Apply chest and extremity leads using recommended landmarks: • RA – Right arm or shoulder. • LA – Left arm or shoulder. • RL – Right leg or hip. • LL – Left leg or hip. • V1 – 4th intercostal space at the right sternal border. • V2 – 4th intercostal space at the left sternal border. • V3 – Directly between V2 and V4. • V4 – 5th intercostal space midclavicular line. • V5 – Level with V4 at left anterior axillary line. • V6 – Level with V5 at left midaxillary line.
		Instruct patient to remain still.
		Obtain the 12 lead ECG.
		Keep the leads connected until instructed online medical control.
		Document the procedure and time of the ECG acquisition in appropriate section of the Patient Care Record. Include the ECG printout/image in the EPCR, if possible.
		Consider posterior ECG For isolated ST depression in leads VI – V3. Move leads V4, V5, V6 to acquire posterior ECG. V5 becomes V8 and placed at the inferior tip of the left scapula. V4 becomes V7 lateral to V8. V6 becomes V9 medial to V8. Consider right sided ECG For suspect inferior MI. - Label these ECG printouts as applicable.
		Contact online medical control as needed

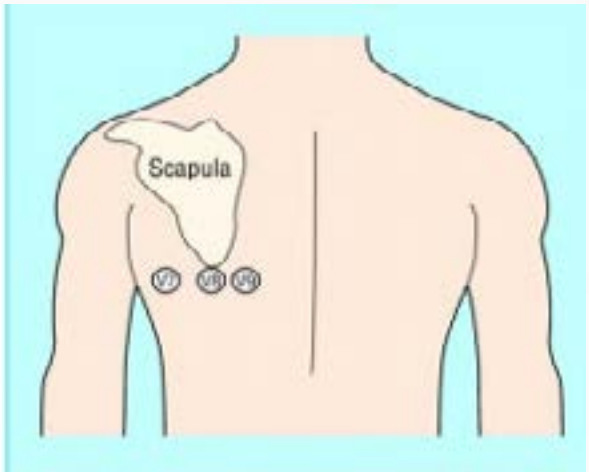
KEY POINTS:

- Ensure the patient's age is entered for proper interpretation.
- When transmitting either include the patient's name or notify the receiving facility of the patient's identity.
- Be alert for causes of artifact: dry or sweaty skin, dried out electrodes, patient movement, cable movement, vehicle movement, electromagnetic interference, static electricity
- According to manufacturers, dried out electrodes are a major source of artifact; keep in original sealed foil pouches; plastic bags are not sufficient; use all the same kind of electrodes; press firmly around the edge of the electrode, not the center
- Diaphoretic patients should be dried thoroughly. Clean the site using an alcohol prep pad, a towel or 4X4 gauze
- Check for subtle movement as a cause of artifact: toe tapping, shivering, muscle tension (e.g. hand grasping rail or head raised to "watch")









References:

- Massachusetts Pre-Hospital Statewide Treatment Protocols 2021.2
- New Hampshire Patient Care Protocols Version 8.0

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Orotracheal Intubation Protocol

PARAMEDIC

Follow General Patient Care Protocol go to G-1.

INDICATIONS

- Failure to maintain open and patent airway.
- Inadequate ventilation/oxygenation with basic airway procedures.

CONTRAINDICATION

- None if clinically indicated

PROCEDURE

1. Prepare all equipment and have suction ready.
2. Pre-oxygenate the patient.
3. Position patient in 'sniffing position' and optimize alignment of ear to sternal notch.
4. Open the patient's airway. While holding the laryngoscope in the left hand, insert the blade into the right side of the patient's mouth, sweeping the tongue to the left. Use video laryngoscopy, if available and trained.
5. Use the blade to lift the tongue and the epiglottis, either directly with the straight (Miller) blade, or indirectly with the curved (Macintosh) blade.
6. Once the glottic opening is visualized, insert the tube through the vocal cords and continue to visualize while passing the cuff through the cords.
7. Remove the laryngoscope and then the stylet from the ETT.
8. The ETT depth is (Size of tube X 3) from mouth opening.
9. Inflate the cuff with 5 – 10 mL of air.
10. Confirm appropriate proper placement by quantitative waveform capnography symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask, condensation in the ETT.
11. Secure the ETT, consider stabilizing head to protect the placement of the ETT.
12. Reassess tube placement frequently, especially after movement of the patient.
13. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.
14. Document each attempt (maximum of 3 attempts) as a separate procedure so it can be time stamped in the EPCR. An attempt is defined as placement of the blade into the patient's mouth. For each attempt, document the time, provider, placement success, pre-oxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's lip), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO2 readings.

PARAMEDIC

If intubation attempt is unsuccessful, ETT placement cannot be verified or ETT becomes dislodged:

• Monitor oxygen saturation and end-tidal CO2. AND

• Ventilate the patient with 100% oxygen via a BVM until ready to attempt intubation again.

• If continued intubation attempts are unsuccessful (maximum of 3 attempts), follow difficult airway protocol P-2.

Techniques to improve laryngeal view:

• Head Elevation: Elevate the head by lifting with the laryngoscope or having an assistant lift the head from underneath.

