

Aurora Health Care South

Emergency Medical Services



Pre-Hospital Patient Care Protocols COVID-19 Update April 2020

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Allergy & Anaphylaxis 2020 replaces previous Allergy & Anaphylaxis protocol

Adds MDI as alternative to Albuterol nebulizer. At Intermediate and Paramedic level, modifies dose of IV epinephrine.

Asthma/COPD 2020 replaces previous Asthma/COPD and Pediatric Asthma protocols

Adds MDI and IM epinephrine as alternative to Albuterol nebulizer. At Paramedic level, adds magnesium. At Intermediate and Paramedic level, allows IV epinephrine.

COVID-19 Non-Transport Assessment April 2020 protocol and screening form replaces COVID-19 Non-Transport and screening form (dated March 21)

Softens language about non transport and if patient still wants transport despite meeting low risk criteria, to call Medical Control for decision about transport.

EMS MDI training and MDI Spacer- new

Fever 2020 protocol- new

Allows providers to give acetaminophen, ibuprofen or ketorolac (Toradol) to patients with fever who are uncomfortable from the fever.

Sepsis Septic Shock 2020 replaces previous Sepsis Septic Shock protocol

In addition to fever protocol changes, increases fluid bolus to 30 ml/kg and adds bolus IV epinephrine instead of dopamine.

Shock 2020 replaces previous Shock and Pediatric Shock protocols

Adds bolus IV epinephrine instead of dopamine.

Wisconsin Scope of Practice 2020 replaces previous Scope of Practice for EMR through Critical Care Paramedic.

Adds acetaminophen, ibuprofen and ketorolac to AEMT and above scope of practice. Removes Dopamine from Paramedic scope of practice. Allows EMS personnel to assist patients with their own medications with Medical Control approval.

Requires AEMT and above services to carry acetaminophen and at least one NSAID (ibuprofen, ketorolac). Requires magnesium to be carried by Paramedic services. Removes Dopamine from list of Paramedic medications. Hydromorphone (Dilaudid) not allowed at the EMT-Intermediate level.

Medications- new & improved

Acetaminophen (AEMT +)

Famotidine (Paramedic)

Ibuprofen (AEMT +)

Ketorolac (AEMT +)

Once signed by Medical Director and Service Director, these protocols are in effect. There is an expected lag in between protocol in effect and everyone trained, familiar and implementing these protocols, during which following old or these new protocols is acceptable. Each service can decide on date of complete transition with all services transitioned by July 1st, 2020.

Steven Andrews, MD, EMT-P, FAEMS

Medical Director

Date: April 13, 2020

Service Director

Date: ____/____/2020

Standard Operating Procedures Introduction

These protocols have been approved by the Medical Director(s) of the Aurora Health Care South EMS System.

Online Medical Control can be provided by any of the Aurora Hospitals in the South Market: Aurora Lakeland Medical Center, Aurora Memorial Hospital of Burlington, Aurora Medical Center-Kenosha and Aurora Medical Center in Summit. Wheaton Franciscan All Saints Hospital can also provide online medical control. In addition, if transporting the patient to another Aurora hospital, medical control may be obtained from that Aurora hospital. Additional medical control hospitals may be approved on a service specific agreement.

THESE GUIDELINES SHALL BE UTILIZED:

- As written orders of a physician for treatment guidelines to be administered by authorized members of the Aurora South EMS System as circumstances allow for the treatment of the ill or injured patient.
- As the prehospital standing medical orders to be initiated by Aurora South EMS Paramedic, Intermediate, Advanced Emergency Medical Technician/Intermediate Technician, Emergency Medical Technician/Basic, Emergency Medical Responder/First Responder and/or Nursing personnel. Medical control must be contacted if patient condition is refractory to the initial treatment orders or at the point that the protocol states: "Contact Medical Control" and/or an "➔" is present in the protocol margin.
- The following symbols in the protocols indicate approval for specific providers:
 - **FR**-EMR/First responder
 - **B**-EMT/EMT Basic
 - **A**-ADVANCED EMT / INTERMEDIATE TECHNICIAN
 - **I**-Intermediate
 - **P**-Paramedic

It is recognized that these prehospital protocols are intended to stabilize most patient care situations. If the patient is stable or improves, EMS personnel need only to contact the receiving hospital directly.

- Medical care orders can only be initiated through these protocols or an authorized Medical Control Center. EMS personnel who are uncertain of a specific protocol or drug dosage to be used must contact Medical Control immediately.
- In the event that communications cannot be established, prehospital personnel shall continue to provide treatment to the degree authorized by the EMS Medical Directors in these protocols.
- In disaster situations, where immediate action to preserve and save lives supersedes the need to communicate directly with the hospital, the requirement for Medical Control orders may be lifted provided protocol recommendations are followed and/or sound medical judgment is used.
- As the standing medical orders to be used by Medical Control when directing prehospital care.

UNDER NO CIRCUMSTANCES SHALL EMERGENCY PREHOSPITAL CARE BE DELAYED WHILE ATTEMPTING TO ESTABLISH CONTACT WITH MEDICAL CONTROL.

It is recognized that hospice patients, patients with a valid DNR order, patients who have not responded to BLS/ALS procedures and/or require specialized care or patients involved in a multi casualty incident (MCI) present unique circumstance that may, in the medical opinion of the physician directing the call, justify deviation from these protocols, including bypassing the closest appropriate hospital.

Approved Abbreviations

Alphabetical Index:

Abbreviation.....Definition

[Aa]

AAA..... abdominal aortic aneurysm
 ABD..... abdomen
 ABC..... airway, breathing, circulation
 AC..... antecubital
 ACLS..... advanced cardiac life support
 AED..... automatic external defibrillator
 A-fib..... atrial fibrillation
 AIDS..... acquired immune deficiency syndrome
 ALS..... advanced life support
 AKA..... also known as/ above the knee amputation
 A.M.A., AMA..... against medical advice
 AMI..... acute myocardial infarction
 AMT..... amount
 APAP..... acetaminophen
 APGAR..... infant assessment scale
 APPROX..... approximately
 ASA..... aspirin
 ASHD..... arteriosclerotic heart disease

[Bb]

BBB..... bundle branch block
 bilat..... bilateral
 BKA below knee amputation
 BLS..... basic life support
 BM..... bowel movement
 BP..... blood pressure
 BG..... blood glucose
 BVM..... bag valve mask

[Cc]

CABG..... coronary artery bypass graft
 CAD..... coronary artery disease
 CA..... cancer
 Cath..... catheterization
 CC..... chief complain
 CCU..... coronary care unit/critical care unit
 CHF..... congestive heart failure
 CMS..... circulation, movement, sensation
 CNS..... central nervous system
 C/O..... complains of
 CO₂..... carbon dioxide
 COPD..... chronic obstructive pulmonary disease
 CP..... chest pain
 CPR..... cardiopulmonary resuscitation
 CQI..... continuous quality improvement
 CSF..... cerebral spinal fluid
 CT scan..... computerized axial tomography
 CVA..... cerebral vascular accident

[Dd]

D/C.....	discontinue or discharge
DCAP-BTLS.....	deformities, contusions, punctures & penetrations, burns, tenderness, lacerations.
DNR	do not resuscitate
DOA.....	dead on arrival
DT's.....	delirium tremens
DVT.....	deep vein thrombosis
D5W.....	dextrose 5% in water
DX.....	diagnosis

[Ee]

ECG.....	electrocardiogram
EEG.....	electroencephalogram
EENT.....	eyes, ears, nose, throat
EJ.....	external jugular
EMS.....	Emergency Medical Services
EMT.....	Emergency Medical Technician
EOA	esophageal obturator airway
ETA.....	estimated time of arrival
ETOH.....	ethyl alcohol
ET.....	endotracheal tube
EXT.....	external (extension)

[Ff]

F.....	female
FB.....	foreign body
FOB.....	foreign object/ body
FLEX.....	flexion
FROM.....	full range of motion
FX.....	fracture

[Gg]

g.....	gram(s)
GCS.....	Glasgow Coma Scale
GI.....	gastrointestinal
GSW.....	gunshot wound
gtts.....	drops
GU.....	genitourinary
GYN.....	gynecology

[Hh]

HEENT.....	head, ears, eyes, nose, throat
HIV.....	human immune deficiency virus
HR.....	heart rate
HTN.....	hypertension
Hx.....	history
hyper.....	above or high
hypo.....	below or low

[Ii]

ICF.....	intracellular fluid
ICP.....	intracranial pressure
ICU.....	intensive care unit
IM.....	intramuscular
IO.....	intraosseous
IV.....	intravenous
IVP.....	intravenous push
IVPB.....	intravenous piggy back

[Jj]

J..... joules
 JVD..... jugular vein distension

[Kk]

Kg..... kilogram
 KO..... keep open
 KVO..... keep vein open

[Ll]

L&D..... labor and delivery
 LAT..... lateral
 LBBB..... left bundle branch block
 lb..... pound
 LLQ..... left lower quadrant
 LMP..... last menstrual period
 LOC..... loss of consciousness
 LR..... lactated ringers
 L-Spine..... lumbar spine
 LSB/LBB..... long spine board/long back board
 LUQ..... left upper quadrant

[Mm]

MAE..... moves all extremities
 MAST..... military anti-shock trousers
 mcg..... microgram
 MCI..... mass casualty incident
 MDI metered dose inhaler
 ME..... medical examiner
 mEq..... milliequivalent
 MED..... medication/ medium
 mg..... milligram
 MICU..... medical intensive care unit
 MI..... myocardial infarction
 MOI..... mechanism of injury
 MRI..... magnetic resonance imaging
 MVA/MVC..... motor vehicle accident/motor vehicle crash

[Nn]

NaCl..... sodium chloride
 NAD..... no acute distress
 NC..... nasal cannula
 NEB..... nebulizer
 NKA, NKDA..... no known allergies, no known drug allergies
 NRB..... non-rebreather mask
 NS..... normal saline
 NSR normal sinus rhythm
 NTG..... nitro- nitroglycerine
 N/V..... nausea and vomiting
 N/V/D..... nausea, vomiting and diarrhea

[Oo]

O2..... oxygen
 O2Sat..... oxygen saturation by pulse oximeter
 OB..... obstetrics
 OD..... overdose
 OPA..... oropharyngeal airway
 OPQRST..... onset, provoking factors, quality, radiation, severity, time.

OTC..... over the counter
(OU)..... both eyes

[Pp]

P..... pulse
PAC..... premature atrial contraction
PALP..... palpation
PALS..... pediatric advanced life support
PASG..... pneumatic antishock garment
PCN..... penicillin
PE..... physical examination/ pulmonary embolism/
pulmonary edema.
PEA..... pulseless electrical activity
PEEP..... positive end expiratory pressure
PEARL..... pupils equal and reactive to light
PJC..... premature junctional contraction
PMHx..... past medical history
PO..... orally
POV..... privately owned vehicle
PRN, prn..... as needed
PSVT..... paroxysmal supraventricular tachycardia
PT..... patient
PTA prior to arrival
POx pulse oximetry
PVC..... premature ventricular contraction

[Qq]

q..... every
QAM, qam..... every morning
qh..... every hour
q2h..... every two hours
q3h every three hours
q4h every four hours
QHS, qhs..... every night at bedtime
qid or QID..... four times a day

[Rr]

R/O..... rule out
ROM..... range of motion/movement
RLQ..... right lower quadrant
RUQ..... right upper quadrant
Rx..... prescription therapy

[Ss]

SaO2..... systemic arterial oxygen saturation (%)
SIDS..... sudden infant death syndrome
SL..... sublingual
SOB..... short of breath
SpO2..... oxygen saturation by pulse oximeter
STach..... sinus tachycardia
STAT..... at once
STD..... sexually transmitted disease
Sub Q..... subcutaneous
START..... simple triage & rapid treatment
SVT..... supraventricular tachycardia
SZ..... seizure
SX..... symptom

[Tt]

T..... temperature
 TIA..... transient ischemic attack
 TKO..... to keep open
 Tx..... treatment

[Uu]

URI..... upper respiratory infection
 UTI..... urinary tract infection

[Vv]

V-fib.....ventricular fibrillation
 VS.....vital signs
 VTach.....ventricular tachycardia

[Ww]

WNL..... within normal limits
 WPW..... Wolf-Parkinson-White Syndrome

[Xx]**None****[Yy]**

YO (YOA)..... years of age/ years old
 YTD..... year to date

Symbols

@..... at
 M or ♂ male
 F or ♀ female
 + positive
 - negative
 ? questionable
 Ψ psychiatric
 ~ approximately
 = equal
 Δ change
 L left
 R right

Advanced Life Support Response

This guideline should be utilized as a resource to assist in identifying when Advanced Life Support Paramedic or Intermediate (ALS) services should be considered as either an initial response or summoned by initial responders that are providing patient care. Although recommended, providing ALS service is not mandated by medical control, is at the discretion of the community/provider and must meet local and state requirements.

1. The parameters contained in this guideline are a recommendation. Provider assessment findings, dispatch information, and general impression of the patient condition by those providing care should be utilized in the decision matrix. This guideline should be utilized in conjunction with the provider's internal policies, procedures and dispatch protocols.
2. If uncertain whether an ALS response is warranted, call for an ALS response.
3. **Indications for ALS response/intercept:**
 - a. **Cardiac arrest with expected resuscitation** (Reason: ALS has not shown benefit in getting patients to survive cardiac arrest but once a pulse is back, ALS can give medications to keep BP adequate and control arrhythmias that frequently occur)
 - b. **Respiratory arrest, severe difficulty breathing/shortness of breath, respiratory distress (medical or trauma)** (Reason: studies show improved survival from ALS response to severe respiratory difficulties)
 - c. **Burns involving the face, neck or airway** (Reason: patient may need early airway intervention and ALS have higher level airway control abilities)
 - d. **Unresponsive/Altered Mental Status** (Reason: ALS have higher level airway control abilities; broad differential of causes may be better assessed at ALS level)
 - e. **Chest pain/STEMI** (Reason: unless 12 lead EKG is available and can be transmitted quickly, ALS have EKGs and can interpret them. Also, arrhythmias can present as chest pain and ALS can give medications and cardiovert severe arrhythmias)
 - f. **Anaphylaxis** (Reason: ALS have higher level airway control abilities; Paramedics may give steroids and antihistamines)
 - g. **Drowning or near drowning** (Reason: ALS have higher level airway control abilities)
 - h. **Severe Pain** (Reason: unless nitrous oxide is available, ALS is only level approved to give strong pain medications)
 - i. **Violent or aggressive patient** (Reason: Paramedics have access to chemical restraint medications).
 - j. **Drug Overdose** (Reason: although most drug overdose just require supportive care, there are some life-threatening drug overdoses (ex. Tricyclics) that ALS can provide lifesaving treatment)
 - k. **Actively Seizing** (Reason: ALS have benzodiazepines to stop seizures)
4. A response time of less than 10 minutes is recommended. If on scene providers have the ability to transport and can reach an emergency department in less time than it would take for an ALS provider to arrive, transport to the emergency department should be initiated (exception: cardiac arrest should be worked on scene until a persistent spontaneous pulse is achieved).
5. If ALS care is initiated, ALS provider must maintain patient care until arrival at emergency department or patient care is transferred to an equivalent or higher level of care.
6. If the level of care already given or anticipated is within the Intermediate scope of practice, then a single Paramedic or Intermediate can transport the patient.
7. If the level of care already given or anticipated is within the Advanced EMT scope of practice, then an Advanced EMT can transport the patient.
8. If the level of care already given or anticipated is within the EMT Basic scope of practice, then an EMT Basic can transport the patient.

Destination Determination

Purpose:

It is the purpose of this policy to provide guidelines for determining the appropriate transport destination for every patient.

Procedure:

In general, the patient should be transported to the closest most appropriate hospital.

Appropriateness is determined by:

- Patient preference¹
- Specialty needs of the patient (pediatric, trauma, cardiac, etc.) and hospital's capacity to meet these needs

Examples:

- **STEMI**- Cardiac catheterization center
- **TRAUMA- Follow Trauma Field Triage Guidelines** (in appendix), Steps 2 and 3 should be preferentially transported to an American College of Surgeons Level I or Level II trauma center. If over 30 minutes by ground to a Level I or II, any of the following are acceptable:
 - helicopter transport to Level I or II,
 - transport by ground to the Level I or II, or
 - transport by ground to the highest-level trauma center within 30 minutes transport time.
- **STROKE**- Stroke treatment center, if within time window
- **BURN**- Burn center if criteria met (see Burn Protocol) and no significant trauma center criteria
- **OB**- Pregnant patients greater than 20 weeks gestational age with a possible OB related symptom should go to a hospital with obstetrics
- Hospital diversion status
- Patients medical home
- Medical direction
- Weather/Road conditions

Considerations to modify for each ambulance service:

*restrictions due to coverage of the area

*restrictions due to distance to the hospital

*other reasons for restricting destination (mass casualty incident, etc.)

¹ Wisconsin law gives the patient the right to make the ultimate decision on hospital destination as long as it is operationally available to the EMS service (a hospital the service would normally be allowed to transport to, that is not on diversion). If patient assessment dictates the patient should go to a different hospital than their original choice, but the patient is able to make decisions and wants to go to another facility, attempt to quickly educate the patient regarding the reasons to go to the alternate facility. Transport per patient final request.

Helicopter EMS (HEMS) Response

HEMS may provide a time savings benefit to patients with time-sensitive emergencies² in reaching hospitals that can provide interventions IF the patient can be delivered during an interventional window³ AND Ground Emergency Medical Services (GEMS) are not able to appropriately deliver the patient to definitive care within that interventional window.

Examples include:

- Injured patients meeting the State of Wisconsin Field Trauma Triage Guidelines Category 2 or 3 that are greater than 30 minutes ground travel to the closest ACS verified Level I or Level II trauma center.
 - HEMS utilization for mechanism of injury or special population alone (Category 4 or 5) lacks clear evidence of benefit. Since these are patients that may not necessarily need the resources of the highest trauma level in a region, use of HEMS should generally not be used.
 - Patients with acute STEMI needing transportation to a regional PCI capable hospital, where a helicopter can get the patient to a cath lab 30 minutes faster than a ground ambulance.
 - HEMS may provide clinical resources to patients needing critical care services if unable to obtain critical care services by GEMS (ex. inter-facility transfer).
-
- HEMS may provide a mode of transport for geographically isolated, remote patients independent of medical urgency (ex. Island) although this mode should be carefully considered.
 - HEMS may provide a resource to local GEMS systems during disasters and times of low community resources.
 - HEMS have unique risks of transport including economic. (Rate of patient death related to crashes is 0.76 deaths per 100,000 transports. Overall mortality associated with crashes when HEMS crew members are included is 1 death per 16,340 transports. Compare this with 1-2 extra lives saved per 100 transports for patients with severe traumatic injuries.)

² A time-sensitive emergency can be defined as an acute life-threatening medical or traumatic event that requires a time critical intervention to reduce mortality and/or morbidity. Examples include major systems trauma, ST elevation myocardial infarction, or stroke.

³ An interventional window can be defined as the period of time from which mortality or morbidity is likely to be reduced by the administration of pharmaceutical agents, medical procedures or interventions. An interventional window should be based on available national consensus guidelines such as the American Heart Association's first medical contact or door to balloon time. The "Golden Hour" of trauma refers to the core principle of rapid intervention in trauma cases, rather than the narrow meaning of a critical one-hour time period. There is no evidence to suggest that survival rates drop off after 60 minutes

Patient Consent and Refusal of Medical Care and/or Transport (Statement of Release)

Providers have an ethical, moral, and legal responsibility for the patient's well-being as long as the patient consents to treatment. To reduce liability exposure, and in the best interest of competent patient care, Providers should strongly encourage transport.

Adult Consent

- When dispatched to a scene, ask who requested service. Ask each patient for permission to assess and treat the patient prior to rendering care.
- Adults who are unconscious are considered to have given implied consent.
- Adults have the right to refuse treatment and/or transport. However, should the patient present with, or have potential for illness or injury, make every effort to convince the patient he/she should be examined at a hospital.
- Explain the consequences of refusing treatment and/or transport. If the patient still refuses treatment, consider calling the police. Have the patient sign the "Release" form.
- **Medical control must be contacted if patient with an Altered LOC.**

Minor Consent

Minors (those under the age of 18 years of age that have not been emancipated by marriage or through relief of the courts) are not able to give consent to treat or transport.

- Consent to treat and/or transport an ill or injured minor should be obtained from a legal guardian or parent, whenever possible.
- The wishes of the legal guardian or parent must be honored.
- If withholding of consent leads you to suspect child abuse, neglect, or unlawful activity, those suspicions should be reported to the police. If you believe the minor's life is in danger to life or limb, the police should be called immediately.
- **The guardian or parent should sign any documents regarding treatment and/or transport or non-transport.** If the guardian or parent are not physically present, a phone consent or refusal is acceptable but must be witnessed by another person.
- If the legal guardian or parent is not available to give consent to treat and/or transport the minor patient, transport the minor. Action is preferable to inaction.
- Treatment should not be withheld because of possible legal liability. Treatment to save a life is easier to justify than non-treatment to avoid legal exposure.

Refusal of Treatment and/or Transport:

Competent and oriented patients encountered have the right to refuse treatment and/or transport.

- Attempt to complete a history and physical examination to determine the primary working assessment.
- Advise the patient (parent or guardian if the patient is a minor) of your findings and/or reasons why there is a need to examine the person and why assistance may be necessary.
- Ask the patient (parent or guardian if the patient is a minor) if he/she understands the explanation.
- Attempt to evaluate the patient's level of comprehension of the English language and of the content of the discussion offered.
- Offer ambulance transport again, explanation to patient of possible complications of non-treatment/transport. Threat to life/limb if appropriate.
- Explanation of hazards of transport by other than emergency vehicle
- Explain methods to receive evaluation/treatment if desired at a later time.
- Encourage consent if the patient appears undecided.
- Ask the patient (parent or guardian if the patient is a minor) if he/she understands and accepts the potential consequences of refusal of care and/or transport.
- Determine whether the patient has potential injuries, illness and/or judgment-altering substance use that may impair decision-making ability.

- If, in the judgment of the EMS team, the patient is not able to fully comprehend the consequences of refusing medical care and/or transport (e.g., the patient does not have decision-making ability), the appropriate law enforcement agency must be contacted to facilitate patient transport.
- If, in the judgment of the EMS team, the patient presents with altered level of consciousness at any time during your care, Medical Control must be contacted for additional orders and guidance.
- If, in the judgement of the EMS team, the patient's refusal of care/transport puts them at significant risk of permanent harm or loss of function, contact Medical Control. A Medical Control physician talking directly with the patient has shown to reduce refusal of care/transport by about 1/3rd.
- If, in the judgment of the EMS team, the patient is able to fully comprehend the consequences of refusing medical care and/or transport, and the patient continues to refuse treatment/transport, the following information is to be documented on the EMS report form:
 - Medical evaluation/treatment
 - Ambulance transport offered
 - Explanation to patient of possible complications of non-treatment/transport.
 - Threat to life/limb if appropriate
 - Explanation of hazards of transport by other than emergency vehicle
 - Methods to receive evaluation/treatment if desired at a later time

Physician Present on Scene

A. Personal Physician

(Personal physician includes any physician with whom the patient has an established relationship. Ex: If a patient went to an Urgent Care and the Urgent Care physician examined the patient and then called EMS that qualifies as an established relationship.)

- If the patient's personal physician is present and wishes to assume responsibility for the patient's care:
 - a. The EMS Providers should defer to the orders of the personal physician as long as those orders are appropriate and not in conflict with Medical Protocols. The EMS Providers should establish medical control any time they are uncomfortable carrying out orders from a patient's physician.
 - b. Orders given by the personal physician should be written, the physician's name documented legibly, and signed by the physician, if possible.

B. EMS Medical Director

- If your EMS medical director or associate EMS medical director is present and wishes to assume responsibility for the patient's care, the EMS Providers should defer to the orders of the medical director or associate medical director.

C. Medical Control Physician

- If a medical control physician is present and wishes to assume responsibility for the patient's care, the EMS Providers should defer to the orders of the medical control physician as long as those orders are appropriate and not in conflict with the Medical Protocols.

D. Other Intervening Physician

1. If any other intervening physician wishes to assume responsibility for the patient, give them the form on the next page (unless they are a known EMS Physician) and:
 - a. If medical control is already established: The intervening physician should be allowed to communicate with the medical control physician prior to the EMS Providers accepting orders. If there is any disagreement between the two physicians, the EMS Providers will follow the orders of the medical control physician and allow the physicians to continue their communication.
 - b. If medical control is not already established: The physician's name should be documented legibly on the on the patient chart and, if possible, at some point have the physician sign the EMS report form assuming responsibility and verifying orders. The EMS providers should relinquish responsibility for patient management if the physician meets the following two criteria:
 - i. can show appropriate identification (or is known to the paramedics);
 - ii. agrees in advance to accompany the patient to the hospital (exception: major multiple casualty incident);
2. In the case of multiple intervening physicians at the scene, the paramedics should request the physicians designate one physician to direct patient care.

E. Any intervening physician not wishing to assume responsibility for care and not accompanying the patient to the hospital may be asked to assist the EMS Providers and/or act as a medical consultant to them and to the medical control physician.

Physician Present on Scene Physician Control at the Scene Form

In the event a person at the scene identifies himself or herself as a physician and issues order to the EMT's or offers to assist the EMT's, that person shall be handed this form with the following content.

This emergency medical team has responded to an emergency call for help and is operating under specific protocols. In addition, this team has direct communication with a Medical Control physician.

In the event you wish to intervene or assist, you must assume **FULL RESPONSIBILITY** for pre-hospital care of this patient. To do so, this EMS team and the Medical Control Physician requires you to:

1. Properly identify yourself as a physician licensed to practice medicine in the State of Wisconsin.
2. Sign this form accepting **FULL RESPONSIBILITY** for pre-hospital care of this patient.
3. Remain with this patient at all times at the scene and during transport and until relieved by the Emergency Physician at the receiving hospital.

Otherwise, we appreciate your offer of assistance, but must proceed according to our Protocols. If you have any questions or concerns, please don't hesitate to call our Medical Control Hospital.

I, _____, am a physician licensed to practice medicine and hereby accept full responsibility for pre-hospital care of this patient and agree to comply with the requirements stated.

Dated: _____ Signature: _____

The EMT's must inform Medical Control on any intervention in patient care by a physician at the scene

Radio Report

Transmit the following, being concise as possible. Cell phone use is encouraged, due to additional levels of patient privacy.

1. Department name, EMS unit number. Transport priority.
2. Alert the ED if the patient is a trauma, stroke/neuro or cardiac/stemi alert patient
3. Patient age, sex (approximate weight when appropriate).
4. Chief complaint:
 - Signs and symptoms, degree of distress, severity of pain on a scale of 0-10.
 - Mechanism of trauma/pertinent scene information.
 - Pertinent negatives/denials.
5. Level of consciousness and orientation.
 - **Note:** Glasgow Coma Scale parameters for all patients with an altered mental status.
6. History:
 - Current medications
 - Allergies
7. Clinical findings:
 - Pertinent findings
 - Vital signs: communicate every 15 minutes as able – if patient condition changing.
 - Blood pressure: auscultated or palpated.
 - Pulse: rate, regularity, quality, equality.
 - Respirations: rate, pattern, depth.
 - Skin: color, temperature, moisture, turgor.
 - Blood glucose level, if indicated
 - Pulse oximeter reading, if indicated
 - End tidal CO2 reading, if indicated
8. Treatment initiated prior to calling and response to that treatment.

Scope of Practice

Wisconsin Admin. Code § DHS 110.12 states that an emergency medical services (EMS) professional may only perform the skills, use the equipment, and administer the medications that are specified by the Department of Health Services in the Wisconsin scope of practice for the level to which the individual is licensed, certified, or credentialed.



Key to Practice Levels	
EMR	Emergency Medical Responder
EMT	Emergency Medical Technician
AEMT	Advanced Emergency Medical Technician
INT	EMT-Intermediate
PARA	Paramedic
CCP	Paramedic with Critical Care Endorsement

All skills designated with an “R” at a practice level are required for that level. All skills designated with an “O” at a practice level are optional skills for that level. Items designated with a footnote are modified for the indicated practice level by the conditions contained within the footnote at the end of that section.

I. Skill—Airway/Ventilation/Oxygenation

I. Skill—Airway/Ventilation/Oxygenation	EMR	EMT	AEMT	INT	PARA	CCP
Airway – Nasopharyngeal	R	R	R	R	R	R
Airway – Non-visualized	O	R	R	R	R	R
Airway – Oropharyngeal	R	R	R	R	R	R
Airway Obstruction – Manual Dislodgement Techniques	R	R	R	R	R	R
Airway Obstruction – Dislodgement by Direct Laryngoscopy		R	R	R	R	R
Bag-valve Mask (BVM)	R	R	R	R	R	R
Capnography/End Tidal CO ₂ Acquisition (Required at Paramedic and above by 01/01/2021)		O	O	O	O	O
Capnography/End Tidal CO ₂ Interpretation (Required at Paramedic and above by 01/01/2021)				O	O	O
Chest Decompression – Needle				R	R	R
Chest Seal – Vented Preferred	O	R	R	R	R	R
CO Monitoring	O	O	O	O	O	O
Cricothyrotomy – Surgical or Needle					O	O

I. Skill—Airway/Ventilation/Oxygenation	EMR	EMT	AEMT	INT	PARA	CCP
Gastric Decompression with Advanced Airway	O	O	O	O	R	R
Intubation – Endotracheal (Must use waveform capnography by 01/01/2021)				O	R	R
Intubation – Nasotracheal				O	O	R
Intubation – Rapid Sequence Induction (Requires two paramedics patient side)					O	O
Manual Airway Maneuvers	R	R	R	R	R	R
Non-Invasive Positive Pressure Ventilation (Required at AEMT and above by 2021)		O	O	O	R	R
Oxygen Therapy – Nebulizer	O	R	R	R	R	R
Oxygen Therapy – Nasal Cannula	O	R	R	R	R	R
Oxygen Therapy – Non-Rebreather Mask	O	R	R	R	R	R
Oxygen Therapy – Tracheostomy Tube	O	R	R	R	R	R
Oxygen Therapy – High Flow Nasal Cannula					O	O
Pulse Oximetry	O	R	R	R	R	R
Suctioning – Tracheobronchial				R	R	R
Suctioning – Upper Airway (Soft and Rigid)	R	R	R	R	R	R
Ventilator – Automated Transport Ventilator		O ¹	O ¹	O ¹	O	O
Ventilator – Variable Setting					O ²	R

Notes: ¹May only be used for CPR; ²May only use FiO₂, rate, and volume adjustments in assist control (AC) mode.

II. Skill—Cardiovascular/Circulation

II. Skill—Cardiovascular/Circulation	EMR	EMT	AEMT	INT	PARA	CCP
Cardiocerebral Resuscitation (CCR)	O	O	O	O	O	O
Cardiopulmonary Resuscitation (CPR)	R	R	R	R	R	R
Cardioversion – Electrical				R	R	R
CPR Mechanical Device	O	O	O	O	O	O
Defibrillation – Automated and Semi-Automated (AED)	R	R	R	R	R	R
Defibrillation – Manual		O	O	R	R	R

II. Skill—Cardiovascular/Circulation	EMR	EMT	AEMT	INT	PARA	CCP
ECG Monitor – Acquisition/Transmission		O	O	R	R	R
ECG Monitor – Interpretation				R	R	R
ECG 12, 15 or 18 Lead – Acquisition/Transmission		O	O	R	R	R
ECG 12, 15 or 18 Lead - Interpretation				R	R	R
Hemorrhage Control – Direct Pressure	R	R	R	R	R	R
Hemorrhage Control – Hemostatic Agents	O	O	O	O	O	O
Hemorrhage Control – Pressure Points	R	R	R	R	R	R
Hemorrhage Control – Skin Clamp (Temporary Use)	O	O	O	O	O	O
Hemorrhage Control – Tourniquet	O	R	R	R	R	R
Hemorrhage Control – Wound Packing	O	R	R	R	R	R
Impedance Threshold Device (ITD)		O	O	O	O	O
Monitor – Arterial Line						R
Monitor – CVP Line						R
Monitor – Swan-Ganz Catheter						R
Pericardiocentesis					O	R
Transcutaneous Pacing				R	R	R
Transvenous Pacing – Maintenance and Troubleshooting (Not Initiation)						R
Point of Care Cardiac Ultrasound – Cardiac Arrest					O	O
Valsalva Maneuver		O	R	R	R	R

III. Skill—Splinting and Spinal Motion Immobilization

III. Skill—Splinting and Spinal Motion Immobilization	EMR	EMT	AEMT	INT	PARA	CCP
Cervical Collar	O	R	R	R	R	R
Manual Cervical Stabilization	R	R	R	R	R	R

III. Skill—Splinting and Spinal Motion Immobilization	EMR	EMT	AEMT	INT	PARA	CCP
Seated Spinal Motion Restriction	O	R	R	R	R	R
Splinting – Manual	R	R	R	R	R	R
Splinting – Pelvic Compression Device	O	O	O	O	R	R
Splinting – Rigid	R	R	R	R	R	R
Splinting – Soft	R	R	R	R	R	R
Splinting – Traction	O	R	R	R	R	R
Splinting – Vacuum	O	O	O	O	O	O

IV. Skill—Medication Administration Routes

IV. Skill—Medication Administration Routes	EMR	EMT	AEMT	INT	PARA	CCP
Aerosolized/Nebulized	O	R	R	R	R	R
Endotracheal Tube (ET)				R	R	R
Intramuscular (IM)	O ³	R	R	R	R	R
Intramuscular – Auto-Injector	O	R	R	R	R	R
Intranasal (IN)	O	R	R	R	R	R
Intraosseous (IO) (Required at AEMT by 01/01/2021)			R	R	R	R
Intravenous (IV)			R	R	R	R
Mucosal/Sublingual (SL)		R	R	R	R	R
Oral (PO)	O	R	R	R	R	R
Rectal				R	R	R
Subcutaneous (SQ)		O	O	O	O	O

Note: ³May only be used for manually drawn epinephrine 1:1000 for anaphylaxis.

V. Skill—Initiation / Maintenance / Fluids

V. Skill—Initiation / Maintenance / Fluids	EMR	EMT	AEMT	INT	PARA	CCP
Central Line/PICC Line – Access and Maintenance (No additional training required in code situation)					O	R
Maintenance – Medicated IV Fluids					R	R
Maintenance – Non-medicated IV Fluids			R	R	R	R
Intraosseous (Required at AEMT by 01/01/2021)			R	R	R	R
IV – Peripheral			R	R	R	R
IV – External Jugular				O	O	O
IV Pump – Non-medicated IV Fluids			O	O	O	R
IV Pump – Two or Less Medicated IVs					O	R
IV Pump - More than Two Medicated IVs						R
Other Access Ports – Access and Maintenance					O	R
Saline Lock – Initiation and Access			R	R	R	R
Saline Lock – Monitor		O	R	R	R	R

VI. Skill—Miscellaneous

VI. Skill—Miscellaneous	EMR	EMT	AEMT	INT	PARA	CCP
Assisted Delivery (Childbirth)	R	R	R	R	R	R
Blood Glucose Monitoring	O	R	R	R	R	R
Blood Pressure – Automated	O	O	O	O	O	O
Chest Tube Insertion						O
Chest Tube – Monitoring					O	R
Eye Irrigation	R	R	R	R	R	R
Foley Catheter Insertion						O

VI. Skill - Miscellaneous	EMR	EMT	AEMT	INT	PARA	CCP
ICP Monitoring						R
Immunizations		O	O	O	O	O
Nasopharyngeal and/or Oropharyngeal Sampling/Obtaining	O	O	O	O	O	O
Long Board	O	R	R	R	R	R
Patient Physical Restraints	O	R	R	R	R	R
Venous Blood Sampling – Obtaining			O	O	O	O
Vital Signs	R	R	R	R	R	R

VII. Skill—Assisted Patient Medications

VII. Skill—Assisted Patient Medications	EMR	EMT	AEMT	INT	PARA	CCP
Any patient prescribed medication with online medical control approval (as long as administration route is within scope of practice)	O	O	O	O	O	O

VIII. Skill—Medications Approved Per Protocol

VIII. Skill—Medications Approved per Protocol	EMR	EMT	AEMT	INT	PARA	CCP
0.45% Sodium Chloride			O	O	O	O
0.9% Sodium Chloride (Normal Saline)			R	R	R	R
Activated Charcoal		O	O	O	O	O
Acetaminophen (Tylenol)			R	R	R	R
Adenosine (Adenocard)				R	R	R
Albuterol	O	R	R	R	R	R

Notes: ⁴Must choose one antiarrhythmic and may only administer via bolus; ⁵Must choose only one benzodiazepine for seizures (midazolam preferred); ⁶Must have at least one benzodiazepine (midazolam preferred); ⁷Must have at least one antiemetic; ⁸Must have at least one vasopressor (norepinephrine preferred); ⁹Must choose only one narcotic for pain control (fentanyl preferred); ¹⁰Must have at least one narcotic (fentanyl preferred); ¹¹Must have at least one nonsteroidal anti-inflammatory.

VIII. Skill—Medications Approved per Protocol	EMR	EMT	AEMT	INT	PARA	CCP
Amiodarone (Cordarone)				O ⁴	R	R
Aspirin	O	R	R	R	R	R
Atropine				R	R	R
Atropine/Pralidoxime Auto-Injectors (For self, crew, or mass causality incidents)	O	O	O	O	O	O
Calcium					R	R
Cimetidine					O	O
Clopidogrel (Plavix)					O	O
Cyanide Antidote Kits					O	O
Dexamethasone (Decadron)					O	O
Dextrose (D50, D25, D10, D5/0.45/LR/NS/W)			R	R	R	R
Diazepam (Valium)				O ⁵	O ⁶	O ⁶
Diltiazem (Cardizem)					O	O
Diphenhydramine (Benadryl)					O	O
Dolasetron (Anzemet)					O ⁷	O ⁷
Droperidol					O ⁷	O ⁷
Epinephrine (1:1000)	O	R	R	R	R	R
Epinephrine (1:10,000)				R	R ⁸	R ⁸
Etomidate (Amidate)					O	O
Famotidine (Pepcid)					O	O
Fentanyl (Sublimaze)				O ⁹	O ¹⁰	O ¹⁰
Flumazenil (Romazicon)					O	O
Glucagon		O	O	O	O	O
Glucose	O	R	R	R	R	R

Notes: ⁴Must choose one antiarrhythmic and may only administer via bolus; ⁵Must choose only one benzodiazepine for seizures (midazolam preferred); ⁶Must have at least one benzodiazepine (midazolam preferred); ⁷Must have at least one antiemetic; ⁸Must have at least one vasopressor (norepinephrine preferred); ⁹Must choose only one narcotic for pain control (fentanyl preferred); ¹⁰Must have at least one narcotic (fentanyl preferred); ¹¹Must have at least one nonsteroidal anti-inflammatory.

VIII. Skill—Medications Approved per Protocol	EMR	EMT	AEMT	INT	PARA	CCP
Haloperidol (Haldol)					O	O
Heparin					O	O
Hydralazine					O	O
Hydrocortisone					O	O
Hydromorphone (Dilaudid)					O ¹⁰	O ¹⁰
Hydroxyzine (Vistaril)					O	O
Ibuprofen (Advil)			O ¹¹	O ¹¹	O ¹¹	O ¹¹
Ipratropium (Atrovent)		O	O	O	O	O
Isopropyl Alcohol	O	O	O	O	O	O
Ketamine (Ketalar)					O	O
Ketorolac (Toradol)			O ¹¹	O ¹¹	O ¹¹	O ¹¹
Labetalol					O	O
Lactated Ringer's			O	O	O	O
Lidocaine (Xylocaine)				O ⁴	R	R
Lorazepam (Ativan)				O ⁵	O ⁶	O ⁶
Magnesium					R	R
Methylprednisolone (Solu-Medrol)					O	O
Metoclopramide (Reglan)					O ⁷	O ⁷
Metoprolol (Lopressor)					O	O
Midazolam (Versed)				O ⁵	O ⁶	O ⁶

Notes: ⁴Must choose one antiarrhythmic and may only administer via bolus; ⁵Must choose only one benzodiazepine for seizures (midazolam preferred); ⁶Must have at least one benzodiazepine (midazolam preferred); ⁷Must have at least one antiemetic; ⁸Must have at least one vasopressor (norepinephrine preferred); ⁹Must choose only one narcotic for pain control (fentanyl preferred); ¹⁰Must have at least one narcotic (fentanyl preferred); ¹¹Must have at least one nonsteroidal anti-inflammatory.

VIII. Skill—Medications Approved per Protocol	EMR	EMT	AEMT	INT	PARA	CCP
Morphine				O ⁹	O ¹⁰	O ¹⁰
Naloxone (Narcan)	O	R	R	R	R	R
Naproxen			O ¹¹	O ¹¹	O ¹¹	O ¹¹
Nifedipine					O	O
Nitroglycerin (sublingual tablet/spray)			R	R	R	R
Nitroglycerin (drip or paste)					O	O
Nitrous oxide			O	O	O	O
Norepinephrine (Levophed)					O ⁸	O ⁸
Olanzapine					O	O
Ondansetron (Zofran)				O	O ⁷	O ⁷
Other Short Acting Beta Agonist for Asthma		O	O	O	O	O
Oxygen	O	R	R	R	R	R
Oxymetazoline (Afrin)		O	O	O	O	O
Oxytocin (Pitocin)					O	O
Pancuronium (Pavulon)					O	O
Phenylephrine					O ⁸	O ⁸
Pralidoxime (2-PAM)					O	O
Procainamide					O	O
Prochlorperazine (Compazine)					O ⁷	O ⁷
Promethazine (Phenergan)					O ⁷	O ⁷

Notes: ⁴Must choose one antiarrhythmic and may only administer via bolus; ⁵Must choose only one benzodiazepine for seizures (midazolam preferred); ⁶Must have at least one benzodiazepine (midazolam preferred); ⁷Must have at least one antiemetic; ⁸Must have at least one vasopressor (norepinephrine preferred); ⁹Must choose only one narcotic for pain control (fentanyl preferred); ¹⁰Must have at least one narcotic (fentanyl preferred); ¹¹Must have at least one nonsteroidal anti-inflammatory.

VIII. Skill—Medications Approved per Protocol	EMR	EMT	AEMT	INT	PARA	CCP
Proparacaine					O	O
Ranitidine (Zantac)					O	O
Rocuronium (Zemuron)					O	O
Sodium Bicarbonate					R	R
Succinylcholine (Anectine)					O	O
Terbutaline					O	O
Tetracaine					O	O
Ticagrelor (Brilinta)					O	O
Tranexamic Acid (TXA)					O	O
Vasopressin (Pitressin)				O	O	O
Vecuronium (Norcuron)					O	O
Verapamil					O	O
Ziprasidone (Geodon)					O	O

Notes: ⁴Must choose one antiarrhythmic and may only administer via bolus; ⁵Must choose only one benzodiazepine for seizures (midazolam preferred); ⁶Must have at least one benzodiazepine (midazolam preferred); ⁷Must have at least one antiemetic; ⁸Must have at least one vasopressor (norepinephrine preferred); ⁹Must choose only one narcotic for pain control (fentanyl preferred); ¹⁰Must have at least one narcotic (fentanyl preferred); ¹¹Must have at least one nonsteroidal anti-inflammatory.

IX. Skill—Medications Approved Per Protocol (Interfacility Use Only)

IX. Skill—Medications Approved per Protocol (Interfacility Use Only)	EMR	EMT	AEMT	INT	PARA	CCP
Additional Medications per Service Medical Director Authorization						O
Antimicrobials					O	O
Blood and Blood Products – Initiation					O	O
Blood and Blood Products - Maintenance					O	O
Dopamine					O	O
Furosemide (Lasix)					O	O
Nicardipine					O	O
Tissue Plasminogen Activator (tPA)					O	O

Scope of Practice for Registered Nurse

Purpose: Provide a guideline to assist our EMS providers for allowing registered nurses to perform advanced levels of care in the pre-hospital setting, thus promoting the optimal permissible pre-hospital advanced level of patient care and reducing the time it takes for the patient to receive advanced life support.

Nurse Qualification Requirements:

1. Wisconsin State Licensed Registered Nurse.
2. Wisconsin State Emergency Medical Technician License.
 - Active status on state E-Licensing roster for said provider.
 - Requires authorization by a Aurora South EMS Medical Director.
3. ACLS and PALS Certified.
 - PALS only required if licensed under an ALS provider
4. Complete the Wisconsin State EMS form F0-00614, with fulfillment of its requirements, and submit to the State EMS office.
5. Fulfillment of our EMS System Affiliation.

Skills:

All Registered Nurses meeting the above qualifications per above, can perform to the level achieved during system affiliation, not to exceed the level of care of the EMS service.

Continuing Education:

1. Registered Nurses providing pre-hospital care are required to maintain their EMT-Basic, System Affiliation, CPR and ACLS recertification.
 - PALS if applicable
2. Registered nurses recognized by medical control to provide pre-hospital care are required to present copies of current licensure and certification to the system EMS Coordinator on a bi-annual basis.
3. Maintenance of Southern Lakes EMS requirements.

Pre-Hospital Care

Approved nurses do not need to receive authorization from Medical Control prior to initiating any of the above **except** when specified by the appropriate Aurora South EMS System protocol where it says ➔ **Contact Medical Control**.

EMS Medication Shortage Policy 2019: For Emergency Medication Retention Past Expiration Dates

Nationally, many emergency medications used by EMS continue to be in severe shortage. In order to anticipate future shortages and prevent patient harm resulting from inadequate supplies of emergency medications, Dr. Steve Andrews has approved this policy for the retention of expired emergency medications. All emergency medications can be retained for up to 12 months past their expiration date by the following policy. In addition, certain medications can be kept much longer as per the list below. Medications should be discarded if they have become discolored or have precipitate. Medications should be stored per the manufacturer's recommendations.

Drug	Form	Months Extension	Years Extension
Atropine Sulfate	Injection solution	96	8
Calcium Chloride	Injection solution	96	8
Dexamethasone	Syringe	60	5
Dextrose 10%	Injection solution	24	2
Dextrose 5%	Injection solution	72	6
Diphenhydramine	Syringe	72	6
Dobutamine	Injection solution	48	4
Fentanyl	Injection solution	84	7
Furosemide	Injection solution	30	2.5
Heparin Sodium	Injection solution	48	4
Hydrocortisone	Injection solution	48	4
Ketamine	Injection solution	72	6
Lactated Ringers	Injection solution	48	4
Lidocaine HCl	Injection solution	60	5
Mannitol	Injection solution	96	8
Morphine	Syringe	96	8
Naloxone	Injection solution	84	7
Pancuronium	Injection solution	84	7
Phenylephrine	Injection solution	72	6
Pralidoxime	Autoinjector	120	10
Prochlorperazine	Injection solution	60	5
Promethazine	Injection solution	60	5
Sodium Bicarbonate	Injection solution	96	8
Sodium Chloride	Irrigation	96	8
Sodium Chloride	Injection solution	36	3
Sodium Nitrite	Injection solution	120	10
Sodium Thiosulfate	Injection solution	120	10
Succinylcholine	Powder	72	6

Dr. Steve Andrews, Medical Director, authorizes storage of all emergency medications up to 12 months past their expiration dates with exceptions listed above for retaining even longer. Expired drugs should be stored separately from unexpired medications. A separate authorization will need to be issued by the medical director before expired drugs may be used on patients. This document only allows and encourages storage of expired emergency medications to meet possible future needs.

Steve Andrews, MD

Date

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Withholding or Withdrawing Resuscitative Efforts

1. If there are any concerns about withholding resuscitation, contact medical control. To withdraw resuscitation that has started, follow protocols and/or contact medical control.

Contact should be established via radio or phone.

2. Provide emotional support to significant others.
3. Patient disposition according to local and county requirements.
4. Document date and time of pronouncement in the patient care report.
5. Document thoroughly all circumstances surrounding the use of this protocol.

