



Hendricks
Regional Health

**EMERGENCY
MEDICAL
SERVICES
PROTOCOLS**

**ALS
PARAMEDIC**

October 1, 2019

Index

Introduction	5
General Guidelines and Definitions	6
Verification of Medical Personnel on the Scene	8
Reports to Receiving Facilities	9
Patient Care Records	10
Non-transported Patients	11
Affiliated Provider Skills List	15
Determination of Need for Paramedic Care	18
Determining the Need for CPR	20
Scene Assessment	22
Intravenous/Intraosseous Therapy	23
EMT Transport of Patients with an IV	24
Intranasal Medications	25
Mass Casualty Triage	26
Glasgow Coma Score	28

Initial Patient Care Priorities

Airway Management	30
Oxygen Administration	32
Initial Medical Care	34
Pain Management	35
Nausea/Vomiting	37
Shock/Adult	38
Shock/Pediatric	40

Trauma

General Trauma Management	42
Traumatic Brain Injury	45
Trauma Transport	46
Spinal Motion Restriction	47
Sexual Assault	49
Chest Injuries	50
Taser Weapon Injuries	51
Eye Injuries	52
Amputations	53
Burns	54
Rule of Nines Chart	55
Smoke Inhalation	57
Hazardous Materials Exposure	59

Medical Emergencies

Altered Level of Consciousness	61
Sepsis (Adult)	63
Infant: Brief Resolved Unexplained Events (BRUE).....	64
Febrile Pediatric Patient	65
Seizures	66
Suspected Drug Overdose/Poisoning	67
Nerve Agent/Organophosphate/Carbamate Poisoning (Adult)	69
Nerve Agent/Organophosphate/Carbamate Poisoning (Pediatric)	71
Psychiatric Disorders	73
Patient Restraint	74
Behavioral Sedation	75
Allergic Reaction	76
Choking/Foreign Body Airway Obstruction.....	78
Dyspnea Bronchospasm-Asthma/Reactive Airway Disease/COPD/Wheezing	80
Dyspnea – Congestive Heart Failure/Pulmonary Edema	81
Croup/Epiglottitis.....	82
Continuous Positive Airway Pressure (CPAP)	83
Hyperventilation Syndrome.....	85
Pneumothorax	86

Cerebrovascular & Cardiovascular Emergencies

Cerebrovascular Accident (CVA)/Stroke	88
Telestroke	90
Chest Pain	91
Cardiogenic Shock	92
Ventricular Assist Devices	94

Dysrhythmias & Cardiac Arrest

Bradycardia (Adult)	96
Bradycardia (Pediatric)	97
Narrow Complex Tachycardia (Adult)	98
Narrow Complex Tachycardia (Pediatric)	100
Ventricular Tachycardia – Sustained (Adult)	101
Cardiopulmonary Resuscitation (CPR)	102
Cardiac Arrest–VF or Pulseless VT (Puberty to Adult)	104
Cardiac Arrest–VF or Pulseless VT (Newborn to Pre-puberty)	105
Cardiac Arrest – PEA (Puberty to Adult)	106
Cardiac Arrest – PEA (Newborn to Puberty)	107
Cardiac Arrest – Asystole (Puberty to Adult)	108
Cardiac Arrest – Asystole (Newborn to Pre-puberty)	109
Post Cardiac Arrest Care	110
Transport of Cardiac Arrest Patients	111

OB/Gyn Emergencies, Newborn Care, Dialysis Patient Emergencies

Delivery of a Newborn	114
Newborn Care	115
APGAR Score	117
Newborn Resuscitation	118
Meconium Staining	119
Obstetric Emergencies	120
Vaginal Bleeding in Pregnancy	121
Emergencies in Dialysis Patients	123
Rapid Sequence Airway (RSA)	124

Tactical EMS

Tactical EMS Standard Operating Protocols.....	126
--	-----

Appendix

Emergencies Medications	130
Medication List	131



INTRODUCTION

The following protocols have been developed to provide standardized guidelines for patient care with specific medical conditions. They are not intended to be all-inclusive and may not cover every medical condition, illness, or injury which may be encountered by EMS personnel. These protocols are written with the understanding that the EMT and Paramedic are educated and familiar with each of the functions they are directed to perform in these protocols. If there are procedures, medications, or conditions in these protocols which the EMT or Paramedic is directed to utilize but with which he/she is not familiar, it is his/her responsibility to immediately notify his/her supervisor and the Medical Director.

These protocols are to be utilized by all affiliated personnel, and are not to be altered without written permission of the Medical Director. The care that each provides is as outlined by the State of Indiana EMS Commission and as allowed and directed by the Medical Director. These protocols are the guidelines for care, but are not a substitute for direct physician orders by the Medical Director or on-line medical control provided by a Hendricks Regional Health Emergency Department Physician, or the receiving hospital's department physician. Orders provided by a receiving Emergency Department physician are to be followed as long as they are consistent with the treating personnel's training, certification/licensure, and within the scope of these protocols.

*James R. Nossett, M.D., F.A.C.E.P.
Medical Director of EMS*

*Jonathan J. Schmitz, M.D., F.A.A.E.M
Deputy Medical Director of EMS*

*Dustin Holland, M.D., M.P.H., F.A.A.E.M
Deputy Medical Director of EMS*

GENERAL GUIDELINES AND DEFINITIONS

A. A “**patient**” is anyone who has either requested EMS or has had EMS requested on his/her behalf for a medical issue. Assessment, treatment, and transport to the Emergency Department shall be offered to all patients.

B. “Assist Calls”:

It is recognized that EMS personnel may be called to physically assist a person, and that assistance is required because of a physical disability or non-acute condition. One example of such a call is for “lifting assistance”, because they are unable to lift themselves up or transfer themselves. Such a person shall be treated as a “patient” and treated according to these protocols, and shall be offered evaluation, treatment and transport. It is understood that such patients occasionally refuse such an offer, at which point EMS personnel shall obtain a Signature of Release (“S.O.R.”) according to the “**NON-TRANSPORTED PATIENTS/PERSONS**” protocol.

C. Uninjured persons to which EMS personnel are called:

It is recognized that personnel are sometimes called to the scene of an incident such as a Motor Vehicle Crash (MVC) or a Mass Casualty Incident (MCI) in which some persons involved claim to be uninjured and show no sign of injury. In such cases, EMS personnel shall obtain a “Statement of Non-Injury” (S.N.I.) according to the “**NON-TRANSPORTED PATIENTS/PERSONS**” protocol. If Law Enforcement on the scene disregards EMS personnel prior to contact due to no injury, personnel may disregard.

D. Certain standard and accepted medical terms and abbreviations are used in these protocols and EMS personnel are expected to familiarize themselves with all of them.

E. The terms “ALS”, “Medic”, “EMT-P” and “Paramedic” are used interchangeably in this document and refer to Paramedic personnel (as defined by the Indiana Department of Homeland Security) and the Advanced Life Support care they provide as allowed by the Indiana Department of Homeland Security and the Medical Director.

F. The terms “BLS”, “EMT”, and “EMT-B” are used interchangeably in this document and refer to Basic EMT personnel (as defined by the Indiana Department of Homeland Security) and the Basic Life Support care they provide as allowed by the Indiana Department of Homeland Security and the Medical Director.

G. This document contains “**Tactical EMS Standard Operating Protocols**” which, as noted, are specifically designed for use by **Medical Director approved** Hendricks Regional Health affiliated Paramedics operating in the role of Tactical EMS provider **DURING** a law enforcement operation. These protocols are not to be used by personnel who are not approved by the Medical Director for tactical operations, nor are they to be used outside of the tactical operations/training environment.

GENERAL GUIDELINES AND DEFINITIONS

- H. This document contains a “*Rapid Sequence Airway (RSA)*” protocol, which, as noted, is specifically designated for use by paramedics who have been trained and authorized by the Medical Director to perform Rapid Sequence Airway procedures. This protocol is not to be used by personnel not so trained and authorized.

- I. Personnel suspecting child, elder or disabled person abuse or neglect are to report it to the receiving nurse and/or physician, and are encouraged to report it to Law Enforcement as soon as possible.

- J. Domestic violence patients should be transported without the suspected abuser. Contact Law Enforcement if it is suspected. When possible, provide the patient with information (shoe card) to assist them in getting appropriate assistance to escape a violent relationship.

- K. Patient information is confidential and shall be handled according to HIPAA regulations.

VERIFICATION OF MEDICAL PERSONNEL ON THE SCENE

ORDER OF MEDICAL CONTROL

- 1) Medical Director
- 2) Hendricks Regional Health Emergency Department physician or Emergency Department physician of receiving hospital
- 3) Protocol
- 4) Another on-scene physician with the following guidelines:
 - a) The physician has an unlimited license to practice medicine in the State of Indiana, with an official State of Indiana Health Professions Board license I.D. card and a government issued photo ID (driver's license). Health care professionals other than physicians have no role in providing medical orders, including nurses.
 - b) The physician must be willing to assume responsibility for the patient. They must also be willing to ride with the patient to the emergency department if asked.
 - c) All orders must be signed.
 - d) If the physician is unwilling to provide the above, he/she should be informed that you will be working under physician standing orders and medical control should be contacted as soon as possible.
- 5) For all other certified, licensed, or registered medical personnel who are not a part of the responding agencies:
 - a) Must be able to produce a valid certification, registration or licensure card.
 - b) Said person may NOT practice any skills outside of BLS care and must be directly observed/supervised by an HRH affiliated EMS provider.

*****FOR ANY QUESTIONS, CONTACT MEDICAL CONTROL *****

REPORTS TO RECEIVING FACILITIES

CRITERIA:

To be used as a reporting format when notifying the receiving hospital.

ACTION:

- 1) All emergency transports or any patient requiring immediate attention on arrival at the emergency department should be reported on the radio or cellular phone to the receiving emergency department (radio preferred). Utilize terms such as “Trauma Alert”, “Stroke Alert”, “Medical Alert”, or “STEMI Alert” as applicable.
- 2) If the patient(s) are being transported to Hendricks Regional Health, a report should be given to the emergency department by radio or cellular phone (radio preferred) prior to their arrival at the emergency department.
- 3) The following format is suggested in order to provide for a clear and concise report:
 - a) Patient description, including age and sex.
 - b) Chief complaint and mechanism of injury.
 - c) Vital signs.
 - d) SAMPLE history.
 - e) Estimated time of arrival.

PATIENT CARE RECORDS

CRITERIA:

To be completed on all patients evaluated by emergency medical personnel on an EMS patient care record (PCR) approved by the medical director.

ACTION:

- 1) The patient care record (PCR) is to be filled out completely and legibly (electronic is preferred). If a paper patient care record is used, black ink is preferred.
- 2) The following information should be included in the record:
 - a. General description of the patient including age/sex.
 - b. Chief complaint, including relevant signs and symptoms and/or mechanism of injury.
 - c. Vital signs; blood pressure, pulse, heart rate and general appearance.
 - d. Physical exam findings.
 - e. SAMPLE history.
 - f. Treatment rendered and the response to that treatment.
 - g. Individual interventions and times.
 - h. Position of transport.
 - i. Any changes during transport.
- 3) Record all procedures and medications in the appropriate space with times those procedures were performed or medications administered with dosage and route.
- 4) The PCR, along with EKG strips attached to a separate sheet, and any supporting documentation (medication lists) should be left at the receiving emergency department preferably within three (3) hours, no later than 24 hours. A signature of the staff member receiving the patient must be obtained in the appropriate space on the PCR. The patient's name, date of service, and date of birth should be placed on all sheets left at the receiving facility.
- 5) If utilizing electronic record, monitoring data shall be uploaded or attached in ePCR.

NON-TRANSPORTED PATIENTS/PERSONS

CRITERIA:

Any patient/person to which EMS personnel have been called who refuses transport by EMS personnel, or whose guardian or responsible party refuses his/her transport.

ACTION:

All patients/persons to whom EMS personnel have been called should be offered assessment, treatment, and transport to a hospital emergency department. Some patients/persons or responsible parties may refuse such care. In such cases, EMS personnel should enlist the aid of family, friends, or coworkers to encourage patients/persons with suspected medical issues to be evaluated, treated and transported.

In the case of continued refusal, EMS personnel must utilize their best judgment in determining whether the patient/person or responsible party should be allowed to refuse this care. When making this determination, **all of the following are required** to allow such a refusal:

- 1) The patient/person or responsible party is 18 years of age or older, or has been legally emancipated (emancipation is a legal determination and should be confirmed as reliably as possible, preferably with legal court documentation).
- 2) The patient/person has not, to the best of EMS personnel's ability to determine, been declared incompetent by a court.
- 3) The patient/person or responsible party is able to respond to questions regarding recommended treatment and is alert and oriented to person, place, time, and event.
- 4) The patient/person or responsible party is able to understand basic medical treatment information with respect to that treatment, including the nature and seriousness of the illness or injury, the nature of the treatment, the potential consequences of lack of treatment, and the nature, risks, and benefits of any reasonable alternatives.
- 5) A patient/person or the responsible party who refuses care and who fits the above criteria, should sign one of two medical director-approved medical release forms which shall be completed by the evaluating EMS personnel – either a Statement of Non-Injury (S.N.I.) form, or a Signature of Release (S.O.R.) form.

NON-TRANSPORTED PATIENTS, CONT.

- 6) The following are criteria to determine which form shall be completed and signed:
- a. **Statement of Non-Injury (S.N.I.)** An S.N.I. is acceptable to obtain only in minor vehicular crashes, or in mass casualty incidents and only for patients/persons who have no complaint of injury or illness, and who exhibit no sign of injury or illness. This shall be documented on a medical director approved S.N.I form.
 - b. **Signature of Release (S.O.R.)** **On all patients/persons not fitting S.N.I. criteria, a medical director approved Signature of Release (S.O.R.) form shall be completed** and signed by the patient or responsible party and witnessed, preferably by an accompanying family member or friend. **This includes calls for EMS for physical assistance such as lifting assistance.**
 - c. **Statement of Non-Injury for school bus riders involved in crash:** For uninjured persons involved in a school bus crash, in lieu of an individual S.N.I. for each individual person, a single S.N.I., listing all of the uninjured riders involved, may be obtained and signed by a school official taking responsibility for the riders.
- 7) **Any patient on whom an S.O.R. is obtained shall have the following performed and documented on a completed PCR:**
- a. A completed head to toe assessment.
 - b. Vital signs and Glasgow Coma Scale.
 - c. Pupillary assessment.
 - d. Alertness and orientation to person, place, time, and event.
 - e. Risks of refusing care explained by EMS personnel.
 - f. EMS personnel have advised the patient or responsible party that transport to an emergency department is indicated for completed evaluation and treatment.
 - g. Offer by EMS personnel for patient to call 911 again if the patient or responsible party decides care is wanted.
 - h. The patient or responsible party is advised to seek medical attention as soon as possible.

NON-TRANSPORTED PATIENTS, CONT.

8) Definition of “Responsible Party”

With regards to this protocol, a “responsible party” who may sign a refusal form (S.O.R. or S.N.I.) includes the following in this order:

- a. Parent or legal guardian
- b. Adult sibling
- c. Adult who is grandparent, uncle, aunt, babysitter of the patient
- d. School representative or police officer

9) Definition of Emancipation

- a. At least fourteen (14) years of age; and
- b. Not dependent on a parent for support; and
- c. Living apart from the minor’s parents or from an individual in loco parentis (someone who assumes the duties and responsibilities in place of a parent, e.g.; grandparent, aunt, uncle, babysitter, principal, police officer); and
 - i. Managing the minor’s own affairs; or
 - ii. Is or has been married; or
 - iii. Is in the military service of the United States; or
 - iv. Is authorized to consent to the health care by any other statute.

10) Minors without parent or guardian on the scene:

In the event a minor (anyone under the age of 18) is without a parent or guardian on the scene, the following steps should be taken to obtain consent for a refusal of transport:

- a. Attempt to contact a parent or guardian to obtain refusal. It is preferable that this consent to refusal be obtained in person. If the parent/guardian is available by telephone only, the S.O.R. or S.N.I. consent may be taken over the phone after that person is informed of the situation, the findings of evaluation and the treatment provided and recommended by EMS personnel. The telephone consent should be witnessed and confirmed by another adult on the scene if possible (such as a police officer or adult bystander). This process should not delay treatment or transport of other patients.
- b. Obtain appropriate signature (S.O.R. or S.N.I.) from responsible party who is on the scene, as define above.
- c. If unable to make contact with any of the above, the patient must be transported to the most appropriate facility.

NON-TRANSPORTED PATIENTS, CONT.

11) **Assistance from law enforcement**

Personnel should request assistance from law enforcement for patients who are combative, or in any instance in which abuse or a crime is suspected.