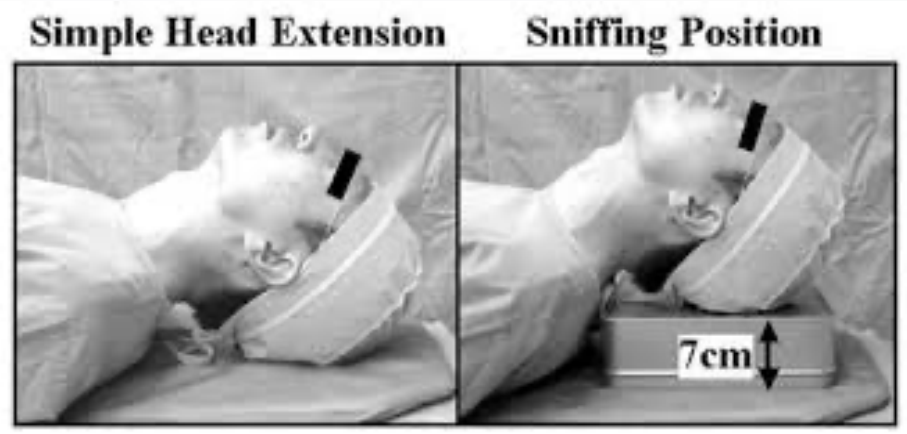
• External Laryngeal Manipulation (ELM): The person intubating uses their right hand to manipulate the larynx to a position that is suitable. An assistant then holds the larynx in that position. Note: BURP (backwards upwards rightwards pressure) and cricoid pressure are no longer recommended.

• Jaw Thrust: An assistant performs a jaw thrust to assist with tissue displacement.

For post-tube care, follow post-tube placement care protocol P-21.

Code: P-18 | Title: Orotracheal Intubation Protocol

END



!



!

References:

- New Hampshire PROTOCOL
- Connecticut Statewide EMS Protocols V2024.1

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Nawaf Alqahtani
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Nasotracheal Intubation Protocol

PARAMEDIC

Indications:

Physical restrict for proper positioning for oral intubation.

Impending respiratory failure with intact gag reflex or if jaw is clenched and unable to be opened.

Contraindications:

- Apnea.
- Nasal obstruction.
- Suspected basilar skull fracture.

Procedure:

1. Explain the procedure to conscious patients.
2. Pre-medicate nasal mucosa with 2% lidocaine jelly and nasal decongestant spray, and/or Benzocaine Spray if available.
3. Pre-oxygenate the patient.
4. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
5. Select appropriate ETT size. It is recommended to start with a 7.0 ETT and adjust based on nostril size.
6. Lubricate the ETT with water-based lubricant.
7. Remove the nasal airway and gently insert the ETT with continuous quantitative waveform capnography monitoring, keeping the bevel toward the septum (a gentle rotation movement may be necessary at the turbinates).
8. Continue to advance the ETT while listening for maximum air movement and watching for capnography wave form.
9. At the point of maximum air movement, indicating proximity to the level of the glottis, gently and evenly advance the tube through the glottic opening on inspiration
10. If resistance is encountered, the tube may have become lodged into the pyriform sinus and you may note tenting of the skin on either side of the thyroid cartilage. If this happens, slightly withdraw the ETT and rotate it toward the midline and attempt to advance tube again with the next inspiration.
11. Upon entering the trachea, the tube may cause the patient to cough, strain, or gag. This is normal. Do not remove the ETT. Be prepared to control the cervical spine and the patient, and be alert for vomiting.
12. Placement depth should be from the nares to the tip of the tube: approximately 28cm in males and 26 cm in females.
13. Inflate cuff with 5 – 10 mL of air.

PARAMEDIC

14. Confirm appropriate placement by quantitative waveform capnography. Symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bagging, and condensation in the ETT.

15. Secure the ETT, consider applying a cervical-collar (even for the medical patient) to protect the placement of the ETT.

16. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.

17. If continued intubation attempts are unsuccessful (maximum of 3 attempts) follow difficult airway protocol P-2.

For post-tube care, follow post-tube placement care protocol P-21.

Code: P - 19 | Title: Nasotracheal Intubation Protocol **END**

References:

- Connecticut Statewide Protocols v2023.1

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Nawaf Alqahtani
- Dr. Osama Alqarni
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Supraglottic Airway Protocol

PARAMEDIC

EMT

Indications:

• Cardiac Arrest.

• Inability to adequately ventilate a patient with a bag-valve-mask or longer EMS transports requiring a more definitive airway.

• Anticipated difficulty in Airway.

• Back up device for failed endotracheal intubation attempt.

Contraindications:

• Ability to maintain oxygenation and ventilation by less invasive methods, such as Bag-Valve Mask ventilation.

• Intact gag reflex.

• Tracheotomy or laryngectomy.

• Suspected Foreign Body Airway Obstruction.

• Active vomiting

• Severe maxillofacial or oral trauma.

• Latex allergy.

• For devices inserted into the esophagus:

- The patient has known esophageal disease.
- The patient has ingested a caustic substance.
- The patient has burns involving the airway.

• (Relative Contraindication):

Patient size outside of manufacturer recommended range for airway size used. The supraglottic airway may be utilized in such patients if the fit of the airway allows for appropriate oxygenation and ventilation of the patient.

Procedure:

1. Hold the supraglottic airway at the connector with dominant hand (right hand dominant).

2. With non – dominant hand, hold mouth open and apply chin lift, unless contraindicated by C – spine precautions or patient position.

3. With a lateral approach from the right, introduce tip into mouth.

4. Laryngoscope may allow easier oropharynx passage.

5. Advance the tip behind the base of the tongue while rotating tube back to midline, so that the blue orientation line faces the chin of the patient.

PARAMEDIC	EMT	
		6. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums
		7. Inflate cuffs with supplied syringe – use minimum mL necessary to achieve seal for appropriate oxygenation/ventilation. Excessive cuff inflation may compromise cerebral blood flow!
		8. Attach bag-valve to supraglottic airway.
		9. Gently ventilate the patient while withdrawing the tube until ventilation is easy (without significant resistance)
		10. Confirm appropriate placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bag valve mask ventilation, and quantitative waveform capnography.
		11. Secure the device.
		12. Reassess placement frequently, especially after patient movement.
		13. If a supraglottic airway device has an orogastric tube port, consider placement of an orogastric tube to decompress the stomach after the airway is secured.
		14. Sedation may be used if required once a supraglottic airway is in place. For post-tube care, follow post-tube placement care protocol P-21.