EMS personnel may withhold or cease resuscitative efforts in the following circumstances:

- There is a risk to the health and safety of EMS personnel
- Resources are inadequate to treat all patients (i.e., mass casualty situations)
- Death has been declared by a physician, Medical Examiner or coroner
- Valid DNR orders
- A child (less than 18 years), where a Court Order is provided to EMS personnel indicating that CPR is not to be commenced
- Patient with trauma who meets criteria to not start resuscitation. Injuries/presentations incompatible with return to life. Patient meets criteria to terminate resuscitation (see protocols Cardiac Arrest and Traumatic Cardiac Arrest)

DNR Orders

Patients who are **NOT** in respiratory or cardiac arrest should receive supportive/comfort care en route to the hospital.

DO NOT WITHHOLD OXYGEN AND MEDICATIONS (e.g., analgesia, sedation, antiarrhythmics or vasopressors) unless these are included in the order.

1. Confirm the validity of the DNR:

- An intact State of Wisconsin DNR Wrist Band/Bracelet on the patient.
- A State of Wisconsin DNR form properly filled out.
- Another State's form properly filled out expressing patient's desire for no CPR.

2. If the DNR order is valid, withhold resuscitative efforts. Follow any orders found on the DNR order. If an original or photocopied DNR form is not presented or it is not appropriately executed, contact medical control.

3. If resuscitation was begun prior to the DNR form being presented, stop resuscitation after order validity is confirmed.

4. **Contact medical control** and explain the situation; follow any orders received.

Injuries/presentations incompatible with life

Irreversibly dead patients are those found to be non-breathing, pulseless and have any of the following injuries and/or long-term indications of death:

- Decapitation
- Decomposition
- Thoracic/abdominal transection
- Mummification/purification
- Rigor mortis without hypothermia
- Profound dependent lividity
- Incineration
- Prolonged frozen state (see cold emergencies protocol)

1. DO NOT start CPR for these patients.

Power of Attorney for Healthcare / Living Wills

If someone represents themselves as having a Power of Attorney to direct medical care of the patient and/or a document referred to as a living will is presented; follow these procedures:

1. Begin or continue medical treatment.
2. **Living wills** may not be honored by EMS personnel without a valid DNR order. **Contact medical control** and explain the situation; follow any orders received.
3. If a Power of Attorney for healthcare document is presented by the agent, confirm that the document is in effect and covers the current situation. If yes, honor the agent's instructions. If there are any doubts concerning the living will or power of attorney, continue treatment, contact medical control, explain the situation and follow orders received.
4. Bring any documents received to the hospital.

Hospice patients not in cardiac/respiratory arrest.

If patients are registered in a hospice program, initiate BLS care and contact medical control for orders on treatment and disposition. Inform medical control of the presence of written treatment and/or valid DNR orders.

Abdominal Pain

- Apply full PPE if body fluids are present

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Perform primary medical assessment and Initial Medical Care.
2. Obtain vital signs.
3. Evaluate the following:
 - Consider cardiac/great vessel (aneurysm) in addition to GI etiologies and anticipate need for expeditious transport
 - Note and record jaundice, melena and hematemesis.
 - Note nature and amount of vomiting/diarrhea.
 - History: Onset, Provocation, Quality, Radiation, Severity on 0-10 scale, and Time. (OPQRST). Note recent surgeries, pancreatitis, liver disease, renal disease, ulcers.
 - Obtain menstrual history in females of childbearing age. (10 to 59 years)
 - Last bowel movement (BM).

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

4. Establish IV/IO** if moderate to severe pain, hypotensive, dehydrated or otherwise unstable⁴.
5. If significant dehydration or signs of shock. Give below and/or see Shock Protocol
Adult Fluid Resuscitation
 - 500 mL NS/LR bolus - repeat up to 2000mL's if no signs of fluid overload. If severe diarrhea or septic shock, may give additional 1000mL fluid every 30 minutes.Pediatric Fluid Resuscitation
 - 20 mL/kg NS/LR bolus – repeat 2 times as needed for a total infusion of 60 mL/kg.
6. Consider establishing second IV if unstable or significant potential for instability.

INTERMEDIATE / PARAMEDIC

7. Consider pain management per Pain Protocol. If Hypotensive, Fentanyl is drug of choice (or Ketamine at Paramedic level).
8. Consider Nausea Management- see Nausea/Vomiting Protocol.

*Contact Medical Control for the following:
Additional Orders*

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

⁴ **UNSTABLE criteria:** Altered sensorium, signs of hypoperfusion, guarding or rigidity of abdominal wall.

Abuse: Domestic, Sexual, Elder

LEVEL	
FR B A I P	<p>Incidents of abuse include:</p> <ul style="list-style-type: none"> • Person abused by a family or household member. • High-risk adult with disabilities who is abused, neglected, or exploited by a family or household member. • Minor child or dependent adult • Person residing or employed at a private home or public shelter that is sheltering an abused family or household member. <p>EMT's shall provide immediate, effective assistance and support for victims and witnesses of domestic violence.</p> <p>If any form of abuse, maltreatment, harassment, intimidation, or neglect is suspected:</p> <ol style="list-style-type: none"> 1. Assess the scene for rescuer safety. DO NOT ENTER UNLESS THE SCENE IS SAFE. Law Enforcement should be present before EMS enters if: <ul style="list-style-type: none"> • If the offender is present • Weapons are involved • The offender is under the influence of drugs and/or alcohol and/or there are children present. 2. Initial Medical Care: In addition to general patient care, be aware of special considerations: <ul style="list-style-type: none"> • Provide psychological support. • Discourage patients from changing clothes, urinating, or washing away signs of the abuse. • Treat obvious injuries per appropriate protocol. • Collaborate with the police to use all reasonable means to prevent further abuse or neglect. 3. Report your suspicions to the receiving hospital. Clearly document all scene factors and physical signs and symptoms that would support your suspicions of abuse/violence. 4. There are no mandatory reporting laws for adult victims of sexual, domestic or elder abuse. However, EMS can still voluntarily report their suspicions to either the local law enforcement agency having jurisdiction or the appropriate Department of Child and Family Services number listed below. If the victim is a child (under 18 years of age), mandatory reporting is required. Refer to Suspected Child Abuse and Neglect. <ul style="list-style-type: none"> • Kenosha County (262) 605-6582 <ul style="list-style-type: none"> ○ After hours, weekends and holidays call Crisis Intervention: (262)657-7188 • Racine County 262-638-6321 or 800-924-5137 • Walworth County DHS 262-741-3200 • Waukesha County (262) 548-7212 or 211

Acetaminophen

Tylenol, APAP, Paracetamol

Acetaminophen is a pain medication and antipyretic. Antipyretic effect via direct action on the hypothalamic heat-regulating center of the brain.

Contraindications:

- Acetaminophen overdose
- Medication allergy / sensitivity

Indications:

- **Pain Management:** mild to moderate pain; adjunct for severe pain
- **Fever or Sepsis Septic Shock:** antipyretic

Dose:

1000mg or 15mg/kg PO (may round to nearest tablet size) every 6 hours

Adverse Effects:

- GI discomfort
- Hepatotoxicity

Considerations:

- Do not administer if patient has received acetaminophen within the past six hours
- Caution in patients with chronic alcohol abuse (limit to 3000 mg in a day)
- Ask about other over the counter medications including cold/flu medicines, headache medicines, sleep aids and prescription pain medications as these often come in combination with acetaminophen

Pharmacokinetics:

- Onset: less than 1 hour
- Half-life: 2-3 hours, longer in pediatrics

Pregnancy/Lactation:

- Category A
- Drug of choice for analgesic and antipyretic use during pregnancy and while breastfeeding

Acetaminophen

(Tylenol, APAP, Paracetamol)

Dosing Chart

Age	Broselow	Kilos	Pounds	mg	160 mg/5 mL
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	64	2 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	96	3 mL
9 mo	RED	8-9 kg	16 - 20 lbs	128	4 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	160	5 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	192	6 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	256	8 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	320	10 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	416	13 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	480	15 mL
		38.5 kg	84 lbs	576	18 mL
		44 kg	97 lbs	650	20 mL
		50 kg	110 lbs	750	23.5 mL
		55 kg	121 lbs	825	26 mL
		60 kg	132 lbs	900	28 mL
Max dose		67+ kg	147+ lbs	1000	31 mL

Airway Obstruction (8 y.o. +)

LEVEL	Adult Airway Obstruction (8 Years of Age and Older)
FR B A I P	<ol style="list-style-type: none"> Initial Medical Care <ul style="list-style-type: none"> Determine responsiveness and ability to speak. Position patient to open airway: Assess breathlessness/degree of airway impairment. Monitor for cardiac dysrhythmias and/or arrest.
B A I P	
FR B A I P	<p>Conscious and Able to Speak:</p> <p>Do not interfere with patient's own attempts to clear airway by coughing or sneezing.</p> <p>Conscious and Cannot Speak:</p> <ol style="list-style-type: none"> Five (5) abdominal thrusts with victim standing or sitting. Five (5) chest thrusts if patient in 2nd-3rd trimester of pregnancy or morbidly obese. REPEAT IF NO RESPONSE. If successful, complete Initial Medical Care and transport. Still obstructed: Continue Step 1 while enroute until foreign body expelled or patient becomes unconscious.
FR B A I P	
B A I P	
FR B A I P	
I P	
P	
	<p>Unconscious:</p> <ol style="list-style-type: none"> Perform a tongue-jaw lift. Attempt to ventilate. If obstructed, visualize airway with laryngoscope and attempt to clear using forceps and/or suction. Still obstructed: <ul style="list-style-type: none"> Reposition head and try to ventilate again. If remains obstructed: <ul style="list-style-type: none"> Start CPR Still obstructed: <ul style="list-style-type: none"> Attempt forced ventilation. Still obstructed: <ul style="list-style-type: none"> Intubate and push foreign body into right mainstem bronchus, then pull back tube and ventilate left lung. Still obstructed: <ul style="list-style-type: none"> Perform cricothyrotomy. Rapid transport to closest appropriate facility. <p>Note: Anytime the efforts to clear the airway are successful:</p> <ul style="list-style-type: none"> Complete Initial Medical Care Transport

Airway – Non-visualized

LEVEL	Non-Visualized Airways
FR B A I P	Indications: <ol style="list-style-type: none"> 1. Cardiac arrest from any cause. 2. Respiratory arrest. 3. Unconscious patient with inadequate respirations and no gag reflex. 4. FR: **As long as the provider has been trained and approved.
FR B A I P	Contraindications – DO NOT use on patient if: <ol style="list-style-type: none"> 1. Patient is under five (5) feet in height for Combitube, under four (4) feet tall for Combitube SA, and under four (4) feet tall for the King LTS-D airway (always comply with manufacturer's recommendations for sizing) 2. Active gag reflex. 3. Patient has ingested a caustic substance.
FR B A I P	Prepare for Insertion of the non-visualized airway: <ol style="list-style-type: none"> 1. Take appropriate body substance isolation precautions. 2. Prepare the non-visualized airway. <ul style="list-style-type: none"> • Choose the correct size device based on the patients height. • Determine cuff integrity per manufacturer's directions. • Lubricate as necessary. • Insure all necessary components and accessories are at hand 3. Prepare the patient. <ul style="list-style-type: none"> • Reconfirm original assessment. • Inspect upper airway for visual obstructions and remove. • Position the patient's head in a neutral position. • Have Nasal Cannula oxygen running at 15 liters/minute anytime not ventilating or attempting to place an advanced airway
FR B A I P	Airway Insertion (ETC): Esophageal Tracheal Combitube <ol style="list-style-type: none"> 1. Insert with ETC curvature in same direction as natural curvature of pharynx. <ol style="list-style-type: none"> a. Grasp the tongue and lower jaw between index finger and thumb and lift upward (jaw-lift maneuver). b. Insert the ETC gently but firmly until black rings on the tube are positioned between the patient's teeth. <ol style="list-style-type: none"> i. DO NOT USE FORCE. If tube doesn't insert easily, withdraw and reattempt. <ol style="list-style-type: none"> a. Maximum of three twenty (20) second attempts with appropriate ventilation between each attempt. c. Inflate pharyngeal cuff through line #1 (blue) with 100 mL of air (85mL for SA) and distal cuff through line #2 (white) with 15 mL of air (12mL for SA). d. Ventilate through primary (blue) tube. e. Confirm tube placement by auscultating breath sounds (high axillary and bilaterally) and auscultating over stomach. <ol style="list-style-type: none"> i. Esophageal placement: breath sounds are present bilaterally with epigastric sounds absent. <ol style="list-style-type: none"> a. Continue to ventilate through primary (blue) tube b. Consider gastric inserting gastric tube for suction

	<ul style="list-style-type: none"> ii. Tracheal placement: breath sounds are absent and epigastric sounds are present. <ul style="list-style-type: none"> a. Ventilate through secondary (clear) tube b. Reassess placement by auscultation and, if confirmed, <ul style="list-style-type: none"> 1) Continue to ventilate through secondary (clear) tube
LEVEL	Non-Visualized Airways (cont.)
FR B A I P	Airway Insertion (ETC): Esophageal Tracheal Combitube (cont) <ul style="list-style-type: none"> iii. Unknown placement: breath and epigastric sounds are absent. <ul style="list-style-type: none"> a. Immediately deflate cuffs (blue then white). b. Slightly withdraw tube then reinflate cuffs (blue/white). c. Ventilate and reassess placement. d. If breath sounds and epigastric sounds are still absent, immediately deflate cuffs and remove. <ul style="list-style-type: none"> 1) Suction as necessary. 2) Insert oropharyngeal or nasopharyngeal airway. 3) Ventilate with BVM. f. Continue ongoing respiratory assessment and treatment. g. Attach inline ETCO₂ monitoring if available
FR B A I P	Airway Insertion: King LTS-D <ul style="list-style-type: none"> 1. Normal Insertion <ul style="list-style-type: none"> a. Hold the King LTS-D at the connector with dominant hand With non-dominant hand, hold mouth open and apply chin lift unless contraindicated by C-Spine precautions or patient position. c. Using a lateral approach, introduce the tip into the corner of the mouth <ul style="list-style-type: none"> i. A chin lift or laryngoscope and tongue depressor can be used to lift the tongue anteriorly to allow easy advancement. d. Advance the tip behind base of the tongue while rotating the tube back to midline so that the blue orientation line faces the chin of the patient. <ul style="list-style-type: none"> i. Important that the tip of the device be maintained at the midline to assure that the distal tip is properly placed in the hypopharynx/upper esophagus. e. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums <ul style="list-style-type: none"> i. Depth of insertion is important to patent airway <ul style="list-style-type: none"> a. Ventilatory openings of the device must align with the laryngeal inlet for adequate oxygenation/ventilation. b. Deeper placement and subsequent retraction is preferred c. Withdrawal of the King LTS-D with the cuffs inflated results in a retraction of tissue away from the laryngeal inlet. d. Deeper placement eliminates obstruction by epiglottis or other tissue during spontaneous ventilation. f. Inflate Cuffs <ul style="list-style-type: none"> a. Inflate cuffs to volume sufficient to seal the airway. b. Typical inflation volumes <ul style="list-style-type: none"> 1) Size 3 – 45 to 60 mL. 2) Size 4 – 60 to 80 mL. 3) Size 5 – 70 to 90 mL. g. Attach ventilation device to the connector of the King LTS-D.

	<ul style="list-style-type: none"> h. At the same time, gently bag the patient and withdraw the King LTS-D 1cm per breath attempt until ventilation is easy and free flowing. i. Readjust cuff inflation to “just seal” volume. j. Check breath sounds and chest rise and fall. k. Attach inline ETCO₂ monitoring if available. l. Insert gastric tube
LEVEL	Non-Visualized Airways (cont.)
FR B A I P	Tube Removal: <ul style="list-style-type: none"> 1. Indications: <ul style="list-style-type: none"> a. Patient regains consciousness. b. Protective gag reflex returns. c. Ventilation is inadequate. 2. Position patient on side, using spinal injury precautions as necessary. 3. ETC: Deflate cuffs (blue then white) and withdraw airway. King LTS-D, remove per manufacturer’s directions. 4. Remove in smooth, steady motion, suctioning as needed. 5. Monitor airway and respirations closely, suction as needed.
B A I P	Provide prompt transportation.

i-gel Supraglottic Airway (Non-visualized Advanced Airway)

i-gel Supraglottic Airway may be used in the protocols anytime a King LT, Combitube or other Non-visualized Advanced Airway is indicated.

Indications:

1. Cardiac arrest from any cause.
2. Respiratory arrest.
3. Unconscious patient with inadequate respirations and no gag reflex.

Contraindications – DO NOT use on patient if:

1. Trismus, limited mouth opening, airway abscess or airway mass
2. Obstructive lesions below the glottis
3. Conscious or semi-conscious patients with an intact gag reflex

Precautions:

1. Take appropriate body substance isolation precautions.
2. Neck movement should be avoided in the trauma patient.
3. Prepare suction beforehand. Vomiting is particularly common when the oropharynx is stimulated by insertion of airway adjuncts.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC****

1. Initiate airway control with BLS methods: mouth-to-mask (with O2 if equipped) or BVM with adjunct and O2.
2. Based on patient weight/size, select the appropriate size i-gel:
 - Size 1 (pink) 2-5 kg, 5-11 lbs
 - Size 1.5 (light blue) 5-12 kg, 11-25 lbs
 - Size 2 (grey) 10-25 kg, 22-55 lbs
 - Size 2.5 (white) 25-35 kg, 55-77 lbs
 - Size 3 (yellow) 30-60 kg, 65-130 lbs
 - Size 4 (green) 50-90 kg, 110-200 lbs
 - Size 5 (orange) 90+ kg, 200+ lbs
3. Properly lubricate the back, sides, and front of gel cuff with a thin layer of lubricant. Use care to avoid the introduction of lubricant in or near the ventilatory openings.
4. Suction upper airway if needed.
5. In trauma patients, maintain neutral alignment of head and neck, avoiding hyperextension. In a medical patient, simply position head in sniffing position, hyperextend if necessary, to ease insertion.
6. Pre-oxygenate the patient if possible. If available, have Nasal Cannula oxygen running at 15 liters/minute anytime not ventilating or attempting to place an advanced airway
7. Pull mandible down to open the mouth

** As long as the provider has been trained and approved

8. Insert i-gel into oral cavity with the gel cuff facing away from the hard palate and while using continuous, gentle pressure, advance the i-gel downwards and backwards into until definitive resistance is felt. If difficulty inserting, consider smaller size i-gel.
9. At this point the tip of the airway should be located in the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite-block.
10. Attempt to ventilate patient. If device is not ventilating, it may be too deep or too shallow, adjust device and attempt to ventilate again. If unable to ventilate, remove device and resume BVM ventilations. Consider larger size i-gel and re-attempt if inadequate BVM ventilations.
11. Secure i-gel. Ensure there is sufficient tension to hold the i-gel securely in place, but not an excessive tension that may cause trauma to the patient's neck and face or that may cause unwanted downward pressure on the i-gel displacing it.
12. Ventilation through the i-gel
 - a. Attach BVM to i-gel and connect BVM to a suitable method of oxygen delivery and titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
 - b. Ventilate at initial rate of 8-12 breaths per minute to attain desired ventilation, modify to keep ET CO_2 greater than or equal to ET CO_2 35-45 mm Hg⁶
13. Confirm placement by auscultation, chest movement and capnography. If available, monitor continuous end-tidal CO_2 .

SPECIAL NOTES

i-gel airways are not tolerated in patients with an intact gag reflex. The device may need to be removed if patient begins to wake. Unfortunately, the gag reflex may return before the patient is really awake enough to handle secretions or even maintain regular respiratory rate. Be particularly cautious in such patients.

⁵ Cyanotic Heart Disease pulse ox goal 75-85%

⁶ Unless increased ICP with signs of brain herniation- then mild hyperventilation with goal ET CO_2 30-35 mmHg

Allergic Reaction/Anaphylaxis

Notes:

- Allergic reactions span a continuum from minor to life threatening.
- If due to a bee sting, remove stinger by scraping horizontally with tongue depressor or plastic card.

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Initial Medical Care
2. Apply cold pack to bite or injection site
3. Apply venous constricting band proximal to bite or injection site if swelling is increasing rapidly.
4. No need for supplemental oxygen if pulse ox is 90% or greater. If supplemental oxygen is given, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93% (if severe underlying lung disease goal is 88-92%). If patient is normally on supplemental oxygen and pulse ox on that oxygen is 90% or greater, transport with patient's normal oxygen rate. Do not withhold oxygen if patient is having difficulty breathing and you do not have the ability to assess O2 saturations
 - Assist with BVM if patient is not breathing adequately.
 - Protect airway, suction as needed.

EMERGENCY MEDICAL RESPONDER (EMR)

5. If authorized, approved and available, administer **Epi Pen** 0.3mg (Ped less than 25 kg give 0.15 mg) IM for signs of shock and/or difficulty breathing.
Or if authorized, approved and available, administer manually drawn up **Epinephrine (1:1000) IM 0.5 mg (Peds 0.01.mg/kg)** for signs of shock and/or difficulty breathing.
6. If wheezing and if authorized, approved and available, administer:
 - **Albuterol** Unit Dose (2.5 mg in 3 ml) administer per nebulizer or MDI⁷ (90mcg) 4 puffs with spacer. May also use DuoNeb. May repeat X 2 additional doses as needed for wheezing/SOB.

⁷ May use patient's own MDI

IM EPINEPHRINE FOR ANAPHYLAXIS/SEVERE ALLERGIC REACTION				Manual drawn Epinephrine 1:1,000		Mechanical Epinephrine (Epi- Pen)	
Age	Broselow	Kilos	Pounds	mg	mL	Junior	
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.05	0.05	Junior	
6 mo	PINK	6-7 kg	13 - 15 lbs	0.07	0.07	Junior	
9 mo	RED	8-9 kg	16 - 20 lbs	0.08	0.08	Junior	
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.1	0.1	Junior	
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.15	0.15	Junior	
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.15	0.15	Junior	
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.2	0.2	Junior	
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.3	0.3		Adult
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.35	0.35		Adult
12 yrs		40 kg	88 lbs	0.4	0.4		Adult
14 yrs		45 kg	99 lbs	0.45	0.45		Adult
16 yrs + (Max Single Dose)		50 kg+	110 lbs+	0.5	0.5		Adult

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

7. If extensive hives (urticaria), throat or tongue swelling, shortness of breath, wheezing or history of systemic reaction in past, give:
 - **Epinephrine (1:1000) IM 0.5 mg (Peds 0.01 mg/kg).** Dose may be repeated in 5-15 minutes if severe symptoms persist.
8. If wheezing give:

Albuterol Unit Dose (2.5 mg in 3 ml) administer per nebulizer or MDI (90mcg) 4 puffs with spacer. May also use DuoNeb. May repeat X 2 additional doses as needed for wheezing/SOB.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

9. Establish vascular access. Do not delay transport to obtain vascular access. Refer to IO protocol if unable to start IV.
10. If hypotension or evidence of shock, administer **IV fluid 500-1000mL (Peds 20 ml/kg) IV/IO.** May repeat up to 2000mL (Peds up to 3 boluses) if necessary. Reassess patient after each bolus and assess for pulmonary edema.

INTERMEDIATE / PARAMEDIC

11. If IM Epinephrine unsuccessful and/or patient has persistent hypotension or severe difficulty breathing, give **Epinephrine 0.05-0.1 mg (1:10,000 0.5-1 mL) IV/IO** (Peds 0.001 mg/kg per dose). Repeat every 2-5 minutes as needed. If no increase in BP or improvement in breathing after first bolus, may double subsequent boluses up to 0.2 mg/dose max (peds Max 0.004 mg/kg to 0.2 mg max).

IV Epinephrine for Severe Allergic Reaction, Shock, Severe Asthma/COPD/Bronchospasm				Initial IV Epinephrine	1:10,000 ⁸ 0.1mg/mL	1:100,000 ⁹ 0.01 mg/mL
Age	Broselow	Kilos	Pounds	mg	mL	mL
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.004 mg	0.05 mL	0.4 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	0.006 mg	0.1 mL	0.6 mL
9 mo	RED	8-9 kg	16 - 20 lbs	0.008 mg	0.1 mL	0.8 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.01 mg	0.1 mL	1 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.012 mg	0.15 mL	1.2 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.015 mg	0.15 mL	1.5 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.02 mg	0.2 mL	2 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.03 mg	0.3 mL	3 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.035 mg	0.35 mL	3.5 mL
12 yrs		40 kg	88 lbs	0.04 mg	0.4 mL	4 mL
14 yrs		45 kg	99 lbs	0.045 mg	0.45 mL	4.5 mL
16 yrs +		50 kg+	110 lbs+	0.05 mg	0.5 mL	5 mL

PARAMEDIC

12. If still in shock after 2000 mL (Peds 60 ml/kg) fluid bolus, see Shock Protocol.
13. Diphenhydramine (Benadryl) 50 mg IV/IO/PO (Peds 0.5-1 mg/kg to adult max)
14. Solumedrol 125 mg (peds 2 mg/kg) or Hydrocortisone¹⁰ 100mg (Peds 1-2 mg/kg) or Decadron 10-20 mg (Peds 0.3 mg/kg) IV/IO/IM/PO
15. If available, consider a Histamine-2 antagonist
 - Cimetidine (Tagamet): 300 mg PO/IV/IO/IM (peds: 5-10 mg/kg IV/IO/IM) or
 - Famotidine (Pepcid): 20 mg PO/IV/IO (peds: 0.5-1 mg/kg IV/IO/PO)

Contact Medical Control for the following:
Additional orders

⁸ To get 1:10,000 concentration- If only Epinephrine 1mg/mL (1:1,000) concentration is available, draw up 1 mL and add it to 9mL normal saline to create Epinephrine 0.1 mg/mL (1:10,000). Label the syringe before setting it down.

⁹ To get 1:100,000 concentration- For initial Epinephrine 0.1 mg/mL (1:10,000) concentration, draw up 1 mL and add it to 9mL normal saline. For initial Epinephrine 1 mg/mL (1:1,000) concentration, draw up 0.1 mL and add it to 9.9 mL normal saline. Invert the syringe several times to mix the solution. Syringe is now 100mcg/10mL or 10 mcg/mL. Label the syringe before setting it down

¹⁰ Hydrocortisone pediatric dosage 1-2 mg/kg or

- 0 up to 3 years old: 25 mg IV
- 3 up to 12 years: 50 mg IV
- 12 years and older: 100 mg IV

Asthma/COPD

Reactive Airways Disease, Bronchospasm, Emphysema and Chronic Bronchitis

Notes:

- Patients with COPD are usually older adults with a long and heavy smoking history. This includes patients with emphysema (“pink puffers”) and chronic bronchitis (“blue bloaters”). Exacerbations are often triggered by infections.
- Asthma is usually more common in childhood but may persist or re-occur later in life. There is usually an identifiable trigger, like infection, weather changes or exposure to certain allergens (e.g., dogs, pollen, etc.). The so-called classic triad of dyspnea, cough and wheezing may not always be present.
- Patients with a history of near fatal asthma are at increased risk of recurrent severe attacks and asthma-related death.
- Remember: “*All that wheezes is not asthma!*” Always consider the possibility of Congestive Heart Failure in older adults with wheezing.
- The absence of wheezing may be indicative of extreme airflow obstruction.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. Initial Medical Care.
2. Allow/assist the patient to assume a position of comfort (usually upright)
3. No need for supplemental oxygen if pulse ox is 90% or greater. If supplemental oxygen is given, titrate supplemental oxygen to lowest level to maintain pulse ox 94-96% (if severe underlying lung disease goal is 88-92%). If patient is normally on supplemental oxygen and pulse ox on that oxygen is 90% or greater, transport with patient's normal oxygen rate. Do not withhold oxygen if patient is having difficulty breathing and you do not have the ability to assess O2 saturations
 - Assist with BVM if patient is not breathing adequately.
 - Protect airway, suction as needed.

EMERGENCY MEDICAL RESPONDER (EMR)

4. Administer albuterol therapy: **Albuterol Sulfate** 2.5mg in 3 ml administer with nebulizer, or albuterol MDI¹¹ (90 mcg) 4 puffs with a spacer. If no improvement from albuterol (nebulizer or MDI), may immediately repeat once, and then repeat again every 15 minutes as needed. If there is a concern for transmission of a respiratory communicable disease, albuterol MDI is recommended over a nebulizer.
5. If patient has impending respiratory failure with concern for an allergic reaction, give epinephrine 0.5 mg (Peds 0.01mg/kg) IM or mechanical

¹¹ May use patient's own MDI

epinephrine injector. For severe symptoms, may give a second epinephrine injection in 5-15 minutes.

6. Obtain history of patient's current asthma/COPD meds; time and amount of last dose. Consider possibility of CHF/pulmonary edema if crackles present, especially in patients without a history of COPD/Asthma. Treat per cardiac protocols

IM Epinephrine for Asthma/COPD/Bronchospasm/Severe Allergy				Manual drawn Epinephrine 1:1,000		Mechanical Epinephrine (Epi-Pen)	
Age	Broselow	Kilos	Pounds	mg	mL	Junior	
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.05	0.05	Junior	
6 mo	PINK	6-7 kg	13 - 15 lbs	0.07	0.07	Junior	
9 mo	RED	8-9 kg	16 - 20 lbs	0.08	0.08	Junior	
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.1	0.1	Junior	
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.15	0.15	Junior	
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.15	0.15	Junior	
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.2	0.2	Junior	
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.3	0.3		Adult
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.35	0.35		Adult
12 yrs		40 kg	88 lbs	0.4	0.4		Adult
14 yrs		45 kg	99 lbs	0.45	0.45		Adult
16 yrs + (Max Single Dose)		50 kg+	110 lbs+	0.5	0.5		Adult

**EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

4. **Albuterol 2.5mg, 0.5mg Atrovent (DuoNeb)** via nebulizer. If there is a concern for transmission of a respiratory communicable disease, Albuterol MDI¹² (90mcg) 4 puffs with a spacer is recommended over a nebulizer.
5. Do not delay transport waiting for response. Document response.
6. If patient has impending respiratory failure or there is a concern for respiratory communicable disease and no MDI is available, give epinephrine 0.5 mg (Peds 0.01mg/kg) IM or mechanical epinephrine injector. For severe symptoms, may give a second epinephrine injection in 5-15 minutes.
7. Partial response: Immediately repeat Albuterol or Duoneb 2.5mg via nebulizer up to a total of 3 doses.
8. Consider CPAP for severe respiratory distress. See CPAP protocol.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

9. If severe symptoms or signs of dehydration, start an IV.

INTERMEDIATE / PARAMEDIC

¹² May use patient's own MDI

10. For severe difficulty breathing not improving with albuterol/IM epinephrine, give **IV Epinephrine 0.05-0.1 mg** (1:10,000 0.5-1 mL) IV/IO (Peds 0.001 mg/kg per dose). Repeat every 2-5 minutes as needed. If no increase in BP or improvement in breathing after first bolus, may double subsequent boluses up to 0.2 mg/dose max (peds 0.004 mg/kg to 0.2 mg max).

IV Epinephrine for Severe Allergic Reaction, Shock, Severe Asthma/COPD/Bronchospasm				Initial IV Epinephrine	1:10,000 ¹³ 0.1mg/mL	1:100,000 ¹⁴ 0.01 mg/mL
Age	Broselow	Kilos	Pounds	mg	mL	mL
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.004 mg	0.05 mL	0.4 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	0.006 mg	0.1 mL	0.6 mL
9 mo	RED	8-9 kg	16 - 20 lbs	0.008 mg	0.1 mL	0.8 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.01 mg	0.1 mL	1 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.012 mg	0.15 mL	1.2 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.015 mg	0.15 mL	1.5 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.02 mg	0.2 mL	2 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.03 mg	0.3 mL	3 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.035 mg	0.35 mL	3.5 mL
12 yrs		40 kg	88 lbs	0.04 mg	0.4 mL	4 mL
14 yrs		45 kg	99 lbs	0.045 mg	0.45 mL	4.5 mL
16 yrs + (Max Single Dose)		50 kg+	110 lbs+	0.05 mg	0.5 mL	5 mL

PARAMEDIC

11. For severe symptoms, give Magnesium Sulfate 2g (Peds 25-50 mg/kg) IV/IO infuse over 10 minutes
12. For symptoms not resolved with a single albuterol treatment, give Solumedrol 125 mg (peds 2 mg/kg) or Hydrocortisone¹⁵ 100mg (Peds 1-2 mg/kg) Decadron 10-20 mg (Peds 0.3 mg/kg) IV/IO/IM/PO

Contact Medical Control for the following:
For additional orders

¹³ To get 1:10,000 concentration- If only Epinephrine 1mg/mL (1:1,000) concentration is available, draw up 1 mL and add it to 9mL normal saline to create Epinephrine 0.1 mg/mL (1:10,000). Label the syringe before setting it down.

¹⁴ To get 1:100,000 concentration- For initial Epinephrine 0.1 mg/mL (1:10,000) concentration, draw up 1 mL and add it to 9mL normal saline. For initial Epinephrine 1 mg/mL (1:1,000) concentration, draw up 0.1 mL and add it to 9.9 mL normal saline. Invert the syringe several times to mix the solution. Syringe is now 100mcg/10mL or 10 mcg/mL. Label the syringe before setting it down

¹⁵ Hydrocortisone pediatric dosage 1-2 mg/kg or • 0 up to 3 years old: 25 mg IV • 3 up to 12 years: 50 mg IV • 12 years and older: 100 mg IV

Bradycardia

Note:

Criteria for characterizing a patient as “unstable”*

- Hemodynamic Criteria
 - SBP less than 90 mmHg AND Heart Rate less than 50 beats/min
- Clinical Criteria
 - Signs of shock (poor perfusion) are present, including
 - ALOC including syncope, weakness, lightheadedness, fatigue
 - Absent radial pulses
 - Pallor and diaphoresis
 - Signs of pulmonary edema are present, including
 - Labored breathing
 - Rales (wet lungs)
 - Hypoxia (SpO₂ less than 90%)
 - The patient complains of angina

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Initial Medical Care.
- Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%¹⁶ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O₂ saturations.
- If the patient is having chest pain – refer to the *Chest Pain Guidelines*

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)

- Obtain rhythm strip and/or 12 lead**, if approved and available. Transmit to hospital.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Obtain a rhythm strip and/or 12-Lead EKG**. If unable to interpret 12 lead EKG, transmit EKG to hospital.
- IV/IO** NS @ TKO, if approved.
- If the SPB less than 90 mmHg and lungs are clear, administer 500ml bolus NS/LR IV/IO and may repeat up to 2,000 ml if no signs of pulmonary edema develop.
- If the patient remains hemodynamically and clinically stable, observe and monitor. Prepare for transport.

Contact Medical Control for the following:

- Additional fluid boluses

¹⁶ Cyanotic Heart Disease pulse ox goal 75-85%

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

INTERMEDIATE / PARAMEDIC

- If the patient is (or becomes) hemodynamically or clinically unstable,
 - Give **Atropine** 0.5mg IV/IO.
 - May repeat to a maximum of 3 mg
 - If the patient fails to respond to **Atropine** or patient has a third-degree heart block
 - Initiate transcutaneous pacing (TCP) immediately
 - Set the HR at 70 – 80 beats/min
 - Set the voltage at 40 mA initially and watch for the pacer spikes on the monitor
 - Increase voltage by 20 mA every 3-5 seconds until there is 100% capture:
 - a wide QRS complex appears on the monitor after every pacer spike
 - a pulse can be felt in the femoral or carotid artery after every QRS complex
 - Then increase the voltage by 10%
 - Monitor pulse and blood pressure
 - Consider pain control
 - If the patient fails to respond to Atropine and/or pacing, consider **Epinephrine** 0.1 mg IV/IO and repeat every 3-5 minutes as needed.

Contact Medical Control for the following:

- Early notification if an acute myocardial infarction is apparent on the 12-lead EKG

INTERMEDIATE

Consider causes. Consider Betablocker and Calcium Channel blocker as cause, and if suspected and symptomatic give:

Glucagon 1mg IV/IO every 5 minutes.

- Anticipate nausea or hypotension – be prepared to give anti-nausea medications

PARAMEDIC

- If the patient failed to respond to Atropine, consider administering an adrenergic infusion which may be preferred to pacing
 - Dopamine infusion: 5-20 mcg/kg/minute titrate to SBP 90 or greater
 - Epinephrine infusion: 2-10 mcg/minute titrate to SBP 90 or greater
- Consider causes. Consider Betablocker and Calcium Channel blocker as cause and if suspected and symptomatic:

Beta Blocker Overdose

1. **Glucagon 1mg IV/IO every 5 minutes.**

- Anticipate nausea or hypotension – be prepared to give anti-emetic medications

If refractory consider:

2. **Dopamine 5–20 mcg/kg/min IV/IO**
3. **Calcium Chloride (10%) 5–10 mL (peds 0.1 mL/kg) IV/IO**
4. Consider transcutaneous pacing

Calcium Channel Blocker Overdose

1. **Calcium Chloride (10%) 5–10 mL (peds 0.1 mL/kg) IV/IO**
2. **Glucagon 1mg IV/IO every 5 minutes.**
 - Anticipate nausea or hypotension – be prepared to give anti-emetic medications

If refractory, consider:

3. **Dopamine infusion 5-20 mcg/kg/min IV/IO.**
4. **Repeat Calcium Chloride (10%) 5–10 mL (peds 0.1 mL/kg) IV/IO.**
5. Consider transcutaneous pacing

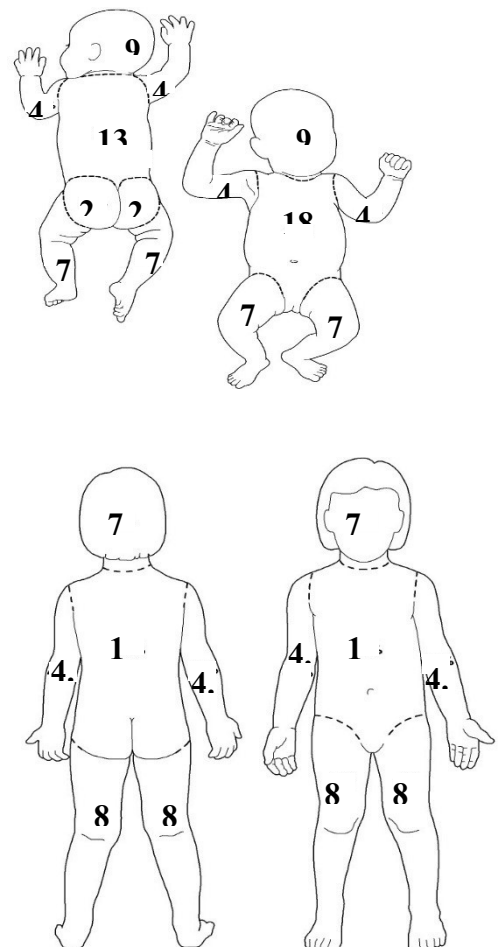
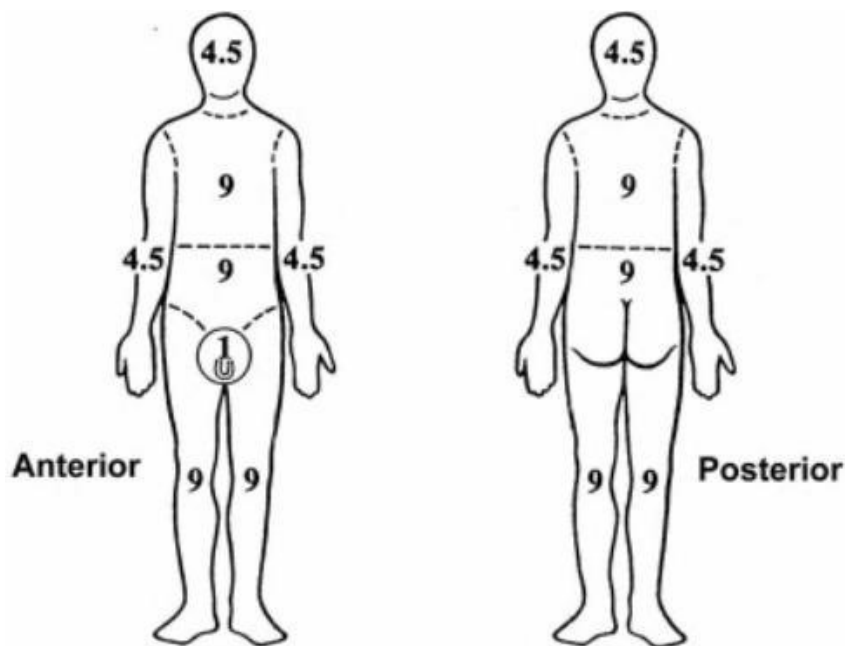
<i>Contact Medical Control for the following:</i> Additional orders

Burns

Level	Burns
FR B A I P	Initial Trauma Care – Special Considerations: <ul style="list-style-type: none"> Assess depth of burn Consider Transport to Burn Center. Burn injuries that may be sent directly to a burn center include: <ul style="list-style-type: none"> Partial thickness burns greater than 10% total body surface area (TBSA). Burns that involve the face, genitalia, or perineum. Circumferential burns of the hands, feet or major joints. Third degree burns of more than 1% size in any age group. Major Electrical burns, including lightning injury. Major Chemical burns. Inhalation injury. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
A I P	<ol style="list-style-type: none"> Assess extent of burns using Rule of Nine's or use patient's palmar surface = 1%. Note location of burns. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%¹⁷ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. IV/IO: may need to start IV/IO through burned tissue if no other access sites. <ol style="list-style-type: none"> Minor Burn: If IV needed for pain management. Moderate or Severe Burn: Large bore catheter IV. Calculate Parkland formula: $4 \times \text{kg} \times \% \text{BSA} = 1^{\text{st}} \text{ half given during first 8 hrs.}$ Contact Medical Control if unsure.
I P	<ol style="list-style-type: none"> Assess EKG: treat all dysrhythmias per appropriate Protocol Consider Pain Management.
FR B A I P	Thermal <ol style="list-style-type: none"> Remove burned clothing, jewelry, belts, shoes, etc. Do not pull away clothing that is stuck to underlying skin. WOUND CARE: <ul style="list-style-type: none"> Cool with water or saline if burn occurred within last 15 minutes. Do not overcool or use ice. Cover BSA less than 10% with sterile saline soaked dressings or dry dressing. Cover BSA greater than 10% with dry sterile dressings.
FR B A I P	<ol style="list-style-type: none"> Open sterile sheet/burn pads on stretcher before placing patient for transport. Cover patient with dry, sterile sheets and blanket to maintain body warmth.
B A I P	Inhalation

¹⁷ Cyanotic Heart Disease pulse ox goal 75-85%

Level	Burns
P	<ol style="list-style-type: none"> Assess for the presence of stridor, wheezing, carbonaceous sputum, cough, hoarseness, singed nasal or facial hair, dyspnea, or facial burns. Oxygen via non-rebreather mask or BVM. <ul style="list-style-type: none"> Humidify oxygen if able.
LEVEL	Burns
FR B A I P	Electrical/Lighting <ol style="list-style-type: none"> Establish scene safety. Shut off/remove electrical source. Immobilization/splint if any fall or loss of consciousness. Assess for entrance/exit wounds. Apply dry, sterile dressings. No cooling necessary. Assess neurovascular function of all extremities EKG monitoring. Treat dysrhythmias per appropriate Protocol.
B A I P	Chemical <ol style="list-style-type: none"> Irrigate burn with copious amounts of water or saline unless a contraindication exists, i.e., sodium metals, dry chemicals (especially alkaline). Brush off as much of the agent as possible before irrigating. If burn occurred in an industrial setting, bring in MSDS sheets if possible.



Capnography (ETCO₂ Monitoring)

LEVEL	EtCO ₂ MONITORING/CAPNOGRAPHY
	<p>End-tidal CO₂ (EtCO₂) is the measurement of carbon dioxide (CO₂) in the airway at the end of each breath. Capnography provides a numeric reading (amount) and graphic display (waveform) of the EtCO₂ throughout the respiratory cycle. Normal range is 35-45 mmHg. Hyperventilation is an increased respiratory rate, which will decrease the CO₂. Hypoventilation is a decreased respiratory rate, which will increase the CO₂.</p> <p>B A: **As long as the provider has been trained and approved.</p>
B A I P	<p>Indications: <i>Patients either intubated or with a non-visualized airway in place:</i></p> <ol style="list-style-type: none"> 1. Verification of appropriate advanced airway placement (along with another method of detection.) 2. Monitoring and detection of tube dislodgement (seen as an abrupt drop to zero) 3. Loss of circulatory function (seen as a drop in the waveform) 4. Determination of adequate CPR. 5. Confirmation of return of spontaneous circulation (sudden spike in EtCO₂ to a “normal” value) 6. Maintain ETCO₂ at 35-45mm Hg during ventilations.
B A I P	<p>Indications: <i>Non-intubated patients:</i></p> <ol style="list-style-type: none"> 1. Assessment of asthma and COPD 2. Documented monitoring during procedural sedation (the respiratory depressant effect of the medication will be seen as an increased EtCO₂ value and smaller waveform, which drops to zero during episode of apnea) 3. Detection of apnea and inadequate breathing 4. Measure and evaluation of hypoventilation 5. Measure and evaluation of hyperventilation
B A I P	<p>Procedure:</p> <ol style="list-style-type: none"> 1. Apply sensor to the patient and connect the EtCO₂ sensor to the cardiac monitor. Be sure to zero the monitor according to the manufacture directions. (no numbers are better than wrong numbers) 2. Check the monitor for a good waveform. The interpretation should be done after 40-60 seconds of ventilations. 3. Note the EtCO₂ level and any waveform changes. 4. Continue to monitor vital signs and EKG during capnography.
LEVEL	EtCO ₂ MONITORING/CAPNOGRAPHY

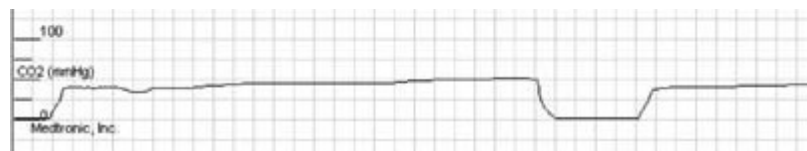
B A I P

Indications during CPR:

1. During compressions an EtCO₂ of greater than 20mmHg is desirable. An EtCO₂ greater than 20mmHg 20 min after initiation of CPR and ACLS is a predictor of survivability to hospital admission.
2. A low EtCO₂ may indicate inadequate compressions, hyperventilation, or may be seen immediately following administration of a vasopressor (transient decrease). An EtCO₂ of less than 10mmHg 20 minutes after initiation of CPR and ACLS is a good predictor of death.
3. Administration of sodium bicarbonate will produce a transient rise in the EtCO₂.
4. During compressions, a sudden rise in EtCO₂ is a good indicator of a return of spontaneous circulation (ROSC).

Indications during Respiratory Monitoring:

1. The **hypoventilation** waveform (EXAMPLE 1), related to a decreased respiratory rate, will have fewer waveforms, with each presenting increased height due to the presence of more CO₂ per breath. There are however, other reasons for an increased EtCO₂ and increased waveform height. These include a decreased tidal volume with or without a decreased respiratory rate, an increased metabolic rate (sepsis) and an increased body temperature, or malignant hyperthermia. (i.e. EtCO₂ increased-bag more)




EXAMPLE 1

2. The **hyperventilation** waveform (EXAMPLE 2), related to an increased respiratory rate, will have a higher number of waveforms with a decreased height of the waveforms due to the presence of less CO₂ per breath. Other reasons for a decreased EtCO₂ and decreased waveform height include increased tidal volume, a decreased metabolic rate, a decrease in circulation (hypotension) and hypothermia (i.e. EtCO₂ decreased: provider should bag less, consider fluid bolus, warm the patient).
3. Patients who are hyperventilating and exhibiting anxiety can be challenging to diagnose. Hyperventilation with normal or high EtCO₂ levels is more likely to reflect pathology, such as shock, whereas hyperventilation with low EtCO₂ levels is more likely to reflect anxiety, but also may indicate pulmonary embolism.



