St. Joseph County
Emergency Medical Services

Policies, Guidelines, and Procedures

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Introduction

The mission of the St. Joseph County Emergency Medical Services Committee is to serve the public interest as a local resource and oversight body for the provision of competent and compassionate out-of-hospital medical care.

The provision of emergency medical services is, like every other endeavor that deals with human interaction, and every practice of medicine: Part art, part humanity, and part science—all are constantly evolving. Those who are called to service develop, in the course of their lifelong training, a unique body of skill and knowledge that allows them to provide care with compassion in environments unlike any other in civilian medicine. Indeed, we have seen that, along with their fire and law enforcement brethren, emergency medical services practitioners often rush in when others rush out.

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SECTION 1
ADMINISTRATIVE GUIDELINES

St. Joseph County Emergency Medical Services Committee (SJCEMSC)

The St. Joseph County Emergency Medical Services Committee (SJCEMSC) is a consortium of regional hospitals and EMS Practitioner Organizations. Its mission is to serve the public interest as a local resource and oversight committee for the provision of competent and compassionate out-of-hospital care. It sponsors, on a voluntary basis, regional EMS Practitioner Organizations and their personnel. It provides sponsored EMS personnel at all levels with the authority, administrative guidance, and medical direction to serve the St. Joseph County area.

The SJCEMSC operates under the joint sponsorship of Memorial Hospital of South Bend (MHSB) and Saint Joseph Health System-Mishawaka Medical Center (SJHS-MMC). Its specific goals are:

1. Development and oversight of Standing Medical Orders for EMS Personnel, including policies and procedures related to the provision of basic and advanced life support.
2. Development and oversight of EMS education.
3. Development and oversight of uniform drug and supply inventories.
4. Development and oversight of policies and procedures related to interactions between EMS Personnel and other healthcare practitioners, law enforcement personnel, and the public.
5. Develop a forum for Sponsored EMS Personnel Organizations, sponsoring hospitals, law enforcement, and other key stakeholders in regional planning for mass casualty incidents and responses to terrorist activity.

The laws of the State of Indiana require this committee. The EMS Commission of the Indiana Department of Homeland Security (IDHS) defines the authority and minimum composition of this committee. Generally, the committee is composed of:

- A Chair, who is selected by a consensus of committee members.
- An EMS Medical Director for each of the Sponsoring Hospitals.
- An EMS Coordinator for each of the Sponsoring Hospitals.
- A representative for *each* Sponsored Paramedic Practitioner Organization.
- A representative for all Sponsored BLS transport Practitioner Organizations.
- A representative for all Sponsored BLS non-transport Practitioner Organizations.
- A representative for all Emergency Medical Dispatch Centers.

The committee may appoint other individuals, either on a permanent or temporary basis, as it deems necessary, to help in fulfilling its mission.

Note: Sponsorship, and subsequent membership to the committee, by any agency is subject to medical director willingness to provide medical direction to the agency. If a medical director from either hospital refuses to provide medical direction to the agency, the other medical director and hospital may, at their discretion, agree to unilaterally sponsor the agency. The agency will not be part of the St. Joseph County EMS Committee.

St. Joseph County Emergency Medical Services Guidelines

The SJCEMSC Guidelines are collectively composed of policies, standing medical guidelines, procedures, and other information of interest to EMS personnel. They represent the cumulative efforts of many physicians, nurses, and EMS practitioners who have served the community over many years. The Guidelines will continue to evolve to keep pace with advances in the science and practice of emergency medicine in the prehospital setting.

The Guidelines provide Sponsored EMS Practitioner Organizations and personnel with clinical guidance in the provision of care and form a framework for the care of patients in the out-of-hospital environment. They also identify mechanisms of system governance; establish practice prerequisites and requirements; and delineate procedures for training, certification, and continuing education, including EMS audit and review. The laws of the State of Indiana and, specifically, the Administrative Code of the Indiana EMS Commission form a basic reference. These Guidelines are additions to or expansions of the Code and are the result of local physician and hospital guidance of out-of-hospital patient care.

These latest guidelines are effective as of **January 1, 2025**, with the original guidelines dating back to April 2, 2007. However, this document may be updated at any time based on new literature or standards of care. The latest updates supersede and replace any prior Guidelines and will be adhered to by all EMS Practitioner Organizations and personnel practicing under the authority of the SJCEMS system. Specific and detailed information about SJCEMSC sponsored EMS education can be found in the subsequent sections of this guideline book.

It is the responsibility of Sponsored EMS Practitioner Organizations to make the Guidelines available to their EMS Personnel. Under Indiana law, one copy must be kept, at all times, in each state certified EMS vehicle. A downloadable copy of the most current edition of the Guidelines (pdf) and other information of interest to SJCEMSC authorized EMS Personnel is available at the Saint Joseph County Emergency Medical Services Committee website: http://sjcemsc.org/

Acronym Convention Used in the Guidelines
For readability, plural acronyms are indicated with an apostrophe, e.g., AEMT's. The apostrophe is not intended to imply possession.

Color-Coded Symbols Used in The Guidelines

D – Dispatch

R – First Responder

E – Emergency Medical Technician (EMT)

A – Advanced Emergency Medical Technician (AEMT)

P – Paramedic

L – Lead Paramedic

OMCP – Consults to Medical Control (Red or black text)

Sponsored Practitioner Organizations

Organization	Level of Service	
Clay Fire Territory	**ALS (Transport)**	
Station 21 (Medic 21)	18776 Cleveland Rd. South Bend, Indiana (574) 272-3012	
Station 22 (Medic 22)	18355 Auten Rd. South Bend, Indiana (574) 272-1710	
Station 23	51775 Portage Rd. South Bend, Indiana (574) 272-2144	
Station 24 (Medic 24)	13981 State Road 23 Granger, Indiana (574) 272-3874	
Station 25 (Medic 29)	12481 Anderson Rd. Granger, Indiana (574) 273-8178	

Mishawaka Fire and EMS Department	**ALS (Transport)**	
Station 1 (Medic 1)	600 Union St Mishawaka, Indiana (574) 258-1674	
Station 2 (Medic 2)	700 E McKinley Mishawaka, Indiana (572) 258-1697	
Station 3 (Medic 3)	333 E. Douglas Rd. Mishawaka, Indiana (574) 243-3662	
Station 4 (Medic 4)	3000 Harrison Rd. Mishawaka, Indiana (574) 257-0620	

Penn Township Fire Department	**ALS (Transport)**	
Station 13 (Medic 13)	12661 McKinley Highway Mishawaka, Indiana (574) 255-2690	
Station 14	13960 Jackson Rd. Mishawaka, Indiana (574) 255-5075	

South Bend Fire Department	**ALS (Transport)**	
Station 1 (Medic 1, 1660, 1661)	1222 S. Michigan St. South Bend, Indiana (574) 235-9491	
Station 2 (Medic 2, 1662)	402 Charles Martin Sr. Dr. South Bend, Indiana (574) 235-9602	
Station 3	1805 McKinley Ave. South Bend, Indiana (574) 235-9175	

Sponsored Practitioner Organizations

Station 4 (Medic 4)	220 N. Olive St. South Bend, Indiana (574) 235-9422
Station 5	2221 Prairie Ave. South Bend, Indiana (574) 235-9509
Station 6	4302 W. Western Ave. South Bend, Indiana (574) 235-9691
Station 7	1616 Portage Ave. South Bend, Indiana (574) 235-9767
Station 8	2402 Twyckenham Dr. South Bend, Indiana (574) 235-9995
Station 9 (Medic 9)	2108 Mishawaka Ave. South Bend, Indiana (574) 235-9900
Station 10 (Medic 5, Medic 10)	5303 York Rd. South Bend, Indiana (574) 291-1309
Station 11 (Medic 11)	505 N. Bendix Dr. South Bend, Indiana (574) 235-9385

Liberty-Green Fire Territory	**BLS (Transport)**
North Liberty Fire Department	305 S. State St. North Liberty, Indiana

Notre Dame Fire Department	**BLS (Non-Transport)**
Notre Dame Fire Station	100 Fire Station Notre Dame, Indiana (574) 631-6200

Center Twp Fire Department	**BLS (Non-Transport)**
Station 42	19971 Kern Road South Bend, Indiana (574) 291-1677

Madison Township Fire Department	**BLS (Non-Transport)**
	66341 IN-331 Wyatt, Indiana (574) 633-4915

South Bend International Airport Public Safety Division	**BLS (Non-Transport)**
	4477 Progress Dr South Bend, Indiana (574) 282-4590

Sponsored Practitioner Organizations

Lakeville Fire Department	**BLS (Non-Transport)**
	117 S Main St Lakeville, IN 46536 (574) 784-2698

St. Joseph County Dispatch Center (PSAP)	**Dispatch**
	58266 Downey Ave South Bend, Indiana (574) 235-9611

Notre Dame University Dispatch	**Dispatch**
	Hammes Mowbray Hall Notre Dame, Indiana (574) 631-5555

Newly Sponsored Practitioner Organizations

EMS Practitioner Organizations, institutions of higher education, or hospital requesting membership to the St. Joseph County Emergency Medical Services system must meet the following criteria.

1. The organization requesting membership must write a letter indicating their desire/intentions of joining the system.

2. As an EMS Practitioner Organization, the organization agrees to:
   A. Operative under the medical direction of the Medical Directors of the St. Joseph County Emergency Medical Services system.
   B. Follow the medical guidelines implemented and approved by the Medical Directors of the St. Joseph County Emergency Medical Services system.
   C. Meet or exceed the minimum annual education requirements set forth by the individual practitioner organizations and Medical Directors in addition to the minimum state educational requirements.
   D. If an ALS service, participate in the Lead Paramedic program as set forth by the St. Joseph County Emergency Medical Services Committee.
   E. Participate in required trainings as set forth by the Medical Directors.
   F. Participate in the Committee's monthly Quality Improvement/Quality Assurance Program.
   G. Participate in St. Joseph County Emergency Medical Services Committee meetings.

3. Voting members of the St. Joseph County Emergency Medical Services Committee will vote to accept the requesting agency as a *probationary* member.

4. New member organizations will be probationary members for 12 months.

5. After the 12-month probationary period, voting members will vote to accept the agency as a *full voting member*, *extend the probationary period up to another 12 months*, or *decline membership to the agency into the system and committee.*

6. Newly formed transport agencies must meet all the requirements as set forth in Initial Certification and System Credentialing.

7. Sponsorship by the committee is contingent on medical director agreement to provide medical direction to the agency. If the medical directors do not agree to act as the agency's medical directors, sponsorship agreement by the committee is void.

8. Once officially sponsored by the committee and its medical directors, if, at any time, the medical directors choose to rescind medical direction for the agency, the agency will have 60 days to find new medical direction. At which point, the agency will no longer receive medical direction from the St. Joseph County EMS system medical directors.

Sponsoring Institutions

Memorial Hospital South Bend
615 N. Michigan St.
South Bend, Indiana 46601
(574) 647-7459 Main
(574) 647-6646 IHERN

Specialty services:

- Level 2 Trauma Center
- Thrombectomy-Capable Stroke Center
- STEMI/PCI-Capable Center
- Obstetrics/Gynecology
- Neurosurgery
- Vascular Surgery
- Adult Intensive Care Unit (ICU)
- Neonatal Intensive Care Unit (NICU)
- Pediatric Intensive Care Unit (PICU)
- Pediatric Hospitalists
- Hyperbaric treatment

EMS Medical Director:

- Steven Joyce, DO

EMS Coordinator:

- John McMillen, LP

St. Joseph Health System – Mishawaka Medical Center
5215 Holy Cross Pkwy
Mishawaka, Indiana 46545
(574) 335-1110 Main
(574) 335-7158 IHERN

Specialty services:

- Primary Stroke Center
- STEMI/PCI-Capable Center
- Obstetrics/Gynecology
- Vascular Surgery
- Adult Intensive Care Unit (ICU)
- Neonatal Intensive Care Unit (NICU)
- Pediatric Hospitalists
- Sexual Assault/SANE Center

EMS Medical Director:

- Jason Jaronik, MD

EMS Coordinator:

- Kerry Hershberger, LP

Other local non-sponsoring institutions

Beacon Granger Hospital
3220 Beacon Parkway
Granger, Indiana 46530
(574) 647-8788 Main
(574) 999-8793 IHERN

Specialty Services:
None

Elkhart General Hospital
600 East Blvd
Elkhart, Indiana 46514
(574) 294-2621 Main
(574) 523-3458 IHERN

Specialty Services:

- Level 3 Trauma Center
- Primary Stroke Center
- STEMI/PCI-Capable Center
- Obstetrics/Gynecology
- Adult Intensive Care Unit (ICU)

State of Indiana Levels of Certification

Level	Continuing Education
D – Emergency Medical Dispatcher (EMD)	**24** hrs, including **12** hrs of audit and review, every **2** yrs
R – Emergency Medical Responder (EMR)	**20** hrs, 4 hours must be defibrillation and airway management
E – Emergency Medical Technician (EMT)	**40** hrs, including **6** hrs of audit and review, plus verification of skill competency, every **2** yrs
A – Advanced Emergency Medical Technician (AEMT)	**54** hrs, including **12** hrs of audit and review, plus verification of skill competency, every **2** yrs
P – Paramedic	**72** hrs, including **12** hrs audit and review, plus verification of skill competency every **2** yrs

https://www.in.gov/dhs/files/Indiana-EMS-Commission-Levels-of-EMS-Personnel-Certification6-2019-c-Note-2023.pdf

Indiana Controlled Substances Registration (CSR) and Federal DEA Licenses

As of 2017, the 115th US Congress passed HR304 – Protecting Patient Access to Emergency Medications Act of 2017. This is now Public Law 115-83. This amended the prior Controlled Substances Act of 1971.

Previously, EMS agencies would store and deliver controlled substances under the CSR and DEA numbers of their Medical Director. However, this new law required the Indiana Board of Pharmacy to reconsider the prior rules to waive EMS Practitioner Organizations from obtaining a Controlled Substances Registration (CSR) and federal DEA number. As such, EMS Practitioner Organizations are no longer able to use the CSR and DEA numbers of the Medical Directors. Each agency must obtain their own unique numbers. Each agency only needs to obtain one CSR and DEA number, regardless of the number of locations from which they operate, ie an agency with 5 stations would only need a single CSR and DEA number for their agency, provided they have only one central storeroom for the controlled substances outside of the ambulance[1]. This law went into effect August 25, 2021.

As part of the SJCEMSC, each ALS practitioner agency agrees to obtain its own Indiana CSR and federal DEA numbers.

For additional information:

https://www.federalregister.gov/documents/2020/10/05/2020-21675/registering-emergency-medical-services-agencies-under-the-protecting-patient-access-to-emergency

http://iac.iga.in.gov/iac//iac_title?iact=856

[1]"A separate registration is required for each principal place of business where controlled substances are stored." A DEA license (and hence a CSR) is required for any location where drugs are ordered, stocked or stored. While the DEA and new CSR rules allow for EMS to have a single central stock, they can keep controlled substances on each of their ambulances for patient use without triggering the need for additional registrations. However, they would be required to have a separate CSR and DEA license if they stock an additional cache of drugs outside the ambulance at a base or building."

Medical Direction/Medical Control

Both sponsoring institutions, Memorial Hospital and St. Joseph Health System – Mishawaka Medical System, shall provide online medical direction. While standing orders should be followed, there are cases which may require the EMS practitioner to request additional orders or recommendations on the management of a patient. In these cases, the EMS practitioner shall call the IHERN or other recorded phone or radio line at the hospital of their choosing. Preferably, the call for online medical direction should go to the anticipated Destination Hospital of the patient, however this is not mandatory. If the EMS practitioner is unable to obtain medical direction by calling into the hospital, the EMS practitioner is permitted to call the other hospital. However, if medical direction is obtained, the EMS practitioner is not authorized to call and ask for additional medical direction from the other hospital, for additional questions or concerns, they must call the original hospital from which the practitioner received the initial medical direction.

Additionally, there are certain guidelines that require online medical direction (OMCP). In these cases, the EMS practitioner is required to call and ask for medical direction or recommendations on management of the patient.

If at any time the EMS practitioner is unable to obtain online medical direction by calling the hospital, the EMS practitioner shall immediately, after the call for service, contact their EMS chief, or their designee, and document the incident. This shall be forwarded to the EMS Medical Director of the hospital within 24 hours. During patient care, the EMS practitioner may also contact the EMS Medical Director directly by telephone or radio if additional concerns or questions remain regarding patient care.

If there is an overly complex patient, complex refusal, or other concern which cannot be addressed by calling for medical direction at one of the sponsoring hospitals, the clinician may request dispatch to directly call one of the Medical Directors. Additionally, if the clinician feels a physician is needed on scene, if available, a physician may be requested to respond to the scene.

For emergency department physicians concerned about the liability of providing online medical direction:

IC 34-30-13-1.5
Sec. 1.5. Except as provided in section 2 of this chapter, a physician licensed under IC 25-22.5 is immune from civil liability resulting from an act or omission related to the provision of medical direction concerning emergency medical services (as defined in IC 16-18-2-110) within the scope of the physician's license, if the physician provides medical direction concerning emergency medical services:

(1) to a person who is certified under IC 16-31 to provide the emergency medical services; and
(2) without compensation.

IC 34-30-13-2
Sec. 2. A person who provides health care services as described in this chapter of the IC code is not immune from civil liability if the damages resulting from the provision of the health care services resulted from the person's *gross negligence or willful misconduct*.

Initial Certification and System Credentialing

Compliance with Indiana Department of Homeland Security (IDHS) ***and*** *SJCEMSC requirements is required.*

Failure to comply may result in the immediate suspension of authorization to practice.

Before Starting Practice

All EMS Practitioners must:

1. Be certified by the IDHS at the level at which the EMS practitioner plans to practice.
2. Agree to abide by the bylaws and guidelines of the SJCEMSC.
3. Be aligned with a department or hospital within the SJCEMSC system.
4. Have medical malpractice insurance (individual or agency provided).
5. Be certified in Basic Life Support (CPR).*
6. Have received, be in the process of receiving, or have signed a waiver refusing, immunization against Hepatitis B—or present proof of immunity.*
7. Have undergone tuberculosis skin testing or have documented evidence of previous seroconversion and undergone any Centers for Disease Control (CDC) recommended interview or screening within one year prior to the starting date for working under the authority of the SJCEMSC.*
    A. Annual tuberculosis skin testing or, with evidence of previous seroconversion, CDC recommended interview or screening, is *mandatory* for all EMS personnel beyond the EMD level.
8. Complete and pass the following exams (see Annual Testing Requirements).
    A. Level appropriate St. Joseph County EMS Guideline Exam.
    B. Level appropriate St. Joseph County EMS Resuscitation Testing.
    C. SALT Triage Exam.
    D. St. Joseph County Emergency Medical Response Plan (EMRP) testing.

Advanced EMTs and Paramedics:

1. Meet with the Medical Director and EMS coordinator of each sponsoring hospital.

Paramedics:

1. Be certified in Advanced Cardiac Life Support (ACLS).
2. Demonstrate procedure competency.
    A. The paramedic must demonstrate proficiency in the following procedures: (Note: These may be done during the initial Resuscitation Testing and need not be on a live patient). Paramedics who have recently completed the South Bend Ivy Tech Paramedic Program may use the procedures performed during the education if the medical director has witnessed the skills during the training program.
        i. Intubation
        ii. Procedural sedation
        iii. Chemical cardioversion
        iv. Electrical cardioversion
        v. Needle decompression
        vi. Cardiopulmonary Resuscitation (CPR)
    B. Failure to demonstrate proficiency in any skill will result in the paramedic being required to go through a remediation process on any of the failed skills with a Medical Director or EMS coordinator prior to reattempting the competency testing.

*Individual agencies are responsible for monitoring and maintaining appropriate records and documentation of compliance.

Initial Certification and System Credentialing

After Starting Practice

Paramedics must function under the direct supervision of a Lead Paramedic while completing the remaining practice requirements.

Within 30 Days

Advanced EMTs (AEMT) and Paramedics

1. Successfully initiate **six** intravenous lines in a Sponsoring Hospital, or in another SJCEMSC approved setting.
2. Spend a minimum of **eight** hours of clinical practice in the emergency department of *each* Sponsoring Hospital. This requirement may be satisfied during paramedic training.
3. Successfully complete orientation in an SJCEMSC approved dialysis unit. This requirement may be satisfied during paramedic training.

Paramedics

1. Successfully complete **six** endotracheal intubations in an operating room or emergency department setting at a Sponsoring Hospital, or in another SJCEMSC approved setting.
2. Successfully complete the EKG exam.

Successful completion must be documented on a Skill Evaluation form. EMS Personnel must demonstrate competence to the satisfaction of the preceptor(s).

Failure to comply with any of the 30-day requirements may result in immediate suspension of credentialing within the St. Joseph County EMS system until the requirements are completed.

Within 90 Days

EMTs, AEMTs, and Paramedics

- If not certified, obtain certification in International Trauma Life Support (ITLS) ***or*** Pre-Hospital Trauma Life Support (PHTLS).

Paramedics

- If not certified, obtain certification in Pediatric Advanced Life Support (PALS) or Pediatric Education for Prehospital Providers (PEPP) with a resuscitation component.
- If not certified, obtain certification in Advanced Medical Life Support (AMLS).

EMS Personnel may choose to obtain certification through a Sponsoring Hospital. If **neither** Sponsoring Hospital offers an applicable course within the 90-day timeframe, the applicant must complete this requirement by the **last day of the next Sponsoring Hospital offered course.**

Failure to comply with any of the 90-day requirements may result in immediate suspension of credentialing within the St. Joseph County EMS system until the requirements are completed.

Compliance with all the above requirements will be complete only when full documentation of all specified certifications, immunizations, and Skill Evaluation forms is provided to an EMS Coordinator at a Sponsoring Hospital.

Initial Certification and System Credentialing

System credentialing is granted by the Medical Directors. Credentialing at any level may be granted or withdrawn at the Medical Directors' discretion. Credentialing may also be awarded at a lower level at the discretion of the Medical Directors. See Discipline and Remedial Training for additional details. If the practitioner does not maintain the required level of competency, certifications, and annual testing requirements, credentialing may be revoked or reduced to a lower credentialing level.

Below is a list of skills, procedures, and medications authorized within the system by each practitioner level. The table also lists the annual or biennial testing requirements to maintain credentialing. See Required Certifications for the certifications required for each credentialing level. Note these testing and certification requirements are in addition the required NREMT, if applicable, and state continuing education requirements.

Note, practitioners may not practice outside of their scope of practice nor outside of their credential within the SJCEMS system. Maintenance of credentialing will be performed every 2 years and will include written exams, skills assessment, and simulations. See Annual Testing Requirements.

	Skills and Procedures	Medications	Biennial Testing Requirements
EMR	• Vital signs, including blood pressure (manual and automated), heart rate, respiratory rate, and pulse oximetry • Blood glucose measurement • Patient assessment • CPR, AED Application • Mechanical CPR device application and use • Bag-Valve Mask ventilations • Oxygen administration via nasal cannula and non-rebreather mask • Nasopharyngeal airway • Oropharyngeal airway • Head-tilt chin lift • Jaw thrust • Mouth-to-barrier ventilations • Airway obstruction manual dislodging techniques • Bandaging and splinting • External patient cooling (ice pack) • Upper airway suctioning • Direct pressure hemorrhage control • Tourniquet application • Wound packing • Cervical collar application • Long spine board • Spinal motion restrictions • Pelvic binder • Manual extremity stabilization • Extremity splinting • Emergency assisted delivery (childbirth) • Manual ophthalmic irrigation	• Oxygen • Epi-Pen/Epi-Pen Jr. • Intranasal naloxone (prefilled) • Prefilled intramuscular autoinjectors (JITSO)	• Guideline Exam or monthly guideline review • BLS Resuscitation Testing • SALT Triage Exam • EMRP Exam

Initial Certification and System Credentialing

EMT	EMR plus: • Obtaining and transmitting EKG • CPAP • End-Tidal CO_2 and Waveform capnography • Nebulized breathing treatments • Oxygen administration via partial rebreather mask and venturi mask • Supraglottic airway device placement • IV Fluid maintenance • Medicated IV fluid maintenance • Seated spinal motion restriction • Extremity traction splint • Reduction of pulseless/cold dislocated or fractured extremity • Physical patient restraint • Assisted complicated childbirth • BLS Transport • Immunizations (JITSO)	EMR plus: • Aspirin (PO) • 1:1000 epinephrine (IM) • Albuterol • Ipratropium • Diphenhydramine (PO) • Acetaminophen • Oral Glucose • Calcium gluconate (TD) • Nitroglycerin (patient's prescribed medication)	• Guideline Exam or monthly guideline review • Resuscitation Testing • SALT Triage Exam • EMRP Exam
AEMT	EMT plus: • Intravenous or intraosseous initiation and maintenance • Intravenous or intraosseous medication administration • Tracheobronchial suctioning of an intubated patient • Intranasal administration of medication	EMT plus: • Isotonic crystalloids • Dextrose • Glucagon (IM) • Zofran • Epinephrine (cardiac arrest)	• Guideline Exam or monthly guideline review • BLS Resuscitation Testing • SALT Triage Exam • EMRP Exam
Paramedic	AEMT plus: • Modified Valsalva technique • Telemetry monitoring • EKG interpretation	AEMT plus: • Cyanokit • Diazepam • Epinephrine (racemic) • Lidocaine (IO) for local anesthesia • Lorazepam (seizures) • Midazolam (seizures) • Morphine • Fentanyl	• Guideline Exam or monthly guideline review • ALS Resuscitation Testing • SALT Triage Exam • EMRP Exam • EKG Exam

Initial Certification and System Credentialing

Lead Paramedic	Paramedic plus: • Orotracheal intubation • Nasotracheal intubation • Cricothyrotomy • Direct laryngoscopy • Video laryngoscopy • Needle decompression • OG/NG Tube placement • Airway obstruction direct laryngoscopy dislodgement • Electrical cardioversion • Chemical cardioversion • Manual defibrillation • Transthoracic pacing • Chemical restraint • Drug-assisted intubation/RSI • Procedural sedation • Termination of resuscitation • Field amputation[OMCP]	Paramedic plus: • Adenosine • Amiodarone • Atropine (Cardiac) • Calcium Chloride • Diltiazem • Dopamine • Etomidate • Haloperidol • Ketamine • Lidocaine (cardiac) • Lorazepam • Midazolam • Magnesium sulfate • Sodium bicarbonate • Succinylcholine • Tranexamic acid • Whole blood**	• Guideline Exam or monthly guideline review • ALS Resuscitation Testing • SALT Triage Exam • EMRP Exam • EKG Exam

**Requires special training and credentialing.

Note: Paramedics may perform the procedures and administer the medications listed for "Lead Paramedics" if under the *direct supervision* of a credentialed Lead Paramedic if approved by his or her agency EMS chief. The Lead Paramedic takes sole responsibility the procedures and interventions performed by the paramedic under his or her supervision.

Required Certifications

The following are required certifications for each practice level. Certifications must remain current unless otherwise noted.

Dispatch

1. Emergency Medical Dispatcher (EMD) Certification
2. Dispatcher-Directed CPR

Emergency Medical Responder (EMR)

1. Indiana State EMR License.
2. American Heart Association Healthcare Provider CPR (or equivalent).

Emergency Medical Technician (EMT)

1. Indiana State EMT License.
2. American Heart Association Healthcare Provider CPR (or equivalent).
3. Prehospital Trauma Life Support (PHTLS) or International Trauma Life Support (ITLS) - one time requirement for new EMTs entering the system, ongoing certification is optional. The skills checkoffs should be done every 3 years, but the certification itself is not required to be current.

Advanced Emergency Medical Technician (AEMT)

1. Indiana State AEMT License.
2. American Heart Association Healthcare Provider CPR (or equivalent).
3. Prehospital Trauma Life Support (PHTLS) or International Trauma Life Support (ITLS).

Paramedic

1. Indiana State Paramedic License.
2. American Heart Association Healthcare Provider CPR (or equivalent).
3. American Heart Association Advanced Cardiac Life Support (ACLS).
4. American Heart Association Pediatric Advanced Life Support (PALS) OR NAEMT Pediatric Education for Prehospital Providers (PEPP) with Resuscitation Module.
5. Prehospital Trauma Life Support (PHTLS) or International Trauma Life Support (ITLS).

Lead Paramedic

1. Indiana State Paramedic License.
2. American Heart Association Healthcare Provider CPR (or equivalent).
3. American Heart Association Advanced Cardiac Life Support (ACLS).
4. American Heart Association Pediatric Advanced Life Support (PALS) OR NAEMT Pediatric Education for Prehospital Providers (PEPP) with Resuscitation Module.
5. Prehospital Trauma Life Support (PHTLS) or International Trauma Life Support (ITLS).
6. Advanced Medical Life Support (AMLS) – one time requirement. While it is recommended the certification remain current, it is an optional certification unless required by individual departments.

System Annual Testing Requirements

Remaining current on local guidelines and medical literature as well as demonstrating a minimum level of proficiency in pre-hospital medicine is paramount to providing care to the system's wide array of patients ranging from our most basic to the sickest and most critically ill. Thus, review and testing, at various intervals, will be required for all levels of practitioner under the St. Joseph County EMS Committee's jurisdiction.

The SJCEMS committee or Medical Directors may also add additional requirements, based on changes in guidelines, current practice deficiencies, additions to the scope of practice, state requirements, or, as necessary, for the good of the local EMS system.

Monthly Training and Testing

1. **Treatment Guidelines and Medication Monograph Testing**
    a. Each month, a treatment guideline and medication monograph will be chosen for review and discussion. This training will be published on Target Solutions, emailed to the departments, or uploaded to the county website. The training may include discussion points, journal articles, or a video. A written quiz specific to SJCEMS guidelines will be attached as well.
    b. This training can be done as a group on shift or can be done individually. CE will be given for this training. Training officers can validate this training on Target Solutions or the department's learning management system.
    c. All levels of credentialing in SJCEMS must take and pass these monthly modules.
    d. Those who choose not to participate in the monthly trainings will be required to take and pass a written guideline exam every January.

Quarterly Training and Testing

1. **EKG Testing**
    a. Each quarter, an EKG learning module will be provided for continuing education. This training will be published on Target Solutions, emailed to the departments, or uploaded to the county website. The training may include discussion points, journal articles, or a video. A written quiz covering the material will be provided as well.
    b. This training should be done individually. CE will be given for this training. Training officers can validate this training on Target Solutions or the department's learning management system.
    c. All paramedic and lead paramedic credentialed practitioners in the SJCEMS system must take and pass these quarterly modules.
    d. Those who choose not to participate in the quarterly trainings will be required to take and pass a written EKG exam every January.
    e.
2. **SALT Triage Days**
    a. All SCJEMS practitioners credentialed in the system will participate in a "Triage Days" training exercises. During this training all patients evaluated and transported by EMS practitioners shall:
        i. Receive a colored triage-appropriate ribbon based on the SALT triage algorithm.
        ii. Receive a filled-out *practice* triage tag
        iii. Give a pre-hospital report indicating the triage color of the patient

Annual or Biennial Testing:

1. Emergency Medical Response Plan (EMRP) module
2. Resuscitation Testing (Mega Code)
3. SALT Triage Testing

The annual testing period will typically run from January 15th through February 15th each year, unless otherwise stated by the SJCEMS Committee or Medical Directors. If practitioner is unable to take the exam during that time due to leave of absence or vacation, the training officer may administer the exam once the practitioner has returned. However, until the requirements are completed, the practitioner will not be allowed to participate in patient care.

A score of 80% is required to pass all the exams except for the Resuscitative Testing, which is Pass/Fail.

System Annual Testing Requirements

Emergency Medical Response Plan (EMRP) Testing (All levels)

1. Every even year (ie 2024) all levels of practitioner will be required to pass the EMRP exam unless practitioner participates in the monthly guideline reviews, one of which will include an EMRP module, which must be completed.
2. This is an open-book exam.
3. The exam will be administered on the years hospital control typically changes.
4. Those practitioners who have not passed the exam within the open testing period will be required to meet with one or both of the EMS coordinators and/or the Medical Director to discuss why the exam was failed and to discuss a remediation plan. Credentialing will be revoked or reduced during this time.

Resuscitation Testing (All levels)

1. Resuscitation Testing is a "hands-on" practical examination of assessment and procedural skills. It is a component of EMS personnel practice requirements for initial credentialing, but is also an annual requirement as of 2025.
    a. Additional testing may also be required, by a Medical Director, anytime skill verification for an EMS practitioner is deemed necessary.
    b. Resuscitation Testing is administered in a "megacode" format according to current SJCEMS guidelines and American Heart Association Emergency Cardiovascular Care principles. **Scoring is pass or fail** and is not subject to appeal.

2. Every year all levels of practitioner will be required to demonstrate proficiency in resuscitation.
    a. Annual testing may be administered by the Medical Directors, EMS coordinators, or Medical Director approved department training officer or proctor. It will be determined by the Medical Directors who administers the exam on an annual basis.
    b. Initial testing for paramedics requires at least one Medical Director or EMS Coordinator to be present for the exam. All other levels may have the training officer administer the exam.
3. Scoring:
    a. First Attempt
        i. A minimum of one Medical Director or EMS Coordinators must be present during a first attempt to pass Resuscitation Testing.
        ii. If Resuscitation Testing is failed on the first attempt, a single retest, per below, may be attempted on the same day.
    b. Second Attempt
        i. If Resuscitation Testing is failed on the second attempt, a third attempt may be completed on a different day, see Third Attempt below.
        ii. Any practice limitations will remain in effect until Resuscitation Testing in passed.
    c. Third Attempt
        i. At least one Medical Director must be present for a third attempt to pass Resuscitation Testing, preferably not the Medical Director who administered the first or second attempt, if one was present.
    d. Remediation
        i. If an EMR, EMT, or AEMT fails Resuscitative Testing on the third attempt, he or she must take and pass an AHA Basic Life Support (Health Care Provider) CPR course prior to attempting the Resuscitative Testing again. The EMR or EMT may have credentialing revoked during this time.
        ii. If a paramedic fails Resuscitation Testing on the third attempt, he or she must take and pass an AHA Advanced Cardiac Life Support (ACLS) course prior to attempting the Resuscitative Testing again. The paramedic may have credentialing revoked or reduced during this time.
        iii. If a Lead Paramedic fails Resuscitation Testing on the third attempt, he or she must meet with both Medical Directors and take and pass an AHA Advanced Cardiac Life Support (ACLS) course. The Lead Paramedic will have credentialing revoked or reduced during this time and additional remediation may be necessary.
4. This requirement will count as the practitioner's annual skills validation for those skills performed during the testing.

System Annual Testing Requirements

SALT Triage Testing (All Levels)

1. Every odd year all levels of practitioner will be required to pass the SALT Triage exam.
2. This is an open-book exam, but must be taken independently.
3. The exam can be taken as many times as necessary to pass.
4. Those paramedics who have not passed the test within the open testing period will be required to meet with one or both of the EMS coordinators and/or the Medical Director to discuss why the test was failed and to discuss a remediation plan.
5. 30 minutes of CE will be awarded for the completion of this requirement.

System Continuing Education

Indiana continuing education (CE) requirements are defined in the Administrative Code of the Indiana EMS Commission.

National Registry continuing education requirements are listed on the National Registry website.

The following requirements are additional SJCEMSC requirements or reiterations of the state or National Registry requirements.

EMS practitioners are responsible for obtaining the continuing education (CE) hours and content, based on their level of certification, required for biannual recertification by both the state and National Registry. EMS practitioners are also responsible for obtaining the continuing education requirements as set forth by the SJCEMS and its Medical Directors. All CE not CAPCE accredited is subject to approval by the EMS Medical Directors or EMS coordinators for purposes of re-credentialing within the SJCEMS. EMS practitioners are responsible for providing proof of attendance.

All Primary Instructors (PI) and Practitioner Organization Training Officers must be approved by the SJCEMSC before providing education to EMS personnel for the purposes of SJCEMS authorized continuing education. If not approved, but the instructor is certified to provide continuing education otherwise, the education may be used for National Registry and Indiana State recertification but may not be used for local credentialling.

Continuing Education may only be conducted to an instructor's level of certification, for example, an AEMT may not conduct, nor certify as completed, paramedic level continuing education.

Failure to comply with any of the continuing education (CE) requirements may result in immediate suspension of credentialing within the St. Joseph County EMS system.

Audit and Review

As part of the monthly quality improvement meetings, four hours of audit and review are generally provided—two hours by each of the Sponsoring Hospitals—for a total of 48 hours annually. Audit and review is conducted by a SJCEMS Medical Director or, occasionally, by an EMS Coordinator. *AEMT's and Paramedics* are required to attend a minimum of **six hours annually**, based on their personal deadlines for the accumulation of CE hours necessary for state recertification. Thus, each AEMT and Paramedic must attend a minimum of 12 hours of St. Joseph County EMS Quality Improvement every two years. *EMTs* must attend a minimum of **six hours** of St. Joseph County EMS Quality improvement every two years, although attending more than the minimum is encouraged. Ideally, the QI and educational hours will be split equally between the two Sponsoring Institutions, but it is not required.

No outside agency's quality improvement or audit and reviews, including air or critical care transport, may be used for recredentialing within the SJCEMS system.