Code: P-20 | **Title: Supraglottic Airway Protocol** **END**

References:

- Connecticut Statewide Protocols v2020.3
- State of Oklahoma Emergency Medical Services Protocols.

Written By:

Dr. Wael Bunian

Dr. Saud Alzahrani

Reviewed By:

Dr. Mohammed Altuwaijri

Dr.Osama Alqarni

Dr. Haitham Alhaiti

Dr. Saud Alshahrani

Approved By:

Dr. Mohammed Alsultan

Dr. Mohammed Arafat

Dr. Jameel Abualenain

Dr. Omar Alothman

Dr. Abdulrahman Aldhabib

Dr. Fahad Alhajjaj

Dr. Naser Alrajeh

Dr. Bader Alossaimi

Dr. Fahad Samarkandy

Dr. Nofal Aljerian

Post-tube placement care Protocol

PARAMEDIC

Immediate confirm of tube placement by capnography if available, look for symmetrical chest rise, listen for equal air entry.

Continue hand bag while someone secures the ETT for you.

Attach ventilator or continue to hand-bag

Start analgesia and sedation agents

For analgesia (Adult): (select one)

Ketamine 1 mg/kg IV/IO, repeat every 5 - 15 minutes as needed. OR

Fentanyl (preferred) 100 mcg IV/IO, repeat every 5 - 10 minutes as needed OR

Morphine 2-5 mg, slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed OR

Hydromorphone (Dilaudid) 0.5 - 1 mg, slow IV/IO push

For sedation: (select one)

Midazolam (preferred) 2 - 5 mg IV/IO, repeat every 5 - 10 minutes as needed OR

Lorazepam 1 -2 mg IV/IO, repeat every 10 minutes as needed (maximum total 10 mg)

For Analgesia (pediatrics): (select one)

Ketamine 1 mg/kg IV/IO, repeat every 5 - 15 minutes as needed.

Fentanyl (preferred) 1 mcg/kg IV/IO (max 100 mcg), repeat every 5-10 minutes as needed OR

Morphine 0.1 mg/kg (max 5 mg), slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed.

For sedation: (select one)

Midazolam (preferred) 0.1 mg/kg IV/IO (maximum single dose 4 mg), repeat every 5 - 10 minutes as needed OR

Lorazepam 0.1 mg/kg IV/IO (maximum single dose 4 mg), repeat every 10 minutes as needed.

KEY POINTS:

• CAUTION: Relative contraindications to midazolam: Suspected or known intracranial process, need for frequent or repeat neurologic exams.

• Analgesia and sedation should be considered in all patients with advanced airways in place, especially any time a patient shows signs of distress or there is difficulty providing appropriate ventilation due to patient resistance.

• Administering analgesia prior to anxiolysis has been shown to decrease the amount of benzodiazepine needed.

• Ketamine has analgesic properties and therefore does not require fentanyl to be coadministered.

• Ketamine IV boluses should be pushed slowly, over at least 30-60 seconds.

• Sedation can be guided by the RASS scale shown above with a target RASS of -3 to -5.

• Patients usually require more sedation in the prehospital environment than in-hospital due to increased external stimuli.

• Lower doses of the medication listed should be considered in the setting of hemodynamic compromise.

Richmond Agitation-Sedation Scale

	Target RASS Value	RASS Description
+4	Combative	Combative, violent, immediate danger to staff
+3	Very Agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent non-purposeful movement, fights ventilator
+1	Restless	Anxious, apprehensive but movements are not aggressive or vigorous
0	Alert and Calm	
-1	Drowsy	Not fully alert, but has sustained awakening to voice (eye opening & contact **greater** than 10 seconds)
-2	Light Sedation	Briefly awakens to voice (eye opening & contact **less** than 10 seconds)
-3	Moderate Sedation	Movements or eye opening to voice (but **NO** eye contact)
-4	Deep Sedation	No response to voice, but has movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

References:

- Connecticut Statewide Protocols v2020.2
- Massachusetts Pre-Hospital Statewide Treatment Protocols 2024.1
- New Hampshire Protocols

Written By:

- Dr. Osama Mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Osama Alqarni
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Do Not Resuscitate (DNR) Protocol

PARAMEDIC

Identify that the patient is the person named in the DNR directive through a reliable witness or the presence of a picture identification or band/tag.

Provide supportive palliative care and transport all patients with a DNR directive who are not in need of immediate resuscitation.

Ignore the DNR form and provide care according to protocol and need if the patient is conscious and states he/she want resuscitative measures.

CPR may be withheld or discontinued when responding to a pulseless and apneic patient with the following approved valid DNR directive:

- Prehospital DNR Form issued by a medical authority in the country.
- When responding to a licensed health facility, a written DNR order signed by a physician in the patient's medical record. Document in the field PCR the presence of a physician signed DNR from the facility records along with date of the order, and the physician's name.
- EMS personnel may accept only a written DNR order from a physician present on scene in a non-health care setting and who reasonably identifies himself/herself as the patient's physician.

CPR may be discontinued without On-line medical director contact if a valid DNR directive is located by EMS personnel after CPR has started.

If any question exists regarding the validity of the DNR directive, or if there is any disagreement by the patient's family members or caretakers as to honoring the DNR directive. EMS personnel should initiate BLS, treat the patient in accordance with applicable treatment protocols, and immediately contact On-line medical director for further instructions.

DNR directives are honored during an inter-facility transport. If a patient dies while en route, transport of the body should continue to the designated receiving facility.
EMS personnel shall document the presence of a DNR directive on the prehospital care record.