EXAMPLE 2

LEVEL	EtCO ₂ MONITORING/CAPNOGRAPHY
B A I P	<p>4. A shark-fin shape (EXAMPLE 3) instead of the normal box-like waveform recognizes the bronchospastic capnography waveform. This is because bronchospasm causes a slower and more erratic emptying of CO₂ from the alveoli, which results in a slower rise in the expiratory upstroke. Capnography can be effectively used during the assessment and treatment of asthma and chronic obstructive pulmonary disease (COPD) patients to detect the presence and severity of bronchospasm. It can also guide treatment decisions when the shark fin denoting bronchospasm does not improve or even worsens. This capnography use can be helpful in determining when, or if, to move to the next level of treatment, including intubation or continuous positive airway pressure (CPAP). This patient is also a candidate for an Albuterol and Atrovent treatment.</p>  <p>EXAMPLE 3</p> <p>Special Notes:</p> <ol style="list-style-type: none"> 1. Make sure appropriate EtCO₂ sensor is used for the adult or pediatric patient 2. Use of capnography does not replace the need to auscultate breath sounds on patients. 3. Emesis and secretions can undermine reliability of detector if humidified particles clog device. <p>Loss of EtCO₂ detection or waveform indicates a potential airway problem and must be investigated.</p>

Cardiac Arrest

Code Commander – One rescuer responsible to oversee that quality compressions and proper ventilations are being performed.

MCMAID – a prioritized sequence consisting of:

M = Metronome (100/min)

C = Chest compressions (focus on rate, recoil and depth)

M = Monitor (AED or Manual set to max joules)

A = Airway (OPA, ensures patency, NON-REBREATHER MASK @ 15/LPM)

I = Intravenous or Intraosseous access

D = May or May Not give drugs (Epi, Amiodarone). If you are going to give drugs, be ready to administer and monitor timing for repeat doses.

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Establish that the patient is unresponsive, and not breathing normally
- Check for DNR bracelet, dependent lividity, rigor mortis
- **Perform Effective Chest compressions**
 - Push hard and fast 100-120 compressions per minute
 - Compress the chest 5-6 cm
 - Allow for complete chest recoil
 - Transport of a patient in cardiac arrest is not indicated except in unusual circumstances. Medical Control must be involved in this decision. Manual chest compression is ineffective in a moving vehicle.
- **Defibrillate:**
 - Apply and activate the AED as soon as possible after starting chest compressions.
- **Manage the airway**
 - Head tilt/chin lift (jaw thrust if c-spine injury suspected) and oral/nasal airway with non-rebreather mask at 15 L/minute.
 - Consider withholding ventilation for the first 6 minutes of the resuscitation if AED indicates shock (or patient is receiving shocks).
 - Non-visualized advanced airway, if approved, if no shock is indicated or 6 minutes of CPR have been performed. (**Endotracheal intubation may only be placed after pulses have returned and are sustained.**)
 - Do not interrupt compressions to place an airway, unless absolutely necessary.
 - Consider ventilation at 30 compressions: 2 ventilations.
 - If there is ROSC (Return of Spontaneous Circulation, i.e. pulse achieved), provide the following supportive interventions:
 - Support ventilation at 10-12 breaths/minute. If ETCO₂ available, titrate ventilations to ETCO₂ of 35-45 mmHg unless patient factors prompt more individualized treatment.
 - Titrate oxygen therapy to the lowest level required to maintain an oxygen saturation greater than 93%
 - May consider Endotracheal intubation if airway not controlled and ROSC achieved and maintained.

- If trained and approved, get 12 lead EKG**. If unable to interpret 12 lead EKG, transmit EKG to hospital.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Basic CPR and appropriate AED use is the most important
- Initiate IV/IO** NS, if approved, without interrupting CPR and run wide open if no signs of CHF.

Contact Medical Control for the following:

- Additional orders

INTERMEDIATE / PARAMEDIC

- Basic CPR and appropriate defibrillation are most important.
- Initiate cardiac rhythm monitoring and analysis.
- Proceed to the respective protocols for:
 - Asystole/Pulseless Electrical Activity
 - Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/PVT)
- Asystole/PEA
 - If Asystole appears on the monitor, confirm true asystole
 - Check on/off switches
 - Check leads
 - Check gain and sensitivity settings
 - Confirm asystole in 2 or 3 leads
 - Identify and correct reversible causes: The H's and T's
 - This applies mostly to PEA, but to a lesser extent, asystole, as well.
 - The Hs (treatment orders are in parentheses)
 - Hypovolemia
 - (Infuse Normal Saline wide open)
 - Hypoxia
 - (Administer high-flow oxygen and perform ventilation: do not hyperventilate)
 - Hydrogen Ion, i.e. acidosis
 - (Perform ventilation, EMT-P: Consider **Sodium Bicarbonate** 1 amp IV)
 - Hyperkalemia
 - (EMT-P: Consider 10 ml **Calcium Chloride** 10% IV over 2 – 5 minutes. May repeat X 1)
 - (EMT-P: Consider **Sodium Bicarbonate** 1 amp IV)
 - (EMT-A/I/P: **Albuterol** nebulizer treatment with 1 – 2 Unit Doses)

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

- Hypokalemia
 - (Even if hypokalemia is suspected, it is not treated in the field.)
- Hypothermia
 - (See *Hypothermia & Frostbite Guidelines*)
- Hypoglycemia
 - (Administer Dextrose IV- see hypoglycemia protocol)
- The Five Ts (treatment orders are in parentheses)
 - Tablets
 - (See *Toxic Exposure & Overdose Guidelines*)
 - Tamponade
 - (EMT-P: Pericardiocentesis if trained and approved)
 - Tension pneumothorax
 - (Intermediate/Paramedic- Perform needle decompression)
 - Thrombosis, cardiac i.e. myocardial infarction
 - (No specific prehospital treatment available; cath lab)
 - Thrombosis, pulmonary i.e. pulmonary embolism
 - (No specific prehospital treatment available)
- **May or May Not give Epinephrine**¹⁸ (1:10,000 or 1:1,000) 1 mg IV/IO every 3-5 minutes.
- VFib/Pulseless VT
 - Defibrillate according to manufacturer's recommendation (if recommendation unknown, defibrillate at highest power setting). Have defibrillator charged prior to checking rhythm to reduce time of CPR interruption.
 - Resume CPR immediately for 2 minutes. Do not check for pulse before 2 minutes.
 - Defibrillate according to manufacturer's recommendation (if recommendation unknown, defibrillate at highest power setting).
 - Resume CPR immediately for 2 minutes
 - **May or May Not give Epinephrine**¹ 1 mg (10 ml of 1:10,000 or 1 ml of 1:1,000) IV/IO every 3-5 minutes
 - If VT/VF persists, defibrillate according to manufacturer's recommendation every 2 minutes with continuous CPR between defibrillation. After the third defibrillation attempt, may consider Double Sequential External Defibrillation (if two defibrillators are available, see protocol).

¹⁸ Epinephrine IV during cardiac arrest has been shown to improve the chance of getting a pulse back and getting admitted to the hospital, but survival to hospital discharge is unchanged compared to no epinephrine. A study looking at data from 2004-2007 ([Swor R](#), [Lucia V](#), [McQueen K](#), [Compton S](#). "Hospital costs and revenue are similar for resuscitated out-of-hospital cardiac arrest and ST-segment acute myocardial infarction patients." *Acad Emerg Med*. 2010 Jun;17(6):612-6.), showed the median hospital revenue from cardiac arrest patients admitted to the hospital was \$17,334. Although epinephrine may seem inexpensive, the \$20,000 plus dollars (inflation) that the hospitalization costs the family and their insurance, without improved survival, may not be the best use of resources. **AHA 2015 Recommendation—Updated Standard**-dose epinephrine (1 mg every 3 to 5 minutes) may be reasonable for patients in cardiac arrest (Class IIb, LOE B-R).

- Anti-arrhythmic
 - **May or May Not give Amiodarone¹⁹** 300 mg IV bolus; may repeat 150 mg IV x1.
Or
May or May Not give Lidocaine 100 mg IV bolus (1.5 mg/kg); may give 50 mg (0.75mg /kg) every 5-10 minutes times two doses (max total 3 mg/kg).
 - **Magnesium Sulfate (Paramedic only)** 2 g IV bolus **only for Torsades de Pointe, may repeat in 5-15 minutes x 1 if not resolved.**
 - If chronic dialysis patient and suspected hyperkalemia
 - EMT-P: Consider 10 ml **Calcium Chloride 10%** IV over 2 – 5 minutes. May repeat X 1
 - EMT-P: Consider **Sodium Bicarbonate 8.4%** 1 amp IV (must flush line before and after Sodium Bicarbonate use to avoid medication interaction)

Contact Medical Control for the following:

- Additional orders

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

Termination of Resuscitation without Medical Control Contract

If at least 20 minutes of resuscitation have occurred without return of pulses, terminate resuscitation (without Medical Control Contact) if all three of the following are present:

- Cardiac Arrest unwitnessed by EMS
- No shock by automated defibrillator or manual defibrillator
- No pulse without CPR at any time during resuscitation

If the patient does not meet all these criteria, contact Medical Control for further direction.

Contact Medical Control for the following:

Medical Control may terminate resuscitation by other criteria, may advise other efforts or may order transport. **DO NOT INITIATE TRANSPORT OF A PATIENT IN CARDIAC ARREST WITHOUT MEDICAL CONTROL APPROVAL.**

¹⁹ Amiodarone IV during Vfib cardiac arrest has been shown to improve the chance of getting a pulse back and getting admitted to the hospital, but survival to hospital discharge is unchanged compared to no amiodarone. **AHA 2015 Recommendations—Updated** Amiodarone may be considered for VF/pVT that is unresponsive to CPR, defibrillation, and a vasopressor therapy (Class IIb, LOE B-R).

“Amiodarone, Lidocaine or Placebo in Out-of-Hospital Cardiac Arrest” by ROC, NEJM April 2016 (online ahead of publish) showed **no survival advantage of Amiodarone or Lidocaine over Placebo.**

Cardiogenic Shock

Note:

- Shock is defined as inadequate perfusion of vital organs, not merely hypotension.
- Circulatory failure is due to inadequate cardiac function.
- Be aware of patients with congenital defects.
- Cardiogenic shock exists in the pre-hospital setting when heart malfunction (such as an MI) is suspected and there is no specific indication of volume related shock.
- Pulmonary Edema or CHF may cause or be caused by cardiogenic shock (pediatrics with congenital heart defects may rarely have pulmonary edema).
- Marked, symptomatic tachycardia and bradycardia will also cause cardiogenic shock.

EMERGENCY MEDICAL RESPONDER (EMR)/ EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

1. Initial Medical Care.
 - a. Maintain airway.
 - b. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²⁰ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have ability to assess O2 saturations.
2. Remove all transdermal patches with gloves.
3. Place in position of comfort.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

4. Obtain 12 lead EKG^{**} within 5 minutes of patient contact. Interpret and/or transmit to receiving hospital for interpretation.
5. **Consider CPAP if patient is in severe respiratory distress.** Follow CPAP protocol.
6. **If SBP greater than 100 mm Hg, follow CHF/Pulmonary edema protocol.**

ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

7. Establish IV/IO^{**}
8. If hypovolemic and/or dehydrated **and** lungs are clear: **Fluid bolus in 500 mL increments up to 2 liters.**

Contact Medical Control for the following:

- Additional orders

PARAMEDIC

9. For Patients with systolic BP less than 100 mmHg WITH evidence of poor tissue perfusion (cold periphery, altered mental status, etc.) DESPITE correction of non-cardiac factors (hypovolemia, hypoxia, acidosis, and dysrhythmias).

²⁰ Cyanotic Heart Disease pulse ox goal 75-85%

^{**} 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

^{**} IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

- a. If SBP 70-100 mmHg and signs of shock start Dopamine 5 mcg/kg/min. Titrate up to 20 mcg/kg/min or SBP greater than or equal to 100 mmHg
 - b. If SBP less than 70 mmHg give Dopamine at 20 mcg/kg/minute and when SBP greater than or equal to 100 mm Hg titrate down
10. For Patients with systolic BP less than 100 mmHg WITHOUT evidence of poor tissue perfusion (cold periphery, altered mental status, etc.).
- a. Correct non-cardiac factors (hypovolemia, hypoxia, acidosis, and dysrhythmias)
 - b. Transport

<u>Dopamine Drip Dosing Chart</u>			
For use with Dopamine drip premix 400 mg/250 mL D5W or 800 mg/500 mL D5W			
<u>This Chart Only Good When Using Micro Drip Sets 60 Drops = 1 mL</u>			
Weight		<u>Dose Ranges</u>	
Pounds	Kilograms	<u>Start at 5 mcg/kg/min</u>	<u>Do not exceed 20 mcg/kg/min</u>
88	40	8 gtts/min	32 gtts/min
121	55	10 gtts/min	40 gtts/min
143	65	12 gtts/min	48 gtts/min
165	75	14 gtts/min	56 gtts/min
187	85	16 gtts/min	64 gtts/min
220	100	19 gtts/min	78 gtts/min
253	115	22 gtts/min	88 gtts/min
286	130	24 gtts/min	98 gtts/min

Notes: Always titrate to patient response. Individual dosage requirements vary widely by weight.

Chest Injuries

LEVEL	Chest Injuries
FR B A I P	Initial Trauma Care. <ul style="list-style-type: none"> Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²¹ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. If patient is suspected of having internal chest trauma: 2 large bore IVs normal saline. Attempt ENROUTE. If hypotensive, run consecutive fluid bolus of 500 ml. See hypovolemic trauma protocol. Use pressure infusers if indicated. Consider pain management protocol.
A I P	
I P	
I P	Tension Pneumothorax: Unilateral absence of breath sounds, JVD; decreased BP, extreme dyspnea, resistance to BVM ventilations, “increased airway resistance, tracheal deviation (late sign). <ol style="list-style-type: none"> Needle pleural decompression. 2nd-3rd intercostal space (above 3rd or 4th rib), midclavicular line on affected side. If patient does not stabilize, repeat in the 5th or 6th intercostal space, anterior axillary line on the affected side. If patient stabilizes, continue Initial Trauma Care; follow other protocols as required. Expeditious transport. Monitor for PEA.
B A I P	Open Pneumothorax: Sucking Chest Wound <ol style="list-style-type: none"> Immediately apply occlusive dressing Monitor/note VS and ventilatory/circulatory status after procedure. If patient stabilizes, continue Initial Trauma Care; follow other protocols as required. Expeditious transport. If patient develops signs of tension pneumothorax, temporarily release side of dressing to allow air to escape. Recover wound.
B A I P	Flail Chest: <ol style="list-style-type: none"> If ventilatory distress: ventilate with CPAP or Assist with BVM to provide internal splinting. Do not apply external splinting.
A I P	Pericardial Tamponade: <ol style="list-style-type: none"> Expeditious transport. IV/IO wide open up to 2000 mL’s while enroute. Monitor for PEA PNB Patient: Perform Needle Pericardiocentesis Pulses Present: <i>At discretion of Medical Control</i> - → Perform Needle Pericardiocentesis
A I P	
A I P	
P	
P	

²¹ Cyanotic Heart Disease pulse ox goal 75-85%

Chest Pain/Acute Coronary Syndrome (ACS)

STEMI (ST Elevation Myocardial Infarction)

Goal – “EMS contact to Balloon Time less than 90 minutes”

Indications for 12 lead EKG include: chest pain/discomfort, palpitations, dysrhythmias, shortness of breath, syncope, dizziness, nausea, vomiting, diaphoresis, and weakness. Be aware of atypical presentations, including: absence of chest pain in women, diabetic and geriatric patients.

STEMI/Cardiac Alert should be initiated for:

- QRS complex less than 0.12 seconds in length and
- ST Elevation greater than or equal to 1mm present in two or more anatomically contiguous leads. (II, III, aVF); (I, aVL, V5, V6); (V1-V6)
- Use the appropriate term (STEMI Alert or Cardiac Alert) based on the receiving hospitals procedures.

Notify the ED to look for transmitted EKG for the following:

- QRS complex greater than or equal to 0.12 seconds in length and ST elevation or
- Signs of ischemia with ST depression in two or more contiguous leads
- EKG just doesn't look right

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. Perform primary medical assessment and Initial Medical Care.
2. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²² (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ADVANCED EMT (AEMT)

If trained in 12 lead EKGs and 12 lead EKG available, Obtain 12 lead EKG within 5 minutes of patient contact. Transmit to receiving hospital for interpretation.

- Contact hospital to trigger STEMI/Cardiac Alert process.
- IF STEMI, options for care:
 - Initial rapid transport to close ED.
 - Direct transport to facility with rapid cath lab access
 - Intercepting with ALS for direct transfer to cath lab facility via:
 - Air Medical Transport
 - ALS Ground Transport
- If not clear-cut situation, communication between Medical Control physician and EMS team is essential to determine receiving facility destination, and method of transport.

²² Cyanotic Heart Disease pulse ox goal 75-85%

12 lead should be repeated if still having symptoms before initiating transport and again on arrival at the hospital²³ (in addition to when first evaluating the patient).

12 lead should also be repeated for rhythm changes or significant worsening of chest pain. If trained in Cardiac Monitors and Cardiac Monitor available, apply Cardiac Monitor.

3. Aspirin 324 mg PO; if not already taken and not contraindicated by severe allergy or significant active bleeding. If patient has taken Aspirin prior to arrival, administer the difference up to 324 mg PO.

EMERGENCY MEDICAL TECHNICIAN (EMT)

May assist patient in taking their own NTG as long as SBP is greater than 100 mmHg.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

4. **Nitroglycerin (NTG) 0.4mg Sublingual (SL):** If systolic BP greater than 100mmHG and chest discomfort present. *No IV required for administering Nitroglycerin.* May repeat as needed every 3-5 minutes if systolic BP greater than 100mm HG and chest discomfort present. No maximum number of NTGs. CONTRAINDICATION: Viagra (Sildenafil male/female patients), Cialis, Levitra or similar medication.
5. If pain not relieved after 3 NTG, consider additional medications per Pain Protocol.
6. Establish IV

INTERMEDIATE / PARAMEDIC

Obtain 12 lead EKG within 5 minutes of patient contact. Interpret EKG and/or transmit to receiving hospital for interpretation

- Contact hospital to trigger STEMI/Cardiac Alert process.
- IF STEMI, options for care:
 - Initial rapid transport to close ED.
 - Direct transport to facility with rapid cath lab access
 - Intercepting with ALS for direct transfer via:
 - Air Medical Transport
 - ALS Ground Transport
- If not clear-cut situation, communication between Medical Control physician and EMS team is essential to determine receiving facility destination, and method of transport.

12 lead should be repeated if still having symptoms before initiating transport and again on arrival at the hospital (in addition to when first evaluating patient).

12 lead should also be repeated for rhythm changes or significant worsening of chest pain

7. Cardiac Monitor- evaluate for dysrhythmias and if present see appropriate protocol.
8. If nauseated or vomiting, see Nausea/Vomiting Protocol

²³ Checking the EKG on initial evaluation and again before starting transport and upon arrival at the hospital increases the chances of identifying a STEMI by 15% over just getting the EKG once.

PARAMEDIC

- 9.
10. *When transporting directly to a cath lab facility and medications available, consider*

Contact Medical Control for the following:

- Plavix 600mg PO
- Heparin 60 units/kg IV, Max 5000 units.

**EMERGENCY MEDICAL TECHNICIAN (EMT)/ADVANCED EMT (AEMT)/
INTERMEDIATE / PARAMEDIC**

11. Complete STEMI/Cardiac Alert worksheet and provide copy to ED/Cath lab/transport team staff.

AURORA SOUTH EMS STEMI / Cardiac Alert Check List

PATIENT NAME: _____ RUN # _____ DOB _____

BASELINE VITALS: B/P _____ P _____ R _____ O2 SAT _____

DATE OF ONSET: _____ TIME OF ONSET: _____ 911 CALL TIME: _____

TIME AT PT: _____ TIME EKG DONE: _____ ER ARRIVAL: _____

Completed

1. PATIENT WITH CHEST PAIN / DISCOMFORT CONSISTENT WITH AN ACUTE CORONARY SYNDROME!! _____ ☐

OR (NOTE DATE AND TIME OF ONSET OF SYMPTOMS)

2. OTHER CLASSIC SYMPTOMS CONSISTENT WITH ACUTE CORONARY SYNDROME!! (DYSPNEA, SYNCOPE, DIZZINESS, DIAPHORESIS, N & V) _____ ☐

↓

3. A PRE-HOSPITAL 12 LEAD EKG HAS BEEN DONE!! _____ ☐

↓ (WAS IT TRANSMITTED TO HOSPITAL?)

4. NO LEFT BUNDLE BRANCH BLOCK OR WIDE QRS!! _____ ☐

↓

5. NOT A PACED RHYTHM! _____ ☐

↓

6. Greater than 1MM ST SEGMENT ELEVATION IS PRESENT IN AT LEAST TWO (2) ANATOMICALLY CONTIGUOUS LEADS!! _____ ☐

↓

7. INITIATED CHEST PAIN PROTOCOL AND MEDS _____ ☐

ALL OF THE ABOVE CRITERIA MUST BE CHECKED IN ORDER TO ACTIVATE A "STEMI/CARDIAC ALERT" FROM THE FIELD. IF ANY OF THE ABOVE CRITERIA CAN NOT BE CHECKED OFF, THEN A "STEMI/CARDIAC ALERT" CAN NOT BE CALLED IN FROM THE FIELD!!

☐ IV ☐ O2 ☐ MONITOR

☐ NTG Time: _____ Time: _____ Time: _____ Time: _____ Time: _____

☐ ASA Time: _____

☐ MORPHINE Time: _____ /dose _____ mg Time: _____ /dose _____ mg Time: _____ /dose _____ mg

☐ FENTANYL Time: _____ /dose _____ mcg Time: _____ /dose _____ mcg Time: _____ /dose _____ mcg

☐ DILAUDID Time: _____ /dose _____ mg Time: _____ /dose _____ mg Time: _____ /dose _____ mg

☐ KETAMINE Time: _____ /dose _____ mg Time: _____ /dose _____ mg Time: _____ /dose _____ mg

☐ OTHER _____ Time: _____ /dose _____

☐ OTHER _____ Time: _____ /dose _____

☐ OTHER _____ Time: _____ /dose _____

Repeat VITALS: B/P _____ P _____ R _____ O2 SAT _____

Cold Emergencies (Frostbite)

LEVEL	Frostbite:
FR B A I P	<ol style="list-style-type: none"> Initial Trauma Care. <ul style="list-style-type: none"> Move patient to a warm environment as soon as possible. Cover with warm blankets and prevent re-exposure Do NOT rub area. Do NOT thaw area if there is a chance of refreezing HANDLE SKIN GENTLY. Protect with light, dry, sterile dressings.
I P	<p>Anticipate severe pain when rewarming partial thickness frostbite:</p> <ol style="list-style-type: none"> Consider Pain Management.
LEVEL	Mild/Moderate Hypothermia: 86-95° F, Conscious or altered sensorium with shivering.
FR B A I P	<ol style="list-style-type: none"> Initial Care: <ul style="list-style-type: none"> Obtain temperature Use warm IV fluids
A I P	
FR B A I P	<ol style="list-style-type: none"> Rewarm patient: <ul style="list-style-type: none"> Place in warm environment. Remove wet clothing and dry patient Apply hot packs wrapped in towels to axillae, groin, neck, thorax. Wrap patient in blankets.
FR B A I P	Severe Hypothermia: Temperature of 86° F or less. Patient may appear uncoordinated with poor muscle control or rigidity, simulating rigor mortis. There will be NO shivering.
	<ul style="list-style-type: none"> Sensorium: confused, withdrawn, disoriented or comatose. EKG: anticipate bradycardia→asystole.
	<ol style="list-style-type: none"> Initial Care - <ul style="list-style-type: none"> Assess rhythm before beginning CPR; check pulse for 30-60 seconds. If pulse/breathing are absent, start CPR. Prevent further heat loss; remove wet clothing and dry patient May give only one round of IV drugs if body temperature less than 86° or ordered by medical control. If rhythm V-fib/pulseless VT: Defibrillate x 1. Advanced airway, if indicated. Transport patient very gently to avoid precipitating V-fib.

FR B A I P**Criteria for Cold Death****Any one of the following:**

- **Frozen solid preventing chest from being compressed.**
- Ice in airway
- Signs of Predation
- Head underwater for more than 60 minutes in an adult or 90 minutes if a child.

Congestive Heart Failure/Pulmonary Edema

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Initial Medical Care
2. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²⁴ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

3. Obtain 12 lead EKG within 5 minutes of patient contact. Transmit to receiving hospital for interpretation
4. **Consider CPAP if patient is in severe respiratory distress.** Follow CPAP protocol.

EMERGENCY MEDICAL TECHNICIAN (EMT)

5. May assist patient in taking their own NTG 0.4 mg SL every 3-5 minutes as needed for shortness of breath and/or chest discomfort as long as SBP is greater than 100 mmHg.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

6. Administer Nitroglycerin
 - If **systolic BP 100-159 mmHg: Nitroglycerin 0.4 mg and repeat every 3 minutes** until symptoms improve or systolic BP less than 100 mmHg.
 - If **systolic BP 160-199 mmHg: Nitroglycerin 0.8 mg and repeat every 3 minutes** until symptoms improve or systolic BP drops. If systolic BP drops to less than 160 mmHg, proceed to dosing above.
 - If **systolic BP 200 or greater mmHg: Nitroglycerin 1.2 mg and repeat every 3 minutes** until symptoms improve or systolic BP drops. If systolic BP drops to less than 200 mmHg, proceed to dosing above.
7. Establish an IV. Do not delay nitroglycerin to establish an IV.

PARAMEDIC

8. For Patients with systolic BP less than 90 mmHg WITH evidence of poor tissue perfusion (cold periphery, etc.) DESPITE correction of non-cardiac factors (hypovolemia, hypoxia, acidosis, and dysrhythmias).
 - SBP 70-90 mmHg and signs of shock give
Dopamine 5 mcg/kg/min. Titrate up to 20 mcg/kg/min or SBP greater than or equal to 100 mmHg
 - SBP less than 70 mmHg give
Dopamine at 20 mcg/kg/minute and when SBP greater than or equal to 100 mm Hg titrate down.

Or

²⁴ Cyanotic Heart Disease pulse ox goal 75-85%

Norepinephrine 0.5 mcg/min titrate up to 30 mcg/min or SBP greater than or equal to 100 mmHg (*only with Protocol and Medical Director Approval along with additional training submitted to the State EMS Office*)

Dopamine Drip Dosing Chart			
For use with Dopamine drip premix 400 mg/250 mL D5W or 800 mg/500 mL D5W			
<u>This Chart Only Good When Using Micro Drip Sets 60 Drops = 1 mL</u>			
Weight		<u>Dose Ranges</u>	
Pounds	Kilograms	<u>Start at 5 mcg/kg/min</u>	<u>Do not exceed 20 mcg/kg/min</u>
88	40	8 gtts/min	32 gtts/min
121	55	10 gtts/min	40 gtts/min
143	65	12 gtts/min	48 gtts/min
165	75	14 gtts/min	56 gtts/min
187	85	16 gtts/min	64 gtts/min
220	100	19 gtts/min	78 gtts/min
253	115	22 gtts/min	88 gtts/min
286	130	24 gtts/min	98 gtts/min

Conducted Electrical Weapon (TASER)

- Manage the condition that triggered the application of the conducted electrical weapon with special attention to patients meeting criterion for excited delirium
- Make sure patient is appropriately secured or restrained with assistance of law enforcement to protect the patient and staff
- Perform comprehensive trauma and medical assessment as patients who have received conducted electrical weapon may have already been involved in physical confrontation
- If discharged from a distance, two single barbed darts (13mm length) should be located.

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Once patient has been appropriately secured or restrained with assistance of law enforcement, and cartridge has been ejected from weapon or wires have been cut, perform primary and secondary assessment. Consider Patient Restraint protocol.
2. Evaluate patient for evidence of excited delirium manifested by varied combination of agitation, reduced pain sensitivity, elevated temperature, persistent struggling, or hallucinosis
3. Thoroughly assess the tasered patient for trauma as the patient may have fallen from standing or higher or been involved in an altercation.
4. Obtain vital signs at the earliest opportunity. Reasons for violent and combative behavior include intoxication, psychosis, hypoxia, hypoglycemia, overdose, or CNS infection.
5. Ascertain if more than one cartridge was used (by one or more officers, in effort to identify total number of possible darts and contacts)
6. It is not uncommon to find minor first-degree burns located between the Taser probes. Anything that looks worse than minor sunburn should be considered abnormal. Incontinence should be considered abnormal. Chest pain, shortness of breath, vomiting and headaches should all be treated according to the appropriate medical treatment protocol

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)

If trained in Cardiac Monitors and Cardiac Monitor available, apply Cardiac Monitor.

INTERMEDIATE / PARAMEDIC

Apply Cardiac Monitor- evaluate for dysrhythmias and if present see appropriate protocol.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC
--

7. Evaluate the anatomical location of the barb's puncture zone(s). High-risk/sensitive zones will require transport to a medical facility for removal. Do not attempt to remove the barb(s) if they are lodged in the:
 - Eyes, ears, nose, mouth, face, or neck;
 - Genitals;
 - Spine;
 - Hands, feet, or joints.
8. Utilize appropriate PPE (gloves). Inform all caregivers of the intent to remove the contaminated sharp.
9. Remove one barb at a time. Stabilize the skin surrounding the TASER barb. Firmly grasp the barb and with one smooth hard jerk, remove barb from patient's skin.
10. Visually examine the barb tip to ensure it is fully intact. If any part of the barb remains in the subject, transport the patient to a medical facility for removal.
11. The TASER barb is considered a sharp and EMS personnel should take all precautions to avoid accidental needle sticks when removing barbs.
12. Ensure the barb is placed in an appropriate container and return the barb/container to the law enforcement officer for evidence.
13. Provide wound care by cleansing the affected area with antiseptic and cover with an adhesive bandage.
14. Inform subject of basic wound care and the need to seek additional care in the event that signs of infection occur (redness-pain-drainage-swelling-fever.) The subject will need a tetanus shot if he or she has not received one within the previous 10 years.

COVID-19 Non-Transport Assessment

Purpose:

1. To identify patients that are safe to assess and not transport to a hospital during widespread cases of confirmed COVID-19 patients.
2. To maintain the highest possible standards of medical care for as many patients as possible.
3. To recognize that the transport of non-critically ill individuals with possible COVID-19 infections may not be in their nor the general public's best interest.

ALL PROVIDERS

1. Initial Assessment:

- A. EMS clinicians should wear appropriate PPE before entering the scene and assume any patient may have COVID 19.
- B. Initial assessment should begin from a distance of at least 6 feet from the patient and be limited to one EMS provider if possible.

2. Patient assessment:

Asymptomatic

Just concerned about COVID-19 or COVID-19 exposure?

- Advise the patient that no transport is indicated and no in person medical care advised per CDC recommendations and provide patient with Home Resources Handout with hotline and virtual visit information. If patient still wants to be transported, contact medical control. Follow Medical Controls direction regarding transport.

Symptomatic. Assess for signs and risk factors.

- A. Does the patient only have symptoms of an upper respiratory viral illness?

Ex: cough, nasal and chest congestion, sore throat, body aches.

- B. Is the patient less than 60 years old?

- C. Patient has no significant comorbidities (diabetes, heart disease, chronic lung disease (COPD/Asthma, etc), chronic renal disease (on dialysis), liver disease, cancer, autoimmune disorders, chemotherapy patients, patients on immunosuppressant medications and pregnant women)?

- D. Are vital signs within these acceptable limits?

- a. Resp. Rate: 8-20 breaths per minute or age appropriate limits
- b. O2 Sat: greater than or equal to 92%
- c. Heart Rate greater than 50 and less than 110 bpm or age appropriate limits
- d. Systolic BP 90 or greater than age appropriate lower limits
- e. GCS: 15

- E. If YES to all of the above: Patient is a candidate for non-transport. Proceed to Exclusions.

- F. If symptoms more than just upper respiratory viral illness: proceed with medical treatment under appropriate protocol.
- G. If NO to any:
 - Unless health system is overwhelmed (determined by community incident command), treat and transport.
 - If the health system is overwhelmed and you feel the patient does not need to be transported, contact Medical Control. If Medical Control agrees that patient does not need transport, follow Medical Control direction and provide patient with Home Resources Handout with hotline and virtual visit information.
- 3. Exclusions:
 - A. Chest pain, other than just with coughing.
 - B. Shortness of breath with activity (that is more than usual).
 - C. Syncope.
 - D. Cyanotic.
 - E. Respiratory Distress.
 - a. Word Counting: Ask the patient to take a deep breath and count as high as they can.
 - b. If they can count to 15+ in the same breath, they are probably not in respiratory distress.
- F. **IF YES TO ANY:**
 - a. Unless health system is overwhelmed (determined by community incident command), treat and transport.
 - b. If the health system is overwhelmed and you feel the patient does not need to be transported, contact Medical Control. If Medical Control agrees that patient does not need transport, follow Medical Control direction and provide patient with Home Resources Handout with hotline and virtual visit information
- G. If NO to all: Proceed to Non-Transport Disposition.
- 4. Non-Transport Advisement
 - A. If either of the following conditions are met, patient will be advised no transport is indicated.
 - a. Patient can take care of themselves and has access to resources.
 - b. Patient has a support system that will take care of them.
 - B. Suggested wording

"Based on your age, medical history, and our current assessment, you may have COVID-19 but your condition is not currently severe. Unfortunately, there is currently little we can do to treat COVID-19 besides rest, hydration and taking acetaminophen and/or NSAIDS for pains and fever. Fortunately, you don't meet criteria for evaluation in the emergency department. In order to limit exposures and preserve resources, we recommend no transport for you to the hospital at this time but will give you alternative information regarding home care, alternative access and recommendations. If you want additional help or assessment, please contact a hotline or get a virtual visit with the contact information listed on the handout. There are symptoms listed on the top of this handout indicating need for emergency medical

care and if you or your family develop any of those criteria, do not hesitate to call us again or go directly to the emergency department.”

- C. If patient still wants to be transported, contact medical control. Follow Medical Controls direction regarding transport.
- 5. Transport to ED:
 - A. If the patient is not safe for Non-Transport, transport them to the ED of their choice.
 - B. ASAP, notify the receiving facility that the patient has a potential COVID-19 infection.
 - C. Keep the patient separated from other people as much as possible.
 - D. Family/other contacts **should not** ride in the transport vehicle unless absolutely necessary.
 - IF family rides in the transport vehicle, they should wear a facemask.

Age	Pulse Range	Respiratory Rate	Systolic BP Lowest Normal
Newborn	120-160	30-60	60
Up to 1 year	100-140	30-60	70
1-3 years	100-140	20-40	76
4-6 years	80-120	20-30	80
7-9 years	80-120	16-24	84
10-12 years	80-120	16-20	90
13-14 years	60-100	16-20	90

Patient Name: _____ **Date of Birth:** _____

Crew Member Completing Screening Form: _____ **Time** _____

Date of Service: ____/____/2020 **Call Back Number for Patient (____) _____** - _____

Inclusion Questions				
Does the patient only have symptoms of an upper respiratory viral illness? cough, nasal and chest congestion, sore throat, body aches	Yes	No	Symptoms started ____/____/2020	
Is the patient less than 60 years old?	Yes	No	Age _____	
Patient has no significant comorbidities? Diabetes, heart disease, chronic lung disease (COPD/Asthma, etc), chronic renal disease (on dialysis), liver disease, cancer, autoimmune disorders, chemotherapy patients, patients on immunosuppressant medications and pregnant women	Yes	No		
Are vital signs within these acceptable limits?				
Resp. Rate: 8-20 breaths per minute or age appropriate limits	Yes	No		RR _____
O2 Sat: greater than or equal to 92%	Yes	No		Pox _____ %
Heart Rate greater than 50 and less than 110 bpm or age appropriate limits	Yes	No	HR _____	
Systolic BP 90 or greater than age appropriate lower limits	Yes	No	BP _____ / _____	
GCS: 15	Yes	No	GCS _____	

If YES to all of the above: Patient is a candidate for non-transport without medical control contact. Proceed to Exclusions.

Exclusion Questions			
Chest pain, other than just with coughing?	Yes	No	
Shortness of breath with activity (that is more than usual)?	Yes	No	
Syncope?	Yes	No	
Cyanotic?	Yes	No	
Respiratory Distress? Ask the patient to take a deep breath and count as high as they can. If they can count to 15+ in the same breath, they are probably not in respiratory distress.	Yes	No	Count number _____

If YES to all Inclusion and NO to all Exclusion questions and at least one of the following conditions are met, patient is low risk and may be informed no transport is indicated and be given COVID Home Resources Handout with hotline and virtual visit information. If patient still wants to be transported, contact medical control. Follow Medical Controls direction regarding transport.

Patient can take care of themselves and has access to resources?	Yes	No
Patient has a support system that will take care of them?	Yes	No

If patient does not meet low risk criteria and the health system is not overwhelmed, treat and transport.

If patient does not meet low risk criteria and the health system is overwhelmed, and in the opinion of the EMS crew the patient does not need transport, contact Medical Control to determine if patient requires transport? Follow Medical Controls direction.

Patient Transported?	Yes	No	Hospital
Medical Control Contacted? Not necessary if low risk	Yes	No	
Patient is asymptomatic?	Yes	No	
Just has concerns about COVID-19 or COVID-19 exposure?	Yes	No	

If yes to both, asymptomatic and just has concerns about COVID-19 or COVID-19 exposure, no in person medical care advised per CDC recommendations. Advise that no transport is indicated and just provide patient with COVID Home Resources Handout with hotline and virtual visit information. If patient still wants to be transported, contact medical control. Follow Medical Controls direction regarding transport.

Suggested wording *"Based on your age, medical history, and our current assessment, you may have COVID-19 but your condition is not currently severe. Unfortunately, there is currently little we can do to treat COVID-19 besides rest, hydration and taking acetaminophen and/or NSAIDS for pains and fever. Fortunately, you don't meet criteria for evaluation in the emergency department. In order to limit exposures and preserve resources, we recommend no transport for you to the hospital at this time but will give you alternative information regarding home care, alternative access and recommendations. If you want additional help or assessment, please contact a hotline or get a virtual visit with the contact information listed on the handout. There are symptoms listed on the top of this handout indicating need for emergency medical care and if you or your family develop any of those criteria, do not hesitate to call us again or go directly to the emergency department."*

Age	Pulse Range	Respiratory Rate Range	Systolic BP lowest normal
Newborn	120-160	30-60	60
Up to 1 year	100-140	30-60	70
1-3 years	100-140	20-40	76
4-6 years	80-120	20-30	80
7-9 years	80-120	16-24	84
10-12 years	80-120	16-20	90
13-14 years	60-100	16-20	90

CPAP (Continuous Positive Airway Pressure)

LEVEL	Continuous Positive Airway Pressure (CPAP)
B A I P	<p>Continuous Positive Airway Pressure (CPAP) rapidly improves vital signs and gas exchange. It decreases the work of breathing and alleviates dyspnea, CHF, COPD, and Pneumonia.</p>
	<p>1. Indications:</p> <ul style="list-style-type: none"> • Patient awake, cooperative having clinical signs of moderate to severe respiratory distress. • Age over 12-years and able to fit mask. • Able to maintain open airway. • Systolic BP is greater than 90 mmHg. • At least two of the following: <ul style="list-style-type: none"> ○ Respiratory rate is greater than 25. ○ Pulse oximeter reading is less than 93% not being relieved by other interventions. ○ Retractions or accessory muscle use.
	<p>2. Contraindications:</p> <ul style="list-style-type: none"> • Respiratory arrest. • Pneumothorax. • Tracheostomy. • Unresponsive patient
	<p>3. Precautions:</p> <ul style="list-style-type: none"> • Impaired mental state (can't cooperate). • Vomiting. • Excessive secretions. • Poor respiratory drive. • Facial deformity or problem preventing tight-fitting mask.
	<p>4. Procedure:</p> <ul style="list-style-type: none"> • Explain procedure to patient. • Ensure adequate oxygen supply (100%). • Place mask over mouth and nose; secure with straps. • May Use 5 - 10 cm H₂O of PEEP – titrate to effect. <ul style="list-style-type: none"> ○ 7.5 cm H₂O of PEEP if less than 16 years old. • Check for air leaks. • Monitor patient's response. • Check and record vital signs every 5 minutes. • Consider Sedation
P B A I P	<p>5. Removal Procedure:</p> <ul style="list-style-type: none"> • CPAP therapy should be discontinued ONLY if patient; <ul style="list-style-type: none"> ○ Cannot tolerate it ○ Patient deteriorates

Cricothyrotomy

LEVEL	Cricothyrotomy
P	<p>Initial Medical Care</p> <ul style="list-style-type: none"> • →CONTACT MEDICAL CONTROL IF POSSIBLE BEFORE PROCEEDING • When ALL airway management measures have failed and the patient needs an advanced airway immediately consider cricothyrotomy with surgical cricothyrotomy for adults, needle cricothyrotomy for pediatric patients, if trained and approved by medical control. • If the time necessary to contact medical control may compromise the patient's chance of survival in the paramedic's judgment - AND - it is not possible/practical to ventilate the patient with Bag-Valve-Mask during transport, cricothyroidotomy may be performed without Medical Control
P	<p>→(if possible, contact medical control) Adult Cricothyrotomy</p> <ul style="list-style-type: none"> • Perform adult surgical cricothyrotomy
P	<p>→(if possible, contact medical control) Pediatric Needle Cricothyrotomy</p> <ul style="list-style-type: none"> • Perform pediatric needle cricothyrotomy
	<p>Procedure will be outlined by individual service based on equipment available.</p>

Delivery Complications: Breech Birth

LEVEL	Delivery Complications: Breech Birth
	<p>A breech birth or breech presentation is when the position of the baby in the uterus is such that it will be delivered buttocks-first as opposed to the normal head-first position. Breech presentations occur in about 4% of all births. The two most common categories are:</p> <ul style="list-style-type: none"> • The <i>frank breech presentation</i> (65-70% of breech babies) where the baby's bottom comes first, and their legs are flexed at the hip and extended at the knees (with the feet near the ears). • The <i>footling breech presentation</i>, where one or both feet come first, with the bottom at a higher position. This is rare with term babies, but relatively common with premature fetuses. • <i>Single limb or other abnormal presentations</i> may require C-section. Do not attempt field delivery. <p>An infant in a frank breech or a double footling (both feet) breech presentation generally delivers in three (3) stages:</p> <ul style="list-style-type: none"> • Legs to Abdomen • Abdomen to Shoulders • Head <p>With respect to the risk of hypoxia, the two most dangerous times for the infant are:</p> <ul style="list-style-type: none"> • After delivery of the Legs to Abdomen, when the umbilical cord can become compressed against the pelvic inlet as the head descends; and • After delivery of the Abdomen to Shoulders, awaiting delivery of the head.
FR B A I P	<p>1. Initial Medical Care – Special Considerations:</p> <ul style="list-style-type: none"> • If birth is imminent, prepare for delivery per Emergency Childbirth guidelines.
B A I P	<p>2. Expeditious Transport with care enroute; if only the buttocks or lower extremities are delivered.</p> <ul style="list-style-type: none"> • It is acceptable to stay on-scene for <i>One Contraction Only</i> if the baby is delivered to the shoulders, while attempting delivery of the head. • If the baby delivers to the shoulders while enroute, stop the vehicle to attempt delivery of the head. • Never attempt to pull the infant by the legs or trunk from the vagina.

Delivery Complications: Prolapsed Cord

LEVEL	Delivery Complications: Prolapsed Cord
FR B A I P	Assessment Priority: <ul style="list-style-type: none"> Check for prolapsed cord whenever the patient states her bag of water has ruptured.
B A I P	<ol style="list-style-type: none"> If Prolapsed Cord is observed: Place gloved hand into vagina and place fingers between pubic bone and presenting part, with cord between fingers. Apply continuous steady pressure on the presenting part to keep the cord from being compressed and allow for blood flow. Cover the exposed cord with a moist dressing and keep warm. Palpate the cord frequently for pulsations, and if lost, reposition. Expeditious transport, with care enroute: <ul style="list-style-type: none"> Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²⁵ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. Establish IV access, while enroute if possible.
A I P	<ol style="list-style-type: none"> Transport with continued pressure on part to keep the cord free.

²⁵ Cyanotic Heart Disease pulse ox goal 75-85%

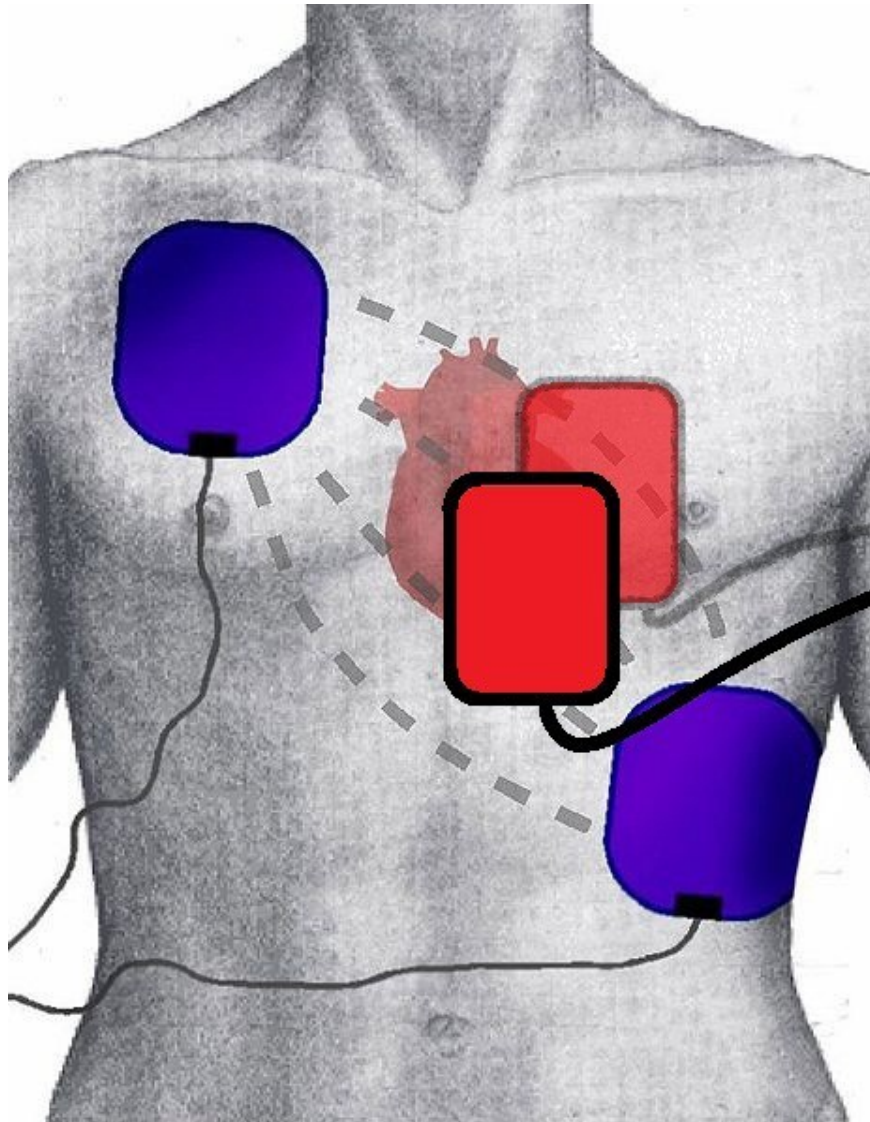
Double Sequential External Defibrillation (DSED)

This procedure is only to be used for ***persistent and continuous ventricular fibrillation*** that has failed to convert after at least ***three*** shocks.