AFFILIATED PROVIDER SKILLS LIST

The Hendricks Regional Health affiliates may perform all skills taught and approved by the Indiana Department of Homeland Security EMS Division appropriate to certification level as indicated by written protocol or by direct physician order:

EMERGENCY MEDICAL TECHNICIAN

- 1) Cardiopulmonary resuscitation (CPR)
- 2) Use of an automatic external defibrillator (AED)
- 3) Oxygen administration
- 4) Placement of oral and nasal airway devices
- 5) Placement of a medical director approved non-visualized airway device
- 6) Management of suspected spinal injuries utilizing:
 - a. A rigid cervical collar
 - b. A short spine board or a commercial spinal vest device
 - c. A long spine board with padding and at least three (3) straps
- 7) Management of orthopedic injuries with bandaging and splinting
- 8) Management of femur fracture with a traction splint.
- 9) Administration of oral glucose when indicated (patient must be able to protect his/her airway with a patent gag reflex).
- 10) Vital signs assessment.
- 11) Wound management and care.
- 12) Recognition and reporting of possible abuse (pediatric or geriatric) using the Indiana 310 form.
- 13) Administer baby aspirin per the *Chest Pain* protocol.
- 14) May assist a patient with the following medications:
 - a. Nitro-stat or Nitro-spray
 - b. Respiratory inhaler

The EMT must verify that the medication is prescribed to the patient. The medication must be within its prescribed expiration date.
- 15) Pulse oximetry monitoring.
- 16) Administer Epi-pen of Epinephrine 1:1,000 by IM injection
- 17) Naloxone (Narcan) intranasal per *Altered Mental Status or Overdose* protocol.
- 18) Blood sugar assessment by finger stick method.
- 19) Transport IV fluids with the following guidelines:
 - a. The IV was established at a healthcare facility.
 - b. Must visually inspect the IV site for redness, infiltration, or other signs or non-patency.

AFFILIATED PROVIDER SKILLS LIST, CONT.

- c. Assure the drip rate prior to transporting.
- d. IV fluid may contain vitamins
- e. IV fluid may contain potassium chloride (not to exceed 20 mEq/L)
- f. IV fluid may contain cortisone.
- g. IV fluid may contain antibiotics.
- h. If any problems are encountered while en route, i.e.; patient complains of sudden pain while infusing, signs of non-patency, or the fluid runs out, then clamp off the line utilizing the roller clamp located just below the drip chamber and document in the patient care record. Report to receiving personnel.

Any time the EMT administers or assists with any medication, a verbal report must be made to the receiving emergency department and the following must be documented:

- 1) Time of administration**
- 2) Route of administration**
- 3) Dosage**
- 4) Condition prior to and after administration**
- 5) Blood pressure before and after medication administration**

AFFILIATED PROVIDER SKILLS LIST

PARAMEDIC

The Hendricks Regional Health paramedic may perform all the skills of an EMT in addition to the following skills:

- 1) Orotracheal intubation
- 2) Nasotracheal intubation
- 3) Manual defibrillation and synchronized cardioversion
- 4) Venipuncture – peripheral blood samples
- 5) Peripheral intravenous therapy (includes external jugular)
- 6) Intranasal medications
- 7) Drug therapy
- 8) Sublingual medications
- 9) Injections (IV, intramuscular and subcutaneous)
- 10) Intraosseous needle placement (humeral, tibial)
- 11) Multi-lead ECG interpretation
- 12) Blood sugar assessment by finger stick method or from IV initiation
- 13) Nasogastric tube insertion
- 14) Chest needle decompression – suspected tension pneumothorax
- 15) Cricothyrotomy; includes needle and surgical (**Hospital EMS Coordinator must be notified within 72 hours by the provider EMS Coordinator**)
- 16) Capnography
- 17) CPAP
- 18) Rapid sequence airway by medical director credentialed personnel only.

SKILLS PERFORMED BY PHYSICIAN DIRECT ORDERS:

- 1) Carotid sinus massage

DETERMINATION OF NEED FOR PARAMEDIC CARE

It is recognized that a dual response system utilizing the dispatch of both paramedics and BLS personnel exists for runs potentially requiring ALS care. It is also recognized that, on occasion, some patients are found to require ALS care on the arrival of EMT personnel, when no paramedic was dispatched. The following guidelines should be followed when making decisions regarding the involvement of paramedics.

- 1) The order of medical authority of EMS technicians is:
 - a. Paramedic
 - b. Emergency medical technician (EMT)
 - c. Emergency medical responder (EMR)

- 2) Patient transport should not be delayed for paramedic arrival if the ETA to the hospital is less than the ETA of the paramedic to the scene. Meeting a paramedic en route to the hospital should be considered when appropriate.

- 3) An EMT on the scene may disregard paramedics en route if the patient is stable and is not in potential need of care from a paramedic.

- 4) Paramedics should be involved with the patient who exhibits any of the following characteristics: **This list is not all-inclusive.**
 - a. Unconscious, altered mental status, acute history of syncope or near syncope.
 - b. Unstable or exhibiting signs of shock.
 - c. Hypotensive or profoundly hypertensive.
 - d. Violent mechanism of injury (e.g., rollover MVC, MVC with significant vehicle damage, gunshot, electrical shock, etc.)
 - e. Dyspnea or chest pain.
 - f. Seizure.
 - g. Arrhythmia or heart rate greater than 150/minute or less than 50/minute.
 - h. Acute CVA or TIA.
 - i. Allergic reaction.
 - j. OB patient with complications including meconium staining of fluid.
 - k. Pregnant trauma patient.

- 5) At times a technician may transfer the care of the patient to another technician of lower medical authority for care and transport (e.g., paramedic to EMT, air transport to paramedic).

DETERMINING THE NEED FOR PARAMEDIC CARE, CONT.

This is appropriate when all of the following occur:

- a. The patient is assessed by the higher medical authority and found to be stable and not potentially needing care above the receiving provider certification level. The higher medical authority must document his/her assessment on a PCR.
- b. Complete patient information is transferred to the receiving technician.
- c. The receiving technician is comfortable providing patient care.

DETERMING THE NEED FOR CPR

CRITERIA:

Any pulseless, apneic, unresponsive patient.

ACTION:

- 1) Resuscitation efforts should be withheld when one of the following conditions exist and the patient is pulseless and apneic:
 - a. Decapitation and/or severe head trauma (e.g., brain matter exposed)
 - b. Transection of the abdomen or chest
 - c. Rigor mortis
 - d. Body decomposition
 - e. Charring of the body
 - f. Dependent lividity (dependent mottling)
 - g. Severe multi-system trauma
 - h. Valid “Do Not Resuscitate” orders exist for the patient
 - i. In a non-ECF, a properly completed State of Indiana “out-of-hospital” DNR form or POST form (or copy) is presented.
 - ii. Patient is wearing Medic Alert DNR jewelry
 - iii. A direct order via voice communications from the patient’s physician and/or medical control, and/or the emergency physician of the hospital you are transporting to (must document time and physician name).
 - iv. In an ECF, a signed physician DNR, physician order “no CPR” order, or POST form (or copy).
 - v. This does not apply to living wills
- 2) If none of the above conditions exist immediately, follow **CPR and Cardiac Arrest Protocols**.
- 3) If any of the above conditions exist, do not begin CPR. Contact local law enforcement and request coroner. Do NOT disturb the scene. Preserve any evidence.
- 4) If none of the above conditions exist yet you feel resuscitation should not be attempted, follow **CPR and Cardiac Arrest** protocols and contact medical control.
- 5) If none of the above conditions exist yet the patient is in cardiac arrest and entrapped and appropriate CPR is not possible, contact medical control.

DETERMINING THE NEED FOR CPR, CONT.

- 6) CPR may be terminated by direct orders of the patient's physician or medical control physician via voice communications, or **Transport of Cardiac Arrest Patients** protocols.

****Thoroughly document the incident on a patient care record. All of the above encounters are to be submitted to Hendricks Regional Health EMS Coordinator within 72 hours for review by the medical director. *****

SCENE ASSESSMENT

CRITERIA:

To be performed upon arrival at the scene of all runs.

ACTION:

- 1) These factors should be considered when approaching any scene:
 - a. Nature of incident.
 - b. Safety of yourself, the crew, assisting organizations, and patient.
 - c. Mechanism of injury.
 - d. Number of patients and types of injuries. (Is this an MCI?)
 - e. Scene hazards that may affect patient care and the health of the providers.

INTRAVENOUS/INTRAOSSEOUS THERAPY

CRITERIA:

Intravenous (IV):

An IV should be initiated on any patient assessed to be potentially seriously ill or injured. If a functional PICC line is in place, this may be utilized if an IV cannot be readily established.

Intraosseous (IO):

In the case of a patient in extremis in whom IV access cannot be obtained, intraosseous access should be initiated. For pediatric patients, the site should be the proximal tibia. For adult patients, the preferred first attempt site is the proximal humerus through the distal and proximal tibia sites are acceptable too. **An infusion pressure bag** is recommended to keep IO fluid flow optimal.

ACTION:

Adults (age \geq 18)

- 1) Use the peripheral IV site as the first choice, preferably upper extremities. External jugular may also be used.
- 2) If unable to initiate the IV using a peripheral site after two attempts, an intraosseous line should be established in life-threatening situations. Humeral IO is first choice, tibial IO is acceptable also

Pediatrics (age < 18)

- 1) Use the preferred peripheral IV site as first choice, preferably upper extremities. External jugular may also be used if in extremis.
- 2) If unable to start the IV using a peripheral site, an IO line should be established in life-threatening situations.

***** None of the above procedures are to cause excessive delay in transport*****

EMT TRANSPORT OF PATIENTS WITH AN IV

A Hendricks Regional Health EMT may transport patients with an IV under the following guidelines:

- 1) The IV was established in a healthcare facility and according to the *Affiliated Provider Skills* protocol.
- 2) Must visually inspect the IV site for redness, infiltration, or other signs of non-patency.
- 3) Assure the drip rate prior to transporting
- 4) Acceptable fluids to be transported include: 0.9% NaCl, D5W, D5W + 0.9% NaCl, D5W + 0.45% NaCl, and lactated ringers.

Acceptable additives in these solutions include the following:

Vitamins
Potassium chloride (not to exceed 20 mEq/l)
Cortisone
Antibiotics

- 5) If any problems are encountered while en route, (e.g., patient complaining of sudden pain while infusing, signs of non-patency, or the fluid runs out) clamp off the line utilizing the roller clamp located just below the drip chamber and document in the patient care record. Report to receiving medical personnel.

INTRANASAL MEDICATIONS

The follow medications can be administered with an atomizer device:

- 1) Glucagon
- 2) Ativan (Lorazepam)
- 3) Versed (Midazolam)
- 4) Narcan (Naloxone)
- 5) Fentanyl

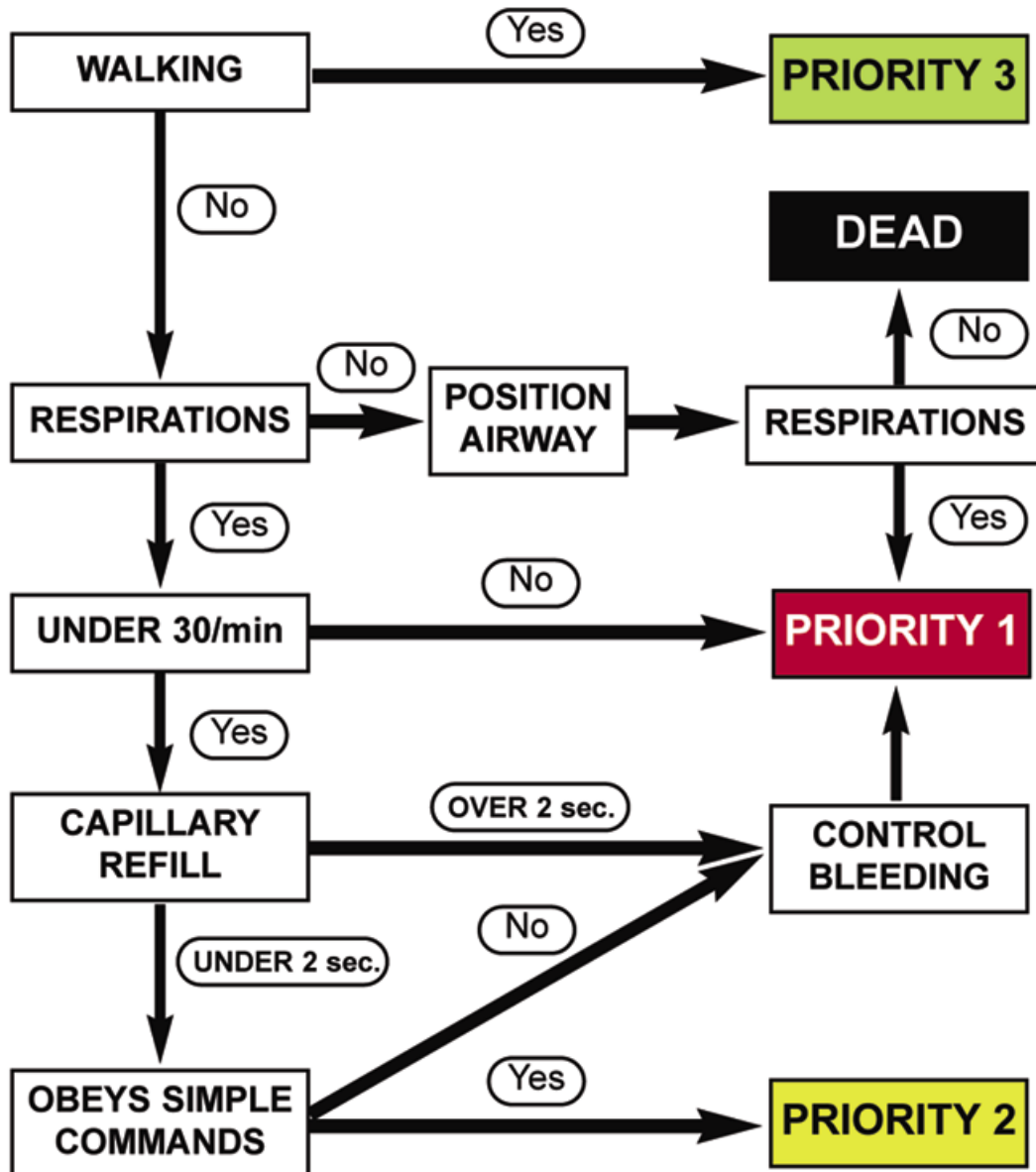
MASS CASUALTY TRIAGE

CRITERIA:

Any incident in which multiple patients overwhelm the resources of an agency.

ACTION:

- 1) For Adults, follow the *Adult Smart Triage* Algorithm for PRIMARY TRIAGE



MASS CASUALTY TRIAGE, CONT.

- 2) Pediatrics follow Smart Triage Tape



- 3) Neonate shall be designated a RED PRIORITY 1 regardless of presentation, unless dead upon your arrival
- 4) Upon arrival to secondary triage, or during transport, utilize secondary treatment algorithm to continue assessment of mass casualty patient and notify receiving facility of any changes.

GLASGOW COMA SCORE

EYE OPENING :

SPONTANEOUS	4	
TO VOICE	3	
TO PAIN	2	
NONE	1	

VERBAL RESPONSE :

ORIENTATED	5	
CONFUSED	4	
INAPPROPRIATE WORDS	3	
INCOMPREHENSIBLE WORDS	2	
NO RESPONSE	1	

MOTOR RESPONSE :

OBEYS COMMANDS	6	
LOCALISES	5	
PAIN WITHDRAWS	4	
PAIN FLEXION	3	
PAIN EXTENSION	2	
NO RESPONSE	1	

GLASGOW COMA SCALE TOTAL :

TOTAL GLASGOW COMA SCALE	13 - 15 9 - 12 6 - 8 4 - 5 3	4 3 2 1 0	
RESPIRATORY RATE	10 - 29 30 or more 6 - 9 1 - 5 0	4 3 2 1 0	+
SYSTOLIC BP	90 or more 76 - 89 50 - 75 1 - 49 0	4 3 2 1 0	+

12 = PRIORITY 3
11 = PRIORITY 2
10 or less PRIORITY 1

TOTAL :

- 5) Patients that are triaged “BLUE” or expected to die, contact receiving facility for further orders, including palliative care.

- 6) For events with multiple neurological traumas, consider sending patients with orthopedic and abdominal trauma to non-level one trauma hospitals.

INITIAL PATIENT CARE PRIORITIES

Airway Management

Oxygen Administration

Initial Medical Care

Pain Management

Nausea/Vomiting

Hypotension/Shock – Adult

Hypotension/Shock – Pediatric

AIRWAY MANAGEMENT

Immediately secure an open airway as first priority in all patients. Utilize chin-lift in non-trauma patients and the jaw-thrust in trauma patients.