Copies of the DNR directive should be attached to the field EPCR. If the patient is transported, a copy of the form should be taken with the patient to the receiving facility and given to the facility staff.

If an ambulance provider dispatch center is informed about a DNR directive, the dispatcher shall instruct the caller to get the directive and present it to the emergency responders when they arrive. Caller information that a patient has a DNR directive does not change the ambulance or code.

PARAMEDIC

First responders may cancel or downgrade the ambulance response if the patient is pulseless and apneic and there is a DNR directive. Otherwise, the ambulance shall respond as dispatched.

Contact medical control and inform him about the presence of DNR directive and document that in EPCR

Code: S-1 | Title: Do Not Resuscitate (DNR) Protocol **END**

References:

- San Francisco EMS Protocols

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Sara Aldhubaiban
- Dr. Abdulaziz Alhaddab
- Dr. Mohammed Alshehri

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Patients with Specific Clinical Practice Guidelines Protocol

PARAMEDIC / EMT	Follow general patient care protocol. Go to G – 1.
	Do not start management according to related protocol if the patient belongs to this group: – Biologic differences in drug metabolism. – Biologic differences in immune response. – Genetic endowment. – The presence of comorbid conditions.
	Collect as much as information and valid reports about the case of the patient from the family or bystanders and ask them for the contact number with the treating health facility.
	Contact medical control and inform him all information about the case.
	Medical control may contact with the treating health facility and he will be informed about the specific management for the patient and he will be responsible to give the order to the team.
	Transport the patient to hospital as quickly as possible if the case is life threating and manage him to stabilize.
	Contact medical control for any additional management for the case.
	If the patient or the family refuse management or examination in the scene due to traditional or religious causes and the case is emergency, shift the patient to the hospital and ask them to sign on the report.
	Contact medical control in cases of traditional or religious refusal.
	For cases of refusal care and/or transport, follow care refusal protocol, go to S-4. For obese patients care, follow bariatric patients' care protocol, go to S-9.

Written By:

- Dr. Wael Bunian

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani
- Dr. Osama Alqarni

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Care Refusal Protocol

PARAMEDIC	EMT	
		Follow General Patient Care Protocol go to G-1.
		Perform an assessment of the patient's medical/traumatic condition, and, to the extent permitted by the patient, a physical exam including vital signs. Your assessment, or the patient's refusal of assessment, must be fully documented in the trip record.
		Explain to the patient the nature and severity of his/her illness or injury, the treatments being proposed, the risks and consequences of accepting or refusing treatment, and the potential alternatives. Fully document the explanation given to the patient in your trip report.
		Contact on-line medical control, he/she must be consulted for a refusal of care, obtain and document the physician's name in the patient care report.
		Prepare and explain the refusal of medical care and ambulance transport document.
		Documentation of refusal of medical care and ambulance transport must be signed by the patient (or, in the case of a minor patient, by the minor patient's parent, legal guardian, or authorized representative) at the time of the refusal. Documentation should include, when possible, a signature by a witness, preferably a competent relative, friend, police officer, or impartial third person.

KEY POINTS:

Patients who meet the following criteria shall be allowed to make decisions regarding their medical care, including refusal of evaluation, treatment, or transport. These criteria include:

1. Initiated solely by the patient, not suggested/prompted by the EMTs.
2. Adults (≥ 18 years of age) and legally emancipated minors.
3. Orientation to person, place, time, and situation.
4. The patient understands specific treatment-related information.
5. Appreciation of the significance of the information for the patient's situation.
6. Patient's ability to reason about treatment alternatives in light of values and goals.
7. No evidence of altered level of consciousness resulting from head trauma, medical illness, intoxication, dementia, psychiatric illness or other causes.
8. No evidence of impaired judgment from alcohol or drug influence.
9. No language communication barriers. Reliable translation available (e.g., on scene interpreter, language line).
10. No evidence or admission of suicidal ideation resulting in any gesture or attempt at self-harm. No verbal or written expression of suicidal ideation regardless of any apparent inability to complete a suicide.

References:

Massachusetts Pre-Hospital Statewide Treatment Protocols

Written By:

- Dr. Wael Bunian
- Dr. Abdulrahman Almousa

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Saud Alshahrani

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Chemical and Mechanical Restrains Protocol

PARAMEDIC

EMT

INDICATIONS: Patients who are a potential harm to themselves or others, or interfere with their own care and lack the ability to refuse care under the Refusal of Care Protocol may be restrained to prevent injury to the patient or crew and facilitate necessary medical care.

Restraining must be performed in a humane manner and used only as a last resort.

PROCEDURE:

1. Request law enforcement assistance, as necessary.
2. When appropriate, attempt less restrictive means of managing the patient, including verbal de-escalation.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices may be placed on top of the patient. Never hog-tie a patient. In order to gain control, the patient may need to be in a prone position, but must be moved to supine or lateral position as soon as possible.
5. The patient must be under constant observation at all times. This includes direct visualization of the patient as well as cardiac, pulse oximetry, and quantitative waveform capnography monitoring, if available.
6. The extremities that are restrained should have a circulation check at least every 15 minutes. The first of these checks should occur as soon possible after restraints are placed.
7. Documentation should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
8. If a patient is restrained by law enforcement personnel with handcuffs or other devices that EMS personnel cannot remove, a law enforcement officer should accompany the patient to the hospital in the transporting ambulance. If this is not feasible, the officer MUST follow directly behind the transporting ambulance to the receiving hospital.

Resistant or Aggressive Management (Resisting necessary treatment/interventions)
Goal is alert and calm, consider:

Midazolam 2- 6 mg IV/IM/IN, may repeat once in 10 minutes OR

Lorazepam 2 mg IM, may repeat once in 10 minutes; or 1 mg IV, may repeat once in 5 minutes;

OR

Diazepam 5 mg IV/IM (IV preferred route), may repeat once in 10 minutes.