INTERMEDIATE / PARAMEDIC

Procedure:

1. Assure all other essential interventions have been performed and potential causes of the arrest have been addressed
2. Continue high quality chest compressions while preparing for DSED
3. Using a second monitor/defibrillator, apply second set of external defibrillation pads in the Anterior/Posterior position
4. Assure that the pads do not make contact with each other



5. Charge both defibrillators to highest energy level while minimizing interruptions in chest compressions
6. If the monitor continues to show Ventricular Fibrillation prepare to deliver shock by loudly clearing the patient of any contact with rescuers (**CLEAR!**)
7. Depress the shock button on both monitors simultaneously or within 0.5-4.5 seconds of each other.
8. Immediately resume chest compressions
9. Perform a pulse check and rhythm check after approximately 2 minutes
10. If Ventricular Fibrillation persists, DSED can be repeated as needed

Drowning/Near Drowning

LEVEL	
FR B A I P	Notes: <ul style="list-style-type: none"> • All persons submerged one hour or less must be vigorously resuscitated. • The essential survival mechanism for these patients is hypothermia; one focus of resuscitation must be appropriate rewarming.
	Initial Trauma Care – Special Considerations: <ol style="list-style-type: none"> 1. C-Spine precautions as indicated. 2. Assess for head injury and treat per Head Injury Protocol. 3. Contact destination Emergency Department early 4. Remove wet clothing and dry patient as much as possible. 5. Assess for hypothermia: <ul style="list-style-type: none"> • Treat per cold emergencies (HYPOTHERMIA) protocol 6. If Normothermic – <ul style="list-style-type: none"> • Treat dysrhythmias per appropriate Protocol 7. Establish IV/IO access, per protocol. <ul style="list-style-type: none"> • DO NOT DELAY TRANSPORT TO ESTABLISH IV.

Drug Overdose / Poisoning

LEVEL	Drug Overdose / Poisoning
FR B A I P FR B A I P A I P B A I P	General Approach: <ul style="list-style-type: none"> • Initial Medical Care – Special Considerations: • Follow established hazmat protocols. Do not enter contaminated scenes without appropriate PPE. • Anticipate the possibility of respiratory distress, seizure activity, dysrhythmias or vomiting. • Place an advanced airway, if airway compromised, and no response to Narcan. • Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%²⁶ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. • Large bore IV. • Do NOT induce vomiting • Obtain and record blood glucose level. If less than 60 treat per protocol. <ul style="list-style-type: none"> • Adult Diabetic/Glucose Emergencies • Pediatric Diabetic/Glucose Emergencies • If Seizures occur, treat per protocol. • Be alert to and ask about suicidal ideation/attempt. <p>1. If patient is stable, in most cases no further treatment is required, transport.</p>
B A I P FR B A I P	Narcotic or Synthetic Narcotic Overdose or unknown: <p>A. Narcan 0.5mg IN (IM B only). Repeat every 5 min as necessary. Max dose 2mg</p> <p>B. If weight is under 20 kg: Narcan 0.1 mg/kg IV/IN/IO/IM</p> <p>C. If weight is over 20 kg: Narcan 0.4 - 2mg IV/IO/IN/IM and/or</p> <p>D. If weight is under 20 kg: Narcan 0.1 mg/kg IV/IO/IN/IM</p> <p>Consider restraints before Narcan is given. Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response. May repeat every 5 minutes as needed.</p>
P I P	Tricyclic Antidepressant Overdose <p>A. Sodium Bicarbonate 1 mEq/kg IV/IO for hypotension, deterioration of sensorium, dysrhythmias, or PEA.</p> <ul style="list-style-type: none"> • If seizures occur: Follow Seizure protocol.
I P I P	Organophosphate Poisoning If unstable patient: <p>A. Atropine 2 mg rapid IV/IO. Repeat every 3 minutes until signs of Atropinization appear (dry mouth, dried secretions, flushed skin). Usual Atropine dose limitation does not apply.</p> <p>B. Mark 1 Kit</p>

²⁶ Cyanotic Heart Disease pulse ox goal 75-85%

Organophosphate Poisoning (cont)

I P

Patient Age	Mild/Moderate Symptoms ²	Severe Symptoms ³	Other Treatment
Infant (0 - 2 yrs)	Atropine: 0.05 mg/kg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 0.1 mg/kg IM; 2-PAM Cl: 25 mg/kg IM	
Child (2 - 10 yrs)	Atropine: 1 mg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 2 mg IM; 2-PAM Cl: 25 mg/kg IM	
Adolescent (greater than 10 yrs)	Atropine: 2 mg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 4 mg IM; 2-PAM Cl: 25 mg/kg IM	
Adult	Atropine: 2 to 4 mg IM; 2-PAM Cl: 600 mg IM	Atropine: 6 mg IM; 2-PAM Cl: 1800 mg IM	
Elderly, frail	Atropine: 1 mg IM; 2-PAM Cl: 10 mg/kg IM	Atropine: 2 to 4 mg IM; 2-PAM Cl: 25 mg/kg IM	Assisted ventilation should be started after administration of antidotes for severe exposures. Repeat atropine (2 mg IM or 1 mg IM for infants) at 5 - 10-minute intervals until secretions have diminished and breathing is comfortable or airway resistance has returned to near normal. Benzodiazepine for convulsions: See Protocol - Seizures

- 2-PAMCl solution needs to be prepared** from the ampule containing 1 gram of desiccated 2-PAMCl: inject 3 mL of saline, 5% distilled or sterile water into ampule and shake well. Resulting solution is 3.3 mL of 300 mg/mL.
- Mild/Moderate symptoms** include localized sweating, muscle fasciculations, nausea, vomiting, weakness, and dyspnea.
- Severe symptoms** include unconsciousness, convulsions, apnea, flaccid paralysis.

Beta Blocker or Calcium Channel Blocker Overdose

If unstable patient

A I P

- Patients can have varying degrees of hypotension, bradycardia (heart blocks), and lethargy and coma.
- Patients may decompensate quickly, so be prepared.
- Hypotension should initially be treated with a fluid bolus.

Calcium Channel Blockers

- A I P** 6. Normal Saline Bolus 500 - 1000 ml, max 2000mL
- P** 7. **Calcium Chloride 5 mL to 10 mL IV/IO**
- I P** 8. **Glucagon 1mg IV/IO every 5 minutes.**
- P**
 - Anticipate nausea, bradycardia or hypotension – be prepared to give anti-emetic medications

If refractory, consider:

- P** 9. **Dopamine infusion 5-20 mcg/kg/min IV/IO.**
- P** 10. **Repeat Calcium Chloride 5 - 10 mL IV/IO.**
- I P** 11. Consider transcutaneous pacing

Beta Blocker

- A I P** 5. Normal Saline bolus 500 – 1000 ml, max 2000mL
- I P** 6. **Glucagon 1mg IV/IO every 5 minutes.**
- P**
 - a. Anticipate nausea, bradycardia or hypotension – be prepared to give anti-emetic medications

If refractory consider:

- P** 7. **Dopamine 5–20 mcg/kg/min IV/IO, for SBP less than 90**
- I P** 8. **Calcium Chloride 5–10 mL IV/IO if remains refractory**
- I P** 9. Consider transcutaneous pacing.

Electrical/Lightening Injuries

EMERGENCY MEDICAL RESPONDER (EMR)/ EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

1. Verify scene is secure. The electrical source must be disabled prior to assessment. Move patient to shelter if electrical storm activity still in area
2. Identify dysrhythmias or cardiac arrest – even patients who appear dead (particularly dilated pupils) may have good outcomes with prompt intervention – see appropriate protocol for additional information
3. Immobilize if associated trauma suspected. See Initial Trauma Care protocol
4. Apply dry dressing to any wounds
5. Remove constricting clothing and jewelry since additional swelling is possible

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

6. Electrical injury patients may be taken directly to a burn center, since these injuries can involve considerable tissue damage
 - a. When there is significant associated trauma, trauma takes priority if local trauma resources and burn resources are not in the same facility

ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

7. Establish IV/IO** for burns more than 10 %, or moderate-severe pain not relieved by other means (ex. IN or inhaled medications).
8. Administer fluid resuscitation per burn protocol (see chart following).
9. Remember that external appearance will underestimate the degree of tissue injury
10. Consider Pain management. See Pain guidelines.

PARAMEDIC

11. If injury concerning for rhabdomyolysis, give 1 amp Sodium Bicarbonate added to 1 liter Normal Saline IV wide open.

Notes/Educational Pearls:

1. Electrical current causes injury through three main mechanisms:
 - a. Direct tissue damage, altering cell membrane resting potential, and eliciting tetany in skeletal and/or cardiac muscles
 - b. Conversion of electrical energy into thermal energy, causing massive tissue destruction and coagulative necrosis.
 - c. Mechanical injury with direct trauma resulting from falls or violent muscle contraction.
2. Anticipate atrial and/or ventricular dysrhythmias as well as cardiac arrest
3. The mortality related to electrical injuries is impacted by several factors:
 - a. Route current takes through the body – current traversing the heart has higher mortality
 - b. Type of current: AC vs. DC

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

- i. AC is more likely to cause cardiac dysrhythmias while DC is more likely to cause deep tissue burns, however either type of current can cause any injury
 - ii. DC typically causes one muscle contraction while AC can cause repeated contractions
 - iii. Both types of current can cause involuntary muscle contractions that do not allow the victim to let go of the electrical source
 - iv. AC is more likely to cause ventricular fibrillation, while DC is more likely to cause asystole
- c. The amount of current impacts mortality more than the voltage

Current level (Milliamperes)	Probable Effect on Human Body of 120 V, 60 Hz AC for 1 second
1 mA	Perception level. Slight tingling sensation. Still dangerous if wet conditions.
5mA	Slight shock felt; not painful but disturbing. Average individual can let go. However, strong involuntary reactions to shocks in this range may lead to injuries.
6mA - 16mA	Painful shock, begin to lose muscular control. Commonly referred to as the freezing current or "let-go" range.
17mA - 99mA	Extreme pain, respiratory arrest, severe muscular contractions. Individual cannot let go. Death is possible.
100mA - 2000mA	Ventricular fibrillation (uneven, uncoordinated pumping of the heart.) Muscular contraction and nerve damage begins to occur. Death is likely.
> 2,000mA	Cardiac arrest, internal organ damage, and severe burns. Death is probable.

Emergency Childbirth – Phase I: Labor

LEVEL	Phase I: Labor
FR B A I P	1. Obtain pregnancy history and determine if there is adequate time to transport: <ul style="list-style-type: none"> • Gravida (number of pregnancies); para (number of live births). • Number of miscarriages, stillbirths, abortions or multiple births. • Due date (EDC) or LMP. • Onset and current duration of contractions. • Frequency of contractions (time from beginning of one to beginning of the next). • Length of previous labors (in hours). • Status of membranes (intact or ruptured). <ul style="list-style-type: none"> ○ If ruptured or unsure, visually inspect for prolapsed cord and/or evidence of meconium. ○ Note time since rupture.
FR B A I P	2. Document any high-risk concerns: <ul style="list-style-type: none"> • Lack of prenatal care. • Drug abuse. • Teenage pregnancy. • Pre-term labor (less than 37 weeks). • Multiple fetuses. • Previous breech or C-section. • History of diabetes, hypertension, cardiovascular or other diseases that may compromise mother and/or fetus.
B A I P	3. Visually inspect for bulging perineum or crowning. Determine whether mother is involuntarily pushing or feels like she has to move her bowels with contractions. <ul style="list-style-type: none"> • If contractions are two minutes apart or less, or any of the above signs are present, prepare for delivery. <p>DO NOT ATTEMPT TO RESTRAIN OR DELAY DELIVERY UNLESS PROLAPSED CORD IS PRESENT.</p>
FR B A I P	4. Initial Medical Care – Special Considerations: <ul style="list-style-type: none"> • If mother becomes hypotensive or lightheaded at any time: <ul style="list-style-type: none"> ○ Roll mother onto her left side ○ IV fluid bolus of Normal Saline in consecutive 500 mL increments to maintain systolic BP 90 mmHg or greater.
A I P	5. If delivery is not imminent, transport.
B A I P	6. If delivery imminent:
FR B A I P	<ul style="list-style-type: none"> • Position mother supine on flat surface, if possible. • Put on full blood and body secretion barriers. • Prepare bulb syringe, cord clamps, scalpel, and chunks to warm infant. • Have neonatal BVM and oxygen supply ready.

Emergency Childbirth – Phase II: Delivery

LEVEL	Phase II: Delivery
FR B A I P	<ol style="list-style-type: none"> 1. Allow head to deliver passively. <ul style="list-style-type: none"> • Control rate of delivery by placing palm of one hand gently over occiput. • Protect perineum with pressure from the other hand. 2. If amniotic sac is still intact, gently tear the membrane. <ul style="list-style-type: none"> • If meconium present in amniotic fluid, gently suction infant's mouth and nose as soon as head delivers. 3. Once head is delivered, allow it to passively turn to one side. This is necessary for the shoulders to deliver. 4. Feel around the infant's neck for the umbilical cord (nuchal cord). <ul style="list-style-type: none"> • If present, attempt to lift it over the baby's head. • If unsuccessful, double clamp and cut the cord between the clamps. • Suction mouth and nose after the anterior shoulder has delivered 5. To facilitate delivery of the upper shoulder: <ul style="list-style-type: none"> • Gently guide the head downwards. • Support and lift the head and neck slightly to deliver the lower shoulder. • DO NOT forcefully move or roll head sideways on to the shoulder 6. The rest of the infant should deliver quickly with the next contraction. <ul style="list-style-type: none"> • Firmly grasp the infant as it emerges. • Suction secretions from mouth and nose again 7. Note the date and time of the delivery. 8. Keep the newborn level with uterus or place on mother's abdomen in a 15-degree, head-down position until the umbilical cord stops pulsating. 9. Proceed to Newborn and Post-Partum Care Guidelines.

Epistaxis (Nose Bleed)

- Most nose bleeding is from an anterior source and may be easily controlled with direct pressure
- Anticoagulation with aspirin, clopidogrel (Plavix), warfarin (Coumadin), apixaban (Eliquis), dabigatran (Pradaxa), edoxaban (Savaysa), rivaroxaban (Xarelto) will make epistaxis much harder to control. Note if your patient is taking these or other anticoagulant medications
- Posterior epistaxis is a true emergency and may require advanced ED techniques such as balloon tamponade or interventional radiology. Do not delay transport. Be prepared for potential airway issues.
- Patients using nasal cannula oxygen may have cannula placed in mouth while nares are clamped or compressed for nosebleed

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

7. Initial Medical Care
8. Compress nostrils with clamps or fingers, pinching over fleshy part of nose, not bony nasal bridge.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

9. If actively bleeding, take a small wad of absorbent cotton ball or other soft dressing and soak it with 2 mg (2 ml) Epinephrine 1:1,000 and up to an additional 2-3 ml of normal saline/lactated ringers to saturate²⁷ the pledget²⁸. If only 1 mg (1 ml) Epinephrine 1:1,000 is available, may use that and up to 3-4 ml of normal saline/lactated ringers to saturate the pledget.
10. If actively bleeding, tilt head forward and have patient blow nose to expel clots. (If not bleeding, leave clots alone and do not insert pledget.) Insert pledget into the bleeding nostril^{**}. (If unable to determine the main bleeding nostril, duplicate the procedure and insert pledgets into both nostrils).
11. Transport in position of comfort, usually sitting upright.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

12. Establish IV/IO^{**} if hypotensive, dehydrated or otherwise unstable²⁹.
13. Give fluids per Hypovolemia/Hemorrhagic Shock protocol.

²⁷ Use of the normal saline/lactated ringers is not to dilute the epinephrine, but is to saturate the pledget so the medication will leave the pledget and contact the nasal mucosal lining.

²⁸ Pledget- a small wad of absorbent cotton or other soft material used to stop up a wound or other opening in the body.

^{**} Intranasal (IN) medications is an additional skill at the EMT, AEMT, Intermediate, Paramedic and Critical Care levels requiring additional training approved by the Medical Director and State Approval.

^{**} IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

²⁹ UNSTABLE criteria: Altered sensorium, signs of hypoperfusion, near syncope or syncopal episode(s).

INTERMEDIATE / PARAMEDIC

14. Instead of adding normal saline/lactated ringers to Epinephrine to saturate the pledget, if available, may substitute Lidocaine 2% (cardiac) for the normal saline/lactated ringers.

PARAMEDIC

15. Instead of epinephrine soaked pledget, may use (if available) Oxymetazoline^{**} or Phenylephrine (Afrin)^{**} nasal spray- 2 sprays up bleeding nostril(s) then pinch nose with clamp or fingers.

Contact Medical Control for the following:
Additional Orders

^{**} As long as the provider has been trained and approved and service approved by State

Eye Emergencies

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. General Eye Care – Special Considerations:
 - Assess visual acuity
 - Assess pain scale 0 – 10.
 - Assess cornea, conjunctiva, and sclera for signs of injury.
 - Discourage patient from sneezing, coughing, straining, or bending at waist.
 - Vomiting precautions

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

2. If not a penetrating eye injury, may give Nitrous Oxide for Pain Control, if Nitrous Oxide available and trained in its use (see Nitrous Oxide protocol).

INTERMEDIATE / PARAMEDIC

3. Consider Pain Management.
4. Consider Nausea medications.

PARAMEDIC

5. If available: **0.5% Tetracaine or Proparacaine 1-2 drops each affected eye** if not an open globe injury. May repeat as needed for pain control.

Chemical Splash/Burn:

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/
INTERMEDIATE / PARAMEDIC**

Thoroughly and continuously irrigate affected eye(s) using copious amounts of saline instilled through IV tubing or any other means available. Start irrigation as soon as possible and continue while enroute to the hospital.

Corneal Abrasions:

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/
INTERMEDIATE / PARAMEDIC**

Observe for profuse tearing, severe pain, redness, and spasm of eyelid.

Penetrating Injury/Ruptured Globe: Observe for signs of penetration: peaked pupil, excessive edema of conjunctiva (chemosis), subconjunctival hemorrhage, blood in anterior chamber (hyphema) or foreign body/impaled object.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT) / INTERMEDIATE / PARAMEDIC**

1. Do not remove impaled objects; do not irrigate eye.
2. Avoid all pressure on injured eye. Cover with metal or plastic protective patch or paper cup. May patch injured eye or both eyes depending on patient's ability to tolerate bilateral patches.
3. Elevate head of stretcher to 45-degree angle.

INTERMEDIATE / PARAMEDIC

4. Consider Pain Management per Protocol
5. Give anti-nausea medications, even if not nauseated. See Nausea protocol.

Famotidine (Pepcid)

Famotidine is a Histamine H2 antagonist. It reduces acid production in the stomach and reduces hives, itching and vasodilation in allergic reactions.

Contraindications:

- Hypersensitivity to Famotidine or other H2 antagonists (ranitidine, cimetidine)

Indications:

- **Allergy & Anaphylaxis:** antihistamine
- **Pain Management:** preferred for upset stomach and gastroesophageal reflux (heart burn)

Dose:

- 20mg or 0.5mg/kg IV/IO/PO every 12 hours. IV/IO give over 2 minutes.

Adverse Effects:

- Less than 1 year olds can have paradoxical effect of agitation (14%)
- Headache (5%)
- Diarrhea (2%)
- Dizziness, Constipation (1%)

Considerations:

- Moderate to Severe renal impairment associated with QT prolongation

Pharmacokinetics:

- Onset: within 30 minutes IV; within 60 minutes PO
- Half-life: varies by age; adult 2.5-3.5 hours

Pregnancy/Lactation:

- Has been used in treating GERD in pregnancy
- Safe for use in breastfeeding.

Age	Broselow	Kilos	Pounds	IV/IO/PO (10 mg / mL)	
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	2 mg	0.2 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	3 mg	0.3 mL
9 mo	RED	8-9 kg	16 - 20 lbs	4 mg	0.4 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	5 mg	0.5 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	6 mg	0.5 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	7.5 mg	0.75 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	10 mg	1 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	12.5 mg	1.25 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	15 mg	1.5 mL
Max Dose		38.5+ kg	84+ lbs	20 mg	2 mL

Fever

Assess for environmental cause of fever. Remove from hot environment or overly insulated condition. Fever from infection is the patient's body fighting the infection. Treating the fever does nothing for treating the infection and is for comfort and/or to prevent febrile seizures.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. Initiate appropriate Personal Protective Equipment (PPE). Notify hospital of possible infection.
2. Initial Medical Care.
3. Keep patient warm.
4. No need for supplemental oxygen if pulse ox is 90% or greater. If supplemental oxygen is given, titrate supplemental oxygen to lowest level to maintain pulse ox 94-96% (if severe underlying lung disease, goal is 88-92%). If patient is normally on supplemental oxygen and pulse ox on that oxygen is 90% or greater, transport with patient's normal oxygen rate. Do not withhold oxygen if patient is having difficulty breathing and you do not have the ability to assess O₂ saturations.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

4. If fever (Temp greater than 100.4° F or 38° C) and significantly uncomfortable from the fever³⁰, or patient had or has a history of febrile seizures, give:
 - If the patient has not received acetaminophen in the last 6 hours, if available give acetaminophen (15 mg/kg, max 1000 mg) PO. If patient has received acetaminophen but not at an adequate dose, may make up the difference. May round to tablet size.
 - If over 6 months old and the patient has not received ibuprofen or other NSAIDs in the last 6 hours, if available give ibuprofen (10 mg/kg, max 600 mg) PO. If patient has received ibuprofen but not at an adequate dose, may make up the difference.
 - If over 6 months old and unable to take PO and has not already received ibuprofen or other NSAIDs in the last 6 hours, may give ketorolac (Toradol) 15 mg (peds 0.5 mg/kg, max 15 mg) IV/IO or 30 mg (Peds 1.0 mg/kg, max 30 mg) IM/PO. Oral ibuprofen preferred over oral ketorolac, but if ibuprofen not available may give oral ketorolac.
5. Assess for 2 or more of the following systemic illness markers and if present go to Sepsis/Septic Shock Protocol.
 - 100.4° F (38° C) or higher OR 96.8° F (36° C) or lower
 - Heart rate over 90 or age appropriate normal
 - Respiratory rate over 20 or age appropriate normal; or ETCO₂ less than 32 mmHg
 - SBP below 90 mm Hg or age appropriate normal; or other signs of poor perfusion (central cap refill equal to or greater than 3 seconds, mottled or pale skin)
 - GCS less than 15 or less than patient's normal mentation.

³⁰ If temperature less than 102° F (38.9° C) and uncomfortable, may opt to give only one medication.

Age	Pulse	Respiratory Rate	Systolic BP lowest normal
Newborn	120-160	30-60	60
Up to 1 year	100-140	30-60	70
1-3 years	100-140	20-40	76
4-6 years	80-120	20-30	80
7-9 years	80-120	16-24	84
10-12 years	80-120	16-20	90
13-14 years	60-100	16-20	90

Fever Protocol				Acetaminophen		Ibuprofen		Ketorolac (Toradol)	
Age	Broselow	Kilos	Pounds	mg	160 mg/5mL	mg	100 mg/5mL	IV	IM/PO
newborn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	64	2 mL				
6 mo	PINK	6-7 kg	13 - 15 lbs	96	3 mL	60	3 mL	3 mg	6 mg
9 mo	RED	8-9 kg	16 - 20 lbs	128	4 mL	80	4 mL	4 mg	8 mg
1 yr	PURPLE	10-11 kg	21 - 24 lbs	160	5 mL	100	5 mL	5 mg	10 mg
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	192	6 mL	120	6 mL	6 mg	12 mg
4 yrs	WHITE	15-18 kg	32 - 40 lbs	256	8 mL	160	8 mL	7.5 mg	15 mg
6 yrs	BLUE	19-23 kg	41 - 48 lbs	320	10 mL	200	10 mL	10 mg	20 mg
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	416	13 mL	260	13 mL	12.5 mg	25 mg
10 yrs	GREEN	30-36 kg	67 - 80 lbs	480	15 mL	300	15 mL	15 mg	30 mg
		38.5 kg	84 lbs	576	18 mL	400	20 mL	15 mg	30 mg
		44 kg	97 lbs	650	20 mL	440	22 mL	15 mg	30 mg
		50 kg	110 lbs	750	23.5 mL	500	25 mL	15 mg	30 mg
		55 kg	121 lbs	825	26 mL	540	27 mL	15 mg	30 mg
		60 kg	132 lbs	900	28 mL	600	30 mL	15 mg	30 mg
Max dose		67+ kg	147+ lbs	1000	31 mL	600	30 mL	15 mg	30 mg

INTERMEDIATE / PARAMEDIC

6. If nausea and/or vomiting, see nausea/vomiting protocol.

7.

PARAMEDIC

8. Consider Stress dose steroids (Solumedrol 125 mg IV/IO or hydrocortisone 100 mg IV/IO or Decadron 10-20 mg) IV/IO in:

- Patients on chronic steroids
- Patients with adrenal suppression (Addison's disease).

Contact Medical Control for the following:
Additional orders

Head Injuries

LEVEL	Head Injuries
FR B A I P	1. Initial Trauma Care – Special Considerations: <ul style="list-style-type: none"> All patients with blunt head injury may have a cervical spine injury. Assessment for possible immobilization is indicated. Supplement Oxygen to bring oxygen saturations to 93% or greater with oxygen or assist with BVM. Avoid large volumes of fluid infusions if not hypotensive.
A I P B A I P	2. Neuro Exam: Reassess every 5 minutes if able: mental status (arousal and orientation/memory); Glasgow Coma Scale; respiratory rate/pattern; motor/sensory; integrity/deficits in all extremities.
	3. If seizure activity, follow seizure protocol
FR B A I P P FR B A I P	Altered Sensorium: <ol style="list-style-type: none"> If GCS is less than 9: consider placing advanced airway <ul style="list-style-type: none"> Consider RSA. Elevate head of bed 15-30 degrees, keep head and neck midline. Do not Hyperventilate, ventilate to maintain ETCO2 35-45 mmHg
FR B A I P	2. Obtain and record blood glucose level.
	3. If patient is combative and nonresponsive to verbal attempts to calm him/her, consider restraints. Refer to Patient Restraint Protocol.
	Elevated Intracranial Pressure: (Severely elevated systolic BP over 200 mmHg, bradycardia, abnormal respiratory pattern, unresponsive, and/or pupillary changes)
B A I P	1. Ventilate (increased depth) with BVM: Goal of ETCO2 at 30 to 35
I P	2. If normal to elevated BP and no signs of shock: elevate head of stretcher 15 - 30°.
	3. Provide pain medication assuming severe pain and to provide for sedation (Sedation for Paramedic only).
	Basilar Skull Fracture: “Raccoon eyes”, clear/bloody drainage from nose and/or ears
FR B A I P	1. If CSF, rhinorrhea or otorrhea, apply 4x4 to nose or ear to collect drainage. Do not attempt to stop drainage. Do NOT place anything into the nose or ear.

Heat Emergencies

LEVEL	
FR B A I P	Heat Cramps 1. Initial Medical Care: <ul style="list-style-type: none"> Move patient to a cool environment, remove excess clothing
FR B A I P	Heat Exhaustion 2. Initial Medical Care <ul style="list-style-type: none"> Move patient to a cool environment. Cold packs to axilla and groin. Place in supine position. Remove as much clothing as possible to facilitate cooling. IV as needed
A I P	
FR B A I P	Heat Stroke: Elevated body temperature with altered mental status 3. Initial Medical Care: special considerations: <ul style="list-style-type: none"> Monitor EKG IV as needed; 500 to 1000 mL bolus Anticipate development of elevated ICP Move patient to a cool environment. Place in supine position. Semi-fowler's position with head elevated 15°-30° if systolic BP greater than 90 mmHg.
A I P	
FR B A I P	
FR B A I P	4. Initiate rapid cooling: <ul style="list-style-type: none"> Remove as much clothing as possible to facilitate cooling Cold packs to groin, axillae, carotid arteries, temples, and behind knees Spray water mist that is body temperature on to body with source of rapid air movement over body. If spray is not available, cover patient with wet sheet or blanket.

Hemostatic Agents

LEVEL	Hemostatic Agents
FR B A I P	<p>PURPOSE Stop massive hemorrhage associated with trauma Second line agent for the control of Massive Hemorrhage not controlled by or anatomically amenable to application of a tourniquet. Especially important consideration in the Tactical and Disaster Environment.</p> <p>Hemostatic Dressings have been designed to control massive bleeding at the site of the vessel either through +/- charges or by literally using their chemical make-up to create a clot.</p>
	<p>EQUIPMENT Commercially available Hemostatic Dressings: Combat Gauze®, Celox gauze® or Quick Clot ACS® are currently recommended.</p> <ol style="list-style-type: none"> 1. Verify patient has sustained a traumatic injury that may benefit from the use of a Hemostatic Dressing (i.e. penetrating trauma, severe lacerations, scalp lacerations and hemorrhage that cannot be controlled by conventional means, direct pressure and or pressure dressings). 2. Hemostatic dressings should also be considered for wounds that are not amenable to tourniquet application (i.e. High Groin or Armpit wounds). 3. Gauze-type Hemostatic agents work well for superficial injuries and deep penetrating injuries. 4. Once wound is identified, apply immediate firm direct pressure while preparing your Hemostatic Agent 5. Remove direct pressure and wrap or pack the wound. If a cavity is identified, the agent must be deeply packed to reach the site of bleeding. 6. Very firm direct pressure must be applied for 3 minutes, at which time the wound should be assessed for cessation of bleeding. If bleeding continues, remove Hemostatic agent and reapply. (Repeat steps 4-7). 7. Once bleeding is controlled, the wound should be dressed with a pressure-type dressing. 8. Assess and treat the patient for signs of shock (see Hypovolemia/Hemorrhagic Shock Protocol). 9. The process for addressing a wound with a Hemostatic Agent should NOT delay transport time.

Hypertensive Emergency

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Initial Medical Care
- If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%³¹ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
- Elevate head of bed 15-30 degrees or higher for patient comfort, keep head and neck midline.
- Assess and record neuro signs as a baseline.
- History: HTN and renal disease.
- Assess for chest pain and/or pulmonary edema.
 - If present: treat per appropriate protocol.
 - Assess for other causes – Anxiety or pain – Treat per Protocol

EMERGENCY MEDICAL TECHNICIAN (EMT)/ADVANCED EMT (AEMT)

- If trained in 12 lead EKGs** and 12 lead EKG available, obtain 12 lead EKG and transmit to receiving hospital for interpretation.

INTERMEDIATE / PARAMEDIC

- Obtain 12-lead EKG and transmit EKG.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

STABLE: SBP less than 220mmHg and DBP less than 120mmHg

If patient is hypertensive but without Cerebral Vascular or neurologic signs:

- Transport.
- Reassess and document patient condition and vitals every 10 minutes

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

UNSTABLE – HYPERTENSIVE CRISIS:

- Non-traumatic origin. Pain and anxiety have already been treated and are no longer considered a factor.
- Use of this protocol should be limited to patients in hypertensive crisis (Systolic BP is greater than 220 or Diastolic BP is greater than 120, and BP manually taken and confirmed with multiple measurements at least 5 minutes apart) with neurovascular and/or neurologic deficits due to the hypertension and/or those with chest pain and/or pulmonary edema.

³¹ Cyanotic Heart Disease pulse ox goal 75-85%

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

- The goal of therapy for hypertensive emergencies is to reduce the blood pressure, on average, approximately 10% - 20% or until the patient's clinical presentation is improved. Caution should be taken to reduce the blood pressure in a controlled fashion as opposed to rapid reduction.³²

Nitroglycerine 0.4 mg SL.

- Repeat every 3-5 minutes to reduce MAP by 10-20% or symptoms resolve.

INTERMEDIATE / PARAMEDIC

UNSTABLE – HYPERTENSIVE CRISIS:

1. Control Pain

PARAMEDIC

2. Control Anxiety
3. If available and HR greater than 60, give Labetalol 10 mg IV/IO slowly. Repeat every 10 minutes as needed
4. If Labetalol is not available and metoprolol is available and HR is greater than 60, give Metoprolol 5 mg IV/IO and may repeat every 5 minutes up to 3 doses.

Contact Medical Control for the following:
Additional orders

³² Reducing BP too rapidly or drastically in a patient whose body is used to chronically high blood pressure

Hypoglycemia/Insulin Shock

EMERGENCY MEDICAL RESPONDER (EMR)/ EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Initial Medical Care.
2. If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%³³ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
3. Airway support as needed
4. If conscious, administer one dose (30 grams) of **Oral Glucose**, regular soda or juice if available
5. Monitor vitals.

EMERGENCY MEDICAL RESPONDER (EMR) if trained and approved/ EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

6. Check glucose level (EMR level if trained & approved).
 - Blood Sugar less than 60, conscious, administer oral sugar (30 grams oral glucose, regular soda or juice).
 - If signs or symptoms persist, recheck blood sugar level. Repeat **Oral Glucose**.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

7. Blood Sugar less than 60, unconscious or unable to protect airway, administer **Glucagon** 1 mg, if unable to start IV, give **Glucagon 1 mg IM/IN and may repeat once in 15 minutes if not improved**.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

8. Blood Sugar less than 60 and patient has altered level of consciousness or is unconscious: Initiate IV/IO** NS at TKO and start dextrose- give up to **25 grams of dextrose**³⁴ at a time. Titrate to effect and stop when patient is awake/signs and symptoms have resolved.
 - **D50** 1 amp (50ml)
 - **D25** (100ml)
 - **D10** (250ml)
9. If signs or symptoms persist, recheck blood sugar and repeat dose up to **25 grams of dextrose**.
10. If the patient wants to refuse transport, ensure patient safety and get release signed. Contact Medical Control if you are concerned about the safety of the patient.
11. If IV cannot be established, administer **Glucagon** 1mg IM if not already performed. May repeat IM Glucagon 1 mg IN/IM once if not improved after 15 minutes.

Contact Medical Control for the following:

For additional orders or if patient refusing transport and it is felt they are in danger.

Note: Prehospital providers shall not assist any patient in administering any insulin products prior to arrival at the hospital.

³³ Cyanotic Heart Disease pulse ox goal 75-85%

^{**} IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

³⁴ If patient is awake with a stable airway, no risk of aspiration, oral glucose preparation may be used.

Hypovolemic/Hemorrhagic Shock

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Provide Initial Medical Care or Initial Trauma Care per protocol
2. If non-traumatic source of low blood volume, assess alternative causes and if infectious cause possible (sepsis, diarrhea, vomiting) use PPE
3. Control external hemorrhage
4. Keep patient flat (if possible).
5. Conserve body temperature and reassure patient.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

6. Initiate IV/IO** (18ga or larger) NS/LR. **Do not delay transport to start an IV.**
7. Consider 2nd IV/IO** when patient is severely ill or ongoing fluid/blood loss is suspected
8. Administer NS/LR by following goal SBP:
 - (13 yo or older) If SBP less than 90 mmHg, initiate a fluid bolus of Normal Saline/Lactated Ringers: 500 ml.
 - (Infant to 12 yo)
 - o Infant – 6 months: If SBP less than 60 mmHg initiate 10-20 ml/Kg bolus
 - o 6 months – 5 years: If SBP less than 70 mmHg initiate 10-20 ml/Kg bolus
 - o 6 years – 12 years: If SBP less than 80 mmHg initiate 10-20 ml/Kg bolus
9. Reassess Blood Pressure every 5 minutes and if SBP meets or exceeds goal, stop bolus. Restart bolus if BP drops below goal. If goal BP not met/sustained, repeat boluses up to 2 liters or 60 ml/kg (12 yo or less).
 - If sepsis/septic shock or severe diarrhea, there is no predetermined maximum amount of fluid and only vascular overload should limit fluid, so repeat 1000 ml or 20 ml/kg boluses every 30 minutes until signs of vascular overload. For adequate fluid replacement, in one study adult septic shock patients required an average of 5 liters of fluid in the first 6 hours.
10. If still hypotensive or signs of hypoperfusion despite IV fluids, see Shock Protocol.

Definition: Class II - IV hemorrhage with signs and symptoms including a sustained respiratory rate ≥ 20 ; sustained pulse ≥ 100 (unless elderly or on beta blockers or digitalis); cool, moist, pale skin; narrowed pulse pressure, and or a falling BP. This presentation is almost always associated with internal or external bleeding/volume loss and requires definitive treatment.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

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Classes of Adult Hemorrhagic Shock

	Class I	Class II	Class III	Class IV
Blood Loss (ml)	up to 750	750 - 1500	1500 - 2000	2000 or more
Blood Loss (%BV)	up to 15%	15 - 30%	30 - 40%	40% or more
Pulse Rate	less than 100	greater than 100	greater than 120	140 or higher
Blood Pressure	Normal	Normal	Decreased	Decreased
Pulse Pressure	Normal or Increased	Decreased	Decreased	Decreased
Capillary Refill Test	Normal	Positive	Positive	Positive
Respiratory	14 - 20	20 - 30	30 - 40	greater than 35
Urine Output (ml/hr)	30 or more	20 - 30	5 - 15	Negligible
CNS-Mental State	Slightly anxious	Mildly anxious	Anxious and confused	Confused – lethargic

Ibuprofen

Advil, Motrin

Ibuprofen is a nonsteroidal anti-inflammatory (NSAID). It works by inhibiting the cyclooxygenase enzymes, which decreases the synthesis of prostaglandins involved in mediating inflammation, pain, fever, and swelling.

Contraindications:

- Hypersensitivity
- Active GI bleeding or peptic ulcers
- Renal Failure or advanced renal disease
- Pregnancy
- Pediatrics < 6 months of age

Indications:

- **Pain Management:** mild to moderate pain; adjunct for severe pain
- **Fever or Sepsis Septic Shock:** antipyretic

Dose:

600mg or 10mg/kg PO, may round to tablet size; every 6 hours

Adverse Effects:

- | | |
|-----------------------------|--------------------------|
| Nausea | • GI ulceration/bleeding |
| • Dyspepsia (stomach upset) | • Headache/dizziness |
| • Diarrhea | • Hypertension |
| • Constipation | • Rash |

Considerations:

- Do not use if another NSAID has been administered in prior 6 hours
- Increase antiplatelet properties of anticoagulants
- Increase risk of bleeding

Pharmacokinetics:

- Onset: 20-30 minutes; 2-4 hours for antipyretic effects
- Half-life: 2-4 hours

Pregnancy/Lactation:

- Pregnancy Class = C, but do not use in 3rd trimester due to risk of fetal harm including premature fetal ductus arteriosus closure
- NSAID of choice for analgesic use while breastfeeding

Ibuprofen

Advil, Motrin

Dosing Chart

Age	Broselow	Kilos	Pounds	mg	100 mg/5mL
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs		
6 mo	PINK	6-7 kg	13 - 15 lbs	60	3 mL
9 mo	RED	8-9 kg	16 - 20 lbs	80	4 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	100	5 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	120	6 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	160	8 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	200	10 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	260	13 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	300	15 mL
		38.5 kg	84 lbs	400	20 mL
		44 kg	97 lbs	440	22 mL
		50 kg	110 lbs	500	25 mL
		55 kg	121 lbs	540	27 mL
		60 kg	132 lbs	600	30 mL
Max dose		67+ kg	147+ lbs	600	30 mL

Induced Hypothermia for Resuscitated Cardiac Arrest

Inclusion Criteria:

1. Age greater than 17 years old.
2. Non-Traumatic cardiac arrest with return of spontaneous circulation (ROSC).
3. Unable to follow verbal commands.

Exclusion Criteria:

1. Pre-existing Environmental Hypothermia
2. Traumatic Arrest
3. Active bleeding
4. Inability to maintain SBP greater than 90 despite the use of Vasopressors

COLD SALINE INFUSION IS NO LONGER PART OF INDUCED HYPOTHERMIA PROTOCOL

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Establish an advanced airway. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%³⁵ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
2. Obtain 12 lead EKG^{**}, if not already obtained.
3. Expose patient.
4. Apply ice/cold packs to neck, axilla and groin

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE

5. Consider Paramedic Intercept for sedation
6. If shivering occurs, and paramedics unable to provide sedation, remove cold packs.

PARAMEDIC

5. If SBP greater than 100, administer 5 mg Versed IV/IO/IN to prevent shivering. Give an additional dose of 2 to 5 mg Versed every 5 minutes (no maximum dosage) to suppress shivering. After 10 mg Versed and still shivering, may contact medical control for possible paralytic orders (only with advanced airway in place Vecuronium 0.1mg/kg IV or Rocuronium 0.6-1 mg/kg).
6. Consider Dopamine infusion per Cardiogenic Shock protocol to keep SBP greater than 90.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

7. Transport to a facility³⁶ that is capable of maintaining induced hypothermia post cardiac arrest treatment. If STEMI, strongly consider direct transport to a facility with an immediately available cardiac catheterization lab.

^{**} 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

³⁵ Cyanotic Heart Disease pulse ox goal 75-85%

^{**} 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

³⁶ All Aurora Healthcare South Market Hospital Emergency Departments have the equipment and protocols to continue Induced Hypothermia when initiated in the pre-hospital setting.

Initial Medical Care

General Patient Assessment

Resuscitative interventions are to be performed during the initial assessment as impairments are found.

General Patient Assessment:

- Assure scene safety for all personnel.
- Initiate universal blood and body secretion precautions on all patients. Apply appropriate equipment (PPE). Use special care in the handling of sharps/contaminated objects/linens per procedure.
- In a HAZMAT incident, do not risk exposure of EMS responders. Follow department HAZMAT protocols.

Primary/Initial Assessment:

- **Airway** – Assess airway patency. Assess for possible spinal injury.
- **Breathing** – Assess for respiratory distress, bilateral chest expansion, rate, pattern, and depth of ventilations, adequacy of gas exchange, use of accessory muscles, and breath sounds.
- **Circulation** – Assess rate, quality, and regularity of pulses, hemodynamic status and neck veins. Evaluate and record cardiac rhythm if indicated (Chest Pain, SOB, Shock, Altered Mental Status, Drug Toxicity, Hypothermia, Electrocution, Chest Trauma, etc).
- **Disability** – Mini-neurological exam to include brief pupil check and assessment of mental status:
 - **A** – Alert x 4. (Person, Place, Time and Events)
 - **V** – Not alert but responds to verbal stimuli.
 - **P** – Not alert but responds to painful stimuli.
 - **U** – Unresponsive to all stimuli.
- **Expose and examine** as indicated.

Transport Decision:

Once the primary survey and/or resuscitative interventions are initiated, a decision must be made whether to complete the primary survey and/or continue with the secondary assessment and additional interventions on-scene or to transport rapidly with interventions enroute.

If circumstances demand hospital care to stabilize a patient, minimizing scene time is desired. Each case will be unique and compelling reasons **MUST** be documented when care is abbreviated or aborted in favor of expeditious transport. This protocol does not imply that the rate of speed in transport is accelerated, but rather there is emphasis on rapid scene stabilization and transportation as soon as possible to the hospital.

1. Provide C-A-B primary survey approach to patient cardiac care as needed. (see Initial Medical Care protocol). Attempt to secure airway using adjuncts per procedure manual. If airway cannot be secured: transport immediately with C-spine immobilization, if indicated. Continue airway maneuvers enroute.
2. If airway secured: attempt to ventilate with 100% oxygen per appropriate device. If unable to ventilate; consider causes, attempt to alleviate per procedure (i.e.; needle pleural decompression, adjust ET tube placement etc.) and transport immediately.
3. If airway/ventilatory status secured: attempt to support circulation as able. CPR/hemorrhage control where indicated.
4. Notify the nearest appropriate hospital of the patient's condition and your ETA as soon as possible.

It is acceptable in these cases not to start IVs at the scene. Attempt as much care as possible enroute.

Examples of situations that may require an expeditious transport:

- * Inability to establish or maintain a patent airway
- * Inability to ventilate or impaired gas exchange with hypoxia
- * Penetrating wounds to chest, or abdomen with Class III or greater shock (see below)
- * Massive uncontrolled hemorrhage
- * Shock
- * Head injury with rapidly deteriorating condition
- * Prolapsed cord
- * Breech birth
- * Acute MI
- * Acute CVA less than 4.5 hours of onset of symptoms

Secondary/Focused or Rapid Assessment:

Chief complaint	Review of Systems	Vital Signs
General Exam.	Head to Toe Exam.	Glasgow Coma Score
Mechanism of Injury	Perform SAMPLE history and OPQRST history	Appropriate Interventions

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/INTERMEDIATE / PARAMEDIC

1. **Airway:** Establish and maintain a patent airway using appropriate patient positioning and airway adjuncts (Combi-Tube, King LTS-D intubation, etc.) per Scope of Practice. Initiate spinal precautions if indicated (airway takes precedence over spinal stabilization). Suction as necessary.
2. **Breathing:** Provider assist ventilations as necessary. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%³⁷ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
3. **Circulation:** Initiate CPR, if indicated. Establish IV or IO of Normal Saline (NS) as determined by patient condition and/or Provider Scope of Practice. IV Tubing and rate to

³⁷ Cyanotic Heart Disease pulse ox goal 75-85%

- be determined by patient condition or as specified by protocol or Medical Control. Attempt twice unless requested to continue attempts or situation demands. Control any external hemorrhage.
4. Loosen tight clothing, reassure patient. Do not provide any food or drink to the patient.
 5. Place patient in semi-fowler's position or position of comfort unless contraindicated. Patients with altered mental status should be placed on their back with head elevated 20-30 degrees to prevent aspiration.
 6. Pain Management should be considered in the care of all patients unless contraindicated or ill advised. Ask patient to rate any pain on a scale of 0-10 with 0 indicating a pain free state and 10 being the worst pain imaginable.
 7. Recheck and record Vital Signs and patient responses at least every 5 minutes for critical and 15 min for stable or as indicated and after each intervention, noting the times obtained. Attempt to repeat and record all abnormal vital signs.
 8. Contact Medical Control if patient condition does not improve, worsens, or is refractory to the initial treatment orders, or at the point in which the protocol states: "At discretion of Medical Control". Transmit assessment and treatment information and follow orders.
 9. Be certain to notify receiving hospital and/or Medical Control as soon as possible
- In certain situations, a patient's medical condition and the medical judgment of the EMT may require that treatment that would normally be administered on the scene be attempted en route to the hospital, in order to shorten the time taken to reach the hospital. Document the patient's condition or behaviors, which necessitated expeditious transport.

In order to facilitate rapid and efficient resuscitation in cardiorespiratory emergencies, the EMT will use the primary/secondary survey patient care approach as below.

Primary Survey (is CPR needed?)	Secondary Survey (once CPR has been started)
1. First "X-C-A-B" <ul style="list-style-type: none"> • eXsanguination: Stop life threatening bleeding. • Circulation: Give chest compressions Defibrillation: Shock VF/Pulseless VT. • Airway: Open the airway. • Breathing: Provide positive-pressure ventilations 	1. Second "A-B-C-D" <ul style="list-style-type: none"> • Airway: Perform advanced airway. • Breathing: Assess bilateral chest rise and ventilation. • Circulation: Gain IV access, determine rhythm, give appropriate agents. • Differential Diagnosis (THINK): Search.

Initial Trauma Care

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Ensure “Scene Safety” and Body Substance Isolation (BSI)
- Determine need for additional resources (e.g. helicopters, additional ambulances, heavy rescue).
- Circulation:
 - Control external hemorrhage with direct pressure/pressure dressing. Consider early use of Tourniquets or Hemostatic agents in massive or severe external hemorrhage which is not controlled with direct pressure/ pressure dressings (Refer to appropriate Protocol). If available and trained, consider temporary hemorrhage control skin clamp**
 - If the patient arrests, See Traumatic Arrest Protocol
- Airway: Relieve airway obstruction, if present
 - Open the airway with a jaw-thrust (No head tilt – Chin lift in trauma patients)
 - Remove foreign material, emesis and blood
 - Suction the airway
 - If no gag reflex, consider oropharyngeal airway or nasopharyngeal airway (nasopharyngeal airway not recommended in facial trauma)
- Breathing:
 - Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%³⁸ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have ability to assess O2 saturations
 - Assist ventilations with bag-valve-mask and high-flow oxygen, as needed
 - Cover sucking chest wounds with a three-sided flap valve
- C-Spine: Manual stabilization
- Splint obvious extremity fractures
- Refer to Pain Management Protocol
- Begin other interventions as needed according to specific guidelines

EMERGENCY MEDICAL RESPONDER (EMR)

- If altered mentation, check blood glucose if authorized**
- Apply cervical collar if indicated and authorized**

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- If there is altered level of consciousness
 - Check Blood Glucose
 - Follow Hypoglycemia protocol if less than 60

** As long as the provider has been trained and approved and service approved by State.

³⁸ Cyanotic Heart Disease pulse ox goal 75-85%

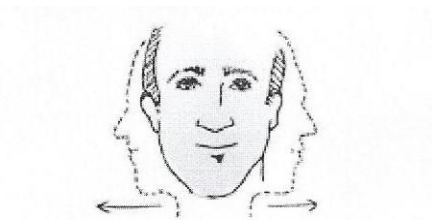
Spinal Immobilization

Spinal Immobilization:

Patients with Blunt traumatic injuries with mechanism concerning for spinal injury should be assessed for spinal injury. Patients may have all spinal immobilization omitted if ALL of the following conditions apply:

- They are conscious, cooperative and able to communicate effectively with the provider
- There is no major mechanism for severe injury (i.e. No prehospital trauma triage criteria to go to a high-level trauma center)
- Have no history of new or temporary neurologic deficit such as numbness or weakness in an extremity
- Have no evidence of intoxication or altered mental status
- Have no evidence of a distracting injury such as
 - Fractures
 - Major Burns
 - Crush injuries
 - Severe or distracting pain
- Have no midline back or neck pain or tenderness upon palpation

If all the above criteria are met have the patients move their neck 45° to either side of midline and if still no pain, no immobilization is indicated.