Education by a Sponsoring Hospital

Monthly quality improvement meetings are **automatically approved** as CE, if level appropriate. Other EMS education, including but not limited to EMS certification courses (EMT, AEMT, etc.) and accredited healthcare practitioner courses (ACLS, ITLS, PHTLS, CCEMT, etc.) offered by a Sponsoring Hospital are **automatically approved** as CE if level appropriate. Other medical education available at a Sponsoring Hospital may be approved at the discretion of a Medical Director or EMS Coordinator. Courses offered by Ivy Tech – South Bend Campus are also **automatically approved**.

Education in an Outside Setting

Accredited EMS certification courses (EMT, AEMT), etc., healthcare practitioner courses (ACLS, ITLS, PHTLS, CCEMT, etc.), Indiana Emergency Response Conference, and National Registry of Emergency Medical Technicians (NREMT) courses are **automatically approved** as CE if level appropriate.

EMD, EMR, and EMT education in an outside setting is approved as CE if level appropriate.

AEMT and Paramedic education in an outside setting will be approved as CE if it is CAPCE accredited.

System Continuing Education

Self-directed (Asynchronous) Education

Up to ten (10) hours of an EMS Practitioner's CE (**exclusive of audit and review**) may be obtained through self-directed education (asynchronous learning).

The Sponsoring Hospitals maintain a library of EMS educational media that is available for use by EMS Personnel. To utilize this material, EMS personnel should contact an EMS Coordinator. Approval is not required if the training is CAPCE approved.

Computer-based learning is available through a variety of sources, including the internet. Such learning does not require approval in advance but must be verifiable through documentation, either from a CE credit issuing entity or at an applicable website.

*An EMS Coordinator must approve, **in advance**, other forms of self-directed education.*

Skills Validation

The Indiana EMS Commission requires EMT, AEMT, and Paramedic skill validation every two years. A variety of skill validation methods are available:

- An EMS skill validation session conducted by a Sponsoring Hospital, including the annual Resuscitation Testing.
- A clinical rotation at a Sponsoring Hospital scheduled and approved *in advance* by an EMS Coordinator.
- A skills validation session administered by an approved training officer of a department within SJCEMS.
- An outside skill validation session or practical examination, if level appropriate.
- An outside AEMT or Paramedic skill validation session or practical examination will be approved only if:
  - It has the written approval, **in advance**, of an EMS Coordinator AND
  - The Skill Evaluations forms are completed and kept on file with the EMS Practitioner Organization.

Compliance with skill validation requirements will be complete only when the Skill Evaluation forms are verified by a Medical Director or EMS Coordinator for purposes of recredentialling in the SJCEMS system.

Field Evaluations and Individual Instruction

EMS Coordinators or Medical Directors may, from time to time, conduct field evaluations of individual EMS Personnel.

Individual instruction, with an EMS Coordinator or Medical Director, is available to EMS Personnel as often as necessary and practical. Individual instruction with anesthesiologists for endotracheal intubation, and with hospital personnel for initiation of venous access and infusions, will be arranged as needed but must be scheduled, *in advance*, with an EMS Coordinator.

Clinical Absence from Practice

A Clinical Absence is defined as: A period of *at least six months* during which an AEMT, Paramedic, or Lead Paramedic, previously credentialed to provide patient care under the authority of the SJCEMS, has not been doing so. This definition includes both of the following scenarios:

- The EMS Practitioner has been providing patient care under SJCEMSC authorization, but not at a level consistent with his/her certification, licensure, or authority.
- The EMS Practitioner has been providing patient care at a level consistent with his/her certification, licensure, or authority but not under SJCEMS authorization.
- For lead paramedics, the EMS practitioner has not been employed by an ALS *transport* agency.

It is possible to have a Clinical Absence for one level of certification yet maintain practice at another, e.g., a Paramedic who has been practicing at an AEMT level for six months, under SJCEMS authorization, could have a Paramedic Clinical Absence but maintain AEMT practice.

An EMS Practitioner who has had a Clinical Absence immediately loses SJCEMS system credentialing to provide patient care beyond the EMT level until he or she re-completes all the level-appropriate EMS personnel practice requirements.

A Clinical Absence waiver may be requested, in writing. It should be addressed to the Medical Directors, who will consider all such requests individually and who, at their sole discretion, will determine if a waiver is granted, and to what degree, based on specific case circumstances.

Lead Paramedic Credentialing

Lead Paramedic Program

The Lead Paramedic is the highest recognized level of local credentialing. This recognition is conferred on those paramedics who have met the rigorous criteria set forth by the St. Joseph County EMS Committee and its Medical Directors. These paramedics have demonstrated the ability to competently and independently manage the breadth of EMS practice, are fluent in the St. Joseph County EMS System guidelines, and have shown the capacity to lead other EMS personnel in providing optimal patient care.

Lead Paramedic Initial Recognition

There are two ways in which a Lead Paramedic Candidate (Candidate) can obtain Lead Paramedic recognition.

1. The *traditional* pathway, the pathway most candidates will use to obtain recognition.
    a. Eligibility
        i. Meet all the requirements to practice paramedicine in St. Joseph County, as defined in Initial Certification (1009), including "Before Starting Practice," "Within 30 days," and "Within 90 days".
        ii. The paramedic may apply for Lead Paramedic Candidacy immediately upon meeting the eligibility requirements of 1.a.i (above) but cannot hold the title of Lead Paramedic until he or she has held his or her Indiana state paramedic license for at least six months.
    b. Requirements
        i. Hold current certifications in all required courses, as described in Initial Certification (1009).
        ii. Hold a current certification in Advanced Medical Life Support (AMLS).
        iii. Complete a preceptorship
            1. During the preceptorship, the Candidate must practice under the direct supervision of a system credentialed Lead Paramedic.
            2. The Candidate must work a minimum of 1000 hours on an advanced life support transport ambulance, advanced life support chase vehicle, or other advanced life support vehicle. In either case, the paramedic must participate in the care and transport of the patient to definitive care.
            3. The Candidate must author a minimum of 150 patient care reports.
            4. The Candidate must actively participate in the care and transport of at least 40 patients who require *paramedic* level management.
                a. Paramedic level management is defined as the patient requiring skills above the EMR, EMT or AEMT level.
                b. Any intubation, cricothyrotomy, procedural sedation, needle decompression, controlled medication administration, CPAP administration, chemical cardioversion, appropriate signal-10 transport to a medical facility, trauma activation, stroke activation, sepsis alert, STEMI activation, patients with a suspected or confirmed diagnosis of diabetic ketoacidosis (DKA), status asthmaticus, active seizure, and active labor all meet the definition of paramedic level calls.
                c. A saline lock/IV start by itself does *not* count as a paramedic level call.
            5. At the completion of the preceptorship, the preceptor who has spent the most time with the Candidate shall fill out the "Preceptor Recommendation" form (Appendix 12003) and submit it to the EMS coordinators and EMS Medical Directors.
        iv. Receive a recommendation from the EMS chief in support of the Candidate receiving Lead Paramedic recognition. The EMS chief shall fill out the "EMS Chief Recommendation" form (Appendix 12004) and submit it to the EMS coordinators and EMS Medical Directors.
        v. Pass Medical Director Chart Review
            1. The Candidate will submit charts, five at a time, to the Medical Directors for review.
            2. Charts will be reviewed, five at a time, until both Medical Directors have agreed the candidate has met the minimum proficiency requirements set forth by the Medical Directors and EMS committee.
            3. Only five charts may be submitted in a 30-day period by the same candidate.
            4. Additional charts may not be submitted until feedback has been received from the prior submission.
            5. The Candidate must have acted as the lead medic on scene and in the ambulance for all patient encounters submitted.
            6. Each case must include a written explanation as to why the case was chosen.

7. Only charts from the paramedic's Lead Paramedic candidacy are eligible for submission.
8. Any cases submitted without supporting documentation, ie EKGs, ETCO2, rhythm strips, etc. will be rejected.
9. At no time will a Candidate pass the chart review portion of the candidacy with less than 10 chart submissions (two submissions of five charts).
10. Candidates who have submitted 20 charts (four submissions of five charts) and have not passed the Medical Director review require a meeting with both Medical Directors to discuss ongoing deficiencies.
11. Candidates who have not passed after 30 chart submissions (six submissions of five) will be required to participate in a remediation process of no less than three months to ensure resolution of the deficiencies.
12. Both Medical Directors must agree the candidate has passed the Medical Director chart review or additional charts must be submitted.
    a. The cases will be reviewed based on whether the candidate met standard of care, followed guidelines, lead the treatment team appropriately, had complete, appropriate documentation and met all documentation requirements, and ultimately, whether the case demonstrated the candidate's ability to manage the medical care, treatment team, and overall scene effectively.
    b. It is recommended the Candidate submit cases of sufficient difficulty as to demonstrate his or her ability to manage the sickest and most critically ill patients and/or manage chaotic, high stress scenes.
    c. The Medical Directors may, but are not required to, pull random charts authored by the candidate for review during the candidacy. These charts will become part of the formal review process and will be added to the formally submitted charts.
13. Chart submissions will be reviewed in the order in which they are received.
    a. For departments with more than two active submissions, only two chart submissions (batches of five cases) will be reviewed before moving to the next department's submissions.
    b. Once each department has had their active submissions reviewed (maximum of two), additional submissions from the initial department will be reviewed.
    c. It should not be expected that more than 30 charts (six sets of five) will be reviewed in a single month by the Medical Directors.
    d. The chart submission timelines will be documented in the SJCEMSC meeting minutes.
    e. A department may request an urgent review of a candidate in rare cases where staffing an ambulance is dependent on the candidate passing to Lead Paramedic status.

vi. Complete any supplemental education or training material assigned during the candidate process.
    1. Additional education or training material assigned during the candidate process.

c. Approval/Recognition
    i. Once all requirements above are complete, a final audit by the EMS coordinators shall be completed.
    ii. Once the final audit is complete, the Medical Directors may, at any time, confer the credentials of Lead Paramedic onto the Candidate, but should ideally be done as soon as possible.
    iii. The effective date shall be noted in the minutes of the next St. Joseph County EMS Committee meeting.

Lead Paramedic Credentialing Process Tracking

- The lead process shall be tracked by the SJCEMSC chairman.
- The process should be tracked in either Target Solutions or a spreadsheet accessible to each department's EMS chief.

2. The *Letter* Pathway, can be used by paramedics who have been in practice for two or more years **and** have practiced paramedicine in another system for at least the preceding six months immediately prior to application for Lead Paramedic recognition. This pathway is meant to consider the prior experience of the candidate and is not meant to bypass or ease the path to Lead Paramedic recognition.
    a. Eligibility
        i. Same as the *traditional* pathway.
        ii. The paramedic may apply for Lead Paramedic Candidacy immediately upon meeting the eligibility requirements of the *traditional* pathway but cannot hold the title of Lead Paramedic until he or she has held his or her state paramedic license for at least three months.
        iii. The candidate must have also worked in the SJCEMSC system for at least three months before being eligible to be credentialed as a Lead Paramedic.
    b. Requirements
        i. Letter of support from the Candidate's prior Medical Director.
        ii. Letter of support from the Candidate's prior EMS chief or training officer.
        iii. Receive a recommendation from the EMS chief in support of the Candidate receiving Lead Paramedic recognition. The EMS chief shall fill out the "EMS Chief Recommendation" form (Appendix 12004) and submit it to the EMS coordinators and EMS Medical Directors.
        iv. Procedure review from prior employment.
            1. The Candidate shall submit a summary of the total number of procedures from the preceding *two years* prior to application for lead status.
            2. The authenticity and accuracy of this submission must be validated by the prior Medical Director.
            3. Additional training or testing may be assigned based off lack of procedural experience, particularly those with zero successful attempts in the immediately preceding two years.
            4. The procedures reviewed are:
                a. Intubations
                b. Procedural Sedations
                c. Chemical Cardioversions
                d. Electrical Cardioversions
                e. Needle Decompressions
        v. Hold all certifications, including AMLS, as required for the Lead Paramedics.
        vi. Complete a preceptorship.
            1. The same requirements must be met as in the *traditional* pathway, but only half as many hours, authored reports, and transports are required.
        vii. Pass Medical Director Chart Review.
            1. The same requirements must be met as in the *traditional* pathway.
            2. At no time will a Candidate pass the chart review portion of the candidacy with less than five chart submissions (one submission of five charts).
    c. Approval/Recognition
        i. Same as the *traditional* pathway.

Lead Paramedic Credentialing

Revocation of Lead Paramedic Recognition

1. Disciplinary
    a. Lead Paramedic credentialing can be revoked by the Medical Directors, department EMS chief, or by vote of the SJCEMSC at any time for disciplinary reasons. See disciplinary matrix/guideline for description.

Re-Instatement of Lead Paramedic Recognition
For a paramedic to have their **Lead Paramedic** credentialing reinstatement considered under this guideline, the following requirements must be met.

1. Eligibility
    a. Same eligibility requirements as in the *traditional* pathway.
    b. Have held Lead Paramedic Credentials within the SJCEMSC system within the last 3 years.
    c. Continued to practice paramedicine, in a non-Lead Paramedic role, either within the county or outside the county, continuously, throughout the time of non-Lead Paramedic status.
    d. Have continuously held the Indiana state paramedic license without lapse during the time paramedic was not credentialed as a Lead Paramedic within the SJCEMSC system.
    e. Have participated in at least 6 hours of quality improvement (QI) within the last 12 months. For purposes of re-instatement, this does not have to be within the St. Joseph County EMS system.

2. Requirements
    a. Receive a recommendation from the EMS chief in support of the Candidate receiving Lead Paramedic recognition. The EMS chief shall fill out the "EMS Chief Recommendation" form (Appendix 12004) and submit it to the EMS coordinators and EMS Medical Directors.
    b. Hold all certifications, including AMLS, as required for the Lead Paramedics.
    c. Procedure review from the time the paramedic was not credentialed as a Lead Paramedic.
        i. The Lead Paramedic Candidate must submit a summary of the total number of procedures from the during of time practicing paramedicine as a non-Lead Paramedic, for the duration up to three years.
        ii. Additional training or testing may be required based off lack of procedural experience, particularly those with zero successful attempts in the last three years.
    d. Preceptorship
        i. The same requirements must be met as in the *traditional* pathway, but only half as many hours, authored reports, and transports are required.
    e. Procedural competency
        i. The paramedic candidate shall go to the operating room and demonstrate proficiency with airway management. A minimum of six successful intubations on live patients must be documented.
        ii. The paramedic candidate must demonstrate proficiency in peripheral IV starts. These may be done in the operating room/pre-op or on live EMS patients. A minimum of five successful IV starts must be documented.
        iii. The paramedic candidate shall interpret at least 10 EKGs and submit their interpretation to the Medical Directors or EMS coordinators.

f. Complete the following exams with the same standards as the initial training (1009)
    i. St. Joseph County EMS Committee Guidelines
    ii. 12-Lead EKG
    iii. St. Joseph County Emergency Medical Response Plan (EMRP)
    iv. SALT Triage
    v. Resuscitation Testing
        1. Cardiac Arrest/Respiratory Distress/Arrest
        2. Trauma Management
        3. Stroke
        4. STEMI
g. Pass Medical Director Chart Review
    i. The same requirements must be met as in the *traditional* pathway.
    ii. At no time will a Candidate pass the chart review portion of the candidacy with less than 5 chart submissions (one submission of 5 charts).

3. Approval/Recognition
    a. Same as the *traditional* pathway.

If a paramedic does not meet the criteria of any of the above criteria or fails to meet the standard of a Lead Paramedic, as set forth by the St. Joseph County EMS Committee, the paramedic must apply for Lead Paramedic status under the *traditional* pathway.

Maintenance of Certification (MOC)
Unless a lead paramedic fails to maintain required system certifications, required system and state continuing education requirements, takes a leave of absence greater than 6 months, loses system credentialing for disciplinary reasons, or voluntarily gives up his or her lead paramedic credential in the system (which must also be accepted by the lead paramedic's department), the lead paramedic shall retain his or her system lead paramedic status.

Note, military leave of absences will be reviewed on an individual basis and individualized requirements may vary.

Discipline and Remedial Training

The SJCEMS committee believes that EMS practitioners should receive fair and reasonable treatment regarding disciplinary action and required remedial training and strive to harbor a "Just Culture." All such measures are considered aspects of EMS quality improvement. However, most quality-of-care issues that arise during EMS practice can be managed on a case-specific basis, between one or both of the Medical Directors and the individual(s) involved.

Remedial Training

The Medical Directors must be confident that EMS practitioners are capable, at all times, of practicing to the level of their training, license, and system credentialing. If one or both Medical Directors believe that an individual requires supplemental training, or reinforcement of previous training, it is their prerogative and duty to mandate such training, and to establish a reasonable timeframe for it to be accomplished—**due process is not required**. Additionally, the Medical Directors may, at any time, at their discretion, demote or revoke the credentials of an EMS practitioner until remedial training has been completed and appropriate competency levels have been demonstrated.

Remedial training may include, but is not limited to:

- Reinforcement training in dispatch, basic life support, or advanced life support.
- Reinforcement training in assessment and/or procedural skills.
- Resuscitation Testing (see Resuscitation Testing).
- Written, oral, or practical testing.
- Mandatory supervision, including revocation of Lead status, if applicable.
- Required ride-time with the EMS coordinator or EMS Medical Director.

Examples of scenarios where remedial training may be required:

- A Paramedic who demonstrates a pattern of difficulty with first pass success with intubation may be required to undergo reinforcement training in an operating room setting at a Sponsoring Hospital.
- An AEMT who demonstrates a pattern of difficulty with intraosseous insertion may be required to undergo remedial training with an EMS Coordinator.

If remedial training is extreme, such as requiring an EMS practitioner to participate in a complete EMS certification course over a period of months or suspending an individual's Lead status for **more than six months**, due process should generally be followed, especially if the EMS practitioner believes that the requirement is unreasonable, excessive, or capricious. EMS Personnel should submit a request for due process to the SJCEMS committee Chair; the request will be discussed at the next SJCEMS committee meeting.

Remedial training triggered by SJCEMS committee quality indicators is not subject to due process but may be appealed directly to the Medical Directors. Note: Continuing education is not considered remedial training.

Disciplinary Action

The Medical Directors, in collaboration with the SJCEMS committee, may take disciplinary action in response to certain actions or inactions by EMS practitioners. Such actions or inactions include, but are not limited to, the following:

- Deviating from, without sufficient reason and explanation, the Guidelines.
    - This can be one egregious deviation or smaller recurrent deviations.
- Engaging in, or attempting to engage in, activity not authorized by the SJCEMS committee.
- Demonstrating professional incompetence or demonstrating the inability to provide adequate emergency medical care.
- Demonstrating unprofessional conduct or poor judgment in the provision of emergency medical services.
- Deviating from, without sufficient reason, prudent orders from the Online Medical Consulting Physician (OMCP) that the individual is authorized to carry out, and that are not specifically prohibited in the Guidelines.
- Failing to comply with the educational, practice, procedural, and documentation requirements detailed in the Guidelines.
- Failing to comply with the EMS code of conduct or demonstrating conduct unbecoming of an EMS professional.

The individual's EMS agency may also take action against the EMS practitioner as it deems necessary. The Medical Directors shall be notified of any such action, particularly for actions or inactions as listed above.

Discipline and Remedial Training

Disciplinary action includes, but is not limited to:

- Suspension or demotion of credentialing within the SJCEMS system to provide emergency medical services for a specified period of time, or until certain conditions are fulfilled.
- Mandatory supervision unrelated to remedial training.
- Prolonged or Permanent suspension of credentialing within the SJCEMS system.

No disciplinary action by the SJCEMS committee should have a direct effect on an individual's Indiana certification. However, a report of disciplinary action may be sent to the EMS Commission along with supporting evidence. In unusual cases, the Medical Directors may file a formal complaint with the EMS Commission.

Note: A letter of reprimand is not a disciplinary action and is not subject to due process.

Due process may take several months to accomplish. If there are public safety concerns, SJCEMS committee or its Medical Directors may revoke or demote the individual's SJCEMS system credentials until resolution of the disciplinary process. Additionally, if there are public safety concerns, remediation requirements imposed by the Medical Directors will not typically be delayed while awaiting the outcome of the disciplinary proceedings.

Due Process

Due process is a principle of fundamental fairness and a "Just Culture." Although final decisions regarding disciplinary action necessarily rest with the Medical Directors, when EMS practitioners are potentially subject to corrective measures that would directly limit their ability to function at their level of training and licensure, they are entitled to know, in detail, the allegations of wrongdoing, to confront any witnesses, and to refute the allegations in a hearing. However, occasionally investigations into allegations to determine if enough evidence exists will take place prior to any notifications for formal disciplinary action.

Due process is a series of steps that allows for the thorough evaluation of possible wrongdoing, with adequate time and notice to all involved parties. **It is unavoidably complex**. There are specific decisions made along the way that allow the public to be protected, allow all relevant information to be collected, allow all involved parties to be heard, and guide the process to conclusion. Although certain steps are essential, some may be abbreviated, or completely bypassed, by mutual agreement between the Medical Directors and involved EMS Personnel. Some steps may occur simultaneously; others must occur in sequence. The timeframe indicated for each step is approximate, except where noted.

Notifications

Appropriate notifications occur at each step in the process.

All official notifications should be via certified mail. In addition, EMS personnel and EMS Practitioner Organizations should also be, if possible, notified directly. All notifications should occur within **seven days** of any action or decision requiring notification (see below).

Hearings

In due process, there are two opportunities for a hearing:

- A fact hearing: To establish the relevant facts.
- A disciplinary action hearing: To review the appropriateness (severity and duration) of a disciplinary action.

Once a hearing has been determined necessary or appropriately requested, the hearing should be held as soon as reasonably possible. However, each individual involved in the hearing, unless he/she waives notice, must be given at least **seven-day** notice.

All hearing committees are comprised of the Chair of the SJCEMSC (presiding over the hearing committee), a representative from *two* sponsored EMS Practitioner Organizations, and four of the EMS practitioner's peers (individuals of equal certification and authorization). The Chair will appoint all committee members. **At least one Medical Director must also attend any hearing but he or she is not a member of the committee**.

No party may be represented by counsel or union representation at any SJCEMSC hearing.

Discipline and Remedial Training

The following outlines the steps of the formal investigatory and disciplinary process within the SJCEMS system.

Step 1: Initial Evaluation of Information (Up to 30 Days)

The purpose of the initial evaluation is to determine if an investigation is warranted.

When information is received, either internally or externally, which indicates possible wrongdoing by an EMS practitioner, the Medical Directors will review the information to answer the following questions:

1. Is the information **reasonably credible**?
2. If the information is credible, could it result in disciplinary action or remediation if true?

If the answer to either question is "No," due process is terminated—there is no further investigation and no disciplinary action.

If disciplinary action is possible - does the information, if true, represent a potential risk to public safety? If "yes", immediate suspension or demotion of credentialing may be authorized (See Step 2).

If the information is not credible, or if disciplinary action would not be warranted even if it were, due process is terminated. If applicable, the information source will be:

- Notified that the information was taken seriously and investigated to a necessary degree as determined by the Medical Directors.
- Notified that the Medical Directors have resolved the issue(s) to his or her satisfaction.
- Thanked for participating in the SJCEMSC quality improvement process.

To the extent possible, all information will be documented in written form, to clarify the issues and attenuate emotional overtones.

Step 2: Immediate Suspension or Limitation (Up to the duration of the process)

The purpose of immediate suspension or limitation is protection of the public.

If the information represents a potential risk to public safety, the EMS practitioner will be **immediately** suspended, or have his or her credentials appropriately limited, pending completion of the process or until the Medical Directors' reconsideration of the need for immediate suspension. Note, however, immediate suspension or credential demotion is not required and will vary depending on the allegations and information received. The EMS practitioner and his or her EMS Practitioner Organization will be notified of:

- The allegations or circumstances that caused the immediate suspension or limitation.
- The specific nature of the immediate suspension or limitation.

Step 3: Formal Investigation (30 days)

The Medical Directors, and their designees, will formally investigate the matter to determine the relevant facts. This may involve interviews of witnesses, collection of other information, etc. Written and signed documentation of all formal statements will be obtained to the extent possible. The EMS practitioner and his or her EMS Practitioner Organization will be notified of:

- The formal investigation and the allegations or circumstances requiring it.
- An explanation of possible consequences if the allegations are determined to be true.
- His or her right, as part of the investigation, to submit a written statement regarding the incident(s) in question, and the specific allegations.
- His or her right to request, in writing and **within 15 days**, a fact hearing.

A Formal Investigation is *required* if the investigation is not terminated in Step 1.

Step 4: Fact Hearing (15 days)

Although not required, a fact hearing may be held for either of two reasons:

- The Medical Directors determine a hearing is necessary to establish the facts.
- The involved EMS practitioner requests a hearing to establish the facts.

Relevant information may be presented, and **witnesses may be examined**. The fact hearing committee will submit its written, non-binding, recommendation to the Medical Directors.

Step 5: Action Decision (15 days)

At the conclusion of the formal investigation and, if applicable, after considering the recommendation of the fact hearing committee, the Medical Directors will determine what disciplinary action, if any, is indicated. The action will commence immediately.

If the EMS practitioner was previously suspended or limited earlier in the process, the suspension or limitation will be replaced by whatever action, if any, the Medical Directors decide is warranted.

The EMS practitioner and his or her EMS Practitioner Organization will be notified of the action decision. If disciplinary action is taken, the notification will also include:

- A review of the circumstances that led to the disciplinary action.
- The specifics of the disciplinary action:
  - The severity and duration of the action.
  - Any requirements for termination of the action.
  - The level at which the EMS practitioner will be reinstated, if at all, at the conclusion of the action and any subsequent requirements required for resolution.
- A statement that the EMS practitioner has the right to request, in writing and **within 15 days**, a penalty hearing.

Step 6: Penalty Hearing (15 days)

If the action decision results in disciplinary action, the EMS practitioner may request a hearing to review the severity and duration of the action, **not** the decision to take disciplinary action. Relevant information may be presented, at the discretion of the hearing committee chair, but **no witnesses may be examined**. The hearing committee will make a non-binding recommendation regarding the severity and duration of the action to the Medical Directors. However, if not requested, the penalty hearing is not required.

Step 7: Final Decision (15 days)

If a penalty hearing is held, the Medical Directors will make a final decision whether to modify the severity and/or duration of the disciplinary action. If no modification is made, the action decision will serve as the final decision. If a penalty hearing is not held, a final decision is not required as the final decision was made in Step 5.

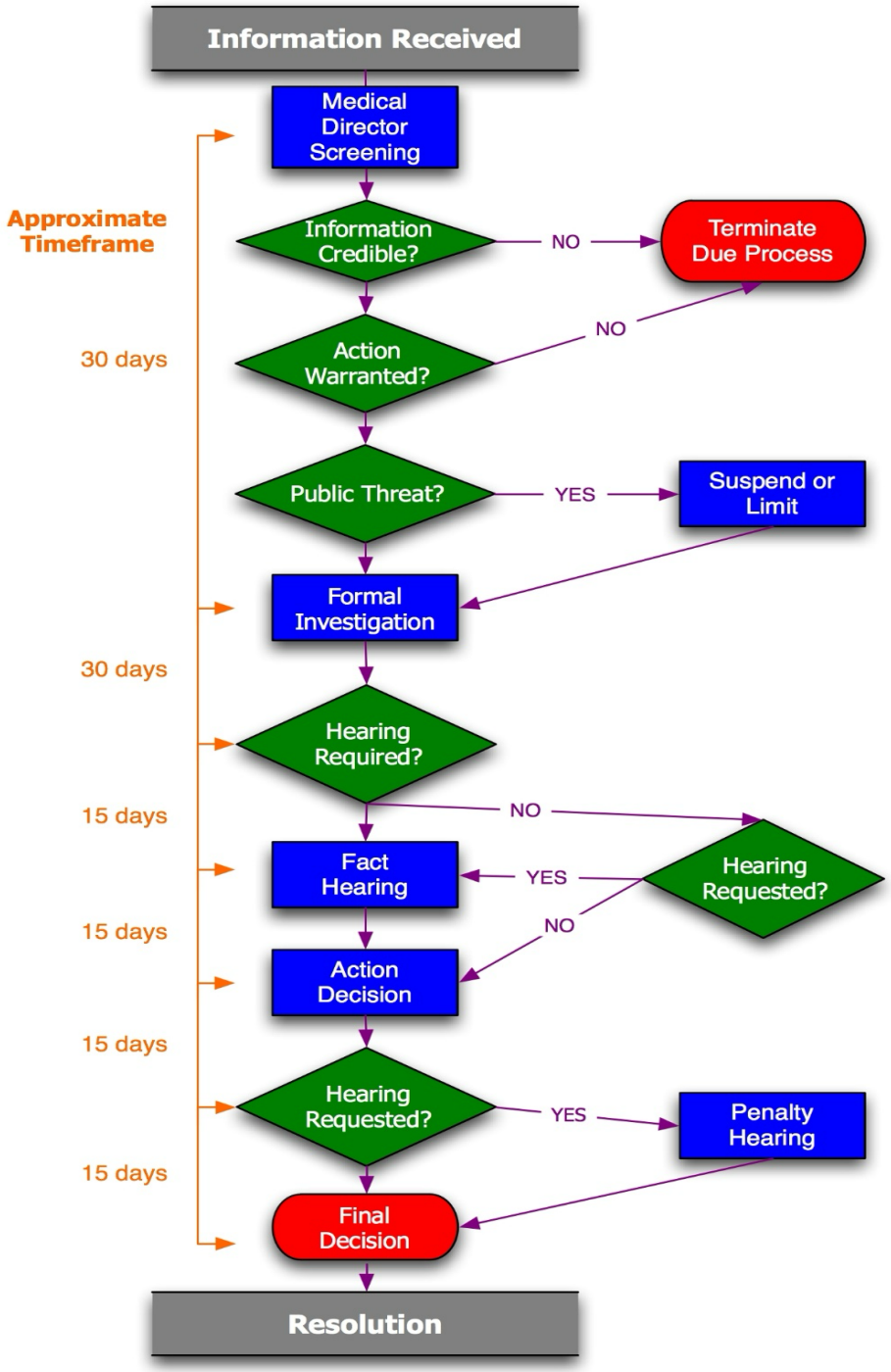
The EMS practitioner and his or her EMS Practitioner Organization will be notified of the final decision, including any modifications to the action decision. There is no further appeal.

Step 8: Resolution

At the conclusion of any disciplinary action period, the Medical Directors will determine if **all** requirements necessary for termination of the action have been completed and notify the EMS practitioner and his or her EMS Practitioner Organization. If **all** requirements have been completed, the EMS practitioner will be reinstated at a level of authorization determined by the Medical Directors in the action decision. If all requirements have not been completed, the notification will also include:

- A statement reviewing the requirements for termination of the action.
- A list of the remaining requirements.
- A specified timeframe for completing the remaining requirements.
- Any consequences of not completing the remaining requirements within the specified timeframe.

Due Process Flow Chart



Introduction to Guidelines

EMS personnel in the SJCEMS system may function at any of six levels of EMS certification and credentialing. Color-coded symbols and guidelines are used to differentiate these levels. **Unless specifically noted, the administrative guidelines apply to all levels of certification and credentialing**. Level-specific guidelines and medications are annotated with the level-appropriate color or description either at the top of the page (when applicable to the entire Guideline) or after the appropriate section or item. The level-specific guidelines do **not** mean that an individual with a higher level of certification should not perform the intervention if appropriate to the specific clinical encounter. **Note:** these treatment guidelines do not include dispatch as they have their own guidelines based on Priority Medical Dispatching.

The example illustrates which level of practitioner is responsible for the different areas of the guidelines.

Treatment Guidelines
• Lead Paramedic • Paramedic • AEMT • EMT • EMR
• Lead Paramedic • Paramedic • AEMT • EMT
• Lead Paramedic • Paramedic • AEMT
• Lead Paramedic • Paramedic
• Lead Paramedic
• Required consults are listed here. These consults are different from those listed from medications and procedures listed as OMCP. If a medication needs to be administered or procedure performed that has OMCP next to it, OMCP is required. The consults here are specific to the chief complaint. For example, an EMT or AEMT contacting OMCP after transmitting a STEMI EKG.

EMR | EMT | AEMT | Paramedic | Lead | OMCP

This example illustrates a header which denotes which level of practitioner can perform a procedure or administer a medication. Specifically in this example, ALL levels of practitioners can perform this skill or administer this medication.

EMR	EMT	AEMT	Paramedic	Lead Paramedic

This example illustrates a skill or medication only authorized for a paramedic or Lead Paramedic.

EMR	EMT	AEMT	Paramedic	Lead Paramedic

Just-in-Time Standing Orders (JITSO)

Just-in-Time Standing Orders are orders which are not typically part of the permanent standing orders. However, from time to time, an additional standing order may need to be enacted, a variation of a procedure may need to be performed, or an alternative medication may need to take the place of a regular medication. The latter is becoming relatively common given the number of medications on backorder/national shortage.

Thus, rather than rewriting or re-issuing the entire guideline book with changes, Just-in-Time Standing Orders or JITSOs may be enacted. These guidelines have the same authority as the regular standing orders in the guideline book but are typically only enacted on a temporary basis. The JITSOs are not part of the guideline book or annual guideline testing. However, the JITSOs are intended to be printed and distributed or electronically distributed to EMS practitioners and others who may be affected by the JITSO.

Education and training should be provided with the JITSOs but given that JITSOs may need to be put out on an emergent basis, education and training cannot be guaranteed.

JITSOs shall be marked with a watermark or other identifier indicating it is a Just-in-Time Standing Order/JITSO.

Emergency Medical Dispatch

Emergency Medical Dispatchers (EMDs) have appropriately been called the "first first responders." The State of Indiana and the SJCEMSC consider organizations that provide emergency medical dispatch services (Emergency Medical Dispatch Centers/PSAP) to be EMS Practitioner Organizations. The Emergency Medical Dispatching Program (EMDP) should comply with principles established by the National Highway and Traffic Safety Administration (NHTSA) in the Emergency Medical Dispatch Program Implementation and Administration Manager's Guide and the American Society for Testing and Materials (ASTM) Standard F 1258-95.

EMS Practitioner Organizations operating under SJCEMSC authority are **not** required to provide an emergency medical dispatch service. Those that do, either exclusively or as a component of more comprehensive EMS services, must utilize an Emergency Medical Dispatching Program (EMDP). An EMDP provides medical priority dispatching and dispatch life support (DLS). An EMDP standardizes the gathering of critical information, by an EMD, regarding a request for emergency medical assistance and, based upon that information, determines the level of EMS response (certification level(s), vehicle(s), and urgency). It also standardizes the provision of DLS instructions given to callers prior to EMS Personnel arrival. An EMDP is, by design, relatively non-discretionary.

The Medical Priority Dispatch System®

In one such system, the Medical Priority Dispatch System® (MPDS), there are six levels of emergency response possible, based upon EMD information gathering. Once a response level is determined, the actual response is governed by local medical direction. The Medical Directors have designated the following response levels for MPDS.

Dispatch Code	MPS Designation	Level of Response
	W: Omega	Poison Center Referral only
Priority 5	**A**: Alpha	BLS **COLD**; ALS ambulance (if needed) **COLD**
Priority 4	**B**: Bravo	BLS **HOT**; ALS ambulance (if needed) **COLD**
Priority 3	**C**: Charlie	BLS **HOT**; ALS vehicle **HOT**
Priority 2	**D**: Delta	BLS **HOT**; Paramedic vehicle **HOT**
Priority 1	**E**: Echo	Multiple **HOT**

HOT refers to "lights and sirens", or signal 10, response.
COLD refers to *no* "lights and sirens", or non-signal 10, response.

*"Lights and Sirens" operation is **inherently dangerous**, and of limited benefit in many EMS scenarios. It is best utilized within the setting of a medical priority dispatching system.*

Dispatch Arenas

A **vehicle configuration** is the actual number and type(s) of vehicle(s) dispatched at any given response level. Multiple Emergency Medical Dispatch Centers, utilizing multiple EMDP's, with varying vehicle configurations, coexist within the St. Joseph County EMS System. Only the level of response (BLS, ALS, Paramedic, etc.; **COLD** vs. **HOT**) is indicated for each dispatch designation. **The actual vehicle configuration must be determined for, and within, each dispatch arena**.

******All emergency medical responses require an ambulance (transporting vehicle)******

Vehicle Staffing and Safe Operation

The following information pertains to 911 scene calls for service. Requests for interfacility transfers are discussed separately after the minimum vehicle staffing section.

Basic Life Support Ambulances (Transport and non-transport)

1. Sponsored EMT practitioner organizations must ensure that each basic life support transport ambulance is staffed by at least one EMT (or higher) and one driver (or higher).
2. During all basic life support transports, the patient compartment must be staffed by at least one EMT (or higher).
3. If the need for advanced life support is a reasonable possibility, a paramedic (ALS) ambulance must be requested.