PARAMEDIC

For patients with suspected Excited/Agitated Delirium (Immediate danger to self/others) OR extreme agitation OR ineffective control with benzodiazepines. Goal is safe and compliant:

Ketamine 4 mg/kg IM rounded to nearest 50 mg, maximum dose 500 mg, repeat 100 mg IM in 5 to 10 minutes. OR

Midazolam 10 mg IM/IN/IV, (IM Preferred route) may repeat once in 10 minutes. OR

Lorazepam 2 mg IM, may repeat once in 10 minutes; or 1 mg IV, may repeat once in 5 minutes. OR

Diazepam 10 mg IV (preferred route), may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes

Consider in addition to benzodiazepines:

Haloperidol 10 mg IM; may repeat once in 10 minutes.

After chemical restraint, re-evaluate whether the patient continues to meet criteria for physical restraint and remove if they are no longer necessary to ensure the safety of the patient, providers or both, considering transport times, the depth of sedation and the need to transfer the patient at destination.

Check v/s before and after administering any medication.

Resistant or Aggressive Management (Resisting necessary treatment/interventions) Contact Medical Control, to discuss treatment options.

Violent and/or Excited Delirium Management (Immediate danger to self/others) Target Goal is safe and compliant, consider:

Contact Medical Control and consider:

Ketamine 4 mg/kg IM rounded to nearest 25 mg, maximum dose 250 mg, repeat x 1 in 5-10 minutes OR

Midazolam 5 mg/mL concentration (IM or IN preferred):

- 0.2 mg/kg IM/IN (single maximum dose 8 mg) repeat every 5 minutes; or
- 0.1 mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes, OR

Lorazepam 0.1 mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes, OR

Diazepam 0.1 mg/kg IV (single maximum dose 5 mg IV) repeat every 5 minutes.

If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate

Contact Medical Control for additional doses of above.

References:

• Continued patient struggling against restraints may lead to hyperkalemia, rhabdomyolysis, and/or cardiac arrest. Chemical restraint may be necessary to prevent continued forceful struggling by the patient.

• Excited/Agitated Delirium is characterized by extreme restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death.

• Administer haloperidol with caution to patients who are already on psychotropic medications which may precipitate serotonin syndrome or malignant hyperthermia.

• Placing a patient in prone position creates a severe risk of airway and ventilation compromise and death.

References:

- State of New Hampshire Patient Care Protocols Version 8.0
- San Francisco EMS Protocols
- SAEMS South Arizona Protocols

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

Child Abuse Protocol

PARAMEDIC / EMT

Follow general Patient Care go to G-1.

Follow appropriate treatment protocol for patient's chief complaint, e.g. head trauma.

Transport to an appropriate hospital If concerned about patient safety. Notify receiving hospital staff of your concerns.

Contact appropriate law enforcement agency.

Provide emotional support to the victim and family.

Treat all clothing, medications, and personal items with patient at time of transport as potential evidence. If these need to be removed from patient to facilitate assessment/treatment, place them in a container labeled with patient identification and document turnover of these materials to patient treatment team or law enforcement.

At least two complete sets of vital signs for transported patients and one complete set for non- transported patients (pulse, respirations, blood pressure, and pulse oximetry at minimum).
These vital signs should be repeated and documented after drug administration, prior to patient transfer, and as needed during transport.

For Children age < 3, blood pressure measurement is not required for all patients, but should be measured if possible, especially in critically ill patients in whom blood pressure measurement may guide treatment decisions.

Transport all children suspected abuse to the hospital. If transport is declined contact medical control.

SEXUAL ASSAULT:

• Discourage bathing, washing, urination/defecation or changing clothes until arrival at the hospital in order to preserve evidence.

An appropriate physical assessment that includes all relevant portions of a head -to-toe physical exam. When appropriate, this information should be included in the procedures section of the EPCR.

KEY POINTS:

• Child Abuse is the physical and mental injury, sexual abuse, negligent treatment and/or maltreatment of a child under the age of 18 by a person who is responsible for the child's welfare.

• The recognition of abuse and the proper reporting is a critical step to improving the safety of children and preventing child abuse.

References:

- San Francisco EMS Protocols
- اللائحة التنفيذية لنظام حماية الطفل

Written By:

- Dr. Murad Salem

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti

Approved By:

- Dr. Mohammed Alsultan
- Dr. Omar Alothman
- Dr. Naser Alrajeh
- Dr. Nofal Aljerian
- Dr. Mohammed Arafat
- Dr. Abdulrahman Aldhabib
- Dr. Bader Alossaimi
- Dr. Jameel Abualenain
- Dr. Fahad Alhajjaj
- Dr. Fahad Samarkandy

Adult Abuse Protocol

PARAMEDIC

EMT

Follow general Patient Care go to G-1.

Follow appropriate treatment protocol for patient's chief complaint, e.g. head trauma.

Transport to an appropriate hospital If concerned about patient safety. Notify receiving hospital staff of your concerns.

Contact appropriate law enforcement agency.

Provide emotional support to the victim and family.

Treat all clothing, medications, and personal items with patient at time of transport as potential evidence. If these need to be removed from patient to facilitate assessment/treatment, place them in a container labeled with patient identification and document turnover of these materials to patient treatment team or law enforcement.

The patient care report should be descriptive as possible of the conditions of the Elder/dependent adult and of his/her living situation.

For sexual assault:

• Discourage bathing, washing, urination/defecation or changing clothes until arrival at the hospital in order to preserve evidence.