Spinal immobilization consists of keeping the head, neck and spine inline. The neck can be immobilized with a well fitted cervical collar, head blocks, blanket rolls or other immobilization techniques. Patients who are already walking or standing should be laid directly on the ambulance stretcher and secured to the stretcher with seatbelts. Back boards and scoop stretchers are designed and should only be used to extricate patients. Once extricated, patients should be taken off the back board or scoop stretcher and be placed directly on the ambulance stretcher.

Decisional patients have the right to refuse aspects of treatment including spinal immobilization. If a patient refused immobilization after being informed of possible permanent paralysis, do not immobilize them and document the patient's refusal in your medical record.

Patients with penetrating traumatic injuries should only be immobilized if a focal neurologic deficit is noted on physical examination (although there is little evidence of benefit even in these cases).

- **Document all findings**

- Refer to the *Triage & Transport Guidelines* to consider possible transport to a Regional Trauma Center

Secondary Survey: complete physical exam based on mechanism, nature and type of injury, and patient's condition.

- **HEAD, EYES, EARS, NOSE (HEEN):** Inspect/palpate the head and face. Note any alterations from normal including drainage from any facial orifice. Reinspect pupils for size, shape, equality, and reactivity. Note gross visual and any trauma to eyes, lids, or orbits. Note extraocular movements and any deviations from normal.
- **NECK:** Reinspect/palpate presence of carotid pulses, status of neck veins (flat or distended), subcutaneous emphysema, bleeding, location of trachea and cervical spines. May need to temporarily remove anterior aspect of C-collar to reassess neck. Check posterior neck for blood/wound by blind palpation.
- **CHEST:** Reinspect/palpate/auscultate for ventilatory distress, impaired gas exchange, or signs of injury.
- **ABDOMEN:** Inspect/palpate for signs of injury or peritoneal irritation. Note abdominal contour, visible pulsations, wounds/bruising patterns, pain referral sites, localized tenderness, guarding, and rigidity. Note in which quadrant they occur. If eviscerated abdomen: do not touch bowel. Cover with sterile dressing moistened with sterile saline.
- **PELVIS/G.U.:** Inspect for bleeding, soft tissue injury, edema, and ecchymosis. Palpate for crepitus/instability.
- **EXTREMITIES:** Inspect for position, deformities, false motion, wounds, skin color and signs of injury. Palpate for pain, paralysis (motor deficit), paresthesia's (sensory deficit), pulselessness (circulatory deficit) distal to injury. Splint/immobilize as needed.
- **BACK:** Palpate accessible areas of spine; note any tenderness, deformities, and muscle spasms.
- **SKIN/SOFT TISSUE:** Inspect/palpate for color, temperature, moisture; wounds, bruising edema, subcutaneous emphysema, and thermal/chemical/electrical burns.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Initiate IV/IO (18ga or larger) NS/LR, if approved. Do not delay transport to start an IV.
- Consider 2nd IV/IO** where hypovolemia is suspected
- (13 yo or older) If SBP less than 90 mmHg, initiate a fluid bolus of Normal Saline/Lactated Ringers: 500 ml.
- (Infant to 12 yo)
 - o Infant – 6 months: If SBP less than 60 mmHg initiate 10-20 ml/Kg bolus
 - o 6 months – 5 years: If SBP less than 70 mmHg initiate 10-20 ml/Kg bolus
 - o 6 years – 12 years: If SBP less than 80 mmHg initiate 10-20 ml/Kg bolus
- Reassess Blood Pressure every 5 minutes and if SBP meets or exceeds goal, stop bolus. Restart bolus if SBP drops below goal. If goal BP not met/sustained, repeat boluses up to 2 liters or 60 ml/kg (12 yo or less).

INTERMEDIATE / PARAMEDIC

- Consider Endotracheal intubation or other advanced airway for:
 - o Respiratory failure, apnea, or GCS less than 9 and not able to maintain oxygen saturation greater than 90%

- If tension pneumothorax is suspected perform needle decompression.
- Consider Pain Management and Nausea/Vomiting Protocols.

PARAMEDIC

- If the airway is obstructed or obstruction is imminent and 2 attempts to intubate the trachea have failed, attempt non-visualized airway and if that fails, perform surgical or needle cricothyroidotomy.
- If available and trained, consider Tranexamic Acid** if protocol conditions met.

IO Protocol**

Use of this protocol is limited to Advanced EMTs who are trained in its use and their service has been approved for its use by the State, and Intermediates and Paramedics.

Indications:

1. May be used for patients in Cardiac and/or Respiratory Arrest, or Near Arrest state without an IV attempt, but generally should be used only if IV access not able to be obtained after at least 2 IV attempts.
2. In conscious patients in immediate life threat where IV attempts unsuccessful.
3. In unconscious patients with immediate need for fluids or medications.
4. In conscious patients with immediate need for fluids or medications and able to give IO lidocaine. (Intermediate and Paramedic)

EZ-IO® 25mm (3 kg and over), EZ-IO® 15mm (3-39 kg) and EZ-IO® 45mm (40 kg and over with excessive tissue or proximal humerus).

Adults

- Proximal humerus
- Proximal tibia
- Distal tibia

Pediatrics

- Proximal tibia
- Distal tibia
- Distal Femur
- Proximal humerus can be used in pediatric patients when the landmarks can clearly be identified.

Contraindications

1. Fracture of the bone Selected for IO infusion. (consider alternate sites)
2. Excessive tissue at insertion site with the absence of anatomical landmarks. (consider alternate sites)
3. Previous significant orthopedic procedures (IO within 48 hours, prosthesis – consider alternate site)
4. Infection at the site selected for insertion. (consider alternate sites)

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

Procedure: *If patient is conscious, explain procedure.*

1. Cleanse site using antiseptic agent
2. Connect appropriate Needle Set to driver.
3. Stabilize site.
4. Insert EZ-IO needle into selected site. **IMPORTANT:** Keep hand and fingers away from needle set.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

5. Position the driver at the insertion site with the needle at a 90-degree angle to the bone surface for tibia and femur sites and needle at a 45-degree angle to the anterior plane and posteromedial for proximal humerus.
6. Gently pierce the skin with the Needle Set until the Needle set tip touches the bone. **Should have the 5 mm mark visible above the skin at this point to confirm adequate needle length to penetrate the bone.** If the 5 mm mark is not visible at this point, withdraw the needle and use the next larger size of needle.
7. Penetrate the bone cortex by squeezing drivers trigger and applying gentle, consistent, steady, downward pressure (allow the driver to do the work)
 - Do not use excessive force. In some patient's insertion may take greater than 10 seconds, if the driver sounds like it is slowing down during insertion; reduce pressure on the driver to allow the RPMs of the needle to do all the work.
 - In the unlikely event that the battery on the driver fails clinicians may manually finish inserting the EZ-IO Needle Set. Grasp the Needle Set and, rotate arm, while pushing the needle into the intraosseous space. This may take several minutes.
8. Release the driver's trigger and stop the insertion process when the sudden "give or pop" is felt upon entry into the medullary space or when desired depth is obtained.
9. Remove EZ-IO Power Driver from Needle Set while stabilizing the catheter hub.
10. Remove stylet from catheter by turning counter-clockwise and immediately dispose of stylet in appropriate biohazard sharps container.
11. Secure site with EZ Stabilizer.
12. Connect primed EZ-Connect to the exposed Luer-lock hub.
13. Confirm placement
14. Syringe bolus: rapid flush the catheter with 10 mL normal saline (5 ml for pediatric patients)
15. Assess for potential IO complications.
16. Disconnect 10 mL syringe from the EZ-Connect extension set.
17. Connect primed IV tubing to EZ-Connect extension set.
18. Begin infusion using pressure delivery system.
19. Continue to monitor extremity for complications.
20. Place EZ-IO armband on patient, document time and date.

INTERMEDIATE / PARAMEDIC

If patient is responsive to pain, prior to the 10 mL normal saline rapid flush, over 1-2 minutes give 2% lidocaine (cardiac lidocaine) 2.5 mL (50 mg) Adult dose, or 0.05 mL/kg (1 mg/kg) up to 2.5 mL (50 mg) for pediatric patients for anesthetic effect. May repeat lidocaine once, if pain not controlled.

IV Protocol

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

General

1. An IV saline lock/Normal Saline/Lactated Ringers should be started if there is an anticipated use for IV medications or fluids. Providers should not be hesitant to initiate IV access. For the purposes of these protocols, an IV is a saline lock or an IV line with 0.9 Normal Saline or Lactated Ringers.
2. All IV infusions are to be run at TKO unless a different rate is specified by the appropriate protocol.
3. Start a second IV line when appropriate (i.e. major trauma, suspected major hemorrhage, STEMI and burn cases), or when provider judgment deems appropriate. Unless additional fluid infusion is needed, the second IV line should be a saline lock.
4. Macro (10/15/20gtt) should be used for all situations, except when medication calls for smaller tubing

Adult/Peds Failed IV Access

5. If vascular access is deemed mandatory to immediately treat conditions with significant morbidity or death and two attempts at IV access have failed, follow IO** access protocol. In cardiac arrest or near-death state, may go directly to IO access protocol

Adult Fluid Resuscitation

- 500 mL bolus increments- repeat up to 2000mL's as needed. If severe diarrhea or septic shock, may give additional 1000mL fluid every 30 minutes.

Pediatric Fluid Resuscitation

- For fluid resuscitation use 20 mL/kg bolus – repeat 2 times as needed for a total infusion of 60 mL/kg.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

Ketorolac (Toradol)

Ketorolac is a nonsteroidal anti-inflammatory. An anti-inflammatory drug that also exhibits peripherally acting non-narcotic analgesic activity by inhibiting prostaglandin synthesis.

Contraindications:

- Hypersensitivity
- Allergy to other NSAIDs
- Bleeding disorders
- Renal failure or advanced renal disease
- Active peptic ulcers
- Pregnancy

Indications:

- **Fever or Sepsis Septic Shock:** antipyretic
- **Pain Management:** moderate to severe pain; preferred for kidney stone pain

Dose:

- 15mg or 0.5mg/kg IV/IO every 6 hours **OR**
- 30mg or 1.0mg/kg IM/PO every 4 hours

Adverse Effects:

- Edema
- Sedation
- Nausea/vomiting
- Headache

Considerations:

- Do not use if another NSAID has been administered in prior 6 hours
- Increase antiplatelet properties of anticoagulants
- Increase risk of bleeding when combined with other NSAIDs

Pharmacokinetics:

- Onset: 1-3 minutes IV; 30-60 minutes IM/PO
- Half-life: varies by age; adult 2-9 hours

Pregnancy/Lactation:

- Category C (1st & 2nd Trimester) and D (3rd Trimester)
- Safe for use in breastfeeding.

Age	Broselow	Kilos	Pounds	IV/IO	IM/PO
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs		
6 mo	PINK	6-7 kg	13 - 15 lbs	3 mg	6 mg
9 mo	RED	8-9 kg	16 - 20 lbs	4 mg	8 mg
1 yr	PURPLE	10-11 kg	21 - 24 lbs	5 mg	10 mg
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	6 mg	12 mg
4 yrs	WHITE	15-18 kg	32 - 40 lbs	7.5 mg	15 mg
6 yrs	BLUE	19-23 kg	41 - 48 lbs	10 mg	20 mg
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	12.5 mg	25 mg
10 yrs	GREEN	30-36 kg	67 - 80 lbs	15 mg	30 mg
Max Dose		38.5+ kg	84+ lbs	15 mg	30 mg

Leg Lift and Valsalva Maneuver

Indications: Supraventricular Tachycardia, Rapid heart rate.

Standard Valsalva maneuvers are 5-20% successful in getting SVT patients into a normal rhythm. The Leg Lift Valsalva Maneuver in one study was 43% successful³⁹.

INTERMEDIATE / PARAMEDIC

Procedure: Patients will be seated at a 45° semi recumbent position and will perform the standardized strain for 15 seconds (below). Following this, they will be laid flat, and their legs will be raised by Providers to a 45° angle for 15 seconds and then patients will be returned to the 45° semi recumbent position for 45 seconds.

Standardized strain

This consists of a forced expiration against a manometer (BP tubing) to a pressure of 40 mm Hg for 15 seconds, or into an empty 10 ml syringe with the direction to blow into it to try and move the plunger just a little bit for 15 seconds. During the strain, Providers will give verbal encouragement at 5 and 10 seconds to support participants in achieving target pressure and strain duration.



40

¹⁹ Postural modification to the standard Valsalva maneuver for emergency treatment of supraventricular tachycardias (REVERT): a randomized controlled trial. Appelboam A, Reuben A, Mann C, Gagg J, Ewings P, Barton A, Lobban T, Dayer M, Vickery J, Bengner J, REVERT trial collaborators. Lancet. 2015 Aug

³⁹ Postural modification to the standard Valsalva maneuver for emergency treatment of supraventricular tachycardias (REVERT): a randomized controlled trial. Appelboam A, Reuben A, Mann C, Gagg J, Ewings P, Barton A, Lobban T, Dayer M, Vickery J, Bengner J, REVERT trial collaborators. Lancet. 2015 Aug

⁴⁰ <http://rebelem.com/the-revert-trial-a-modified-valsalva-maneuver-to-convert-svt/>

²⁰ <http://rebelem.com/the-revert-trial-a-modified-valsalva-maneuver-to-convert-svt/>



⁴¹

²¹ <http://www.sciencedaily.com/releases/2015/08/150825103122.htm>

⁴¹ <http://www.sciencedaily.com/releases/2015/08/150825103122.htm>

Mark-1 Auto-Injectors

This protocol may be used by properly trained and licensed EMT's exposed to nerve gas (Sarin, Sman, Tabun, Vx) or organophosphates (insecticides).

This protocol is intended for short-term survival only!

LEVEL	Use of Mark-I Auto-Injectors
FR B A I P	I. Equipment: A. Mark-1 Auto-Injector antidote kit containing: <ol style="list-style-type: none"> 1. One (1) Atropine auto-injector (2 mg in 0.7 mL). 2. One (1) Pralidoxime Chloride auto-injector. <ul style="list-style-type: none"> • 2-PAM CL (600 mg in 2 mL).
FR B A I P	II. Criteria for Use: A. Mark-1 Auto-Injectors may be used: <ol style="list-style-type: none"> 1. If signs and/or symptoms (see below) of nerve gas or organophosphate poisoning are present, or 2. If known exposure to nerve gas or organophosphates has occurred prior to signs or symptoms.
FR B A I P	III. In the event that an individual is exposed to nerve gas or organophosphates and they meet the above criteria: A. The Mark-1 kit should be rapidly administered. B. Immediately evacuate the contaminated area. C. If dermal exposure has occurred, decontamination is critical and should be done with standard decontamination procedures. D. Request ALS transport or intercept. Intermediate (99) and Paramedic level providers carry Atropine as one of their standard medications. Continued prehospital treatment with Atropine is essential to survival.
FR B A I P	IV. Signs and Symptoms: SLUDGEM + RESPIRATION + AGITATION. S – Salivation (excessive drooling). L – Lacrimation (tearing). U – Urination. D – Defecation. G – GI upset (cramps). E – Emesis (vomiting). M – Muscle (twitching, spasm, “bag of worms”). RESPIRATION – difficulty breathing/distress (SOB, wheezing) AGITATION and CNS SIGNS – confusion, agitation, seizures, coma.






Metered Dose Inhaler

EMS Metered Dose Inhaler (MDI) Just In Time Training – Effective 4/3/2020

All EMS personnel may utilize albuterol metered dose inhalers (MDI), in place of nebulized breathing treatments, for a patient(PT) suffering from bronchospasm. Use of MDI is optional for those providers who choose to purchase/utilize them. A pt's own MDI may also be utilized by prehospital personnel when available.

MDI are single patient use and can not be used for subsequent patients.

If the inhaler is brand new, prime the inhaler by discharging the canister 3 times.

<p><u>MDI Instructions/Procedure</u></p> <ul style="list-style-type: none"> • Use of a spacer is required. May use alternatives to standard spacer. • Dose: 4 (90 mcg) puffs equivalent to a 2.5 mg nebulizer tx. • Shake inhaler for 5 seconds before puff • Wait 1 minute between puffs for inhaler to recharge. • May immediately repeat an additional 4 puffs if needed. If needed, repeat every 15 minutes 	<p>1. Shake the inhaler and remove the inhaler cap.</p> 	<p>2. Place the mouthpiece of the inhaler into the spacer.</p> 
<p>3. Remove the cap from the spacer.</p> 	<p>4. Hold the MDI upright, with the mouthpiece at the bottom.</p> 	<p>5. Have the pt tilt their head back slightly, and instruct them to breathe out slowly and completely.</p> 
<p>6. Instruct the pt to place the spacer's mouthpiece in their mouth.</p> 	<p>7. Press down on the inhaler to spray one puff of medicine into the spacer, and instruct pt to start breathing in slowly (press first, then breathe in).</p> 	<p>8. Instruct pt to hold their breath for 5 - 10 secs (or as long as comfortable). Administer additional puffs in same manner.</p> 

Metered Dose Inhaler (Spacer)

Meter Dose Inhaler (MDI) Spacer 2020

Important Considerations:

- Always use holding chamber, valved holding chamber preferred
- If patient is unable to use mouthpiece, use appropriately sized face mask.
- Shake inhaler for 5 seconds before each puff
- Prime the inhaler the first time it is used (brand new inhaler). This is done by discharging the canister 3 times.
- Wait 1 minute between puffs to allow MDI to recharge.
- If no standard spacer is available, use a 500-1000 ml empty water or soda bottle with a whole in the base for inhaler



Musculoskeletal Injuries

LEVEL	Musculoskeletal Injuries
FR B A I P	Initial Trauma Care – Special Considerations: <ul style="list-style-type: none"> Assess/document CMS: before and after splinting. Control bleeding with pressure (direct). <ol style="list-style-type: none"> Attempt to place extremities into axial alignment following long-bone fractures unless an open fracture, resistance is encountered, or patient complains of extreme pain. Splint joint injuries as found. Apply cold pack over injury site. Immobilize/splint – If pulses are lost after applying a traction splint, release traction until pulses have returned. Elevate extremity injuries if possible after splinting. Consider Pain Management. If long bone fracture with displacement/muscle spasm and hemodynamically stable; consider sedation: see Sedation protocol.
I P P	
FR B A I P	Amputation/Degloving Injuries: <ol style="list-style-type: none"> If amputation incomplete, attempt to stabilize with bulky dressing. DO NOT complete amputation. If uncontrolled bleeding continues, apply tourniquet above amputation as close as possible to the injury. See tourniquet protocol. Care of amputated parts: <ul style="list-style-type: none"> Wrap in saline-moistened gauze or towel. Place in plastic bag and seal. DO NOT immerse tissue directly in water or saline. Place plastic bag in second container filled with ice or cold water; or place in cold packs. Bring with patient to hospital.
FR B A I P	Impaled Objects: <ol style="list-style-type: none"> Never remove an imbedded or impaled object from the body unless it extends through the cheek into the mouth and poses impairment to the airway. Stabilize object with bulky dressings to minimize further injury. If penetrating injury is to head or extremity, elevate injured part if possible.

Narrow Complex Tachycardia

NOTES:

Criteria for characterizing a patient as “unstable”

- Hemodynamic Criteria
 - SBP less than 90 mmHg AND Heart Rate greater than 150 beats/min
- Clinical Criteria
 - Signs of shock (poor perfusion) are present, including
 - ALOC
 - Absent radial pulses
 - Pallor and diaphoresis
 - Signs of pulmonary edema are present, including
 - Labored breathing
 - Rales (wet lungs)
 - Hypoxia (SpO₂ less than 90%)
 - The patient complains of angina

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Initial Medical Care
- If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁴² (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O₂ saturations.
- If the patient is having difficulty breathing allow them to sit in position of comfort

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- If the patient experiences shortness of breath, follow the *Congestive Heart Failure Guidelines*
- ECG monitor or 12 lead** acquisition, if approved.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- IV/IO** NS @ TKO, if approved.
- If the patient is hemodynamically and clinically stable, observe and monitor, transport.
- If SPB less than 90 mmHg, give 500ml NS/LR IV if lung sounds clear. May repeat up to 4 boluses if lungs remain clear.

Contact Medical Control for the following:

- Additional orders

⁴² Cyanotic Heart Disease pulse ox goal 75-85%

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

INTERMEDIATE

- Obtain 12 Lead EKG, if not already done
- If the rhythm is faster than 150⁴³, is regular, and the patient is stable, attempt Valsalva maneuvers (consider Leg Lift Valsalva Maneuver)
- If the patient is hemodynamically or clinically unstable
 - Consider Fentanyl 100 mcg IV/IN for pain control before cardioversion, but do not delay cardioversion (if elderly or small give 50 mcg IV/IN)
 - Prepare to perform synchronized cardioversion
 - Perform first synchronized cardioversion @ 150 Joules
 - If unsuccessful, increase by 50 joules for each subsequent attempt. If maximum cardioversion power reached, may repeat once at maximum Joules.

Narrow Complex Tachycardia include:

- Sinus Tachycardia (regular, generally less than 160 bpm in an adult)
- Atrial Fibrillation/Flutter with rapid ventricular response (irregular, generally 120-180 bpm)
- Supraventricular Tachycardia (SVT) (regular, generally greater than 180 bpm)
- If sinus tachycardia is present, the underlying causes include: pain, dehydration, hypotension, shock, hypoglycemia, hypoxemia, anxiety, fever, sepsis, drug induced, recent heavy exertion, hyperthyroidism and anemia
 - Do not treat sinus tachycardia with medications or cardioversion
- If the patient rhythm is regular and the patient is mildly Hypotensive (80 – 100 mmHg) but without other serious signs or symptoms, a trial of adenosine is acceptable
 - **Adenosine** 6 mg IV over 1-2 seconds. If unsuccessful, repeat with 12 mg (may repeat twice) IV over 1-2 seconds. Follow all doses with a 20-30 ml saline flush by rapid IV push
 - Warn patient about brief but unpleasant side effects of adenosine: including flushing, lightheadedness, slowing of heart rate, anxiety and chest pain
 - Record a rhythm strip during Adenosine administration
 - Obtain a 12-Lead EKG if not already performed
- If the rhythm is regular and adenosine can be administered quicker than cardioversion, a trial of adenosine is also acceptable.

Contact Medical Control for the following:

- If persistently tachycardic with HR 150 or greater, contact medical control for a possible order for Amiodarone 150 mg over 10 minutes.
- For other orders.

⁴³ Pediatric Considerations:

- Infants treat rate greater than 220
- Children treat rates greater than 180
 - Utilize Broselow for dosing
 - Adenosine 0.1mg/kg first dose (max 6mg)
 - Adenosine 0.2mg/kg second/third dose (max 12mg)
 - Cardioversion 1 joules/kg first attempt
 - Cardioversion 2 joules/kg subsequent attempts

PARAMEDIC

- Obtain 12 Lead EKG, if not already done
- If the rhythm is faster than 150⁴⁴, is perfectly regular, and the patient is stable, attempt Valsalva maneuvers (consider Leg Lift Valsalva Maneuver)
- **If the patient is hemodynamically or clinically unstable**, whether rhythm is regular or irregular,
 - Consider Sedation (ex. Etomidate 10-15 mg IV) and/or Pain control before cardioversion, but do not delay cardioversion
 - Prepare to perform synchronized cardioversion
 - Perform first synchronized cardioversion @ 150 Joules
 - If unsuccessful, increase by 50 joules for each subsequent attempt. If maximum cardioversion power reached, may repeat once at maximum Joules.

Contact Medical Control for the following:

If synchronized cardioversion attempts are unsuccessful, contact medical control who may consider, if available:

Amiodarone 150 mg IV over 10 minutes; or

Procainamide 20-50 mg/minutes IV until resolution; or

Diltiazem 20 mg IV over 2 minutes.

Narrow Complex Tachycardia include:

- Sinus Tachycardia (regular, generally less than 160 bpm)
- Atrial Fibrillation/Flutter with rapid ventricular response (irregular, generally 120-180)
- Supraventricular Tachycardia (SVT) (regular, generally greater than 180)
- If sinus tachycardia is present, the underlying causes include: pain, dehydration, hypotension, shock, hypoglycemia, hypoxemia, anxiety, fever, sepsis, drug induced, recent heavy exertion, hyperthyroidism and anemia
 - Do not treat sinus tachycardia with medications or cardioversion
- If the patient rhythm is regular and the patient is mildly Hypotensive (80 – 100 mmHg) but without other serious signs or symptoms, a trial of adenosine is acceptable
 - **Adenosine 6 mg IV over 1-2 seconds.** If unsuccessful, repeat with 12 mg (may repeat twice) IV over 1-2 seconds. Follow all doses with a 20-30 ml saline flush by rapid IV push
 - Warn patient about brief but unpleasant side effects of adenosine: including flushing, lightheadedness, slowing of heart rate, anxiety and chest pain
 - Record a rhythm strip during Adenosine administration
 - Obtain a 12-Lead EKG after rhythm change

⁴⁴ Pediatric Considerations:

- Infants treat rate greater than 220
- Children treat rates greater than 180
 - Utilize Broselow for dosing
 - Adenosine 0.1mg/kg first dose (max 6mg)
 - Adenosine 0.2mg/kg second/third dose (max 12mg)
 - Cardioversion 1 joules/kg first attempt
 - Cardioversion 2 joules/kg subsequent attempts

- If the rhythm is regular and adenosine can be administered quicker than cardioversion, a trial of adenosine is also acceptable.
- If the patient is not unstable, the rhythm is regular and 150 or greater, and adenosine dose not work, give Diltiazem 20 mg (0.25 mg/kg) (or 15 mg if age over 65 yo) IV/IO over 2 minutes. May give an additional dose of Diltiazem 25 mg (0.35 mg/kg) (or 20 mg if age over 65 yo) in 10 minutes if heart rate remains greater than 120. While giving diltiazem bolus, if HR drops below 100 may hold off on giving additional diltiazem.

If the rhythm is irregular (atrial fibrillation, multifocal atrial tachycardia) and there is no underlying cause for exacerbation (sepsis, COPD exacerbation, etc.⁴⁵) and the patient is hemodynamically and clinically stable with a heart rate greater than 120,

- Give Diltiazem (Cardizem) 20 mg (or 0.25 mg/kg) (15 mg if age over 65 yo) IV/IO over 2 minutes. May give an additional dose of Diltiazem 25 mg (or 0.35 mg/kg) (or 20 mg if age over 65 yo) in 15 minutes if heart rate remains greater than 120. While giving diltiazem bolus, if HR drops below 100 may hold off on giving additional diltiazem
- If patient becomes hypotensive, may give fluid bolus (if not in CHF) and/or proceed to synchronized cardioversion as above.

Contact Medical Control for the following if Diltiazem is unsuccessful or contraindicated (example WPW):

**Amiodarone 150 mg IV over 10 minutes; or
Procainamide 20-50 mg/minutes IV until resolution**

⁴⁵ If there is an underlying cause for the exacerbation, treat the underlying cause first. Generally, treating the underlying cause for the exacerbation successfully will resolve the fast heart rate.

Nausea/Vomiting

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. Initial Medical Care.
2. Assess for cause of nausea and/or vomiting. Address underlying cause if possible
3. Have patient hold alcohol prep pad 2.5 cm from their nose and inhale deeply for up to 60 seconds and to stop if nausea resolves. If nausea persists or returns, may repeat up to 60 second inhalation at 2 minutes and 4 minutes⁴⁶.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

4. Establish IV/IO** if actively vomiting, severely nauseated, hypotensive, dehydrated or otherwise unstable.
5. If significant dehydration or signs of shock. Give below and/or see Shock Protocol
Adult Fluid Resuscitation
 - 500 mL NS/LR bolus - repeat up to 2000mL's if no signs of fluid overload. If severe diarrhea or septic shock, may give additional 1000mL fluid every 30 minutes.Pediatric Fluid Resuscitation
 - 20 mL/kg NS/LR bolus – repeat 2 times as needed for a total infusion of 60 mL/kg.
6. Consider establishing second IV if unstable or significant potential for instability.

INTERMEDIATE / PARAMEDIC

7. Zofran (Ondansetron)
 - Dose: **Adult: 4 mg IV/IO** over 2 minutes
Peds: 0.1 mg/kg IV/IO (max dose 4 mg)
 - Adverse reactions: Headache, fever, constipation, diarrhea
 - Repeat after 10 minutes if needed.

⁴⁶ Beadle KL et al. Isopropyl alcohol nasal inhalation for nausea in the emergency department: A randomized controlled trial. Ann Emerg Med 2015 Dec 8; e-pub

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

PARAMEDIC

8. Consider sedation with benzodiazepines. Anxiety can contribute to nausea/vomiting and benzodiazepines have been shown to reduce symptoms. (See Protocol – Sedation)

The following medications will normally not be utilized but will be allowed in the event of shortages or patient has an allergic reaction to ondansetron or similar medications.

Compazine, Phenergan, Droperidol and Reglan have similar adverse reactions: hypotension, dizziness, drowsiness, extrapyramidal reaction, motor restlessness (akathisia), dystonia.

Dystonic reaction should be treated with Benadryl (Diphenhydramine) 25-50 mg IV (Pediatric: 1 mg/kg per dose up to adult dose). May give Benadryl prior to antiemetic to prevent dystonic reactions.

Compazine (Prochlorperazine)

- Contraindications: Patient less than 6 months old; Pregnancy – relative; History of dystonic or other adverse reaction - relative.
- Dose: Adult: 5-10 mg IV/IM.
Peds: 0.15 mg/kg/dose IV/IM not to exceed 10 mg.

Phenergan (Promethazine)

- Contraindications: Narrow-angle glaucoma; Pregnancy – relative; Patient less than 2 year olds
- Dose: Adult: 12.5-25 mg IV/IM over 1-2 minutes
Peds greater than 2 y.o.: 0.25-0.5 mg/kg IV/IM (max 25 mg)

Droperidol (Inapsine)

- Contraindications: Patient less than 6 months old; Pregnancy – relative; History of dystonic or other adverse reaction – relative; Prolonged QT
- Dose: Peds: 0.05-0.075 mg/kg IV/IM up to Adult dose maximum
Adult: 0.625-2.5 mg IV/IM.

Reglan (Metoclopramide)

- Contraindications: GI Obstruction/perforation
- Dose: Adult: 10 mg IV over 1-2 minutes
Peds: 0.1 mg/kg IV (max 10 mg)

Neonatal Resuscitation

Newborn in Distress/Arrest (APGAR Score = 6 or less)

LEVEL	Neonatal Resuscitation – Newborns in Distress / Arrest
FR B A I P	<p>Points to Remember:</p> <ul style="list-style-type: none"> • The majority of newborn infants require no resuscitation beyond maintenance of temperature, mild stimulation and suctioning of the airway. • Of the small number who require intervention, most will respond to oxygen via non-rebreather mask and/or BVM. • An even smaller number of severely asphyxiated infants require chest compressions, and • An even smaller number need resuscitative medications. • Expeditious transport is always indicated as soon as an airway is secured and resuscitative interventions have been initiated. <ol style="list-style-type: none"> 1. Leave at least 6 inches of umbilical cord when cutting the cord on an infant in obvious distress. One team member should note the 1-minute and 5-minute APGAR scores. 2. Rapidly warm and dry the neonate and provide tactile stimulation by flicking the soles of the feet and/or rubbing the back. 3. Place the newborn on his/her back in a head-down position, if possible. A 1" thick towel roll placed under the shoulders is helpful in maintaining a "sniffing" position for optimal airway opening. 4. Suction the mouth and nose with a bulb syringe. Deep suctioning of the oropharynx using an 8 Fr. catheter, if indicated, should be limited to 10 seconds at a time. <p>NOTE: Infants born with meconium staining require thorough suctioning immediately upon delivery of the head and before initiation of artificial respirations.</p> <ol style="list-style-type: none"> 5. Ventilate the child between suctioning using 100% oxygen/neonatal BVM at a rate of 40-60/minute if adequate spontaneous ventilations do not begin in 30 seconds. <ul style="list-style-type: none"> • Use only enough tidal volume to see the chest rise. • The first breath will require a little more pressure to begin lung inflation. • Continue to suction the nose and oropharynx periodically to remove secretions that emerge from the lungs. 6. Assess for bradycardia (heart rate less than 100 beats per minute).

LEVEL	Neonatal Resuscitation – Newborns in Distress / Arrest
	<p>7. If apneic, bradypneic, or central cyanosis is present:</p> <ul style="list-style-type: none"> • Continue to ventilate at 40-60/minute using 100% Oxygen/Neonatal BVM.
	<p>8. If, despite adequate assisted ventilations for 30 seconds, the heart rate remains under 80 beats per minute:</p> <ul style="list-style-type: none"> • Continue assisted ventilations. • Begin chest compressions at 120/minute.
I P	<p>9. Intubate, as able, using a 3.0 ET tube and a size “0” (zero) straight laryngoscope blade.</p> <ul style="list-style-type: none"> • If the ET attempt is unsuccessful, and the airway is compromised, expeditious transport.
FR B A I P	<p>10. If heart rate remains under 80/minute despite warming, stimulation, 100% oxygen/BVM, and chest compressions:</p> <ul style="list-style-type: none"> • Attempt peripheral IV for one attempt with a 22-gauge to 24-gauge catheter TKO. If unsuccessful, place IO. • Give Epinephrine (1:10,000=0.1 mg/ml) 0.01 mg/kg IV/IO. • Repeat Epinephrine (1:10,000=0.1 mg/ml) 0.01 mg/kg IV/IO every 3-minutes, if indicated.
A I P	
I P	
I P	
	USE BROSELOW TAPE FOR MEDICATION DOSES

Newborn and Post-Partum Care

Care of Newborn, APGAR Scoring Chart

LEVEL	Newborn and Post-Partum Care – Care of Newborn
FR B A I P	<ol style="list-style-type: none"> 1. Assess the airway, breathing, and circulatory status of the neonate. <ul style="list-style-type: none"> • If in distress, refer to the Neonatal Resuscitation Guidelines. 2. Initial Medical Care – Immediately After Delivery: <ul style="list-style-type: none"> • Keep infant eye level with mother's uterus; hold in a 15° head down position. • Note date and time of delivery. • Suction mouth and nose using the neonatal bulb syringe; repeat as necessary. Ultra-vigorous suction will depress neonatal respirations. • Dry and warm the neonate, wrap in blanket or chucks. • Stimulate the infant by gently rubbing the back or flicking soles of the feet. • Spontaneous ventilations should begin in 30 seconds. • If no spontaneous ventilations, proceed to Neonatal Resuscitation Guidelines. 3. Clamp the cord at 6-inches and 8-inches from the infant's body. <ul style="list-style-type: none"> • Cut between the clamps with the sterile scalpel from OB kit. Check the cord ends for bleeding. • If no sterile scalpel available, leave the cord clamped and uncut. Place infant on mother's abdomen for transport. 4. Obtain 1 Minute APGAR Score (see APGAR Assessment Chart). If score is 6 or less, refer to Neonatal Resuscitation Guidelines. <ul style="list-style-type: none"> • If respiratory rate is less than 40, assist ventilations with 15 Liters of Oxygen/Neonatal BVM. Proceed to Neonatal Resuscitation Guidelines. • If the infant is dusky but breathing spontaneously at a rate of less than or equal to 40 breaths per minute: <ul style="list-style-type: none"> ○ Place blow by oxygen 1-inch from infant's face with flow rate at 10 LPM. 5. Obtain 5 Minute APGAR Score (see APGAR Assessment Chart). 6. Tag infant and mother with the same information, as follows: <ul style="list-style-type: none"> • Mother's name. • Sex of infant. • Date and time of delivery.
B A I P	<ol style="list-style-type: none"> 7. Transport infant and mother together, if possible. <ul style="list-style-type: none"> • However, these are two separate patients, and if one should require resuscitation, a second ambulance should be requested. A second report needs to be completed for the infant.

Newborn and Post-Partum Care – APGAR Scoring Chart

APGAR Assessment	0 (Zero)	1 (One)	2 (Two)
Appearance	Blue or Pale	Blue Hands or Feet	Entirely Pink
Pulse	Absent	Less than 100	Above or Equal to 100
Grimace (Reflex Irritability)	Absent	Grimace	Cough or Sneeze
Activity (Muscle Tone)	Limp	Some Extremity Flexion	Active Motion
Respirations (Respiratory Effort)	Absent	Weak Cry, Rate Less than 40	Strong Cry

Newborn and Post-Partum Care Infant Patient Care Report

LEVEL	Newborn and Post-Partum Care – Infant Patient Care Report
FR B A I P	1. Document the following: <ul style="list-style-type: none"> • Date and time of delivery. • Whether or not umbilical cord was wrapped around the neck. If so, note how many times. • Appearance of amniotic fluid (if known), especially if green, brown, or tinged with blood. • APGAR scores at 1-minute and 5-minutes. • Any infant resuscitation initiated and response. • Time placenta delivered and whether or not it appeared intact.

Nitrous Oxide Administration

Note:

Occupational Exposure is strictly limited to 25 PPM Nitrous Oxide in an 8-hour period (NIOSH-National Institute for Occupational Safety and Health)

- In open, outside, well aerated area- no limit of time for use of Nitrous Oxide.
- In ambulance or enclosed space, without exhaust fan or scavenger (and with windows closed), maximum of 5 minutes of Nitrous Oxide may be used (in an 8-hour period).
- In ambulance, if exhaust fan on and all windows open and ambulance moving (but no scavenger), maximum of 30 minutes of Nitrous Oxide may be used (in an 8-hour period).
- In ambulance or enclosed space, if gas scavenger and exhaust fan on (but windows closed), maximum of 3 hours of Nitrous Oxide may be used (in an 8-hour period).

<i>Priorities</i>	<i>Assessment Findings</i>
Chief Complaint	“Pain”, painful procedure, severe anxiety
OPQRST	Duration, location, onset, provocation, palliation, quality, radiation, severity (subjective pain score on a 0-10 scale for adults or faces pain scale for pediatric patients), time (intermittent or continuous; steady vs. improving or worsening)
Associated Symptoms/ Pertinent Negatives	Associated symptoms/pertinent negatives
SAMPLE	Allergies, medications, pertinent past history
Initial Exam	Check ABCs and correct immediately life-threatening problems.
Detailed Focused Exam	General Appearance: Writhing in pain, facial grimacing, moaning, screaming or crying? Head: Penetrating trauma to skull, eye; skull deformity? Chest: Decreased/absent breath sounds on one side, subcutaneous air? Abdomen: Distention (suggesting bowel obstruction)? Source of pain (chest, abdomen, back, extremities, etc.): Swelling, distention, ecchymosis or deformity? Tenderness on palpation? CMS?
Goals of Therapy	Reduce pain and anxiety to a tolerable level.
Monitoring	BP, HR, RR, SpO ₂ .

Inclusion Criteria:

- Moderate to Severe pain
- Non-traumatic chest pain
- Severe labor pain during active labor
- Patient with severe concern/anxiety for IV start pain
- Painful procedure(s)
- Severe anxiety

Exclusion Criteria:

- Documented allergy to nitrous oxide
- Inability to self-administer Nitrous Oxide or follow instructions
- Entrapped air in body cavity

- Suspected Air embolism/decompression sickness or within 24 hours of scuba diving
 - Penetrating eye trauma or recent eye surgery
 - Suspected Pneumocephaly/Severe head trauma or skull fractures
 - Suspected Pneumothorax
 - Suspected Bowel obstruction/abdominal pain with abdominal distention
 - Sinus pain or ear pain from infection or inflammation
- 1st or 2nd trimester of pregnancy

Precaution:

- Folate and/or B12 deficiency (unless patient taking supplements)
 - Vegans
 - Alcoholics
 - Pernicious anemia
 - Gastric bypass
 - Malnourished
- Pulmonary Hypertension
- Other CNS depressants such as narcotics, sedatives, hypnotics and/or alcohol
- COPD
- Significant Cardiac Failure

ADVANCED EMT (AEMT)/ INTERMEDIATE/PARAMEDIC

- Initial Medical Care or Trauma Care.
- Verify that inclusion and exclusion criteria support administration
- Patient self-administered mixture of 50% Nitrous Oxide and 50% oxygen
- Instruct patient to inhale deeply through the demand valve mask/mouthpiece until pain/anxiety relieved or until patient no longer able to hold the mask/mouthpiece to their face. Personnel must not hold mask/mouthpiece to patient's face.
- Reassess patient's pain at 3-5 minutes with pain scale. If pain not controlled, consider other pain management options.
- Document start and stop times for Nitrous Oxide use. Do not exceed time permitted by NIOSH occupational exposure standards.
- Document Nitrous Oxide canister pressure at the start of administration and at the end of administration.
- Record vital signs during and after treatment.

Contact Medical Control for the following:

- Additional orders

Special notes:

Invert nitrous oxide cylinder several times before use

In pediatrics, nitrous oxide (30%) provides equivalent effects of 0.5 mg/kg of oral midazolam (Versed)

In adults, nitrous oxide (30%) provides equivalent effects of 10-15 mg morphine SQ

Obstetrical Complications - Bleeding

LEVEL	Threatened Miscarriage/Placental Previa/Abruptio Placenta
FR B A I P	1. Initial Medical Care – Special Considerations:
A I P	<ul style="list-style-type: none"> • Position patient on left side if in 2nd or 3rd trimesters. • Raise right side of backboard if spinal immobilization necessary. • Do not obtain BP until patient positioned on left side. • Anticipate need for 2 large bore IV's. • If altered mental status or signs of hypoperfusion: <ul style="list-style-type: none"> ○ Fluid bolus in 500 mL increments titrated to patient response.
FR B A I P	<ul style="list-style-type: none"> • Obtain pregnancy history per Emergency Childbirth Protocol • Ask about the onset, duration, quality and severity of abdominal pain.
B A I P	2. Note type, color and amount of vaginal bleeding or discharge. If tissue is passed, collect and transport to hospital with the patient.
B A I P	3. Hemorrhaging – transport immediately do not wait for IV to be started.

Obstetrical Complications- Hypertension

Preeclampsia/Eclampsia

LEVEL	Preeclampsia or Hypertension of Pregnancy / Eclampsia
	Diastolic Blood Pressure greater than 90 mmHg with additional signs that include, but are not limited to: headache, Visual disturbances, and/or altered mental status. Signs and symptoms can occur any time in pregnancy, and up to 28 days past delivery.
	Initial Medical Care – Special Considerations:
FR B A I P	<ul style="list-style-type: none"> • Position patient on left side if in 2nd or 3rd trimesters. • Do not obtain BP until positioned on left side. • Obtain pregnancy history per Emergency Childbirth Protocol • Minimal CNS stimulation. Do not check pupillary light reflex.
P	<ul style="list-style-type: none"> • If seizure occurs, give Magnesium Sulfate 4 g in 100 mL of IV fluid slowly over 4 minutes for hypertension (BP greater than 160/110). Stop infusion if respiratory distress or loss of muscle tone.
I P	<ul style="list-style-type: none"> • If seizure continues, treat per seizure protocol

Obstetrical Post-Partum Care

Care of Mother

LEVEL	Post-Partum Care – Care of Mother
FR B A I P	Care of Mother: 1. Placenta should deliver in 20-30 minutes. If delivered, collect in plastic bag from OB kit and transport to hospital for inspection. DO NOT pull on cord to facilitate delivery of the placenta. DO NOT delay transport awaiting placental delivery.
B A I P FR B A I P	2. Mother may be shivering. Cover with blanket. 3. If perineum torn and/or bleeding, apply direct pressure with sanitary pads and have mother bring her legs together. Apply cold pack (ice bag) to perineum (over pad) for comfort and to reduce swelling.
A I P	4. If significant blood loss: <ul style="list-style-type: none"> • Fluid bolus of Normal Saline in consecutive 500 mL increments to maintain systolic BP greater than 90 mmHg. • Massage top of uterus (fundus) until firm. • Breast-feeding may increase uterine tone.

Pain Management

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Display a calm and compassionate attitude
- Acknowledge and assess the patient's pain by obtaining a thorough history
- Identify and treat the cause
 - Musculoskeletal injuries:
 - Consider Realigning angulated fractures, if possible, being cautious not to aggravate the injury or pain
 - Reposition (not reduce) dislocated joints to improve comfort, circulation, sensation, and motion. Do not force an extremity
 - Apply a well-padded splint that immobilizes the long bone above and below the injury or the joint above and below the injury
 - Do not compromise distal circulation
 - Immobilize joints in mid-range position
 - Elevate the injured extremity if no fracture or dislocation is found
 - Apply ice or cold packs to the injured area
 - Apply a compression bandage or ace wrap if a splint is not needed
- Reassure and comfort the patient; Use a calm and soothing voice.
- Distract them or encourage them not to focus on their injury, but to think about something more pleasant
- Eliminate stress inducing distractions—i.e. family, police and bystanders
- Coach the patient's breathing—calm, deep full inhalations, and relaxed slow exhalations.
- Explain to the patient what is happening and what will happen next.
- Adjust the ambient temperature of the treatment area to a comfortable level for the patient
- Reassess pain after all interventions
- Effects of narcotic medications are reversed with Narcan

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Consider Nitrous Oxide if available, properly trained and approved (see Nitrous Oxide Protocol)
- Consider IV/IO** NS @ TKO for moderate to severe pain or signs of hypovolemia.
- Consider a bolus of 500 ml or 20 ml/kg in children if signs of hypovolemia are present

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

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INTERMEDIATE*/PARAMEDIC

* INTERMEDIATE SERVICES MAY CHOOSE ONLY ONE NARCOTIC PAIN MEDICATION. FENTANYL IS THE PREFERRED MEDICATION. In cases of shortages, Morphine or Dilaudid will be acceptable.

1. Narcotics are considered first line therapy for acute pain that is moderate (4-7) to severe (8-10). Narcotics should be avoided in chronic non-cancer pain.
2. In elderly or chemically or otherwise impaired patients, give half dose of any narcotic medication. In moderate pain, (4 to 7) give half dose. This is cumulative – elderly patients with moderate pain – give quarter dose.
3. Adverse reactions: nausea, vomiting, respiratory depression, and hypotension. Consider anti-nausea medication for any patient who is going to receive narcotics.
4. If patient is Hypotensive (SBP less than 100) preferentially use Fentanyl (or Ketamine - Paramedic only)
5. Morphine and Fentanyl are safe in pregnancy but contraindicated in active labor.

For Moderate to Severe Pain consider

Narcotic Analgesia – **Fentanyl**

- Adult: **50 to 100 mcg IV/IO/IM or 100 mcg IN or Nebulized⁴⁷ 250-300 mcg by standard nebulizer** (or 150-200 mcg by breath activated nebulizer), may repeat every 5 minutes as needed for pain control.
- Peds: **1 mcg/kg IV/IO/IM or 2 mcg/kg IN (may use 50 mcg IN for 2-8 yo and 100 mcg IN for 9+ yo) or Nebulized² 4 mcg/kg by standard nebulizer (max 300 mcg/dose)** (or 2 mcg/kg by breath activated nebulizer (max 200 mcg/dose)), may repeat every 5 minutes for pain. If no effect, may double dose of IV/IO to maximum 2 mcg/kg per dose.