Advanced Life Support Ambulances

Advanced-EMT Transport Ambulances

1. During basic life support transports, the patient compartment must be staffed by at least one EMT (or higher). All decisions and responsibility regarding patient compartment staffing rest with the on-scene EMS practitioner(s) with the highest level of certification.
2. During advanced life support transports, or transports in which the need for advanced life support is a **reasonable possibility**, a paramedic or Lead Paramedic (as appropriate to the patient condition – see below) must staff the patient compartment (see Mandatory Staffing below).
3. If the need for advanced life support is a reasonable possibility, but no paramedic is available on scene, a paramedic (ALS) ambulance must be requested.

Paramedic Transport Ambulances

1. Charlie and delta responses *must* have a *paramedic* respond to the scene.
2. Echo responses *must* have a *lead paramedic* respond to the scene.
3. During basic life support transports, the patient compartment must be staffed by at least one EMT (or higher). All decisions and responsibility regarding patient compartment staffing rest with the on-scene EMS practitioner(s) with the highest level of certification.
4. During advanced life support transports, or transports in which the need for advanced life support is a **reasonable possibility**, a paramedic or Lead Paramedic (as appropriate to the patient condition – see below) must staff the patient compartment (see Mandatory Staffing below). This includes any patient requiring cardiac monitoring, or who has abnormal vital signs, is receiving isotonic IV fluids to maintain normal vital signs or received a paramedic or Lead Paramedic only approved medication.
5. If the need for patient decompensation is a **reasonable possibility**, but no lead paramedic is available on scene, a lead paramedic unit must be requested.

Mandatory Staffing of the Patient Compartment by Lead Paramedic

At least one Lead Paramedic must staff the patient compartment if the patient has exhibited, or is reasonably likely to exhibit, signs of medical instability including, but not limited to:

- Hypotension
- Serious blunt trauma (especially multi-system)
- Penetrating head, neck, or torso trauma
- Significant respiratory distress
- Significant ventricular ectopy
- Suspected acute cardiac ischemia
- Potentially dangerous dysrhythmias
- Acute altered mental status not resolved when ready for transport
- New onset, or sustained, seizure activity
- Impending newborn delivery
- Physical or chemical restraint

Vehicle Staffing and Safe Operation

The lead EMS practitioner(s) on-scene may exercise discretion in permitting non-Lead EMS Personnel to staff the patient compartment during stable advanced life support transports, but the lead EMS practitioner(s) remain(s) ultimately responsible for the patient at **all** times.

At no time will a patient's care be transferred to an EMS practitioner with a lower level of certification if the patient's health might be placed in jeopardy by that transfer.

Basic Life Support Non-Transport Vehicles

- Although all EMS dispatches require an ambulance, they are not the only vehicles able to deliver basic life support care to patients. Basic life support non-transport vehicles include fire apparatus and "chase" vehicles approved by the EMS Commission. These vehicles are authorized to transport EMS practitioners to the scene.

Advanced Life Support Non-Transport Vehicles

- Although all EMS dispatches require an ambulance, they are not the only vehicles able to deliver advanced life support care to patients. Advanced life support non-transport vehicles include fire apparatus and "chase" vehicles approved by the EMS Commission. These vehicles are authorized to transport EMS practitioners to the scene.
- Advanced life support non-transport vehicles must be staffed by at least one paramedic when responding as:
  - An additional advanced life support vehicle, with at least one other advanced life support transport vehicle also responding.
  - The sole advanced life support vehicle, with at least one EMT vehicle also responding.
  - The sole advanced life support vehicle because no other advanced life support vehicle is available. If this occurs, it must be noted in the narrative portion of the EMS Medical Record.
- Advanced life support non-transport vehicles must be staffed by at least one Lead Paramedic **and**, preferably, one EMT (or higher), when responding as the sole advanced life support vehicle, except as above.

Interfacility Transfers

Interfacility transfers are the movement of a patient from one healthcare facility to another. They are often elective and scheduled, sometimes emergent and unscheduled, and are considered distinct from emergency scene responses.

*During interfacility transfers, patients must receive care **commensurate with their medical needs**. Patients who require advanced life support must be transported in an advanced life support ambulance; patients who require paramedic assessment or interventional skills must be transported in a paramedic ambulance. **No** exceptions are permitted unless approved, in advance and on a case-by-case basis, by a Medical Director or his or her designee, as discussed below.*

Vehicle Staffing and Safe Operation

Basic Life Support Interfacility Transfers

During basic life support interfacility transfers, the following are permitted:

- **Patient-controlled** intravenous medication administered via an infusion pump with lock-out
- Maintenance of the following intravenous solutions, infusing via a **non-adjustable** infusion pump:
  - Vitamins
  - 5% dextrose in water
  - Lactated Ringer's solution
  - Normal saline
  - Potassium chloride (KCl) at a concentration of **≤ 20 mEq/L**, infusing at **≤ 10 mEq/hr**
- An ambulatory electrocardiography device (Holter monitor)
- A peripherally inserted central venous catheter (PICC)
- A standard central venous catheter **that has been clamped**
- A feeding tube **that has been clamped**

Any other medication or device must be approved, on a case-by-case basis, by a Medical Director or, if none are available, an Online Medical Consulting Physician (**OMCP**).

A basic life support ambulance may not transport a patient receiving intravenous medication administered by gravity, or via an adjustable pump; one with a central venous catheter (non-PICC) that has not been clamped; one with a chest tube; or one who is ventilator-dependent unless approval has been given by the Medical Director in advance.

Any other medication or device must be approved, on a case-by-case basis, by a Medical Director or, if none is available, an Online Medical Consulting Physician (OMCP).

No patient who requires advanced life support may be transported in a basic life support ambulance unless *all* the following are true:

- The transfer is vital to the continued health and safety of the patient.
- No advanced life support ambulance is available in a timeframe considered reasonable by the transferring physician, including advanced life support ambulances of non-sponsored EMS Practitioner Organizations.
- The patient is being transferred from one healthcare facility to another.
- The transferring physician has issued written approval of the transfer by a basic life support ambulance.
- The ambulance is equipped with the medical supplies determined necessary by the transferring physician.
- At least one employee **of the transferring facility** will staff the patient compartment during the transport, unless otherwise approved by a Medical Director.
- Permission is obtained from a Medical Director or, if none is available, **OMCP**.

Paramedic Interfacility Transfers

During paramedic interfacility transfers, the following are permitted:

- The permitted items listed above for basic life support transfers, including the permitted infusions **via an adjustable or non-adjustable infusion pump.**
- A **home** ventilator in an otherwise stable patient.
- SJCEMS-approved medications, including infusions of those medications **via an adjustable or non-adjustable infusion pump.**
- When administered in accordance with a written physician order:
  - Oral hypoglycemic agents
  - Oral and parenteral analgesics, including opioid analgesics
  - Oral and parenteral antiemetics
  - Oral and parenteral adrenocorticosteroids
  - Oral and parenteral antimicrobials
  - Heparin (intravenous flush or administered **via an adjustable or non-adjustable infusion pump**)
  - Intravenous nitroglycerin administered **via an adjustable or non-adjustable infusion pump**
  - Hyperalimentation fluids administered **via an adjustable or non-adjustable infusion pump**

- An EMS Practitioner Organization ventilator in an otherwise stable patient

EMS personnel utilizing an EMS Practitioner Organization ventilator must have completed a ventilator education program, and annual skills validation specific to the ventilator model used. The EMS Practitioner Organization ventilator is intended for the transport of stable patients with stable ventilator settings. Ventilator setting titration, and other adjustments, are **not** permitted without Online Medical Consultation. **Patients ventilated with an EMS Practitioner Organization ventilator must have continuous cardiac rhythm, oximetric, and capnography monitoring**.

For transfers **exceeding 30 miles**, as measured on the ambulance odometer, a Lead Paramedic must staff the patient compartment. Otherwise, vehicle staffing may be accomplished as described earlier in this guideline.

If necessary, other medications, devices, monitoring, interventions, and paramedic ambulance staffing, may be approved, in advance and on a case-by-case basis, by a Medical Director or, if none is available, an **OMCP**. If one of the Sponsoring Hospitals is involved in the transfer or receipt of the patient, attempts should be made to contact that hospital's Medical Director first.

Patients who, during transfer, will receive medications or be treated with devices not listed above, and patients with complex illnesses who require monitoring and/or interventions beyond the scope of paramedic practice, must be accompanied by supplemental medical personnel familiar with such medications, devices, illnesses, monitoring, and interventions. **It is not the responsibility of the sponsored EMS Practitioner Organization to arrange for such supplemental personnel**.

Safe Operation

All EMS vehicles should be operated in a manner consistent with Indiana law. All EMS practitioners operating an EMS vehicle should be familiar with applicable Indiana law.

The use of warning lights and sirens is ***inherently dangerous*** *but sometimes necessary. Their use en route to an EMS scene should be determined by* an Emergency Medical Dispatch Program. ***Their use en route to the Destination Hospital should be limited to those situations in which the anticipated timesaving is reasonably likely to be of sufficient benefit to outweigh the risks***. Examples of these types of cases are: Trauma Activations, Stroke Activations, STEMI Activations, hemodynamically unstable patients despite ongoing interventions, post-cardiac arrest (ROSC) or peri-arrest patients, patients in any type of shock, those who are receiving or have received a pre-hospital blood transfusion, or those considered to have a high likelihood of decompensation en route to the hospital for definitive care.

The SJCEMS committee recommends the Emergency Vehicle Operations Course (EVOC) to **all** EMS personnel involved in EMS vehicle operations.

Vehicle Intercepts and EMS Authority

A vehicle intercept occurs when, in the course of caring for a patient, EMS practitioners rendezvous to provide optimal patient care. **The most typical vehicle intercept occurs when SJCEMS authorized EMTs or AEMTs rendezvous with SJCEMS authorized paramedics**. Other intercept scenarios are possible, involving various groups of EMS Personnel operating under various authorities and guidelines, e.g., a Michigan-based EMT ambulance rendezvousing with a SJCEMS system authorized paramedic ambulance, or an air ambulance.

EMS On-Scene Authority

When a patient is in the care of EMS practitioners operating under SJCEMS authority, the following rules of EMS patient care decision-making authority apply:

- SJCEMS authorized Lead Paramedic has the highest level of authority and responsibility regarding patient care/disposition decisions.
- If no SJCEMS authorized Lead Paramedic is on-scene, an EMS practitioner with the highest level of EMS certification, whether acting under SJCEMS authority or not, has authority and responsibility regarding patient care/disposition decisions.

Occasionally, a patient may not initially be in the care of EMS practitioner operating under another EMS authority. If this occurs, SJCEMS authorized EMS practitioners should work cooperatively with other agencies, utilizing sound medical judgment and within the framework of the Guidelines, to **assist** those agencies in providing optimal care to **their** patient, unless and until patient care is formally turned over to SJCEMS authorized EMS practitioners.

It is prudent, in all situations, that an EMS practitioner with the highest on-scene level of licensure has authority and responsibility regarding patient care/disposition decisions.

Incident Command System

Certain events require multiple agencies, from multiple disciplines, to work together in a smooth, coordinated fashion. The Incident Command System (ICS) is a standardized all hazard incident management concept with considerable internal flexibility that allows it to grow or shrink to meet different needs and reduces the hindrances of jurisdictional boundaries. The ICS utilizes a comprehensive "chain of command" structure. A discussion of the ICS is beyond the scope of the Guidelines. The ICS is also part of the more comprehensive National Incident Management System (NIMS). *The SJCEMS committee endorses the use of the ICS whenever large, multi-jurisdictional events occur, or whenever specific single jurisdictional event circumstances require it.*

Ground Vehicle Intercepts

A ground vehicle intercept involves the rendezvous of **basic life support personnel with a paramedic vehicle.**

EMS Dispatch should occur in accordance with an Emergency Medical Dispatch Program. EMS practitioners must request a ground vehicle intercept and may do so at any time after dispatch if they believe there is a **reasonable possibility** that the patient requires, or will require, services beyond their training, certification, and credentialing, i.e., their scope of practice. An intercept should be requested as soon as possible, with the reasoning communicated to the Emergency Medical Dispatch Center and documented in the EMS Medical Record. The need for an intercept should be based on the unique circumstances of each patient encounter, **including consideration of patient condition and transport time to the Destination Hospital**.

If after requesting an intercept, but before the rendezvous occurs, the **requesting EMS practitioners** determine that the patient does not require, nor is reasonably likely to require, services beyond their scope of practice, they may cancel the intercept request. When possible, this should be done after radio or phone consultation with the **intercepting EMS practitioner**. If an intercept is cancelled for any reason, the reasoning should be documented in the EMS Medical Record/ePCR.

Intercepting EMS Personnel may cancel an intercept if they are, based on the unique circumstances of the patient encounter, geographically unable to rendezvous with the patient in a timely fashion. **They may not determine the necessity of an intercept, and therefore may not cancel an intercept, solely based on the patient's clinical assessment by requesting EMS Personnel**.

After the intercepting EMS practitioners arrive and evaluate the patient, they may release the patient to the requesting personnel if they determine that the patient does not require, nor is reasonably likely to require, services beyond the scope of practice of the on-scene personnel. The reasoning should be documented in the EMS Medical Records/ePCR of **both** the requesting and intercepting EMS Personnel. **The intercepting EMS practitioner is still responsible for completing an ePCR report on this patient.**

Vehicle Intercepts and EMS Authority

The patient may not be released to the care of the requesting EMS practitioner, ie the lower credentialed practitioner, if he or she is uncomfortable managing the patient or wishes for the intercepting EMS practitioner to assume care. ***In that case, the patient will be transported in the care of the intercepting EMS practitioner, ie the higher credentialed practitioner.***

- If the patient is not released to the requesting EMS practitioner, the intercepting EMS practitioner will determine in which ambulance to continue care and transport. If transport has already begun and the situation allows, care and transport should generally be continued in the originally transporting ambulance with any necessary additional intercepting personnel and equipment.

Patient compartment staffing should occur in accordance with vehicle staffing guidelines (see EMS Vehicle Staffing and Safe Operation).

All ground intercept scenarios should be conducted in a spirit of collegiality, with the best interests of the patient at the forefront of any clinical decision-making. Conflicts that cannot be resolved by involved EMS practitioners should be resolved through Online Medical Consultation **OMCP** or preferably, after the transport is completed, with Medical Director consultation. If necessary, a request can be made to dispatch to have the Medical Director contacted for **OMCP** or to respond to the scene, although responding to the scene in this case is less desirable given the significant time delays.

Clinical Laboratory Improvement Amendments (CLIA) Certificate of Waiver

EMS agencies wishing to perform blood glucose testing must have a Clinical Laboratory Improvement Amendments (CLIA) Certificate of Waiver. Unfortunately, failure to obtain this waiver may result in forfeiture of billing reimbursement in addition to the possibility of other penalties as deemed necessary by CMS. Each agency must obtain their own CLIA Certificate of Waiver for glucose testing. Per CMS, "Any person or facility that performs laboratory tests on human specimens for the purpose of diagnosis and/or treatment is required by federal law to have a CLIA certificate. Medicare requires the CLIA certificate number before any claims can be processed. Certificates must be renewed every two years for as long as testing is being performed." As of 2024, the cost is $248 for a two-year certificate.

Additional information can be found here:
https://www.in.gov/health/cshcr/acute-and-continuing-care/clinical-laboratory-clia-licensing-and-certification-program/clia-frequently-asked-questions/

The application can be found here:
http://www.cms.gov/Medicare/CMS-Forms/CMS-Forms/downloads//cms116.pdf

Physician On Scene

On-scene medical direction of an EMS patient is the responsibility of those most appropriately trained in providing prehospital emergency care. The chain of command for pre-hospital practitioners is described in the Vehicle Intercepts and EMS Authority guideline. However, when a physician is on scene, the chain of command may be altered depending on the situation to ensure the maximum benefit of the physician resource. Regardless, all care should be provided within the rules and regulations of the Indiana State Professional Licensing Agency and the Indiana EMS Commission. On-scene physicians fall into one of several categories. These include EMS physicians, patient's personal physician, and physician interveners. In all cases, the intent is to do what is in the best interest of the patient. EMS and the on-scene physicians should work collegially to provide the best care to the patient. Except for when the Medical Director is on scene, the highest credentialed EMS practitioner on scene is responsible for management, and acts as an agent of **OMCP** and the Medical Directors.

EMS Physician. EMS physicians include the EMS Medical Directors for St. Joseph County and Elkhart County. In a trauma, this category also includes any trauma surgeon from MHSB. In these cases, if the physician is not recognized on scene, they are permitted to give verbal confirmation they are an EMS Medical Director or trauma surgeon which will suffice as "proof" of their credentialing. The name of the physician should be included in the medical record if patient care or medical direction is provided. If one the Medical Directors of St. Joseph County are on scene, he or she will have overall responsibility for patient care and medical direction.

Patient's Personal Physician. If the request for service is to a patient's physician's office/outpatient clinic, surgery center, or other location where the patient's personal physician may be present, the personal physician may take responsibility for patient care. This includes surgeons or anesthesiologists at outpatient surgery centers. In these cases, decision regarding care should be deferred to the patient's personal physician on scene as long as the physician:

1. Provides adequate proof of their credentials, for instance a medical license card or photo ID, if the physician is not recognized by the EMS practitioners. In healthcare facilities, verbal confirmation of the physician's identity from the staff, ie RNs, shall suffice.
2. Provides instruction that is within the scope, training, and credentialing of the EMS practitioner(s) on scene.
3. Documents his or her interventions and/or orders in written form which should be given to the EMS crew and scanned into the patient's EMS ePCR record as an attachment to the EMS run report.
4. Unless the physician does something outside the scope of the highest level of EMS practitioner on scene, the physician need not ride into the hospital with EMS. Unless the following is true:
    a. If there is a disagreement between the patient's personal physician and the System Guidelines, the physician shall be placed in direct communication with **OMCP**. If the patient's personal physician and **OMCP** disagree on treatment, the patient's personal physician must either continue to provide direct patient care and accompany the patient to the hospital or must defer all remaining care to the **OMCP**.
    b. In these cases, it should be documented that the patient's physician managed the patient, and that EMS was there only to assist within their scope and transport the patient.

The name of the patient's physician should be included in the medical record if patient care or medical direction is provided. This information should also be relayed to the emergency department in the patient care report/hand-off report.

Physician Intervener. This scenario involves physicians who arrive at the scene to assist EMS with patient care, but do not have a pre-established patient-physician relationship or direct relationship with the St. Joseph County EMS system. This is the most complicated of all the cases where a physician is on scene. If an intervener physician is present at the scene, has satisfactorily identified himself or herself as a licensed physician or is recognized by the EMS practitioners on scene as a physician, and has expressed willingness to assume responsibility for the care of the patient, **OMCP** should be contacted. The **OMCP** has the option to:

1. Manage the case exclusively.
    a. If OMCP decides to manage the case along with the EMS practitioner, the intervener physician should be thanked for offering to assist but told the patient will be managed by EMS and medical control.

2. Work in conjunction with the intervener physician.
   a. In this case, care must remain within the scope of the highest level of EMS practitioner caring for the patient.
   b. If there is a disagreement between the intervener physician and OMCP, the EMS practitioner will take direction from the OMCP and place the intervener physician in direct contact with OMCP.
   c. If the care goes outside the scope of practice of the highest level of EMS practitioner caring for the patient or the intervener physician performs interventions against what the standard guidelines allow or against the recommendation of OMCP, the intervener physician has now assumed total responsibility of the patient. See section 3 below.
   d. In all cases, the intervener physician must document, in written form, his or her orders and interventions performed. This should be scanned into the patient's ePCR as an attachment.

3. Allow the intervener physician to assume responsibility of the patient.
   a. In these cases, the intervener physician must either agree to provide direct patient care *and* accompany the patient to the hospital or must defer all remaining care to the OMCP and on-scene EMS practitioners.
      i. Care in this case need not stay within the scope of the highest credentialed EMS practitioner on scene.
      ii. In cases where the intervener physician has agreed to assume total responsibility of the patient, it should be documented that the intervener physician managed the patient and EMS was there only to assist within their scope and transport the patient.
      iii. If it is felt the patient has been sufficiently stabilized and nothing has been done outside the scope of the highest credentialed EMS practitioner on scene, the EMS practitioner may contact OMCP to request the intervener physician not be required to accompany the patient to the emergency department. This decision shall be solely up to the OMCP.
   b. In cases where the intervener physician is not agreeable to assuming total responsibility of the patient or riding with EMS into the hospital, the intervener physician has not assumed total responsibility of the patient and may continue to *assist* EMS with patient care, at the discretion of EMS. Otherwise, the intervener physician may be asked to vacate the area.

The name of the intervener physician should be included in the medical record if patient care or medical direction is provided. This information should also be relayed to the emergency department in the patient care report/hand-off report.

Midlevels. In general, medical direction should not be taken from midlevel practitioners, including registered nurses (RNs), nurse practitioners (NPs), physician assistants (PAs), Certified Nurse Anesthetists (CRNA), or midwives. Medical orders should not be accepted from any non-physician health care practitioners unless specifically approved by OMCP or the Medical Directors. If orders from a midlevel are in contradiction to the system guidelines or not in alignment with the EMS practitioner's care plan, OMCP or the Medical Director(s) should be contacted immediately. At all times, care in the best interest of the patient should be seen as the main priority.

Scene Operations - Crime

The primary duty of EMS practitioners at a crime scene is the same as at all scenes—to render medical aid and assistance to sick and injured persons.

Law enforcement officers are in charge of the crime scene and have an interest in preserving any physical evidence that may assist in the investigation and prosecution of a criminal case. EMS Personnel should adhere to the advice and direction of officers in all matters relevant to evidence collection, unless doing so would directly compromise patient care.

Under IC 35-44-3-8.5, law enforcement officers may not interfere with EMS Personnel performing their duties. If law enforcement officers, for reasons other than scene safety, prohibit medically necessary scene or patient access, EMS Personnel should obtain Online Medical Consultation (OMCP) or Medical Director input immediately.

1. Scene Safety

If on-scene before law enforcement officers, EMS Personnel should not delay patient evaluation, treatment, or transport awaiting law enforcement arrival unless scene safety is in doubt.

If a crime, suicide, attempted suicide, accidental death, or suspicious fatality has occurred and law enforcement officers are not on-scene, EMS practitioners should request their assistance immediately.

Any necessary patient restraint (see Patient Restraint) should be delayed until law enforcement personnel arrival **unless doing so would place the safety of EMS practitioners, or others, in jeopardy**. If a person at a crime scene dies, or has died (see Initiation and Continuation of Resuscitative Efforts), EMS practitioners should await the arrival of law enforcement personnel and not leave the body unattended, unless scene safety is in doubt.

2. Evidence Preservation

Avoid contaminating the crime scene.

When scene and patient access are possible, adhere to the following:

- Avoid unnecessary contact with objects at the scene.
- If the patient does not meet criteria for initiation of resuscitative efforts, or efforts are discontinued due to patient death (see Withholding Resuscitation, Termination of Resuscitation, and Death Pronouncement in Field), do not remove or continue to evaluate the patient.
- If it is necessary to cut through patient clothing, avoid cutting through tears, bullet holes, or other damaged or stained areas.
- Do not *unnecessarily* wash or clean the patient's hands or other body areas that have sustained injury.
- In gunshot wound cases, expended bullets may be found in patient clothing, especially heavy winter clothing. Such evidence may be lost during patient care. Check the stretcher and vehicle after transport. Turn over any discovered evidence to law enforcement officers, and document this in the EMS ePCR.
- In asphyxiation cases (including hangings), avoid cutting through or untying knots in any material around the neck unless necessary to free the airway for patient resuscitation.
- In stabbing cases, leave any impaled object in place. In general, do not remove any impaled object unless ordered to do so by the OMCP.
- When leaving, remove any items carried into the scene, such as dressings, wrappings, and packages. **Do not remove anything else from the scene**.
- If alteration of the scene is medically necessary (such as medication removal), or occurs inadvertently, inform on-scene law enforcement personnel.

3. Patients in Law Enforcement Custody

EMS practitioners should work cooperatively with law enforcement personnel, in the mutual performance of their duties, to ensure the safety of all persons. Under IC 35-44-3-7, EMS practitioners shall assist an officer who requests their assistance.
If EMS practitioners believe that a patient is under arrest at the time of evaluation, treatment, or transport, they should seek confirmation of the arrest status from the law enforcement personnel in charge of the crime scene. **The officer's name, identification number, and the arrest status of the patient should be recorded in the EMS ePCR**.

The arresting officer has direct authority over an arrested patient. If a patient is confirmed to be under arrest, EMS practitioners should inform the law enforcement personnel in charge of the crime scene that it would be appropriate for an officer to accompany the patient in the ambulance.

If a patient is in the custody of law enforcement and restrained in handcuffs, an officer shall accompany the patient in the patient compartment of the ambulance. If this is not possible, the patient shall be un-handcuffed and placed in soft restraints. See patient restraint.

A method of communication between the ambulance and any accompanying law enforcement vehicle should be established prior to transport.

Decisions made regarding the transport of restrained patients, the reasoning behind them, and the results of Online Medical Consultation (OMCP), should be recorded in the EMS ePCR (see Patient Restraint and Refusal of Care).

EMS practitioners may not physically restrain a patient except in the case of an immediate threat to the safety of the patient, bystanders, or EMS practitioners; with the approval of the OMCP, or at the request for assistance from law enforcement.

Conflicts that arise regarding arrested patients should be resolved through Online Medical Consultation (**OMCP**), in a spirit of collegiality, with the patient's **best *medical* interests** in mind at the time of treatment, and through the Medical Directors and other appropriate agencies following the encounter.

Scene Imaging

Photos or videos documenting the scene and/or patient condition, particularly in traumas, can be invaluable. This provides physical exam assessment prior to the patient arrival and helps the receiving team prepare equipment to better care for the patient. While not required on every patient, scene and patient images are encouraged for serious trauma patients, or other patients, where the EMS practitioners believe it will convey additional information over and above what is able to be conveyed verbally. However, patient privacy must be respected at all times. Patient care always comes first.

Scene imaging is permitted under the following circumstances:

- Imaging and privacy must comply, at all times, with the Health Insurance Portability and Accountability Act of 1996 (HIPAA).
- The imaging limits patient and scene identifiers, such as, but not limited to, license plates, the interior of houses, the patient's face, distinguishing tattoos, street signs, patient genitalia, etc.
- The images are on department owned devices or HIPAA compliant apps on personal phones, such as e-Bridge or Pulsara. At no point should the images go into the camera/photo roll on a personal phone.
- Images shall be sent via a HIPAA compliant app such as CarePoint, e-Bridge, or Pulsara.
- Images should be taken to provide additional details and documentation about the scene, incident, or patient condition.
- Photos taken shall be included in the patient care report.
- After uploading the photos, the photos should be deleted from the phone, camera, or iPad as soon as reasonably possible.
- The images shall not be shared via messaging apps, social media, or other non-HIPAA compliant apps.
- At no point shall scene images be uploaded to any type of social media account.
- Scene and/or patient images, taken for the purposes of patient care, shall not be shared with the media.
- If anyone on scene objects to the recording of images, do not obtain them.

Universal Precautions, Infectious Disease Control, and Exposure Reporting

This Guideline summarizes, but does not replace, certain OSHA requirements. It is meant as a quick reference. Sponsored EMS Practitioner Organizations should familiarize their personnel with all applicable OSHA requirements.

All EMS Personnel must observe universal precautions and utilize personal protective equipment (PPE) as prescribed by the federal Occupational Safety and Health Administration (OSHA) in the Code of Federal Regulations. Observing universal precautions means that all human bodily fluids are treated **as if known to be infectious** for human immunodeficiency virus, hepatitis B and C viruses, methicillin-resistant Staphylococcus aureus (MRSA), and other pathogens.

When contact with blood or other potentially infectious materials (saliva, sputum, gastric secretions, urine, feces, cerebrospinal fluid, breast milk, wound drainage, semen, etc.) is possible, whether or not the diagnosis of an infectious disease is known, EMS Personnel will adhere to the following:

Hand Washing and Hygiene

Hand washing is the single most important universal precaution! *Be sure to wash for at least 10-15 seconds utilizing soap and water, or an alternative solution designed for this purpose.*

EMS Personnel should wash their hands **immediately**:

- After removing PPE.
- After each patient encounter.
- After handling potentially infectious material.
- After cleaning or decontaminating equipment.
- After using the bathroom.
- Before and after eating.
- Before and after handling or preparing food.

EMS Personnel may not eat, drink, use any tobacco products including "vaping", handle contact lenses, or apply cosmetics or lip balm when on-scene or engaged in patient care.

Gloves

- Disposable, single use gloves must be used in all patient encounters whenever there is a risk of contamination with blood or other potentially infectious materials.
- Gloves must be worn when handling or cleaning patient care equipment, supplies, or laundry possibly contaminated with blood or other potentially infectious materials.
- Gloves should be replaced:
  - When visibly soiled, torn, or punctured.
  - When their ability to function as a barrier is compromised.
  - After each patient encounter.
  - Before equipment cleanup.

Mask and Goggles/Face Shield

- Protective mask and goggles, or full-face shield, must be worn whenever there is a risk of facial exposure to blood or other potentially infectious materials.

Additional Barriers

EMS Personnel must use additional barriers whenever there is a risk of splashing, splattering, or soaking of the clothing or skin with blood or other potentially infectious materials.

- Barriers may include disposable fluid-proof gowns, head covers, and shoe covers.

Universal Precautions, Infectious Disease Control, and Exposure Reporting

Sharps

- Immediately after use, sharps must be disposed of in a designated puncture resistant biohazard container.
- Containers must be replaced when 75% full.
- Used needles may not be sheared, bent, broken, recapped, or re-sheathed by hand.
- Contaminated needles may not be removed from disposable syringes.
- **Needles must not be stuck into cushions; they will contaminate the cushion and compromise its barrier function**.

Spills

If a spill of potentially infectious material occurs:

1. Wash hands.
2. Put on gloves.
3. Remove visible spilled fluid with paper towels.
4. Flood the area with a disinfectant.
5. Wipe the spill with fresh paper towels.
6. Discard linens in a fluid proof linen bag.
7. Discard gloves and used paper towels in an appropriate container.
8. Wash hands.

Contaminated Items

After use, contaminated PPE and disposable patient care items should be placed in leak-proof bags and marked as a biohazard for proper disposal as soon as possible. Contaminated work clothes should be removed and exchanged for clean clothes as soon as possible. EMS Personnel should shower if contaminated material came into contact with skin under the work clothes.

Exposure Incident

If a potentially serious exposure (eye, mouth, or other mucous membrane; non-intact skin; or parenteral (e.g., needle stick) contact with blood/other potentially infectious material) occurs:

1. Immediately cleanse the contaminated area with soap and water. If these are not immediately available, use an appropriate alternative solution designed for this purpose.
   - If eye, mouth, other mucous membrane, or non-intact skin exposure occurred, flush the affected area with copious amounts of water for **15 min**.
2. Obtain medical care and prophylactic infectious disease treatment if necessary.
3. Follow the EMS Practitioner Organization's procedures for supervisor notification.
4. Complete the current Indiana State Department of Health (ISDOH) Form 51467, Report of Blood or Body Fluid Exposure. (see below)

A physician should evaluate all potentially serious exposures immediately; prophylactic treatment may be indicated.

EMS Personnel who do not observe universal precautions, or do not use appropriately provided PPE, are subject to disciplinary and/or remedial action.

Universal Precautions, Infectious Disease Control, and Exposure Reporting

The United States Department of Labor has developed regulations, through the Occupational Safety and Health Administration (OSHA) to prevent the spread of infectious disease to, by, and among healthcare workers. The most important of these regulations for EMS Personnel is 29 CFR 1910.1030, available at:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051.

Sponsored EMS Practitioner Organizations, to which 29 CFR 1910.1030 and associated federal regulations apply, bear the sole responsibility for complying with those regulations; they must provide and implement the documentation, training, personal protective equipment (PPE), procedures, etc., that the regulations prescribe.

The SJCEMSC is not responsible for ensuring Sponsored EMS Practitioner Organization compliance with applicable federal regulations.

The SJCEMSC is available for consultation on EMS matters and will strive to assist Sponsored EMS Practitioner Organizations in complying with applicable federal regulations. The requirements of 29 CFR 1910.1030 include, but are not limited to:

- Development of an exposure control plan to minimize the risk of occupational exposure. The plan must contain the following elements:
  - Exposure determinations for the purpose of ascertaining which personnel are at risk for sustaining occupational exposure, and which tasks are likely to produce occupational exposure.
  - The schedule and method of implementation for complying with the regulation.
  - The procedure for the evaluation of exposure incidents.
- Institution of engineering and work practice controls to eliminate or minimize the risk of exposure, including hand washing and glove requirements, needle handling requirements, use of appropriate "sharps" containers, body fluid handling requirements, etc.
- Provision, care, and enforcement of the use of appropriate PPE.
- Maintenance of a clean and sanitary work site.
- Availability of hepatitis B vaccination to all personnel at risk for occupational exposure, and post-exposure follow-up for all personnel who have an exposure incident.
- Development of a comprehensive plan for a confidential medical evaluation following the report of an exposure incident.

Federal law, through the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act of 1990 (42 USC 300ff (81-87)), provides for notification of EMS Personnel who are exposed to certain infectious diseases.

EMS Practitioners Covered by IC 16-41-10

IC 16-41-10 defines an emergency medical service provider as "…a firefighter, a law enforcement officer, a paramedic, an emergency medical technician, a physician licensed under IC 25-22.5, a nurse licensed under IC 25-23, or other person who provides emergency medical services in the course of the person's employment."

All SJCEMS authorized EMS Personnel are covered by IC 16-41-10.

To What are EMS Personnel Entitled and What Must They Do?

EMS practitioners exposed to body fluids in the course of patient care may request notification concerning exposure to a dangerous communicable disease, if their exposure is of a type known to transmit a dangerous communicable disease. In order to be eligible for notification of the results of dangerous communicable disease testing, a report of the exposure must be filed **within 24 hours** of the exposure. EMS Personnel must distribute the report to the:

- EMS Medical Director **of the Emergency Department** to which the patient was transported, at which the exposure occurred.
- EMS Practitioner Organization **for which they were working at the time of the exposure**.
- ISDOH.

Universal Precautions, Infectious Disease Control, and Exposure Reporting

What is a "Dangerous Communicable Disease?"

ISDOH administrative code 410 IAC 1-2.3-47 specifies some 70 dangerous communicable diseases and conditions, including the following ones considered potentially life threatening by the Centers for Disease Control (CDC):

- Airborne diseases: Infectious pulmonary tuberculosis
- Bloodborne diseases: Human immunodeficiency virus (HIV) infection, including acquired immunodeficiency syndrome (AIDS); hepatitis B; and hepatitis C
- Diphtheria
- Meningococcal disease
- Hemorrhagic fevers: Lassa; Marburg; Ebola; Crimean-Congo; and others
- Plague
- Rabies
- SARS-CoV-2 (Covid)

What About Patient Consent?

Under IC 16-41-10, patients are **considered to have consented to testing** for dangerous communicable diseases demonstrated to be transmissible via the type of exposure reported by EMS Personnel, as well as to appropriate release of the results of such testing.

Even though consent is implied, a patient who refuses to provide a body fluid sample can be compelled to provide the sample only by a court order. **He or she cannot be restrained in order to obtain the necessary specimen(s)**. However, if the patient is unable to consent due to mental or physical incapacity, consent is implied.

How Does the Patient Get Tested?

If the patient is admitted to a medical facility after the exposure, or the exposure occurs while the patient is in a medical facility, that facility is required, **within 72 hours** of receiving proper notification of exposure (see above), to obtain the proper specimen(s) and perform the proper testing based on the type of exposure.

If the patient is not admitted to a medical facility, arrangements for testing can be made by the EMS Practitioner Organization or the ISDOH. If the patient refuses, a court can order appropriate specimens be obtained and appropriate testing done.

Who Pays for Testing, Treatment, and Counseling?

The expenses of any testing, treatment, and counseling are the responsibility of the affected EMS Practitioner or the EMS Practitioner Organization or their occupational health company.

What About Patient Privacy?

The patient's private healthcare information (PHI) must be protected at all times (see The EMS Medical Record). Only the information required for compliance with IC 16-41-10 may be released, and only to the necessary party(ies).

Universal Precautions, Infectious Disease Control, and Exposure Reporting

Body fluid contact, including needle sticks, shall be reported to the infection control officer at the EMS practitioner's department. See individual department's SOP regarding body fluid contact reporting. If it is determined the individual requires blood testing or treatment for exposure, the following algorithm should be followed:

Memorial Hospital and Beacon Granger Hospital

1. Emergency responders (EMS, Fire, Law Enforcement) with occupational exposures shall:
    a. Be registered in the standard fashion, as any other patient or occupational exposure.
    b. Provide their department's occupational health information to registration, including their department's account number.
        i. A list of account numbers should be available at the charge nurse desk.
    c. Fill out the state required *Indiana Form 51467.*
        i. A copy of this form is available at the charge nurse desk.
        ii. Two copies shall be provided to the emergency responder – one for their infection control officer or EMS chief and one for their personal records.
        iii. Another copy shall be sent, by the charge nurse, to Dr. Joyce and John McMillen.
    d. The emergency responder shall be brought back to an exam room as soon as feasibly possible in order to facilitate an expedited evaluation and treatment to allow the firefighter, medic, or law enforcement officer to get back to duty.
    e. If it is determined the emergency responder requires blood work, a lab requisition form shall be filled out.
        i. The ordering physician shall be listed as Dr. Steven Joyce or the physician on shift willing to order the tests.
        ii. Results will be sent to Dr. Joyce at Memorial Hospital.
        iii. The emergency responder will be notified as soon as possible after results are received.