Signs of Abuse (include but are not limited to):

1. Unexplained bruises, welts, sores, cuts or abrasions in places they would normally not be expected
2. Bruising and other injuries may be in different stages of healing
3. Bruising or other markings reflect the shape of the objects used to inflict the injuries (e.g., electrical cord or belt buckles, etc.)
4. Bilateral bruising on upper arms from shaking
5. Fractures in different stages of healing
6. Cigar and cigarette burns.
7. Submersion burns (e.g., sock-like, glove-like, doughnut-like shaped on buttocks)
8. Burns can also be patterned like objects used (i.e., electric burner)
9. Rope burns on arms/wrists, legs/ankles from improperly tying or bandaging the victim

Signs of Neglect (include but are not limited to):

1. Bed sores (pressure ulcers)
2. Unkempt, dirty, body odor, feces on body
3. Clothing is insufficient or inappropriate for the weather

PARAMEDIC

EMT

4. Fleas and lice on individual
5. Malnourished and dehydrated
6. Little or no food available

Signs of Financial Exploitation (include but are not limited to):

1. Accompanied by an individual, to a financial institution, who appears to coerce them into making transactions
2. Victim not allowed to speak for themselves or make decisions
3. Implausible explanation about what they are doing with their money
4. Concerned or confused about "missing" funds in their accounts
5. Neglected or receiving insufficient care given their needs or financial status
6. Isolated from others, even family members
7. Unable to remember financial transactions or signing paperwork

KEY POINTS:

• The authorization of transcutaneous pacing is at the sole discretion of the Medical Direction Authority and must be appropriately documented when used.

• Most sedation/analgesia medications worsen hypotension

• Mechanical capture occurs when paced electrical spikes on the monitor correspond with palpable pulse

- Video explanation: https://www.emrap.org/episode/emrap2023may/transcutaneous

References:

- San Francisco EMS Protocols
- SAEMS South Arizona Protocols

Written By:

• Dr. Murad Salem

Reviewed By:

• Dr. Mohammed Altuwaijri

• Dr. Haitham Alhaiti

Approved By:

• Dr. Mohammed Alsultan

• Dr. Omar Alothman

• Dr. Naser Alrajeh

• Dr. Nofal Aljerian

• Dr. Mohammed Arafat

• Dr. Abdulrahman Aldhabib

• Dr. Bader Alossaimi

• Dr. Jameel Abualenain

• Dr. Fahad Alhajjaj

• Dr. Fahad Samarkandy

Bariatric Triage, care and transport Protocol

PARAMEDIC

EMT

Definitions

A bariatric patient is a patient:

• Weight exceeds 180 Kg OR

• Weight, girth, body contours and/or co-morbidities challenge the ability of a two-person EMS crew to effectively manage.

Dispatch:

• Bariatric Ambulance:

- Consider requesting a bariatric transport ambulance to respond to the scene. The arrival on scene of a bariatric ambulance may require between 30 and 90 minutes, and should be requested as soon as it becomes clear that bariatric capabilities may be required. The use of a specialized bariatric stretcher increases the ability to provide effective care, is more comfortable for the patient and enhances provider safety.

• Additional Manpower:

- Consider requesting additional responders. In general, bariatric patients should be moved with a minimum of personnel. Larger bariatric patients may require additional personnel to participate in moving the patient.
- For significant extrications, consider contacting the Civil Defense. It may be necessary to remove doors, walls or windows to carry out a safe extrication.

• Additional Expertise:

Consider requesting a paramedic. Even BLS bariatric patients present unique treatment challenges which may benefit from a higher level of care.

Medical Care:

- Providers should use appropriately sized equipment to the extent it is available or can be readily obtained. For example, an appropriately sized blood pressure cuff will need to be used and intramuscular injection will be given with a longer needle.
- If there are significant barriers to removing the patient from the structure in a timely manner (long narrow stairs, patient in the attic, etc.), there may be situations where EMS will provide extended care to the patient at the scene. In such cases, consult Medical Control.

Transfer to Ambulance

- If a bariatric equipment cache is utilized, both the bariatric ambulance and cache equipment needs to be dispatched.

PARAMEDIC

EMT

- Be sure before you use any patient transfer device that you understand the procedure for using it safely and that you know the weight limits of the device.
- At no time should a patient who weighs more than 135 Kg be moved without at least four individuals to assist. At the scene, EMS and fire personnel may be supplemented by other public safety personnel as appropriate. For every 22.5 kg to 45 Kg more than 135 Kg, add another provider to assist in safe lifting and movement of the patient.

Hospital Destination

- Ensure that you select a destination hospital that has the capabilities to care for your patient.
- Bariatric patients may require specialized hospital stretchers, CT scanners, catheterization, laboratory equipment, operating room equipment, etc.
- It may be appropriate to bypass a local hospital to take the patient to a facility with the capabilities to properly care for the patient. This may even be appropriate in the case of life-threatening emergencies if the closer emergency department does not have needed equipment.
- Pre-notification serves both to ensure that the hospital is capable of caring for the patient and allows hospital staff time for adequate preparation. Communication with the hospital shall be in a professional manner. Respect for the patient's privacy and feelings will match the respect for all EMS patients.

Transport to the Hospital

- A bariatric stretcher should be used to transport the patient to the hospital and equipment cache transfer devices may be utilized to facilitate transfer of the patient to the hospital stretcher.
- Be alert to ensure that the stretcher is adequately secured in the patient compartment.
- Transfer flats or other specialized transfer equipment may be left in place to facilitate transfer of the patient to the hospital stretcher.