OR

Narcotic Analgesia – **Morphine**

- Adult and Peds: 0.1 mg/kg IV/IO/IM; up to 10 mg per dose. May repeat every 5-10 minutes as needed for pain. If no effect, may double dose to maximum 0.2 mg/kg per dose.

OR

Narcotic Analgesia – **Dilaudid (hydromorphone)**

(note: IM Dilaudid has variable absorption lag time to peak effect and should not be used)

- Adult: 1mg IV/IO – May repeat every 15 min.
- Pediatric: 0.015mg/kg IV/IO – May repeat every 15 min. (see Chart following)
- Reassess patient's pain 5 and 10 minutes after each medication administration with pain scale.
- Recheck blood pressure before each additional dose; withhold **Morphine or Dilaudid**, if SBP less than 90 mmHg for adults and less than 80 mmHg for children or if poor perfusion is present.

⁴⁷ If volume is not at least 3 ml, add sterile normal saline to make 3 ml of solution for nebulization.

PARAMEDIC**AND/OR**

Non - Narcotic Analgesia - Ketamine

- Adult: 10-20 mg IV/IO/IM/IN every 5 minutes
- Peds: 0.2-0.3 mg/kg IV/IO IM/IN every 5 minutes

Narcotics should be avoided in chronic non-cancer pain, but Ketamine can be effective in chronic pain.

If pain is not responding to 3 or 4 doses of narcotic pain medications or patient is considered to have a significant anxiety reaction, give sedation in addition to narcotics (see Sedation protocol) but be aware of increased potential for respiratory depression and monitor pulse ox and end-tidal CO₂.

Contact Medical Control for the following:

- Additional orders

DILAUDID DOSING CHART

BROSELOW-LUTEN	Kilograms	Pounds	Age	Dilaudid 0.015 mg/kg	Dilaudid Diluted with 4mL Normal Saline gives 0.4 mg/mL	RR	SBP greater than
3 kg 4kg 5 kg		6.7, 9, 11 lbs.	1 wk., 1mo			40-60	60
PINK	6-7 kg	13 - 15 lbs.	6 mo.	0.1 mg	0.25 mL	24-36	70
RED	8-9 kg	16 - 20 lbs.		0.1 mg	0.25 mL		70
PURPLE	10-11 kg	21 - 24 lbs.	1 yr.	0.2 mg	0.5 mL	22-30	70
YELLOW	12-14 kg	25 - 31 lbs.	2 yrs.	0.2 mg	0.5 mL	20-26	70
WHITE	15-18 kg	32 - 40 lbs.	4 yrs.	0.3 mg	0.75 mL	20-24	75
BLUE	19-23 kg	41 - 48 lbs.	6 yrs.	0.3 mg	0.75 mL	18-22	80
ORANGE	24-29 kg	49 - 66 lbs.	8 yrs.	0.4 mg	1 mL	18-22	80
GREEN	30-36 kg	67 - 80 lbs.	10 yrs.	0.5 mg	1.25 mL	18-22	85

Kilograms	Pounds	Age	Dilaudid 0.015 mg/kg	Dilaudid 2mg/mL
40 kg	88 lbs.		0.6 mg	0.3 mL
45 kg	99 lbs.		0.7 mg	0.35 mL
50 kg	110 lbs.		0.8 mg	0.4 mL
55 kg	121 lbs.		0.8 mg	0.4 mL
60 kg	132 lbs.		0.9 mg	0.45 mL
70 kg	154 lbs.		1 mg	0.5 mL
80 kg	176 lbs.		1 mg	0.5 mL
90 kg	198 lbs.		1 mg	0.5 mL
100+ kg	220+ lbs.		1 mg	0.5 mL

Patient Restraint

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

Verbal De-escalation Procedure:

1. Remain calm and friendly, be aware of your feelings.
 - Be mindful of your body language.
 - Breathe slowly and deeply.
 - Maintain a safe distance and refrain from touching the patient.
2. Position yourself so that the patient cannot block your access to an exit.
3. Keep your hands in front of your body in a non-threatening manner.
4. Only one provider should communicate with the patient.
5. Maintain a soothing tone of voice.
6. Listen to patient's concerns.
7. Empathize; use positive feedback.
8. Be reassuring and point out choices.
9. Be willing to slow down and disengage, if appropriate.
10. Calmly set boundaries of acceptable behavior.

Patient Capacity Issues:

1. "Medical decision-making capacity is defined as the ability to give informed consent to go through a particular medical test or intervention or the ability to refuse such intervention."
2. When tasked to determine the mental capacity of a patient to refuse treatment, ask yourself these questions about your patient:
 - Is the patient in danger of hurting himself or others?
 - Is there or could there be an underlying medical emergency that may lead to death or worsen considerably if not treated soon?
 - Is there an emergency medical intervention that must be made to avoid a worsening in your patient's condition?
 - Does your patient understand the risks of refusing these treatments or interventions? Have you made those clear?
3. These questions apply only to the patient's immediate situation, not to long-term medical care

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

Physical Restraint Guidelines:

1. Use the minimum physical restraint required to accomplish necessary patient care and ensure safe transportation:
 - Soft restraints may be sufficient.
 - If law enforcement or additional personnel are needed, call for it prior to attempting restraint procedures.
 - Do not endanger yourself or your crew.
2. Avoid placing restraints in such a way as to preclude evaluation of the patient's medical status (airway, breathing, and circulation). Consider whether placement of restraints will interfere with necessary patient care activities or will cause further harm.

Physical Restraint Procedures:

1. Ensure sufficient personnel are present to control the patient while restraining him/her. **Use Law Enforcement Assistance when available.**
2. Place the patient face up (supine) on cot.
3. Secure **ALL** extremities to the cot.
 - Try to restrain lower extremities first using soft restraints around both ankles.
 - Next, restrain the patient's arms at the side using soft restraints around each wrist.
4. Place padding under patient's head and wherever else needed to prevent the patient from further harming him/herself or restricting circulation.
5. If the patient is spitting, place a soft mask or commercially available spit hood over their mouth and provide supplemental oxygen.
6. Document circulatory status of restrained extremities every 15 minutes.

PARAMEDIC**Chemical Restraint Guidelines:**

1. Sedative agents may be used to provide a safe, humane method of restraining the violently combative patient who presents a danger to themselves or others and to prevent the violently combative patient from further injury while secured by physical restraints.
2. These patients may include but are not limited to the following:
 - Alcohol and/or drug intoxicated patients.
 - Restless, combative head-injury patients.
 - Mental illness patients.

Chemical Restraint Procedure:

1. Assess the possibility of using physical restraint first; evaluate the personnel needed to safely attempt to restrain the patient.

Versed 2-5 mg (Peds 0.1 mg/kg) IV/IO, may repeat every 3 minutes IV/IO, 5 mg (Peds 0.2 mg/kg max 10 mg per dose) IM/IN, may repeat every 10 minutes as needed.

- If Versed is not available, Administer **Ativan** 1- 2 mg IM or IV
 - i. May repeat dose (**1 mg**) if no effect after 5 minutes, not to exceed total dose of **4 mg**.

OR

Ketamine 1-2 mg/kg IV/IO (max 200mg), 4-5 mg/kg IM (Max 500mg)(may give 250 mg IM and if not effective after 2 minutes, give the rest of the 4-5 mg/kg dose in another muscle).

OR

Geodon 10 mg IM

- Vital signs should be assessed within the first 5 minutes and thereafter as appropriate
 - May repeat dose (**10 mg**) if no effect after 10 minutes, not to exceed total dose of **20 mg**.
2. Assess the need for sedation carefully.
 - The violently combative patient stands a lesser chance of injury when sedated. Consider excited delirium – Hyperthermic – super human strength. **For excited delirium give 1000 mL 0.9 Normal Saline and 1 amp of Sodium Bicarbonate.**

Patients who are physically restrained and aggressively fighting their restraints and head injury patients who are combative and compromising their airway and C-spine may be candidates for sedation.

Chemical Restraint Precautions:

- Side effects may include hypotension and respiratory depression.
- Monitor Airway and document vital signs at least every 5 minutes, to include: blood pressure, pulse, respirations, pulse oximetry and End tidal CO₂ if available.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

Documentation (Minimum):

1. In what manner was your patient violent? Record patient's comments *verbatim*.
2. Did you feel threatened? Why?
3. Were you concerned about your patient's outcome without emergency medical interventions? Why?
4. Could you treat your patient appropriately without the use of restraints?
5. What Law Enforcement Officer was present?
6. Document the frequency of respiratory and mental status change assessments.
Note: Constant evaluation of your patient's airway status and documentation of such is extremely important.
7. If your patient was physically restrained, was he supine?
Patients will not be transported on their abdomen if it can be avoided, in the instance this cannot be done the following steps should be taken:
 - Monitor airway every three minutes and document findings.
 - Check respiratory rate and quality every three minutes and document findings.
 - Check responsiveness every three minutes and document findings.
8. What kind of restraints did you use?
9. Where on your patient were these restraints placed?

Pediatric (Initial Care)

I. Special Considerations:

- Children have different responses to blood volume loss. They often maintain their systolic BP until a 30% volume loss has occurred, then, crash rapidly.
- Children are also prone to heat loss and cold stress, which results in acidosis, hypoxia, and bradycardia.
- Gastric dilation develops from crying, which leads to ventilatory impairment.
- Conditions Requiring Rapid Cardiopulmonary Assessment and Potential Cardiopulmonary Support:
 - Respiratory Rate greater than 60 breaths/min
 - Heart rate
 - Child greater than 1 year of age, less than 60 beats/min or greater than 180 beats/min.
 - Infants less than 1 year of age, less than 60 beats/min or greater than 220 beats/min.
 - Increased work of breathing (retractions, nasal flaring, grunting)
 - Cyanosis or a decrease in oxygen saturation
 - Altered level of consciousness (unusual irritability or lethargy, or failure to respond to parents or painful procedures)
 - Seizures
 - Fever with petechiae
 - Trauma
 - Burns involving more than 10% of body surface area
- Use of Pediatric Measuring Tape (e.g. Broselow) along with the corresponding Pediatric Color-coded supplies is encouraged for quick and easy identification of drug doses and supply sizes.

II. Formula for Estimating Normal Weight in Children (kilograms)

- Under 12 months $(\text{Age in months}/2) + 4 = \text{Weight in kg}$
- 1 to 10 Years $(\text{Age in Years} \times 2) + 10 = \text{Weight in kg}$

Age*	Typical Systolic BP (Age x 2) + 90	Lower Limits of SBP (Age x 2) + 70	Awake Pulse (Range)	Sleeping Pulse	Resp. Rate
Neo to 3 months	90	70	140 (85-205)	80-160	30-60
3 mos. to 2 yrs	90-92	70-72	130 (100-190)	75-160	24-40
2 to 10 yrs	94-110	74-90	80 (60-140)	60-90	18-30
Over 10 yrs	Over 110	90	75 (60-100)	50-90	12-20

Note: Age is all in years unless otherwise indicated.

Typical Systolic Blood Pressure in children 1 to 10 years of age are:

90 mmHg + (Child's age in years x 2) mmHg.

Lower limits of Systolic Blood Pressure in children 1 to 10 years of age:

70 mmHg + (Child's age in years x 2) mmHg

Estimating Normal Weight in Children (Kg)

12 months [Age(months)/2 +4]

1 – 10 years [2 x age (years)] + 10

Suggested Sizes for ET Tubes, Blades, Suction Catheters								
Age Averages	Newborn	6 Months	18 Months	3 Years	5 Years	6 Years	8 Years	12 Years
ET Tube	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Blade Size	0-1 Straight	1 Straight	1.5 Straight	2 Straight	2 Straight	2 Straight	2 Straight or Curved	3 Straight or Curved
Suction Cath	6 Fr	6 Fr	8 Fr	8 Fr	10 Fr	10 Fr	10 Fr	10 Fr

Notes:

- Select tube size based on size of the child, not his/her chronological age.
- Prepare additional tubes one size larger and one size smaller than the one you initially select.
- Use cuffed ET Tube if available in appropriate size.

Fast References:

- Match tube size to size of nail on patient's little finger, or
- Calculate using formula $(16 + \text{age in years}) / 4$.

Pediatric Glasgow Coma Scale									
Eye Opening		Best Verbal Response Age older than 5 Yrs		Best Verbal Response Age 2-5 Years		Best Verbal Response Age Less than 2 Years		Best Motor Response	
Spontaneous	4	Oriented / Converses	5	Appropriate Words/Phrases	5	Smiles/Coos/Cries Appropriately	5	Moves Spontaneously/Purposefully	6
To Speech	3	Disoriented / Converses	4	Inappropriate Words	4	Cries/Is Consolable	4	Localizes Pain/Withdraws to Touch	5
To Pain	2	Inappropriate Words	3	Cries/Screams	3	Persistent Screaming/Crying/Inconsolable	3	Withdraws to Pain	4
None	1	Incomprehensible	2	Moans/Grunts to Pain	2	Moans/Grunts to Pain	2	Abnormal Flexion	3
		None	1	None	1	None	1	Abnormal Extension	2
								None	1

CPR Modifications for Children and Infants		
Technique	Child Age 1-8 Years	Infant Under 1 Year
Airway Opening	Modified Head Tilt/Chin Lift	Slight Head Tilt/Chin Lift
Breathing	Mouth-to-Mouth	Mouth-to-Mouth-and-Nose
Foreign Body Airway Obstruction	Abdominal Thrusts	Back Slaps/Chest Thrusts
Ventilation Rate without Compressions	12-20 per minute/every 3 to 5 seconds	
Ventilation Rate with CPR and Advanced Airway	8-10 breaths per minute/every 6 to 8 seconds	
Circulation (Compression Point)	Lower 1/3 of Sternum (Same as adult)	Lower 1/3 of Sternum (Below nipple line)
Compress With	Heel of one hand, add second hand on top as needed to push fast and hard	2 to 3 fingers
Compression Depth	1/3 to 1/2 the depth of the chest	
Compression Rate	At least 100 per minute	
Compression-to-Ventilation Ratio	30 : 2	
Single Rescue Provider	15 : 2	
Multiple Rescue Providers		

Resuscitation Medication Dosages											
Age	Weight		ET Size	Epinephrine 1:10,000 0.01 mg/kg IV/IO ¹		Atropine 0.1mg/mL 0.02 mg/kg IV/IO ¹		Lidocaine 20 mg/mL 1 mg/kg IV/IO ¹		Amiodarone 50 mg/mL 5mg/kg/dose IV/IO ¹	
	Kg	Lbs		mg	mL	mg	mL	mg	mL	mg	mL
Newborn	3	7	3	0.03	0.3	0.1	1	3	0.15	15	0.3
1 month	4	8	3	0.04	0.4	0.1	1	4	0.2	20	0.4
3 months	5	11	3.5	0.05	0.5	0.1	1	5	0.25	25	0.5
6 months	7	15	3.5	0.07	0.7	0.14	1.4	7	0.35	35	0.7
1 year	10	22	4	0.1	1	0.2	2	10	0.5	50	1
2 years	12	26	4	0.12	1.2	0.24	2.4	12	0.6	60	1.2
3 years	14	31	4.5	0.14	1.4	0.28	2.8	14	0.7	70	1.4
4 years	16	35	5	0.16	1.6	0.32	3.2	16	0.8	80	1.6
5 years	18	40	5	0.18	1.8	0.36	3.6	18	1	90	1.8
6 years	20	44	5.5	0.2	2	0.4	4	20	1	100	2
7 years	22	48	6	0.22	2.2	0.44	4.4	22	1.1	110	2.2
8 years	25	55	6	0.25	2.5	0.5	5	25	1.25	125	2.5
9 years	28	63	6	0.28	2.8	0.5	5	28	1.4	140	2.8
10 years	34	75	6.5	0.34	3.4	0.5	5	34	1.7	170	3.4
Notes:											
¹ IV/IO flush drugs with 5 mL Normal Saline.											

Pediatric Airway Obstruction (Child/Infant)

LEVEL	Pediatric Airway Obstruction (Child/Infant)
FR B A I P	<ol style="list-style-type: none"> Determine responsiveness and ability to speak. Position patient to open airway: <ul style="list-style-type: none"> If unconscious: use head tilt/chin lift. If possible, C-Spine injury: use modified jaw thrust. Assess breathlessness/degree of airway impairment.
FR B A I P	Pediatric Airway Obstruction (Child/Infant) – Conscious <ol style="list-style-type: none"> Able to Speak: Child 1-8 years <ul style="list-style-type: none"> Strong cry, effective cough: Less than 1 year of age Initial Medical Care: <ul style="list-style-type: none"> Do not interfere with patient's own attempt to clear airway by coughing or sneezing. If patient is breathing or resumes effective breathing, place in the recovery position. Cannot Speak: <ul style="list-style-type: none"> Children over 1-year: Five (5) abdominal thrusts (Heimlich maneuver) with patient standing or sitting. Infants under 1-year: Five (5) back blows followed by five (5) chest thrusts. Repeat if no response. Still Obstructed: <ul style="list-style-type: none"> Continue Step 3 until foreign body expelled or patient becomes unconscious (see below). Monitor for cardiac dysrhythmias and/or arrest.
FR B A I P B A I P FR B A I P I P P	Pediatric Airway Obstruction (Child/Infant) – Unconscious <ol style="list-style-type: none"> Initial Medical Care. Start CPR Perform a tongue-jaw lift. Attempt to ventilate. <ul style="list-style-type: none"> If obstructed, visualize airway with laryngoscope and attempt to clear using forceps and/or suction. Open airway and try to ventilate. <ul style="list-style-type: none"> If still obstructed, reposition head and try to ventilate again. Still obstructed: Attempt forced ventilation with Pediatric BVM Still obstructed: Intubate and push foreign body into right mainstem bronchus, then pull back tube and ventilate left lung. Still obstructed: Perform cricothyrotomy. See cricothyrotomy protocol.

Pediatric Asystole/Pulseless Electrical Activity(PEA)

LEVEL	Pediatric Asystole / Pulseless Electrical Activity (PEA)
	<p>Ninety percent of pediatric arrests are secondary to inadequate respirations. Assess for causative factors: hypoxemia, acidosis, hypovolemia, tension pneumothorax, cardiac tamponade, shock, hypothermia, poisoning or ingestion, or severe infection and initiate corrective resuscitative measures as necessary.</p>
FR B A I P	<p>1. Initial Medical Care; special considerations:</p> <ul style="list-style-type: none"> • C-A-B: Compressions-Airway-Breathing • Continuous chest compressions at least 100 per minute at all possible times. • High quality CPR: Push hard & fast, minimize interruptions, allow full chest recoil, and avoid excessive ventilation
FR B A I P I P	<ul style="list-style-type: none"> • Ventilate with 100% oxygen/peds BVM. • Access airway through an advanced airway as soon as possible, if not able to adequately ventilate with BVM. Use straight blade to intubate on children less than 8 years. Attempt times 2 if necessary. • If intubation unsuccessful, and good air exchange is achieved with Peds BVM: continue ventilations/BVM.
P	<ul style="list-style-type: none"> • If unable to secure airway after assisting with BVM and attempted advanced airway insertion: Needle cricothyrotomy (Paramedic only) and expeditious transport. See cricothyrotomy protocol.
FR B A I P I P	<ul style="list-style-type: none"> • Prepare pediatric defibrillation pads
FR B A I P	<ul style="list-style-type: none"> • Confirm cardiac rhythm in more than one lead.
	Do not interrupt CPR for more than 10 seconds to check for pulse and rhythm.
FR B A I P A I P	<p>Check for pulse and rhythm changes after every 2 minutes / 5 cycles of CPR. Proceed to next step only if Asystole / PEA persists.</p>
I P	<p>2. Initiate peripheral IV/IO as able. If signs of hypovolemia: normal saline 20 mL/kg IV/IO bolus. May repeat to a maximum of 60 mL/kg.</p>
B A	<p>3. Epinephrine 0.01 mg/kg (0.1 mL/kg) IV/IO. Repeat every 3-5 minutes.</p>
I P	<p>4. If no Intermediate or Paramedic service available to scene and at least 20 minutes of resuscitation have occurred, contact medical control for permission to terminate resuscitation and not transport. If all the following present, medical control will likely terminate resuscitation:</p> <ul style="list-style-type: none"> • Cardiac Arrest unwitnessed by EMS • No shock by automated defibrillator • No return of spontaneous circulation at any time during resuscitation
I P	<p>5. If no return of spontaneous circulation (ROSC) and at least 20 minutes of resuscitation have occurred, contact medical control for permission to terminate the resuscitation. Do not initiate transport without medical control consent.</p>

Pediatric Bradycardia (with Pulse)

LEVEL	Pediatric Bradyarrhythmia's with Pulse
FR B A I P	<ol style="list-style-type: none"> 1. Assess for cause. Initiate corrective resuscitative measures as necessary. 2. Initial Medical Care – Special Considerations: 3. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁴⁹ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. <ul style="list-style-type: none"> • If patient unconscious and unresponsive to pain: Assist breathing with BVM. Consider advanced airway only if unable to adequately ventilate with BVM.
P	<ul style="list-style-type: none"> • If unable to secure airway after assisting with BVM and attempted advanced airway insertion: Needle cricothyrotomy (Paramedic only) and expeditious transport. See cricothyrotomy protocol.
FR B A I P	<ul style="list-style-type: none"> • Initiate CPR if heart rate: <ul style="list-style-type: none"> less than 60/minute in an infant and less than 60/minute in a child less than 8 years and unresponsive. • Initiate peripheral IV/IO as able if signs of hypovolemia. • If signs of hypovolemia: Normal Saline 20 mL/kg IV/IO. May repeat as needed to a max dose of 60 mL/kg.
A I P	<p>Check for pulse and rhythm changes after each intervention. Proceed to next step only if bradycardia with signs of hypoperfusion persists.</p>
I P	<ol style="list-style-type: none"> 3. Epinephrine (1:10,000) 0.01 mg/kg (0.1mL/kg) IV/IO Repeat every 3-5 minutes
I P	<ol style="list-style-type: none"> 4. Atropine 0.02 mg/kg rapid IV/IO <ul style="list-style-type: none"> • Minimum dose 0.1 mg. • Maximum single dose is 0.5 mg (1 mg for child greater than 8 years old). • If no response may repeat an additional dose (one) up to a maximum total of 0.04 mg/kg IV/IO. (Maximum dose of 3 mg)
P	<ol style="list-style-type: none"> 5. Initiate external pacing if available. MAY use standard size electrodes in children greater than 15 kg. 6. If change in rhythm, proceed to appropriate PROTOCOL. <p>Notes:</p> <ul style="list-style-type: none"> * Flush all IV/IO drugs with 5 mL normal saline * Attempt to keep child warm with protected hot packs/blankets as able

⁴⁹ Cyanotic Heart Disease pulse ox goal 75-85%

Pediatric Child Abuse or Neglect (Suspected)

LEVEL	Suspected Child Abuse or Neglect:
FR B A I P	<ol style="list-style-type: none"> 1. Initial Medical Care – Special Considerations: <ul style="list-style-type: none"> • Environmental factors that could adversely affect a child's welfare. • The child's interactions with parents/guardians. • Discrepancies in the history obtained from the child and caregivers. • Injury patterns that do not correlate with the history or anticipated motor skills based on the child's growth and developmental stage. • Any signs of intentional injury or neglect. 2. Treat obvious injuries per appropriate protocol. 3. Prepare to transport. If parent/guardian refuses to allow removal of the child, remain at the scene and contact law enforcement for assistance. Request law enforcement take the child into secure custody for medical evaluation at the hospital. 1. If law enforcement refuses to take the child into secure custody, request that they remain at the scene. Contact local Child Protective Services (see numbers below) and request they respond to the scene and take the child into custody. If EMS remains unsuccessful in removing child, contact a medical control physician and seek guidance. If law enforcement or Child Protective Services assists in securing custody of the child, transport the child against the parent/guardian wishes. CPS contact numbers for respective counties are as follows: <ul style="list-style-type: none"> ▪ Kenosha County (262) 605-6582 (After hours, weekends and holidays call Crisis Intervention: (262) 657-7188) • Racine County (262)-638-6321 or (800)-924-5137 • Walworth County DHS (262)-741-3200 • Waukesha County (262) 548-7212 or 211 5. Children suffering from suspected abuse or neglect should not remain in an environment of suspected abuse unless #4 of the protocol has been pursued in vain to remove the child. 6. Notify the receiving physician or nurse of the suspected abuse upon arrival to the hospital. 7. Suspicions of child abuse or neglect must be reported to the local law enforcement agency having jurisdiction OR the Department of Children and Family Services (DCFS) per State Law. Reports must be filed, even if the EMT is aware that the hospital will also be reporting the incident. This includes both living and deceased children encountered by prehospital personnel. An EMS Provider who has reasonable cause to suspect that a child seen by the person in the course of professional duties has been abused or neglected or who has reason to believe that a child seen by the person in the course of professional duties has been threatened with abuse or neglect and that abuse or neglect of the child will occur is required to report., 8. Thoroughly document the child's history and physical exam findings on the run sheet. Note relevant environmental/circumstantial data in the comments section of the run sheet or supplemental reports.

Pediatric Epiglottitis

Signs & Symptoms	Croup	Epiglottitis
Age in years/months	6 months to 4 years	Usually older than 2 years
Onset of distress	Gradual, days	Rapid – within hours
Presence of stridor	Loud	Muffled, softer if obstruction almost complete
Voice	Hoarse, raspy voice/cry	Muffled/quiet speech/cry. No hoarseness
Drizzling	Absent	Often present
Fever	Low grade	Elevated, above 102°
Retractions	Absent	Often present
Ventilatory distress	Usually mild to moderate	Usually moderate to severe
Cough	Barking like a seal	Quiet, not usually coughing; without severe sore throat

LEVEL	Pediatric Epiglottitis
FR B A I P	1. Initial Medical Care – Special Considerations: <ul style="list-style-type: none"> Keep patient calm Allow parent/guardian to hold upright in position of comfort. Do not place anything in mouth to visualize pharynx. MONITOR EKG FOR CHANGES - Bradycardia signals deterioration. Do not start IV unless child presents in impending arrest.
B A I P	2. If ventilatory distress: <ul style="list-style-type: none"> Expedient transport Prepare advanced airway and suction equipment. Consider cricothyrotomy. See cricothyrotomy protocol.
P	
FR B A I P B A I P	Pediatric Epiglottitis STABLE <ol style="list-style-type: none"> Blow by Oxygen at 6 liters/minute at child's face. Avoid agitation/crying. Transport.
FR B A I P	UNSTABLE: Bradycardic, altered mental status, marked stridor/ventilatory distress, retractions, cyanosis, ineffective air exchange, and/or actual or impending respiratory arrest.
I P	<ol style="list-style-type: none"> Position supine in sniffing position. Ventilate with 100% Oxygen/Pediatric BVM. <ul style="list-style-type: none"> If unable to ventilate: <ul style="list-style-type: none"> Temporarily stop ambulance and attempt one oral endotracheal intubation by the most experienced/skilled provider. Be prepared for airway status to worsen if intubation attempt is unsuccessful.
P	<ol style="list-style-type: none"> If advanced airway unsuccessful, and unable to ventilate: Perform Needle Cricothyrotomy.

Pediatric Drug Overdose/Poisoning

LEVEL	Pediatric Drug Overdose/Poisoning:
FR B A I P I P FR B A I P A I P B A I P	<ol style="list-style-type: none"> Initial Medical Care – Special Considerations: <ul style="list-style-type: none"> Follow department hazmat protocols. Do not enter contaminated scenes until appropriate PPE are applied Anticipate the possibility of respiratory arrest, seizure activity, dysrhythmias, or vomiting If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵⁰ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. Consider intubation if airway compromised and unable to ventilate with BVM. Do NOT induce vomiting: especially in cases of caustic substance ingestion Bring substance or drugs to the hospital IV 20-22ga catheter using regular drip tubing. Maintain flow at KVO rate. Do not fluid overload. Monitor EKG in all cases. Consider 12 Lead EKG and transmit to medical control. Be alert to and ask about suicidal ideation/attempt If patient is stable, in most cases no further treatment is required, transport. If altered mental status, seizure activity, or focal neurologic deficit; obtain and record blood glucose. If blood sugar less than 60 follow Pediatric Diabetic protocol. If seizures occur, follow appropriate seizure protocol.
FR B A I P	Narcotic or Synthetic Narcotic Overdose or unknown: <ol style="list-style-type: none"> Narcan 0.5mg IN (IM B only). Repeat every 5 min as necessary. Max dose 2mg. If weight is over 20 kg: Narcan 0.4 - 2mg IV/IO/IN/IM and/or If weight is under 20 kg: Narcan 0.1 mg/kg IV/IO/IN/IM Consider restraints before Narcan is given. Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response. May repeat every 5 minutes as needed.
A I P P	Tricyclic Antidepressant Overdose: <ol style="list-style-type: none"> Fluid bolus 20 mL/kg IV/IO. May repeat once. Sodium Bicarbonate 1 mEq/kg IV for hypotension, deterioration of sensorium, or dysrhythmias.
	Organophosphate Poisoning: SLUDGEM + RESPIRATION + AGITATION. S – Salivation (excessive drooling). L – Lacrimation (tearing). U – Urination. D – Defecation. G – GI upset (cramps). E – Emesis (vomiting). M – Muscle (twitching, spasm, “bag of worms”).

⁵⁰ Cyanotic Heart Disease pulse ox goal 75-85%

I P

1. **Atropine 0.02 mg/kg (minimum 0.1 mg) IV/IO** Repeat every 3-minutes until signs of Atropinization appear (dry mouth, dried secretions, flushed skin, dilated pupils, tachycardia).

Atropine maximum total dosage does not apply.

P

2. **Sodium Bicarbonate 1 mEq/kg IV/IO** for hypotension, deterioration of sensorium, or dysrhythmias.
3. **PRALIDOXIME (2 PAM CHLORIDE)**

Organophosphate Poisoning (cont)

Patient Age	Mild/Moderate Symptoms ²	Severe Symptoms ³	Other Treatment
Infant (0 - 2 yrs)	Atropine: 0.05 mg/kg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 0.1 mg/kg IM; 2-PAM Cl: 25 mg/kg IM	
Child (2 - 10 yrs)	Atropine: 1 mg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 2 mg IM; 2-PAM Cl: 25 mg/kg IM	
Adolescent (greater than 10 yrs)	Atropine: 2 mg IM; 2-PAM Cl: 15 mg/kg IM	Atropine: 4 mg IM; 2-PAM Cl: 25 mg/kg IM	Assisted ventilation should be started after administration of antidotes for severe exposures. Repeat atropine (2 mg IM or 1 mg IM for infants) at 5 - 10 minute intervals until secretions have diminished and breathing is comfortable or airway resistance has returned to near normal. Benzodiazepine for convulsions: See Protocol - Seizures

1. **2-PAMCl solution needs to be prepared** from the ampule containing 1 gram of desiccated 2-PAMCl: inject 3 mL of saline, 5% distilled or sterile water into ampule and shake well. Resulting solution is 3.3 mL of 300 mg/mL.
2. **Mild/Moderate symptoms** include localized sweating, muscle fasciculations, nausea, vomiting, weakness, and dyspnea.
3. **Severe symptoms** include unconsciousness, convulsions, apnea, flaccid paralysis.

Pediatric Cyanide Poisoning

FR B A I P A I P P	<ol style="list-style-type: none"> Initial Medical Care per Peds Drug Overdose/Poisoning Protocol. Establish hospital contact as soon as possible. If hypotensive or pulseless: IV bolus 20 mL/kg May repeat to a total of 60 mL/kg. Initiate CPR as indicated. Consider Cyanide kit if available 70 mg/kg over 15 minutes. <p>Note: Chances of recovery using this regimen are good even in the presence of respiratory arrest as long as the heart is still beating.</p>
FR B A I P	<p>Pediatric Carbon Monoxide Poisoning</p> <ol style="list-style-type: none"> Initial Medical Care; special considerations: <ul style="list-style-type: none"> Advanced airway, if airway compromised. Oxygen by Peds non-rebreather mask or assist with Peds BVM. Ensure tight seal of mask to face. Remember pulse oximetry is not an accurate indicator in the presence of CO. Patient needs high flow Oxygen even if the pulse oximetry is reading at 100% Vomiting precautions; ready suction Monitor EKG <p>Pediatric Carbon Monoxide Poisoning (cont.)</p> <ul style="list-style-type: none"> Keep patient as quiet as possible to minimize tissue oxygen demands Consider hyperbaric medical needs in determining transport. <ol style="list-style-type: none"> Treat patients with airway impairment or those in respiratory/cardiac arrest per appropriate Protocol and expeditious transport to nearest appropriate hospital by time travel.
FR B A I P	<p>Cocaine Overdose:</p> <ol style="list-style-type: none"> Treat dysrhythmias, chest pain, hypertensive crisis per appropriate protocols. <p>Pediatric Beta Blocker or Calcium Channel Blocker Overdose</p> <p>If unstable patient</p> <ul style="list-style-type: none"> Patients can have varying degrees of hypotension, bradycardia (heart blocks), and lethargy and coma. Patients may decompensate quickly, so be prepared. Hypotension should initially be treated with a fluid bolus.
A I P P I P P I P	<p>Calcium Channel Blockers</p> <ol style="list-style-type: none"> Normal Saline Bolus 20mL/kg, max 60mL/kg. Calcium Chloride 20mg/kg (0.2mL/kg) to 10mL IV/IO Glucagon: if less than 25kg, give 0.5mg IV/IO every 5 minutes. If 25kg or greater, give 1mg IV/IO every 5 minutes. <p>Anticipate nausea, bradycardia or hypotension – be prepared to give anti-emetic medications</p> <p>If refractory, consider:</p> <ol style="list-style-type: none"> Dopamine infusion 5-20 mcg/kg/min IV/IO. Repeat Calcium Chloride 20mg/kg (0.2mL/kg) to 10mL IV/IO. Consider transcutaneous pacing
A I P P I P	<p>Beta Blocker</p> <ol style="list-style-type: none"> Normal Saline bolus 20mL/kg, max 60mL/kg. Glucagon: if less than 25kg give 0.5mg IV/IO every 5 minutes. If 25kg or greater give 1mg IV/IO every 5 minutes. <p>Anticipate nausea, bradycardia or hypotension – be prepared to give anti-emetic medications</p> <ol style="list-style-type: none"> Dopamine infusion 5-20 mcg/kg/min IV/IO Calcium Chloride 20mg/kg (0.2mL/kg) to 10mL IV/IO. if remains refractory <p>Consider transcutaneous pacing.</p>

Pediatric Hypoglycemia (Insulin Shock)

LEVEL	Pediatric Diabetic/Glucose Emergencies:										
FR B A I P	1. Initial Medical Care – Special Considerations. <ul style="list-style-type: none"> Obtain medical history including medications – last medication dose and last oral intake Vomiting and seizure precautions: Be ready with suction Initiate IV/IO Access 										
A I P											
FR B A I P	2. Obtain and record blood glucose level.										
FR B A I P	If Blood Sugar less than 60 or signs and symptoms of Hypoglycemia, give:										
A I P	3. Consider using 1 tube of Oral Glucose, if not contraindicated										
	4. If IV/IO access established, give dextrose titrated until awake/symptoms resolved in dose up to: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Older than 2-years of age:</td> <td>Dextrose 50% 2 mL/kg IV/IO or</td> </tr> <tr> <td>1-2 years of age:</td> <td>Dextrose 25% 4 mL/kg IV/IO or</td> </tr> <tr> <td>Younger than 1 year of age:</td> <td>Dextrose 12.5% 8 mL/kg IV/IO or</td> </tr> <tr> <td></td> <td>(dilute D25 1:1 with Normal Saline)</td> </tr> <tr> <td></td> <td>Dextrose 10% 10 mL/kg IV/IO.</td> </tr> </table> <p>May repeat dextrose once if incomplete resolution or patient becomes hypoglycemic again.</p>	Older than 2-years of age:	Dextrose 50% 2 mL/kg IV/IO or	1-2 years of age:	Dextrose 25% 4 mL/kg IV/IO or	Younger than 1 year of age:	Dextrose 12.5% 8 mL/kg IV/IO or		(dilute D25 1:1 with Normal Saline)		Dextrose 10% 10 mL/kg IV/IO.
Older than 2-years of age:	Dextrose 50% 2 mL/kg IV/IO or										
1-2 years of age:	Dextrose 25% 4 mL/kg IV/IO or										
Younger than 1 year of age:	Dextrose 12.5% 8 mL/kg IV/IO or										
	(dilute D25 1:1 with Normal Saline)										
	Dextrose 10% 10 mL/kg IV/IO.										
B A I P	5. If unable to establish IV access: <ul style="list-style-type: none"> Less than 20 kg: Glucagon 0.5 mg IM/IN Over 20 kg: Glucagon 1 mg IM/IN 										
FR	Note: may assist with patient's Glucagon auto-injector.										
	6. Observe and record response to treatment; may repeat if necessary.										
A I P	7. Blood Sugar greater than 300, or Signs and Symptoms of Hyperglycemia/Ketoacidosis: <ul style="list-style-type: none"> Fluid bolus 20 mL/kg IV/IO unless contraindicated. May repeat times 1. Stop fluid bolus if crackles noted. <p>PREHOSPITAL PROVIDERS SHALL NOT ASSIST ANY PATIENT IN ADMINISTERING ANY INSULIN PRODUCTS PRIOR TO ARRIVAL AT THE HOSPITAL.</p>										

Pediatric Shock

LEVEL	Pediatric Shock
FR B A I P	<ol style="list-style-type: none"> 1. Initial Medical Care; special considerations: <ul style="list-style-type: none"> * Shock is decreased effective circulation causing inadequate delivery of oxygen to tissues * Signs of early(compensated) shock in children include tachycardia, poor skin color, cool/dry skin and delayed capillary refill. Hypotension is a late sign. *Hypovolemia is most common cause of shock in children. *Distributive shock (loss of vascular tone) is usually due to sepsis. Other causes include anaphylaxis, toxins, and spinal cord injury. *Cardiogenic shock is rare in children. 2. Potential causes of hypovolemia and shock include: <ul style="list-style-type: none"> <li style="width: 50%;">* Infections/sepsis <li style="width: 50%;">* Dehydration/Heat emergencies <li style="width: 50%;">* Burns <li style="width: 50%;">* Drugs and Toxins <li style="width: 50%;">* Hemorrhage (Internal, External) <li style="width: 50%;">* Metabolic Disturbances <li style="width: 50%;">* Spinal cord injury <li style="width: 50%;">* Anaphylaxis <li style="width: 50%;">* Pump Failure <li style="width: 50%;">* Pulmonary Embolism <li style="width: 50%;">* Heart Rhythm Disturbances 3. Place the patient in supine position. Ensure ABC's, oxygenation, ventilation; suction as needed 4. Control external bleeding and keep child warm. 5. Initiate cardiac monitor and apply oxygen as needed 6. Establish vascular access. Do not delay transport to obtain vascular access. Refer to intraosseous protocol if unable to start IV.
A I P	<ol style="list-style-type: none"> 7. If evidence of shock, administer IV fluid 20 mL/kg IV/IO. May repeat times 2 if necessary up to maximum of 60 mL/kg. Reassess patient after each bolus. 8. If Blood Glucose less than 60 see appropriate protocol <ul style="list-style-type: none"> • Adult Diabetic/Glucose Emergencies • Pediatric Diabetic/Glucose Emergencies 9. If child is in anaphylactic shock, please also see Allergic Reaction/Anaphylaxis Shock protocol
P	<ol style="list-style-type: none"> 10. ➔ If child does not respond to IV fluids or is in cardiogenic shock, consider Dopamine drip at 2-5 mcg/kg per min

Pediatric Supraventricular Tachycardia (SVT)

Narrow QRS Complex Tachycardia

LEVEL	Pediatric SVT/Narrow QRS Complex Tachycardia
FR B A I P	<ol style="list-style-type: none"> Consider and treat for possible underlying causes such as: <ul style="list-style-type: none"> * Fever * Anxiety * Pain * Hypovolemia Narrow complex or Supraventricular Tachycardia is defined as a narrow QRS (less than 0.08 secs) and heart rate greater than 220 beats/min for infants or greater than 180 beats/min for children over 1 year of age.
	<p>STABLE: Heart rate greater than 220 beats/min for infants or greater than 180 beats/min for children over 1 year of age, age appropriate vital signs and child is alert</p>
A I P	<ol style="list-style-type: none"> Initial Medical Care. Start IV in proximal vein. EKG. Monitor, obtain & transmit 12-lead EKG
I P	<ol style="list-style-type: none"> Valsalva maneuver, if able. Have patient cough deeply/bear down. Perform right sided carotid sinus massage if Valsalva unsuccessful.
I P	<ol style="list-style-type: none"> If NO response: Adenocard 0.1 mg/kg rapid IV/IO (Maximum dose is 6 mg) followed immediately by rapid flush of 10 mL Normal Saline.
I P	<ol style="list-style-type: none"> If NO response in 2 minutes: Adenocard 0.2 mg/kg rapid IV/IO (Maximum dose is 12 mg) followed immediately by rapid flush of 10 mL Normal Saline.
I P	<ol style="list-style-type: none"> If NO response in 2 minutes: Adenocard 0.2 mg/kg rapid IV/IO (Maximum dose is 12 mg) followed immediately by rapid flush of 10 mL Normal Saline. <p>If unresponsive to Adenocard and questionable QRS width, refer to V-Tach protocol</p>

	UNSTABLE: Heart rate greater than 220 beats/min for infants or greater than 180 beats/min for children over 1 year of age and altered sensorium or signs of hypoperfusion. Signs and symptoms may include respiratory distress, delayed capillary refill, and decreased responsiveness.
FR B A I P	1. Initial Medical Care. If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93% ⁵¹ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
A I P	2. Obtain and transmit 12-lead EKG.
FR B A I P	3. Initiate IV/IO access.
I P	4. Insert advanced airway if necessary.
I P	5. Synchronized Cardioversion at 0.5 Joules/kg or manufacturers recommend energy level.
P	<ul style="list-style-type: none"> Consider premedication with pain medication. See Pain Protocol. Consider premedication with Versed 0.1 mg/kg IV/IN if patient is conscious and BP adequate for age May repeat Versed 0.1 mg/kg IV/IN as necessary until sedation achieved, not to exceed 5 mg.
P	
I P	6. If SVT persists: Cardiovert at 2 Joules/kg or manufacturers recommend energy level
I P	7. If SVT persists: Cardiovert at 4 Joules/kg or manufacturers recommend energy level
I P	8. If SVT persists: Contact Medical Control.

⁵¹ Cyanotic Heart Disease pulse ox goal 75-85%

Pediatric Syncope/Near Syncope

Non-Traumatic Loss of Consciousness

LEVEL	Pediatric Syncope / Near Syncope: Non-Traumatic Loss of Consciousness
FR B A I P FR** B⁽¹⁾ A⁽¹⁾ I P	<ol style="list-style-type: none"> Initial Medical Care – Special Considerations: <ul style="list-style-type: none"> Monitor EKG Document initial and subsequent changes in GCS Obtain and record Blood Glucose Level. Treat to appropriate Protocol. Anticipate underlying etiologies and treat according to appropriate Protocol <ul style="list-style-type: none"> Cardiac Dysrhythmia Protocol's Hypovolemia Hypovolemic/Hemorrhagic Shock Protocol; consider dehydration CNS Disorder See appropriate Medical or Trauma Protocol; consider Meningitis Vasovagal Supportive Medical Care Metabolic Diabetes Protocol if blood glucose abnormality, Poisoning/overdose Protocol; consider electrolyte disturbance

** ECG Monitoring (non-interpretive) is an additional skill at the FR/EMR level requiring additional training approved by the Medical Director and State Approval.

⁽¹⁾ ⁽¹⁾ ECG monitoring at the EMT- Basic and EMT-Advanced level is non interpretive.

Pediatric Unconscious – Unknown Etiology

LEVEL	Unconscious – Unknown Etiology
FR B A I P	<p>Possible etiology mnemonic AEIOU TIPS-V:</p> <p>A: Alcohol, arrhythmias, ingestions; E: Endocrine, exocrine, electrolyte imbalance; I: Insulin shock, DKA; O: Oxygen deficit, opiates, overdose; U: Uremia, renal problems including hypertension; T: Trauma, temperature (hypothermia/hyperthermia); I: Infection; P: Psychological; S: Space occupying lesion (SAH), stroke, shock, seizures; V: Vascular</p>
FR B A I P	<p>2. Initial Assessment & General Standing Orders. 3. Consider possible causes and treat.</p> <ul style="list-style-type: none"> • Evaluate for hypoxia/hypercarbia and give oxygen and establish an airway as indicated. • If the patient is in SHOCK, attempt to determine the etiology and refer to the appropriate protocol, give IV fluids by IV protocol. • Consider Hypoglycemia- See Protocol - Hypoglycemia. <p>4. If spontaneous ventilations inadequate</p> <ol style="list-style-type: none"> a. Narcan 0.5mg IN (IM B only). Repeat every 5 min as necessary. Max dose 2mg. b. If weight is over 20 kg: Narcan 0.4 - 2mg IV/IO/IN/IM <p>and/or</p> <ol style="list-style-type: none"> c. If weight is under 20 kg: Narcan 0.1 mg/kg IV/IO/IN/IM <p>Consider restraints before Narcan is given. Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response. May repeat every 5 minutes as needed.</p>

Pediatric Ventricular Fibrillation/Pulseless Ventricular Tachycardia

LEVEL	Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia
	Causes: Congenital heart disease, hypoxia, acidosis, electrolyte imbalance and ingestion (particularly cyclic antidepressants).
FR B A I P	1. Initial care <ul style="list-style-type: none"> • C-A-B: Compressions-Airway-Breathing • Continuous chest compressions at least 100 per minute at all possible times. • High quality CPR: Push hard & fast, minimize interruptions, allow full chest recoil, and avoid excessive ventilation • Perform CPR for 5 cycles or 2 minutes prior to defibrillation or AED per scope of practice. • Ventilate with 100% oxygen using a pediatric BVM. • Maintain a compression to ventilation ratio of 30:2, unless 2 rescuers then it should be 15:2
FR B A I P	Use AED, if available
FR B A I P	2. Defibrillate at 2 Joules/kg or manufacturers recommend energy level. <ul style="list-style-type: none"> • Perform CPR for 5 cycles or 2 minutes. • Check EKG rhythm and pulse. • Proceed to next step only if VF/Pulseless VT persists. • If rhythm changes, follow appropriate PROTOCOL • Anytime V-fib converts to a sinus rhythm: administer Lidocaine 1 mg/kg IV/IO or Amiodarone 5mg/kg IV/IO. • Rebolus with Lidocaine 0.5 mg/kg 10 minutes after initial bolus if not contraindicated
FR B A I P	3. Continue CPR for 5 cycles or 2 minutes;
FR B A I P	<ul style="list-style-type: none"> • Access airway through an advanced airway as soon as possible. Use straight blade for intubation on children less than 4 yrs. Attempt times 2 if necessary. • Ventilate at 8-10 breaths per minute. • If advanced airway is unsuccessful, and good air exchange is achieved with Peds BVM: continue ventilations/BVM • Do not interrupt CPR for more than 10 seconds.
A I P	4. Initiate peripheral IV or Intraosseous line as able. <ul style="list-style-type: none"> • If dehydrated or hypovolemic: fluid bolus Normal Saline 20 mL/kg IV/IO. Repeat as needed to a Maximum of 60 mL/kg.
I P	5. Epinephrine first dose 0.01 mg/kg (0.1mL/kg of 0.1mg/kg=1:10,000) IV/IO Administer during compressions. Note: Perform CPR and Defibrillate at 4 Joules/kg or manufacturers recommend energy level after each time a drug is given. The sequence should be: <ul style="list-style-type: none"> • Drug/CPR-Shock-Drug/CPR-Shock • Perform CPR for 5 cycles or 2 minutes after each drug or shock given.
	6. Perform CPR and Defibrillate at 4 Joules/kg or manufacturers recommend energy level

B A

I P

P

7. **Amiodarone 5mg/kg IVP or Lidocaine 0.5 mg/kg. Administer during compressions.**
8. **Perform CPR and Defibrillate at 4 Joules/kg or manufacturers recommend energy level**
9. **Epinephrine second and subsequent doses (1:10,000) 0.01 mg/kg (0.1mL/kg) IV/IO repeated every 3 to 5 minutes. Administer during compressions.**
10. **Perform CPR and Defibrillate at 4 Joules/kg or manufacturers recommend energy level**
11. **Lidocaine 1mg/kg IV/IO. Administer during compression.**
12. **Perform CPR and Defibrillate at 4 Joules/kg or manufacturers recommend energy level**
13. **If no Intermediate or Paramedic service available to scene and at least 20 minutes of resuscitation have occurred, contact medical control for permission to terminate resuscitation and not transport. If all the following present, medical control will likely terminate resuscitation:**
 - Cardiac Arrest unwitnessed by EMS
 - No shock by automated defibrillator
 - No return of spontaneous circulation at any time during resuscitation
14. **If no return of spontaneous circulation (ROSC) and at least 20 minutes of resuscitation have occurred, contact medical control for permission to terminate the resuscitation. Do not initiate transport without medical control consent.**
15. **Consider Magnesium 25 – 50 mg/kg IV/IO for torsades de pointes. Maximum 2 g**

Pneumonia/Tuberculosis

LEVEL	Possible Tuberculosis
	Mycobacterium tuberculosis has made a resurgence, particularly in the AIDS, homeless, nursing home and drug abusing communities. In an effort to provide a safe environment for all prehospital personnel, measures shall be instituted to control and limit the spread of this infection.
FR B A I P	<ol style="list-style-type: none"> Initial Medical Care: special considerations: <ul style="list-style-type: none"> Immediately place a TB filtration masks on all care givers first; then on the patient if any of the following signs or symptoms are present: chronic pneumonia which may be suggestive of TB, cough, fever, night sweats, weight loss, and/or hemoptysis; or if the patient tells you that he/she has TB. Attempt to assure a complete seal by forming the mask on the face. Avoid all air leaks around the sides of the mask if possible. Dispose of any tissues or handkerchiefs into which the patient has coughed or sneezed per contaminated waste protocols. Follow the individual department policy to facilitate appropriate follow-up.
FR B A I P	Pneumonia <ol style="list-style-type: none"> Initial Medical Care; special considerations: <ul style="list-style-type: none"> Listen carefully to lung sounds over all lung fields. Identify area(s) of isolated wheezes, crackles or sounds of consolidation Obtain patient temperature Assess state of overall hydration If fever, dehydration, localized (isolated) crackles or wheezes, and/or dyspnea; <ul style="list-style-type: none"> Apply surgical masks to rescuers to initiate respiratory isolation If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵² (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. Fluid bolus 500mL increments titrated to patient response. Reassess breath sounds after each 500mL. If cardiac history and/or risk factors present and crackles or wheezes diffuse and present bilaterally: consider presence of Pulmonary Edema. If history of Asthma/COPD and bilateral wheezing present: refer to Asthma/COPD Protocol Consider CPAP if patient is in severe respiratory distress. Refer to CPAP protocol. Consider Sepsis. Refer to the shock protocol.