- 1) Utilize oropharyngeal and/or nasopharyngeal airway if the patient does not maintain his/her own airway well without assistance. Utilize BVM ventilation with GCS \leq 8 or respiratory rate $<$ 10, or severe respiratory distress.
- 2) Suction as needed.
- 3) If the above measures fail to provide an adequate airway or the risk of aspiration exists, intubate the patient.
- 4) The preferred advanced airway maneuver for adults is endotracheal intubation. **For pediatric patients**, intubation should be performed only if airway cannot be managed adequately with BVM and BLS adjuncts.
- 5) Oral intubation is the preferred technique on most patients.
 - a. **The bougie shall be used with every oral intubation attempt.**
 - b. **All non-cardiac arrest patients being intubated should be preoxygenated utilizing 100% O₂ via BVM for approximately three minutes prior to endotracheal tube placement.**
 - c. **During intubation, all patients shall be oxygenated with 15+ lpm O₂ by nasal cannula.**
- 6) Nasal intubation may be utilized if oral intubation is unsuccessful and the patient is breathing.
 - a. **Nasal intubation is contraindicated in pediatric patients.**
 - b. **Nasal intubation is contraindicated in facial trauma and suspected basilar skull fractures.**
 - c. Prior to each intubation attempt and after intubation, ventilate the patient with oxygen. Maintain oxygen saturation of \geq 94%.
- 7) **Confirm placement of endotracheal tube by ALL of the following:**
 - a. Breath sounds present/epigastric sounds absent
 - b. Electronic wave form capnography shall be used when available. End tidal CO₂ colorimetric detector shall be used until electronic capnography is available.
- 8) **If intubation is not successful after two attempts (defined as insertion of a laryngoscope into airway)**
 - a. Insert a medical director approved supraglottic airway

For utilization of non-visualized airways, the EMS provider is to follow the manufacturer guidelines including any applicable contraindications.

- b. **If the patient is a trauma patient, follow General Trauma Management Protocol.**
- c. **Cricothyrotomy**: If all BLS and ALS airway management attempts are unsuccessful and foreign body airway obstruction is ruled out or treated, cricothyrotomy should be performed utilizing the Bougie.

Pediatric patients: For children under 8 years of age, a needle cricothyrotomy should be performed.

**** If cricothyrotomy is performed, notify Medical Director within 72 hours ****

- d. Frequently reassess breath sounds, chest rise and fall, and placement of airway devices insuring placement after every movement of patient.
 - e. **Elective extubation**: If an intubated patient is alert and breathing normally without assistance, appears to have a patent airway, and is resisting the endotracheal tube, contact the receiving physician to discuss possible extubation or need for sedation.
 - f. A medical director video laryngoscope may be utilized as an airway adjunct for airway management.
- 9) ETT shall be secured after confirmed placement, preferably by a commercially available ETT securing device.

10) Patients should be ventilated with 100% oxygen at the following initial rates:

Neonate:	40-60/min
Infant to pre-puberty:	12-20/min
Puberty to adult:	8-10/min

- a. Ventilate at rate to effectively keep EtCO₂ at 35-45mm/hg
- b. Ventilated metabolic acidosis patients may require higher ventilation rates. Contact medical control.
- c. **For traumatic brain injury patients: AVOID HYPERVENTILATION.**
Ventilate to keep EtCO₂ at 40-45mm/hg
- d. A medical director approved video laryngoscope may be utilized as an airway adjunct for airway management.

OXYGEN ADMINISTRATION

Oxygen should be administered to all patients who are dyspneic, hypoxic (oxygen saturation <94%), unconscious, requiring ventilatory assistance, or who have suffered carbon monoxide or cyanide poisoning, smoke inhalation, or an acute moderate or severe brain injury. Initiate oxygen administration according to the following guidelines:

Mild Dyspnea

Begin oxygen administration at 2-4 lpm by nasal cannula. Monitor pulse oximetry. Titrate oxygen flow to relieve dyspnea and to maintain minimum oxygen saturations of 94%. Administer oxygen to newborns and infants by blow-by method.

Moderate to Severe Dyspnea

Begin oxygen administration at 10-15 lpm by non-rebreather. Monitor pulse oximetry. Titrate oxygen flow to relieve dyspnea and to maintain minimum oxygen saturations of 94%. Administer oxygen to newborns and infants by blow-by method. Be prepared to assist respirations with bag-valve-mask with maximum oxygen flow if dyspnea is not relieved.

Special Situations

Moderate to severe traumatic brain injury, carbon monoxide, cyanide poisoning and smoke inhalation.

Patients who are victims of traumatic brain injury, carbon monoxide exposure with symptoms, cyanide exposure with symptoms, or who have suffered smoke inhalation should be treated with high flow oxygen via non-rebreather mask or, if needed, bag-valve-mask. Follow *Airway Management, Carbon Monoxide Poisoning, Traumatic Brain Injury* and *Smoke Inhalation* protocols. **Pulse Oximetry is NOT reliable** in carbon monoxide poisoned patients and should not be relied upon to determine oxygen needs.

Unconscious or Requiring Ventilatory Assistance

Provide oxygen to maintain at least a minimum oxygen saturation of 94%, following *Airway Management* and other applicable protocols.

OXYGEN ADMINISTRATION, CONT.

COPD

Many COPD patients are dependent on hypoxic drive to stimulate their respiratory effort, instead of CO₂. A dyspneic or hypoxic COPD patient should receive appropriate oxygen to relieve dyspnea and maintain acceptable oximetry readings, but observe for and be prepared for increasing somnolence due to CO₂ retention. Utilize bag-valve-mask and appropriate airways as needed to maintain appropriate oxygenation and ventilation. Some COPD patients live at baseline oxygen saturation in the low 90s. Utilize oxygen to relieve dyspnea as needed and keep saturations at baseline.

Pregnant

For patients who are more than 20 weeks gestation and seriously injured or ill; administer high flow oxygen or bag-valve-mask ventilations. Follow **Airway Management** and **General Trauma Management** protocol.

INITIAL MEDICAL CARE

- 1) Utilize *universal precautions*. This should be in accordance with your service's current *Infection Control Policy*, and with current *Body Substance Isolation* procedures listed in OSHA 29 CFE 1910.1030.
- 2) Follow *Airway Management* and *Oxygen Administration* protocols.
- 3) Loosen tight clothing and reassure the patient.
- 4) Place the patient in position of comfort unless contraindicated by the patient's injuries or symptoms.
- 5) Determine previous medical and medication history. **Additionally, determine the patient's known medication allergies. Do not allow administration of any drug to which the patient is allergic. Also assess for latex allergies or sensitivities and utilize appropriate precautions.**
- 6) Completely assess the patient including vital signs (B/P, pulses, respirations, GCS). Transported patients require repeated VS and every 5minutes if unstable.
 - a) BLS and ALS personnel should apply pulse oximeter, if available.
 - b) Apply the cardiac monitor as indicated
 - c) Passive capnography when available **shall be utilized for patients with** dyspnea, shock or unstable vital signs, respirations being assisted, as well as all patients receiving pain or sedative medication.
- 6) Establish IV access as indicated.
- 7) Follow applicable protocols.

PAIN MANAGEMENT

CRITERIA:

In specific instances, patients describing moderate to severe pain should be given IV pain medication for pain control.

ACTION:

- 1) IV pain medication is appropriate for injuries/illnesses such as:
 - a. Possible fractures or dislocations
 - b. Amputations
 - c. Burns
 - d. Chest pain

- 2) IV pain medications should not be administered **if any of the following exist:**
 - a. Known allergy to the pain medication to be given
 - b. Altered level of consciousness (GCS<14 or below baseline mental status) unless directed by medical control
 - c. Hypotension (systolic <90mm Hg) unless directed by medical control

- 3) **Fentanyl** is the narcotic of choice at the following doses:

Age \geq 8 and weight \geq 50kg: 100 micrograms slow IVP/IO/IM/IN

 - May repeat 50-100 mcg dose every 5 minutes as needed up to 500 mcg total given

Age < 8 or Weight < 50kg: 1mcg/kg, IVP/IO/IM/IN

 - May repeat same dose every 5 minutes as needed up to 3mcg/kg total given

- 4) **Morphine** – If Fentanyl is unavailable due to manufacture shortage, administer Morphine at the following doses:

Age \geq 8 or Weight \geq 50kg: 2-5 mg IVP/IO/IM

 - May repeat same dose x 1 in 10 minutes as needed to maximum dose of 10 mg given

PAIN MANAGEMENT, CONT.

Age < 8 or Weight < 50kg: 0.1mg/kg up to maximum dose of 5 mg

- May repeat same dose x 1 in 10 minutes as needed to maximum dose of 0.2 mg/kg given
- 5) Monitor vital signs and GCS closely. Perform pain assessment before and after each dose administration. Monitor pulse oximetry and passive capnography.
 - 6) Naloxone (Narcan) must be immediately available.

Additional narcotic doses may be administered after consultation with receiving emergency department.

NAUSEA/VOMITING

CRITERIA:

Any patient age ≥ 1 year of age with complaint of persistent nausea or vomiting

ACTION:

- 1) Perform initial medical care
- 2) Assess for underlying causes (such as MI) and treat according to the appropriate protocol
- 3) Administer Ondansetron (Zofran):
 - **Pediatrics:** 0.1 mg/kg IV/IM or 4mg oral dissolving tablet (ODT) (0.1mg/kg) to maximum 4mg per dose
 - **Adult:** 4mg IV/IM or 4-8mg oral dissolving tablet (ODT)
- 4) May repeat dose for persistent severe nausea every 10 minutes

SHOCK/ADULT

CRITERIA:

Any patient with systolic BP < 90 and exhibiting signs of shock, some of which include:

- **Pale color**
- **Cool, clammy skin**
- **Decreased level of consciousness**
- **Tachycardia**
- **Capillary refill > 2 seconds**

****Hypotension is a late finding in shock ****

ACTION:

- 1) Follow ***Initial Medical Care*** protocol including 2 large bore IVs.
- 2) Assess for causes, including glucose analysis and treat appropriately
- 3) Assess for signs of pulmonary edema

If no signs of pulmonary edema:

- Administer 0.9% normal saline wide open
- Titrate to a SBP \geq 100
- Reassess frequently (every 500ml) for signs of pulmonary edema

If signs of pulmonary edema develop, or 2 L IVF has been given:

- Contact Medical Control and discuss possible initiation of Norepinephrine (Levophed)
 - Use largest size IV possible in proximal extremity (18-20 gauge preferred in AC)
 - Initial Norepinephrine dose: 2-4 mcg/min
 - Titrate to SBP > 90
 - Monitor infusion frequently and if patient develops any signs of extravasation such as pain, swelling, numbness, or redness, stop infusion immediately.

How to mix a Norepinephrine (Levophed) drip:

- Mix 4 mg (4ml of 4 mg/4ml solution) in 250ml bag of D5W (Concentration = 16 mcg/ml)
- Use 60 drop/ml solution set
- Maximum 12mcg/min
- Rate:

mcg/min	2	4	6	8	10	12
@ gtt/min	8	15	23	30	38	45

4) Transport ASAP and contact receiving facility

SHOCK/PEDIATRIC

CRITERIA:

Hypotensive pediatric patient exhibiting signs of shock, some of which include:

- **Pale color**
- **Cool, clammy skin**
- **Decreased level of consciousness**
- **Tachycardia**
- **Capillary refill > 2 seconds**

ACTION:

- 1) Begin ***Initial Medical Care*** protocol, including IV/IO
- 2) Assess for causes, including glucose analysis and treat appropriately
- 3) Assess for signs of pulmonary edema

If signs of pulmonary edema, contact medical control ASAP

If no signs of pulmonary edema:

- Bolus patient with 20ml/kg normal saline utilizing Buretrol
 - Reassess vital signs
 - **If hypotension remains and no signs of pulmonary edema, administer second 20ml/kg bolus**
- 4) Transport ASAP and contact receiving emergency department

For hypotensive infant:

- Perform glucose analysis
- Treat hypoglycemia with D25, 4ml/kg
- If hypotension persists bolus with 20ml/kg 0.9% normal saline

TRAUMA

GENERAL TRAUMA MANAGEMENT

CRITERIA:

Any patient with trauma demonstrating signs of shock, significant injury, or violent mechanism of injury with potential serious injury.

ACTION:

Airway

- 1) Assess for adequacy and maintain open airway with c-spine immobilization. Follow **Airway Management** protocol.

Breathing

- 1) Assess respirations for presence, effort, rate and effectiveness
 - a) For the breathing patient with an adequate airway, administer oxygen following the **Oxygen Administration** protocol.
 - b) Assist with bag valve mask with 100% oxygen if rate is less than 10 or the patient is in respiratory distress, or if the patient is taking inadequately deep breaths
- 2) Auscultate breath sounds. Assess for signs of tension pneumothorax such as decreased breath sounds, jugular venous distention and tracheal deviation from the midline
- 3) If tension pneumothorax is suspected, perform needle decompression. Frequently assess and reassess patient for development or redevelopment of tension pneumothorax, and utilize needle decompression if it does

Circulation

- 1) Assess pulse rate and quality, and capillary refill
- 2) If pulseless, follow **Cardiac Arrest** protocol

GENERAL TRAUMA MANAGEMENT, CONT.

- 3) Control major hemorrhaging utilizing direct pressure for external bleeding
 - a. Use tourniquet on uncontrolled extremity hemorrhage. Place tourniquet as proximal as possible on injured extremity. Mark the extremity with “TK” and notify all receiving care givers of the tourniquet presence. This is to include date and time applied.
 - b. For uncontrolled major hemorrhaging, utilize a medical director approved hemostatic dressing following manufacturer guidelines

Resuscitation

- 1) Initiate large bore IV, place 2 if suspected severe injury. If unable to gain IV access and patient in extremis, initiate IO.
- 2) Administer IV 0.9% normal saline to maintain blood pressure of >90 systolic for adults. If patient has moderate to severe traumatic brain injury maintain SBP >110.

Pediatric: Utilize 20ml/mg boluses as needed to maintain adequate blood pressure.

Disability

- 1) Assess alertness using AVPU method

A – Alert

V – Responds to verbal stimulus

P – Responds to painful stimulus

U – Unresponsive

- a. Check pupillary size and reaction
- b. Determine Glasgow coma scale score
- c. Expose the patient for resuscitation and assessment
- d. After the assessment has been accomplished, cover patient appropriate to environmental conditions to preserve body heat and minimize shock

Exposure

- 1) Expose the patient for resuscitation and ongoing assessment
- 2) **After** the ongoing assessment has been accomplished, cover patient appropriate to environmental conditions to preserve body heat and minimize shock utilizing such methods as; increasing ambient temperature, provide blankets, active warming and warm IV fluids.

GENERAL TRAUMA MANAGEMENT, CONT.

Ongoing Assessment/Treatment

- 1) Obtain vital signs. Serial vital signs should be obtained every 5 minutes
- 2) Perform head-to-toe focused exam
- 3) Apply cardiac monitor, pulse oximeter, end tidal CO₂
- 4) Bandage and splint injuries appropriately
- 5) Transport according to Trauma Transport protocol

Pregnant patients > 20 weeks should be placed in left lateral recumbent position if possible.
Apply high flow oxygen.

Do not delay scene time to perform an ongoing assessment or minor splinting and bandaging if the patient has complications of airway, breathing, or circulation. Perform the ongoing assessment enroute to the hospital.

TRAUMATIC BRAIN INJURY

CRITERIA: Patients with suspected acute moderate to severe traumatic brain injury

1. GCS 12 or less
2. GCS <15 with declining mental status
3. Multi-system trauma requiring intubation
4. Post-traumatic seizures

ACTION: Avoiding Hypoxia, Hypotension and Hyperventilation are imperative.

- 1) Follow **General Trauma Management** protocol.
- 2) Elevate head of head to 30 degrees
- 3) Apply high-flow oxygen via non-rebreather and follow **Airway Management** protocol
- 4) For patients requiring assisted ventilation (such as apnea, hypoxia, GCS ≤ 8 , ineffective ventilations; assist ventilation with BVM at 100% oxygen to maintain EtCO₂ of 40-45 and pulse ox $\geq 95\%$.
- 5) Prevent ANY hypotension by initial bolus of IV NS on these patients.

8yo to pre-puberty with SBP < 130: 20 ml/kg bolus

Puberty to adult with SBP < 140: 1 L NS bolus

Maintain minimum blood pressure with IV NS:

0-24 months	>70 mmHg
2yo – 7yo	>80 mmHg
8yo to pre-puberty	>90 mmHg
Puberty to adult	>110mmHg

- 6) Check blood glucose. Follow **Altered Level of Consciousness** protocol.

TRAUMA TRANSPORT

Patients with major or multi-system trauma should be transported to a trauma center, major burn patients to a burn center, if the transport will take less than 45 minutes. This should occur via ground ambulance with ALS on-board or via medical helicopter. The helicopter may also be notified to meet you at the nearest hospital's helipad.

Exception to trauma center transport include airway compromise which cannot be well-managed or a patient in extremis in which personnel believe the patient needs immediate care in the emergency department. In this case, transport to the nearest appropriate facility and give them early notification of the pending arrival of a severely traumatized patient.

Trauma patients who should be transported to a trauma center include:

- Glasgow coma scale \leq 13
- Systolic blood pressure , 90 mm Hg
- Respiratory rate $<$ 10 or $>$ 20 breaths per minute ($<$ 20 in infant $<$ one year)
- All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
- Flail chest
- Two or more proximal long bone fractures
- Crushed, degloved, or mangled extremity proximal to wrist and ankle
- Amputation proximal to wrist and ankle
- Pelvic fractures
- Open or depressed skull fracture
- New paralysis

EMS Helicopter transport should be strongly considered if:

- Lengthy entrapment is anticipated
- Mass casualty incidents (MCIs)
- Transport via helicopter will hasten the patient's arrive to a trauma center

If helicopter transport is anticipated, early notification of dispatch to request the helicopter is recommended.

It is recommended to start the helicopter or put it on standby prior to EMS arrival if calls to dispatch indicate substantial severity or entrapment.