2. Labs and medications should be administered and prescribed to the exposed emergency responder per current OSHA, CDC, and IDSA recommendations and guidelines.
    a. The physician evaluating the patient shall prescribe these medications and order the necessary tests.
    b. If there are concerns or complications, have the physician contact Dr. Joyce.

St. Joseph Regional Medical Center

TBD

Metric Goals

Metrics are an important aspect of emergency medical care. Metrics allow for improved patient care and patient outcomes by ensuring our system is adhering to national benchmarks and expert consensus. As such, below are the metrics the SJCEMS system will be tracking over the next few years. Future training and education will be enhanced by trending these metrics and knowing where our system excels and where it could use improvement.

General:
- Two sets of vital signs on every patient encounter
- Lights/Siren transport rate

General Medical:
- Sepsis alert accuracy
- Pain scale documentation before and after intervention
- Aspirin for chest pain patients (documented as previously given or given by EMS)

Airway:
- Intubation first attempt success
- No hypoxia with drug-assisted intubation attempt
- No hypotension with drug-assisted intubation attempt

Cardiac Arrest:
- Door to rhythm identification
- Door to first defibrillation
- ROSC

Pediatrics:
- Documented weight in kilograms (kg) on all pediatric patients

Stroke:
- Scene time less than 15 minutes with optimal time less than 10 minutes
- Cincinnati stroke scale documentation
- FAST-ED score documentation
- Last known well time (LKWT) documentation
- Pre-hospital stroke alert notification
- Blood glucose measurement documentation
- Straight to CT percentage

STEMI:
- STEMI activation accuracy
- STEMI under activation
- Percentage of EKGs transmitted when activating a STEMI alert

Trauma:
- Trauma under activation
- Scene time less than 10 minutes

- Other NEMSQA measures, as indicated.

Code of Ethics

Professional status as an Emergency Medical Services (EMS) Practitioner is maintained and enriched by the willingness of the individual practitioner to accept and fulfill obligations to society, other medical professionals, and the EMS profession. Adherence to this code of ethics is expected as an EMS professional. As an EMS professional, I pledge to:

- Conserve life, alleviate suffering, promote health, do no harm, and encourage the quality and equal availability of emergency medical care.
- Provide services based on human need, with compassion and respect for human dignity, unrestricted by consideration of nationality, race, creed, color, or status; to not judge the merits of the patient's request for service, nor allow the patient's socioeconomic status to influence our demeanor or the care that we provide.
- Not use professional knowledge and skills in any enterprise detrimental to the public well-being.
- Respect and hold in confidence all information of a confidential nature obtained in the course of professional service unless required by law to divulge such information.
- Use social media in a responsible and professional manner that does not discredit, dishonor, or embarrass an EMS organization, co-workers, other health care practitioners, patients, individuals, or the community at large.
- Maintain professional competence, striving always for clinical excellence in the delivery of patient care.
- Assume responsibility in upholding standards of professional practice and education.
- Assume responsibility for individual professional actions and judgment, both in dependent and independent emergency functions, and to know and uphold the laws which affect the practice of EMS.
- Be aware of and, at times, participate in matters of legislation and regulation affecting EMS.
- Work cooperatively with EMS colleagues and other allied healthcare professionals in the best interest of the patients.
- Refuse participation in unethical procedures and assume the responsibility to expose incompetence or unethical conduct of others to the appropriate authority in a proper and professional manner.
- Refuse participation in unethical or unlawful activity while on or off duty. EMS administration shall be immediately notified of any discovery of such activity.
- Refuse participation in activity unbecoming of an EMS professional.

Originally written by: Charles B.Gillespie, M.D., and adopted by the National Association of Emergency Medical Technicians, 1978. Revised and adopted by the National Association of Emergency Medical Technicians, June 14, 2013. Additional revision 2024 for the purposes of inclusion in the SJCEMS Guidelines.

SECTION 2
PATIENT MANAGEMENT

Important Phone Numbers

Memorial Hospital Emergency Department

Emergency Department Main:	(574) 647-7459
CarePoint:	(574) 647-6646
Charge Nurse:	(574) 647-3583

St. Joseph Health System – Mishawaka Medical Center Emergency Department

Emergency Department Main:	(574) 335-1199
CarePoint:	(574) 335-4213
Charge Nurse:	(574) 335-7158

Beacon Granger Hospital Emergency Department

Emergency Department Main:	(574) 999-8800
CarePoint:	(574) 999-8793
Charge Nurse:	(574) 999-8820

Elkhart General Hospital Emergency Department

Emergency Department Main:	(574) 294-2621
CarePoint:	(574) 523-3458
Charge Nurse:	(574) 389-4894

St. Joseph County PSAP

Main, Emergent:	911
Main, Non-Emergent:	(574) 235-9611
Supervisor:	(574) 255-0621

Airway Management

Airway management is a paramount skill in the prehospital setting. In almost every clinical scenario, with the exceptions of cardiac arrest and, to a lesser degree, major trauma, airway management (stabilization, oxygenation, and ventilation) takes precedence over **all** other considerations except safety.

Note, this does not need to be done in a stepwise fashion. For example, not all patients will require an NPA or OPA prior to intubation. However, the airway should be managed in the most appropriate, least invasive method that allows for adequate oxygenation, ventilation, and airway protection.

Unless there is a specific indication for intubation, **supraglottic airway is preferred. Documentation of specific indication for intubation must be documented. Only two attempts at intubation are permitted.** If the second attempt is unsuccessful, a supraglottic airway shall be inserted and additional attempts at intubation abandoned. If additional attempts are necessary, the reasoning must be documented and the chart sent for quality assurance review by the Medical Directors and EMS chief.

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Position patient for optimal airway patency and respiration
- Head-Tilt Chin Lift or Jaw Thrust for trauma patient
- Pulse Oximetry should be applied to all patients with respiratory compromise or complaints
- Oxygen
  - Nasal Cannula
    - 2 LPM for COPD patients
    - 4-6 LPM for non-COPD patients
    - Consider passive apneic oxygenation with 25 LPM in conjunction with BVM for apneic patients
  - Non-Rebreather Mask
    - 12-15 LPM for any patients with severe respiratory distress, including COPD patients
  - Bag Valve Mask (BVM)
    - For patients who are symptomatic with insufficient respiratory rate, depth, frequency, or effort
    - 12-15 LPM supplemental oxygen
    - If using a BVM, insert an NPA or OPA
- Oropharyngeal suctioning
- Foreign body removal, if visualized
- Nasopharyngeal Airway (NPA)
- Oropharyngeal Airway (OPA)

EMT / AEMT / Medic / Lead / OMCP

- ETCO2 should be applied to all patients with respiratory compromise
- CPAP
- Supraglottic Airway
  - LMA
  - iGel
  - Air-Q
- Non-Visualized Airway
  - King LT (permitted, but supraglottic preferred)

AEMT / Medic / Lead / OMCP

Medic / Lead / OMCP

- Nasogastric tube or orogastric tube insertion if concern for gastric distention or concern for vomiting

Lead / OMCP

- Endotracheal intubation, video laryngoscopy, if available, is preferred
- Nasotracheal intubation
- Surgical Cricothyrotomy, Adult
- Needle Cricothyrotomy, Pediatric
- Orogastric tube should be inserted after intubation, time and patient stability permitting
- Post intubation sedation
  - Ketamine
  - Midazolam
  - Fentanyl

Airway Management

Rapid Sequence Airway vs. Rapid Sequence Intubation
As noted above, emergent intubation is rarely indicated. Most airways can be managed with a supraglottic airway. However, when intubation is necessary, lead paramedics have the medications available to perform rapid sequence intubation. At times, intubation is unsuccessful. When this happens, rapid sequence airway is indicated. If after two unsuccessful attempts at intubation the airway still is not secured, a supraglottic airway is, again, indicated. The airway should be able to be managed with the supraglottic device in place after the sedation and paralytic medications. Ongoing sedation is still necessary for rapid sequence airway. If the airway is not able to be managed with a supraglottic airway, ie large amount of emesis, large amounts of foreign material (food) in the airway, or anatomical abnormality, then surgical cricothyrotomy is likely indicated.

SALAD Technique
The SALAD technique stands for "Suction Assisted Laryngoscopy and Airway Decontamination." **The SALAD technique should be used during all attempts at intubation, including the first pass attempt at intubation**. This will ensure airway decontamination is performed during the initial intubation attempt, thus helping to improve first pass success rates. The SALAD technique should also be used with supraglottic airways to ensure appropriate decontamination of the airways.

Additional reading can be found below:
https://emcrit.org/salad/literature/

Child and Elderly Maltreatment and Mandatory Reporting

While all individuals can be at risk for maltreatment, children and the elderly are particularly at risk. Unfortunately, maltreatment comes in many forms which can be broadly categorized as acts of commission and acts of omission that result in the harm or potential harm of the victim. Acts of commission include physical, sexual, and psychological abuse. Acts of omission include failure to provide a safe living environment, food, water, medical care, dental care, or appropriate education. Others at high risk for maltreatment are chronically ill, debilitated, mentally challenged, or those requiring a daily caretaker.

Indiana is a **mandatory reporting state**. Which means if an EMS practitioner *suspects* any type of abuse, neglect, or exploitation of a child, he or she is *required* to report this to law enforcement or Department of Child Services (DCS). The abuse, neglect, or exploitation doesn't have to be proven – just suspected. Reporting is kept confidential to the extent possible. If a report is made in good faith, there are no civil or criminal penalties (IC 31-33-6-1). However, if there is suspicion of abuse, neglect, or exploitation and a report is *not* filed, then the practitioner is guilty of a class B misdemeanor (IC 31-33-22-1).

In the case of child abuse/neglect, EMS personnel can make a formal report to law enforcement or Department of Child Services (DCS). If given to law enforcement, the case/report number shall be listed in the ePCR as well as the name of the officer to whom the report was made. If given to Department of Child Services (DCS), the case/report number shall be listed in the ePCR as well as the name of the APS/DCS agent to whom the report was made.

"**Red Flag**" signs for abuse/neglect include, but are not limited to:

- Injuries in various stages of healing (not always reliable). The most common findings in a child who is the victim of abuse are cutaneous findings – bites, burns, or bruises.
- Injuries not consistent with the child's age. For example, a broken arm or severe bruising on a non-ambulatory child.
- Fractures of other injuries not consistent with the state cause of injury.
- Malnourished, disheveled, or otherwise unkept or unhealthy-looking patient secondary to lack of food, water, or shelter.
- Circumferential burns (children especially) on the hands of feet.
- Ten-4 Bruising. Any bruising to a child less than 4 months of age or bruising to the following areas for any child less than 4 years of age
  - Torso
  - Ears
  - Neck

Interrogation

- Do not interrogate the victim specifically about the abuse.
- Ask questions pertaining to the current medical complaints, past medical history, and other relevant information needed for acute treatment of the patient ONLY.
- If the patient begins to disclose any type of abuse, using quotes, write down verbatim what the patient says and include it in your ePCR.
- Do not confront or become hostile with a caretaker or family member.
- Interrogate the caregiver and the patient separately.

Patient Care

- Stabilize and treat all injuries.
- Do not cut clothing through bullet holes, stab wounds, or other areas of potential evidence.
- Immediately request law enforcement assistance.
- Do not initiate a report in front of patient, family, or caregiver.
- If there is concern for sexual assault, each article of clothing or other potential evidence should be placed into a brown paper bag (not a plastic bag), labeled with the date, time, name of the victim, and the EMS practitioner's signature. Chain of custody should be maintained. This evidence should be given to law enforcement. The officer to whom the evidence was given should be documented in the ePCR. See the sexual assault guideline.

Child and Elderly Maltreatment and Mandatory Reporting

Documentation

- EMS practitioners are in a unique situation to observe and document evidence on a scene. While not the primary job of EMS practitioners, careful attention should be paid to documenting the scene, the patient's injuries, and interactions with others on scene.
- Carefully document all injuries to the patient, including pictures, if indicated.
- Document any abnormal behavior by the family member or caretaker.
- Document the following questions when discussing with the patient and caregiver:
    - How did the injury occur?
    - When did the injury occur?
    - Where did the injury occur?
    - Was it witnessed? By who?
    - What is the patient's past medical history?
    - Who is the patient's primary care physician?

Trafficking can be in the form of sex trafficking and work trafficking. In either case, there are three terms that should be remembered: **force**, **fraud**, and **coercion**.

The Trafficking Victims Protection Act (TVPA) of 2000 defined "severe forms of trafficking in persons" in 22 U.S.C. 7102 (11) as:

1. Sex trafficking in which a commercial sex act is induced by force, fraud, or coercion, or in which a person induced to perform such act has not attained 18 years of age OR
2. The recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, using force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery

Sex trafficking means the recruitment, harboring, transportation, provision, obtaining, patronizing, or soliciting of a person for the purpose of a commercial sex act. -22 U.S.C. 7102 (12).

The term "commercial sex act" means any sex act on account of which anything of value is given to or received by any person. - 22 U.S.C. 7102 (3).

Labor trafficking includes involuntary servitude; peonage; debt bondage; and slavery.

In all the cases above, reporting if mandatory. Report may be made to law enforcement or to the national trafficking hotline. The national trafficking hotline is 1-888-373-7888.

Indiana DCS phone number to report child abuse/neglect cases: 1-800-800-5556

St. Joseph Regional Medical Center Forensic Department: 1-574-335-2532

For more information on trafficking:
https://ctip.defense.gov/portals/12/Trafficking_in_Persons_101_Fact_Sheet_2020.pdf

Definition of a Patient

A patient is any individual person for whom EMS was summoned and meets *any* of the following criteria:

1. Has an obvious illness or injury
2. Requests, by informed or implied consent, a medical evaluation for a potential illness or injury
3. Has a complaint suggestive of a potential illness or injury
4. Has experienced an acute event that could reasonably lead to illness or injury, this includes "lift assist" patients
5. Is in a circumstance or situation that could reasonably lead to illness of injury

If EMS is disregarded prior to making patient contact, the individual is not considered a patient and thus does not meet the definition of a patient and thus is not subject to patient evaluation, assessment, or patient care report. If a lower credentialed practitioner arrives on scene before a higher credentialed practitioner, the lower credentialed practitioner may disregard the higher credentialed practitioner based off the patient's condition and his or her assessment. However, if the higher-level practitioner makes it to the scene prior to being disregarded, it is recommended, although not required, that he or she evaluate the patient. For example, if a Basic Life Support (BLS) unit and Advanced Life Support (ALS) unit are simultaneously dispatched to a scene, but the BLS unit arrives first and makes patient contact, the BLS unit may disregard the ALS unit. However, if the ALS practitioner does not feel comfortable disregarding without patient contact, it is recommended the ALS practitioner continue to the scene to evaluate the patient. In this case, the patient becomes a patient of the ALS practitioner and are subject to patient evaluation, assessment, and requires a patient care report.

Additionally, if EMS arrives on a scene where there is little to no evidence of injury potential, despite making contact with an individual, and the individual has no acute complaints, did not request medical evaluation, did not request an ambulance, is alert and oriented, and meets the requirements for a refusal, the individual *may not* meet the definition of a patient, and thus *may not* be subject to patient evaluation, assessment, or patient care report. If departmental SOP requires a patient care report, which may not be required based on this guideline, a patient care report should still be completed. It is recommended if there *is* patient contact, the practitioner should obtain vitals, explain the risk of refusal, and obtain a signed refusal.

With the exceptions above, any individual meeting the definition of a "patient" must be evaluated by a system credentialed practitioner *and* appropriate treatment and transport *shall* be offered. If there is any question or concern as to whether a person meets the definition of a patient, for the purposes of this guideline, the person shall be considered a patient and must be evaluated by a system credentialed practitioner *and* appropriate treatment and transport *shall* be offered. If the patient decides to refuse evaluation, treatment, and/or transport against medical advice (AMA), refer to the Refusal Guideline and ensure the patient has capacity to refuse.

Any adult that does not meet the definition of a patient above does not require evaluation, treatment, or transport. They also do not require a patient report and shall be documented as a "No Patient." Minors, who have an appropriate consenter on scene, or minors who do not require a consenter, who do not meet the definition of a patient above shall be documented as a "No Patient." The minor, however, must have a documented refusal from the consenter included in the medical charting. The definitions of a minor, an emancipated minor, and those who can consent for the minor are listed in the Refusal Guideline.

Destination Guidelines

Patients with certain clinical problems require diversion to a specific Destination Hospital, based on the services available in the community. The destination should be explained to the patient and/or the family prior to transport. **EMS Personnel should respectfully attempt to convince the patient to permit transport to the appropriate Destination Hospital**, engaging, if necessary, **OMCP**. **Nevertheless, the patient has the right to refuse transport to the appropriate Destination Hospital in favor of their preferred hospital**. **Such discussions and refusals should be well documented in the EMS ePCR**. Additionally, the hospital has the right to request to divert a patient who is destined for the inappropriate hospital, despite the request from the patient. As with all guidelines, if encounter-specific circumstances require it, deviation from this guideline is acceptable and appropriate. The reasons for deviation should be carefully documented in the EMS ePCR.

General

The Destination Hospital is the hospital to which EMS Personnel intend to transport the patient. This hospital can change during the transport depending on the unique characteristics of each patient encounter. If the patient's condition permits, EMS Personnel will honor a *reasonable* request to be transported to a specific hospital. However, EMS Personnel must consider:

- If the additional time necessary to transport to the requested hospital is reasonably likely to place the patient's health at increased risk or, if the Guidelines, because of differences in hospital capabilities, designate a specific Destination Hospital based on the scenario-specific diversion or special destination guidelines below. EMS practitioner should respectfully attempt to convince the patient to permit transport to the appropriate Destination Hospital engaging, OMCP, if necessary.
- *If the additional time necessary to transport the patient to the requested hospital will unacceptably reduce the SJCEMS System's ability to respond to emergencies, the patient should be respectfully informed that transport to the requested hospital is not possible*. However, if EMS practitioners believe that transport to the requested hospital is necessary due to special circumstances, OMCP should be sought. In cases where the patient makes no specific request, or when the request is not consistent with the patient's medical interests, the Destination Hospital will be designated by the Guidelines or, if none is designated, the *closest appropriate* hospital.
- Though patients may request transport to Beacon Granger Hospital (BGH), due to capabilities relative to other available hospitals, this Destination Hospital may not be recommended or approved by EMS practitioners as a Destination Hospital.

Trauma

The following patients should be transported a trauma center:

- All trauma patients who meet any one or more criteria in the RED boxes in the trauma field triage guidelines shall be transported to highest level of trauma center in the area - Memorial Hospital.
- All trauma patients who meet any one or more criteria in the YELLOW boxes in the trauma field triage guidelines shall be transported to a trauma center – Elkhart General Hospital or Memorial Hospital.
- The trauma center is the patient's hospital of choice.
- **OMCP** directs the patient be transported to a trauma center.
- Judgement of the on-scene EMS personnel.

Suspected Acute Ischemic Stroke, Including LVO

Patients with suspected acute ischemic store should be transported to a Destination Hospital best able to provide the treatment for which they are eligible, based on last known well time (LKWT), EMS evaluation, and transport time.

- Patients with LKWT < 24 hours *and* FAST-ED ≥4 shall be transported to Memorial Hospital unless one of the following exceptions applies:
  - Transport time to Memorial Hospital > 30 minutes and another certified stroke center is closer.
  - The extra transport time to Memorial Hospital will disqualify the patient from receiving fibrinolytic therapy that could have been administered at a closer hospital.
- Patients with LKWT < 4.5 hours and FAST-ED < 4 hours shall be transported to the closest hospital that can administer fibrinolytic therapy, usually this is a certified stroke center.
  - Note, while Beacon Granger Hospital *can* administer fibrinolytic therapy, it is recommended the patient be transported to an alternative destination unless the additional time will put the patient outside of the fibrinolytic window.
- Patients with LKWT > 24 hours should be transported in accordance with standard scene operations.

Destination Guidelines

STEMI

Patients with an EKG consistent with a STEMI shall be transported to the closest PCI-capable center. Memorial Hospital, St. Joseph Medical Center, and Elkhart General all meet this criterion. These patients shall *not* be transported to Beacon Granger Hospital nor Bremen Community Hospital unless the patient becomes unstable and requires immediate intervention to avoid deterioration or death.

Pediatric Critical Care

Patients < 18 years who are likely to require pediatric critical care should be transported to Memorial Hospital.
Conditions likely to require such care include, but are not limited to:

- Toxic ingestion or overdose
- Non-fatal drowning
- Respiratory failure or impending respiratory failure
- Paralysis
- Status epilepticus or ongoing seizure activity
- Shock of any etiology
- Status asthmaticus
- Signs or symptoms reasonably likely to require cardiac monitoring

Suspected Carbon Monoxide Toxicity

Patients with suspected carbon monoxide toxicity should be transported to Memorial Hospital if they exhibit any of the following signs or symptoms:

- Headache
- Tinnitus
- Pallor and/or cyanosis
- Weakness and/or dizziness
- Change in vision
- Vomiting
- Cardiovascular instability
- Bowel or bladder incontinence
- Seizure activity
- Loss of consciousness or depressed neurological function
- Flushing of the skin, lips, mucus membranes, or tongue

Post-Resuscitation/ROSC

As a general rule, patients who present in cardiac arrest who have successful ROSC should be transported to Memorial Hospital, St. Joseph Medical Center, or Elkhart General Hospital. However, if the transport time to either of these hospitals is felt to be too long and the patient is deemed to be too unstable, the patient can be transported to another emergency department for stabilization and transfer. Note, this does not apply to traumatic arrests. All traumatic arrests shall be transported to Memorial Hospital.

Destination Guidelines

Interhospital Transfers
In the case of interhospital transfers, the patient will be transported to the Destination Hospital designated by the transferring physician. However, if the patient's condition deteriorates such that immediate diversion to a closer hospital is necessary, the situation will be treated as an emergency scene response, and the patient transported accordingly.

In all cases, the patient and family of the patient should be informed of any decision, and the reasons for that decision, to transport the patient to a hospital other than the one requested or designated. The initial Destination Hospital shall also be contacted and informed of the decision to divert and the change in patient's condition. In case of conflict or uncertainty regarding the Destination Hospital, OMCP should be obtained immediately. An OMCP can direct EMS Personnel to transport a patient to any facility deemed necessary and appropriate under the circumstances.

	Trauma	STEMI	Stroke	Chest Pain/ STEMI	Abdominal Pain	CPAP/Severe Respiratory	Severe Head Injury	Severe Vascular Injury	Sexual Assault
MHSB	X	X	X	X	X	X	X	X	
SJRMC		X	X	X	X	X			X
BGH									
EGH	X	X	X	X	X	X			

	Esophageal Foreign Body	Headache	Lacerations	Arm Fracture	Femur/Hip Fracture	Carbon Monoxide	Pediatric - Critical	Pediatric-Stable	Pediatric-Minor
MHSB	X	X	X	X	X	X	X	X	X
SJRMC	X	X	X	X	X			X	X
BGH		X	X	X				X	X
EGH	X	X	X	X	X			X	X

	Acute Psychosis	Suicidal	Homicidal	Altered Mental Status
MHSB	X	X	X	X
SJRMC	X	X	X	X
BGH				
EGH	X	X	X	X

MHSB: Memorial Hospital South Bend

SJRMC: St. Joseph Regional Medical Center

EGH: Elkhart General Hospital

BGH: Beacon Granger Hospital

Deceased Patients Requiring Transportation

As a general rule, deceased patients should not be transported away from the scene. Consistent with St. Joseph County EMS's cardiac arrest policy, unless a patient has return of spontaneous circulation (ROSC), the patient shall remain on scene and not transported, barring extenuating circumstances or request from OMCP in the emergency department.

However, there are four scenarios where it is permissible to transport a deceased patient.

1. The paramedics do not feel safe assessing the patient on scene due to scene safety issues. Once leaving the scene, the practitioner discovers the patient is deceased and it would be futile to attempt lifesaving interventions.

2. The patient is found to be deceased at a mass gathering or public location where it would be viewed as callous or inhumane to leave the deceased patient in place while awaiting the coroner. For example, at a college football game or concert.

3. Extenuating circumstances which will need to be discussed with OMCP on an individual basis.

4. The patient has died while en route to the hospital in the ambulance.

In the first three scenarios, the patient shall be transported to Memorial Hospital of South Bend. Special permission has been granted for EMS to use the morgue at this location. The Memorial Hospital administration has given permission to transport these types of deceased patients to the hospital for use of its morgue. If the EMS practitioner receives pushback from the emergency department, contact the EMS coordinator or EMS Medical Director immediately.

In the fourth scenario, the patient shall be transported to the hospital to which they were en route when they were declared deceased. If the EMS practitioner receives pushback from the emergency department, contact the EMS coordinator or EMS Medical Director at that facility immediately.

At no time shall a patient be taken back to the scene.

Deviation from Guidelines

EMS practice is dynamic and highly case-specific. Guidelines are written in an attempt to provide safe, standardized care for the system's patients. However, deviations from the Guidelines, and specifically the Standing Medical Orders, may be necessary and appropriate in specific clinical scenarios. Such deviations are acceptable, and expected, if utilizing sound clinical judgment, they are determined to allow for superior care under the specific circumstances at the time. If deviations do occur, the reasoning behind them must be documented in the EMS ePCR.

Online Medical Consultation (OMCP) is always available and should be sought whenever the appropriate action is unclear, especially if significant deviation(s) from SJCEMS Guidelines is anticipated.

Diversion

Ambulance Diversion Levels

Type 1 -Total Ambulance Diversion: Hospital is rerouting all ambulances due to an extreme circumstance (e.g., power failure).

Type 2 -Adult Patients: Hospital is rerouting all ambulances with adult (age ≥ 18-yo) patients.

Type 3 -Adult Critical Care: Hospital is rerouting all ambulances with adult (age ≥ 18-yo) patients likely to require Critical Care services.

Type 4 -Pediatric Patients: Hospital is rerouting all ambulances with pediatric (age < 18-yo) patients.

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Type 5 -Pediatric Critical Care: Hospital is rerouting all ambulances with pediatric (age < 18-yo) patients likely to require Critical Care services.

Type 6 -Obstetrical Patients: Hospital is rerouting all ambulances with obstetrical patients ≥ 17 weeks' gestation who have a complaint related to pregnancy.

Type 7 -Special Circumstances: Hospital rerouting all ambulances with scenario-specific patients due to a special circumstance (e.g., acute STEMI patient rerouting due to the cardiac catheterization lab being non-functional).

EMS practitioners may disregard rerouting of the following patients unless the hospital has declared "Total Ambulance Diversion" (Type 1) status or a "Special Circumstance" (Type 7) is applicable to the patient (e.g., the patient has a STEMI, but the cardiac catheterization lab is non-functional at a primary PCI facility, etc.):

- STEMI if the hospital is the closest primary PCI facility.
- Suspected Acute Ischemic Stroke if the hospital is the closest:
  - Thrombectomy-capable or Comprehensive Stroke Center and the patient is:
    - < 24 hours from Last Known Well Time **and** there is a suspected large vessel occlusion (LVO) by prehospital LVO scale, or if the hospital is the closest.
  - Thrombolytic-capable Stroke Center and the patient is:
    - < 4.5 hours from Last Known Well Time.
- Trauma patients meeting Indiana Trauma Triage Rule criteria if the hospital is the closest appropriate* Trauma Center.
- Patients who insist on transport to a specific hospital. EMS Personnel will inform the patient of the diversion status and document that the patient refused transport to an alternate destination.
- Obstetrical patients in active labor and pediatric critical care patients if the hospital is the closest appropriate* hospital.
- Patients in cardiac arrest, or impending cardiac arrest if hospital is the closest appropriate* hospital.
- Any patient who, in the opinion of EMS Personnel, may require immediate lifesaving care, such as airway securement, fibrinolytic therapy, etc., that can't be accomplished by EMS practitioners, and whose life or limb will be put in jeopardy by transporting to a farther hospital.
- If all hospitals in an ambulance's typical transporting region are under similar diversion status, the patient should be transported per the EMS Practitioner Organization's standard transporting policy.

*The term "appropriate" applies to situations in which EMS Medical Directors often provide regional and scenario-specific guidance (e.g., transport of certain trauma patients to a specific minimum level Trauma Center (I, II, or III), or the avoidance of specific hospitals with limited obstetrical, pediatric critical care, neonatal, or adult critical care capabilities if an alternate hospital with the necessary scenario-specific capabilities is within reasonable range by ground transport. **EMS practitioners should always follow local EMS Medical Director guidance**.

Severe Weather/Local Hazard Diversion

Severe/winter weather and local hazard emergency transportation destination guidelines will be implemented on an as-needed basis based on current weather, forecasted weather, road conditions, and other local hazards. Any officer or Lead Paramedic may activate this guideline activated based on conditions within their jurisdiction. This guideline shall be activated for the shortest amount of time necessary.

Green:	Transport in accordance with standard guidelines. This is the default level.
Yellow:	Local or widespread area hazards. Patient diversion to the closest hospital permissible on a case-by-case basis with documentation of patient notification and a complete description of the reason for diversion in the medical record. If the patient requests a specific destination, but the practitioner does not feel it is safe to proceed to the requested destination, the patient should be transported to the closest, most appropriate, hospital. If possible, patients who meet hospital-specific criteria should be transported to the specialty hospital (pediatric critical care, trauma, CO toxicity, LVO stroke, etc.).
Red:	Widespread area hazards. Transport *all* patients to the closest hospital. The Medical Directors must be notified, in real time, of a red activation.

As with any guideline, the goal is patient and practitioner safety. Practitioner discretion should be used when determining destination unless the patient meets hospital-specific criteria. The Medical Directors and EMS chiefs shall be notified of any diversion, although it does not have to be in real-time, except in the cases of red diversion. All these cases should be reviewed by the EMS chief and Medical Directors to ensure compliance with the guideline.

Do Not Resuscitate (DNR) and Physician's Order for Scope of Treatment (POST)

It is appropriate not to initiate or continue resuscitative efforts when EMS personnel are presented with a written order signed by one of the patient's physicians. This is typically referred to as a "Do Not Resuscitate" order, or simply a DNR. There are three types of DNR in Indiana:

1. Do Not Resuscitate (DNR) orders, *valid only in a healthcare setting*.
2. Out-of-Hospital Do Not Resuscitate (OHDNR) orders, *valid only outside of a healthcare facility setting*.
3. Physician Orders for Scope of Treatment (POST), *valid in any setting*.

An example of the POST form is located below. EMS shall pay particular attention to sections A, B, E, and H.

A POST, DNR, or OHDNR order is typically given for a terminally ill patient for who no further therapy directed at the underlying disease process can bring about a cure or prolong life – death is imminent and expected. While this is the typical case, the EMS practitioner may also be presented with other cases for POST, DNR, and OHDNR. In either case, the physician orders are consistent with patient wishes, principles of medical ethics, and Indiana law. They shall not be disregarded without valid reason. A patient, his or her legal representative, or a physician can revoke a POST, DNR, or OHDNR order at any time. In such cases, resuscitative efforts should be immediately initiated, when indicated.

If the validity of a POST, DNR, or OHDNR order is unclear, or in unusual circumstances, such as in the presence of family members who adamantly desire resuscitative efforts, EMS Personnel should initiate resuscitative efforts and obtain Online Medical Consultation (OMCP) as soon as possible.

POST, DNR, and OHDNR orders are <u>not</u> valid during pregnancy.

A living will is not a POST, DNR, or OOHDNR order. It is an expression of a patient's wishes with regard to resuscitative efforts. For the purposes of this guideline, resuscitative measures *should* be initiated when a patient has a living will, but no POST, DNR, or OHDNR. OMCP should be contacted immediately in these circumstances.

To be valid, a POST, DNR, or OHDRN order must be signed by the patient's physician (Section H of the POST form) and the patient or their legal representative (Section E of the POST form). In addition to the physician's signature and the patient or their legal representative's signature, the form should appropriately completed, dated, and contain the medical license number of the patient's physician. A copy of the properly executed POST or OHDNR is considered to be as valid as the original. If there is any doubt about the validity of a POST, DNR, or OHDNR, EMS personnel should initiate resuscitative efforts and contact OMCP as soon as possible. If it is later determined that form is valid, resuscitative efforts can always be terminated.

A picture or copy of the POST, DNR, or OHDNR form should be included in the chart. If that is not possible, the attending physician's name and date of signature shall be included in the narrative of the patient care report.

An OHDNR identification device, developed by the EMS commission and inscribed with the patient's name, date of birth, and the words "Do Not Resuscitate" is considered equivalent to an OHDNR declaration when worn by, or in the possession of, the patient. The device *must* accompany the patient during transport and turned over to the hospital staff. An example is shown below.

Do Not Resuscitate (DNR) and Physician's Order for Scope of Treatment (POST)

INDIANA PHYSICIAN ORDERS FOR SCOPE OF TREATMENT (POST)

State Form 55317 (R2 / 12-16)
Indiana State Department of Health – IC 16-36-6

INSTRUCTIONS: This form is a physician's order for scope of treatment based on the patient's current medical condition and preferences. The POST should be reviewed whenever the patient's condition changes. A POST form is voluntary. A patient is not required to complete a POST form. A patient with capacity or their legal representative may void a POST form at any time by communicating that intent to the health care provider. Any section not completed does not invalidate the form and implies full treatment for that section. HIPAA permits disclosure to health care professionals as necessary for treatment. The original form is personal property of the patient. A facsimile, paper, or electronic copy of this form is a valid form.

Patient Last Name	Patient First Name	Middle Initial
Birth Date *(mm/dd/yyyy)*	**Medical Record Number**	**Date Prepared** *(mm/dd/yyyy)*

DESIGNATION OF PATIENT'S PREFERENCES: The following sections (A through D) are the patient's current preferences for scope of treatment.

A *Check One*

CARDIOPULMONARY RESUSCITATION (CPR): Patient has no pulse AND is not breathing

☐ Attempt Resuscitation/CPR ☐ Do Not Attempt Resuscitation/DNR

When not in cardiopulmonary arrest, follow orders in **B, C** and **D**

B *Check One*

MEDICAL INTERVENTIONS: If patient has pulse AND is breathing OR has pulse and is NOT breathing

☐ Comfort Measures (Allow Natural Death): Treatment Goal: Maximize comfort through symptom management. Relieve pain and suffering through the use of any medication by any route, positioning, wound care and other measures. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. Patient prefers no transfer to hospital for life-sustaining treatments. Transfer to hospital only if comfort needs cannot be met in current location.

☐ Limited Additional Interventions: Treatment Goal: Stabilization of medical condition. In addition to care described in Comfort Measures above, use medical treatment for stabilization, IV fluids (hydration) and cardiac monitor as indicated to stabilize medical condition. May use basic airway management techniques and non-invasive positive-airway pressure. Do not intubate. Transfer to hospital if indicated to manage medical needs or comfort. Avoid intensive care if possible.

☐ Full Intervention: Treatment Goal: Full interventions including life support measures in the intensive care unit. In addition to care described in Comfort Measures and Limited Additional Interventions above, use intubation, advanced airway interventions, and mechanical ventilation as indicated. Transfer to hospital and/or intensive care unit if indicated to meet medical needs.

C *Check One*

ANTIBIOTICS:

☐ Use antibiotics for infection only if comfort cannot be achieved fully through other means.

☐ Use antibiotics consistent with treatment goals.

D *Check One*

ARTIFICIALLY ADMINISTERED NUTRITION: Always offer food and fluid by mouth if feasible.

☐ No artificial nutrition.

☐ Defined trial period of artificial nutrition by tube. (Length of trial: _____ Goal: _____)

☐ Long-term artificial nutrition.

OPTIONAL ADDITIONAL ORDERS:

SIGNATURE PAGE: This form consists of two (2) pages. Both pages must be present. The following page includes signatures required for the POST form to be effective.

Do Not Resuscitate (DNR) and Physician's Order for Scope of Treatment (POST)

Patient Name: _____ Date of Birth *(mm/dd/yyyy)*: _____

SIGNATURE OF PATIENT OR LEGALLY APPOINTED REPRESENTATIVE: In order for the POST form to be effective, the patient or legally appointed representative must sign and date the form below.

E **SIGNATURE OF PATIENT OR LEGALLY APPOINTED REPRESENTATIVE**

My signature below indicates that my physician or physician's designee discussed with me the above orders and the selected orders correctly represent my wishes.

Signature ***(required by statute)***	Print Name ***(required by statute)***	Date ***(required by statute)*** *(mm/dd/yyyy)*

F **CONTACT INFORMATION FOR LEGALLY APPOINTED REPRESENTATIVE IN SECTION E *(IF APPLICABLE)*:**

If the signature above is other than patient's, add contact information for the representative.