⁵² Cyanotic Heart Disease pulse ox goal 75-85%

Possible Poisonous Snake Bite

Note:

- Protect yourself from the exposure of snakebite. Snakes can envenomate up to one hour after death.
- Determine type of snake if possible, time of bite, and changes in signs and symptoms since occurrence.
- If possible, transport the **DEAD** snake in a secured vessel with the victim for identification
- **DO NOT USE ice, tourniquets, hemorrhage control clamp or constricting bands at the bite site or proximal to bite site. If already applied, remove. Do NOT place IV in affected extremity if possible.**

EMERGENCY MEDICAL RESPONDER (EMR)/ EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

1. Initial Medical Care.
 - c. Maintain airway.
 - d. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵³ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
2. Remove rings and bracelets from the patient
3. Immobilize affected area keeping extremities in neutral position
4. Mark progression of swelling at the time of initial assessment and q 5 minutes

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

5. If antivenom available on scene, transport it with the patient.

ADVANCED EMT (AEMT) / INTERMEDIATE/ PARAMEDIC

6. Establish IV/IO**
7. If hypovolemic or SBP less than 90: **Fluid bolus in 500 mL increments** up to 2 liters.
8. Consider pain control- see Pain Protocol.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

PARAMEDIC

9. Consider sedation for anxiety.

Contact Medical Control for the following:

- Additional orders

⁵³ Cyanotic Heart Disease pulse ox goal 75-85%

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

Pregnant and Traumatic Injury

LEVEL	Trauma in Pregnancy
FR B A I P	<ol style="list-style-type: none"> Initial Trauma Care – Special Considerations: <ul style="list-style-type: none"> Aggressively resuscitate patient. If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵⁴. Do not withhold oxygen if you do not have the ability to assess O2 saturations. If 2nd or 3rd trimester and signs of hypotension or symptoms of shock, tilt patient to left supporting body with blanket rolls. The fetus may be in jeopardy while the mother's vital signs remain stable. Presence of potential for shock: IV fluid bolus 500 mL Normal Saline. Repeat as necessary.
A I P	
FR B A I P	<ol style="list-style-type: none"> Assess for uterine contractions, rigidity of uterine versus abdominal wall, vaginal bleeding, leaking of amniotic fluid (presence of meconium/blood), and/or presence (absence) of fetal movements. If any of the above abnormalities are present, expeditious transport to appropriate facility. <ol style="list-style-type: none"> If contractions present: time duration of contractions and length of time between contractions. If mother is in shock; refer to Hypovolemic/Hemorrhagic Shock Protocol. Prepare for emergency childbirth if mother in labor due to trauma and signs of imminent birth are present.

⁵⁴ Cyanotic Heart Disease pulse ox goal 75-85%

Psychological Emergencies

Level	Psychological Emergencies
FR B A I P	<ol style="list-style-type: none"> 1. Assess SCENE AND PERSONAL SAFETY. Call law enforcement personnel to scene, if needed. Above all, DO NOTHING TO JEOPARDIZE YOUR OWN SAFETY. 2. Initial Medical Care; special considerations: <ul style="list-style-type: none"> * Determine and document if patient is a threat to self or others; or if patient is unable to care or provide for self * Protect patient from harm to self or others * Do not touch a patient with a mental illness without telling them your intent in advance 3. Verbally attempt to calm and reorient the patient to reality as able. Do not participate in a patient's delusions or hallucinations. 4. If patient is combative: Refer to Patient Restraint Protocol, use physical restraints as necessary per Patient Restraint Protocol. Document reasons for use. 5. Consider medical etiologies of behavioral disorder and treat according to appropriate protocol: <ul style="list-style-type: none"> * Hypoxia * Substance Abuse/Overdose * Neurologic disease (CVA, intracerebral bleed, etc.) * Metabolic derangements (hypoglycemia, thyroid disease etc.) 6. Initial Medical Care as situation warrants. 7. Consult Medical Control from the scene in ALL instances where a refusal of transport is being considered. 8. If patient is an imminent threat to self or others, or is unable to care for themselves, and is refusing transportation: Have Police Department evaluate situation for Chapter 51.

Rapid Sequence Airway

LEVEL	Rapid Sequence Induction and Airway
P	<ol style="list-style-type: none"> Initial Medical Care. <ul style="list-style-type: none"> Apply pulse oximeter, monitor and ETCO₂ monitoring Preoxygenate with high flow oxygen Also have nasal cannula in patient's nose running at 15 L/minutes (prolongs period without hypoxia) during any period when not ventilating or attempting to place an airway Pediatric Patients: Use cuffed ETT whenever possible. Peds Cuffed ETT size = (age years/4) + 3. Peds Uncuffed ETT size = (age years/4) + 4.
P	<p>Premedicate:</p> <ol style="list-style-type: none"> Premedicate children less than 5 years old with Atropine 0.02 mg/kg. <ul style="list-style-type: none"> Minimum dose is 0.1 mg. Maximum dose is 1 mg IV/IO. Etomidate 0.3 mg/kg slow IV/IO Max 40 mg or Ketamine 1.5 – 2 mg/kg IV/IO
P P	<p>Paralyze: 2 Paramedic Only and approved by Medical Director</p> <ol style="list-style-type: none"> Succinylcholine 1.5 mg/kg IV/IO. Max 200 mg. <ul style="list-style-type: none"> children less than 10 years: 2 mg/kg IV/IO. Max 200 mg.
P	<p>Intubate:</p> <ol style="list-style-type: none"> Intubate 45 to 60 seconds after medication administration If unable to intubate trachea after 2 attempts, use non-visualized airways or basic airways. Consider cricothyrotomy. See cricothyrotomy protocol. Sedation with Midazolam (Versed) 2-5mg IV/IO. May repeat as needed for sedation. → Vecronium 0.1 mg/kg IV/IO, max 10mg, for prolonged transports or patients that need prolonged paralytics. Consider Pain Management. Consider oral gastric tube placement with suction.

Do not perform rapid sequence intubation or administer agents for induction to patients who you cannot effectively ventilate with a bag-valve-mask (BVM).

Contraindications for Succinylcholine

- Burns greater than 96 hours
- History of Malignant Hyperthermia
- Spinal cord injury with deficits greater than 48 hours
- Hypersensitivity

ALWAYS HAVE A BACK-UP AIRWAY READIED IN THE EVENT THAT RSI FAILS!

RAPID SEQUENCE AIRWAY				Versed 10mg/2mL		Atropine 1mg/10mL		Succinylcholine 200mg/10mL		Ketamine 500mg/10mL		Etomidate 20mg/10 mL	
Age	Broselow	Kilos	Pounds	mg	mL	mg	mL	mg	mL	mg	mL	mg	mL
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.5	0.1	0.1	1	10	0.5	10	0.2	1.5	0.75
6 mo	PINK	6-7 kg	13 - 15 lbs	1	0.2	0.14	1.4	14	0.7	14	0.28	2.0	1
9 mo	RED	8-9 kg	16 - 20 lbs	1	0.2	0.18	1.8	18	0.9	18	0.36	2.5	1.25
1 yr	PURPLE	10-11 kg	21 - 24 lbs	1	0.2	0.2	2	20	1	20	0.4	3.2	1.6
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	1.5	0.3	0.26	2.6	26	1.3	26	0.52	4.2	2.1
4 yrs	WHITE	15-18 kg	32 - 40 lbs	2	0.4	0.34	3.4	30	1.5	30	0.6	5.4	2.7
6 yrs	BLUE	19-23 kg	41 - 48 lbs	2.5	0.5	0.4	4	40	2	40	0.8	6.8	3.4
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	3	0.6	ATROPINE <u>NOT</u> INDICATED FOR 5YR OLDS OR OLDER		60	3	60	1.2	8.6	4.3
10 yrs	GREEN	30-36 kg	67 - 80 lbs	3.5	0.7			70	3.5	70	1.4	10.8	5.4
Atropine 0.02 mg/kg (max 0.5 mg) 0.1 mg/kg (max 5mg) Ketamine 1-2 mg/kg IV (max 200 IV) Succinylcholine 1.5-2 mg/kg (max 200mg) Etomidate 0.3 mg/kg (Max 40 mg)				40 kg	88 lbs			80	4	80	1.6	12.0	6
				45 kg	99 lbs			80	4	80	1.6	13.5	6.75
				50 kg	110 lbs			80	4	80	1.6	15.0	7.5
				55 kg	121 lbs			85	4.25	85	1.7	16.5	8.25
				60 kg	132 lbs			90	4.5	90	1.8	18	9
				70 kg	154 lbs			105	5.25	105	2.1	21	10.5
				80 kg	176 lbs			120	6	120	2.4	24	12
				90 kg	198 lbs			135	6.75	135	2.7	27	13.5
				100 kg	220 lbs			150	7.5	150	3	30	15
				110 kg	242 lbs			165	8.25	165	3.3	33	16.5
				120 kg	264 lbs			180	9	180	3.6	36	18
				133+ kg	293 + lbs			200	10	200	4	40	20

Sedation

This guideline shall be used when administering Versed, Valium, Etomidate, Ketamine and Ativan for anxiolytic/sedatives. They may be administered for sedation and anxiolytic effect, or to patients paralyzed as a standing order from the medical director. Use cautiously in patients with shock. Ketamine or Etomidate is preferred over Versed in hypotensive/shock patients. Assess and treat for other reversible causes of anxiety: shock, tension pneumothorax, hypoxia, hypoglycemia, etc.

ADVANCED EMT (AEMT)/INTERMEDIATE / PARAMEDIC

- Consider Nitrous Oxide if available, properly trained and approved (see Nitrous Oxide Protocol)

PARAMEDIC

- Side effects may include hypotension and respiratory depression.
- Monitor Airway and document vital signs at least every 5 minutes, to include: blood pressure, pulse, respirations, pulse oximetry and End tidal CO2 if available.

Versed (Midazolam)

Relative contraindication is active labor

- Onset of Action 1-5 minutes IV, 15 minutes IM
 - Duration of effect: 30-40 min IV, up to 6 hours IM
 - Dose:
 - a. **Peds: 0.1 mg/kg IV/IO**, may repeat every 3 minutes IV/IO, **0.2 mg/kg IM/IN**, may repeat every 10 minutes as needed (max 10 mg/dose).
 - b. **Adult: 2-5 mg IV/IO (max 10mg/dose – usually only used in seizure)**, may repeat every 3 minutes IV/IO or **5 mg IM/IN**, may repeat every 10 minutes IM/IN.
 - c. **Elderly: 1-2 mg IV/IO/IM/IN**, may repeat every 3 minutes IV or every 10 minutes IM/IN
- Adverse reactions: Respiratory depression, hypotension, paradoxical agitation, elderly patients are more prone to adverse reactions

Ativan (Lorazepam)

Relative contraindication is active labor

- Onset of action 1-5 minutes IV
- Duration of effect: 15 minutes-1 hour.
- Dose:
 - a. **Peds: 0.1 mg/kg IV/IO or IM, Max 4 mg in single dose.** May repeat IV/IO dose every 3 minutes or IM every 20 minutes as needed.
 - b. **Adult: 1-2 mg IV/IO or IM, usually a single dose does not exceed 2mg but may give Max 4 mg in single dose (example seizure).** May repeat IV/IO dose every 3 minutes or IM every 20 minutes as needed. Elderly should only get 50% of the regular adult dose and not get more than 2 mg per dose.

Valium (Diazepam)

Relative contraindication is active labor

- Onset of Action: 1-5 minutes IV
- Duration: 15-60 minutes
 - a. **Adult: 5-10 mg IV/IO.** May repeat IV/IO dose every 3 minutes as needed. Elderly should only get 50% of the regular adult dose.
 - b. **Peds: 0.1 mg/kg IV/IO, Max 10 mg per dose.** May repeat IV/IO dose every 3 minutes as needed.

Etomidate

An ultra-short acting nonbarbiturate hypnotic with minimal cardiovascular or respiratory effects should be used for brief interventions such as cardioversion.

- Onset of Action: less than 30 seconds
- Duration of effect: 5-15 minutes
- Dose: **No repeat doses due to adrenal suppression.**
 - a) **Adult: 10-15 mg IV/IO.**
 - b) **Peds: 0.1-0.15 mg/kg IV/IO.**

Adverse reactions: Frequently causes; muscle twitching, uncontrolled eye movements, hiccups, and respiratory depression in large doses.

Ketamine (A rapid acting general anesthetic producing anesthetic state)

- Onset of Action: IV: 30 to 40 seconds, IM: 3 to 4 minutes
- Duration of effect: Anesthetic effects IV: 5-10 minutes, IM: 12-25 minutes. Sedation effects are variable but at least as long as anesthetic effect and may be: IV up to 60 minutes, IM up to 90-150 minutes (longer with addition of benzos/narcotics or concurrent substance use/abuse).
- Dose: 1-2 mg/kg IV/IO (max 200mg), 4-5 mg/kg IM (Max 500mg) (may give 250 mg IM and if not effective after 2 minutes, give the rest of the 4-5 mg/kg dose in another muscle).

Adverse reactions: psychological manifestations varying from pleasant dreams to hallucinations, and delirium.

<p><i>Contact Medical Control for the following:</i></p> <p>Additional orders</p>

Seizure

Note:

- Seizures usually last from 1-3 minutes and involve a loss of consciousness and convulsions. Not uncommonly, the patient is incontinent and may bite his tongue or be injured in other ways.
- When the seizure is over, the patient enters a postictal state, characterized by confusion eventually giving way to normal alertness and orientation.
- Whenever seizures occur, look for an underlying cause and treat it. If the patient is more than 20 weeks pregnant, refer also to the Eclampsia Protocol.
- Status epilepticus is defined as a seizure lasting longer than 5 minutes, or frequently recurring seizures without clearing of the postictal state between seizures. This is a life-threatening emergency!

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

1. Perform primary medical assessment and Initial Medical Care
2. Clear and protect the airway. Vomiting/aspiration precautions. Suction excess secretions.
3. Protect the patient from injury. Do not place anything in their mouth if seizing (Nasopharyngeal airway recommended.)
4. Position patient on their side unless contraindicated (recovery position).
5. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁵⁵ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.
6. Note and report the following:
 - * Any apparent cause of seizure
 - * History of seizures
 - * Medications: amount and time of last dose
 - * Focus of seizure origin: one limb or whole body
 - * Eye deviation prior to or during seizure
 - * Trauma to oral cavity
 - * Incontinence
7. Observe patient's sensorium and airway status during postictal period.
Time the duration of confusion during the postictal period.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)**

If trained to obtain blood glucose and glucometer available, obtain blood glucose. If less than 60, go to Hypoglycemia Protocol.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

Obtain blood glucose. If less than 60, go to Hypoglycemia Protocol.

⁵⁵ Cyanotic Heart Disease pulse ox goal 75-85%

INTERMEDIATE ⁵⁶/ PARAMEDIC

Attempt to time duration of seizure activity. If generalized tonic-clonic seizure lasting greater than 2 minutes or recurrent seizures: (and not Hypoglycemic)

If no IV access in place give:

Versed 10 mg IN/IM in adults or Versed 5 mg IN/IM in Peds (13 to 40 kg), Peds less than 13 kg give Versed 0.2 mg/kg IN/IM. May repeat in 10 minutes if seizures continue.

If IV access already in place give:

Versed 5-10 mg (Peds 0.1mg/kg, max 10 mg/dose) IV/IO. May repeat every 3-5 min if seizures continue

Or Ativan 2-4 mg IV/IO or 4 mg IM (Peds 0.1 mg/kg IV/IO/IM, max 4 mg/dose).

May repeat every 3-5 min IV/IO if seizures continue

Or Diazepam 5-10 mg slow IV/IO (Peds 0.1 mg/kg IV/IO). May repeat every 3-5 min if seizures continue

- Side effects may include hypotension and respiratory depression.
- Monitor Airway and document vital signs at least every 5 minutes, to include: blood pressure, pulse, respirations, pulse oximetry and End tidal CO2 if available.

³¹ UNDER WI SCOPE OF PRACTICE- INTERMEDIATE SERVICES MAY CHOOSE ONLY ONE SEIZURE MEDICATION. VERSED IS THE PREFERRED MEDICATION.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

Establish IV/IO** if still seizing, not awakening or other concerns.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

PARAMEDIC

If ambulance out of benzodiazepines and patient still seizing, give Ketamine 1-2 mg/kg IV/IO or 4-5 mg/kg IM

⁵⁶ UNDER WI SCOPE OF PRACTICE- INTERMEDIATE SQUADS MAY CHOOSE ONLY ONE SEIZURE MEDICATION. VERSED IS THE PREFERRED MEDICATION.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

Sepsis/Septic Shock

Assess for 2 or more of the following systemic illness markers:

- 100.4° F (38° C) or higher OR 96.8° F (36° C) or lower
- Heart rate over 90 or age appropriate normal
- Respiratory rate over 20 or age appropriate normal; or ETCO₂ less than 32 mmHg
- SBP below 90 mm Hg or age appropriate normal; or other signs of poor perfusion (central cap refill greater equal to or greater than 3 seconds, mottled or pale skin)
- GCS less than 15 or less than patient's normal mentation

If 2 or more systemic illness markers are present and the history/exam suggests infection, initiate this protocol.

Goal of treatment is perfusion of the brain and other organs. A goal that can be assessed prehospital is to initiate fluid resuscitation and additionally to get to a mean arterial pressure (MAP) ⁵⁷greater than or equal to 65 mm Hg or age appropriate MAP or if MAP not available, a systolic BP of 80 mm Hg or age appropriate normal. Pediatric patient goal is also to get capillary refill time less than or equal to 2 seconds.

Age	Pulse	Respiratory Rate	Systolic BP Lowest Nml	Lowest Nml MAP
Newborn	120-160	30-60	60	40
Up to 1 year	100-140	30-60	70	42
1-3 years	100-140	20-40	76	45
4-6 years	80-120	20-30	80	48
7-9 years	80-120	16-24	84	52
10-12 years	80-120	16-20	90	55
13-14 years	60-100	16-20	90	60

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

5. Initiate appropriate Personal Protective Equipment (PPE). Notify hospital of possible infection.
6. Initial Medical Care.
7. Keep patient warm.
8. No need for supplemental oxygen if pulse ox is 90% or greater. If supplemental oxygen is given, titrate supplemental oxygen to lowest level to maintain pulse ox 94-96% (if severe underlying lung disease, goal is 88-92%). If patient is normally on supplemental oxygen and pulse ox on that oxygen is 90% or greater, transport with patient's normal oxygen rate. Do not

⁵⁷ The Mean Arterial Pressure (MAP) is the average pressure within an artery over a complete cycle of one heartbeat. At normal resting heart rates the MAP can be calculated by the formula $[(2 \times \text{diastolic}) + \text{systolic}] / 3$ (or the diastolic blood pressure plus 1/3 of the pulse pressure). To determine mean arterial pressure with absolute accuracy, analog electronic circuitry or digital techniques need to be employed to arrive at the mean value. In adults a MAP of about 60 is necessary to perfuse coronary arteries, brain, kidneys.

withhold oxygen if patient is having difficulty breathing and you do not have the ability to assess O2 saturations.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

9. If fever (Temp greater than 100.4° F or 38° C) see Fever Protocol.
10. Assess for Severe Sepsis and Septic Shock. Criteria met if either is found.
 - SBP below 90 mm Hg or age appropriate normal; or other signs of poor perfusion (cap refill greater than 2 seconds, mottled or pale skin, confusion)
 - ETCO2 less than 25 mmHg on two measurements at least 5 minutes apart
11. If either present, initiate IV. Use warm IV fluids if available.
12. Establish large bore IV, if possible.
13. Bolus with IV fluid Normal Saline/LR 30 mL/kg with maximum 3000 ml Initial bolus. Stop infusion if any signs of heart failure.
14. Once 30 mL/kg initial fluid bolus is completed, may give additional 500-1000 mL (Peds 20 mL/kg) fluid bolus PRN to increase and maintain a Mean Arterial Pressure (MAP)¹ of at least 65 (or age appropriate normal) and perfusion of the brain and other organs (there is no maximum amount of fluid but at least 30 mL/kg should be given unless signs of vascular overload). In pediatric patients, goal perfusion for fluid replacement is to get capillary refill time of 2 seconds or less. For adequate fluid replacement in adults, a study showed septic shock patients require an average of 5 liters of fluid in the first 6 hours (with a range of 3-8 liters).

Sepsis Protocol				Acetaminophen		Ibuprofen		Ketorolac (Toradol)		Fluid bolus 30 ml/kg
Age	Broselow	Kilos	Pounds	mg	160 mg/ 5 mL	mg	100 mg/5mL	IV	IM	NS or LR
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	64	2 mL					100 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	96	3 mL	60	3 mL	3 mg	6 mg	200 mL
9 mo	RED	8-9 kg	16 - 20 lbs	128	4 mL	80	4 mL	4 mg	8 mg	250 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	160	5 mL	100	5 mL	5 mg	10 mg	300 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	192	6 mL	120	6 mL	6 mg	12 mg	400 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	256	8 mL	160	8 mL	7.5 mg	15 mg	500 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	320	10 mL	200	10 mL	10 mg	20 mg	600 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	416	13 mL	260	13 mL	12.5 mg	25 mg	800 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	480	15 mL	300	15 mL	15 mg	30 mg	1000 mL
12 yrs		38.5 kg	84 lbs	576	18 mL	400	20 mL	15 mg	30 mg	1150 mL
14 yrs		44 kg	97 lbs	650	20 mL	440	22 mL	15 mg	30 mg	1300 mL
16 yrs		50 kg	110 lbs	750	23.5 mL	500	25 mL	15 mg	30 mg	1500 mL
		55 kg	121 lbs	825	26 mL	540	27 mL	15 mg	30 mg	1650 mL
		60 kg	132 lbs	900	28 mL	600	30 mL	15 mg	30 mg	1800 mL
		67+ kg	147+ lbs	1000	31 mL	600	30 mL	15 mg	30 mg	2000 mL
		70 kg	154 lbs	1000	31 mL	600	30 mL	15 mg	30 mg	2100 mL
		80 kg	176 lbs	1000	31 mL	600	30 mL	15 mg	30 mg	2400 mL
		90 kg	198 lbs	1000	31 mL	600	30 mL	15 mg	30 mg	2700 mL
Max dose		100 +kg	220+ lbs	1000	31 mL	600	30 mL	15 mg	30 mg	3000 mL

INTERMEDIATE / PARAMEDIC

11. If signs/symptoms of shock persist despite administration of adequate boluses of IV/IO fluids or cardiovascular collapse (systolic BP less than 70 or low BP and patient unresponsive), give small Epinephrine boluses.

- Epinephrine 0.05-0.1 mg (1:10,000 0.5-1 mL) (Peds: 0.001 mg/kg to adult max) IV/IO⁵⁸. Repeat every 2-5 minutes as needed to get MAP 65 or age appropriate MAP (if no MAP available, goal SBP 80 or greater). (When using vasopressors capillary refill cannot be used to guide treatment, so treat by MAP). If no increase in BP after bolus, may double subsequent boluses up to 0.2 mg (2 mL of 1:10,000; peds 0.004 mg/kg max) maximum single dose.

IV Epinephrine for Severe Allergic Reaction, Shock, Severe Asthma/COPD/Bronchospasm				Initial IV Epinephrine	1:10,000 ⁵⁹ 0.1mg/mL	1:100,000 ⁶⁰ 0.01 mg/mL
Age	Broselow	Kilos	Pounds	mg	mL	mL
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.004 mg	0.05 mL	0.4 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	0.006 mg	0.1 mL	0.6 mL
9 mo	RED	8-9 kg	16 - 20 lbs	0.008 mg	0.1 mL	0.8 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.01 mg	0.1 mL	1 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.012 mg	0.15 mL	1.2 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.015 mg	0.15 mL	1.5 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.02 mg	0.2 mL	2 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.03 mg	0.3 mL	3 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.035 mg	0.35 mL	3.5 mL
12 yrs		40 kg	88 lbs	0.04 mg	0.4 mL	4 mL
14 yrs		45 kg	99 lbs	0.045 mg	0.45 mL	4.5 mL
16 yrs +		50 kg+	110 lbs+	0.05 mg	0.5 mL	5 mL

PARAMEDIC

12. Stress dose steroids (Solumedrol 125 mg IV/IO or hydrocortisone 100 mg IV/IO or Decadron 10-20 mg) IV/IO should be considered in:

- Patients with adrenal suppression (Addison's disease).
- Patients on chronic steroids

⁵⁸ Instead of that dose, may give finer gradations of dilute epinephrine in a 1:100,000 concentration and in adults give:

- For SBP 70-80 (MAP 60-64) give 1-2 mL (10-20 mcg or .01-.02 mg) every 2-5 minutes
- For SBP less than 70 (MAP less than 60) give 3-5 mL (30-50mcg or .03-.05mg) every 2-5 minutes
- For Severe hypotension (cardiovascular collapse) give 6-10mL (60-100mcg or .06-0.1mg) per minute

⁵⁹ To get 1:10,000 concentration- If only Epinephrine 1mg/mL (1:1,000) concentration is available, draw up 1 mL and add it to 9mL normal saline to create Epinephrine 0.1 mg/mL (1:10,000). Label the syringe before setting it down.

⁶⁰ To get 1:100,000 concentration- For initial Epinephrine 0.1 mg/mL (1:10,000) concentration, draw up 1 mL and add it to 9mL normal saline. For initial Epinephrine 1 mg/mL (1:1,000) concentration, draw up 0.1 mL and add it to 9.9 mL normal saline. Invert the syringe several times to mix the solution. Syringe is now 100mcg/10mL or 10 mcg/mL. Label the syringe before setting it down

13. If signs/symptoms of shock persist despite administration of adequate boluses of IV/IO fluids, and epinephrine boluses are inadequate/unavailable or transport is long, if available give boluses or infusion of Norepinephrine.

Norepinephrine 4 mg in 250 mL NS or D5W

- infusion start at 5 mcg/min (max 35 mcg/min) or
- bolus 0.5-1 mL (8-16 mcg) every 1-2 minutes. May double subsequent doses if no improvement in BP up to 2.2 ml per minute (4.4 ml if giving bolus every 2 minutes).
- titrated to SBP 80 or MAP greater than or equal to 65 mmHg or age appropriate MAP

Norepinephrine infusion rate 4mg in 250 ml=16 mcg/ml microdrip tubing titrate to SBP 80 or MAP 65

		Kilos	Pounds	0.1 mcg/kg/min		0.2mcg/kg/min		0.3mcg/kg/min		0.4mcg/kg/min		0.5mcg/kg/min	
				mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min
Starting infusion	40 kg	88 lbs		0.25	15	0.5	30	0.75	45	1	60	1.25	75
	45 kg	99 lbs		0.28	17	0.56	34	0.84	50	1.12	67	1.4	84
	50 kg	110 lbs		0.31	19	0.62	37	0.93	56	1.24	74	1.55	93
	55 kg	121 lbs		0.35	21	0.7	42	1.05	63	1.4	84	1.75	105
	60 kg	132 lbs		0.375	23	0.75	45	1.125	68	1.5	90	1.875	113
	70 kg	154 lbs		0.44	26	0.88	53	1.32	79	1.76	106	2.2	132
Bolus dose	80 kg	176 lbs		0.5	30	1	60	1.5	90	2	120	2.2	132
	90 kg	198 lbs		0.5625	34	1.125	68	1.6875	101	2.2	132	2.2	132
	100+ kg	220+ lbs		0.625	38	1.25	75	1.875	113	2.2	132	2.2	132

14. If Norepinephrine infusion fails to meet goals, start epinephrine infusion as second line vasoactive infusion

- Epinephrine Infusion⁶¹ 2-10 mcg/minute IV/IO titrated to effect (severe cardiac dysfunction may require up to maximum 2 mcg/kg/minute)

15. If vasoactive infusion maximums reached without reaching goals, consider:

- Additional volume infusion

Contact Medical Control for the following:
Additional orders

⁶¹ Epinephrine infusion: 1 mg Epinephrine in 250 ml NS or D5W or 4mg Epinephrine in 1000 ml NS gives 4 mcg/ml.

Mcg/min	2	3	4	5	6	7	8	9	10
Microdrip tubing drops per minute	30	45	60	75	90	105	120	135	150

Shock

Shock is decreased effective circulation causing inadequate delivery of oxygen to tissues. Shock is a common end point of many medical conditions. It has been divided into four main types based on the underlying cause: hypovolemic, cardiogenic, obstructive and distributive.

Hypovolemic

Hypovolemic shock is the most common type of shock and is caused by insufficient circulating volume. Its primary cause is hemorrhage (internal and/or external), or loss of fluid from the circulation. Vomiting and diarrhea are the most common cause in children. With other causes including burns, environmental exposure and excess urine loss due to diabetic ketoacidosis and diabetes insipidus.

Potential causes of hypovolemia and shock include:

- * Infections/sepsis
- * Burns
- * Hemorrhage (Internal, External)
- * Spinal cord injury
- * Pump Failure
- * Heart Rhythm Disturbances
- * Dehydration/Heat emergencies
- * Drugs and Toxins
- * Metabolic Disturbances
- * Anaphylaxis
- * Pulmonary Embolism

Cardiogenic

Cardiogenic shock is caused by the failure of the heart to pump effectively. This can be due to damage to the heart muscle, most often from a large myocardial infarction. Other causes of cardiogenic shock include dysrhythmias, cardiomyopathy/myocarditis, congestive heart failure (CHF), or cardiac valve problems.

Obstructive

Obstructive shock is due to obstruction of blood flow outside of the heart. Several conditions can result in this form of shock.

Cardiac tamponade in which fluid in the pericardium prevents inflow of blood into the heart (venous return).

Tension pneumothorax is caused by increased intrathoracic pressure, which reduces blood flow back to the heart (venous return).

Pulmonary embolism is the result of a thromboembolic incident in the blood vessels of the lungs and hinders the return of blood to the heart.

Aortic stenosis hinders circulation by obstructing the ventricular outflow tract

Distributive

Distributive shock is due to impaired utilization of oxygen and thus production of energy by the cell. Examples of this form of shock are:

- Septic shock is the most common cause of distributive shock. Caused by an overwhelming systemic infection resulting in vasodilation leading to hypotension. See Septic Shock protocol.
- Anaphylactic shock Caused by a severe anaphylactic reaction to an allergen, antigen, drug or foreign protein causing the release of histamine which causes widespread vasodilation, leading to hypotension and increased capillary permeability. See Anaphylactic Shock protocol.

- High spinal injuries may cause neurogenic shock. The classic symptoms include a slow heart rate due to loss of cardiac sympathetic tone and warm skin due to dilation of the peripheral blood vessels.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

11. Initial Medical Care.
12. If hypotensive, place the patient in supine position if they are able to tolerate it. Ensure ABC's, ventilation; suction as needed
13. Control external bleeding and keep patient warm.
14. No need for supplemental oxygen if pulse ox is 90% or greater. If supplemental oxygen is given, titrate supplemental oxygen to lowest level to maintain pulse ox 94-96%ⁱ if severe underlying lung disease goal is 88-92%). If patient is normally on supplemental oxygen and pulse ox on that oxygen is 90% or greater, transport with patient's normal oxygen rate. Do not withhold oxygen if patient is having difficulty breathing and you do not have the ability to assess O2 saturations
15. Place an advanced airway, if airway compromised
16. If patient is in anaphylactic shock, go to Allergy & Anaphylaxis protocol.

**EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

17. If blood glucose less than 60, treat per Hypoglycemia protocol.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

18. Establish vascular access. Do not delay transport to obtain vascular access. Refer to IO protocol if unable to start IV.
19. If hypovolemic/hemorrhagic shock, see also Hypovolemic Hemorrhagic Shock protocol.
20. If patient is septic, see also Sepsis/Septic Shock Protocol.

Age	Pulse	Respiratory Rate	Systolic BP Lowest Nml	Lowest Nml MAP
Newborn	120-160	30-60	60	40
Up to 1 year	100-140	30-60	70	42
1-3 years	100-140	20-40	76	45
4-6 years	80-120	20-30	80	48
7-9 years	80-120	16-24	84	52
10-12 years	80-120	16-20	90	55
13-14 years	60-100	16-20	90	60

21. If evidence of shock, administer **IV fluid 500-1000mL (Peds 20ml/kg) IV/IO**. May repeat up to 2000mL (Peds 60 ml/kg) to increase and maintain a Mean Arterial Pressure (MAP)⁶³ of

⁶³ The Mean Arterial Pressure (MAP) is the average pressure within an artery over a complete cycle of one heartbeat. At normal resting heart rates the MAP can be calculated by the formula $[(2 \times \text{diastolic}) + \text{systolic}] / 3$ (or the diastolic blood pressure plus 1/3 of the pulse pressure). To

at least 65 (or age appropriate normal) and perfusion of the brain and other organs if necessary. In pediatric patients, goal perfusion for fluid replacement is to get capillary refill time of 2 seconds or less. Reassess patient after each bolus and assess for pulmonary edema.

Fluid Bolus 20 mL/kg				
Age	Broselow	Kilos	Pounds	NS or LR
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	80 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	120 mL
9 mo	RED	8-9 kg	16 - 20 lbs	180 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	200 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	250 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	350 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	400 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	500 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	600 mL
12 yrs		38.5 kg	84 lbs	800 mL
14 yrs		44 kg	97 lbs	900 mL
16 yrs + (Max Single Dose)		50 kg	110 lbs	1000 mL

INTERMEDIATE / PARAMEDIC

16. If signs/symptoms of shock persist despite administration of adequate boluses of IV/IO fluids or cardiovascular collapse (systolic BP less than 70 or low BP and patient unresponsive), give small Epinephrine boluses.

- Epinephrine 0.05-0.1 mg (1:10,000 0.5-1 mL) (Peds: 0.001 mg/kg to adult max) IV/IO⁶⁴. Repeat every 2-5 minutes as needed to get MAP 65 or age appropriate MAP (if no MAP available, goal SBP 80 or greater). If no increase in BP after bolus, may double subsequent boluses up to 0.2 mg (2 mL of 1:10,000; peds 0.004 mg/kg max) maximum single dose.

determine mean arterial pressure with absolute accuracy, analog electronic circuitry or digital techniques need to be employed to arrive at the mean value. In adults a MAP of about 60 is necessary to perfuse coronary arteries, brain, kidneys.

⁶⁴ Instead of that dose, may give finer gradations of dilute epinephrine in a 1:100,000 concentration and in adults give:

- For SBP 70-80 (MAP 60-64) give 1-2 mL (10-20 mcg or .01-.02 mg) every 2-5 minutes
- For SBP less than 70 (MAP less than 60) give 3-5 mL (30-50mcg or .03-.05mg) every 2-5 minutes
- For Severe hypotension (cardiovascular collapse) give 6-10mL (60-100mcg or .06-0.1mg) per minute

For initial Epinephrine 0.1 mg/mL (1:10,000) concentration, draw up 1 mL and add it to 9mL normal saline. For initial Epinephrine 1 mg/mL (1:1,000) concentration, draw up 0.1 mL and add it to 9.9 mL normal saline. Invert the syringe several times to mix the solution. Syringe is now 100mcg/10mL or 10 mcg/mL. Label the syringe before setting it down.

IV Epinephrine for Severe Allergic Reaction, Shock, Severe Asthma/COPD/Bronchospasm				Initial IV Epinephrine	1:10,000 ⁶⁵ 0.1mg/mL	1:100,000 ⁶⁶ 0.01 mg/mL
Age	Broselow	Kilos	Pounds	mg	mL	mL
newbrn	3kg 4kg 5 kg	3-5 kg	6 - 11 lbs	0.004 mg	0.05 mL	0.4 mL
6 mo	PINK	6-7 kg	13 - 15 lbs	0.006 mg	0.1 mL	0.6 mL
9 mo	RED	8-9 kg	16 - 20 lbs	0.008 mg	0.1 mL	0.8 mL
1 yr	PURPLE	10-11 kg	21 - 24 lbs	0.01 mg	0.1 mL	1 mL
2 yrs	YELLOW	12-14 kg	25 - 31 lbs	0.012 mg	0.15 mL	1.2 mL
4 yrs	WHITE	15-18 kg	32 - 40 lbs	0.015 mg	0.15 mL	1.5 mL
6 yrs	BLUE	19-23 kg	41 - 48 lbs	0.02 mg	0.2 mL	2 mL
8 yrs	ORANGE	24-29 kg	49 - 66 lbs	0.03 mg	0.3 mL	3 mL
10 yrs	GREEN	30-36 kg	67 - 80 lbs	0.035 mg	0.35 mL	3.5 mL
12 yrs		40 kg	88 lbs	0.04 mg	0.4 mL	4 mL
14 yrs		45 kg	99 lbs	0.045 mg	0.45 mL	4.5 mL
16 yrs +		50 kg+	110 lbs+	0.05 mg	0.5 mL	5 mL

PARAMEDIC

22. Stress dose steroids Solumedrol 125 mg IV/IO (Peds 2 mg/kg) or hydrocortisone 100 mg IV/IO⁶⁷ or Decadron 10-20 mg (Peds 0.3 mg/kg) IV/IO should be considered in:

- Patients on chronic steroids
- Patients with adrenal suppression (Addison's disease).

17. If signs/symptoms of shock persist despite administration of adequate boluses of IV/IO fluids, and epinephrine boluses are inadequate/unavailable or transport is long, if available give boluses or infusion of Norepinephrine.

Norepinephrine 4 mg in 250 mL NS or D5W

- infusion start at 5 mcg/min (max 35 mcg/min) or
- bolus 0.5-1 mL (8-16 mcg) every 1-2 minutes. May double subsequent doses if no improvement in BP up to 2.2 ml per minute (4.4 ml if giving bolus every 2 minutes).
- titrated to SBP 80 or MAP greater than or equal to 65 mmHg or age appropriate MAP

⁶⁵ To get 1:10,000 concentration- If only Epinephrine 1mg/mL (1:1,000) concentration is available, draw up 1 mL and add it to 9mL normal saline to create Epinephrine 0.1 mg/ml (1:10,000). Label the syringe before setting it down.

⁶⁶ To get 1:100,000 concentration- For initial Epinephrine 0.1 mg/mL (1:10,000) concentration, draw up 1 mL and add it to 9mL normal saline. For initial Epinephrine 1 mg/mL (1:1,000) concentration, draw up 0.1 mL and add it to 9.9 mL normal saline. Invert the syringe several times to mix the solution. Syringe is now 100mcg/10mL or 10 mcg/mL. Label the syringe before setting it down

⁶⁷ Hydrocortisone pediatric dosage 1-2 mg/kg or

- 0 up to 3 years old: 25 mg IV
- 3 up to 12 years: 50 mg IV
- 12 years and older: 100 mg IV

Norepinephrine infusion rate 4mg in 250 ml=16 mcg/ml microdrip tubing titrate to SBP 90 or MAP 65

		Kilos	Pounds	0.1 mcg/kg/min		0.2mcg/kg/min		0.3mcg/kg/min		0.4mcg/kg/min		0.5mcg/kg/min	
				mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min	mL/min	gtts/min
Starting infusion	40 kg	88 lbs		0.25	15	0.5	30	0.75	45	1	60	1.25	75
	45 kg	99 lbs		0.28	17	0.56	34	0.84	50	1.12	67	1.4	84
	50 kg	110 lbs		0.31	19	0.62	37	0.93	56	1.24	74	1.55	93
	55 kg	121 lbs		0.35	21	0.7	42	1.05	63	1.4	84	1.75	105
	60 kg	132 lbs		0.375	23	0.75	45	1.125	68	1.5	90	1.875	113
	70 kg	154 lbs		0.44	26	0.88	53	1.32	79	1.76	106	2.2	132
Bolus every 1-2 min	80 kg	176 lbs		0.5	30	1	60	1.5	90	2	120	2.2	132
	90 kg	198 lbs		0.5625	34	1.125	68	1.6875	101	2.2	132	2.2	132
	100 kg	220 lbs		0.625	38	1.25	75	1.875	113	2.2	132	2.2	132

23. If Norepinephrine infusion fails to meet goals, start epinephrine infusion as second line vasoactive infusion

- Epinephrine Infusion⁶⁸ 2-10 mcg/minute IV/IO (Peds start at 0.1 mcg/kg/minute) titrated to effect (severe cardiac dysfunction may require up to maximum 2 mcg/kg/minute. Ex. 100 kg person may titrate up to 200 mcg/minute)

24. If vasoactive infusion maximums reached without reaching goals, consider:

- Additional volume infusion

Contact Medical Control for the following:
Additional orders

¹ [Chu DK, Kim LH, Young PJ, Zamiri N, Almenawer SA, Jaeschke R, Szczekliak W, Schönemann HJ, Neary JD, Alhazzani W](#): "Mortality and morbidity in acutely ill adults treated with liberal versus conservative oxygen therapy (IOTA): a systematic review and meta-analysis". [Lancet](#). 2018 Apr 28;391(10131):1693-1705.

⁶⁸ Epinephrine infusion: 1 mg Epinephrine in 250 ml NS or D5W or 4mg Epinephrine in 1000 ml NS gives 4 mcg/ml.

Mcg/min	2	3	4	5	6	7	8	9	10
Microdrip tubing drops per minute	30	45	60	75	90	105	120	135	150

Spinal Injuries

LEVEL	Spinal Injuries
FR B A I P	<p>1. Initial Trauma Care.</p> <ul style="list-style-type: none"> • Frequently reassess patient's airway/ventilatory status: rate/depth of respiration, ability to talk. Be prepared to intubate if motor/sensory deficit progresses in arms and/or respiratory depth diminishes. • If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁶⁹ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. • Assess and record any pain on palpation of spines, motor/sensory deficits in any extremity, abnormal (hold up) arm position, ptosis, priapism. • Assess skin for temperature (initially warm), color (flushed), and absence of sweating (dry below lesion). Cover patient keep warm • Assess for neurogenic shock. • Patient may be very anxious; provide psychological support <p>2. Extrication/Immobilization: Apply appropriately sized rigid C-collar or other neck immobilization. Ensure that the rest of spine remains in alignment.</p> <ul style="list-style-type: none"> • Stable patients who are not able to self-extricate should be moved to a backboard until moved to the stretcher, where the backboard should be removed. • Unstable scenes or patients require rapid extrication. • Ambulatory patients or patients capable of self-extrication and complaining of neck pain or tenderness to palpation should have neck immobilized, and the rest of spine protected in alignment using appropriate placement on stretcher.
FR B A I P	<p>3. Neurogenic Shock:</p> <ul style="list-style-type: none"> • Systolic BP less than 90 • Pulse less than 60 with signs/symptoms of hypoperfusion. • Give fluid bolus of Normal Saline/Lactated Ringers in 500 mL increments to maintain systolic BP 90 or greater. • Atropine: if bradycardic: <ul style="list-style-type: none"> ○ 0.5 mg rapid IV/IO (adults), or ○ 0.02 mg/kg rapid IV/IO (children) • May repeat Atropine every 3 minutes to a maximum total dose: <ul style="list-style-type: none"> ○ 3 mg in adults ○ 0.04 mg/kg in children • Patient unresponsive to Atropine and 2000 mL fluids: <ul style="list-style-type: none"> * Dopamine drip titrated to achieve a Systolic BP above 90 mmHg starting at 5 mcg/kg/min.

⁶⁹ Cyanotic Heart Disease pulse ox goal 75-85%

Stridor (Croup)/Wheezing less than 2 yo without diagnosis of asthma (Bronchiolitis)

Note:

- This protocol may apply to the following conditions:
 - Stridor
 - Wheezing in less than a 2 yo without diagnosis of asthma or on beta-agonists medications on a regular basis

EMERGENCY MEDICAL RESPONDER (EMR)/ EMERGENCY MEDICAL TECHNICIAN (EMT) / ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Initial Medical Care
- Allow/assist the patient to assume a position of comfort (usually upright).
- Oxygen if severe respiratory distress or Pulse ox less than 90%
- Support ventilation with BVM if apnea or ineffective respirations.
- Airway Adjuncts:
 - If airway cannot be maintained and there is loss of consciousness and loss of gag reflex, insert an oropharyngeal airway
- If an allergy or anaphylaxis reaction, go to Allergy/Anaphylaxis guideline.
- Keep patient calm. Allow parent/guardian to hold upright in position of comfort.
- Do not place anything in mouth to visualize pharynx.
- **Monitor Heart Rate for Changes** - Bradycardia signals deterioration.

EMERGENCY MEDICAL TECHNICIAN (EMT) / ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- **Epinephrine (1:1000) 3 mL (3 mg)** via nebulizer mask or aim mist at child's face.
- May repeat once if severe distress and rest stridor persists. (Typically, it takes 10-30 minutes for relief of symptoms to occur, so if not in significant distress and having stridor at rest, it is better to wait before repeating dosage.)

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- Do not start IV/IO** unless child presents in impending arrest.

PARAMEDIC

- Decadron 0.6 mg/kg PO/IM/IV (max 10 mg) or Solumedrol 2mg/kg PO/IM/IV– Max 125mg.