SPINAL MOTION RESTRICTION

CRITERIA:

Trauma patient with mechanism for spinal injury

ACTION:

Blunt trauma patients with the following require cervical spinal motion restriction:

- 1) Neck pain, tenderness, or deformity
- 2) Altered mental status or young age with unreliable exam
- 3) Any new focal neurological deficit since the injury
- 4) Intoxication
- 5) Distracting pain from another injury
- 6) Provider has significant concerns regarding possible spine injury even without the above criteria, such as mechanism of injury, etc.

- **Cervical collars:** Cervical spine motion restriction should be performed with the most effective device/mechanism for the individual patient. Typically this occurs with an appropriately fitted cervical collar, with towel rolls or foam blocks applied to each side of the head and tape/straps to secure the head and neck in natural alignment, on the cot.

Due to poor collar fit or patient size/anatomy, in some patients, immobilization is more secure and alignment more stable utilizing objects such as a blanket roll or towels instead of a cervical collar.

- **Backboards:** Backboards are acceptable for extrication and transporting a patient to a cot. Upon arrival at the cot, the patient should be removed from the backboard, utilizing full spinal precautions. In the unusual case that patient safety absolutely demands transport on a backboard (such as unstable vital signs requiring immediate transport), this is acceptable.
- **Patient movement:** The **lift-and-slide method** of patient movement to board, cot, or bed is preferred over the log roll when possible.
- **Patients walking at the scene** should be placed in a cervical collar, if fitting the criteria, and may be walked the shortest distance to the cot, if able.
- **Penetrating neck trauma** patients generally **do not** require spinal motion restriction, unless a neurological deficit is present. It is essential to monitor the patient closely for airway compromise and/or an expanding hematoma.

SPINAL MOTION RESTRICTION, CONT.

- **Isolated back pain/injury with no neck injury:** These patients do not require a cervical collar. **If due to blunt trauma,** transport should be on the cot in the supine position with appropriate padding and straps placed for motion restriction.

SEXUAL ASSAULT

CRITERIA:

A person, male or female, presents to the provider with the complaint of sexual assault.

ACTION:

- 1) Follow **Initial Medical Care** protocol
- 2) Sexual assault victims are trauma patients. Assess for trauma. Follow **General Trauma Management** protocol.
- 3) Sexual assault victims are to be transported to the nearest facility with capability of sexual assault examination by specially trained forensic nurses.
- 4) Children under the age of 14 years are to be transported directly to a pediatric hospital for treatment and examination by specialists.
- 5) Limit questions to pertinent medical/trauma questions. If information is given, document this information on the run report.
- 6) The patient should be encouraged to bring all clothing worn at the time of the assault for forensic examination.
- 7) All articles of clothing should be placed in a paper bag or in the hands of the victim, if appropriate, depending on patient condition. Do not place items in plastic bags.
- 8) Victims and clothing are to be handled only with gloved hands to avoid evidence contamination.
- 9) Contact the appropriate receiving hospital as soon as possible so forensic nurses can be called in if not present. Identify your patient as a sexual assault victim.

CHEST INJURIES

CRITERIA:

Patients with penetrating or blunt chest trauma

ACTION:

- 1) Follow ***General Trauma Management*** protocol
- 2) Assess chest. For suspected tension pneumothorax, perform needle decompression utilizing 14 or 16 gauge angiocath at the 4th intercostal space mid-axillary line on affected side or at the 2nd intercostal space, mid-clavicular line on the affected side. Reassess breath sounds every 5 minutes. Repeat needle decompression as needed for signs of tension pneumothorax redevelopment.

For traumatic arrest, perform bilateral needle decompression of chest if tension pneumothorax is suspected.

- 3) If flail segment is present, stabilize the segment with towels, blanket, or bulky dressing and tape into place. Do not use sandbags.
- 4) Cover open wounds with occlusive dressing, preferably with commercially available 1-way valve chest seal. Secure on three sides for dressing without valve. For worsening dyspnea or for hypotension, lift one side of the dressing during expiratory phase to allow accumulated air to escape. Be prepared to perform needle decompression if tension pneumothorax develops.

“TASER” WEAPON INJURIES

CRITERIA:

Any patient who has been shot by a Taser-style weapon.

ACTION:

- 1) Assure scene is secure.
- 2) Follow ***Initial Medical Care*** protocol. Perform complete assessment of patient, treating any other injuries/illnesses according to protocol.
- 3) Darts may be removed unless they are embedded in the following:
 - a. Eyelid or globe of eye
 - b. Face
 - c. Neck
 - d. Genitalia
 - e. In cases of such embedding or if uncontrolled bleeding occurs, stabilize darts and transport to the emergency department
- 4) Darts may otherwise be carefully removed by pulling backwards in the same plane as they have entered the body. Make sure no part of the dart remains in the body.
- 5) Provide the darts to law enforcement
- 6) Control bleeding, cleanse, and dress wound
- 7) If no other injuries, illnesses, or complaints exist, a SOR may be obtained, with full documentation

EYE INJURIES

CRITERIA:

Any patient with an injury to the eye

ACTION:

- 1) Follow ***General Trauma Management*** protocol
- 2) Assess for the following:
 - a. Intact globe
 - b. Fluid from the globe
 - c. Visible foreign bodies
 - d. Hemorrhage, lacerations and contusions
 - e. Visual acuity
 - f. Conjugate eye movement
- 3) When bandaging, patch both eyes, unless chemical burns are present. Reassure patient.
- 4) Stabilize impaled objects
- 5) Cover injured eye
- 6) Chemical burns to the eye should be flushed continually with normal saline
- 7) Suspect head injury with eye injury. Evaluate for head injury.
- 8) Transport and notify receiving facility

AMPUTATIONS

CRITERIA:

Any situation in which there is an amputation of a body part

ACTION:

- 1) Follow *General Trauma Management* protocol
- 2) Recover the amputated part if possible, rinsing off contaminants
- 3) Cover the amputated end with sterile gauze soaked in saline
- 4) Place amputated part in a plastic bag
- 5) Place plastic bag on ice or ice pack, **NEVER** place ice directly on the amputated part
- 6) Transport amputated part with the patient to an appropriate facility urgently
- 7) Notify receiving hospital as soon as possible

BURNS

CRITERIA:

Any patient with thermal, chemical, or electrical burns

ACTION:

- 1) Remove patient from the source of burn
- 2) Follow ***Initial Medical Care*** protocol.
- 3) Follow ***General Trauma Management*** protocol, if applicable.
- 4) Search for evidence of upper airway burns and be prepared for development of airway edema
 - a. Assess for presence of stridor, nasal or pharyngeal burns, nasal hair singeing, and/or soot in pharynx
 - b. Apply oximeter
 - c. Follow ***Smoke Inhalation*** protocol
- 5) Estimate percentage of burns
- 6) Burn care
 - a. Thermal burns
 - i. Superficial/partial thickness (first and second degree). Less than 10% BSA – cool burns with saline then cover with dressing
 - ii. All full thickness (third and fourth degree or any burn greater than 10%) - cover with sterile dressing or burn sheet
 - b. Chemical burns
 - i. Remove chemical without exposure to others
 - ii. Brush off any dry agent
 - iii. Flush copiously with water
 - iv. Cover with sterile dressing/sheets

BURNS, CONT.

- c. Electrical burns
 - i. Turn off electrical source
 - ii. Assess musculoskeletal injuries and entrance/exit wounds

7) Resuscitation:

For patient thickness and/or full thickness burns of 20% or greater BSA, initiate 2 large bore IVs of lactated ringers or normal saline

Adult rate:

Wide open until 1000ml infused, then titrate to maintain BP greater than 110

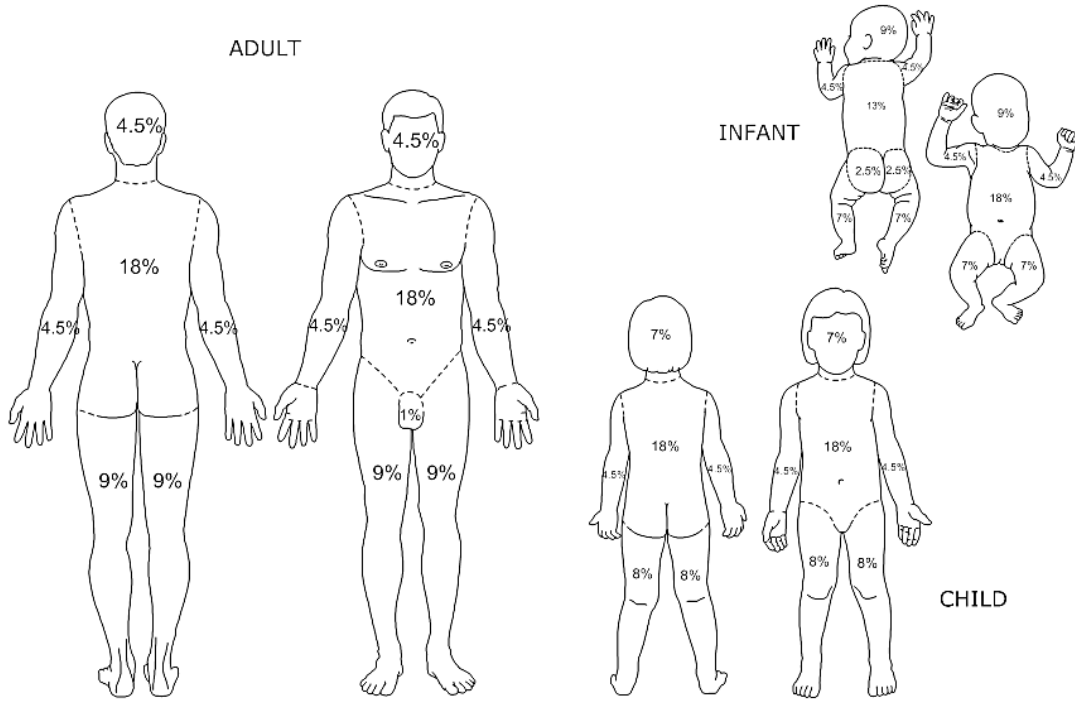
Pediatric rate:

Bolus 4 ml/kg/percentage of BSA burned

If hypotensive after bolus, follow **SHOCK** protocol

- 8) Maintain body temperature per **Trauma Management** protocol
- 9) Transport to nearest appropriate facility ASAP

Rule of Nines



LifeART Collection Images Copyright © 1989-2001 by Lippincott Williams & Wilkins, Baltimore, MD

SMOKE INHALATION

CRITERIA:

Any patient who has suffered inhalation of smoke or heated gases

ACTION:

- 1) Follow Initial Medical Care protocol, monitor capnography
- 2) Assess patient for trauma and burns. Follow General Trauma Management and Burns protocols as applicable. For cardiac arrest, follow appropriate protocol.
- 3) Consider cyanide and carbon monoxide toxicity as a possibility in smoke inhalation
- 4) Assess for possibility of airway burns (such as wheezing, stridor, soot in airway, nasal hair burned, difficulty speaking, hoarseness, marked dyspnea) and treat as follows:

Awake and alert, normotensive, NO sign of airway involvement:

- a) Oxygen at 10-15 lpm via non rebreather

Conscious, normotensive, with signs of airway involvement:

- b) Establish airway per Airway Management protocol, 100% O₂
- c) For wheezing/stridor, administer Albuterol nebulized, 2.5mg to 5mg. Repeat as necessary.

Hypotensive or altered level of consciousness or unconscious patient

- a) Establish airway per Airway Management protocol, administer 100% O₂
- b) For wheezing, administer Albuterol nebulized, 2.5mg to 5mg. Repeat as necessary
- c) Initiate IV (2 IVs in cardiac arrest)
- d) If available, administer Cyanokit 5 grams appropriately diluted with 0.9% normal saline (100 ml normal saline in each 2.5 gm vial, or 200 ml normal saline in 5 gm vial) over 15 minutes. **Pediatric dose is 70 mg/kg up to 5gm maximum**
- e) Treat hypotension according to Shock protocol
- f) For cardiac arrest, also use appropriate protocol

SMOKE INHALATION, CONT.

- 5) Apply pulse oximeter; however, be aware that **oximeter readings may be falsely elevated in carbon monoxide poisoning**. A low reading may indicate hypoxemia, but the true oxygen saturation may be much lower than the reading.
- 6) Transport ASAP to appropriate hospital

HAZARDOUS MATERIALS EXPOSURE

CRITERIA:

Anyone who has been potentially exposed or has had a known exposure to a hazardous material.
(If an affiliated department has established SOGs or policies regarding victims of a hazardous material expose, follow your department's procedures)

ACTION:

- 1) Once qualified personnel have decontaminated the victim, begin *Initial Medical Care* and refer to appropriate protocol
- 2) Notify receiving facility of incoming patient and exposure type ASAP.
Communicate name of substance, U.N. ID# if available, duration of exposure, time of exposure, how decontamination was accomplished at the scene
- 3) If patient will require a secondary decontamination, notify the receiving facility as soon as possible so the in-house decontamination team can be activated.

MEDICAL EMERGENCIES

ALTERED LEVEL OF CONSCIOUSNESS

CRITERIA:

Any patient with acutely altered response from baseline or no response to verbal or painful stimuli and no obvious trauma as the cause.

ACTION:

- 1) Follow ***Initial Medical Care*** protocols
- 2) Obtain history and complete physical exam with vital signs
- 3) Assess for causes such as CVA, trauma, seizures, diabetes, overdose, poisoning, etc.
- 4) Perform blood glucose analysis

If glucose is less than 80:

- a) **Awake but mild confusion** – administer oral glucose or oral honey for those greater than 2 years of age
- b) **Patient unresponsive or with significant mental status changes:**
Administer Glucose:

Adult – administer 12.5 – 25 grams IVP (25-50ml D50 **or** 125-250 ml D10))

If unable to initiate IV after 2 peripheral attempts, administer 1mg Glucagon IM or IN

Pediatric

Age 0- 2 years: 5ml/kg D10 bolus (**maximum 200 ml**)

Age \geq 2 years: 1ml/kg D50 IVP (**maximum 50 ml**) **or** 5ml/kg D10 BOLUS (**maximum 200 ml**)

Glucagon: If unable to initiate IV in pediatric patient after 2 attempts, Administer Glucagon 0.03mg/kg to maximum 1 mg total IM or IN

- 5) **If airway or respirations are compromised *and* opiate overdose is suspected, administer Naloxone:**

Adult – 0.4mg IV. May be repeated every 3 minutes until respirations are normalized or a total of 10mg has been administered.

If unable to obtain IV, administer Naloxone 2mg IM or IN

Pediatric – 0.1 mg/kg IV, maximum 0.4 mg dose. May be repeated in 3 minutes if respirations are not normalized, and contact receiving emergency department.

ALTERED LEVEL OF CONSCIOUSNESS, CONT.

If unable to obtain IV, administer Naloxone 1mg IM or IN.

- 6) **If history of ETOH abuse is suspected:** Administer Thiamine 100mg IV or IM.
- 7) Transport as soon as possible and contact receiving emergency department

SEPSIS (ADULT)

CRITERIA: Any adult with suspected infection with any TWO of the following:

Temperature > 100.4F (38C) or < 96.8F (36C)
Heart rate > 90
Respiratory rate > 20
EtCO2 < 32

ACTION:

- 1) Begin ***Initial Medical Care***
- 2) Establish IV NS and administer 500 ml bolus (notify receiving facility of amount administered). Repeat 500 ml boluses for BP <100
- 3) If, after 2L, SBP < 90, contact Medical Control and discuss possible initiation of Norepinephrine (Levophed) drip
 - Use largest size IV possible in proximal extremity (18-20 gauge preferred in AC)
 - Initial Norepinephrine dose = 2-4 mcg/min
 - Titrate to SBP > 90
 - Monitor infusion site frequently and if patient develops any signs of extravasation such as pain, swelling, numbness, or redness, stop infusion immediately

How to mix a Norepinephrine (Levophed) drip:

- Mix 4mg (4ml of 4mg/4ml solution) in 250 ml bag of D5W (concentration = 16mcg/ml)
- Use 60 drop/ml solution set
- Maximum 12 mcg/min
- Rates:

mcg/min	2	4	6	8	10	12
@gtt/min	8	15	23	30	38	45

- 4) Transport and contact receiving facility.

INFANT: BRIEF RESOLVED UNEXPLAINED EVENTS (BRUE)

CRITERIA:

Infant patient who exhibits an acute, unexpected change in breathing behavior including some of the following:

- Apnea
- Color change (usually cyanosis)
- Marked change in muscle tone (limpness)
- Choking or gagging

ACTION:

- 1) Perform ***Initial Medicare Care***
- 2) Follow all applicable protocols
- 3) **Even if the patient appears to be normal on exam**, some of these patients may be at risk of life-threatening illness (such as infection, UTI, pneumonia, meningitis, etc.) or even death. Transport patient. If caregiver is refusing transport, advise of the possible danger and contact medical control to discuss.

FEBRILE PEDIATRIC PATIENT

CRITERIA:

Any patient >3 months old and <8 years old with: Oral/tympanic/temporal temperature $\geq 100.4^{\circ}$ Fahrenheit (38° Celsius) as measured by EMS providers.