Relationship of representative identified in Section E if patient does not have capacity ***(required by statute)***	Address *(number and street, city, state, and ZIP code)*	Telephone Number

PHYSICIAN ORDER:

A POST form may be executed only by an individual's treating physician and only if:

(1) the treating physician has determined that:
- (A) the individual is a qualified person; and
- (B) the medical orders contained in the individual's POST form are reasonable and medically appropriate for the individual; and

(2) the qualified person or representative has signed and dated the POST form

A qualified person is an individual who has at least one (1) of the following:

(1) An advanced chronic progressive illness.
(2) An advanced chronic progressive frailty.
(3) A condition caused by injury, disease, or illness from which, to a reasonable degree of medical certainty:
- (A) there can be no recovery; and
- (B) death will occur from the condition within a short period without the provision of life prolonging procures.

(4) A medical condition that, if the person were to suffer cardiac or pulmonary failure, resuscitation would be unsuccessful or within a short period the person would experience repeated cardiac or pulmonary failure resulting in death.

G **DOCUMENTATION OF DISCUSSION: Orders discussed with *(check one)*:**

☐ Patient (patient has capacity) ☐ Health Care Representative ☐ Legal Guardian
☐ Parent of Minor ☐ Health Care Power of Attorney

H **SIGNATURE OF TREATING PHYSICIAN**

My signature below indicates that I or my designee have discussed with the patient or patient's representative the patient's goals and treatment options available to the patient based on the patient's health. My signature below indicates to the best of my knowledge that these orders are consistent with the patient's current medical condition and preferences.

Signature of Treating Physician ***(required by statute)***	Print Treating Physician Name ***(required by statute)***	Date ***(required by statute)*** *(mm/dd/yyyy)*

Physician Office Telephone Number ***(required by statute)***	Physician License Number ***(required by statute)***	Health Care Professional preparing form if other than the physician

I **APPOINTMENT OF HEALTH CARE REPRESENTATIVE:** As patient you have the option to appoint an individual to serve as your health care representative pursuant to IC 16-36-1-7. You are not required to designate a health care representative for this POST form to be effective. You are encouraged to consult with your attorney or other qualified individual about advance directives that are available to you. Forms and additional information about advance directives may be found on the ISDH web site at http://www.in.gov/isdh/25880.htm.

Documentation, Electronic Patient Care Report (ePCR)/Medical Record

An EMS Medical Record (ePCR) is required in **all** cases involving *patient* evaluation. This report is an essential part of patient care documentation and must be available to the healthcare personnel caring for the patient at the Destination Hospital. Electronic transmission of EMS Medical Records is acceptable with prior notification of the receiving hospital. EMS personnel must comply with applicable patient privacy requirements.

The EMS Medical Record should be provided to the Destination Hospital as soon as possible following the completion of the transport. If, however, the patient is not transported, or if the Destination Hospital is not a Sponsoring Hospital, a quality assurance copy should be provided to one of the Sponsoring Hospitals. The refusal guideline will direct where to send the patient care report. Additionally, Dispatch medical records should be maintained by the Emergency Medical Dispatch Center and must be available for Medical Director review upon request.

If the EMS practitioner departs the Destination Hospital prior to submitting the EMS Medical Record a brief verbal report should be given to a nurse or physician at the Destination Hospital, summarizing the clinical situation, the care provided, and any other significant information. See Transfer of Care at Hospital.

In the absence of extraordinary circumstances, all EMS Medical Records shall be submitted to the appropriate hospital(s) ***within 3 hours*** *of the patient's transfer of care at the hospital. At no time shall a patient care report be outstanding for more than 24 hours.* Note, the state can levy a $500/day fine for ePCR reports not submitted within 24 hours of dispatch.

The following needs to be documented in *every* ePCR report:

1. Chief complaint
2. History of presenting illness (HPI)
3. Pertinent past medical history
4. Pertinent physical exam
5. 2 complete sets of vital signs
6. Interventions and response to interventions
7. Testing performed and interpretation of testing
8. Transportation and destination

Patient Privacy

The Health Insurance Portability and Accountability Act (HIPAA) is a federal law enacted in 1996 to accomplish a variety of goals, one of which is the protection of private patient healthcare information (PHI).

In addition, Indiana grants privacy protection to individuals; EMS Personnel risk fines, suspension, and revocation of their certification for the unauthorized disclosure of medical records or other confidential patient information.

It is beyond the scope of the Guidelines to fully address state and federal privacy requirements. However, during EMS operations, PHI may be disclosed by EMS Practitioner Organizations and personnel to appropriate entities (such as hospitals, physicians, and other healthcare practitioners) for a number of purposes, including:

- Immediate treatment needs of the patient
- Consultation between healthcare practitioners
- Quality improvement efforts, including medical audit and review

Information revealed should be limited to what is necessary to accomplish the above goals. It is the responsibility of Sponsored EMS Practitioner Organizations to determine the privacy requirements applicable to their organizations and personnel, and to ensure compliance of their personnel with those requirements.

The most important thing to remember about patient privacy rules is that they must never interfere with quality patient care.

Documentation, Vital Signs

Vital signs are a requirement of all patient encounters. At a minimum, 2 complete sets of vital signs shall be documented on every patient who receives an assessment by EMS practitioner. This includes refusals. If two complete sets of vitals are not recorded, documentation of this omission must be included in the narrative. The standard is to obtain, at a minimum, an initial set of vital signs and a final set prior to transfer of care, ie a patient is required to have *a minimum* of two sets of vital signs. However, it is also standard to obtain repeat vital signs every 10-15 minutes on non-critical patients and every 5 minutes on critical patients. For the sake of refusals, the patient's vital signs need only be 5 minutes apart. Additionally, if after two attempts NIBP has failed, manual blood pressures shall be taken.

Required vital signs on *every* patient, regardless of level of practitioner:

1. Heart Rate
2. Blood pressure, shall include both systolic and diastolic values on at least the initial blood pressure measurement
3. Pulse Oximetry
4. Respiratory Rate

Required vital signs on *Trauma* Patients:

1. Those required of *every* patient, as listed above plus
2. Glasgow Coma Score (GCS), with documentation of each individual sub-score (E+V+M)
3. Continuous ETCO2 (if permitted at the agency)
4. Every blood pressure shall include both a systolic *and* diastolic blood pressure measurement

Required vital signs on *Critically Ill* Patients, including pediatric patients:

1. Those required of *every* patient, as listed above
2. Temperature
3. Continuous ETCO2 (if permitted at the agency)
4. Blood glucose
5. Every blood pressure shall include both a systolic *and* diastolic blood pressure measurement

Required vital signs on *pediatric* patients:

1. Heart rate
2. Pulse oximetry
3. Blood pressure (on all patients 3 years of age and older)
4. Respiratory rate
5. Temperature, if sick or toxic appearing

Application:

1. Initial complete vital signs shall be obtained as soon as feasibly possible after patient consent, but goal time is under 5 minutes from patient contact.
    a. Initial vitals should include, at a minimum, those listed as required for every patient.
    b. Initial vitals for trauma or critically-ill patients should include, at a minimum, those listed above.
2. Initial vitals may be deferred until transport in severe trauma, patients where there are scene safety concerns, or when patient treatment and transport take priority over obtaining vital signs.
3. If any aspect of the vital signs is abnormal, they shall be repeated and monitored closely.
4. Abnormal vital signs, which are truly abnormal, shall be commented on in the narrative section of the patient care report and it should be noted what has been done to address the abnormal vital signs.
5. If there are abnormal, but erroneous, values which are automatically transferred from the monitor into the patient care report, they should be noted in the narrative section of the patient care report as erroneous readings and not consistent with the patient's presentation.
6. If the patient refuses vitals, or vitals are unable to be obtained for safety concerns, ie violent patient, this shall be documented in the narrative section of the patient care report.
7. Vital signs shall be documented in the vital signs section of the patient care report but may be commented on in the narrative section as well.

Notes:

- Blood pressures containing both the systolic and diastolic are required in trauma patients and critically ill patients in order to trend the pulse pressure.
- Continuous ETCO2 shall be obtained for every trauma or critically ill patient.

EMS Plans for Mass Patient Response

EMS Plans may be requested if additional resources are needed on scene. EMS plans do not need to be activated in order. Lower levels of EMS plans may be skipped if large numbers of resources are needed (for example an MCI).

EMS Plan 1 Resources	**EMS Plan 1 Totals**
3 ALS Ambulances	4 Ambulances
2 Engine Companies	3 Engine Companies
1 Chiefs	2 Chiefs
1660	1660
EMS Plan 2 Resources	**EMS Plan 2 Totals**
3 Ambulances (ALS/BLS)	7 Ambulances
1 Engine Company	4 Engine Companies
1 Chief	3 Chiefs
CV-1	1660
	CV-1
EMS Plan 3 Resources	**EMS Plan 3 Totals**
3 Ambulances (ALS/BLS)	10 Ambulances
1 Engine Company	5 Engine Companies
1 Chief	4 Chiefs
	1660
	CV-1
EMS Plan 4 Resources	**EMS Plan 4 Totals**
3 Ambulances (ALS/BLS)	13 Ambulances (ALS/BLS)
1 Engine Company	6 Engine Company
1 Chief	5 Chief
	1660
	CV-1
EMS Plan 5 Resources	**EMS Plan 5 Totals**
3 Ambulances (ALS/BLS)	16 Ambulances (ALS/BLS)
1 Engine Company	7 Engine Company
1 Chief	6 Chief
	1660
	CV-1

Helicopter (HEMS) Requests

An air ambulance intercept involves a rendezvous with a medical helicopter. It is intended **only for scene encounters** in which:

- The patient requires advanced life support services that cannot be provided in a reasonable timeframe through ground vehicle intercept, **or**
- The patient is reasonably expected to benefit from the reduction in out-of-hospital time afforded by helicopter transport

EMS Personnel may request an air ambulance intercept at any time after dispatch if they believe there is a **reasonable possibility** that the patient requires, or will require, air medical services.

Location information is the most important data necessary when requesting an air ambulance intercept. Requesting EMS Personnel should provide the following:

- State, county, and city (or closest city)
- Intersection or closest intersection
- Landing zone location relative to scene, if available
- The presence of any hazardous material
- If possible, GPS coordinates should be given for the landing zone (LZ)

All air ambulance intercept decisions should take into account the unique circumstances of each scene. **Air ambulance intercepts and air medical transport should be utilized only when the expected benefit clearly outweighs the inherent risk**.

Air ambulance intercept requests do not affect any other component of Emergency Medical Dispatch. Numerous factors, including weather, mechanical, and logistical issues may affect the ability of an air medical service to respond. Ground advanced life support services and transportation must always be available; conditions may change, and air medical transport may be unfeasible, or determined not to be in the patient's best interests. If the air medical transport crew arrives on-scene before a SJCEMS authorized Lead Paramedic arrives on the scene, the air medical crew will assume authority for patient care/disposition decisions. If an SJCEMS authorized Lead Paramedic is on-scene before the air medical transport crew, he or she will determine whether or not to transfer care to the air medical crew.

It is recommended all SJCEMS authorized EMS practitioners obtain air ambulance training from an Indiana certified Rotorcraft Ambulance Service Practitioner Organization before participating in an air ambulance intercept/transfer.

The reasoning behind requesting an air ambulance intercept, the patient disposition, and the reasoning behind that disposition should be documented in the EMS Medical Record. **For any dispatch in which an air ambulance intercept was requested, a copy of the EMS Medical Record must be submitted to a Sponsoring Hospital**. If one of the Sponsoring Hospitals received the patient, the record should be submitted to that hospital.

The table below summarizes common criteria for consideration of an air ambulance/helicopter request.

Helicopter (HEMS) Requests

Criteria for Consideration of Air Medical Transport from Scenes
General and Mechanism Considerations
Trauma Score < 12
Unstable vital signs (e.g., hypotension and tachypnea)
Significant trauma in patients < 12 or > 55 yrs, or pregnant
Multi-system injuries (e.g., long-bone fractures in different extremities; injury to > 2 areas)
Ejection from a vehicle
Pedestrian or cyclist struck by a motor vehicle
Death in the same passenger compartment as patient
Ground practitioner perception of significant damage to the patient's passenger compartment
Penetrating trauma to the abdomen, pelvis, chest, neck, or head
Crush injury to the abdomen, chest, or head
Fall from a significant height
Neurological Considerations
Glasgow Coma Scale (GCS) score < 10
Deteriorating mental status
Skull fracture
Neurological presentation suggestive of spinal cord injury
Thoracic Considerations
Major chest wall injury (e.g., flail chest)
Pneumothorax/hemothorax
Suspected cardiac injury
Abdominal/Pelvic Considerations
Significant abdominal pain after blunt trauma
Presence of a "seatbelt" sign or other abdominal wall contusion
Obvious rib fracture below the nipple line
Major pelvic fracture (e.g. unstable pelvis, open fracture, or fracture with hypotension)
Orthopedic/Extremity Considerations
Partial or total amputation of a limb (exclusive of digits)
Finger/thumb amputation if replantation possible and rapid ground transport unavailable
Fracture or dislocation with vascular compromise which cannot be corrected
Extremity ischemia
Open long-bone fractures
Two or more long-bone fractures
Major Burns
> 20% body surface area (BSA)
Involvement of the face, head, hands, feet, or genitalia
Inhalational injury
Electrical or chemical burns
Burns with associated injuries
Non-Fatal Drowning Injuries
Other Considerations
Prolonged extrication with critical injuries
Medical Considerations
Stroke where ground transport would put the patient outside the thrombolytic or thrombectomy window
Acute MI where ground transport would put the patient outside of the thrombolytic window or significantly delay getting the patient to the cath lab
Critically ill patients requiring a higher level of care during transport

Medical Director Notification

The Medical Directors shall be notified by the department's EMS chief or liaison within 24 hours if any of the following occur:

- Medication error.
- Cricothyrotomy.
- Blood product administration.*
- Altercation involving different agencies (Fire, Police, or EMS).
- Altercation involving physicians or nurses at a Destination Hospital.**
- Non-EMS physician on scene which causes care to deviate from standard of care or System Guidelines.
- Significant deviation from System Guidelines.
- Motor vehicle crashes involving ambulances or chase vehicles.
- Destination errors or time delays from dispatch.
- Inaccurate narcotic counts.
- Occupational exposures.
- Traumatic calls where a debrief session may be helpful.

Notification should include date and ESO incident number.

*Notify Memorial Hospital's EMS Medical Director.

**Notify the appropriate hospital's EMS medical director.

Medication Administration Safety

The purpose of this guideline is to standardize the appropriate medication administration methods necessary to improve patient safety and patient outcomes. The intention is to establish processes that will mitigate the likelihood and impact of errors associated with medication administration by preventing the error from occurring or preventing the error from reaching the patient.

1. All medications must be administered in accordance with this clinical guideline using the most current system polices, guidelines, and procedures.
    A. This standard applies to all system credentialed practitioners.
    B. This standard applies to the administration of all medications unless specifically exempted.
2. Each response agency must ensure all system approved medication administration safety tools are available to practitioners.
    A. Individual practitioners must have immediate access to medication safety tools.
    B. Safety tools can include resources such as the Clinical Operating Guidelines, software such as Epocrates or HandTevy, or other calculators, as necessary.
3. The medication information in the Drug Formulary and the Medication Administration Cross-Check must be used each time a medication is administered to a patient.
    A. The Medication Administration Cross-Check procedure defines the methods designed to ensure safe medication administration.
    B. Medication Administration Cross-Check is used with a second credentialed practitioner to verify critical information to minimize the likelihood of a medication administration error.
    C. The Medication monograph is used to provide the critical information required prior to medication administration. It does not replace the need for practitioner knowledge of medications or the need for the medication information defined in the Clinical Operating Guidelines.
    D. The Pedi-Tape device or similar device, including HandTevy, must be used to determine the estimated weight for all pediatric patients, if a current and accurate weight is not available.
4. All details of medication administration and medication safety procedures must be accurately and completely documented in the patient care record.
5. Medication errors shall be disclosed to the practitioner's EMS chief and Medical Directors upon discovery.

Online EMS Medical Report/Hospital Report

When contacting a Destination Hospital via the IHERN/Radio/Phone, use the following reporting procedure:

1. Summon the hospital. Include EMS unit calling, the hospital being summoned, include if there is a specific "alert" being activated at the time (Resuscitation, Sepsis, STEMI, Stroke, Trauma).
2. Use the **DMIST** template to report patient information.
    a. **DEMOGRAPHICS**: Report the patient's age and gender.
    b. **MECHANISM OF INJURY/MEDICAL COMPLAINT**:
        i. **MOI**: Describe the mechanism and circumstances surrounding the injury.
        ii. **NOI**: Report any pertinent past medical history relevant to the chief complaint. This should include OPQRST, as appropriate.
    c. **INJURIES/ILLNESSES**: Report pertinent physical exam findings, particularly life-threatening findings. Report EKG findings and stroke assessment, as indicated.
    d. **SIGNS**: Vital signs. If any vitals are abnormal, or have been abnormal at any point, indicate this during the report, even if the vitals have improved at the time of the report.
    e. **TREATMENT**: Report any interventions performed and the results of interventions, including IVs, fluids, medications, splints, etc.
3. Request any online orders
    a. If orders are given, repeat the orders back to confirm with closed loop communication.
    b. If pictures, EKGs, etc. have been submitted electronically, confirm receipt.
4. Report ETA.
5. If patient condition changes en route, update the receiving hospital with the change in condition and the interventions.

For specific alerts, particularly traumas, and critical patients IHERN/Radio/Phone reports are required.

When contacting a Destination Hospital via a HIPAA compliant mobile app, use the following reporting procedure:

1. Set the Destination Hospital for the report.
2. Include the patient's age, gender, and chief complain or problem found. Name can be included if the patient gives EMS his or her name. Do not solely rely on an ID found on or near the patient.
3. In the narrative section, include your pertinent physical exam, interventions, and results of the interventions.
4. Report the vital signs. This can be in the narrative section or the vital signs section. This can also be in the form of a picture of the monitor. However, if you take a picture of the monitor and submit this as the vital signs report, you *must* include in the narrative any interventions that may have altered those vital signs, ie supplemental oxygen.
5. Request any online orders.
    a. If orders are given, repeat the orders back to and confirm with closed loop communication.
6. Update/report ETA, if not updated on the app.
7. If patient condition changes en route, update the receiving hospital with the change in condition and the interventions

For STEMIs, EKGs must be transmitted via a HIPAA compliant app, regardless of how you summon the hospital.

For trauma patients, pictures of the scene and patient injuries are helpful, but not required.

For stroke patients, video conferencing or short video clips of the deficits can be helpful.

If the hospital does not respond with the initial summons, a repeat summons via IHERN/Radio/Phone is required until answered by the destination hospital.

Pain Management

Pain management is a priority goal of EMS care and should be considered in all patient scenarios. Although pain management is by no means limited to medication administration, this Standing Medical Order is primarily intended to authorize EMS practitioners to administer analgesic medication during specific patient encounters without Online Medical Consultation (OMCP). Note, however, this guideline is intended for *acute* pain. While opiate pain medication *can* be administered by EMS practitioners for chronic pain, it should be done judiciously.

Prior to administration of any pain medication, the patient must have a complete set a vital signs documented. These include: heart rate, blood pressure, SpO_2, and respiratory rate. **The patient *must* also have an appropriate pain assessment must be performed and documented.**

After 5 minutes of administration of pain medications, the patient must have a complete set of vitals documented again. These include: heart rate, blood pressure, SpO_2, respiratory rate, and if an opiate or ketamine were administered, ETCO2. **The patient *must* also have an appropriate pain assessment must be performed and documented.** Vital signs must be updated at least every 5 minutes once analgesic medication has been administered.

If opiate or ketamine mediations are administered, the patient *must* be transported to the hospital. **This shall be explained to the patient prior to administration of the medications.**

In order to meet the requirements to receive opiates or ketamine, the following conditions must be met:

One or more of the following:	***ALL* of the Following:**
Extremity trauma with deformity or amputation	Age ≥ 8 years
Acute abdominal pain	No cardiac or hemodynamic instability
Acute traumatic back pain	No altered mental status
Suspected kidney stone	No respiratory instability
Burn injury	No illicit drug intoxication/inebriation
Acute sickle cell pain crisis	
Acute traumatic injury, NOS	
Suspected ACS not responsive to nitroglycerin	
Suspected ACS with nitroglycerin not indicated	

Patients not meeting the requirements above, but complaining of pain, are still eligible to receive acetaminophen, if not contraindicated.

Key Considerations

- Consider halving geriatric patient's medications.
- If it is felt a patient requires opiate or ketamine medication, but the patient does not meet criteria, contact Online Medical Control (OMCP).
- Long bone fractures in adults should receive opiate pain medication.
- Pediatric patients with suspected fracture of the radius/ulna should receive oral acetaminophen.
- Non-traumatic dental pain, in general, should not receive opiate medications.

Pain Management

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Pain scale documentation
- Reassure the patient
- Comfort measures. These can include repositioning, splinting, or immobilization
- Ice pack, as needed

- Acetaminophen

- IV/IO Access
- ETCO2 monitoring, if parental analgesics or sedation are indicated
- Pulse oximetry, if parental analgesics or sedation are indicated

- Cardiac monitoring
- For mild pain (1-4):
  - Acetaminophen, if not administered by patient or other EMS practitioner
- For moderate to severe pain (5-10):
  - Morphine
  - Fentanyl
- Naloxone must be available if administering opiate medications
- Continue to monitor for oversedation

- For severe pain (7-10) refractory to morphine or fentanyl or allergy to morphine and fentanyl
  - Ketamine

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- ETCO2 and SpO_2 must be monitored continuously if patient receives an opiate or ketamine.
- Do not administer acetaminophen to patients with known or suspected liver disease or those known to have consumed large amounts of alcohol.
- Do *not* administer opiates for *chronic* back pain unless it is believed to be acute on chronic pain secondary to an injury.
- Consider epidural abscess in patients with severe back pain and known history of IV drug abuse or pain injections.
- Sedating medications, including opiates and ketamine, should be administered with caution in patients who are known to have taken other sedating medications, including opiates, benzodiazepines, trazadone, muscle relaxers, illicit drugs, or alcohol.
- EMS practitioner discretion should be used when administering pain medication. For example, patients who rate their non-traumatic headache "10/10" likely do not require ketamine or fentanyl, even though based on the guideline above it would be appropriate.
- Ketamine can be used synergically with fentanyl allowing for a reduced dosage of each mediation for analgesia.

Patient-Specific Care Plans

With the increase in EMS calls for service, priority must be given to patients with critical needs. While this is primarily done through priority dispatch, specific attention must be given to disproportionately frequent users of the 911 EMS system or those with ulterior motives. For this reason, SJCEMS has developed a guideline for the development of patient-specific care plans for those patients who are disproportionate users of the 911 EMS system.

Patient-Specific care plans will be developed on an individual basis. However, it should be noted, if deemed necessary, a patient-specific care plan can be disregarded by the EMS practitioner if he or she feels medical necessity requires it. It is important to remember that quality patient care and recognition of true medical emergencies is at the foundation of EMS's mission and even though a patient has a patient-specific care plan, the patient's care must still meet appropriate standard of care, and the patient may require transport to the appropriate facility.

Patient-Specific care plans will be not listed in the guidelines. They can be found in the EMS chief's office and in the ambulance which typically responds in the service area of the patient with the specific care plan.

Patient Initiated Refusal

Any patient for whom Emergency Medical Services have been called shall be evaluated, treated, and transported to a Destination Hospital. The determination of who requires hospital evaluation is outside the scope of EMS practice and EMS personnel must earnestly encourage the evaluation, treatment, and transport of *all* patients. EMS personnel may not "treat and release" patients who do not refuse transport, nor may they state or imply that they have the expertise to determine whether a patient requires transport to a hospital for further evaluation, speculate on the care that will be provided by the hospital staff or physicians, or speculate on whether or not the patient will require hospitalization. There shall be no EMS initiated refusals.

In short, if EMS is summoned to the scene, the patient *shall* receive care consistent with standard of care based on the appropriate guideline and *shall* be transported.

The above statements apply to all patients with the following exceptions:

1. The patient refuses evaluation, treatment, or transportation, as described in this guideline.
2. The patient meets criteria for ***not*** initiating or continuing resuscitative efforts, per Withholding Resuscitation, Termination of Resuscitation, and Field Death.
3. Evaluation, treatment, and transportation are impractical because of scene safety.
4. The EMS response is cancelled ***prior to*** patient contact.

Informed Consent

Indiana law (IC 34-18-13-3) requires informed consent prior to performing any medical intervention, including EMS evaluation, treatment, and transport. Informed consent is based on the patient's, or person legally responsible for the patient, understanding of the benefits and risks, both immediate and future, of a medical intervention and obtaining his/her consent or refusal to perform the intervention. In order to consent, the patient, or person legally responsible the patient must demonstrate capacity. In short, the patient, or person legally responsible for the patient, must be made aware of, and understand, the treatment and transportation options available to them, the risks of benefits of accepting the treatment and transportation, and the risks and benefits of not accepting the treatment and transportation. *EMS personnel should attempt to obtain informed consent from every patient.*

In general, the patient must be at least 18 years of age to provide consent with the following exceptions:

1. The patient is less than 18 years of age (a minor) and is:
    a. Emancipated *OR*
    b. Meets the following criteria
        i. At least 14 years of age *AND*
        ii. Not dependent on the parents for support *AND*
        iii. Living apart from the minor's parents or from an individual in loco parentis *AND*
        iv. Managing their own affairs *OR*
    c. Is or has ever been married *OR*
    d. Is in the military of the United States *OR*
    e. Is authorized to consent to their own medical treatment under another state statute

Implied Consent

In potentially life-threatening emergency situations where a patient is unable to give informed consent the law presumes that the patient would give consent if able. In potentially life-threatening emergency situations, consent for emergency care is implied if the individual is:

1. Unable to communicate because of an injury, accident, illness, or unconsciousness and suffering from what reasonably appears to be a life-threatening injury or illness *OR*
2. Suffering from impaired present mental capacity *OR*
3. A minor who is suffering from what reasonably appears to be a life-threatening injury or illness and whose parents, managing or possessory conservator, or guardian is not present

Patient Initiated Refusal

Surrogate Consent
An individual with legal standing may give consent for a patient when the patient does not have the ability to do so because they are a minor, incarcerated, have been determined by courts to be legally incompetent, or do not have the capacity to make their own medical decisions. Parents or guardians are entitled to provide permission because they have the legal responsibility, and in the absence of abuse or neglect, are assumed to act in the best interests of the child.

Per Indiana Code 16-36-1-5, the following person(s) may consent to or refuse, the evaluation, treatment, and/or transportation of an **adult**, if the adult is found to be incapacitated and unable to make their own medical decisions:

1. A judicially appointed guardian of the person or an appointed representative
2. Spouse
3. An adult child
4. A parent
5. An adult sibling
6. A grandparent
7. An adult grandchild
8. The nearest other adult relative in the next degree of kinship who is not listed above
9. A friend who:
    a. Is an adult AND
    b. Has maintained regular contact with the individual AND
    c. Familiar with the individual's activities, health, and religious or moral beliefs
10. The patient's religious superior, if the individual is a member of a religious order

The following person(s) may consent to or refuse the evaluation, treatment, and/or transportation of a **minor**:

1. A judicially appointed guardian of the person or an appointed representative
2. Parent or an individual in loco parentis, if:
    a. There is no guardian or other representative described in subdivision 1 above OR
    b. The guardian or other representative is not reasonable available or declines to act OR
    c. The existence of the guardian or other representative is unknown other health care practitioner
3. An adult sibling of the minor, if
    a. There is no guardian or other representative described in section 1 above OR
    b. A parent or an individual in loco parentis is not reasonably available or declines to act OR
    c. The existence of the guardian or other representative is unknown other health care practitioner after reasonable efforts are made by the health care practitioner to determine whether the minor has a parent or an individual in loco parentis who it able to consent of the treatment or refusal of the minor
4. A grandparent of the minor if:
    a. There is no guardian or other representative described in subdivision 1 above OR
    b. The guardian or other representative is not reasonable available or declines to act OR
    c. The existence of the guardian or other representative is unknown other health care practitioner after reasonable efforts are made by the health care practitioner to determine whether the minor has a parent or an individual in loco parentis who it able to consent of the treatment or refusal of the minor
5. A law enforcement officer who has lawfully taken custody of the minor, if the officer has reasonable grounds to believe the minor needs immediate medical treatment

Patient Initiated Refusal

On-Line Verbal Consent or Refusal
In order to receive verbal consent or refusal from a surrogate, *two* emergency responders (EMS, fire, and/``or police) must confirm via telephone or other communication device that the surrogate is agreeing to or refusing the treatment. Both personnel's names must be documented in the chart as having spoken to the surrogate to get approval or refusal. If the surrogate agrees to the treatment, no additional documentation other than a normal patient chart and the names of those who spoke to the surrogate must be documented. If the surrogate refuses care, the names of all personnel who spoke to the surrogate must be documented in addition to the required documentation of a standard refusal, as listed below.

For verbal consent or refusal obtained via telephone or other communication device, the practitioner must document all requirements as required in the "Required Documentation" section below. However, the physical signature will not be obtainable. The EMS practitioner has two options to obtain and document the consent or refusal:

1. The EMS practitioner may call the surrogate and document the following:
    a. The number they called
    b. The person to whom they spoke
    c. *TWO* EMS practitioners must talk to the surrogate to physically hear the surrogate state they are accepting or refusing care
    d. If consent for treatment is given, a standard patient care report must be filled out
    e. If consent is not granted (refusal), all the required documentation as listed in "Required Documentation" section below must be discussed and documented
    f. Both EMS practitioner's names must be documented as having spoken to the surrogate in the patient care report

2. The EMS practitioners will discuss the care or refusal with
    a. The EMS practitioner will obtain an appropriate phone number for the responsible party/surrogate and will call using unit cell phone, advising the person able to give consent/refuse (responsible party/surrogate) of the situation and that they will soon receive another call on a recorded line
    b. The EMS practitioner will call PSAP and ask for a recorded line, providing communications center with the responsible party/surrogate's phone number
    c. PSAP connects EMS practitioner with responsible party/surrogate on the recorded line
    d. EMS practitioner provides all standard and necessary information, as stated above, for responsible party/surrogate to make an informed decision as to the patient's care and/or refusal of assessment/treatment/transport
    e. Disposition is decided upon by responsible party and documented as above by field practitioner.

In either case, if a refusal is being obtained, EMS practitioners must also obtain the responsible party's consent to release the patient to a party on scene (see below).

Capacity
Capacity describes a person's ability to a make a decision. In a medical context, capacity refers to the ability to utilize information about an illness and proposed treatment options to make a choice that is congruent with one's own values and preferences. A patient *must* demonstrate capacity to make their own medical decisions in order to refuse. Use the Determination of Capacity Checklist for guidance.

In 2023, the Indiana State Legislature adopted a much more liberal interpretation of the 24-hour mandatory detention statutes. (The specifics can be found in House Bill 1006). Patients can now be detained for even a *temporary* impairment due to alcohol or drugs. This new law authorizes a law enforcement officer who believes an individual has a mental illness, whether chronic or acute, and is either dangerous or gravely disabled, **and is in immediate need of hospitalization and treatment** to apprehend and transport the individual to the *nearest* facility.

Immunity from Adverse Action
IC 16-36-1-10 provides legal immunity for healthcare practitioners, including EMS Personnel, who act in good faith with regard to obtaining informed consent and following its principles. Those principles include not following the instructions, if potentially harmful, of someone who they believe is incapable of providing informed consent.

Patient Initiated Refusal

Applicability
To be eligible for refusal, the patient must meet the following criteria

1. Must be at least 18 years of age or meet the criteria under Informed Consent Exceptions above
2. Must demonstrate capacity (either the patient or the person legally responsible for the patient)
3. Must not be suicidal or homicidal or be actively hallucinating
4. Must not be under the influence of drugs or alcohol to the point it affects the patient's ability to understand their disease process, the potential risks and consequences of refusal (including death)
5. Must be able to describe in his or her own words the medical condition, the risks/consequences of refusal, and alternative options should he or she still want to refuse

If there are any question or concerns as to whether the patient has the capacity to make their own decisions, contact OMCP. If the patient does not meet the requirements to demonstrate capacity, proceed with care as able and obtain OMCP as soon as possible. The OMCP will give specific orders regarding patient care, including transport. Police assistance may be necessary. Physical restraint of the patient by EMS Personnel is prohibited except in the case of an immediate threat to the safety of the patient, bystanders, or EMS personnel.

Required Documentation
The following is ***required*** to be documented in the patient's medical chart.

1. Patient's name and date of birth.
2. Confirmation that the patient, or person legally responsible for the patient, had capacity to make this medical decision.
3. The patient, or person legally responsible for the patient, was alert and oriented.
4. The patient is not suicidal.
5. The patient is not homicidal.
6. The patient was encouraged to seek medical care, either with their primary care physician or self-transport to the emergency department, if not transported by EMS.
7. The patient can call 911 and request re-evaluation and transport at any time if they change their mind.
8. The risks of refusing treatment and transport based off the chief complaint.
    a. Worsening symptoms, delay in diagnosis, delay in intervention, clinical deterioration, or death shall be listed as risks in all cases.
9. Explanation that the listed risks are not comprehensive.
10. Confirmation by the patient, or person legally responsible for the patient, he or she understands the risks.
11. A minimum of two *complete* sets of vital signs at least 5 minutes apart, one set upon initial patient contact and another set prior to clearing the scene (or documentation that the patient refused).
12. The patient, or person legally responsible for the patient, must sign a refusal form (if the patient, or person legally responsible for the patient, refuses to sign, a form must still be filled out by the EMS practitioner and it must be documented on the form the patient, or person legally responsible for the patient, refused to sign the document).

Signed Refusal Document
Ideally, a lead paramedic shall obtain the refusal and the signed refusal document. If a Lead Paramedic is not on scene or immediately available to obtain the refusal, the highest level of practitioner available shall obtain the refusal and the signed refusal document. This shall be included in the formal chart and submitted to the hospital as noted in the "Submission of Chart" section below.

Submission of Chart
All patient encounters which result in a refusal must be submitted to the hospital unless the medical unit is disregarded prior to patient contact. The chart shall be submitted to the hospital emergency department where the EMS agency previously had exchanged medications. "Patient treated and released" or "Refusal of medical treatment" should be chosen as an impression on the ePCR.

Releasing Minors or Patients Unable to Provide Consent
When releasing a minor or other patient unable to give consent, the field practitioner must take several factors into account in order to properly advocate for the patient and ensure their safety. The relationship between the patient and the party they are being released to. The practitioner must have the consent of the responsible party and the person taking custody of the patient. The practitioner must also be reasonably assured that the person the patient is being released to does not put the patient in danger.

Patient Initiated Refusal

High Risk Refusals
High risk refusals can be inherently dangerous for the patient. However, if the patient has the capacity to make his or her own medical decisions and understands the risks, he or she should still be permitted to refuse treatment and transport. However, if any of the "high risk" criteria below are met, any EMS practitioner with system credentialing less than "lead paramedic" should contact OMCP to discuss the case. A lead paramedic is permitted to allow the patient to refuse without OMCP consultation, although may consult OMCP at his or her discretion.

- ☐ Pulse less than 60 or greater than 100
- ☐ Systolic blood pressure less than 90 or greater than 200
- ☐ Respirations less than 12 or greater than 20 (adult)
- ☐ Blood glucose less than 60 or greater than 300
- ☐ SpO_2 less than 92% on room air which is new for the patient and is not on supplemental oxygen at baseline
- ☐ MAP less than 60
- ☐ Complaint of chest pain, shortness of breath, syncope, or other serious chief complaint
- ☐ Significant mechanism of injury/trauma

Once it is determined that patient will refuse treatment and transport, the EMS practitioner shall read the following to the patient prior to the patient signing the refusal document:

> *Given your chief complaint, mechanism or injury, or physical exam findings, it is possible you have a serious underlying medical condition which has not fully declared itself. You have received a basic screening exam, but this does not replace the full medical screening exam performed by a physician at the hospital. The hospital has additional resources and screening tools not available to us in the pre-hospital environment. Despite this, you have shown the capacity to make your own medical decision and have demonstrated you understand the risks associated with your refusal for additional work-up, treatment, transport to the hospital. The risks may include, but are not limited to, permanent disability, loss of lifestyle, or death.*

Request for Service

Request for Service Within a Hospital

If a patient calls the St. Joseph County 911 Dispatch Center (PSAP) *from within Memorial Hospital, St. Joseph Regional Medical Center, or Beacon Granger Hospital*, including the waiting room or an exam room, the following shall occur:

- The 911 dispatcher will confirm the patient's location is *within* the hospital.
    - Once the patient is confirmed to be within the hospital, the caller shall be advised their call will be routed to the charge nurse and that no ambulance will be dispatched.
    - The call shall then be routed to the hospital's charge nurse.
- The charge nurse shall advise the triage nurse to call the patient from the waiting room back to the triage room for re-evaluation.
    - The required medical screening exam components will be left to each individual hospital's administration.
    - At a minimum, however, the patient shall have a new set of vital signs taken.
    - Documentation that the patient had called 911 from the waiting room or exam room shall be documented in the patient's chart along with the new set of vital signs, the date and time, and the subsequent actions taken based off the patient calling 911 (ie "The patient, while waiting in the waiting room, called 911 and requested emergent medical evaluation. The patient was re-evaluated, and we have confirmed no emergent condition is noted").
- No ambulance shall be dispatched to transport a patient from one hospital to another without the confirmation of a physician initiating an "ED to ED Transfer".
    - Note that this is an unusual event for a 911 ambulance service.
- If the patient is still not satisfied, and a second call is made, the call will again be routed the charge nurse.
    - This should again be documented, but another set of vital signs is not required if within 15 minutes of the prior set of vital signs.
    - If the patient continues to demand transfer to the other hospital, discussion with the patient and physician on duty shall take place.
    - An interfacility transfer, based on patient request, can be initiated, if reasonable.
- At no point shall a 911 EMS agency be dispatched to the waiting room or exam room based off a *patient-initiated* call for transport.
- This portion of the guideline *only* applies to:
    - Patients physically within the hospital structure – in the waiting room, exam room, etc.
    - Patients, not hospital staff, initiating the call to St. Joseph County 911 Dispatch Center (PSAP).
- This portion of the guideline *does not* apply to:
    - Those outside of the hospital structure.
    - This guideline applies specifically to the St. Joseph County 911 Dispatch Center (PSAP).