Key Points:

- It may be difficult to establish IV and IO access. Consider intramuscular or intranasal as alternatives for some medications. For IM, ensure that the needle used is sufficiently long.
- Weight-based calculations may yield inappropriately large doses in obese patients. Consult with medical control when in doubt.
- Bariatric patients often have decreased functional residual capacity, and are at risk of rapid desaturation. Extremely obese individuals require more oxygen than non-obese individuals due to their diminished lung capacity. Pulse oximetry may not be reliable due to poor circulation. Even patients without respiratory distress may not tolerate the supine position.
- Bariatric patients may present with severe airway challenges. try to protect airway as soon as possible and contact medical control for further instructions.
- If the patient has had recent bariatric surgery, possible complications may include anemia, dehydration, leakage, ulcers, localized infection, sepsis, etc.

References:

- State of New Hampshire Patient Care Protocols - Version 8.0
- Bariatric Patient Transport by James J Augustine https://www.ems1.com/ems-products/bariatric-patient-trans port/articles/managing-and-moving-the-very-large-ems-patient-8296CeX9j0gstz9D/

Written By:

- Dr. Osama Mashal

Reviewed By:

- Dr. Mohammed Altuwaijri
- Dr. Haitham Alhaiti
- Dr. Osama Alqarni
- Dr. Saud Alshahrani
- Dr. Mohammed Alshehri
- Dr. Abdulaziz Al-haddab

Approved By:

- Dr. Mohammed Alsultan
- Dr. Mohammed Arafat
- Dr. Jameel Abualenain
- Dr. Omar Alothman
- Dr. Abdulrahman Aldhabib
- Dr. Fahad Alhajjaj
- Dr. Naser Alrajeh
- Dr. Bader Alossaimi
- Dr. Fahad Samarkandy
- Dr. Nofal Aljerian

AED Use Protocol

PARAMEDIC

EMT

Follow General Patient Care Protocol go to G-1

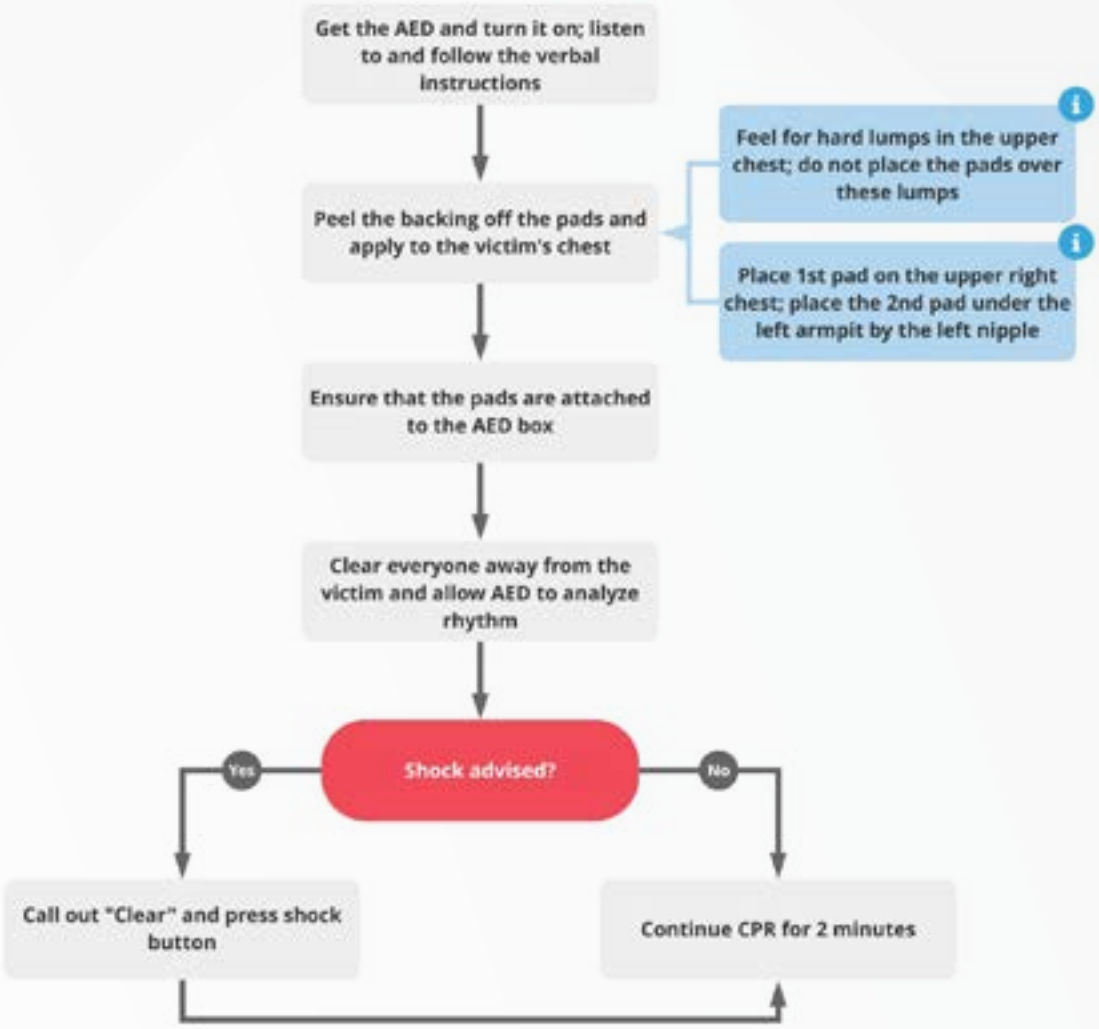
Follow Cardiac Arrest Protocol go to R-1

Follow High Quality CPR Protocol go to P-4

- As soon as an AED is available, turn it on and follow the voice prompts.
- Remove clothing, dry patients' chest if needed and attach pads correctly (see pictures below):
  - Place one pad on the upper right side of the chest and the other pad on the lower left side of the chest, a few inches below the left armpit.