ACTION:

1. Follow ***Initial Medical Care*** protocol
2. If the patient is maintaining an airway, then administer **one dose** of **oral liquid acetaminophen** according to the estimated weight from the Broselow Pediatric Emergency Tape.
3. Length based dose:
 - Grey (3-5kg): 30-50 mg
 - Pink (6-7 kg): 60-70 mg
 - Red (8-9 kg): 80-90 mg
 - Purple (10-11 kg): 100-110 mg
 - Yellow (12-14 kg): 120-140 mg
 - White (15-18 kg): 150-180 mg
 - Blue (19-22 kg): 190-220 mg
 - Orange (24-28 kg): 240 mg- 280mg
 - Green (30-36 kg): 300-360 mg
4. For patients who are actively seizing, take seizure precautions and follow **SEIZURE** protocol.
5. Transport to appropriate E.D.
6. Document original temperature prior to medication administration in PCR and provide this reading verbally to R.N./M.D. during hand-off.
7. Do not measure rectal or axillary temperature.
8. Parent may assist with administration of acetaminophen.
9. Do not administer to patients with history of hepatic impairment or hypersensitivity to acetaminophen.
10. Never administer oral medication to patients who cannot maintain an adequate airway.

SEIZURES

CRITERIA:

Patient actively seizing or post-ictal

ACTION:

Follow Initial Medical Care protocol. Determine history.

- 1) Protect patient from injury during seizure
- 2) **If patient is actively seizing** for longer than 3 minutes, or the seizure resumes without the patient regaining consciousness, administer anticonvulsant.

Adult: \geq 50kg administer Midazolam 10mg IM or 5mg IV

< 50 kg administer Midazolam 5mg IM or 0.1mg/kg IV

Pediatric: Administer Midazolam 0.1mg/kg IM or IV (Maximum 5mg)

OR 0.2 mg/kg IN (of 5mg/ml concentration only) (Maximum 5 mg)

Doses may be repeated in 5 minutes if seizure continues

- 3) If patient is in third trimester of pregnancy or eclampsia is suspected (2nd or 3rd trimester or \leq 1 month postpartum): **also administer 2gm Magnesium Sulfate IV over 2 minutes, followed by an additional 2 grams IV over 15 minutes**
- 4) Check glucose. If glucose < 80, administer Dextrose IV

Adult: 12-25 grams IVP (25-50 ml D50 or 125-250 ml D10)

If unable to initiate IV after 2 peripheral attempts, administer 1mg Glucagon IM or IN

Pediatric:

Age 0-2 years: 5 ml/kg D10 bolus (**maximum 200 ml**)

Age \geq 2 years: 1 ml/kg D50 IVP (**maximum 50 ml**) or 5ml/kg D10 BOLUS (**maximum 200 ml**)

Glucagon: If unable to initiate IV in pediatric patient after 2 attempts, administer Glucagon 0.03mg/kg to maximum 1 mg total IM or IN

- 5) Transport as soon as possible and contact receiving emergency department

Revised 10.1.2019

SUSPECTED DRUG OVERDOSE/POISONING

- 1) Follow Initial Medical Care protocol
- 2) Have crew member search for bottles, drugs, or other evidence of overdose/poisoning
- 3) Establish time of exposure/ingestion
- 4) Follow Altered Level of Consciousness protocol if applicable
- 5) Categorize type of overdose/poisoning and treat accordingly

Tricyclic antidepressants

- 1) Follow SHOCK protocol as applicable
- 2) A single dose of sodium bicarbonate 1mEq/kg IV/IO should be administered if any of the following exist:
 - a) Ventricular arrhythmias
 - i. Bigeminal or trigeminal PVCs
 - ii. Multi-focal PVCs
 - iii. Ventricular tachycardia
 - b) Wide QRS
 - c) Hypotension

Adult: Systolic B/P < 90

Pediatric: Systolic B/P < 70 + 2 x age
 - d) Seizure (follow Seizure protocol and accompany with sodium bicarbonate administration)

Calcium channel blocker

If suspected, contact medical control to confirm. Calcium chloride 1gm slow IVP may be indicated if heart rate < 60 and SBP < 90. In pediatric patient if SBP < 70 + 2 x age, administer 0.2 ml/kg 10% calcium chloride, **1gm maximum dose slow IVP over 3 minutes.**

SUSPECTED DRUG OVERDOSE/POISONING, CONT.

Beta blocker

Adult: Glucagon 3mg slow IVP for SBP < 90

Pediatric: Glucagon 1mg slow IVP for SBP < 70 +2 x age

Opiate – if suspected or if airway and respirations are compromised, administer Naloxone IV/IM or IN

Adult: 1mg IV or 2mg IM/IN may be repeated every 3 minutes, until respirations are normalized or total of 10mg administered.

Pediatric: 0.1mg/kg IV (maximum 0.4mg per dose) or 1mg IM/IN may be repeated in 3 minutes if respirations are not normalized and contact receiving emergency department for further orders.

Carbon monoxide – administer high flow oxygen. Pulse oximetry is not reliable in carbon monoxide poisoning.

Cyanide – If available, administer Cyanokit 5gm appropriately diluted with 0.9% normal saline (100cc NS in each 2.5gm vial, or 200cc NS in 5gm vial) over 15 minutes.

Pediatric dose: 70mg/kg up to maximum 5grams

Nerve agent/organophosphate/Carbamate – Follow *Nerve Agent/organophosphate/Carbamate* protocol

3) Transport ASAP and contact receiving emergency department

NERVE AGENT/ORGANOPHOSPHATE/CARBAMATE POISONING

ADULT or OLDER CHILD

CRITERIA:

Any patient with suspected or know exposure to apparent nerve agent, organophosphate, or Carbamate (such as insecticide).

Age: Adults or children ≥ 10 years old and $> 40\text{kg}$ (utilize pediatric protocol for younger or smaller children).

Utilize the following symptom list to choose appropriate care of exposed patient.

Mild-moderate symptoms

Blurred vision
Pinpoint pupils
Excessive runny nose or watery eyes due to apparent exposure
Increased salivation/drooling
Chest tightness or mild/moderate difficulty breathing
Mild tremors or muscular twitching diffusely
Nausea/vomiting/diarrhea
Abdominal cramping

Severe symptoms

Mild to moderate symptoms in addition to one of the following:
Severe difficulty breathing or copious airway secretions
Altered mental status
Severe muscular twitching and weakness
Seizures
Apnea
Unconsciousness

NERVE AGENT/ORGANOPHOSPHATE/CARBAMATE POISONING, CONT.

ADULT or OLDER CHILD

ACTION:

- 1) Personnel should maintain all scene safety precautions per your department guidelines
- 2) Patient should be safely removed from contaminated area and thoroughly decontaminated by appropriately prepared personnel
- 3) Follow ***Initial Medical Care*** and ***Airway Management*** protocols, including cardiac and oximetry monitoring. Consider CPAP use for moderate/severe symptoms
- 4) Determine severity of symptoms and treat accordingly
 - a) **Exposure only, zero or one mild symptom**
 - i) **Do not** treat with Duo dote
 - ii) Monitor patient for development of symptoms and treat accordingly if they develop
 - iii) Transport symptomatic patient
 - b) **Two (2) or more mild-moderate symptoms:**
 - i) Administer 1 Duo dote injector
 - ii) Transport as soon as possible
 - iii) Observe patient for 10-15 minutes. If symptoms do not worsen, continue observation and transport
 - iv) **If symptoms worsen at any time**, or if after 15 minutes no improvement, repeat 1 Duo dote injection **up to two more times** as needed
 - c) **Severe symptoms**
 - i) Administer 3 Duo dote injectors
 - ii) For seizure follow ***Seizure*** protocol
 - iii) Transport as soon as possible
- 5) Manage other issued according to appropriate protocols
- 6) Contact receiving emergency department, discuss further drug administration needs and transport as soon as possible

NERVE AGENT/ORGANOPHOSPHATE/CARBAMATE POISONING

YOUNGER PEDIATRIC

CRITERIA:

Patient with suspected or know exposure to apparent nerve agent or organophosphate (such as insecticide)

Pediatric protocol applies to children < 10 years of age as well as any children \leq 40 kg

For children \geq 10 years of age and > 40 kg, utilize Nerve Agent/organophosphate Poisoning/Adult protocol

Utilize the following symptom list to choose appropriate care of exposed patient:

Mild-moderate symptoms

Blurred vision
Pinpoint pupils
Excessive runny nose or watery eyes due to apparent exposure
Increased salivation/drooling
Chest tightness or mild/moderate difficulty breathing
Mild tremors or muscular twitching diffusely
Nausea/vomiting/diarrhea

Severe symptoms

Mild-moderate symptoms in addition to the following:

Severe difficulty breathing or copious airway secretions
Altered mental status
Severe muscular twitching and weakness
Seizures
Apnea
Unconsciousness

ACTION:

- 1) Personnel should maintain all scene safety precautions per your department guidelines
- 2) Patient should be safely removed from contaminated area and thoroughly decontaminated by appropriately prepared personnel

NERVE AGENT/ORGANOPHOSPHATE/CARBAMATE POISONING

PEDIATRIC

- 3) Initiate **Initial Medical Care** and **Airway Management** protocols, including cardiac and oximetry monitoring
- 4) Determine severity of symptoms and treat accordingly
 - a) **Exposure only, with zero or one mild symptom**
 - i) Monitor patient for development of symptoms and **treat accordingly** if they develop
 - ii) Transport symptomatic patient
 - b) **Two (2) or more mild-moderate symptoms:**
 - i) Administer Atropine 0.05mg/kg IV/IO/IM
 - ii) Transport as soon as possible
 - iii) Observe patient for 10-15 minutes. If symptoms do not worsen, continue observation and transport
 - iv) **If symptoms worsen at any time**, or if after 15 minutes with no improvement, administer Atropine 0.1mg/kg IV/IO/IM

Repeat every 2-5 minutes until improvement is being observed.
(There is no maximum limit on repeat doses if required)
 - c) **Severe symptoms**
 - i) Administer Atropine 0.1mg/kg IV/IO/IM

Repeat every 2-5 minutes until improvement is being observed
(There is no maximum limit on repeat doses if required)
 - ii) **For seizures**, follow **Seizure** protocol
 - iii) Transport as soon as possible
- 5) Manage other issues according to appropriate protocols
- 6) Contact receiving emergency department to discuss further drug administration

PSYCHIATRIC DISORDERS

CRITERIA:

Adult or pediatric patient who is suffering from an apparent acute exacerbation of a psychiatric disorder including, but not limited to, suicidal or homicidal ideation, intention to harm self, acute psychosis

ACTION:

- 1) At all times personnel should assess the scene and situation to assure their own safety. Do not approach the patient unless safe to do so. Request Law Enforcement assistance as needed
- 2) Perform ***Initial Medical Care*** if allowed by the patient. Gather information regarding the situation from family and bystanders
- 3) Consider, evaluate for and treat possible medical causes (such as hypoglycemia) as the patient allows. Follow applicable protocols.
- 4) **Transport the patient to a facility with inpatient psychiatric care available**, unless there is an immediately life-threatening medical condition requiring immediate emergency department care (such as shock or cardiac arrest). In that case, transport to the closest appropriate facility.
- 5) **Restrain patient if necessary** to prevent harm to the patient or personnel, following ***Patient Restraint*** and ***Behavioral Sedation*** protocols

PATIENT RESTRAINT

CRITERIA:

Patients exhibiting behavior requiring restraint to prevent harm to themselves or others. This may include violent behavior, or behavior which jeopardizes airway, breathing, or circulation.

ACTION:

Personnel should utilize what they assess to be the least restrictive, yet effective restraint available which protects the patient and EMS personnel. Personnel should have an immediate means to release the restraints if necessary.

Reassess vital signs every five (5) minutes while patient is restrained

Acceptable restraint types:

- 1) Padded or soft restraints (such as Kerlix, Velcro, or Posey)
- 2) Metal handcuffs or hard plastic flex-cuffs

These may only be applied by Law Enforcement personnel. Law Enforcement personnel must accompany the patient in the ambulance if metal handcuffs are used. Only Law Enforcement personnel are to remove metal handcuffs

Law enforcement responsibilities:

- 1) Law enforcement personnel are responsible for the capture and/or restraint of potentially violent patients. EMS personnel should obtain assistance from law enforcement to prepare patients for transport
- 2) Law enforcement agencies retain primary responsibility for safe transport of patients under arrest or involuntary detention
- 3) Patients under arrest or involuntary detention shall be searched thoroughly by law enforcement personnel prior to being placed in the ambulance
- 4) Patients under arrest must always be accompanied by law enforcement personnel
- 5) EMS and law enforcement personnel should mutually agree on need for law enforcement assistance during transport of involuntary detention patients

BEHAVIORAL SEDATION

CRITERIA:

Any patient who is combative and cannot be safely restrained without significantly risking harm to the patient, EMS personnel or law enforcement personnel. Behavioral sedation **shall not be used** except when paramedic personnel will continuously monitor and care for the patient until arrival at the receiving emergency department.

ACTION:

- 1) **Consider, evaluate, and treat for other causes of combative behavior**, including such causes as hypoglycemia, hypoxia, head injury, etc.

- 2) Choose ONE sedative:

Ketamine is 1st drug of choice for all but suspected drug overdose patients

Midazolam is 1st drug of choice for drug overdose patients

Ketamine

IM or intranasal: 4mg/kg

or

IV 1mg/kg

Midazolam

IM or intranasal 10 mg

or

IV If \geq 50kg, administer 5mg IV

If < 50kg, administer 2.5mg IV

Pediatrics: Contact medical control for possible medical intervention

- 3) Monitor airway closely, as well as pulse oximetry and heart rhythm, repeating vital signs every 5 minutes
- 4) Follow **Initial Medical Care** protocol and other applicable protocols
- 5) Transport to nearest appropriate emergency department as soon as possible

ALLERGIC REACTION

CRITERIA:

Patient presents with signs and symptoms of allergic reaction or history of previous reaction and currently having similar signs or symptoms

ACTION:

- 1) Follow **Initial Medical Care** protocol
- 2) Auscultate breath sounds
 - a) Note presence and degree of inspiratory and expiratory wheezes
 - b) Note use of accessory muscles
- 3) Categorize patient and treat accordingly as below:

Minor Rash or skin flushing only:

- a) Administer Diphenhydramine
Adult: 50mg IV or IM
Pediatric: 0.5mg/kg to maximum 50mg IV or IM

If any of these exist: Apparent shock, hypotension, diffuse rash or skin flushing, facial or airway swelling or tightness or compromise, respiratory distress, gastrointestinal symptoms such as abdominal pain or vomiting:

- a) Administer Epinephrine 1:1,000 IM, 0.01mg/kg to a maximum of 0.5mg
- b) And Diphenhydramine
Adult: 50mg IV or deep IM
Pediatric: 0.5mg/kg (up to 50mg) IV or IM
- c) **And** Solu-Medrol (methylprednisolone)
Adult: 125mg IVP
Pediatric: 2mg/kg to maximum of 125mg IVP
- d) If respiratory distress with wheezing, administer Albuterol 2.5mg nebulizer

ALLERGIC REACTION, CONT.

If after 5 minutes patient is worsening or remains significantly symptomatic:

Repeat Epinephrine 1:1000 IM, 0.01mg/kg to a maximum of 0.5mg. Repeat every 5-10 minutes if severe symptoms remain

If condition worsens to apparently life-threatening:

Adult and Pediatric: Administer Epinephrine IV drip

To administer epinephrine drip: Mix 1 ml Epinephrine 1:1000 (Also known as 1mg/ml) in 1 Liter of Normal Saline. Using **micro drip set**, begin @ 60gtt/min. Titrate rate to effect.

CHOKING/FOREIGN BODY AIRWAY OBSTRUCTION

CRITERIA:

Adult, child or infant with apparent airway obstruction from foreign body

ACTION:

- 1) Determine severity of obstruction

Signs of severe obstruction can include:

Adults and children:

Difficulty breathing, poor air exchange, cyanosis, inability to speak or breathe, silent cough

Infants:

Inability to cough, inability to make sounds or breathe, severe difficulty breathing

- 2) Treat according to severity and level of consciousness

Severe obstruction:

Conscious adult or child:

- a) Deliver abdominal thrusts until obstruction is relieved or patient becomes unconscious
- b) If patient becomes unconscious, *see below*

Unconscious adult or child:

- a) Open airway, quickly inspect for and remove foreign body
- b) Attempt to ventilate
- c) If unable to ventilate, initiate CPR
- d) Prior to each ventilation, check for obstructing object and remove if able
- e) Continue this cycle until object is dislodged
- f) Utilize suction and/or Magill forceps as needed

CHOKING/FOREIGNBODY AIRWAY OBSTRUCTION, CONT.