Request for Service Outside a Hospital

If the patient is on hospital grounds requesting medical intervention, the patient should be taken to the hospital of which they are on the grounds. However, EMS practitioner judgment should be used for appropriate destination based on patient's chief complaint, stability, and individual situation.

All other scenarios, within reason, the patient has the option of choosing their destination. However, if the department has a specific SOP that prevents transport to a specific destination, ie out of the county, that SOP should be followed. In deciding which destination is most appropriate for the patient, the practitioner should take into consideration the following: the length of time their unit will be out of service for the round trip, how many other concurrent requests for service are active in their service territory at the time which would require additional mutual aid companies if their unit is out of service for a prolonged amount of time, whether the patient has a patient-specific care plan, and whether the patient meets specific destination criteria.

Spinal Motion Restriction

Spinal motion restriction includes cervical collar, securing to stretcher, minimal movement/transfers and maintenance of in-line spine stabilization during any necessary movement/transfers. This includes the elderly or others with body or spine habitus preventing them from lying flat.

Long spine boards are no longer considered standard care in most cases of potential spinal injury. Spinal motion restriction with cervical collar and securing patient to cot while padding all void areas is appropriate in most cases. *It is not acceptable to apply a cervical collar and not immobilize the rest of the spine.*

AMBULATORY: Allow patient to move to stretcher with minimal spinal movement and then secure to stretcher.

NONAMBULATORY: Use long spine board (or any of the multiple equivalent devices) to *transfer* patient to stretcher with minimal spinal movement then secure to stretcher.

Patients at Risk

Spine injury can occur in many different types of trauma. High-energy injury is more likely to cause spine injury, but it can occur with low energy trauma as well. Mechanisms of injury that may produce spine injury include, but are not limited to:

- Motor vehicle collisions.
- Motor vehicle vs. pedestrian or bicycle.
- Falls from height.
- Striking the head during a fall.
- Blows to the head or neck.

In the absence of a secondary injury, ie fall, penetrating injuries typically do not require spinal motion restriction.

Spine Motion Restriction Criteria

Patients at risk for spine injury, based on mechanism of injury, should undergo spinal motion restriction if they have any of the following:

- Spine pain, tenderness, or pain on range of motion; question and examine the patient **carefully** before making a determination.
- Altered mental status, whether acute or chronic.
- Evidence of drug or alcohol intoxication.
- A distracting painful injury, e.g., a long-bone extremity fracture.
- An acute neurological deficit, including abnormal sensations such as burning, tingling, or numbness.

Note: The above is the NEXUS criteria.

CAUTION: *If the mechanism of injury is particularly concerning, or if EMS Personnel are in doubt as to whether **all of the above criteria are absent**, spinal motion restriction should be provided.*

CAUTION: *Scrutiny should be used in applying the criteria to children and the elderly. **If in doubt, spinal motion restriction should be provided**.*

Deviations Based on Unique Circumstances

Safe spinal motion restriction of awake patients requires their cooperation. Occasionally, patient behavior may make safe immobilization impossible even when indicated. If, in the opinion of EMS Personnel, safe spinal motion restriction cannot be accomplished because of patient uncooperativeness, transport in a position of comfort is acceptable. However, non-spinal restriction in patients at risk for spine injury required detailed documentation of the absence of spinal motion restrictions. Under unique circumstances, more significant patient control methods may be necessary, but may only be utilized with OMCP (see Patient Restraint). **Additionally, non-spinal motion restriction in uncooperative patients at risk for spine injury requires documentation of the reasoning behind decision not to immobilize.**

Medical Alert

A medical alert should be used when a patient required urgent or emergent intervention but doesn't meet one of the other "alerts." A medical alert should be considered a "resuscitation alert" and indicates to the emergency department that a physician assessment is required immediately upon arrival. Any patient who would typically require a "bay" or a "resuscitation room" likely meets the requirement for a "Medical Alert."

Indications for the use of a medical alert include, but are not necessarily limited to:

1. ROSC, status-post cardiac arrest
2. Patient on CPAP or in severe respiratory distress
3. Status epilepticus
4. Status asthmaticus
5. Hypotension secondary to volume/blood loss
6. Unstable SVT or Atrial fibrillation with RVR
7. Medical patient with GCS $\leq$ 12, unless specifically noted to be from drugs or alcohol without other underlying trauma or medical complaints
8. Unstable vital signs

NOTE: Not all these patients require the use of lights and sirens during transport. If the patient has been stabilized by the EMS intervention, non-emergent transport is reasonable. The alert is for the hospital, not an indication to run lights and sirens.

Sepsis Alert

Timely recognition and treatment of a septic patient is imperative to decrease the patient's risk of morbidity or mortality. As such, a SEPSIS ALERT should be activated when the following criteria are met:

- Suspected or known infection

  AND ≥ 2 of the following:

- Temperature ≥ 100.4° or ≤ 96.8°
- Respiratory rate > 20
- Heart rate > 90
- Altered mental status
- Systolic blood pressure < 90 mm hg
- ETCO2 < 30 or > 45

Treat the patient according to the sepsis guideline. However, this patient does not necessarily require a special Destination Hospital. However, those patients who appear toxic or severely ill should not be taken to Beacon Granger Hospital.

A SEPSIS ALERT differs from a stroke alert, STEMI alert, and trauma alert, in that it is merely a notification for the emergency department that the patient meets sepsis criteria. For example, just because a SEPSIS ALERT is activated does not necessarily mean the patient will require a resuscitation room nor require large numbers of resources. However, this patient, unless absolutely necessary, should not be placed in the waiting room.

CAUTION: Patients can meet sepsis criteria without being septic. Thus, the reason they need to have a suspected or known infection. The patient can also meet sepsis criteria without looking toxic.

CAUTION: Severely septic patients can decompensate quickly.

STEMI Alert

Patients with an EKG consistent with a STEMI shall be transported to the closest PCI-capable center. Memorial Hospital, St. Joseph Medical Center, and Elkhart General all meet this criterion. As a general rule, these patients shall *not* be transported to Beacon Granger Hospital nor Bremen Community Hospital. These are appropriate destinations only in the event of a RED diversion or the patient becomes unstable and goes into cardiac arrest en route to the PCI-capable center.

A STEMI ALERT should be activated when:

1. The patient is symptomatic for an acute coronary syndrome (ACS) event and
2. One or more of the following EKG findings and #3:
   i. A new, or presumed new, ST segment elevation ≥ 1 mm in two anatomically contiguous leads on a *standard EKG* or
   ii. 0.5 mm ST segment elevation on a posterior lead on a *posterior EKG* or
   iii. Concordant ST segment elevation ≥ 1 mm in ≥ 1 lead when the patient has a left bundle branch block or
   iv. Concordant ST segment depression ≥ 1 mm in leads V1, V2, or V3 when the patient has a left bundle branch block or
   v. discordant ST segment elevation > 25% of the preceding S-wave
3. The patient does not meet any of the following exclusion criteria:
   i. The patient is completely asymptomatic for an acute coronary syndrome event, but has an EKG which meets the EKG findings for an acute STEMI
   ii. The patient is completely asymptomatic for an acute coronary syndrome event and has evidence of isolated V1 and V2 elevation only, LBBB or LVH, Early repolarization, Diffuse ST elevation, or Non-specific ST changes or other abnormal ECG finding including poor ECG tracing.

A "STEMI Alert" shall be activated by the EMS practitioner from the prehospital setting. **The EKG must be transmitted to the receiving hospital prior to arrival when activating a STEMI alert**. The patient's name should also be transmitted via a HIPAA compliant medium (E-Bridge or Pulsara) for review of prior EKGs.

Stroke Alert

Patients with a positive Cincinnati Stroke Scale (CSS) and a last known well time (LKWT) under 24 hours should be transported to the closest certified stroke center. Certified stroke centers include Memorial Hospital, St. Joseph Medical Center, and Elkhart General all meet this criterion. As a general rule, these patients shall *not* be transported to Beacon Granger Hospital nor Bremen Community Hospital. These are appropriate destinations only in the event of a RED diversion or the patient becomes unstable and goes into cardiac arrest en route to the certified stroke center. If the patient's FAST-ED score is ≥ 4 and the LKWT is under 24 hours, the patient shall go to Memorial Hospital.

A STROKE ALERT should be activated when:

1. The patient has a positive Cincinnati Stroke Scale (CSS).
2. The patient's last known well time is under 24 hours.

The prehospital STROKE ALERT Report should include the following:

1. The patient's name, if on a HIPAA compliant medium
2. Last known well time
3. Deficits
4. FAST-ED Score
5. Prior strokes, if known/applicable
6. If the patient is on blood thinning medication
7. A complete, updated set of vital signs
8. Blood Glucose Level (BGL) measurement
9. IV/IO Access
10. Any interventions performed

The destination for a stroke patient should be determined by using the table below with the following exception:

1. If the transport time to the thrombectomy-capable center puts the patient outside of the fibrinolytic window, but there is a hospital that is capable of administering fibrinolytic therapy which would allow the fibrinolytics to be administered within the 4.5-hour window, consider taking the patient to the closer hospital for fibrinolytic therapy and document this in your ePCR.

Destination Hospital Determination for Suspected Acute Ischemic Stroke	**FAST-ED Score ≥ 4**	**FAST-ED Score < 4**
LKWT < 24 hours prior to EMS evaluation	Transport to MHSB. If the extra time necessary to transport to MHSB will disqualify the patient from fibrinolytic therapy, transport to closest hospital capable of administering fibrinolytic therapy OMCP	If LKWT < 4.5 hours, transport to closest hospital capable of administering fibrinolytic therapy. Emergent transport at EMS discretion if LKWT < 4.5 hours prior to EMS evaluation Otherwise: Transport to closest certified Stroke Center
LKWT ≥ 24 hours prior to EMS evaluation	Transport to closest certified Stroke Center (ASRH, PSC, or TSC)	

Trauma Alert

Patients involved in a trauma meeting the updated NHTSA Trauma Field Triage Criteria should be transported to the closest appropriate trauma center based on the field triage guidelines or the capabilities of the hospital. Local certified trauma centers include Memorial Hospital and Elkhart General Hospital. As a general rule, these patients shall *not* be transported to St. Joseph Hospital, Beacon Granger Hospital, or Bremen Community Hospital. These are appropriate destinations only in the event of a RED diversion, the patient becomes unstable and goes into cardiac arrest en route to the trauma center, or in the case of a mass casualty event.

A prehospital TRAUMA ALERT should be activated when the patient meets any of the NHTSA Trauma Field Triage Criteria. If the hospital determines the patient does not meet activation criteria by internal standards the alert may not be activated internally, but the prehospital activation should still take place.

Any patient with severe head trauma, severe vascular injury, or paralysis secondary to trauma should be transported to Memorial Hospital if within the 45-minute transport rule.

Transfer of Care at Hospital

Exam Room Assignment

When a patient is a given a regular exam room on arrival the following shall occur.

1. The following shall be included in the hand-off report to the bedside nurse
    - The patient's name and age, if available
    - The chief complaint
    - Circumstances surrounding acute injury/condition
    - Past medical history, if known
    - A complete, updated set of vital signs
    - IV/IO access
    - All interventions performed and outcome of the interventions
    - Allergies, if known
    - Additional questions shall be answered
    - Paperwork and DNR from care facility, if applicable

Trauma Room Assignment

This is specific to Memorial Hospital or Elkhart General Hospital.

1. An EMS time-out shall occur when transferring care of this patient
2. During this time out, EMS should provide the following information
    - The patient's name and age, if available
    - The chief complaint
    - Circumstances surrounding acute injury/condition, description of the scene
    - All interventions performed and outcome of the interventions
    - A complete, updated set of vital signs
    - IV/IO access
    - Allergies, if known
    - Paperwork and DNR from care facility, if applicable
    - Past medical history, if known
    - Additional questions shall be answered

Straight to CT Assignment

This pertains strictly to stroke-alert patients.

1. Stroke patients, unless hemodynamically unstable, shall be taken directly to the CT scanner at all hospital locations.
2. Hand-off to the nursing staff should take place at the CT scanner
3. The patient's ID should be given to registration on the way down to the scanner as to not delay obtaining the CT due to lack of registration.
4. The following shall be included in the hand-off report to the bedside nurse
    - The patient's name and age, if available
    - The chief complaint
    - Circumstances surrounding acute injury/condition
    - Past medical history, if known
    - A complete, updated set of vital signs
    - IV/IO access
    - All interventions performed and outcome of the interventions
    - Allergies, if known
    - Additional questions shall be answered
    - Paperwork and DNR from care facility, if applicable

Transfer of Care at Hospital

Triage Assignment

When a patient is given an assigned destination of "triage on arrival" the following shall occur.

1. If the patient is not felt to be triage appropriate, the EMS practitioner shall indicate the patient is not appropriate for triage and why they feel the patient is not appropriate for triage.
    - If the patient is still given a triage room on assignment, the EMS practitioner shall oblige and take the patient to triage.
    - The EMS practitioner may make a note in the ePCR that it was felt the patient was not appropriate for triage, but due to extenuating circumstances in the emergency department, the patient was given a triage assignment.
2. If the patient is triage appropriate or an assignment of triage is given despite the EMS practitioner not feeling the patient is appropriate for triage, the EMS practitioner shall take the patient to the triage area.
3. The EMS practitioner shall provide a hand-off report to the triage nurse (RN), just as if the patient was given a formal evaluation room in the emergency department.
    - EMS practitioners may only give sign-out to an RN, MD/DO, PA or NP
    - If the patient *is not* felt to be triage appropriate, the hand-off report shall take place ***before*** taking the patient to the public side for registration. This will ensure the triage nurse is able to briefly see/evaluate the patient prior to being placed in line for registration.
    - If the patient *is* triage appropriate, the hand-off report may be done before or after the patient is placed in line for registration but ***must*** take place to ensure safe and appropriate transition of care.
4. If possible, the EMS practitioner shall take the patient to the public side for registration.
    - **Note**: The EMS practitioner ***does not*** have to wait with the patient for the patient to be registered/checked-in to the emergency department.
    - The patient may be placed in a wheelchair from the EMS cot to avoid standing while being registered.
    - Once the EMS to RN hand-off report has been given and the patient is placed in line for registration, formal hand-off has taken place, and the patient is no longer under the EMS practitioner's care.
5. If it is not possible to take the patient to the public side for registration due to patient condition, the EMS practitioner shall ask which triage room to place the patient and formal hand-off shall take place at that time.
    - **Note**: This destination shall be at the discretion of the triage RN and not the EMS practitioner. If it is felt by the triage RN that the patient is too acute for the registration line, the patient will be placed into a triage exam room. However, if EMS is asked to take the patient to the public side for registration, the EMS practitioner shall oblige.
    - The EMS practitioner must stay with the patient until formal hand-off has been given if the patient is placed into a triage room.

All EKGs and rhythm strips should be left with the patient for review by the physicians.

In all cases, the patient's ID card and/or insurance cards should be given to the registration clerk as soon as possible.

Withholding Resuscitation, Termination of Resuscitation, and Field Death

Unfortunately, at times, cardiopulmonary resuscitation (CPR) is unsuccessful. There are also times when withholding CPR is indicated. This guideline outlines when withholding resuscitative efforts is indicated and when it is appropriate to terminate resuscitation. Except as discussed below, all SJCEMS credentialed EMS practitioners should immediately initiate resuscitative efforts, including CPR and advanced life support, to a degree commensurate with their training, certification, and credentialing, for any patient suffering cardiac arrest.

Exceptions to the *initiation* of CPR:
Apnea and pulselessness with any of the following findings:

- **Decapitation** - the complete severing of the head from the remainder of the patient's body.
- **Dependent lividity** – Blood pooling in the dependent parts of the body.
- **Rigor mortis** without profound hypothermia.
- Skin deterioration and decomposition (**putrefaction**) - skin bloated or ruptured, with or without soft tissue sloughed off.
- **Incineration** - 90% or more of body surface area burned with full thickness burns as exhibited by ash rather than clothing and complete absence of body hair with charred skin.
- **Obvious mortal wounds** - such as massive crush injury, complete exsanguination, severe displacement of brain matter, or complete transection of the torso.
- **Severe blunt trauma** (see traumatic cardiac arrest).
- **Fetus less than 20 weeks gestation** – Fetuses less than 20 weeks are not viable. No second ePCR chart needs to be created for the fetus. Charting may go on the mother's ePCR. However, while the fetus is not viable, the fetus shall still be treated with respect and dignity. The fetus should be transported with the mother to the Destination Hospital.
- **A valid, signed OHDNR or POST form is presented to the practitioner** (see Do Not Resuscitate (DNR) and Physician's Order for Scope of Treatment (POST)).
- **If family member(s) with POA rights at bedside *all* agree the patient would not want resuscitation the EMS practitioners are in agreement**, resuscitation can be withheld or terminated, even in the absence of a DNR/POST form.

When the patient assessment reveals any of the above findings, it is acceptable to not initiate CPR.

Criteria for *termination of resuscitation (CPR):*
When a system credentialed practitioner has initiated CPR or continued CPR after bystander CPR, termination of resuscitation is at the discretion of the Lead Paramedic on scene. However, the following criteria should be met prior to termination of resuscitation. (See TOR checklist)

- High-quality CPR has been administered for at least 30 minutes
- Airway is appropriately secured via iGel, LMA, or endotracheal tube
- IV/IO access has been established
- Rhythm appropriate medications have been administered
- Identified reversible causes of death have been addressed
- No sustained ROSC has been achieved at any time during the resuscitation
- Failure to abolish recurrent or persistent ventricular fibrillation (VF)
- Arrest is not due to hypothermia
- All practitioners agree TOR is appropriate
- Blood glucose has been measured and if hypoglycemic supplemental dextrose has been given

OR

- High quality CPR has been ongoing for a minimum of 20 minutes
- The cardiac arrest was unwitnessed by EMS
- No defibrillation shocks have been indicated or administered
- No sustained ROSC has been achieved at any time during the resuscitation
- The patient has been in asystole, confirmed in 2 leads, for at least 20 minutes
- Airway is appropriately secured via iGel, LMA, or endotracheal tube
- Identified reversible causes of death have been addressed
- Arrest is not due to hypothermia
- All practitioners agree TOR is appropriate
- Blood glucose has been measured and if hypoglycemic supplemental dextrose has been given

Withholding Resuscitation, Termination of Resuscitation, and Field Death

If no paramedic is available, and only BLS-level practitioners are on scene, the following must be met prior to TOR.

- The cardiac arrest must not have been witnessed by EMS
- No defibrillation shocks have been administered
- High-quality CPR has been administered for at least 30 minutes
- No sustained ROSC has been achieved at any time during the resuscitation
- Airway is appropriately secured via iGel or LMA
- All practitioners agree TOR is appropriate

If all criteria above have been met, contact OMCP for TOR. Note, lead paramedics need not contact OMCP for TOR. However, BLS-level practitioners are *required* to contact OMCP for TOR. Additionally, the practitioner is permitted to contact OMCP at any time with questions, concerns, or to terminate resuscitation if the practitioner is uncomfortable doing so.

Currently, no literature exists definitively listing an appropriate length or resuscitation prior to the termination of the resuscitation. In general, if the patient is noted be in asystole through 20 minutes of CPR without a rhythm change, TOR can be considered. If the patient is in any other rhythm, it is recommended resuscitation be attempted for at least 30 minutes.

Despite the guidelines above, if it is felt CPR is futile and there is no hope for a successful resuscitation based on patient presentation or clinical circumstance, CPR may be terminated prior to 30 minutes with the permission of OMCP. This determination should be done on a case-by-case basis.

In all cases, if CPR has been initiated by a system credentialed practitioner and a signed, valid DNR is presented, CPR may be abandoned.

Prior to termination of resuscitation, family counseling must take place. Family counseling should include:

- A warning that termination of resuscitation is impending within the next few minutes.
- A description that high-quality CPR has been ongoing for over 30 minutes.
- The patient's condition has not changed or improved during the time of CPR.
- All indicated interventions have been performed and have been unsuccessful.
- If necessary, practitioners have discussed the patient's condition with OMCP, and the physician agrees termination of resuscitation is indicated and any additional resuscitative efforts would be futile. If there is concern about termination from the family, the case should be discussed with OMCP.
- Any additional questions should be answered.

Of note, if it is not safe to terminate resuscitation due to environmental or scene factors, the patient should be placed into the ambulance while resuscitative measures are ongoing. The practitioners should transport the patient to the hospital. Law enforcement escort should be requested. However, the patient should not be transported with lights and sirens. Additionally, if TOR had been agreed upon on scene and the reason resuscitation has continued, resuscitation can be abandoned while en route to the hospital. This should be noted in the ePCR. (See transport of the deceased patient).

When deciding to terminate resuscitation, several factors should be taken into consideration above and beyond those listed above. These include:

- Duration of resuscitation
- Circumstances surrounding the arrest.
- The prevailing rhythm, ie is the patient in persistent PEA or ventricular fibrillation/tachycardia.
- The ETCO2 reading.
- Whether ROSC was achieved at any time during the resuscitation.
- Is patient hypothermic?
- Patients who are pregnant at greater than 20 weeks gestation.

Withholding Resuscitation, Termination of Resuscitation, and Field Death

When termination of resuscitation has been decided:

- A final rhythm check and pulse check should be performed. The rhythm shall be checked in 2 or more leads.
- Pulse check and respiratory check should be performed for 30 seconds.
- The terminal rhythm should be noted and a copy of the rhythm strip placed in the chart.
- Time of death should be recorded and noted in the chart.
- Condolences should be offered to the family.
- The coroner or the patient's PCP should be called by either EMS or law enforcement.
- At no time should the body be left unattended – either EMS or law enforcement must stay with the body until the coroner has arrived.

For pediatric cases, where the practitioner is uncomfortable terminating resuscitation or it is felt the patient may benefit from the additional resources at the hospital, the patient can be transport, even if in arrest, after initial resuscitation attempts, including supplemental oxygen and assisted ventilations with BVM in conjunction with an iGel or LMA or endotracheal tube, if indicated.

General Patient Care

*****This guideline applies to all patient encounters*****

Scene Response:

- Respond to the scene in a safe manner.
- Review CAD information prior to arrival.
- Only use lights and sirens when concern for time-sensitive conditions.

Scene Size-Up:

- Utilize appropriate BSI and PPE for the conditions.
- Assess for scene safety – patients, responders, bystanders.
- Assess for weapons and/or active shooters, environmental hazards, and other hazards.
- Determine number of patients.
- Request additional resources, as necessary, including specialty resources.
- Activate an EMS plan and establish incident command, as necessary.
- Determine the nature of illness or mechanism of injury of the patient(s).

Patient Approach:

- Bring all necessary equipment to the patient's side in order for the team to function at the level of the highest level of credentialed practitioner.
- Activate air-medical transport, mutual aid, or higher level of care early, if applicable.
- Perform "doorway assessment" as approaching the patient. What is seen, smelled, or heard? Are they bleeding? Are they breathing? Are they altered?
- Begin assessment and care at the side of the patient; avoid delay.
- Determine if the patient has a valid POST or OHDNR.
- Form a general impression of patient acuity and determine patient priority (if multiple patients).
- A patient report must be completed on all patients who quality as a patient.

Assessment and Treatment:

- Determine responsiveness and level of consciousness.
- Determine if patient is breathing. If apneic, initiate BVM with supplemental oxygen.
- Determine if the patient has a pulse. If pulseless, initiate high quality CPR in the absence of a valid POST/OHDNR.
- Identify any life-threatening bleeds. Control any life-threatening bleeds.
- Conduct a primary assessment.
- If patient is breathing, has a pulse, and life-threatening bleeding is controlled, determine the patient's hemodynamic stability, chief complaint, signs and symptoms, obtain vital signs, and create a differential diagnosis.
- Apply cardiac monitor and obtain a 12-lead EKG, as indicated.
- Administer supplemental oxygen, as necessary.
- Obtain vascular access, if indicated and in scope of practice.
- If critical patient, ETCO2 and waveform is indicated.
- Conduct a secondary assessment.
- Obtain a complete medical history including a SAMPLE history.
- Assess present illness or injury using OPQRST.
- Obtain vital signs on stable patients every 15 minutes and critical patients every 5 minutes.
- A minimum of two complete sets of vital signs are required on every patient.
- Use the correct guideline for further description of interventions and required documentation.
- Administer medications using the medication administration cross-check.
- Intervene on life-threatening conditions, as indicated and per guidelines.
- Intervene on non-life-threatening conditions as indicated and per guidelines.

General Patient Care

Ambulance Operations:

- Patients with cardiac, respiratory, or neurological conditions, and patients with unstable vital signs, can be worsened by exertion, so patient effort in moving to the stretcher and ambulance should be minimized. Patients should be moved to the cot and ambulance using safe lifting and moving techniques.
- Lights and sirens transport should only be used for time critical conditions, such as trauma alerts, STEMI alerts, stroke alerts, critically ill patients, or peri-arrest/ROSC patients.
- Patients shall be appropriately restrained using straps and/or seat belt devices during transport to the ambulance and transport to the hospital.
- Pediatric patients should be transported in the child transportation device/restraint unless a cervical spine injury is suspected.

Patient Care Report and Data Collection:

- The state of Indiana requires a patient care report (ePCR) be completed on every patient within 24 hours of the completion of the call for service. Ideally, the patient care (ePCR) should be completed as soon as possible after the completion of the call but should absolutely be completed within 24-hours of completion of the call.
- Clinically relevant data must be conveyed to an appropriate clinical representative of the receiving institution before leaving the destination hospital.
- The ePCR must contain clinically relevant monitor tracings, 12-lead EKGs, and waveform capnography tracings when obtained.
- 12-lead EKGs and rhythm strips obtained should be left at the destination hospital to be included in the patient's medical record.

Medication Use and Storage:

- Pharmaceutical shortages and supply chain issues have become more frequent. Whenever a medication is temporarily not obtainable in typical dosage, substitute concentrations and substitute medications may be used. All such temporary substitutions must be approved by the Medical Directors with a date of expiration for the temporary substitution authorized.
- A Just-In-Time Standing Order (JITSO) training or memo should be published to notify practitioners of the temporary change.
- All practitioners must adhere to all advisories, memos, and administrative requirements issued by the SJCEMS committee and its Medical Directors.

Advanced Airway Confirmation:

- All airway devices must be secured, with depth noted as appropriate.
- The standard of care requires specific methods of verification to be used including capnography and at least two of the following: auscultation of lungs and epigastrium, visualization of the tube passing through the cords, or other clinical signs that the advanced airway is positioned correctly.
- Video laryngoscopy is the preferred method of intubation. A second paramedic can then visualize the tube passing through the cords as verification of placement. Ideally, the video laryngoscope would have recording capabilities. If the video laryngoscope has recording capabilities, *all intubation attempts shall be recorded.*
- All patients with an advanced airway in place, or assisted ventilations by bag-valve mask (BVM) with or without advanced airway device, must have recordable waveform capnography documented, if available.
- Documentation in the ePCR must include at least three evidence-based methods of verification of tube placement. One of them must include end-tidal CO_2 measurements and waveform capnography tracings and must include at least three separate times in which verification was completed, including verification of tube placement at the time of arrival at the receiving department and staff.

Transport Decision:

- Transportation to the nearest appropriate destination hospital is recommended.
- Follow alternative destination guidelines for specialty patients such as STEMIs, Strokes, and Traumas. See Destination Guidelines.
- Any patient who is critically ill or unstable, or has the potential to become critically ill or unstable, shall have a lead paramedic in the patient compartment, as per the Vehicle Staffing and Operations Guideline.
- When a transport decision is made, contact the Destination Hospital as soon as feasible on the recorded phone line, recorded IHERN or 800 MHz channel, or via a HIPAA compliant notification app.

Pediatric Patients

Pediatric patients are defined as those patients 13 years of age or younger.

Any patient 14 years of age or older should be considered an adult for the purposes of these guidelines.

However, there are always extenuating circumstances and each patient is different. If a patient is 16 but very small for his or her age, weight-based dosing may be appropriate. If a patient who is under 14 years of age is exceptionally large, weight-based dosing might not be appropriate. In general, if the weight-based dose of a particular medication exceeds the standard adult dose, the standard adult dose should be given unless otherwise noted in the guidelines.

SECTION 3
MEDICAL TREATMENT GUIDELINES

Cardiac – Adult Emergency Cardiac Care

Patient Assessment

Signs and Symptoms
- Cardiac arrest
- Agonal respirations
- Unresponsiveness
- Cyanosis
- Hypoglycemic
- Absent breath sounds
- Traumatic injuries

Differential Diagnosis
- Cardiac arrest
- Continue to attempt to identify reversible causes of cardiac arrest

Pediatric Considerations
- NA

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Assess for obvious death criteria
- Request ALS unit
- Pit Crew CPR, if pulseless and apneic.
  - Mechanical CPR is permitted after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Oxygen through BVM
- Basic Airway management, as indicated
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Blood Glucose Level (BGL) measurement
- If ROSC, place the patient in the recovery position, keep the patient warm, continue to monitor and support airway monitoring for loss of pulses until ALS arrives

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- ETCO2
- Supraglottic airway, as indicated

- IV/IO Access
- Epinephrine
- Isotonic Crystalloid, as needed

- Cardiac Monitoring
- Move to appropriate algorithm once underlying rhythm is identified
  - Ventricular Fibrillation/Ventricular Tachycardia
  - Asystole/PEA
- If ROSC, move to ROSC guideline

Clinical Pearls

- BLS agencies should start with this guideline for cardiopulmonary arrest. When ALS practitioners arrive, he or she should move to the appropriate algorithm for ongoing ACLS.
- Do not delay epinephrine administration as ROSC chance are decreased by about 4% with every minute that goes by without the administration of epinephrine.
- Adult BLS CPR Algorithm
- If the patient is pregnant – load and go, transport emergently to the closest, most appropriate hospital

Cardiac – Pediatric Emergency Cardiac Care

Patient Assessment

Signs and Symptoms

- Cardiac arrest
- Agonal respirations
- Unresponsiveness
- Cyanosis
- Hypoglycemic
- Absent breath sounds
- Traumatic injuries

Differential Diagnosis

- Cardiac arrest
- Continue to attempt to identify reversible causes of cardiac arrest

Pediatric Considerations

- Use the pedi-tape/Broselow or HandTevy for medication dosing
  Consider hypoxia and pulmonary disease as causal factor
- Consider abuse in pediatric cases

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Assess for obvious death criteria
- Request ALS unit
- Assess oxygenation and respiratory status
- Oxygen through BVM if inadequate breathing or via non-rebreather if breathing is adequate
- Pit Crew CPR if pulseless or heart rate less than 60 despite supplemental oxygen/respiratory support
- Apply AED, follow prompts for defibrillation
- Basic Airway management, as indicated
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM if CPR being performed
- Blood Glucose Level (BGL) measurement
- If ROSC, place the patient in the recovery position, keep the patient warm, continue to monitor and support airway monitoring for loss of pulses until ALS arrives

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- ETCO2
- Supraglottic airway, as indicated

- IV/IO Access
- Epinephrine
- Isotonic Crystalloid, as needed

- Cardiac Monitoring
- Move to appropriate algorithm once underlying rhythm is identified
  - Ventricular Fibrillation/Ventricular Tachycardia
  - Asystole/PEA
- If ROSC, move to ROSC guideline

Clinical Pearls

- BLS agencies should start with this guideline for cardiopulmonary arrest. When ALS practitioners arrive, he or she should move to the appropriate algorithm for ongoing ACLS.
- Pediatric BLS CPR Algorithm
- Neonatal Resuscitation Algorithm

Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)

Patient Assessment

Signs and Symptoms
- Unresponsive
- Pulseless
- Apneic or agonal respirations
- Obvious death

Differential Diagnosis
- Pulmonary embolism
- Acute myocardial infarction
- Respiratory failure
- Foreign body airway obstruction
- Hyperkalemia
- Hypothermia
- Infection (Croup, epiglottitis)
- Hypovolemia
- Trauma
- Tension pneumothorax
- Toxins or Overdose
- Hypoglycemia

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing
  Consider hypoxia and pulmonary disease as causal factor

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Assess for obvious death criteria
- Request ALS unit
- Pit Crew CPR, if pulseless and apneic.
  - Mechanical CPR is permitted, but not required, after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Oxygen through BVM
- Basic Airway management, as indicated
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Blood Glucose Level (BGL) measurement

- ETCO2
- Supraglottic airway

- IV/IO Access
- Isotonic Crystalloid, as indicated

- Epinephrine
- Cardiac Monitoring
- Manual defibrillation at maximum joules – Adult
- PEDIATRIC: Manual Defibrillation at 2 J/kg, repeat at 4 J/kg, then OMCP

- If a reversible cause is identified, immediately attempt to reverse that cause
- Lidocaine
- Amiodarone
- Magnesium Sulfate, if polymorphic ventricular tachycardia or Torsades de Pointes
- Dual Sequential Defibrillation, if refractory to standard manual defibrillation – ADULT ONLY
  - If refractory to 3 standard pad placement (Anterior/Anterolateral) attempts AND
  - If refractory to at least 1 anterior/posterior pad placement attempt
- Advanced airway management/endotracheal intubation is *not required* unless return of spontaneous circulation (ROSC) is achieved, the patient can't be ventilated adequately without an advanced airway, or if there is concern for airway compromise
  - If a supraglottic airway is placed during CPR and the patient is ventilating and oxygenating appropriately, the supraglottic airway should remain in place
- Needle decompression for asthmatic patients in arrest
- If ROSC is achieved, perform post-resuscitative checklist

- No required consults, Consult Online Medical Control OMCP, as necessary

Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)

Clinical Pearls

- Do not allow the patient to become hyperthermic. If the patient begins to shiver give the patient a benzodiazepine. OMCP
- These patients shall only be transported to a facility capable of managing post-arrest patients.
- Effective CPR includes: 1. Pushing hard and pushing fast, 2. Ensuring full chest recoil, 3. Minimize interruptions in CPR
- End-Tidal CO2 monitoring should be applied as soon as possible.
- If CPR has been started on scene but the patient is showing "obvious signs of death", a lead medic may make the determination to terminate resuscitation prior to the standard 30 minutes. This does not require OMCP with obvious signs of death, but the lead medic may consult OMCP if they wish.
- **Practitioners should not "load and go" immediately upon ROSC. Instead, focus should be on stabilization of the patient and ensuring the airway is secured. However, once the patient has been stabilized and the airway is secured, there should be some urgency in getting the patient loaded for transport to definitive care.**
    - **The exception to this rule is a female 20 weeks or more gestation. The patient should be loaded into the ambulance and taken directly to the ED while performing CPR. The possibility of a resuscitative hysterotomy outweighs the benefits of working the cardiac arrest on scene.**
- **Before transport, apply mechanical CPR device, if available, and not already in place.**

Cardiac – Pulseless Electrical Activity (PEA)/Asystole

Patient Assessment

Signs and Symptoms
- Unresponsive
- Pulseless
- Apneic or agonal respirations
- Obvious death

Differential Diagnosis
- Pulmonary embolism
- Acute myocardial infarction
- Respiratory failure
- Foreign body airway obstruction
- Hyperkalemia
- Hypothermia
- Infection (Croup, epiglottitis)
- Hypovolemia
- Trauma
- Tension pneumothorax
- Toxins or Overdose
- Hypoglycemia

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing
  Consider hypoxia as main causal factor for the cardiac arrest

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Assess for obvious death criteria
- Request ALS unit
- Pit Crew CPR, if pulseless and apneic.
  - Mechanical CPR is permitted, but not required, after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Oxygen through BVM
- Basic Airway management, as indicated
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Blood Glucose Level (BGL) measurement

- ETCO2
- Supraglottic airway

- IV/IO Access
- Isotonic Crystalloid, as needed

- Epinephrine
- Cardiac Monitoring

- If a reversible cause is identified, immediately attempt to reverse that cause
- Consider mechanical causes of cardiac arrest; QRS < 0.12 sec (Narrow complex)
  - Cardiac tamponade, Tension pneumothorax, Pulmonary embolism, Hypovolemia, Acute myocardial infarction
- Consider metabolic causes of cardiac arrest; QRS > 0.12 sec (Wide complex)
  - Tricyclic overdose, Calcium channel blocker overdose, Severe hyperkalemia, Acidosis
- Advanced airway management/endotracheal intubation is *not required* unless return of spontaneous circulation (ROSC) is achieved, the patient can't be ventilated adequately without an advanced airway, or if there is concern for airway compromise
  - If a supraglottic airway is placed during CPR and the patient is ventilating and oxygenating appropriately, the supraglottic airway should remain in place
- Needle decompression for asthmatic patients in arrest
- If ROSC is achieved, perform post-resuscitative checklist prior to transport

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- No required consults, Consult Online Medical Control OMCP, as necessary

Cardiac – Pulseless Electrical Activity (PEA)/Asystole

Clinical Pearls

- Identify underlying cause of cardiac arrest early in the case to give the patient the best chance of survival.
- Once ROSC is obtained, ensure airway is secured and ensure patient is appropriately stabilized prior to transport. Consider LMA, iGel, or endotracheal intubation.
- ETCO2 is *mandatory*, as soon as possible, in all cardiac arrest patients.
- Most pediatric airways can be managed with basic interventions.
- Effective CPR Pearls: Push hard and fast at a rate between 100-120, Ensure full chest recoil, Minimize interruptions in CPR – particularly those to place an advanced airway, the pause in CPR should be *less than* 10 seconds.
- If advanced airway or supraglottic or non-visualized airway is in place, reassess placement after moving the patient and/or transferring the patient.
- Calcium chloride and sodium bicarbonate should be given if concern for hyperkalemia, especially in patients with renal failure or on dialysis.
- If CPR has been started on scene but the patient is showing "obvious signs of death", a lead medic may make the determination to terminate resuscitation prior to the standard 30 minutes. This does not require OMCP with obvious signs of death, but the lead medic may consult OMCP if they wish.
- **Practitioners should not "load and go" immediately upon ROSC. Instead, focus should be on stabilization of the patient and ensuring the airway is secured. However, once the patient has been stabilized and the airway is secured, there should be some urgency in getting the patient loaded for transport to definitive care.**
    - **The exception to this rule is a female 20 weeks or more gestation. The patient should be loaded into the ambulance and taken directly to the ED while performing CPR. The possibility of a resuscitative hysterotomy outweighs the benefits of working the cardiac arrest on scene.**
- **Before transport, apply mechanical CPR device, if available, and not already in place.**

Cardiac – Return of Spontaneous Circulation (ROSC)

Patient Assessment

Signs and Symptoms
- Return of spontaneous circulation after non-traumatic cardiac arrest

Differential Diagnosis
- Continue with original differential that led to the cardiac arrest

Pediatric Considerations
- None, same as adults
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit, if not already done
- Continue oxygen, maintain SpO_2 greater than 94%
- Apply mechanical CPR device, if not already in place
- Immediately obtain a baseline set of vital signs
- Blood Glucose Level (BGL) measurement, if not already performed

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- 12-Lead EKG
- Cardiac monitoring, if not already in place
- Continuous pulse oximetry, if not already in place
- ETCO2, if not already in place
- Airway management, as indicated
- Complete ROSC Checklist prior to transport

- IV/IO Access, if not already performed
- Isotonic Crystalloid for hypotension

- Activate STEMI ALERT, as indicated
- Cardiac Monitoring

- Drug-Assisted Intubation, as indicated
- Midazolam or Ketamine for sedation, as needed
- Epinephrine, push-dose as indicated for MAP < 65 refractory to isotonic crystalloid
- Amiodarone OMCP for persistent, unstable wide complex tachycardia

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- Amiodarone requires OMCP

Clinical Pearls

- **Practitioners should not "load and go" immediately upon ROSC. Instead, focus should be on stabilization of the patient and ensuring the airway is secured. However, once the patient has been stabilized and the airway is secured, there should be some urgency in getting the patient loaded for transport to definitive care.**
- **A high-quality EKG should be obtained prior to transport of the patient.**
- **Practitioners should have push-dose pressors available to avoid hypotension in the patient. Do not let the patient become hypotensive after ROSC.**
- Before transport, apply mechanical CPR device if available and not already in place.
- Do not allow the patient to become hyperthermic. If the patient begins to shiver give the patient a benzodiazepine. OMCP
- These patients shall only be transported to a facility capable of managing post-arrest patients.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- The purpose of the ROSC checklist is to try to stabilize the patient as much as possible before transport. SJCEMS achieves ROSC on many patients. The goal is to improve the number of patients who are discharged neurologic intact.