Contact Medical Control for the following:

- Additional Orders

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

Suspected Stroke/CVA

LEVEL	Suspected Stroke/CVA
FR A I P A I P B A I P	<p>1. Initial Medical Care – Special Considerations:</p> <ul style="list-style-type: none"> If needed, titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁷⁰ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations. Assist with BVM if patient is not breathing adequately. Protect airway, suction as needed. If BP is greater than 90 mmHg: elevate head of bed 15-30 degrees. Protect paralyzed limbs from injury. Keep head neck and spine in neutral alignment. Do not flex neck. Complete Neuro/Stroke Alert checklist enroute to hospital. IV access Obtain and record blood glucose levels. If less than 60 treat per appropriate protocol) <ul style="list-style-type: none"> Adult Diabetic/Glucose Emergencies Pediatric Diabetic/Glucose Emergencies History: Length of time of symptoms and LAST KNOWN WELL TIME, (less than 4.5 hours, patient is candidate for intervention). Obtain Glasgow Coma Scale and Cincinnati Prehospital Stroke Scale. Note any changes from known baseline If Seizures occur, treat per Seizure protocol. <p>Note: Bradycardia may be present in these patients due to increased intracranial pressure. Atropine IS NOT to be given if the BP is elevated.</p>

Glasgow Coma Scale	Cincinnati Prehospital Stroke Scale
Eye Opening: Spontaneous 4 In response to speech 3 In response to pain 2 None 1 Best Verbal Response: Oriented conversation 5 Confused conversation 4 Inappropriate words 3 Incomprehensible sounds 2 None 1 Best Motor Response: Obeys 6 Localizes 5 Withdraws 4 Abnormal flexion 3 Abnormal extension 2 None 1	Facial Droop: have patient show teeth or smile: <ul style="list-style-type: none"> Normal – both sides of face move equally well. Abnormal – one side of face does not move as well as the other side. Arm Drift: have patient close eyes and hold both arms out: <ul style="list-style-type: none"> Normal – both arms move the same or both arms do not move at all (other findings, such as pronator grip, may be helpful). Abnormal – one arm does not move or one arm drifts down compared with the other. Speech: have patient say “you can’t teach an old dog new tricks”: <ul style="list-style-type: none"> Normal – patient uses correct words with no slurring. Abnormal – patient slurs words, uses inappropriate words or is unable to speak.

Aurora EMS

⁷⁰ Cyanotic Heart Disease pulse ox goal 75-85%

STROKE/NEURO ALERT CHECKLIST

PATIENT NAME: _____ RUN # _____ DOB _____

BASILINE VITALS: B/P _____ P _____ R _____ Oxygen SAT _____

911 CALL TIME: _____ DATE OF ONSET: _____ LAST KNOWN WELL TIME: _____

TIME AT PT: _____ LEAVE SCENE TIME: _____ ER ARRIVAL: _____

Completed

1. PATIENT WITH SUSPECTED STROKE SYMPTOMS----- ☐
WITHIN 4.5 HOURS OF LAST KNOWN WELL TIME!!

OR (OBTAIN WITNESS NAME & PHONE NUMBER)

(DETERMINE IF PT HAS CONTRAINDICATIONS FOR THROMBOLYTICS- HEAD TRAUMA,
SEIZURE AT ONSET, TAKING ANTICOAGULATION, HX OF BLEEDING PROBLEMS,
POSSIBLE BRAIN HEMORRHAGE)

2. PATIENT WITH SUSPECTED STROKE SYMPTOMS----- ☐
GREATER THAN 4.5 HOURS LAST KNOWN WELL TIME!!



3. A CINCINATTI STROKE SCALE AND GCS HAS BEEN DONE!! ----- ☐



4. A BLOOD SUGAR IS DONE AND GREATER THAN 60!! ----- ☐



5. INITIATED SUSPECTED CVA PROTOCOL AND MEDS ----- ☐

☐IV ☐Oxygen ☐MONITOR ☐EKG ☐BLOOD SUGAR ☐OTHER _____

ALL OF THE ABOVE CRITERIA MUST BE CHECKED IN ORDER TO ACTIVATE A "STROKE ALERT" FROM THE FIELD. IF ANY OF THE ABOVE CRITERIA CAN NOT BE CHECKED OFF, THEN A "STROKE ALERT" CAN NOT BE CALLED IN FROM THE FIELD!!

Syncope/Near Syncope

Altered Mental Status/Non-Traumatic Loss of Consciousness

Note:

- Common causes of syncope include dehydration and vasovagal reflexes; more serious causes of syncope result from arrhythmias and stroke
- Syncope and seizures both result in loss of consciousness. Both may occur with or without convulsions. In syncope, the convulsions are brief. Unlike seizures, in syncope the patient regains consciousness quickly and without the usual postictal confusion.

Anticipate underlying etiologies and treat according to appropriate protocol:

- ❖ Metabolic - Hypoglycemia or Hyperglycemia protocol if blood glucose abnormal
Poisoning/Overdose protocol
- ❖ Cardiac - Dysrhythmia or cardiogenic shock protocol
- ❖ Hypovolemia - Hypovolemic/Hemorrhagic Shock, protocol
- ❖ Other signs of shock-Shock Protocol
- ❖ CNS Disorder - See appropriate Medical or Trauma protocol
- ❖ Vasovagal - Initial Medical Care
- ❖ Sepsis - Sepsis protocol

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Perform primary medical assessment and Initial Medical Care.
16. Titrate oxygen therapy to the lowest level required to maintain oxygen saturation greater than 93% and relieve shortness of breath. Do not withhold oxygen if you do not have the ability to assess O2 saturations.

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)

If trained to obtain blood glucose and glucometer available, obtain blood glucose. If less than 60, go to Hypoglycemia Protocol.

EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)

If trained in 12 lead EKGs** and 12 lead EKG available, Obtain 12 lead EKG within 5 minutes of patient contact. Transmit to receiving hospital for interpretation.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

17. Obtain blood glucose. If less than 60, go to Hypoglycemia Protocol.
18. Establish IV/IO**, unless easily identifiable benign cause of symptoms.
19. If significant dehydration or signs of shock. Give below and/or see Shock Protocol

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

Adult Fluid Resuscitation

- 500 mL NS/LR bolus - repeat up to 2000mL's if no signs of fluid overload. If severe diarrhea or septic shock, may give additional 1000mL fluid every 30 minutes.

Pediatric Fluid Resuscitation

- 20 mL/kg NS/LR bolus – repeat 2 times as needed for a total infusion of 60 mL/kg.

INTERMEDIATE / PARAMEDIC

20. Obtain 12 lead EKG within 5 minutes of patient contact. Interpret EKG and/or transmit to receiving hospital for interpretation.
21. Apply cardiac monitor.
22. If dysrhythmia, see appropriate Protocol.

Contact Medical Control for the following:

- Additional orders

Temporary Hemorrhage Control Skin Clamp (IT Clamp)

Provides temporary skin closure that helps contain and control severe bleeding, that helps to stop massive hemorrhage associated with trauma.

Second line agent for the control of massive hemorrhage, not controlled by or anatomically amenable to application of a tourniquet. Especially important consideration in the Tactical and Disaster Environment.

Contraindications:

- Not for use where skin approximation cannot be obtained (i.e. Large skin defects under high tension)
- Not for use where delicate structures are within 10 mm of the skin surface (ex. Orbits of the eye).

Warnings and Precautions:

- Patients must be seen by medical personnel for device removal and surgical wound repair.
- Use device as directed to avoid needle stick injury.
- Ensure proper PPE is utilized to protect against possible splashing of blood during application.
- The device is sterile and is designed for single use. Do not use it if sterility seal on package has been broken or otherwise damaged.
- Dispose of the device as you would sharps.
- For severe extremity injuries not amenable to clamp application, consider tourniquet application.

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/
INTERMEDIATE / PARAMEDIC**
If trained and approved for device use

Procedure: *(if patient is conscious, explain procedure)*

1. Apply appropriate PPE
2. Open sterile package by pulling forward on outer tabs
3. Remove device from package by lifting up. Take care not to close device until it has been applied to the wound.
 - If the device has been accidentally closed, push the side buttons inward with one hand and pull the device open using the device arms.
4. Locate wound edges
5. Align the device parallel to the length of the wound edge. Position the needles approx. 1-2 cm from the wound edge on either side. (For very large wounds the device can be applied to one side, then pulled to the other side, or the tissue can be approximated by hand and the device applied.)

6. Press the arms of the device together to close the device. The device's safety seal will break with pressure.
7. Ensure the entire wound is sealed and bleeding stops, using a gauze pad to wipe the area to verify no leaking of blood from the wound. More than one device may be required for longer wounds.
8. If bleeding continues:
 - Ensure the device is in the correct position, close the device more firmly by applying further pressure to the arms of the device
 - If wound is too long, apply additional devices to the open section
 - If device is applied incorrectly or not positioned properly, remove the device according to the instructions and reapply.

Removal:

Unless you need to reposition the device, all removal should be done in a medical facility prepared to manage the wound.

1. Hold the device by the gripping bars, press the device further closed to release the lock.
2. While maintaining pressure on the arms, press both release buttons with your other hand.
3. While pressing the release buttons, pull one of the gripping bars open and rotate the needles from the wound, one side at a time.
4. Pick up the device ONLY by the buttons to prevent accidental contact with the needles
5. Dispose of the device in accordance with local guidelines for sharps.

Notes:

If desired wound packing and/or the use of a hemostatic agent may be applied. The hemostatic agent does not need to be removed prior to application of the clamp.

Tourniquet

LEVEL	Tourniquet Application
	Purpose: Stop rapid hemorrhage associated with extremity trauma. First line use in the tactical and disaster environment
	A Commercially available and approved tourniquet device (example: C.A.T® or SOF-T®) or a manual blood pressure cuff.
FR B A I P	<ol style="list-style-type: none"> 1. Verify the patient has sustained an injury that may benefit from tourniquet application (rapid external blood loss, traumatic amputation or visualized extremity distension with the presence of shock (ex. bilateral femur fractures) 2. Ideally the tourniquet should be applied approximately 2-3 inches above the point of injury on bare skin. In a dynamic tactical environment, the tourniquet can be applied as high on the extremity as possible over the clothing if necessary. <ul style="list-style-type: none"> • Remember: Direct Pressure may be appropriate, but if it cannot be firmly and consistently applied, default to tourniquet application. 3. The windlass of the device must be tightened enough to visibly see the cessation of bleeding (Ideally the distal pulse of the effected extremity should be absent). Do not forget to secure the windlass to prevent unwanted loosening of the device. 4. If using a BP cuff, inflate only to the point of restricting the blood flow to the extremity. 5. The application of the tourniquet can be very painful; consider ALS pain control (see Pain Management Protocol). 6. Early notification of receiving hospital is REQUIRED. 7. Constant assessment of the bleeding site must be done and documented. 8. If Bleeding is not successfully controlled with one tourniquet, consider the application of a second tourniquet next to the first, making sure to offset the windlass as to not tangle the devices. 9. Tourniquet removal is allowed, if: <ul style="list-style-type: none"> • Dressing applied to wound controls bleeding (pressure dressing, hemostatic agent or other). • Release pressure of the tourniquet slowly. If bleeding continues reapply appropriate pressure to control bleeding.

TRAUMATIC CARDIAC ARREST

There are a number of studies that show that attempts at resuscitation of traumatic arrests are futile in certain situations. In these futile situations a patient should be considered dead and there should be no further resuscitation efforts.

All traumatic pulseless non-breathers will undergo full resuscitation efforts **unless**:

- All trauma with a significant mechanism of injury – If on the first arrival of EMS the patient is pulseless, apneic, and without other signs of life (pupil reactivity, spontaneous movement) or is asystolic, then the patient is not resuscitable.
- If the injuries are incompatible with life (e.g. Decapitation), the patient is not resuscitable.

Any patient not meeting one of the above criteria should have attempted resuscitation – Begin CPR. Follow appropriate Cardiac Arrest, PEA/Asystole protocol in addition to protocol below.

If resuscitation has started but it is determined that patient has criteria where additional care is futile, terminate resuscitation if protocol criteria are met (line 10) or contact medical control to determine if resuscitation should be terminated.

- a. Once determination has been made that the patient is not resuscitable, law enforcement and the local coroner/medical examiner should be contacted
- b. The EMS team is not required to stay until the coroner/medical examiner arrives, but should provide law enforcement with:
 - i. Time of arrival and time resuscitation stopped, if applicable.
 - ii. Names of medical crew (and Medical Control Physician if applicable).
 - iii. Name of your EMS agency/department and business phone number.

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Rapid scene and primary survey to find possible cause(s) of arrest.
2. Apply tourniquet(s) ** to any extremity with major bleeding.
3. If MVC and still in vehicle; rapid extrication.
4. Initiate CPR.
5. 100% oxygen/BVM
6. Place an advanced airway** if any difficulty ventilating with BVM.
7. Immobilize spine if indicated
8. Monitor EKG/Place AED

** Tourniquet is an additional skill at the EMR, EMT, AEMT & Intermediate levels requiring additional training approved by the Medical Director and State Approval

** Non-visualized airway is an additional skill at the EMR level requiring additional training approved by the Medical Director and State Approval

9. IF able to get the patient to an emergency hospital within 15 minutes of initial patient assessment or arrest onset, perform Expeditious transport. Transport to the highest-level trauma center within 15 minutes.
10. IF unable to get the patient to an emergency hospital within 15 minutes of initial patient assessment or arrest onset, start resuscitation on scene and only start transport if pulse regained. Terminate resuscitation if no pulse or other signs of life after 15 minutes of resuscitation. Also, if patient develops asystole or pulseless wide complex rhythm less than 30 beats per minutes, terminate resuscitation.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

11. Start 2 large bore IVs or IO**. Do not delay transport attempting to start IV/IO.
12. If IV/IO established, run normal saline or lactated ringers wide open up to 2 liters

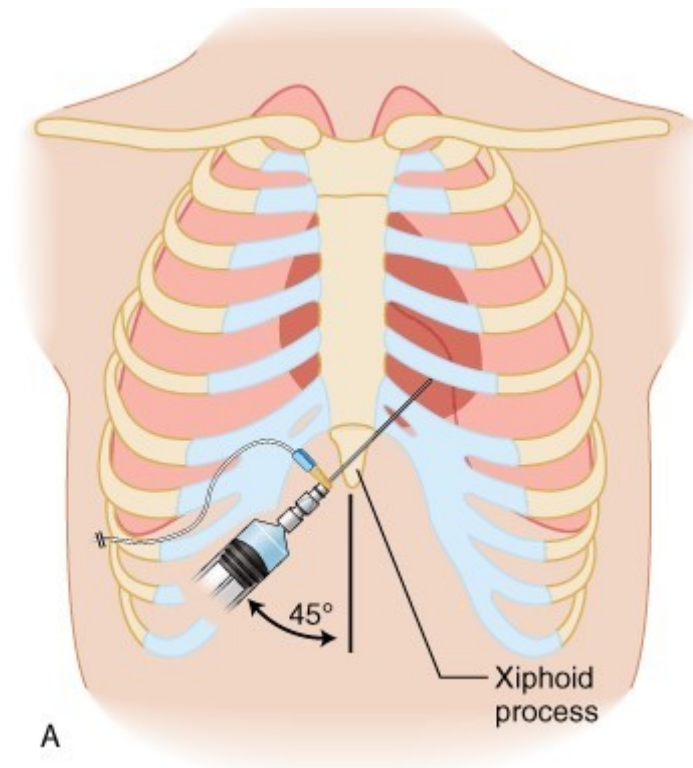
INTERMEDIATE, PARAMEDIC

13. If chest trauma present and suspect tension pneumothorax: perform needle pleural decompression. **Needle pleural decompression.** 2nd-3rd intercostal space (above 3rd or 4th rib), midclavicular line on affected side. If patient does not stabilize, repeat in the 5th or 6th intercostal space, anterior axillary line on the affected side.
14. Treat dysrhythmia according to appropriate Protocol.

PARAMEDIC

15. If suspect cardiac tamponade in penetrating trauma: perform needle **Pericardiocentesis.**
Equipment: 18-gauge spinal needle, 20-50 ml syringe.
Pt. Position: Supine.
Landmarks: Insertion site is just below and left of the xiphoid process.
Technique: Find land mark, insert needle at a 90-degree angle to the skin approximately 1cm. Once under skin, direct needle toward inferior tip of left scapula with plunger of syringe retracted slightly during advancement. Stop advancement when blood return appears, aspirate all freely available blood. Remove needle.
Other: Monitor any changes in EKG.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.



TXA (Tranexamic Acid)

Note: Tranexamic Acid (TXA) is an antifibrinolytic (prevents clot breakdown) amino acid that has been shown to reduce the amount of blood transfusion needed in orthopedic and cardiovascular surgery, when given before surgery starts. It was studied in trauma patients in CRASH 2⁷¹ and MATTERS I & II, which showed reduction in mortality associated with giving TXA. The CRASH 2 trial showed that for every 67 patients receiving TXA, one additional patient survived. The CRASH 2 trial was very large but had many flaws which have called into question whether the observed survival effect would be applicable to the United States (90% of patients in CRASH 2 were from developing and poor countries and none of the patients were from the US). Multiple other agents that prevent clot breakdown/promote clot formation have been shown not to reduce mortality (aprotinin, aminocaproic acid, factor VIIa)⁷². In addition, CRASH 2 did not show any reduction in blood transfusions. Thus, TXA is an allowable medication to be used, but is not mandatory or even encouraged. TXA is not currently on the approved Wisconsin Paramedic Medication list and needs additional training and approval by the state before it can be used on a service.

PARAMEDIC

If a Patient is anticipated to need significant blood transfusion (any one of the following):

- Setting of significant trauma with HR greater than 110
- Setting of significant trauma with SBP less than 90
- One or more major amputations (proximal to wrist or ankle)
- Penetrating torso trauma
- Unstable pelvic fractures
- Evidence of severe bleeding

– Then may administer 1 gram (20 mg/kg with max 1 gm) of tranexamic acid over 10 minutes IV/IO (in 100 cc NS/LR/D5W or at 100 mg/minute) as soon as possible, but NOT later than 3 hours⁷³ after injury. Do not administer as an IV bolus push (may cause hypotension).

CAVEATS

Drug should be first administered as early as possible, but NOT initiated beyond 3 hours from injury.

EMS Provider must be trained in drug use and administration.

Drug mu must be properly maintained between 15-30° Celsius / 59-86° Fahrenheit.

⁷¹ The Crash 2 Contributors (Roberts et al): Effects of tranexamic acid on death, vascular occlusive events, and blood transfusion in trauma patients with significant hemorrhage (CRASH-2): a randomized, placebo-controlled trial. [Lancet](#). 2010 Jul 3;376(9734):23-32.

⁷² Other antifibrinolytic agents (aprotinin and aminocaproic acid) which had initial reports showing reduction in bleeding, have shown no reduction in mortality. In addition, activated factor VII (factor VIIa) was shown to reduce bleeding, but had no change in mortality.

⁷³ The Crash 2 Contributors (Roberts et al): The importance of early treatment with tranexamic acid in bleeding trauma patients: an exploratory analysis of the CRASH-2 randomized controlled trial. [Lancet](#). 2011 Mar 26;377(9771):1096-101, 1101.e1-2.

Unconscious/Altered Mental Status Unknown Etiology

Possible etiology mnemonic AEIOU TIPS-V:

- A:** Alcohol, arrhythmias, ingestions;
- E:** Endocrine, exocrine, electrolyte imbalance;
- I:** Insulin shock, DKA;
- O:** Oxygen deficit, opiates, overdose;
- U:** Uremia, renal problems including hypertension;
- T:** Trauma, temperature (hypothermia/hyperthermia);
- I:** Infection;
- P:** Psychological;
- S:** Space occupying lesion (SAH), stroke, shock, seizures;
- V:** Vascular

EMERGENCY MEDICAL RESPONDER (EMR) / EMERGENCY MEDICAL TECHNICIAN (EMT)/ ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

1. Initial Medical Care.
2. Consider possible causes and treat.
 - Evaluate for hypoxia/hypercarbia and give oxygen and establish an airway as indicated.
 - If the patient is in SHOCK, attempt to determine the etiology and refer to the appropriate protocol, give IV fluids by IV protocol.
 - Check blood glucose. Consider Hypoglycemia- See Protocol - Hypoglycemia.
3. If spontaneous ventilations inadequate and narcotic use suspected, give:
 - Naloxone (Narcan)** 0.5 IN and repeat every 5 min as necessary (may give 1 mg Narcan per dose if in cardiac arrest). Max dose 2mg.
 - **Consider restraints before Narcan is given.** Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response.
 - If partial response or improvement only temporary, may repeat dose up to another 2 mg.
 - Using smaller doses of Narcan is recommended, as the goal is only to increase respirations, not fully awaken patient.
4. Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁷⁴ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O2 saturations.

EMERGENCY MEDICAL TECHNICIAN (EMT)

5. If spontaneous ventilations inadequate and narcotic use suspected, give:
 - If weight is over 20 kg: **Narcan 0.4 – 2 mg IN/IM**

** Narcan is an additional skill at the EMR level requiring additional training approved by the Medical Director and State Approval

⁷⁴ Cyanotic Heart Disease pulse ox goal 75-85%

- If weight is under 20 kg: **Narcan 0.1 mg/kg (max 0.5-1 mg per dose) IN/IM**
- **Consider restraints before Narcan is given.** Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response. May repeat every 5 minutes as needed up to 2 mg.
- If partial response or improvement only temporary, may repeat dose up to another 2 mg.
- Using smaller doses of Narcan is recommended, as the goal is only to increase respirations, not fully awaken patient.

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

6. If spontaneous ventilations inadequate and narcotic use suspected, give:
- If weight is over 20 kg: **Narcan 0.4 – 2 mg IV/IO/IN/IM**
 - If weight is under 20 kg: **Narcan 0.1 mg/kg (max 0.5-1 mg per dose) IV/IO/IN/IM**
 - **Consider restraints before Narcan is given.** Refer to Patient Restraint Protocol. Narcan may precipitate narcotic withdrawal. Document response. May repeat every 5 minutes as needed up to 2 mg.
 - If partial response or improvement only temporary, may repeat dose up to another 2 mg.
 - Using smaller doses of Narcan is recommended, as the goal is only to increase respirations, not fully awaken patient.

INTERMEDIATE / PARAMEDIC

If seizing (tonic clonic seizures or unresponsive with eyes deviated to one side with rhythmic eye movements), follow seizure protocol.

PARAMEDIC

7. If relapsing after Narcan, may give continuous Narcan infusion at 2/3 initial successful bolus amount per hour (i.e. if it took 3 mg Narcan to make patient ventilate adequately, start continuous infusion at 2 mg/hr. IV and then titrate to effect).

Wide Complex Tachycardia with a Pulse (Ventricular Tachycardia)

NOTES:

Criteria for characterizing a patient as “unstable”

- Hemodynamic Criteria
 - SBP less than 90 mmHg AND Heart Rate greater than 150 beats/min
- Clinical Criteria
 - Signs of shock (poor perfusion) are present, including
 - ALOC
 - Absent radial pulses
 - Pallor and diaphoresis
 - Signs of pulmonary edema are present, including
 - Labored breathing
 - Rales (wet lungs)
 - Hypoxia (SpO₂ less than 90%)
 - The patient complains of angina

**EMERGENCY MEDICAL RESPONDER (EMR) /
EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

- Initial Medical Care
- Titrate supplemental oxygen to lowest level to maintain pulse ox greater than 93%⁷⁵ (if severe underlying lung disease goal is 88-92%). Do not withhold oxygen if you do not have the ability to assess O₂ saturations.
- If the patient is having difficulty breathing, allow them to sit in position of comfort

**EMERGENCY MEDICAL TECHNICIAN (EMT)/
ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC**

- If the patient experiences shortness of breath, follow the CHF Pulmonary Edema protocol.
- ECG monitor and 12 lead** acquisition, if approved.

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

⁷⁵ Cyanotic Heart Disease pulse ox goal 75-85%

** 12 lead EKG is an additional skill at the EMT & AEMT level requiring additional training approved by the Medical Director and State Approval

ADVANCED EMT (AEMT)/ INTERMEDIATE / PARAMEDIC

- IV/IO** NS @ TKO or saline lock.
- If the patient is hemodynamically and clinically stable, observe and monitor, transport.
- If SPB less than 90 mmHg, give 500ml NS/LR IV if lung sounds clear. May repeat up to 2000 ml if lungs remain clear.

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

INTERMEDIATE

- Obtain a 12-Lead EKG if not already performed

If the patient is hemodynamically or clinically unstable, whether rhythm is regular or irregular,

- Prepare to perform synchronized cardioversion, consider pain management.
- Perform first synchronized cardioversion for regular tachycardia at 50-100 Joules. If irregular, start at 120-200 Joules (200 J monophasic).
- If unable to synchronize, turn sync off and attempt unsynchronized cardioversion
- If first attempt to cardiovert is unsuccessful, increase by 50-100 joules per each subsequent attempt. If maximum cardioversion power reached, may repeat once at maximum Joules.

If the patient fails synchronized cardioversion and is unstable, any of the following are acceptable:

- Amiodarone 150 mg IV/IO slow push over 10 minutes
- **OR** Lidocaine 1.5 mg/kg IV/IO bolus

If the rhythm is regular and the patient is mildly hypotensive (80 – 100 mmHg) but without other serious signs or symptoms, or if the rhythm is regular and adenosine can be administered quicker than cardioversion, a trial of adenosine is acceptable.

- **Adenosine** 6 mg IV/IO over 1-2 seconds. If unsuccessful, repeat dose with 12 mg IV/IO over 1-2 seconds. Follow all doses with a 20 mL saline flush by rapid IV/IO push. If there was an issue with getting the 12 mg dose of adenosine quickly to the heart, may repeat 12 mg dose after 5 minutes.
- Warn patient about brief but unpleasant side effects of Adenosine: including flushing, lightheadedness, slowing of heart rate, anxiety and chest pain

If the patient is hemodynamically and clinically stable, any of the following are acceptable:

- Amiodarone 150 mg IV/IO slow push over 10 minutes
- **OR** Lidocaine 1.5 mg/kg IV/IO bolus
- **OR Cardioversion after Pain Management** (same power levels as above)

** IO is an additional skill at the AEMT level requiring additional training approved by the Medical Director and State Approval.

PARAMEDIC

- Obtain a 12-Lead EKG if not already performed

If the patient is hemodynamically or clinically unstable, whether rhythm is regular or irregular,

- Prepare to perform synchronized cardioversion, consider pain management.
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- Warn patient about brief but unpleasant side effects of Adenosine: including flushing, lightheadedness, slowing of heart rate, anxiety and chest pain

If the rhythm is regular and the patient is hemodynamically and clinically stable, any of the following are acceptable:

- Amiodarone 150 mg IV/IO in 100 mL D5W or slow push over 10 minutes
- **OR** Lidocaine 1.5 mg/kg IV/IO bolus
 - Followed by **Lidocaine drip @ 2mg/min** (See Dose Chart)
 - Increase in **1mg/min** increments if no response (**4mg/min max**)
- **OR** if available, Procainamide 20-50 mg/minute infusion **OR** 100 mg every 5 minutes until any of the following occurs: dysrhythmia controlled, hypotension occurs, QRS widens complex by 50% of its original width, or total of 17 mg/kg is given. Follow with a continuous infusion of 1-4 mg/minute.
- **OR Cardioversion after Sedation and Pain Management** (same power levels as above)

If the rhythm is irregular (atrial fibrillation, multifocal atrial tachycardia) and there is no underlying cause for exacerbation⁷⁶ (sepsis, COPD exacerbation, etc.) and the patient is hemodynamically and clinically stable with a heart rate greater than 120,

- Give Diltiazem 20 mg (0.25 mg/kg) (or 15 mg if age over 65 yo) IV/IO over 2 minutes. May give an additional dose of Diltiazem 25 mg (0.35 mg/kg) (or 20 mg if age over 65 yo) in 10 minutes if heart rate remains greater than 120.
- If patient becomes hypotensive, may give fluid bolus (if not in CHF) and/or proceed to synchronized cardioversion.

Contact Medical Control for the following if Diltiazem is unsuccessful or contraindicated:

**Amiodarone 150 mg IV over 10 minutes; or
Procainamide 20-50 mg/minutes IV until resolution**

⁷⁶ If there is an underlying cause for the exacerbation, treat the underlying cause first. Generally, treating the underlying cause for the exacerbation successfully will resolve the fast heart rate.

Tactical EMS (TEMS) Guidelines

Care of tactical trauma patients is not the same as care of trauma patients in the secure environment. In tactical medicine, care of the patient must be modified to fit the threat environment. In tactical medicine, care delivery is divided into 3 phases: Hot zone care, warm zone care and cold zone care.

Hot zone care: Care given at the scene of injury while under a direct and immediate threat such as effective fire. Highly limited care, the goal is to get the patient out of the fire zone without creating new casualties.

- Return fire as directed or required, if applicable.
- Keep yourself from being injured.
- Keep the patient from sustaining further injury. If possible, direct the patient to take cover and start self-aid.
- Stop any life-threatening hemorrhage with a tourniquet, if safe to do so, as described in the tourniquet protocol.
- Do not start CPR.
- Extract patient with you when you leave.

Warm zone care: Care given once the EMT and the patient are no longer under a direct and immediate threat, but some level of threat persists. This phase is where the majority of tactical medical decision making and TEMS/rescue task force care will take place.

- Address the XABC's (or MARCH), utilizing the protocols.
- May start CPR if clinically appropriate and resources available.

Cold zone care: Care given once there is no longer a threat. Care will usually involve aircraft, boat, or other vehicle transport to an area where additional medical equipment may be available.

- Standard prehospital EMS care.
- Continue treatment begun in the warm zone and monitor the patient.
- Document the care given and prepared handoff to the next medical care provider.

The tactical primary survey is conducted on all patients. Each step (X through G) is performed in sequence. The approach at each step is to assess (identify any problem), intervene (take appropriate action to correct that problem), and reassess (insure that the problem is fixed) before moving onto the next step.

X—exsanguinating hemorrhage

Assessment: Bright red bleeding? Spurting pulsatile bleeding? Large blood vessel involvement? Significant ongoing blood loss?

Procedures:

- Tourniquet application.
- Hemostatic agent.
- Temporary skin closure clamp.

A—airway

Assessment: Spontaneous? Talking? Tongue location? Pooling secretions? Gag reflex? Depressed mental status? Stridor?

Procedures:

- Airway management.
- Allergy/anaphylaxis protocol.
- Asthma/respiratory distress protocol.

Special features unique to tactical medicine:

C-spine injury unlikely to benefit from immobilization in penetrating trauma.

Non-visualized airway placement is preferred in Hot and Warm zones.

B—Breathing

Assessment: Rate? Mechanics—adequate rise and fall? Symmetry—Right side = left side?

Color—pink (not blue)?

Procedures:

Rescue breathing

Stethoscope auscultation/manual palpation

Chest Seal

Needle decompression

Special features unique to tactical medicine:

Tactile assessment of chest much more useful than auscultation.

C—Circulation

Assessment: Pulses present? Although not perfect, it is reasonable to consider the following in the tactical environment:

Radial pulse present = systolic BP (SBP) 80 mm Hg

Femoral pulse present = SBP 70 mm Hg

Carotid pulse present = SBP 60 mm Hg

No carotid pulse present = arrest

Procedures: Shock control

Cardiopulmonary resuscitation (CPR)

Conventional bleeding control techniques

Hemostatic agents

Intravenous (IV) access

Intraosseous (IO) access

Special features unique to tactical medicine:

CPR should never be performed in the hot zone. Overall, CPR has extremely limited utility in the tactical environment when the arrest is secondary to traumatic injury.

Tactical casualties from blast and blunt trauma who are pulseless and apneic in the field are dead. Penetrating trauma victims who do not respond to immediate life-saving interventions (e.g. needle decompression, rapid IVF bolus) or have injuries incompatible with life (e.g. transcranial gunshot wounds) are dead. CPR should be performed when feasible if the arrest is secondary to medical cause, electric shock, drowning, or toxic exposure.

Unless there is evidence for severe organ hypoperfusion, intravenous fluids (IVF) are best reserved until the cold zone.

Tourniquets should be used as initial management while in the hot zone to stop bleeding quickly and definitively. Replace tourniquets with pressure dressings in the warm/cold zone when possible.

Hemostatic agents should be used in conjunction with conventional bleeding control techniques.

D1—Defibrillation/Dysrhythmia

Assessment: Patient under effective CPR, if indicated? Rhythm on monitor?

Procedures:

- Automatic External Defibrillator (AED)

- Dysrhythmia protocols.

Special features unique to tactical medicine:

- Defibrillation should only be performed in the cold zone.

D2—Decontamination/drug (toxicology)

Assessment: Contamination from exposure? Exposure to an agent with a specific antidote?

Procedures:

- Field decontamination

- Overdose/exposure protocols

Special features unique to tactical medicine:

- Field expedient decontamination should be initiated within seconds to minutes after exposure, even if it is incomplete or imperfect.

- Ensure provider safety from secondary contamination.

- If available, nerve agent kits should be administered early, even before airway management.

D3—Deficit

Assessment: Level of consciousness? Pupillary response? Feeling and moving all extremities?

Procedures:

- AVPU scale

- Glasgow Coma Scale (GCS)

Special features unique to tactical medicine:

- Use of the AVPU scale is more suited for rapid assessment in the tactical setting.

- Maintain light discipline when assessing pupillary response.

E—Expose, Extremity, Environment

Assessment: Medic Alert tags present?

- Extremities: Structural deformity (alignment, open injury)? Vascular integrity (pulse, capillary refill)? Neurological integrity (sensory, motor)?

- What are the environmental conditions (hot, cold)?

Procedures:

- Splinting

- Cooling techniques

- Warming techniques

- Temperature measurement

Special features unique to tactical medicine:

- Full exposure may not be appropriate under certain environmental conditions until patient can be extracted (e.g., removing body armor and helmet may expose patient to greater risk).

- Warming and cooling techniques must be adapted for extended field operations.

F—Fetus

Assessment: Female patient obviously pregnant? Delivery imminent?

Procedures:

- Left-sided transport position

Emergency delivery techniques

Special notes: These skills are not statistically likely to be needed in the tactical setting.

G—Germs

Assessment: All wounds clean and dressed?

Procedures:

Basic wound care

Soap (clean) and seal (dressing)

Consider need for tetanus and rabies immunizations

Consider need for antibiotics

Special features unique to tactical medicine:

These steps are left for the cold zone on tactical operations.

Most wounds are left open/packed in the tactical setting to limit the risk of systemic infection.

Definitive Care Disposition Guidelines

In general, the TEMS medic shall make a request as soon as feasible for EMS support when a patient exhibits signs or symptoms that are most effectively managed by more advanced medical skills or by transport to a definitive care facility.

The IC should be advised of all outside resources called into the operation.

In some circumstances, community EMS resources are not available or not appropriate, in which case the TEMS medic may consider continued management or arrange transportation by the best means available.

In addition, the following specific guidelines should be considered for each category of patient.

Civilians not in custody.

- The TEMS medic shall request EMS response as soon as practical, once it has been determined that further patient care is required. Personnel may provide humanitarian care while waiting for local EMS resources to arrive.
- Civilians shall be transported by ambulance for further treatment as required, provided the civilians do not pose a risk to the crew of the transporting ambulance. Agency vehicles may be used to transport civilians for further treatment if the TEMS medic deems this form of transportation is necessary for the benefit of the patient or others.

Persons in custody.

- The TEMS medic may request EMS response as soon as practical for all serious (or possibly serious) injuries or illnesses once it has been determined that patient care needs exceed TEMS medic resources or training, or that the patient will require ambulance transportation.
- All persons shall be transported by the method that best deals with their medical condition, unless the patient presents a risk to the transporting crew or vehicle. Patients who present a danger to the crew of the transporting vehicle may be transported in the safest manner for all concerned.
- The TEMS medic may elect not to request an EMS response for persons who may more appropriately and safely be transported for further care by law enforcement vehicles.
- In determining what transportation is appropriate, the TEMS medic shall balance the medical needs of the patient with the safety of the transporting crew.
- Persons in custody shall receive appropriate care for all injuries and illnesses noted. They shall generally be transported by ambulance for further care unless it

is clear such transport is inappropriate due to the minor nature of injuries, the danger associated with such transport, or the delay in access to an ambulance.

Law Enforcement Personnel

- The TEMS medic shall request EMS response as soon as practical for all serious, or possibly serious injuries, conditions, or illnesses once it has been determined that patient care needs exceed TEMS medic resources or training, or the patient will require ambulance transportation.
- The TEMS medic may elect not to request an EMS response for personnel who may more appropriately be transported in a law enforcement vehicle for care.
- Caution must be used to ensure that adequate care can be provided en route, if required. Certain injuries may respond better to gentle handling of the patient, rather than rapid transportation to a medical facility.

The TEMS medic may request helicopter evacuation if the medic has knowledge that the area is served by an appropriate air medical evacuation program and
The patient has a life-, limb-, or sight-threatening injury or illness and,
Ground transportation would exceed the estimated time of arrival of the helicopter to the appropriate hospital considering flight and patient transfer times and,
The patient's condition would not be adversely affected by flight

Transfer of Care Guidelines

The TEMS medic is responsible for providing on-scene immediate care and transferring care as appropriate to a responding EMS unit or medical provider at a medical facility.

In the event on-scene care only is required, no transfer of care will be required.

Whenever feasible, the TEMS medic shall transfer patient care to a person who can provide an equal or higher level of care as that which has been initiated or may be reasonably anticipated by the TEMS medic to be necessary. When transfer to an equal level of care is not feasible given the circumstances and the patient requires (or likely will require) care above the level of the transporting service, the TEMS medic will either go with the patient or make other arrangements to ensure the safest transfer possible for the patient under the circumstances.

The TEMS medic shall signify the patient transfer by making a verbal or written report to the person assuming patient care. The verbal or written report shall include: Age, Sex, Vital Signs, SAMPLE History, Physical Examination findings, Treatment, and the Patient's response.

Patient Care Reports:

All persons treated by a TEMS medical crew member and ultimately transported to a medical facility, with a TEMS medical crew member in attendance or not, shall have a Patient Care Report (PCR) completed and entered into the Wisconsin Ambulance Run Data System (WARDS).

All persons treated during rehab operations will have their care and administered medications documented in a treatment log which will be retained by the TEMS service director along with a copy of the Medical Threat Assessment.

Medical Pre-plan should be done whenever possible, best achieved with a formal planning document.

Medical Threat Assessment:

A Medical Threat Assessment shall be completed for all SWAT calls and training which has special logistics that puts officers and TEMS medical crews at risk. The medical threat shall be updated as indicated and at a minimum during every operational period.

Medical threat assessment:

- The method by which all law enforcement agency personnel shall obtain assistance from the EMT before, during or after the mission.
- Location, telephone numbers and capabilities for the designated hospitals to be accessed for the mission.
- The primary transportation methods to the medical facilities and the routes to these facilities.
- A brief statement of capabilities and telephone access numbers of local EMS systems.
- A pre-designated landing zone, access route, and a method to communicate with air assets if helicopter use is a possibility.
- A pre-designated casualty collection point and rally point in the event members become separated during the mission

This assessment shall be given to the SWAT Commander or the IC with a copy maintained by the TEMS service director.

Rehab duties & Care of Law Enforcement (LE) Personnel:

The TEMS medical crew has a duty to provide medical care and Rehab to all LE personnel on scene. A TEMS medical crew member should communicate with the IC the rehab needs of the LE personnel and to coordinate care.

ⁱ [Chu DK](#), [Kim LH](#), [Young PJ](#), [Zamiri N](#), [Almenawer SA](#), [Jaeschke R](#), [Szczeklik W](#), [Schünemann HJ](#), [Neary JD](#), [Alhazzani W](#). “Mortality and morbidity in acutely ill adults treated with liberal versus conservative oxygen therapy (IOTA): a systematic review and meta-analysis”. [Lancet](#). 2018 Apr 28;391(10131):1693-1705.

Appendix A

COVID 19 Outbreak Patient/Family Home Resource

When to seek Emergency Medical Care (any one of the following, may seek care for other reasons also)

- Moderate to severe difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest (not just with coughing)
- New confusion or inability to arouse
- Bluish lips or face

Below are various health systems hotlines, links to virtual visits and general information on COVID-19. CDC Site <https://www.cdc.gov/coronavirus/2019-ncov/index.html>

Advocate Aurora

Advocate Aurora COVID-19 Hotline **1-866-443-2584**

Information & virtual visits <https://www.advocateaurorahealth.org/coronavirus-disease-2019>

Ascension

Ascension National COVID-19 Hotline **1-833-981-0711.**

Virtual care for a \$20 fee at <https://healthcare.ascension.org/Specialty-Care/Online-Care>.

Children's Hospital of Wisconsin (CHW)

Virtual CHW urgent care visits <https://childrensfromhome.com/landing.htm>

General information <https://chw.org/patients-and-families/coronavirus>

Fort HealthCare

General information and link to virtual visits <https://www.forthhealthcare.com/>

Froedtert

Froedtert COVID Hotline 1-**414-805-2000**

General information <https://www.froedtert.com/coronavirus>

Mercy

Virtual Mercy visits <https://mercyhealthsystem.org/service/virtual-visit-now/>

General information <https://mercyhealthsystem.org/alert/coronavirus-what-you-need-to-know/>

ProHealth Care

ProHealth COVID 19 Hotline 1-**262-928-4499**

Virtual ProHealth Visits <https://www.prohealthcare.org/medical-services/virtual-visits/>

SSM/ Dean Health

Virtual SSM visits <https://ssmhealth.zipnosis.com/>

General information <https://www.ssmhealth.com/coronavirus-updates>

UW Health

UW Health COVID 19 Hotline **608-720-5300**

General information <https://www.uwhealth.org/covid-19/2019-novel-coronavirus/53156>

What to do if you are sick and it is likely COVID 19.

Stay home except to get medical care

You should restrict activities outside your home, except for getting medical care. Do not go to work, school, or public areas. Avoid using public transportation, ridesharing, or taxis.

Separate yourself from other people and animals in your home

People: As much as possible, you should stay in a specific room and away from other people in your home. Also, you should use a separate bathroom, if available.

Animals: Do not handle pets or other animals while sick, if possible.

Call ahead before visiting your doctor

If you have a medical appointment, call the healthcare provider and tell them that you have or may have COVID-19. This will help the healthcare provider's office take steps to keep other people from getting infected or exposed.

Wear a facemask

You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) or pets and before you enter a healthcare provider's office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then people who live with you should not stay in the same room with you, or they should wear a facemask if they enter your room.

Cover your coughs and sneezes

Cover your mouth and nose with a tissue when you cough or sneeze. Throw used tissues in a lined trash can; immediately wash your hands with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains at least 60-95% alcohol covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.

Avoid sharing personal household items

You should not share dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people or pets in your home. After using these items, they should be washed thoroughly with soap and water.

Clean your hands often

Wash your hands often with soap and water for at least 20 seconds. If soap and water are not available, clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty. Avoid touching your eyes, nose, and mouth with unwashed hands.

Clean all “high-touch” surfaces every day

High touch surfaces include counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables. Also, clean any surfaces that may have blood, stool, or body fluids on them. Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

Monitor your symptoms

Seek prompt medical attention if your illness is worsening (e.g., difficulty breathing) either by calling a COVID hotline, seeking a virtual visit (listed on first page) or calling your healthcare provider. **Before** seeking care in person, call your healthcare provider and tell them that you have, or are being evaluated for, COVID-19. Put on a facemask before you enter the facility. These steps will help the healthcare provider’s office to keep other people in the office or waiting room from getting infected or exposed.

If you have a medical emergency and need to call 911, notify the dispatch personnel that you have, or may have COVID-19. If possible, put on a facemask before emergency medical services arrive.

ENDING ISOLATION

Persons with COVID-19 who have symptoms and were directed to care for themselves at home may discontinue home isolation under the following conditions:

- You have had no fever for at least 72 hours (that is three full days of no fever without the use of medicine that reduces fevers)
AND
- other symptoms have improved (for example, when your cough or shortness of breath have improved)
AND
- at least 7 days have passed since your symptoms first appeared

Individuals with laboratory-confirmed COVID-19 who have not had any symptoms may discontinue home isolation when at least 7 days have passed since the date of their first positive COVID-19 diagnostic test and have had no subsequent illness.

INFORMATION FOR HOUSEHOLD MEMBERS, INTIMATE PARTNERS AND CAREGIVERS OF PERSONS WITH SYMPTOMS OF COVID-19

Household members, intimate partners, and caregivers may have close contactⁱ with a person with symptomatic COVID-19 either lab proven or likely based on symptoms. Close contacts should monitor their health; they should call a hotline, seek virtual care or contact their healthcare provider right away if they develop symptoms suggestive of COVID-19 (e.g., fever, cough, shortness of breath).

Close contacts should also follow these recommendations:

- Make sure that you understand and can help the patient follow their healthcare provider's instructions for medication(s) and care. You should help the patient with basic needs in the home and provide support for getting groceries, prescriptions, and other personal needs.
- Monitor the patient's symptoms. If the patient is getting sicker, call his or her healthcare provider and tell them that the patient has or may have COVID-19 or call the hotlines or seek a virtual visit. If the patient has a medical emergency and you need to call 911, notify the dispatch personnel that the patient has or may have COVID-19.
- Household members should stay in another room or be separated from the patient as much as possible. Household members should use a separate bedroom and bathroom, if available.
- Prohibit visitors who do not have an essential need to be in the home.
- Household members should care for any pets in the home. Do not handle pets or other animals while sick.
- Make sure that shared spaces in the home have good air flow, such as by an air conditioner or an opened window, weather permitting.
- Perform hand hygiene frequently. Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- The patient should wear a facemask when you are around other people. If the patient is not able to wear a facemask (for example, because it causes trouble breathing), you, as the caregiver, should wear a mask when you are in the same room as the patient.
- Wear a disposable facemask and gloves when you touch or have contact with the patient's blood, stool, or body fluids, such as saliva, sputum, nasal mucus, vomit, urine.
 - Throw out disposable facemasks and gloves after using them. Do not reuse.
 - When removing personal protective equipment, first remove and dispose of gloves. Then, immediately clean your hands with soap and water or alcohol-based hand sanitizer. Next, remove and dispose of facemask, and

immediately clean your hands again with soap and water or alcohol-based hand sanitizer.

- Avoid sharing household items with the patient. You should not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items. After the patient uses these items, you should wash them thoroughly (see below “Wash laundry thoroughly”).
- Clean all “high-touch” surfaces, such as counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.
 - Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.
- Wash laundry thoroughly.
 - Immediately remove and wash clothes or bedding that have blood, stool, or body fluids on them.
 - Wear disposable gloves while handling soiled items and keep soiled items away from your body. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after removing your gloves.
 - Read and follow directions on labels of laundry or clothing items and detergent. In general, using a normal laundry detergent according to washing machine instructions and dry thoroughly using the warmest temperatures recommended on the clothing label.
- Place all used disposable gloves, facemasks, and other contaminated items in a lined container before disposing of them with other household waste. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after handling these items. Soap and water should be used preferentially if hands are visibly dirty.
- Discuss any additional questions with your state or local health department or healthcare provider. Check available hours when contacting your local health department.



Steve Andrews, MD, EMT-P, FAEMS, FACEP

Prehospital Emergency Medical Director

Aurora Lakeland Medical Center | Aurora Health Center - Burlington

W3985 County Highway NN

Elkhorn, WI 53121



Gary Rowland, BSN, RN, AEMT

Supervisor, Emergency Medical Services, Emergency Services Community Educator

Aurora Lakeland Medical Center | Aurora Health Center - Burlington

W3985 County Highway NN

Elkhorn, WI 53121

O: 262.741.2082

M: 920.728.0602

F: 262.741.2849



Tony Lash, EMT-P

Emergency Medical Services, Coordinator

Aurora Lakeland Medical Center | Aurora Health Center - Burlington

W3985 County Highway NN

Elkhorn, WI 53121

O: 262.767.6101

M: 262.939.9051

F: 262.767.6235



Cathy Wagner, MSN, RN, AEMT

Emergency Medical Services, Emergency Services Community Educator

Aurora Lakeland Medical Center | Aurora Health Center - Burlington

W3985 County Highway NN

Elkhorn, WI 53121

O: 262.767.6837

M: 262.210.0557

F: 262.767.6235