- g) If object is dislodged, assess airway, breathing and circulation and treat with applicable protocol

Conscious infant:

- a) Deliver 5 back blows then 5 chest thrusts
- b) Visually check airway for obstructing object and remove
- c) Repeat cycle of 5 back blows, 5 chest thrusts and visual check until object is dislodged or patient becomes unconscious
- d) Transport and contact receiving emergency department ASAP
- e) If patient becomes unconscious, *see below*

Unconscious infant:

- a) Open airway, quickly inspect for and remove foreign body
 - b) Attempt to ventilate
 - c) If unable to ventilate, initiate CPR
 - d) Prior to each ventilation, check for obstructing object and remove if able
 - e) Continue this cycle until object is dislodged
 - f) Utilize suction and/or Magill forceps as needed
 - g) If object is dislodged, assess airway, breathing and circulation and treat with *applicable protocol*
- 3) Transport choking patients ASAP and contact receiving emergency department

DYSPNEA

BRONCHOSPASM

ASTHMA/REACTIVE AIRWAY DISEASE/COPD/WHEEZING

CRITERIA:

Any patient with:

- Respiratory distress with wheezing or prolonged expiratory phase **OR**
- Respiratory distress with history of asthma or COPD and no other apparent cause of dyspnea **OR**
- Wheezing secondary to suspected infection, allergic reaction or inhalation exposure

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) Administer nebulized bronchodilator according to age:

Adult:

DuoNeb (Albuterol 2.5mg plus Ipratropium 0.5mg). Repeat 2.5mg to 5mg as needed for continuing respiratory distress (for patients with peanut allergy administer 2.5mg Albuterol nebulized) If > 3 nebulizer treatments required, proceed to Albuterol 2.5mg only

Pediatric:

Albuterol 2.5mg. Repeat as needed for continuing respiratory distress

- 3) In COPD or adult asthma patients requiring repeated nebulizer treatments; administer Solu-Medrol 125mg IV
- 4) For severe dyspnea, apply CPAP according to ***Continuous Positive Airway Pressure (CPAP)*** protocol
- 5) For patient in extremis, assist ventilations and be prepared to intubate as necessary. Deliver appropriate nebulized meds via adaptable bag valve device.
- 6) Transport ASAP and contact receiving emergency department

DYSPNEA

CONGESTIVE HEART FAILURE/PULMONARY EDEMA

CRITERIA:

Patient with signs/symptoms of congestive heart failure and/or pulmonary edema

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) Administer the following medications according to blood pressure:

Do NOT allow patient to take any form of nitroglycerin if patient has ingested erectile dysfunction drugs within the past 72 hours (such as Viagra, Cialis, Levitra, Stendra, etc.)

If SBP 110-139:

Administer 0.4mg Nitro SL every 5 minutes until distress is relieved or SBP <110

If SBP 140 or greater, ALSO:

Administer 1 inch Nitroglycerine past to chest wall

If SBP less than 110:

Continue oxygen therapy

- 3) For **severe dyspnea**
Administer CPAP per ***Continuous Positive Airway Pressure (CPAP)*** protocol
- 4) Transport ASAP and contact receiving emergency department

CROUP/EPIGLOTTITIS

CRITERIA:

Any patient that experiences dyspnea with suspicion of croup or epiglottitis

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) Administer Racemic Epinephrine (Vaponephrine)
 - **>5 kg:** 0.5ml Racemic Epi in 3ml N.S. via nebulizer
 - **5 kg or less:** 0.25ml of Racemic Epinephrine in 3ml N.S. via nebulizer
- 3) Transport ASAP and contact receiving emergency department

Patients with epiglottitis may have sudden complete airway obstruction if they become emotionally upset. Transport ASAP in comfortable and comforting position – generally sitting upright. AVOID unnecessary stimulation such as oral-pharyngeal exam and/or IV access unless patient is in extremis.

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

CRITERIA:

Any patient in respiratory distress with signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF, pneumonia or near-drowning **and who is:**

- 1) Awake, able to follow commands and able to self-maintain airway
- 2) Older than 17 years and able to fit in CPAP mask
- 3) **And** exhibiting one or more of the following:
 - a) **RR > 24**
 - b) **SPO2 < 90%**
 - c) **Using accessory muscles**
 - d) **Severe distress not relieved by O2 and appropriate medication**

Contraindications:

Do Not apply CPAP if any of the following exist:

- 1) Respiratory arrest/apnea
- 2) Suspected pneumothorax or chest trauma
- 3) Patient has a tracheostomy
- 4) Actively vomiting or has upper GI bleeding

ACTION:

- 1) Follow applicable protocols, including appropriate medication administration
- 2) Place appropriately sized mask over mouth and nose and secure
- 3) Administer CPAP at 5-10 cm H2O
- 4) Check for air leaks, readjusting equipment as appropriate
- 5) Continuously monitor pulse oximetry and EtCO2
- 6) Obtain and document vital signs every 5 minutes

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP), CONT.

- 7) Monitor and document patient response to treatment.
- 8) Notify receiving emergency department ASAP of incoming CPAP patient

HYPERVERTILATION SYNDROME

CRITERIA:

Characterized by dyspnea with rapid respirations, numbness and tingling of face and extremities, and carpopedal spasms. Oxygen saturation readings should generally be > 95%.

ACTION:

- 1) Follow ***Initial Medical Care*** protocol, initiate EtCO₂ monitoring.
- 2) Rule out other causes of dyspnea before assuming that hyperventilation is the cause of dyspnea (ASA overdose, etc...)
- 3) Attempt to calm patient, place in comfortable position
- 4) Have patient breathe and re-breathe into and out of a paper bag
- 5) Transport and contact receiving facility

PNEUMOTHORAX

CRITERIA:

Can occur spontaneously or as a result of trauma

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) If suspected pneumothorax is due to trauma, refer to ***General Trauma Management*** protocol
- 3) Assess for tension pneumothorax – characteristics may include decreased breath sounds on affected side with at least 1 of the following:
 - a) Severe, worsening dyspnea
 - b) Vital signs becoming unstable (e.g., tachycardia, with falling BP)
 - c) Jugular vein distension
 - d) Tracheal deviation (away from affect side)
 - e) Cyanosis
- 4) If tension pneumothorax is suspected:
 - a) Perform needle thoracostomy using 14 or 16 gauge angiocath placed in the 4th intercostal space, mid-axillary line or in the 2nd intercostal space, over the 3rd rib, mid-clavicular line
 - b) Remove the needle
 - c) Angiocath may be left in place
 - d) Reassess frequently for redevelopment and treat appropriately
- 5) Transport as soon as possible and contact receiving emergency department

**CEREBROVASCULAR &
CARDIOVASCULAR
EMERGENCIES**

CEREBROVASCULAR ACCIDENT (CVA)
STROKE

CRITERIA:

Sudden onset of neurologic deficit or severe headache suspicious for stroke, and not obviously attributed to trauma

ACTION:

Time is of the essence in stroke management. Any patient whose symptoms have begun within **24 hours** of EMS evaluation should be transported as urgently as is safely possible to a Medical Director-approved stroke-capable hospital.

- 1) Follow ***Initial Medical Care*** protocol

- 2) Determine **time patient was last seen normal**.

- 3) Assess patient with the Cincinnati Stroke Scale. If abnormal, perform RACE stroke scale.

- 4) Obtain blood glucose level. If < 70 and history is suggestive of hypoglycemia, administer 12-25gm (25-50ml) D50 IVP. If IV access is not attainable, administer Glucagon 1mg IM.

- 5) **Transport guidelines of suspected stroke patient:**
Begin transport as soon as possible to the destination hospital according to the following guidelines. Notify hospital of "Stroke Alert".

Transport to nearest Medical Director-approved stroke-capable hospital if EITHER:

- Last seen normal <4 hours from time of EMS evaluation or >24 hours
- OR
- Any possible stroke patient with RACE score < 5

Transport to a Comprehensive Stroke Center if BOTH:

RACE score \geq 5 AND stroke Sx for 4-24 hours

- 6) If en-route to Hendricks Regional Health, follow ***Telestroke*** protocol. Telestroke system via supplied equipment and await ED staff instructions.

Cincinnati Prehospital Stroke Scale

Facial Droop (have patient show teeth or smile):

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, palms up):

Normal – both arms move the same or both arms do not move at all

Abnormal – one arm does not move or one arm drifts down compared with the other

Speech (have the patient say “you can’t teach old dog new tricks”):

Normal – patient uses correct words with no slurring

Abnormal – patient slurs words, uses inappropriate words, or is unable to speak

RACE Stroke Scale

Facial Palsy	Absent	0
	Mild	+1
	Moderate/Severe	+2
Arm Motor Impairment	Normal/Minimal	0
	Moderate	+1
	Severe	+2
Leg Motor Impairment	Normal/Minimal	0
	Moderate	+1
	Severe	+2
Head and Gaze Deviation	Absent	0
	Present	+1
Hemiparesis (Left <u>or</u> Right)	If LEFT hemiparesis	
	<i>Ask the patient: (1) While showing patient the paretic arm, “Whose arm is this?” (2) “Can you lift both arms and clap?”</i>	
	Patient recognizes his/her arm and the impairment	0
	Does not recognize his/her arm or the impairment	+1
	Does not recognize his/her arm AND the impairment	+2
	If RIGHT hemiparesis	
<i>Instruct the patient: (1) Close your eyes” (2) “Make a fist.”</i>		
Performs both tasks correctly	0	
Performs one task correctly	+1	
Performs neither task correctly	+2	

TELESTROKE

CRITERIA: Suspected acute stroke patient with symptoms of 7 hours or less, being transported to Hendricks Regional Health

ACTION:

- 1) Follow **Cerebrovascular Accident (CVA/Stroke)** protocol
- 2) Log into Telestroke system via supplied equipment and await ED staff instruction
- 3) When prompted, report the following information:
 - **Patient name and date of birth**
 - **Last time patient was seen normal**
 - **Blood glucose level**
 - **Anticoagulant medications: Is patient taking any of the following medications?**
 - Warfarin (Coumadin)
 - Enoxaparin (Lovenox)
 - Fondaparinux (Arixtra)
 - Xarelto (Rivaroxban)
 - Pradaxa (Dabigatran)
 - Apixaban (Eliquis)
 - Edoxaban (Savaysa)
- 4) When prompted, initiate NIHSS exam via live feed on Telestroke system

CHEST PAIN

CRITERIA:

Any adult patient with chest pain of suspected cardiac origin

ACTION:

- 1) Follow ***Initial Medical Care*** protocols
- 2) Administer 4 baby aspirin (324mg total) to be chewed **if the patient has no known allergy to aspirin**
- 3) Obtain 12-lead ECG **ASAP** and if capable, transmit to receiving emergency department

If patient's presentation is highly suggestive of ACS, perform ECG with right-sided lead (V4R) and transmit, if capable, to emergency department. If ECG indicates STEMI, transport to the nearest STEMI intervention capable facility or location where air transport can be initiated if it will reduce time of arrival to STEMI center.

- 4) Administer Nitroglycerin

Nitroglycerin should be withheld also when 12-lead ECG suggests an acute right ventricular infarct.

Do not administer any form of Nitroglycerin if patient has ingested any erectile dysfunction drugs (e.g., Viagra, Cialis, Levitra) within the past 72 hours. Ask both males and females!

If systolic blood pressure is above 110mmHg: Administer 0.4mg sublingual

May be repeated every 5 minutes

If systolic blood pressure is \geq 140: In addition to sublingual Nitroglycerin, apply 1 inch Nitro paste to chest wall

- 5) **If moderate to severe pain persists and SBP \geq 110mmHg:**

Administer analgesia according to ***Pain Management*** protocol

- 6) Transport ASAP and contact receiving emergency department, advise of suspected STEMI

CARDIOGENIC SHOCK

CRITERIA:

Patient is hypotensive due to a suspected cardiac event, and has a heart rate between 60 and 150 per minute

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) **If the patient has no signs of pulmonary edema:**
Administer 250ml boluses of normal saline
 - a) To obtain systolic blood pressure of 100mmHg or greater **OR**
 - b) **A maximum of 500ml infused**, then contact receiving emergency department for further orders
 - c) **After each bolus, reassess for signs of pulmonary edema, including breath sounds. Discontinue fluid bolus if evidence of pulmonary edema**
- 3) **If the patient has evidence of pulmonary edema and systolic blood pressure is less than 90mmHg:**
 - a) Contact Medical Control and discuss possible initiation of Norepinephrine (Levophed)
 - Use largest size IV possible in proximal extremity (18-20 gauge preferred in AC)
 - Initial Norepinephrine dose = 2-4 mcg/min
 - Titrate to SBP >90
 - Monitor infusion site frequently and if patient develops signs of extravasation such as pain, swelling, numbness, or redness; stop infusion immediately

CARDIOGENIC SHOCK, CONT.

How to mix a Norepinephrine (Levophed) drip:

- Mix 4mg (4ml or 4mg/4ml solution) in 250 ml bag of D5W (concentration = 16 mcg/ml)
- Use 60 drops/ml solution set
- Maximum 12 mcg/min
- Rates:

mcg/min	2	4	6	8	10	12
@gtt/min	8	15	23	30	38	45

- 4) Begin transport as soon as possible and contact receiving emergency department

VENTRICULAR ASSIST DEVICE (SUCH AS LVAD)

CRITERIA: Patient with Ventricular Assist Device (VAD)

ACTION:

- 1) Follow **Initial Medical Care** and other applicable protocols
- 2) Utilize the best resources for the patient – their caregiver, and their VAD Coordinator (pt. should have contact card). **Contact VAD coordinator ASAP**
- 3) Use clinical judgment to determine need for CPR. Is patient perfusing? (responsive, warm, pink, with good capillary refill)
 - a. Peripheral pulses may not be present
 - b. BP can likely be measured only with Doppler
- 4) Auscultate chest over the pump for a mechanical whirring sound
 - a. **If whirring sound not present:**
 - Initiate CPR and **Cardiac Arrest** protocols
 - Utilize all standard ACLS drugs per **Cardiac Arrest** protocols
 - Defibrillation and cardioversion are performed in the usual manner
 - Check LVAD system
 - Control panel for alarms
 - Power supply (battery) connections
 - Never disconnect both batteries at the same time
 - **CONTACT PATIENT'S VAD COORDINATOR**
 - b. **If whirring present:**
 - If **NO SIGNS of perfusion**, follow applicable protocols (**Cardiac Arrest**, dysrhythmias, **Shock/Hypotension**, etc.)
 - If altered but present perfusion, utilize applicable protocols, including **Shock/Hypotension**
 - **CONTACT PATIENT'S VAD COORDINATOR**
- 5) Transport patient to VAD center and contact the receiving facility
 - Take patient's Travel Bag, extra controller, batteries, cables, and any other VAD equipment

DYSRHYTHMIAS
&
CARDIAC ARREST

BRADYCARDIA
ADULT

CRITERIA:

Adult patient who presents with a palpable pulse less than 60 beats per minute

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) Assess for signs/symptoms of poor perfusion (e.g., acute altered mental status, SBP < 90, chest pain, shock) and treat accordingly:

If adequate perfusion

- Continue to monitor closely, transport

If poor perfusion

- Administer Atropine 0.5mg every 3-5 minutes until symptoms or bradycardia resolve, to maximum total dose of 3mg
- Utilize up to two 250ml normal saline boluses for hypotension if not pulmonary edema obvious

Begin immediate transcutaneous pacing if poor perfusion and any of these criteria exist:

- Second degree Mobitz type II or 3rd degree heart block
- Severely symptomatic
- 3mg Atropine has been administered and poor perfusion remains

Transcutaneous pacing settings:

- Heart rate at 70
 - Begin at 10 milliamps, titrate to capture
- 3) Obtain 12-lead ECG at scene or en route, transmit to emergency department if capable
 - 4) If needed, administer 0.2mg/kg Ketamine IV for relief of discomfort. May be repeated every 5-10 minutes as needed up to total of 3 doses.
 - 5) Notify receiving emergency department as soon as possible

BRADYCARDIA PEDIATRIC

CRITERIA:

Pediatric bradycardia with pulses, causing shock, or cardiorespiratory compromise

- **HR < 80 age 0-12 months**
- **HR < 60 age 1-8 years**

Bradycardia with cardiorespiratory compromise is an ominous sign of impending cardiac arrest in pediatric patients. It is commonly caused by poor oxygenation/ventilation

ACTION:

- 1) Follow ***Initial Medical Care*** protocol. Provide adequate oxygenation, ventilation and stimulation. Assess vital signs and capillary refill
- 2) **If bradycardia remains** and patient shows signs of poor perfusion, hypotension, or has respiratory or cardiac compromise:
 - Begin CPR if HR < 60
 - Initiate IV (or IO if unable to initiate IV)
 - Administer 0.01mg/kg Epinephrine 1:10,000 (0.1ml/kg) IV/IO every 3-5 minutes (maximum 1 mg/dose)

If bradycardia and poor perfusion persist:

- Administer 0.02mg/kg Atropine IV/IO (minimum 0.1mg, maximum 1mg per dose) Repeat once in 3-5 minutes if needed
- 3) Search for any reversible causes of hypoxemia
 - 4) Transport as soon as possible and contact medical control
 - 5) **If at any time pulses are lost, follow appropriate *Cardiac Arrest* protocol**

NARROW COMPLEX TACHYCARDIA
ADULT

CRITERIA:

Adult patient with any sustained narrow QRS complex tachycardia with pulses (except for sinus tachycardia)

Includes such rhythms as junctional tachycardia, supraventricular tachycardia, atrial fibrillation, and atrial flutter.