Cardiac – Treatable Causes of Cardiac Arrest

Patient Assessment

Signs and Symptoms
- Cardiac arrest
- Agonal respirations
- Unresponsiveness
- Cyanosis
- Hypoglycemic
- Absent breath sounds
- Traumatic injuries

Differential Diagnosis
- Cardiac arrest
- Continue to attempt to identify reversible causes of cardiac arrest

Pediatric Considerations
- Consider abuse in pediatric cases
- Consider hypoxia as the source for cardiopulmonary arrest or severe/symptomatic bradycardia
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Hypoxia
  - Adult and Pediatric
    - Oxygen
    - Airway Management
- Hypothermia
  - Adult and Pediatric
    - Active warming procedures
    - See Toxicology/Environmental: Cold Related Injuries

EMT / AEMT / MEDIC / LEAD / OMCP

- Hypovolemia
  - Adult and Pediatric: Isotonic Crystalloid
- Hypoglycemia
  - Adult and Pediatric: D10

MEDIC / LEAD / OMCP

- Hypoxia
  - Adult and Pediatric: Consider endotracheal intubation/advanced airway
- Hypovolemia
  - Adult and Pediatric: Whole blood, if indicated, Isotonic crystalloid
- Calcium channel/Beta blocker overdose
  - Adult: Glucagon, Calcium Chloride
  - Pediatric: Epinephrine
- Hyperkalemia
  - Adult and Pediatric: Sodium bicarbonate, calcium chloride, albuterol
- Tension pneumothorax
  - Adult and pediatric: Needle Decompression
- Acidosis (suspected)
  - Adult and Pediatric: Sodium Bicarbonate

OMCP

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.

Cardiac – Bradycardia with a Pulse

Patient Assessment

Signs and Symptoms

- Bradycardia
- Agonal respirations
- Altered mental status
- Cyanosis
- Hypoglycemic
- Hypotension
- Prolonged capillary refill

Differential Diagnosis

- Respiratory distress
- Beta blocker, calcium channel, digoxin overdose
- Hypovolemia
- Hypothermia
- Infection
- Increased vagal tone
- Heart block
- Continue to attempt to identify reversible causes of bradycardia

Pediatric Considerations

- See Cardiac – Pediatric Bradycardia
- Hypotension
  - SBP < 70 + (2 x age (yrs))
- If heart rate is < 60 and signs of poor perfusion, CPR is indicated
  - Advanced airway may be the best option for these patients if respiratory causes are deemed to be the underlying cause
  - Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request ALS unit
- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Oxygen, maintain SpO_2 greater than 94%
- Apply AED pads
- BVM with supplemental oxygen, as necessary
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Blood Glucose Level (BGL) measurement
- In pediatric patient with heart rate less than 60 and signs of instability despite oxygen and ventilatory support, start CPR

- Basic airway management
- ETCO2
- 12-Lead EKG

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65; or SBP < 70 + (2 x age (yrs))

- Cardiac Monitoring

- Atropine
- Epinephrine, is **first line** in pediatric patients (PALS Bradycardia Algorithm)
- Transcutaneous cardiac pacing, if atropine isn't effective and patient shows signs of instability
- Sedation if transcutaneous pacing: Midazolam or Ketamine
- Glucagon, if calcium channel or beta blocker overdose
- Calcium chloride, if calcium channel blocker overdose
- Push-dose Epinephrine[OMCP], if atropine and transcutaneous cardiac pacing have failed to improve the patient's bradycardia with signs of instability
- Dopamine, if available, can be used in lieu of epinephrine for symptomatic bradycardia
- Advanced airway management, as necessary

- No required consults, Consult Online Medical Control [OMCP], as necessary

Cardiac – Bradycardia with a Pulse

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Treat bradycardia only if there are signs of instability. If stable and/or asymptomatic, monitor only.
  - Signs of instability: Chest pain, shortness of breath, altered mental status, signs of heart failure.
- The use of atropine in the presence of an acute myocardial infarction may worsen ischemia. Obtain a 12 lead EKG prior to administering atropine.
- Consider treatable causes of bradycardia (beta blocker overdose, calcium channel overdose, hyperkalemia).
- Assure adequate oxygenation as this can lead to bradycardia, especially in pediatric patients.
- Atropine is not effective against second-degree type II or third-degree heart blocks.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.
- ACLS Bradycardia Algorithm
- PALS Bradycardia Algorithm

Cardiac – Narrow Complex Tachycardia with a Pulse

Patient Assessment

Signs and Symptoms
- QRS < 0.12 sec
- Tachycardia
- Irregular heart rhythm
- Regular heart rhythm
- Diaphoresis
- Hypotension
- Anxiety
- Chest Pain
- Dyspnea
- Vomiting
- Altered Mental Status
- Syncope

Differential Diagnosis
- Sick Sinus Syndrome
- Tachy-Brady Syndrome
- Myocardial Infarction
- Fever
- Hypoxia
- Drug Effects
- Atrial Fibrillation/Atrial Flutter
- WPW
- Electrolyte Abnormality
- Stress/Emotional
- Hyperthyroid
- Pulmonary Embolism
- Alcohol Withdrawal

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing
  Consider hypoxia and pulmonary disease as causal factor

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request ALS unit
- Oxygen, if hypoxic, maintain SpO_2 greater than 94%
- Basic airway management
- Obtain temperature, if possible

- 12-Lead EKG
- Transport patients with EKG readout of STEMI or a cardiac arrest patient with ROSC to an interventional cardiology facility if ALS is not available
- ETCO2

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65 or concern for dehydration; as needed for SBP < 100 mmhg or MAP less than 65; or SBP < 70 + (2 x age (yrs))

- Cardiac Monitoring
- If sinus tachycardia, find the underlying source and treat accordingly, as necessary
- Modified Valsalva Maneuver if regular, narrow complex (ie SVT or atrial flutter) – Adults only

- Adenosine, as indicated
- Diltiazem, if rate control is needed, particularly in atrial fibrillation[OMCP], *not indicated* in WPW
- Synchronized Cardioversion starting at 200 joules, if patient is unstable
- PEDIATRIC: Synchronized cardioversion at 1 J/kg, repeat at 2 J/kg, then OMCP
- Midazolam if sedation is required for repeated synchronized cardioversion (stable patient only)
- Pain Management, as indicated – can be given as cardioversion is being prepared
- Lorazepam or Midazolam for patients with tachycardia secondary to alcohol withdrawal. Do not treat with diltiazem
- Repeat EKG after successful conversion of rhythm

- All EMTs and AEMTs shall consult medical control (OMCP) after transmitting EKG

Cardiac – Narrow Complex Tachycardia with a Pulse

Clinical Pearls

- Do not perform modified Valsalva, adenosine, diltiazem, or synchronized cardioversion on a patient in sinus tachycardia.
- All interventions and changes in rhythm should have a coinciding rhythm strip with appropriate documentation.
- Do not cardiovert or give diltiazem to a patient in atrial fibrillation who is not unstable.
- Adenosine may be ineffective in atrial flutter/fibrillation but is it not harmful.
- Treat sinus tachycardia secondary to alcohol withdrawal with midazolam or lorazepam, not diltiazem.
- Consider a vector change with synchronized cardioversion if the initial attempt is unsuccessful.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Cardiac – Wide Complex Tachycardia with a Pulse

Patient Assessment

Signs and Symptoms
- QRS > 0.12 sec
- Tachycardia
- Irregular heart rhythm
- Regular heart rhythm
- Diaphoresis
- Hypotension
- Anxiety
- Chest Pain
- Dyspnea
- Vomiting
- Altered Mental Status
- Syncope

Differential Diagnosis
- Artifact/Device Failure
- Electrolyte abnormality
- Endocrine
- Drugs/Toxins
- Tricyclic overdose
- Pulmonary disease
- Primary cardiac disease
- Myocardial Infarction

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing Consider hypoxia and pulmonary disease as causal factor
- Accidental overdose

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Oxygen, if hypoxic, maintain SpO_2 greater than 94%
- Basic airway management

- 12-Lead EKG
- ETCO2

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65 or concern for dehydration; as needed for SBP < 100 mmhg or MAP less than 65; or SBP < 70 + (2 x age (yrs))

- Cardiac Monitoring

- Magnesium Sulfate, if Torsades de Pointes/polymorphic ventricular tachycardia
- Synchronized Cardioversion starting at 200 joules, if Torsades de Pointes or unstable
- Midazolam or lorazepam if sedation is required for repeated synchronized cardioversion (stable patient only)
- Amiodarone, if monomorphic ventricular tachycardia
- Lidocaine, if ventricular tachycardia is refractory to amiodarone
- Calcium Chloride, if hyperkalemia or tricyclic overdose is suspected
- Sodium Bicarbonate, if hyperkalemia or tricyclic overdose is suspected
- PEDIATRIC: Synchronized cardioversion at 1 J/kg, repeat at 2 J/kg, then OMCP
- Pain Management, as indicated – can be given as cardioversion is being prepared
- Repeat EKG after successful conversion of rhythm

- All EMTs and AEMTs shall consult medical control (OMCP) after transmitting EKG

Clinical Pearls

- Max-out the dose of antiarrhythmic before moving to the next antiarrhythmic
- Allow a full 10 minutes after the first dose of amiodarone before administering the second dose
- Consider a vector change with synchronized cardioversion if the initial attempt is unsuccessful
- Three or more beats of a wide complex rhythm constitutes a non-sustained run of ventricular tachycardia
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Cardiac – Chest Pain/Acute Coronary Syndrome/STEMI

Patient Assessment

Signs and Symptoms
- Pain or pressure between naval and jaw
- CHF signs or symptoms
- Syncope
- Weakness
- Dyspnea

Differential Diagnosis
- Angina vs Myocardial infarction
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- Aortic dissection
- GI reflux / Hiatal hernia / PUD
- Esophageal spasm
- Chest wall injury or pain
- Pleuritic pain
- Overdose (sympathomimetic)

Pediatric Considerations
- None. Same as adult.
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Blood Glucose Level (BGL) measurement

- 12-Lead EKG
- Transport patients with EKG readout of STEMI or a cardiac arrest patient with ROSC to an interventional cardiology facility
- Obtain *bilateral* blood pressures. If difference in systolic blood pressure (SBP) is greater than 20 mmhg, consider aortic dissection and withhold nitroglycerin and aspirin
- Aspirin, if not contraindicated
- ETCO2

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65; or SBP < 70 + (2 x age (yrs))

- Cardiac Monitoring

- Activate a STEMI ALERT, if indicated
  - *Must* transmit the EKG
- IV/IO Access, second site for STEMI
- Isotonic crystalloids for *inferior* STEMI
- Nitroglycerin for active chest pain, if not contraindicated
- Fentanyl or morphine, as indicated for pain
- If the patient is in a hypersympathetic state from stimulant use (ie cocaine), consider midazolam or lorazepam

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- All EMTs and AEMTs shall consult OMCP after transmitting EKG
- Paramedics and Lead Paramedics shall contact OMCP after submission of STEMI EKG to activate a STEMI ALERT

Clinical Pearls

- Administer 324mg of Aspirin, if patient has not taken aspirin in the last 24 hours.
  - If the patient has already taken a "baby aspirin" (81mg) within the last 24 hours, administer 243mg of aspirin.
- Consider atypical presentation of acute coronary syndrome (ACS) in females, geriatrics, diabetics, and those with prior AMI.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.
- Definition of STEMI

Cardiac – Automatic Implantable Cardioverter Defibrillator (AICD)

Patient Assessment

Signs and Symptoms
- Repeated discharges from patient's AICD

Differential Diagnosis
- Ventricular fibrillation
- Ventricular tachycardia
- Supraventricular tachycardia
- Atrial fibrillation with rapid ventricular response

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Apply AED pads on patient but do not turn the AED on until the patient goes unresponsive
- Be prepared to initiate CPR if patient goes into cardiac arrest
- If patient goes into cardiac arrest, move to appropriate guideline
- Oxygen, maintain SpO_2 greater than 94%
- Blood Glucose Level (BGL) measurement

- 12-Lead EKG
- ETCO2

- IV/IO Access

- Cardiac Monitoring

- Prepare to manually defibrillate or cardiovert if the AICD fails
- Midazolam if sedation is required for repeated AICD discharges
- Pain Management, as indicated for repeated AICD discharges
- Consider electrolyte abnormalities as the cause of cardiac arrhythmia

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Cardiac – Left Ventricular Assist Device (LVAD)

Patient Assessment

Signs and Symptoms
- Angina
- Confusion
- Weakness
- Evidence of poor perfusion
- Low ETCO2 readings
- Hypotension
- LVAD Alarms present

Differential Diagnosis
- LVAD failure
- Infection
- Shock
- Hypovolemia
- Anaphylaxis

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Request ALS unit
- Oxygen, if hypoxic, maintain SpO_2 greater than 94%
- Basic airway management
- If possible, given the clinical situation, ask the patient for the name and phone number of their LVAD coordinator
- If unresponsiveness, inadequate breathing, and pulselessness, begin Pit Crew CPR, **mCPR is not permitted on this patients**. See algorithm on next page.
- Apply AED pads, follow prompts (AED can be used as normal, do not place pads over device)

- 12-Lead EKG
- ETCO2
- If a family member with knowledge of the LVAD device is available, use their knowledge and bring them with the patient when transporting
- Document the following values from the controller:
  - Flow
  - Power
  - Speed
  - Pulsatility Index

- IV/IO Access
- Isotonic Crystalloid 20 cc/kg, as needed for signs of poor perfusion or flow alarm is sounding

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- Place patient on telemetry monitoring
- Assess for non-LVAD related causes of illness
- Assess patient for LVAD function
  - **A** – **Auscultate** over the apex of the heart for a humming noise. If no humming noise, this indicates device failure.
  - **B** – Ensure the **batteries** are plugged in
  - **C** – Check the **controller** for alarms
  - **D** – Check the **driveline** for signs of infection, kinking, or damage

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- Push-dose epinephrine, if flow alarm is noted after 20 cc/kg isotonic fluid bolus

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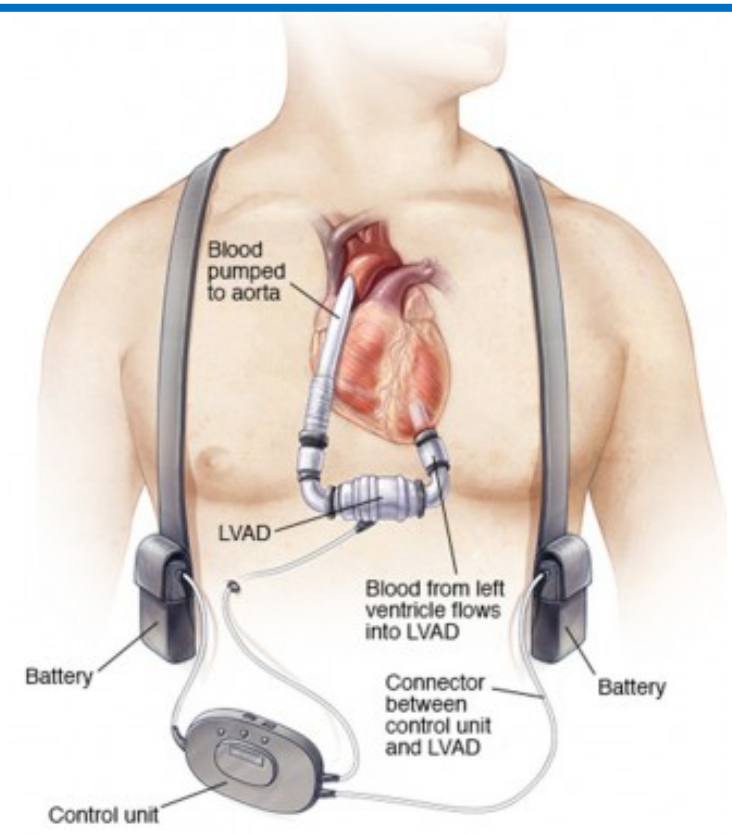
- Contact medical control (OMCP) with questions or problems

Cardiac – Left Ventricular Assist Device (LVAD)

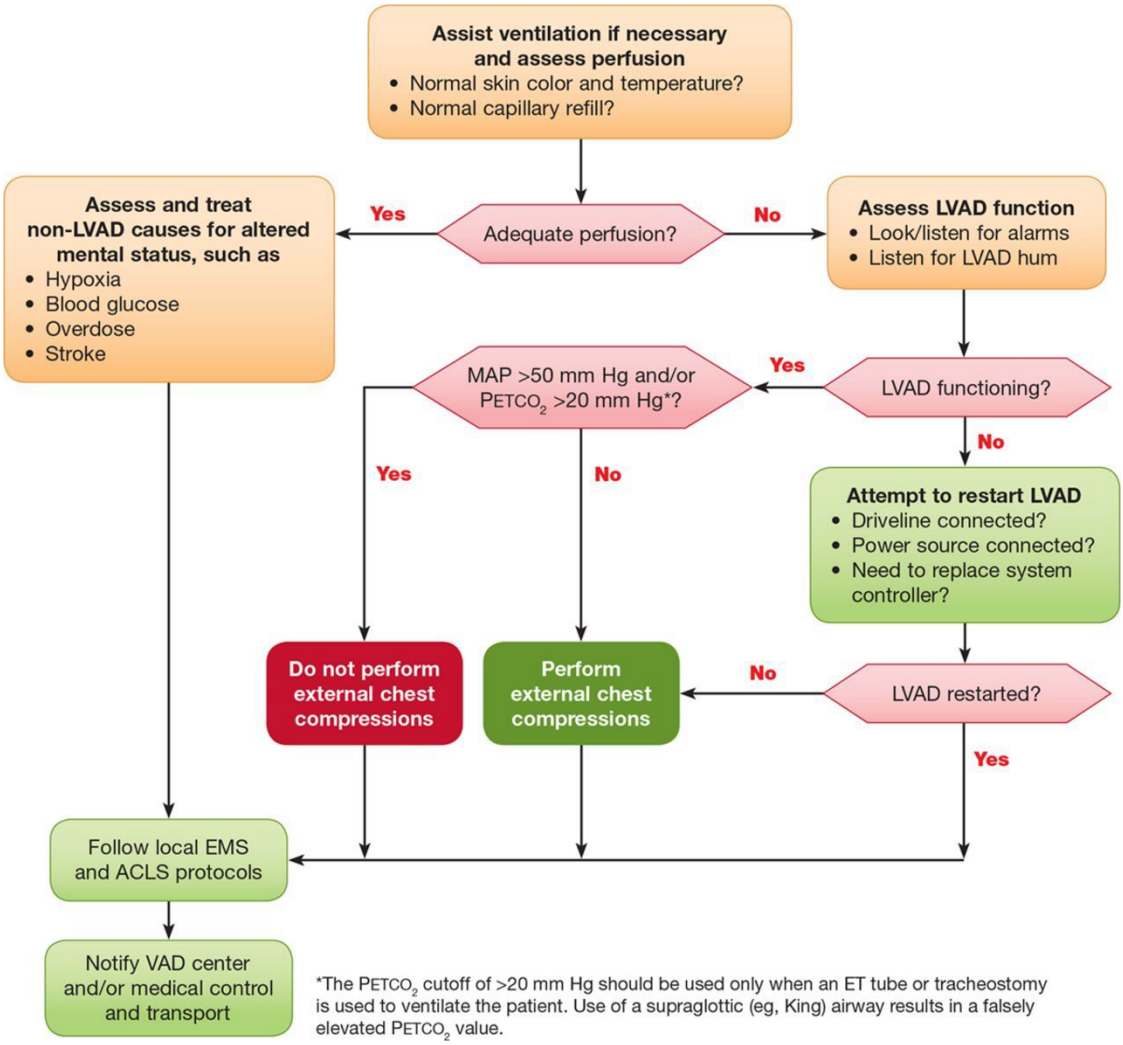
Clinical Pearls

- An LVAD typically consists externally of a battery pack, computer (controller), and driveline (partially visible). Internally, it includes an inflow canula, pump, and outflow graft (see diagram below).
- Normal methods of obtaining blood pressure will not work with LVAD patients. Unless the ambulance has a doppler device, blood pressures will not be obtainable. Look for signs of poor perfusion instead.
- Ensure to bring extra batteries and power module (if available) with the patient when transporting to the hospital.
- If changing batteries on the LVAD, change only one at a time
- There are no primary LVAD centers in St. Joseph County. These patients should be transported to Memorial Hospital, St. Joseph Regional Medical center, or Elkhart General Hospital. Do not transport these patients to a freestanding emergency department.
- LVAD Emergencies:
  - Unstable Arrhythmias – Symptomatic arrhythmias should be treated in standard fashion
  - Unexplained hypotension – Usually from decreased preload. Examples include sepsis, hemorrhage, hypovolemia. Typically, this will trigger a low-flow alarm.
  - Bleeding complications – All LVAD patients are on anticoagulants. All patients with evidence of bleeding should be treated with symptomatic control. Epistaxis is a common complaint.
  - Stroke – Because LVAD patients are on anticoagulation, these patients are at high risk for intracranial hemorrhage/stroke
  - Infection – Can be related to the LVAD but also unrelated to the LVAD.
  - Pump Thrombosis – Suspect this in patients who have an increasing pump power requirement and high flow estimates
  - Pump Failure or driveline damage – Complete loss of power to the unit. Consider dead batteries, disconnection of the power leads, or damage to the driveline. These patients will present in cardiogenic shock and will require normal heart failure support methods (ie vasopressors).
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Cardiac – Left Ventricular Assist Device (LVAD)



Cardiac – Left Ventricular Assist Device (LVAD)



General Medical

Patient Assessment

Signs and Symptoms	Differential Diagnosis	Pediatric Considerations
• Vary by complaint		• Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request BLS or ALS unit, as indicated
- Baseline vital signs, including, as indicated, heart rate, blood pressure, oxygen saturation, respiratory rate, Blood Glucose Level (BGL) measurement, temperature
- Oxygen, if hypoxic, maintain SpO_2 greater than 94%
- Basic airway management, as indicated

- History and focused physical exam
- If more specific chief complaint is identified, go to the appropriate guideline
- 12-Lead EKG
- ETCO2, as indicated
- Acetaminophen for fever
- Perform secondary, full physical exam if specific chief complaint is not identified

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- IV/IO Access, as indicated
- Isotonic Crystalloids, as indicated
- Nausea and vomiting, as indicated

- Cardiac monitoring, as indicated

- Pain Management, as indicated

- No required consults, Consult Online Medical Control OMCP, as necessary

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Clinical Pearls

- Use this guideline when a specific chief complaint is not apparent.
- Ideally, move to the appropriate guideline once a more definitive complaint is identified.
- All patient encounters require a *minimum* of two sets of vital signs.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Crashing Medical Patient - Adult

Patient Assessment

Signs and Symptoms
- Vary by complaint

Differential Diagnosis

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Request ALS intercept
- If known or identified underlying cause of instability, move to the appropriate guideline
- Baseline vital signs, including, as indicated, heart rate, blood pressure, oxygen saturation, respiratory rate, Blood Glucose Level (BGL) measurement
- Continuous pulse oximetry
- Place AED pads
- Oxygen, via non-rebreather or BVM for signs of respiratory failure[#]
- OPA or NPA, as tolerated
- Basic airway management, as indicated
- If no pulse, begin CPR

- 12-Lead EKG
- ETCO2
- If wheezing or concern for crashing asthmatic or COPD patient, refer to the acute bronchospasm guideline
- CPAP, if indicated

- IV/IO Access x2
- Isotonic Crystalloids, as indicated for hypotension

- Cardiac monitoring

- If patient is not improving with BVM or signs of airway failure continue to worsen despite prior interventions, patient should be intubated or have a supraglottic airway placed
- If hypotensive with bradycardia, refer to the bradycardia with a pulse guideline
- If hypotensive with tachycardic cardiac arrythmia, refer to the narrow complex tachycardia with a pulse guideline or the wide complex tachycardia with a pulse guideline
- If hypotensive without arrythmia, consider 500 cc bolus of isotonic crystalloid
  - If unresponsive to fluids, consider push-dose epinephrine
- Pain Management, as indicated – avoid morphine
- Whole blood, as indicated for hypotension secondary to hemorrhage

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- No required consults, Consult Online Medical Control [OMCP], as necessary

Clinical Pearls

- Criteria for inclusion:
  - Adult *medical* patient.
  - Adult patients whom cardiac or respiratory arrest appears imminent.
  - Adult patients in extremis, who develop new-onset altered mental status (GCS Motor < 6), severe respiratory distress, acute airway complications, or signs of shock.
- [#]Signs of respiratory failure
  - Poor respiratory effort
  - Unable to speak due to altered mental status or dyspnea
  - Unable to sit up on own
  - SpO_2 < 90% despite supplemental oxygen
  - Altered mental status
  - Increasing ETCO2
  - Hypoventilation capnograph pattern
- Ideally, move to the appropriate guideline once a more definitive complaint is identified.

Crashing Medical Patient - Adult

- The intent behind this guideline is to assess and intervene on airway, breathing, then circulation and intervene, as appropriate, for each of the areas of focus before moving to the next. However, interventions should be concurrently and not necessarily in a specific order.
- Vitals shall be repeated and documented *at least* every 5 minutes
- **Immediate Actions (within 5 minutes)**
  - Airway
    - NPA or OPA, as indicated
  - Breathing
    - Supplemental oxygen
    - Assist with respirations using BVM, as indicated
    - Breathing treatments, as indicated
  - Monitoring
    - Cardiac monitoring
    - Continuous pulse oximetry
    - ETCO2
- **Actions within 10 minutes**
  - Circulation
    - Electrical therapy (cardioversion or transcutaneous pacing), as indicated
    - IV/IO access
    - 500 cc isotonic crystalloid infusion, unless signs of pulmonary edema
- **Actions within 15 minutes**
  - Reassess response to all treatments
  - Repeat 500 cc isotonic crystalloid infusion, as indicated, unless signs of pulmonary edema
  - Consider push-dose epinephrine if no response to fluid infusion
- **Once critical actions are performed and the patient is stabilized, move patient to ambulance and transport**

Crashing Medical Patient - Pediatric

Patient Assessment

Signs and Symptoms
- Vary by complaint

Differential Diagnosis

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Request ALS intercept
- If known or identified underlying cause of instability, move to the appropriate guideline
- Baseline vital signs, including, as indicated, heart rate, blood pressure, oxygen saturation, respiratory rate, Blood Glucose Level (BGL) measurement
- Continuous pulse oximetry
- Place AED pads
- Oxygen, via non-rebreather or BVM for signs of respiratory failure#
- OPA or NPA, as tolerated
- Basic airway management, as indicated
- If no pulse, begin CPR

- 12-Lead EKG
- ETCO2
- If wheezing or concern for crashing asthmatic or COPD patient, refer to the acute bronchospasm guideline
- CPAP, if indicated and available

- IV/IO Access x2
- Isotonic Crystalloids, as indicated for hypotension

- Cardiac monitoring

- If patient is not improving with BVM or signs of airway failure continue to worsen despite prior interventions, patient should be intubated or have a supraglottic airway placed
- Hypotension is defined as a systolic blood pressure less than:
  - Ages 1-10: 70 + (age in years x 2) mmhg
  - > 10 years: < 90 mmhg
  - Signs of shock would also include delayed capillary refill (ie > 3 seconds)
- If hypotensive with bradycardia, refer to the bradycardia with a pulse guideline
- If hypotensive with cardiac arrythmia, refer to the narrow complex tachycardia with a pulse guideline or the wide complex tachycardia with a pulse guideline
- If hypotensive without arrythmia, consider 20 cc/kg bolus of isotonic crystalloid
  - If signs of cardiogenic shock, 10 cc/kg bolus of isotonic crystalloid
  - If unresponsive to fluids, consider push-dose epinephrine
- Pain Management, as indicated – avoid morphine

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Criteria for inclusion:
  - Pediatric *medical* patient.
  - Pediatric patients whom cardiac or respiratory arrest appears imminent.
  - Pediatric patients in extremis, who develop new-onset altered mental status (GCS Motor < 6), severe respiratory distress, acute airway complications, or signs of shock.

Crashing Medical Patient - Pediatric

- [#]Signs of respiratory failure
  - Poor respiratory effort
  - Unable to speak due to altered mental status or dyspnea
  - Unable to sit up on own
  - SpO_2 < 90% despite supplemental oxygen
  - Altered mental status
  - Increasing ETCO2
  - Hypoventilation capnograph pattern
  - Limp patient
  - Severe retractions
- Ideally, move to the appropriate guideline once a more definitive complaint is identified.
- The intent behind this guideline is to assess and intervene on airway, breathing, then circulation and intervene, as appropriate, for each of the areas of focus before moving to the next. However, interventions should be concurrently and not necessarily in a specific order.
- Vitals shall be repeated and documented *at least* every 5 minutes
- **Immediate Actions (within 5 minutes)**
  - Airway
    - NPA or OPA, as indicated
  - Breathing
    - Supplemental oxygen
    - Assist with respirations using BVM, as indicated
    - Breathing treatments, as indicated
  - Monitoring
    - Cardiac monitoring
    - Continuous pulse oximetry
    - ETCO2
- **Actions within 10 minutes**
  - Circulation
    - Electrical therapy (cardioversion or transcutaneous pacing), as indicated
    - IV/IO access
    - 20 cc/kg isotonic crystalloid infusion, unless signs of pulmonary edema
- **Actions within 15 minutes**
  - Reassess response to all treatments
  - Repeat 20 cc/kg isotonic crystalloid infusion, as indicated, unless signs of pulmonary edema
  - Consider push-dose epinephrine if no response to fluid infusion
- **Once critical actions are performed and the patient is stabilized, move patient to ambulance and transport**

Abdominal Pain/GI Bleeding

Patient Assessment

Signs and Symptoms

- Abdominal Pain
- Pain
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding / discharge
- Pregnancy
- Fever
- Distention

Differential Diagnosis

- Pneumonia or P.E.
- Hepatitis or Pancreatitis
- Gastroenteritis/Colitis
- Peptic Ulcer Disease
- Myocardial Infarction or CHF
- Kidney Stone
- Aortic Aneurysms
- Appendicitis
- Bladder/Prostate Disorder
- Pelvic – (Ectopic) Pregnancy
- STI, PID, Ovarian Cyst
- Diverticulitis
- Bowel Obstruction
- Mesenteric Ischemia

Pediatric Considerations

- Consider DKA in a pediatric patient with abdominal pain
- Hypotension
  - SBP < 70 + (2 x age (yrs))
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request BLS or ALS unit, as indicated
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Do not allow the patient to eat or drink anything (NPO)
- Blood Glucose Level (BGL) measurement

- Immediately request ALS intercept with any indication of instability in the patient
- Refer to shock guideline, as necessary

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65; as needed for SBP < 100 mmhg or MAP less than 65; or SBP < 70 + (2 x age (yrs))
- Nausea and Vomiting, per guideline

- Cardiac monitor
- 12-Lead EKG

- Pain management, as indicated
- If available and indicated, Whole Blood[OMCP]

- Whole blood requires Online Medical Control (OMCP) for this indication

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Ask about last menstrual period for all females.
- Abdominal pain in a female of childbearing age is an ectopic pregnancy until proven otherwise.
- Mesenteric ischemia presents with severe pain and limited exam findings. Risk factors include age > 60, atrial fibrillation, CHF and atherosclerosis.
- Newer literature does not support the use of TXA in the use of upper or lower GI Bleeds (HALT-IT Trial).

Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies

Patient Assessment

Signs and Symptoms

- Anxiety, agitation, confusion
- Hallucinations, delusional thoughts, or bizarre behavior
- Violent or combative behavior toward first responders
- Expression of suicidal or homicidal thoughts
- Warm/hot to the touch
- Tachycardia, diaphoresis, tachypnea

Differential Diagnosis

- Hypoxia
- Alcohol intoxication
- Medication effect
- Drug use/abuse
- Acute psychosis
- Withdrawal syndromes
- Bipolar
- Schizophrenia, anxiety disorders
- Hypertensive emergency
- Postictal
- Domestic Violence or Abuse

Pediatric Considerations

- Consider abuse in pediatric cases
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Pulse oximetry
- Blood Glucose Level (BGL) measurement
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Obtain an oral, tympanic, or forehead temperature
- Verbal de-escalation

- Cooling measures, if patient is hyperthermic
- Physical restraints, as indicated
- 12-Lead EKG

- IV/IO Access, if safe to obtain
- Isotonic Crystalloid, as needed, preferably cold if the patient is hyperthermic

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- Cardiac monitoring

- Chemical Restraint [OMCP], as indicated
  - Ketamine, if patient is combative, severely hyperactive, and/or violent and an immediate danger to clinicians or self (RASS +4)
  - Midazolam or lorazepam and/or haloperidol and diphenhydramine, if aggressive but non-threatening behavior, pulling out/off medical devices, danger to self (RASS +2 or +3)
  - Midazolam or lorazepam if uncontrolled anxiety (RASS +1 or +2)
- Cardiac, ETCO2, and SpO_2 monitoring *is required* if the patient has received chemical sedation
- Advanced airway management, as indicated
- If the patient is suspected of *hyperactive delirium with severe agitation and suffers cardiac arrest*, then consider a fluid bolus and Sodium Bicarbonate **early**

- It is *recommended* that you contact medical control (OMCP) prior to administering sedating medications for agitated or violent patients. However, it is *not required* if it would put the patient or the practitioner in danger.