OR:

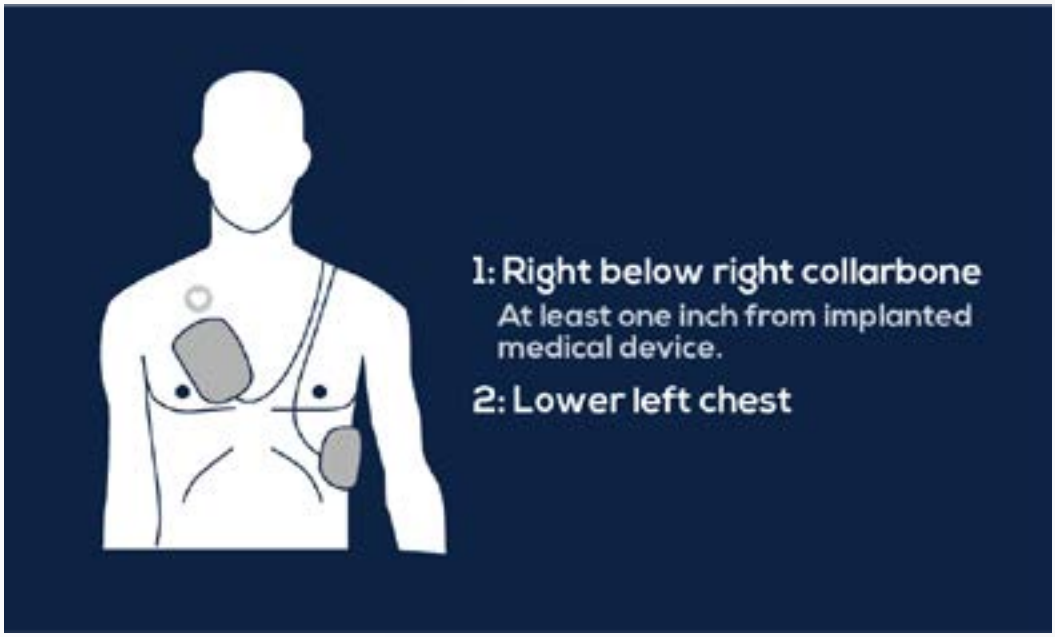
  - Place one pad in the middle of the chest and the other pad on the back, between the shoulder blades.
- Plug the pad connector cable into the AED, if necessary.
- Prepare to let the AED analyze the heart's rhythm:
  - Make sure no one is touching the person
  - Say, "CLEAR!" in a loud, commanding voice
- Deliver a shock, if the AED determines one is needed:
  - Make sure no one is touching the person
  - Say, "CLEAR!" in a loud, commanding voice
  - Push the "shock" button to deliver the shock
- After the AED delivers the shock, or if no shock is advised, immediately start CPR, beginning with compressions.

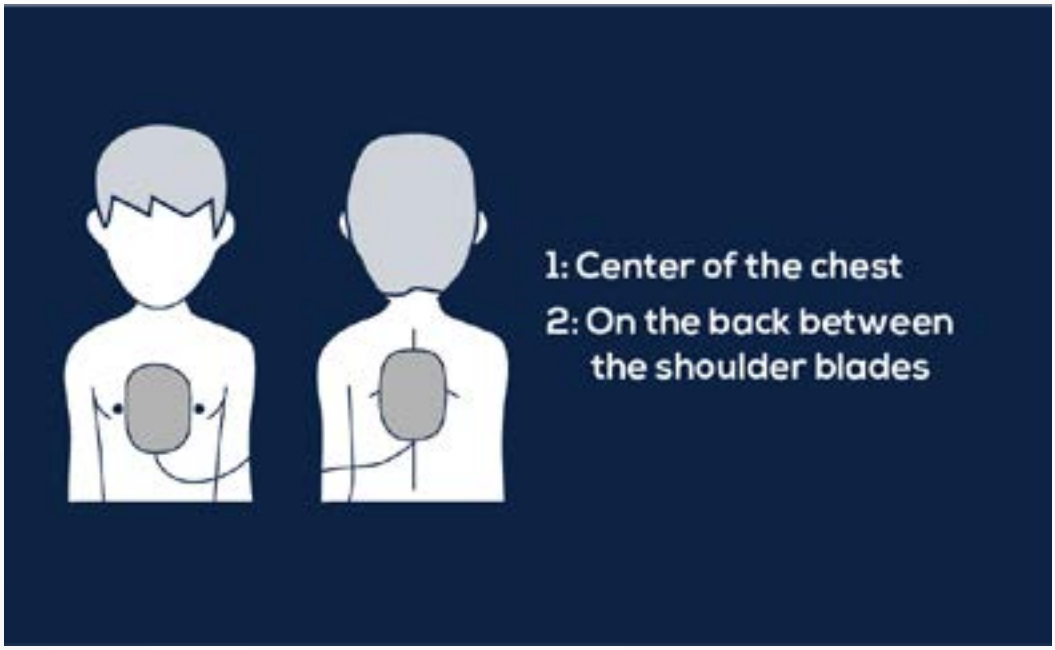

Get the AED and turn it on; listen to and follow the verbal instructions
Peel the backing off the pads and apply to the victim's chest
Feel for hard lumps in the upper chest; do not place the pads over these lumps
Place 1st pad on the upper right chest; place the 2nd pad under the left armpit by the left nipple
Ensure that the pads are attached to the AED box
Clear everyone away from the victim and allow AED to analyze rhythm
Shock advised?
Yes
No
Call out "Clear" and press shock button
Continue CPR for 2 minutes




LIFEPAK CR2
Defibrillator


AED
AED





Written By:

- Dr. Mohammed Alshehri

Approved By:

- Dr. Fahad Samarkandy