ACTION:

- 1) Follow ***Initial Medical Care*** protocol, apply cardiac monitor
- 2) Assess for instability (e.g., hypotension, altered level of consciousness, shock)

Stable

Determine likely rhythm

If SVT, administer 12mg Adenosine IVP

- If no change in two minutes, repeat Adenosine 12mg IVP

****Immediately after each Adenosine dose, bolus 10cc normal saline rapid push****

- **If narrow complex rhythm other than SVT**, continue monitoring and transport

Unstable

Conscious:

If non-SVT:

- Proceed to synchronized cardioversion
- Synchronize cardiovert at 100 joules
- If rhythm unchanged, repeat cardioversion increasing dose by 50-100 joules with each successive shock

If SVT, administer Adenosine IVP (repeat 12 mg if no change in 2 minutes)

- For all rhythms, if no or SVT not responding to Adenosine, administer 500cc bolus normal saline, up to 1L or SBP >90
- Contact Medical Control to discuss further care including synchronized cardioversion

If patient becomes unconscious, proceed to synchronized cardioversion

For synchronized cardioversion:

- Administer Ketamine 1 mg/kg IV/IO
 - Synchronize cardiovert starting at 100 joules
 - If rhythm unchanged, repeat synchronized cardioversion as needed, increasing dose by 50-100 joules with each successive shock
- 3) Transport as soon as possible and contact medical control
 - 4) Obtain a 12-lead ECG and transmit

NARROW COMPLEX TACHYCARDIA
PEDIATRIC

CRITERIA:

Pediatric patient with any sustained narrow QRS complex tachycardia with pulses, usually >200, except for sinus tachycardia

Includes such rhythms as junctional tachycardia, supraventricular tachycardia, atrial fibrillation, atrial flutter, atrial tachycardia

ACTION:

- 1) Follow **Initial Medical Care** protocol. Confirm rhythm is not sinus tachycardia

Stable

SVT: Administer Adenosine 0.1mg/kg IVP (6mg maximum)

If condition remains unchanged, repeat Adenosine at double the dose given. May repeat this same double dose once if no change.

***** Immediately after each dose Adenosine, bolus 10cc normal saline push*****

If history of WPW, DO NOT ADMINISTER ADENOSINE unless directed to do so by contacting medical control

Unstable

SVT: Administer Adenosine 0.1mg/kg IVP (maximum 6mg)

If patient becomes unconscious: Synchronize cardiovert at 1J/kg, if rhythm remains unchanged, repeat cardioversion at 2J/kg

If conscious: Contact medical control before cardioversion for further orders

Non SVT rhythms: Administer up to two (2) 20ml/kg normal saline boluses to achieve normal blood pressure. Contact Medical Control to discuss possible cardioversion

- 2) Transport as soon as possible and contact receiving emergency department

VENTRICULAR TACHYCARDIA-SUSTAINED

ADULT

CRITERIA:

Sustained ventricular tachycardia or wide QRS complex tachycardia

ACTION:

- 1) Follow ***Initial Medical Care*** protocol
- 2) Assess for stability and treat accordingly:

For pulseless VT, follow *Cardiac Arrest* protocol.

Stable

- Administer Amiodarone 150mg IV over 10 minutes
(Mix 150mg Amiodarone in 100mL Normal Saline and administer via mini drip set over 10 minutes)
- Repeat in 5 minutes if unchanged.

Unstable (such as shock, altered level of consciousness)

- If conscious, sedate with Ketamine 1mg/kg IV
- Synchronize cardiovert at 100 joules
- **If unchanged**, repeat cardioversion, increasing energy by 100 joules with each successive shock
- Administer Amiodarone 150mg IV over 10 minutes
- **If VT persists after 5 minutes**, repeat Amiodarone 150mg over 10 minutes and contact receiving emergency department for further orders

Torsades de pointes

- Administer Magnesium Sulfate 2 grams IV over 10 minutes
- If patient does not convert, contact medical control and be prepared to cardiovert as needed
- Transport as soon as possible and contact receiving emergency department

CARDIOPULMONARY RESUSCITATION (CPR)

The following emphasizes some of the important parameters of CPR administration.

ACTION:

CPR should be initiated on patients with no detectable pulse, and in neonatal patients with a heart rate <60. Initiate CPR per “Pit Crew Model”.

- 1) **MINIMAL INTERRUPTION OF COMPRESSIONS:** It is imperative that compressions be minimally interrupted in order to maintain life-saving coronary blood flow during CPR. While it is understood that compressions must be interrupted on occasion, such as during a pulse check or to transfer a patient to a cot for transport, these interruptions should be kept to a minimum.
 - a) **During procedures: Compressions should continue** during procedures such as initiation of IV or IO, or airway placement.
 - b) **Pre and Post-defibrillation:** Compressions should continue until immediately prior to defibrillating the patient, then immediately restarted.
 - c) **“Pulse check”:** After the initial pulse check, personnel should stop compressions for a pulse check approximately every 2 minutes. Personnel should take a **maximum of 10 seconds** to check for a pulse and then **restart compressions immediately** if none is found.
 - d) **During transfer/transport:** Compressions should be withheld only if there is a safety or environmental situation during transfer of a patient which would make compressions impossible or dangerous to the patient or personnel (e.g., when placing on a backboard or cot, into an ambulance, or moving down stairs). These interruptions should be kept to a bare minimal time period and restarted as soon as possible.
- 2) Passive vs. Active ventilation during initial minutes of CPR:

Age Puberty through adulthood ONLY:

Passive ventilation:

If arrest is not suspected to be of respiratory or traumatic cause, and if active ventilation (bagging) is not in progress on arrival, begin passive ventilation for the first three (3) 2-minute rounds of CPR.

- a. Use a NP or OP airway and a non-rebreather mask at 15+lpm

- b. After 3 rounds of CPR, initiate active ventilation utilizing an ambu-bag along with mask, ETT, or Medical Director-approved extraglottic airway

Active Ventilation:

If arrest is suspected to be of respiratory or traumatic cause, or if the patient already has active (bagging) ventilation in progress on arrival, proceed with active ventilation.

3. DEPTH AND RATE OF COMPRESSIONS/VENTILATIONS:

- a) **Age puberty through adulthood:**
Compression rate: 100-120/minute
Compression/ventilation ratio with no advanced airway: 30:2
Ventilation rate with advanced airway: 10 breaths/minute
Depth: ≥ 2 inches
- b) **Age infant through pre-puberty:**
Compression rate: 100-120/minute
Compression/ventilation ration with no advanced airway: 30:2 (one rescuer) 15:2 (two rescuers)
Ventilation rate with advanced airway: 12-20 breaths/minute
Depth: Approximately 1/3 chest thickness (infant 1.5 inches, child 2 inches)
- c) **Neonate (perform CPR if HR<60 despite adequate ventilation)**
Compression and ventilation rate: 120 events/minute
Compression/ventilation ratio: 3:1
Ventilation rate: 30 breaths/minute
Depth: 1/3 chest thickness

***** It is important that hyperventilation during CPR be avoided. Except for neonates, ventilations should be at a maximum of 8-10 per minute. The ventilation rate for neonates is 30/minute.*****

CARDIAC ARREST – AGE PUBERTY TO ADULT
Vfib OR PULSELESS VT

CRITERIA:

Pulseless ventricular fibrillation or ventricular tachycardia in adult patients.

ACTION:

- 1) Start CPR (perform CPR for 2 minutes before defibrillation on unwitnessed arrest)
- 2) Attach defibrillator
 - Defibrillate according to manufacturer guidelines
 - **Immediately resume CPR** for 2 minutes, then check pulse and rhythm
 - **If patient converts to non-VT or non-VF rhythm, treat accordingly**
 - **If pulseless VT or VF remains, defibrillate at maximum joules then immediately continue CPR for 2 minutes** before recheck of pulse and rhythm
- 3) Initiate IV/IO. Initiate EtCO₂ monitoring once ETT or extraglottic airway is placed.
- 4) **If pulseless VT or VF continues, initiate drug therapy.** After each drug administration, circulate with CPR for a minimum of 30-60 seconds, then defibrillate.
 - Epinephrine 1mg IO/IO every 3-5 minutes while in arrest
 - Amiodarone 300mg IV/IO push once
 - Repeat Amiodarone 150mg IV/IO push **once**, if not change after 5 minutes
 - **If Torsades de Pointes, administer Magnesium Sulfate 2 grams IV before any Amiodarone.** If rhythm unchanged, proceed to Amiodarone
- 5) Continue cycle of **drug -> shock -> CPR -> shock -> CPR** for persistent or recurrent VF/pulseless VT

CARDIAC ARREST – AGE PUBERTY TO ADULT
Vfib OR PULSELESS VT, CONT.

- 6) **If pulses are restored**
 - Administer Amiodarone, 150mg IV over 10 minutes if not given during resuscitation
 - Initiate **Post Cardiac Arrest Care** protocol
- 7) Follow **Transport of Cardiac Arrest** protocol

CARDIAC ARREST – AGE NEWBORN TO PRE-PUBERTY
Vfib or PULSELESS VT

CRITERIA:

Ventricular fibrillation or pulseless ventricular tachycardia in patient age newborn to puberty

ACTION:

- 1) Immediately initiate CPR for 2 minutes and attach defibrillator as soon as available
- 2) When defibrillator is attached:
 - Defibrillate at 2 joules/kg
 - **Immediately begin CPR for 2 minutes** then check pulse and rhythm

If patient converts to non-VT or non-VF rhythm, treat according to applicable protocols and follow *Airway Management and Oxygen Therapy* protocol

If pulseless VT or VF continues, defibrillate at 4 joules/kg **then immediately continue CPR for 2 minutes** before check of pulse and rhythm

- 3) Initiate IV/IO as soon as possible, consider intubation or placement of approved extraglottic airway, without interruption of CPR. Initiate EtCO₂ monitoring.
 - If EtCO₂ <15 assess adequacy of CPR and confirm ventilation rate is 10/minute
- 4) **If pulseless VT or VF continues after 2nd shock, initiate drug therapy.** After each drug administration, circulate with CPR for 30-60 seconds, then defibrillate.
 - Epinephrine 0.01mg/kg IV/IO every 3-5 minutes
 - Amiodarone 5mg/kg (max. dose of 300mg) IV/IO push **once**
 - Repeat Amiodarone 5mg/kg (max. dose of 150mg) IV/IO push **once** if no change after 5 minutes
 - **If Torsades de Pointes**, administer Magnesium Sulfate 50mg/kg (max. 2g) IV before Amiodarone
 - If rhythm is unchanged, proceed with Amiodarone
- 5) Continue cycle of **drug -> shock -> CPR -> drug -> shock -> CPR** for persistent or recurrent VF/Pulseless VT
- 6) Follow *Transport of Cardiac Arrest* protocol

CARDIAC ARREST – AGE PUBERTY TO ADULT
PULSELESS ELECTRICAL ACTIVITY (PEA)

CRITERIA:

Pulseless electrical activity

ACTION:

- 1) Initiate CPR and assess for possible reversible causes such as hypovolemia, hypoxemia, tension pneumothorax, acidosis, cardiac tamponade, pulmonary embolism, hyperkalemia, drug overdose, hypothermia, myocardial infarction, multi-system trauma
- 2) Initiate ETCO₂ monitoring after ETT placement or extraglottic airway placement
- 3) Initiate IV/IO
- 4) Administer Epinephrine 1mg IV/IO every 3-5 minutes while in PEA
- 5) Continue CPR uninterrupted except to check pulse and rhythm every 2-3 minutes
- 6) If rhythm changes, treat according to applicable protocol
- 7) Follow **Transport of Cardiac Arrest** protocol
- 8) If ROSC occurs, follow **Post Cardiac Arrest** protocol

CARDIAC ARREST – AGE NEWBORN TO PUBERTY
PULSELESS ELECTRICAL ACTIVITY (PEA)

CRITERIA:

Pulseless electrical activity

ACTION:

- 1) Initiate CPR and assess for possible reversible causes such as hypoxemia, hypovolemia, tension pneumothorax, acidosis, hypothermia and multi-system trauma
- 2) Intubate, confirm placement, and reassess frequently. Initiate EtCO₂ monitoring
- 3) Initiate IV or IO if unable to initiate IV
- 4) Administer Epinephrine
 - Epinephrine 0.01mg/kg IV/IO every 3-5 minutes (0.1mL/kg 1:10,000)
- 5) Continue CPR uninterrupted except to check pulse and rhythm every 2-3 minutes
- 6) If rhythm changes, treat according to the appropriate protocol
- 7) Follow **Transport of Cardiac Arrest** protocol

CARDIAC ARREST – AGE PUBERTY TO ADULT
ASYSTOLE

CRITERIA:

Pulseless, monitor reveals asystole

ACTION:

- 1) Initiate CPR and confirm rhythm in more than one lead
- 2) Initiate EtCO₂ monitoring after ETT or extraglottic airway placement
- 3) Initiate IV or IO if unable to start IV
- 4) Administer Epinephrine 1mg IV/IO every 3-5 minutes
- 5) Continue CPR uninterrupted except to check pulse and rhythm every 2 minutes
- 6) Follow ***Transport of Cardiac Arrest Patient*** protocol
 - If rhythm changes, treat accordingly. If ROSC occurs, follow ***Post Cardiac Arrest*** protocol.
- 7) **Contact emergency department physician at receiving hospital as soon as possible for further orders, including permission to cease efforts (only if the patient is \geq 18 years old).**

CARDIAC ARREST – AGE NEWBORN TO PRE-PUBERTY
ASYSTOLE

CRITERIA:

Patient age newborn to pre-puberty who is pulseless, monitor reveals asystole

ACTION:

- 1) Initiate CPR and confirm rhythm in more than 1 lead
- 2) Intubate, confirm placement, and reassess frequently. Initiate EtCO₂ monitoring
- 3) Initiate IV or IO if unable to start IV
- 4) Initiate drug therapy
Epinephrine 0.01mg/kg IV/IO every 3-5 minutes (0.1mL/kg 1:10,000)
- 5) Continue CPR uninterrupted except to check pulse and rhythm every 2-3 minutes
- 6) If rhythm changes, treat according to the appropriate protocol.
- 7) Follow **Transport of Cardiac Arrest** protocol

POST CARDIAC ARREST CARE

CRITERIA:

Any patient 18 years of age or greater resuscitated from cardiac arrest who has a pulse present and remains unresponsive.

ACTION:

- 1) Follow *Airway Management* and *Oxygen Administration* protocols. Avoid hyper-oxygenation, but provide adequate oxygen to maintain oxygen saturation $\geq 94\%$
- 2) Ventilate at 8-10 breaths/minute. Monitor EtCO₂ with ventilatory rate titrated to EtCO₂ of 35-40 mm Hg
- 3) Utilize applicable protocols, including those for dysrhythmias and *Hypotension/Shock*
- 4) Obtain 12-lead EKG and transmit to receiving emergency department if possible. If STEMI is indicated, transfer to cath lab capable facility and notify receiving emergency department.
- 5) Check glucose and treat per *Hypoglycemia* protocol if applicable

TRANSPORT OF CARDIAC ARREST PATIENTS

CRITERIA:

Cardiac arrest patients on whom EMS personnel are performing resuscitative efforts

ACTION:

- 1) **Cardiac arrest patients who are victims of hypothermia** should be transported as soon as is safely possible, maintaining excellent CPR, with aggressive rewarming measures.
- 2) **If a cardiac arrest patient is suspected to be 20 + weeks pregnant**, make efforts to have Medical Director respond to the scene. If unable, immediately contact medical control to discuss transport
- 3) **If a cardiac arrest patient is <18 years of age**, continue resuscitative efforts for a minimum of 15 minutes before transport, unless ROSC is achieved.
- 4) All other cardiac arrest patients (≥ 18 years)
 - ALS personnel should **remain on scene** and continue resuscitative efforts according to applicable protocols, with minimal interruption of compressions until one of the follow has occurred:

a) A pulse if restored.

When return of spontaneous circulation (ROSC) occurs, initiate transport to appropriate emergency department as soon as is safely possible. Contact receiving emergency department.

- b) **30 minutes of ALS resuscitative efforts have been completed** (including, at a minimum, CPR, airway management with BVM or advanced airway, IV/IO access and appropriate ACLS drugs and fluid resuscitation per protocols) **with no ROSC.**
 - i. **In a home, ECF, or other private setting:**
Resuscitative efforts may then be stopped and the time shall be documented. Attempt to notify the patient's physician. Request he/she sign the death certificate. Also contact coroner,
 - ii. **Exception: In arrest in the public setting** (shopping and/or restaurant venues, etc.) the provider should initiate transport to the hospital **after 30 minutes of ALS efforts**. Resuscitation should be continued. Contact receiving emergency department physician to discuss further efforts enroute. Mode of transport in these situations (emergent vs. non-emergent) should follow department operational guidelines.

TRANSPORT OF CARDIAC ARREST PATIENTS, CONT.

- c) **Unusual circumstances exist in which EMS personnel believe transport should occur otherwise.** In these situations, begin transport and contact the receiving emergency department immediately to advise of the situation and obtain further direction.

***** When an adult patient is declared deceased in the field after the 30 minute cardiac arrest resuscitative efforts, a copy of the COMPLETED patient care report (with all documented times) should be provided to the coroner's office.**

**OB/GYN
EMERGENCIES
NEWBORN CARE**

DELIVERY OF A NEWBORN

CRITERIA:

If delivery appears to be imminent, follow the guidelines below.

ACTION:

- 1) Obtain the following information:
 - a) Due date
 - b) Frequency of contractions
 - c) History of preterm or post term deliveries
 - d) Sensation of the need to push or to move bowels – delivery imminent
 - e) Presence of crowning
 - f) Number of pregnancies and number of children successfully delivered
- 2) If crowning is not present, begin transportation. If present, prepare for delivery. Clamp and cut cord after 1 minute minimum post-delivery. If newborn requires resuscitation, clamp and cut cord as soon as possible post-delivery.
- 3) Follow ***Initial Medical Care*** protocol
- 4) Assist with the delivery
 - a) Have OB kit open and prepared for delivery
 - b) Guide and control infant to prevent an explosive delivery

If cord is around the neck:

Gently slip it from around the neck over the head

If unable to slip cord over the head:

Immediately clamp it in 2 places and cut the cord between the clamps, then continue delivery

- c) Suction the mouth and nose with bulb syringe as soon as the head has been delivered
 - d) Facilitate delivery of shoulders
 - e) Do not pull on infant or umbilical cord
- 5) If meconium staining is present, suction airway per ***Meconium Staining*** protocol
- 6) Provide newborn care per ***Newborn Care*** protocol

DELIVERY OF A NEWBORN, CONT.

- 7) Provide postpartum care to the mother
 - a) Massage the fundus
 - b) Prepare for placenta delivery (do not delay transport)
 - c) Inspect and place placenta in a clean container and transport with patient to the receiving hospital

- 8) Transport as soon as possible and notify receiving emergency department

NEWBORN CARE

CRITERIA:

Newborn infant has been delivered from the birth canal

ACTION:

- 1) Keep the infant at the same level of the perineum until the cord stops pulsating. Dry, stimulate, and warm the infant.
- 2) Clamp and cut the cord:
 - a) Place first clamp at least 6 inches from the infant
 - b) Place second clamp approximately 3 inches distal from the first clamp (toward mother)
 - c) Cut the cord between the clamps. If the cord continues to bleed, apply additional clamps
 - d) Cut and clamp the cord after 1 minute post-delivery. If newborn requires resuscitation, clamp and cut cord as soon as possible post-delivery.
- 3) Keep the infant warm by wrapping in a delivery blanket and covering the head
- 4) Record the time of birth. Complete the APGAR score on the infant at 1 minute and 5 minutes after delivery

If score is:

- 7-10** Keep the infant warm and dry, transport
 - 4-6** Stimulate, keep warm, and administer blow-by oxygen. Follow *Newborn Resuscitation* protocol
 - 0-3** Begin ventilations with Neo-Tee or BVM and administer CPR. *Follow Newborn Resuscitation* protocol
- 5) Transport as soon as possible and contact receiving emergency department

APGAR SCORING CHART

SIGN	0	1	2
ACTIVITY	Limp	Some extremity flexion	Good extremity flexion
PULSE	Absent	< 100	>100
GRIMACE	Absent	Some facial grimace	Good grimace
APPEARANCE	Blue	Blue extremities with pink trunk	All pink
RESPIRATORY EFFORT	Absent	Weak cry	Good cry

NEWBORN RESUSCITATION

CRITERIA:

A newborn that presents with any of the following:

- Respiratory rate < 30
- Heart rate < 80
- Presence of central cyanosis
- If cardiac arrest, follow Cardiac Arrest-Age Newborn to Pre-puberty protocol

ACTION:

- 1) Record and document time of birth. Consider using stopwatch to guide time line after birth in “minutes of life” for APGAR/other evaluations.
- 2) Warm, dry, and stimulate infant. Suction as needed.
- 3) Place the patient on a cardiac monitor and place pediatric pulse oximeter on patient’s RIGHT upper extremity to determine pre-ductal O₂ saturation
- 4) Administer oxygen by blow-by method at 6 lpm
- 5) Provide oxygenation and ventilation:
 - **Apneic or HR < 100:** Ventilate with Neo-Tee or BVM at 40-60/minute
 - **Breathing and HR > 100, but cyanotic:** Ventilate with Neo-Tee or BVM at 40-60/minute
 - **Breathing, pink, HR > 100:** Observe and transport

Intubate only if BVM oxygenation/ventilation is inadequate

- 6) **If, at any time, HR < 60, after at least 30 seconds of positive pressure ventilation, perform CPR with chest compressions at 120/minute and compression to ventilation ratio 3:1. Continue until HR > 60. Airway and breathing management take priority before chest compressions in the neonate.**
- 7) Transport as soon as possible and notify receiving emergency department

Neo-Tee Settings:

Flow rate: 10-15 liters/min
PIP: 20-25cm H₂O
PEEP: 5cm H₂O
FIO₂: Pre-term 30% (before 37 weeks gestation)
Term 21% (room air)

MECONIUM STAINING

CRITERIA:

Presence of green or brown amniotic fluid or particulate matter noted on face or in upper airway at delivery

ACTION:

- 1) Utilize bulb syringe or suction catheter to suction mouth and nose of infant as soon as possible when head has been delivered
- 2) Utilize gauze-wrapped finger to wipe away any collection of meconium from upper airway
- 3) As soon as possible, insert endotracheal tube and place suction catheter through the tube, then suction airway as ETT is withdrawn
- 4) Report meconium staining to receiving facility while enroute

OBSTETRIC EMERGENCIES

1) **Prolapsed Umbilical Cord**

- a) Place mother on high flow oxygen
- b) Place mother in left lateral recumbent position
- c) Elevate presenting part of infant off of the umbilical cord by using a gloved hand in vagina. Keep pressure off of cord until relieved by high medical authority
- d) Notify receiving facility as early as possible

2) **Breech or Extremity Presentation**

- a) Place mother on high flow oxygen
- b) Place mother in left lateral recumbent position
- c) Check for prolapsed cord
- d) Transport as soon as possible and notify receiving hospital
- e) Do not at any time pull on the extremity

3) **Pre-eclampsia or Eclampsia**

- a) Follow ***Initial Medical Care*** protocol
- b) Initiate IV, contact medical control for further orders including possible Magnesium Sulfate
- c) Monitor for possible seizure activity
- d) Transport in left lateral recumbent position, non-emergent, **unless patient seizes.**
- e) If patient is actively seizing, follow the ***Seizure*** protocol

4) **Post-partum Hemorrhage *Any patient with suspected > 500 cc blood loss during or after delivery**

- a) Follow ***Initial Medical Care*** protocol
- b) Massage the fundus
- c) Establish 2 large bore IVs of normal saline; titrate to maintain a systolic BP of at least 100
- d) Transport as soon as possible and contact receiving emergency department

VAGINAL BLEEDING IN PREGNANCY

CRITERIA:

Pregnant patient with vaginal bleeding

ACTION:

- 1) Follow *Initial Medical Care* protocol
- 2) Obtain estimate of blood loss (For example, number of pads soaked in one hour)
Determine length of time patient has been bleeding
- 3) Treat shock per *Hypotension/Shock* protocol
- 4) Determine any know history of placenta previa
- 5) Transport emergent in left lateral recumbent position if > 20 weeks pregnant and contact receiving emergency department as soon as possible

**EMERGENCIES
IN
DIALYSIS
PATIENTS**

EMERGENCIES IN DIALYSIS PATIENTS

CRITERIA:

Dialysis patients can present with unique medical emergencies. The following guidelines are directed toward both hemodialysis and continuous ambulatory peritoneal dialysis (CAPD) patient-specific emergencies.

ACTION:

- 1) Follow ***Initial Medical Care*** protocol and all applicable protocols.
- 2) **Vital signs:** Should not be taken in the arm with a fistula or graft
- 3) **Bleeding graft or fistula site:** Apply pressure proximal and distal to bleeding site. If bleeding continues, apply approved hemostatic dressing. Apply tourniquet proximal to fistula/graft site **ONLY** if life-threatening bleeding exists.
- 4) **Suspected air embolus:** Immediately place patient in left lateral recumbent position, in Trendelenburg. Transport as soon as possible.
- 5) **Emergency while actively undergoing CAPD:** Unclamp drainage tube allowing fluid in peritoneal cavity to drain back into bag
- 6) **Suspected hyperkalemia or severe bradycardia:** Consider calcium chloride 1 gm SIVP over 2 minutes

RAPID SEQUENCE AIRWAY (RSA)

CRITERIA: Adult patients for whom intubation is necessary but cannot safely be performed due to patient combativeness, clenched teeth, intact gag reflex, or other patient conditions in which sedation and paralysis will make the likelihood of intubation significantly more successful.

NOTE: This procedure shall only be performed by appropriately trained and EMS Medical Director-approved personnel.

ACTIONS:

- 1) Initiate *Airway Management* protocol
- 2) **Pre-oxygenate** patient with 100% O₂ using either a NRB mask at 15 lpm for spontaneously breathing patients, or a BVM at 15 lpm to assist ineffective respirations.
- 3) **Prepare equipment and drugs, and Place ETCO₂ monitor and Oximeter**
- 4) **Position patient** for best likelihood of airway management success:
 - a. For trauma patients, with c-collar open and in-line stabilization in a neutral position by holding the maxilla immobile bilaterally
 - b. For all others, with padding underneath the occiput and the head in a “sniffing position”.
- 5) **Place Nasal Cannula**
- 6) **Paralyze after inducing unconsciousness**
 - a. Administer one available induction agent
 - i. Ketamine 2 mg/Kg IV/IO (**use 1mg/kg if hypotensive**)
Optimal choice if patient is hypotensive or asthmatic
 - ii. Etomidate (Amidate®)
 - 1) 0.3mg/kg IV/IO for normotensive/normovolemic patients;
 - 2) 0.15mg/kg IV/IO for hypotensive or hypovolemic patients.
 - 3) Avoid in septic patients
 - b. Paralyze with Rocuronium (Zemuron®) 1mg/Kg IV/IO
- 7) **Provide Oxygen 15 lpm nasal cannula for Apneic Oxygenation**

RAPID SEQUENCE AIRWAY (RSA), CONT.

8) Place airway (with proof of success)

- a. Airway placement
 - i. A single attempt of oral intubation utilizing a bougie may be attempted
 - ii. Place King LTS-D airway if not intubated immediately
 - iii. If airway is not secured, utilize OP/NP airway and BVM
 - iv. If unable to ventilate, perform surgical cricothyrotomy
- b. Confirm placement visually as well as by utilizing auscultation and continuous EtCO₂ monitoring

10) Post-intubation/airway management

- a. Continue EtCO₂ and Oximetry monitoring
- b. Provide ongoing sedation, paralysis and pain control as needed:
 - i. Ketamine 1 mg/Kg IV/IO
 - ii. Midazolam 0.1 mg/Kg IV/IO (do not use if SBP<100)
 - iii. Rocuronium 0.5 mg/Kg every 20-30 minutes as needed
 - iv. Fentanyl 1 mCg/Kg IV/IO every 20 minutes as needed for pain (evidenced by tachycardia, increasing blood pressure, or grimace...)
- c. A gastric tube should be placed through port of King LTS-D for stomach decompression if BVM ventilation occurred for more than 1-2 minutes.

TACTICAL EMS STANDARD OPERATING PROTOCOLS

Introduction

The following addendums to the Hendricks Regional Health EMS Protocols **only apply to approved** Hendricks Regional Health affiliated Paramedics operating in the role of Tactical EMS provider **DURING** a law enforcement operation. These protocols are designed to cover most medical issues arising in the tactical prehospital arena, and are to be strictly followed. However, the scope of practice of individual paramedics may be expanded temporarily ***only by on-scene medical directors assigned to the Tactical EMS providers.*** These protocols in no way apply to the routine prehospital care outside of the tactical prehospital arena. The protocols are divided into care by zones relevant to the tactical arena when applicable. Again these protocols are adjuncts to the Hendricks Regional Health EMS Protocols, which still serve as the framework for all prehospital care for affiliated EMS providers.

AIRWAY

Hot Zone

1. If unable to identify a patent airway, place a laryngeal mask airway (LMA) or King airway and extricate

Warm/Cold Zone

1. Place an endotracheal (ET) tube per standing per protocol
2. If unable to place an ET Tube, follow modified RSI and reattempt:
 - a. Etomidate 0.2-0.3 mg/kg IV
 - b. Rocuronium 1 mg/kg IV
3. If intubation is unsuccessful after 2 attempts, place Medical Director-approved airway
4. If Medical Director-approved airway is unable to be placed, perform surgical cricothyrotomy
5. If the intubated patient becomes combative administer the following:
 - a. If SBP \geq 110, Midazolam 5mg IV x 1 repeat q 5 minutes as needed
 - b. If SBP < 110, Fentanyl 300 mcg IV x 1, repeat q 5 minutes as needed

HEMORRHAGE CONTROL

Hot Zone

1. Apply tourniquet to all penetrating trauma of the extremities and extricate
 - a. If bleeding persists apply hemostatic gauze and additional tourniquet as needed
2. Apply Compression Dressings and/or hemorrhage control product as needed to all axillary/groin/torso injuries and extricate

Warm Zone

1. As above
2. If no active arterial bleed is present, apply Compression Dressing as needed.

Cold Zone

1. Re-evaluate the wound and dress appropriately per protocols.

*Inform the receiving ED physician/Trauma Surgeon if any hemostatic agents are used

Behavioral Sedation

Follow *Behavioral Sedation* protocol.

Chemical Restraint is to be used only in cold zone environments where providers can adequately and repeatedly monitor the patient. It is to be reserved for patients who cannot otherwise be restrained or restrained only at the risk of significant harm to the patient, law enforcement, and EMS providers. Once applied, patients should be isolated and placed in an ALS ambulance as soon as possible. Airway, mental status, and vital signs (including pulse oximetry and heart rhythm) must be examined and documented every 5 minutes. All patients will be transported to the hospital for further evaluation, and released to law enforcement thereafter.

APPENDIX

EMERGENCY MEDICATIONS

STORAGE:

- 1) It is of great important that all drugs used in the pre-hospital setting be fresh, sterile, and void of abnormalities. In order to assure this level of quality, the paramedic must be aware of the manufacturer's recommendations for storing of these medications.
- 2) Drug quality can be affected by time, temperature, sunlight, and moisture. This is because of the drugs chemical make-up and breakdown when exposed to any of the above for extended periods. Drugs exposed to one or more of the conditions listed, may lose their potency and therefore affect patient outcome.
- 3) The state certified EMS provider is responsible for checking and maintaining all medications stored and carried on the vehicle.
- 4) Routinely inspect and check expiration dates for all drugs.
- 5) Rotate medications that are used on an infrequent basis.

THE FOLLOWING CATEGORIES INDICATE SPECIAL CONSIDERATIONS FOR THE MEDICATIONS THAT YOU CARRY:

Sunlight sensitive drugs:

Benadryl
Racemic Epinephrine
Nitroglycerin

Drugs that should be stored at room temperature (59°F to 86°F)

Glucagon
Narcan
Nitroglycerin
Valium
Morphine
Calcium Chloride

Drugs that should not be exposed to freezing or temperatures above 100°F

Atropine
50% Dextrose
Epinephrine
Lidocaine
Sodium bicarbonate
D5W

Ringers Lactate
0.9% sodium chloride

Ativan must be refrigerated. It may be removed from refrigeration for 90 days and then must be replaced

Rocuronium must be refrigerated and replaced after 60 days

ADVANCED LIFE SUPPORT MEDICATIONS LIST

It is the responsibility of the Advanced Life Support Provider to insure that there is enough medication brought to the patient on each run. It is not the scope of this document to establish quantities, but rather, to have these medications available to the patient, if they are needed.

The following medications are authorized to be utilized by Paramedics operating under this protocol:

Advanced Life Support Personnel are authorized to utilize the following IV Solutions:

5% Dextrose in Water D5W (optional)
 0.9% Saline Solution Normal Saline
 Lactated Ringer's Solution Ringer's Lactate (optional)

GENERIC NAME	TRADE NAME
Acetaminophen	Tylenol
Adenosine	Adenocard
Albuterol	Proventil
Albuterol/Ipratropium	Duo Neb
Amiodarone	Amiodarone
Aspirin	Aspirin
Ativan	Lorazepam
Atropine and Pralidoxime	Duodote
Atropine Sulfate	Atropine
Calcium Chloride	Calcium Chloride
Dextrose 10%	Glucose 10%
Dextrose 50%	Glucose 50%
Diazepam	Valium
Diphenhydramine	Benadryl
Epinephrine 1:10,000	Adrenaline
Epinephrine 1:1,000	Adrenaline
Fentanyl	Fentanyl
Hydroxocobalamin for injection	Cyanokit
Ketamine	Ketamine
Magnesium Sulfate	Magnesium
Methylprednisolone Sodium	Solu-Medrol
Midazolam	Versed
Morphine Sulfate	Morphine
Naloxone	Narcan
Nitroglycerine 0.4mg	Nitro spray or tablet
Nitroglycerine ointment	Nitro paste
Norepinephrine	Levophed
Ondansetron	Zofran
Sodium Bicarbonate 50mEq	Sodium Bicarbonate
Thiamine	Thiamine

Vaponephrine	Racemic Epinephrine
Xylocaine HCL	Lidocaine
Xylocaine jelly	Lidocaine jelly