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- The performance of an attempt at verbal de-escalation must be performed prior to chemical sedation or physical restraints being applied. This *must* be documented in the patient chart.

Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies

- Verbal de-escalation technique: SAVE
  - **S**upport the patient and offer to work with him or her in their current emotional state.
  - **A**cknowledge the situation the patient is in and their emotional struggle.
  - **V**alidate the feelings of the patient.
  - **E**motion naming. Name the emotion you believe the patient to be feeling and try to empathize with him or her.

- Ideally, OMCP will be contacted prior to chemical sedation administration. However, if the patient requires immediate sedation due to safety concerns for the patient, crew, or bystanders, chemical sedation may be administered without OMCP consultation.
- If OMCP is consulted and chemical sedation is declined, yet the patient continues to be a danger to himself or herself, OMCP can be re-consulted, or request dispatch to contact the Medical Director.
- If the patient is thought to be in hyperactive delirium with severe agitation, consider administration of *cold* isotonic crystalloids, particularly if the patient is, or thought to be, hyperthermic.
- If the patient is thought to be in hyperactive delirium with severe agitation, consider *early* administration of chemical sedation to prevent rhabdomyolysis and severe acidemia.
- Consider the etiology of the patient's behavior:
  - Metabolic/Endocrine
  - Psychiatric
  - Toxicologic
  - Infectious/Inflammatory
  - Neurologic
- Ensure there are no underlying *acute medical* causes for the patient's anxiety.
- See restraint guidelines for specific monitoring requirements after the patient is physically or chemically restrained.
- Do not transport the patient in the prone position, unless medically indicated as in the physical or chemical restraint policy.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Allergic Reaction/Anaphylaxis

Patient Assessment

Signs and Symptoms

- Rash
- Bronchospasm, cough
- Stridor
- Nausea/Vomiting/Diarrhea
- Throat or Chest tightness
- Hypotension
- Abdominal pain

Differential Diagnosis

- Angioedema
- Urticaria
- Anaphylaxis
- Anxiety
- Shock
- Asthma/COPD Exacerbation
- CHF
- Aspiration/Airway obstruction

Pediatric Considerations

- Pediatric dosing for patients < 37 kg
- Hypotension
  - SBP < 70 + (2 x age (yrs))
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit, if concern for anaphylaxis or respiratory symptoms
- Epinephrine Auto-Injector, if severe respiratory distress or evidence of anaphylaxis
- Oxygen, maintain SpO_2 greater than 94%
- Cold pack to area of insect sting or bite
- Remove stinger from insect sting if it is still present
- Scrape area with flat object, do not squeeze area
- Basic airway management, as indicated

- Epinephrine, up to three doses
- Diphenhydramine, if no contraindication for PO medication, adult only or obtain OMCP authorization for pediatric patient
- Albuterol or albuterol/ipratropium with 6-10 lpm oxygen, if wheezing
- ETCO2
- CPAP, if severe respiratory distress
- 12-Lead EKG

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65; SBP > 70 + (2 x age (yrs)) (Peds)
- Ondansetron for nausea and vomiting

- Cardiac monitoring
- Diphenhydramine, if patient hasn't taken or received diphenhydramine from another source

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- Push-dose epinephrine for persistent hypotension/anaphylactic shock
- Advanced airway management
  - Consider Drug-Assisted Intubation (DAI)

- No required consults, Consult Online Medical Control [OMCP], as necessary

Allergic Reaction/Anaphylaxis

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Continually reassess for the need for more epinephrine. When in doubt, give more epinephrine.
- Continually reassess lung sounds for ongoing wheezing, bronchospasm.
- Any patient with respiratory symptoms or extensive systemic symptoms should receive IV/IO/IM diphenhydramine, regardless of if PO dose was given.
- **If in doubt, give the epinephrine – minimal risk with significant benefit.**
- Anaphylaxis is defined as an acute multisystem (≥2) reaction which can include cutaneous, respiratory, gastrointestinal, or cardiovascular systems.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Altered Mental Status (AMS)

Patient Assessment

Signs and Symptoms

- Decrease mental status
- Change in baseline mental status.
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm & dry skin, fruity breath, Kussmaul respirations, signs of dehydration)

Differential Diagnosis

- Hypoxia
- Trauma
- CNS (Stroke, Tumor, Seizure, Infection)
- Cardiac (MI, CHF)
- Infection
- Hyperthyroid, Hypothyroid
- Shock
- Electrolyte abnormality Toxicological / Carbon Monoxide / Cyanide
- Acidosis / Alkalosis
- Hyper/Hypoglycemia
- Heat Stroke or Hypothermia

Pediatric Considerations

- DKA
- Abuse
- Same as Adult
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Oxygen, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement, if < 60 mg/dL, with intact gag reflex, administer oral glucose
- NPO, unless giving oral glucose
- Evaluate for signs of trauma
- Naloxone, if indicated
- Airway management

- Cincinnati Stoke Scale (CSS), if positive, manage per stroke guideline
- If other definitive cause of AMS is identified, manage according to appropriate guideline
- 12-Lead EKG

- IV/IO Access

- Physical or chemical restraint, as necessary, to safely transport the patient to definitive care
- Cardiac monitor
- D10 infusion titrated to patient condition and response, if BGL <60 with IV/IO access
- Glucagon, if BGL < 60 without IV/IO access
- Isotonic crystalloid infusion, if BGL >300 in adults or > 200 in children or signs of dehydration

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- Advanced airway management, as indicated

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Don't forget to look for signs of trauma, particularly in chronic alcoholics.
- Alcoholics can quickly develop hypoglycemia.
- Mnemonic for altered mental status: AEIOU-TIPS - **A**lcohol, **E**pilepsy/**E**lectrolytes, **I**nsulin/**I**nborn Errors of Metabolism, **O**verdose/**O**xygen, **U**remia, **T**rauma, **I**nfection, **P**sychiatric/**P**oisoning, **S**troke/**S**ubarachnoid Hemorrhage (SAH)/Shock.
- If a definitive source of the altered mental status is found, manage the patient with the most appropriate guideline.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Acute Bronchospasm/Asthma/COPD Exacerbation/Shortness of Breath

Patient Assessment

Signs and Symptoms

- Shortness of breath
- Wheezing, rhonchi, rales
- Pursed lip breathing
- Decreased ability to speak
- Anxious affect
- Use of accessory muscles, retractions
- Fever, cough

Differential Diagnosis

- Anaphylaxis
- Aspiration
- Pneumothorax
- Cardiac event (MI, CHF)
- Croup, epiglottitis
- Inhaled toxins
- Pneumonia

Pediatric Considerations

- Foreign body ingestion
- Croup/Epiglottitis
- Evaluate for fever
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request BLS or ALS intercept
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Place patient in position of comfort

- Albuterol or albuterol/ipratropium with 6-10 lpm oxygen, if wheezing
- Repeat albuterol or albuterol/ipratropium, if wheezing continues
  - Repeat doses of albuterol or albuterol/ipratropium *require* ALS intercept
- ETCO2
- 12-Lead EKG
- CPAP, for patients who remain in respiratory distress despite bronchodilator administration or a poor BVM seal can't be established, or who are felt to need the level of respiratory distress requiring CPAP prior to breathing treatments
  - CPAP requires ALS intercept
- Begin transport if ALS intercept is greater than 5 minutes away and arrange for intercept

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- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65

- Cardiac monitoring

- Epinephrine, if source of wheezing is asthma related, not indicated for COPD
- Magnesium Sulfate, if wheezing continues despite other appropriate interventions
- Advanced airway management, as necessary
- Ketamine for anxiety secondary to CPAP administration and ongoing severe respiratory distress refractory to other treatments
- Consider needle decompression if patient arrests and breath sounds aren't audible with BVM

- All EMTs and AEMTs shall consult medical control (OMCP) after transmitting EKG

Acute Bronchospasm/Asthma/COPD Exacerbation/Shortness of Breath

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients
- ETCO2 and SpO_2 must be monitored continuously if either are abnormal or decline in patient's mental status/condition
- A silent chest in respiratory distress is a sign for pre-respiratory arrest
- Chronic COPD may have elevated CO2 at baseline. Patient respiratory status must be reassessed after each nebulizer or medication administration to determine need for additional dosing
- Immediately assess for pneumothorax in asthmatics who develop a sudden decrease in blood pressure, increase in heart rate, or other signs of pneumothorax during an exacerbation
- Development of bradycardia in respiratory distress in an ominous sign
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.
- Allow additional expiratory time if using a BVM in COPD/asthmatic patients to avoid auto-peeping and lung damage.

Congestive Heart Failure (CHF) Exacerbation/Pulmonary Edema

Patient Assessment

Signs and Symptoms

- Bilateral rales/crackles
- Peripheral edema
- Chest pain
- Diaphoresis
- Hypoxia
- Tachypnea
- Pink, frothy sputum
- Hypoperfusion
- Hypertension

Differential Diagnosis

- Myocardial infarction
- Congestive heart failure
- Pulmonary embolism
- Pneumonia
- Asthma
- Aspiration
- Toxin Exposure

Pediatric Considerations

- Pediatric dosing for patients < 37 kg
- Hypotension
  - SBP < 70 + (2 x age (yrs))
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request ALS unit
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Place in position of comfort

- Aspirin, if concern for ACS chest pain
- ETCO2
- CPAP
  - CPAP requires ALS intercept
  - Begin transport if ALS intercept is greater than 5 minutes away
  - Requires blood pressure monitoring every 3-5 minutes
  - Decrease pressure to 5 cm H_2O if SBP < 100 mmhg
- 12-Lead EKG

- IV/IO Access

- Cardiac monitoring
- Nitroglycerin q5min if SBP > 100 mmhg and not otherwise contraindicated
  - Patient **must** have an IV or IO prior to nitroglycerin administration
  - If more than 3 doses are required, contact OMCP

- Push-dose Epinephrine, if symptomatic and MAP < 65, particularly if the patient needs CPAP
- Advanced airway management, as necessary

- All EMTs and AEMTs shall consult medical control (OMCP) after transmitting EKG

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients
- Nitroglycerin is contraindicated in a patient who has taken Viagra (sildenafil) or Levitra (*) within the last 24 hours. It is also contraindicated if the patient has taken Cialis (tadalafil) in the last 48 hours.
- If SBP drops due to CPAP, consider Epinephrine for BP support to allow for ongoing use of CPAP.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Diabetic Emergencies/Hypoglycemia/Hyperglycemia

Patient Assessment

Signs and Symptoms

- Decrease mental status
- Change in baseline mental status.
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm & dry skin, fruity breath, Kussmaul respirations, signs of dehydration)

Differential Diagnosis

- Trauma
- CNS (Stroke, Tumor, Seizure, Infection)
- Cardiac (MI, CHF)
- Infection
- Hyperthyroid, Hypothyroid
- Shock
- Electrolyte abnormality Toxicological / Carbon Monoxide / Cyanide
- Acidosis / Alkalosis
- Heat Stroke or Hypothermia

Pediatric Considerations

- Consider new onset diabetes/DKA
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEDA / OMCP

- Request ALS unit
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Blood glucose level (BGL) measurement, if < 60 mg/dL, with intact gag reflex, administer oral glucose

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- If patient is altered and it does not appear to be from hypoglycemia or hyperglycemia, go to Altered Mental Status guideline
- ETCO2
- 12-Lead EKG
- Calculate GCS

- IV/IO Access
- For hyperglycemia: Isotonic Crystalloid, if glucose level > 250 mg/dL or SBP < 100 mmhg or MAP less than 65
- For hypoglycemia: consider D10 infusion or glucagon

- Cardiac monitoring
- If concern for DKA, isotonic crystalloid
- Remove or disable insulin pump, if possible

- Airway management, as necessary

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients
- Patients in DKA or HHS are severely dehydrated
- It is important to obtain a *medication* history on diabetic patients, particularly their insulin type and doses and if they are on any type of sulfonylurea
- Immediately discontinue fluid administration if signs of cerebral edema, particularly in the pediatric patient
- Consider the 3 I's for causes of hyperglycemia:
  - Insulin – Patient didn't take enough insulin or forgot to take insulin
  - Infection – Underlying infection can cause glucose derangement. A detailed history and physical is important.
  - Ischemia – Can be caused by physiologic stress, such as an AMI or other forms of shock (ie septic shock)
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- IM glucagon takes 8-20 min to work and will raise blood sugar approximately 100 mg/dL.

Epistaxis

Patient Assessment

Signs and Symptoms
- Bleeding from nasal package
- Nasal pain
- Nausea and/or vomiting

Differential Diagnosis
- Trauma
- Nasal or sinus infection
- Allergic rhinitis
- Hypertension

Pediatric Considerations
- Hypotension:
  - SBP < 70 + (2 x age (yrs))
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request BLS/ALS, as indicated
- Ice pack to bridge of nose
- Compress bridge of nose
- Tilt head forward
- Oxygen, maintain SpO_2 greater than 94%, consider nasal cannula in the mouth
- Basic airway management

- IV/IO Access, as indicated
- Isotonic Crystalloid, small boluses of 500 cc or 20 cc/kg for pediatrics for hypotension
- Nausea and vomiting, per guideline

- Cardiac monitor, if any signs of instability
- TXA, if uncontrolled bleeding
- Epinephrine, if bleeding refractory to conservative management and TXA

- Advanced airway management, as necessary
- Whole Blood, if severe bleeding and signs of shock

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Bleeding can be anteriorly or posteriorly. Make sure to evaluate the patient's posterior pharynx for ongoing bleeding.
- Manage the airway, as necessary.
- Any blood thinner or antiplatelet can precipitate bleeding. These include: heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), warfarin (Coumadin), rivaroxaban (Xarelto), apixaban (Eliquis), clopidogrel (Plavix), aspirin, etc.

Headache

Patient Assessment

Signs and Symptoms

- Headache
- Visual changes
- Aura prior to headache
- Nausea and vomiting
- Ataxia
- Photophobia
- Phonophobia
- "Thunderclap headache"
- "Worse headache of life"
- Nuchal rigidity

Differential Diagnosis

- Migraine
- Tension headache
- Cluster headache
- Meningitis
- Stroke
- Trauma
- Hypoxia
- Drug effects
- Aneurysm
- Dehydration
- Pregnancy/Eclampsia

Pediatric Considerations

- Consider infection or hydrocephalus
- Shunt malfunction
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request BLS/ALS, as indicated
- Obtain full set of vital signs, including blood glucose and temperature
- Oxygen, maintain SpO_2 between 92%-96%, or administer for cluster headache
- Basic airway management
- Position patient with head elevated to greater than 30°

- GCS
- Neurologic exam, including pupillary exam (are they reactive and same size?)
- Cincinnati Stoke Scale (CSS), if positive move to stroke guideline
- Acetaminophen

- IV/IO Access
- Isotonic Crystalloid, if concern for dehydration or "migraine"
- Nausea and vomiting, per guideline

- If SBP ≥ 180 or DBP ≥ 120, consider hypertension urgency/emergency
  - Contact OMCP

- Pain management

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Be alert for signs of meningitis and signs of trauma
- Ask when the last time the patient has had a headache similar to this. Ask in regard to both duration and intensity.
- Ask what medications the patient has taken to try and abort the headache prior to calling EMS.
- Many times, a headache will resolve with treatment of the underlying cause.
- Ask patients if they have a VP shunt. Most will tell you if they have one and have a headache.
- Cluster headaches respond to high flow oxygen. Many patients will describe these headaches as recurrent (daily), unilateral, and behind the eye with or without tearing and ptosis.
- Patients with fever, headache, and neck pain or nuchal rigidity require at least a surgical mask on the patient. If there is concern for meningitis, tell the Destination Hospital in the prehospital report.

Hyperkalemia

Patient Assessment

Signs and Symptoms

- Weakness
- Nausea and vomiting
- Fatigue
- Paresthesias
- Peaked T-waves on EKG
- Wide-complexes on EKG
- Sine wave on EKG

Differential Diagnosis

- Medical non-compliance
- Sepsis
- Acute renal failure
- Cardiorenal syndrome
- Hepatorenal syndrome

Pediatric Considerations

- Pediatric dosing for patients < 37 kg
- Hypotension
  - SBP < 70 + (2 x age (yrs))
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request ALS unit
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management

- 12-Lead EKG
- Blood glucose level (BGL) measurement
- ETCO2

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65, however, fluids should be used judiciously in patients with renal failure
  - Monitor for fluid overload, rales/crackles on lung exam

- Cardiac monitoring

- With EKG changes suggestive of hyperkalemia:
  - Calcium chloride, shall be administered first
  - Sodium Bicarbonate
  - Albuterol
  - Small volume isotonic crystalloids

- All EMTs and AEMTs shall consult medical control (OMCP) after transmitting EKG

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Strongly consider this in renal dialysis patients, particularly those who have missed their appointments or are otherwise non-compliant.
- Calcium chloride should be administered first to help stabilize the cardiac membrane.
- EKG changes consistent with progressive hyperkalemia include:
  - Peaked T-Waves
  - P waves flatten and then disappear
  - Bradyarrhythmias and prolonged QRS
  - Sine wave, VF, or asystole
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Lift Assist/Ground Level Falls

Patient Assessment

Signs and Symptoms

- Weakness
- Fatigue
- Lightheaded
- Cardiac arrhythmia
- Chronic immobility

Differential Diagnosis

- Syncope
- Sepsis
- Stroke
- Arrhythmia
- ACS
- Pulmonary Embolism
- Elder abuse/neglect
- Failure to thrive
- Chronic disability

Pediatric Considerations

Treatment Guidelines

EMR EMT AEMT MEDIC LEAD OMCP

- Obtain vital signs including heart rate, blood pressure, respiratory rate, and SpO_2
- Obtain mental status (AVPU)
- Confirm circumstances surrounding the fall or reason for the lift assist
- Confirm no medical complaints
  - If this is a new onset weakness or disability the patient should be evaluated medically
- Confirm no loss of consciousness and not on blood thinners

- 12-Lead EKG, if abnormality noted on any vital sign
- Blood glucose level (BGL) measurement, if abnormality on vital signs, or clinical concern for hyperglycemia or hypoglycemia
- Cincinnati Stroke Assessment should be performed on all lift assist patients
- If abnormalities found or patient has any medical complaint move to the correct guideline
- Refusal of transport should be signed for these patients if no medical complaints are found, and the patient does not wish to be transported to the hospital

Clinical Pearls

- Always ensure the patient had a mechanical fall and there were no prodromal symptoms, such as chest pain, shortness of breath, palpitations, lightheadedness, severe headache, or other concerns/complaints for these patients.
- A set of vital signs is mandatory for all these patients. A second set of vital signs should be obtained 5 minutes from the original set of vitals. The second set need only contain the HR, BP, and SpO_2 if a full set of vitals was obtained the first time.
- BLS/ALS intercept shall be called for any vital sign abnormality, altered mental status, or concern for acute abnormality outside of a mechanical fall.
- This guideline also includes patients who have fallen and don't meet "trauma" criteria. For example, the elderly male who falls while walking to the bathroom at night, can't get up on his own, but has no acute complaints.

Nausea and Vomiting

Patient Assessment

Signs and Symptoms

- Nausea
- Vomiting
- Constipation
- Abdominal Pain

Differential Diagnosis

- Acute myocardial infarction
- Cannabinoid hyperemesis
- Gastritis
- Gastroenteritis
- Constipation
- Bowel obstruction
- DKA
- GI Bleed
- Sepsis
- Food toxin
- Stroke/CNS Abnormality

Pediatric Considerations

- Diabetic ketoacidosis
- VP Shunt malfunction
- Same as adults
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request BLS or ALS unit, as indicated
- Oxygen, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement

- Isopropyl alcohol wipe inhalation
- 12-Lead EKG, if persistent nausea and vomiting, chest pain, any cardiac risk factors, or age ≥ 45

- IV/IO Access
- Isotonic crystalloid
- Ondansetron

- Diphenhydramine, if allergic to ondansetron or vomiting is refractory to ondansetron
- If hypotensive or tachycardic, consider the shock guideline

- Haloperidol, if refractory to multiple doses of ondansetron or cannabinoid hyperemesis
  - Haloperidol *shall* be given IM, even if there is an IV/IO in place
  - If there is concern for cannabinoid hyperemesis, haloperidol is an excellent option to help with the nausea and vomiting
  - Monitor for extrapyramidal symptoms, treat with diphenhydramine, as indicated

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.
- Ask the patient the following descriptors:
  - How many episodes of emesis?
  - Was there blood in the emesis? Was it bright red or coffee ground?
  - Have you had diarrhea?
  - How many times have you urinated in the last day?

Pediatric: Brief Resolved Unexplained Event (BRUE)

Patient Assessment

Signs and Symptoms
- Unresponsive
- Apnea
- Cyanosis

Differential Diagnosis
- Seizure
- Choking
- Cardiac arrest
- Periodic apnea
- Reflux
- Dreaming

Pediatric Considerations
- This is specific to pediatrics
- Applicable to pediatric patients 1 year and *younger*
- Does not apply for chronically ill children, such as congenital heart conditions, epilepsy, metabolic disorder, other neurologic abnormality

Treatment Guidelines

EMR | EMT | AEMT | MEDIC | LEAD | OMCP

- Request ALS or BLS unit
  - BLS is appropriate for patient's considered "low risk" (see below) and who have returned to baseline. Otherwise, ALS is required
- Oxygen, if hypoxic, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement
- Nasal suctioning, as indicated

- Past medical history is imperative
  - Current age
  - Recent/preceding illness
  - Full-term vs premature
  - NICU stay required
  - Medications
- Physical Exam
  - Temperature, SpO_2, heart rate, respiratory rate, blood pressure
  - Fontanelles
  - Pupillary response
  - Work of breathing
  - Alertness
  - Skin
- Description of event
  - Event surrounding event and timing of event
  - Choking or gagging during event?
  - Tone during event?
  - Mental status change and duration of altered mental status
  - Color change?
  - Breathing description – tachypnea, apnea, shallow breathing
  - Duration of event, interventions, and return to baseline
- 12-Lead EKG, if considered "high risk"
- These patients should be transported for further evaluation and monitoring

- No required consults, Consult Online Medical Control OMCP, as necessary

Pediatric: Brief Resolved Unexplained Event (BRUE)

Clinical Pearls

- "BRUE" – Brief resolved unexplained event. This is a sudden, brief, unexplained event that happens to a patient less than 1 year of age. To meet the definition of BRUE, the child must be less than 1 year of age and meet at least one of the following:
  - Cyanosis or pallor
  - Absent, decreased, or irregular breathing
  - Marked change in tone (hyper- or hypotonia)
  - Altered responsiveness
  - No explanation for the event with full history and exam
- Low Risk
  - Age > 60 days
  - Born ≥ 32 weeks
  - No CPR by trained medical practitioner
  - First event/BRUE
  - Event was less than 1 minute in length
  - Returned to baseline
  - Singular/No repeated event
  - No concerning history
- High Risk
  - Any risk factor that doesn't meet "low risk" or any concerning findings on physical exam

Pediatric: Dyspnea

Patient Assessment

Signs and Symptoms

- Increased work of breathing
- Stridor
- Wheezing
- Retractions
- Fever
- Rhinorrhea

Differential Diagnosis

- Seizure
- Choking
- Periodic apnea
- Reflux
- Dreaming
- BRUE

Pediatric Considerations

- This is specific to pediatrics
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / MEDIC / LEAD / OMCP

- Request ALS unit
- Oxygen, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement
- Nasal suctioning, as indicated

- These patients should be transported for further evaluation and monitoring
- Basic airway management, as necessary
- Albuterol, if wheezing and age > 2yo

- IV/IO access, if unstable

- Racemic Epinephrine, if stridor at rest
- Epinephrine, if no racemic epinephrine available

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Only administer racemic epinephrine or epinephrine for severe respiratory distress or with stridor at rest. All patients receiving any form of epinephrine ***must*** be transport to the ED. Thus, it is ideal to give this medication once en route to the ED and not in the residence of the patient.
- Remove the pediatric patient's clothing to fully evaluate the patient for rash, retractions, belly breathing, etc.

Pediatric: Newborn/Neonatal Resuscitation

Patient Assessment

Signs and Symptoms
- Newborn
- Apnea
- Bradycardia
- Cardiac arrest

Differential Diagnosis

Unstable, unresponsive newborn

Pediatric Considerations
- This is pediatric specific
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR, EMT, AEMT, Medic, Lead, OMCP

- Request ALS unit
- Request a second ALS unit for the mother
- Keep child warm
- Clear secretions from mouth and nose
- Open airway
- Stimulate the child with foot blows or vigorous rub with a blanket
- BVM, if after stimulation and opening the airway, if the child is not breathing/gasping for air or has a heart rate less than 100 bpm
- Oxygen
- Pulse oximetry – remember the values will not mirror older children or adults (see below)
- Chest compressions/CPR if the heart rate drops below 60 bpm at any point
- Calculate APGAR score at 1 minute *and* 5 minutes

AEMT, Medic, Lead, OMCP

- Umbilical vein cannulation, if need for venous access
- IO, if umbilical vein cannulation is not feasible or successful
- D10, if blood sugar < 50 mg/dL

Lead, OMCP

- Endotracheal intubation or supraglottic airway, if after stimulation and positive pressure ventilation (BVM) the heart rate is still below 100 bpm
  - If heart rate less than 60 and CPR started
- Epinephrine
- Consider isotonic crystalloids, if concern for hypovolemia
- Consider needle decompression, if concern for pneumothorax

OMCP

- Online medical control consultation (OMCP) is required for all levels

Clinical Pearls

- Follow the Neonatal Resuscitative Algorithm
- Oxygen saturations differ for newborns. See the chart to the right.
- If possible, this patient should be cared for while en route to the hospital if requiring any type of resuscitation.
- If the patient has an appropriate hear rate >100 and is breathing without difficulty place the patient newborn on the bare chest of the mother for "skin to skin" contact.
- Newborns less than 20 weeks are typically considered nonviable.
- Pediatric warming pads or warm blankets should be used when skin-to-skin is not a viable option.

Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Pediatric: Newborn Care

Patient Assessment

Signs and Symptoms

- Newborn
- Spontaneously breathing
- No acute distress

Differential Diagnosis

Pediatric Considerations

- This is pediatric specific
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request transport unit
- Request a second transport unit for the mother, as needed
- Ensure all steps in the delivery guideline have been completed
- After delivery, stimulate the child with foot blows or vigorous rub with a blanket
- Place the neonate on the mother's bare chest and cover with a blanket
- After 30-60 seconds, cut the umbilical cord between the clamps
- Mother should breast feed, if possible
- Calculate APGAR score at 1 minute *and* 5 minutes
- Obtain vital signs – HR, SpO_2, RR

- IV is *not indicated* unless there is evidence of distress

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Follow the Neonatal Resuscitative Algorithm for any complications.

OB/GYN - Vaginal Bleeding and Obstetrical Emergencies

Patient Assessment

Signs and Symptoms
- Vaginal bleeding
- Abdominal pain
- Tachycardia

Differential Diagnosis
- Abnormal uterine bleeding
- Menses
- Impending delivery
- Spontaneous miscarriage
- Rectal bleeding
- Hemorrhagic cystitis

Pediatric Considerations
- Same as adults
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request BLS/ALS, as indicated
- Oxygen, maintain SpO_2 greater than 94%
- Complete set of vital signs
- Obtain OB/Gyn history
  - Gravidity/Parity status
  - Gestational age, if pregnant
  - Duration of bleeding
  - Blood thinners
- Consider impending delivery, if pregnant
- If pregnant and hypotensive, place the patient in the left lateral position or apply translational pressure to move the fetus to the left of the abdomen
- DO NOT INSERT ANYTHING INTO THE VAGINA unless relieving a prolapsed cord during delivery. A visual inspection can be performed if concern for pregnancy
- If active labor, move to imminent delivery guideline

- Consider ETCO2, if any abnormal vital sign

- IV/IO Access
- Isotonic crystalloids

- Pain management, as necessary

- Whole blood, if evidence of hemodynamically unstable from the ongoing bleeding
- Magnesium Sulfate, if pregnant and concern for eclampsia (seizing)

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Always consider eclampsia in a seizing female patient. Eclampsia can occur up to 6-8 weeks post-partum.
- Consider retained products of conception if recent delivery.
- Severe headache, vision changes, lower extremity edema, and/or RUQ pain may indicated pre-eclampsia.
- In the setting of pregnancy, hypertension is defined as a SBP greater than >140 or a DBP > 90, or relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- If vaginal bleeding, ask how many pads per hour.
- *Any* pregnant patient involved in an MVC should be transported to the nearest trauma center for physician evaluation.
- *Use this guideline as well as the delivery procedure – post-partum hemorrhage subsection for post-partum hemorrhage*

OB/GYN – Imminent Delivery

Patient Assessment

Signs and Symptoms

- Vaginal bleeding
- Abdominal cramping while pregnant
- Crowning
- Contractions less than 2 minutes apart

Differential Diagnosis

- Impending delivery
- Abnormal uterine bleeding
- Menses
- Spontaneous miscarriage
- Rectal bleeding
- Hemorrhagic cystitis

Pediatric Considerations

- Same as adult
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Request 2 ALS units – one for the mother and one for the newborn, if imminent delivery
- Oxygen, maintain SpO_2 between 92%-96%
- Basic airway management, as necessary
- DO NOT INSERT ANYTHING INTO THE VAGINA unless relieving a prolapsed cord during delivery. A visual exam should be performed to check for crowning.
- Place the patient in the proper birthing (lithotomy) position. See procedure guideline for positions and complications.
- When the newborn's mouth appears of the perinium, suction the mouth then the nose
- When delivered, calculate an APGAR score at 1 minute and 5 minutes
- After delivery, if newborn is breathing and has appropriate vital signs, place newborn on the bare chest of the mother
- After delivery, fundal massage and encourage mother to breastfeed the newborn
- If newborn has complications, move to Neonatal Resuscitation Guideline and Neonatal Resuscitation Algorithm

EMT / AEMT / Medic / Lead / OMCP

- ETCO2 for the mother

AEMT / Medic / Lead / OMCP

- IV/IO Access x 2
- Isotonic crystalloid, KVO

Medic / Lead / OMCP

- Pain management

Lead / OMCP

- Whole blood, if evidence of hemodynamically unstable from the ongoing bleeding
- Calcium Chloride, if giving blood
- Magnesium Sulfate, if concern for eclampsia
- Tranexamic Acid for hypotension due to significant post-partum hemorrhage

OMCP

- Strongly consider video conferencing, if available, with the ED physician or obstetrician during an imminent delivery to have immediate access to online medical control/direction
- In cases of complicated delivery or delivery complication, OMCP is mandatory

Clinical Pearls

- Important history questions
  - Gravid/Para status?
  - Due date/Gestational age?
  - Time contractions started and time between contractions?
  - Ruptured membranes?
  - Sensation of fetal activity?
  - Past medical history and delivery history?
  - High risk pregnancy?
- Complications include breech delivery, cord prolapse, or shoulder dystocia. See birthing procedure for maneuvers to help resolve these complications.

Seizure

Patient Assessment

Signs and Symptoms
- Unresponsive
- Irregular breathing
- Urinary incontinence
- Fever

Differential Diagnosis
- Tonic-clonic seizure
- Arrhythmias
- Focal seizure
- Absence seizure
- Eclampsia
- Drug overdose
- Violent
- Postictal
- Syncope

Pediatric Considerations
- Febrile seizure
- Hypoxia
- Seizure
- Drug ingestion
- Abuse
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Request ALS unit
- Basic airway management
- Oxygen, maintain SpO_2 greater than 94%
- Airway suctioning
- Ensure safe environment, place patient on the floor away from objects that may cause harm
- Place patient in recovery position when done seizing

- Blood glucose level (BGL) measurement
  - If BGL is < 60, refer to the hypoglycemic guideline for treatment options
- ETCO2

- IV/IO Access
- Isotonic Crystalloids, as needed

- Midazolam, IM should be **first line** unless the patient already has an IV/IO in place
- Lorazepam
- Diazepam
- Magnesium Sulfate, if pregnant
- Cardiac monitoring

- Advanced airway management

- Online medical control consultation is required for patients in status epilepticus but should not delay benzodiazepine administration. If patient continues to seize after 2 doses of benzodiazepines, OMCP is mandatory.

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Status Epilepticus – Seizure lasting longer than 5 minutes or recurrent seizure without complete return to baseline
- Pediatric febrile seizures – stop the seizure, then give antipyretics!
  - Note: Defervescence does prevent future febrile seizures.
- If identifiable cause of seizure other than epilepsy or fever, intervene on cause prior to administration of benzodiazepines (ie hypoxia).
- Focal seizure – A seizure which can have only minor unilateral symptoms and no loss of consciousness. These can progress to generalized tonic-clonic seizures.
- Address ABCs first.
- A seizure in an infant may be the only sign of a closed head injury.
- Get a glucose! Hypoglycemia is the second leading cause of seizures.

Sepsis

Patient Assessment

Signs and Symptoms
- Unresponsive
- Irregular breathing
- Urinary incontinence
- Fever

Differential Diagnosis
- Tonic-clonic seizure
- Focal seizure
- Absence seizure
- Eclampsia
- Drug overdose
- Violent
- Postictal
- Syncope

Pediatric Considerations
- Febrile seizure
- Hypoxia
- Seizure
- Drug ingestion
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR EMT AEMT Medic Lead OMCP

- Request BLS or ALS intercept, based on patient condition
- Consider etiologies of shock and if identified move to that specific algorithm
- Oxygen, maintain SpO_2 greater than 94%
- If evidence of shock, move to Shock (Hypotension) Guideline

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- Begin transport if ALS intercept is greater than 5 minutes away
- Activate a SEPSIS ALERT
- ETCO2
- Acetaminophen for fever
- 12-Lead EKG

- IV/IO Access x 2
- Isotonic crystalloids, sepsis bolus

- Cardiac monitoring

- Epinephrine, push-dose pressors

- No required consults, Consult Online Medical Control [OMCP], as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients.
- Sepsis criteria:
  - Known or suspected infection AND
  - Two or more of the following:
    - Temperature ≤ 96.8°F (36°C) or ≥ 100.4°F (38°C)
    - Respiratory rate > 20
    - Heart rate > 90
    - SBP < 100 mmhg
    - Altered mental status
    - ETCO2 < 30 or > 45
- Patients can meet "SIRS" criteria without being septic, thus, you need the known or suspected source of infection to meet sepsis criteria.
- Septic patients can deteriorate quickly. Monitor the patient closely.
- Beta-blockers and calcium channel blockers may mask or limit the patient's ability to mount a reflex tachycardia.

Stroke

Patient Assessment

Signs and Symptoms

- Headache
- Weakness/Paralysis
- Facial droop
- Altered mental status
- Visual changes/blindness
- Sensory loss/change
- Vomiting
- Seizure
- Respiratory pattern change
- Vertigo/Lightheaded

Differential Diagnosis

- Hemorrhage stroke
- Ischemic stroke
- Postictal state
- Todd's paralysis
- Hypoglycemia
- Alcohol or drug intoxication
- Migraine

Pediatric Considerations

- Pediatric hypotension:
  - SBP < 70 + (age in years x 2)
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Request ALS Unit
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Determine Last Known Well Time (LKWT)
- Cincinnati Stoke Scale (CSS)
- FAST-ED Score, if Cincinnati Stroke Scale is *positive*
- Obtain a FILM history
- Repeat vital signs every 5 minutes

- Blood glucose level (BGL) measurement
  - If BGL is < 60, refer to the hypoglycemic guideline for treatment options and then re-evaluate the patient's CSS and FAST-ED
- STROKE ALERT, if CSS is positive, BGL > 60 and LKWT less than 24 hours
- Transport to the appropriate destination based off LKWT and FAST-ED Score, as in clinical pearls below
- 12-Lead EKG
- ETCO2

- IV/IO Access x2, specifically, at least one IV needs to be 20 gauge or larger and no further distal than the proximal forearm
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65

- Cardiac monitoring

- Advanced airway management, as necessary

- No required consults, Consult Online Medical Control OMCP, as necessary

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Stroke

Clinical Pearls

- **FILM** History – **F**amily contact information, (Recent) **I**nterventions, **L**ast known well time, **M**edications (Specifically antiplatelets and anticoagulants)
- Whenever possible, a family member should accompany the patient to the hospital to provide a detailed history, or EMS should provide the name and phone number of the family member so additional information can be urgently obtained
- Anticoagulant use within the last 48 hours:
  - Warfarin (Coumadin)
  - Apixaban (Eliquis)
  - Rivaroxaban (Xarelto)
  - Dabigatran (Pradaxa)
  - Lovenox injections
- **Required documentation in ePCR and report to the emergency department:**
  - Last known well time (LKWT)
  - Cincinnati stroke scale
  - FAST-ED Score
  - Blood glucose level
  - EKG interpretation
  - Anticoagulant use
  - Stroke Alert with time of notification
  - Whether the patient was taken straight to CT or transfer of care was in the emergency department
- Scene time should be 10 minutes or less or documented why there was an extended scene time
- Stroke alert shall be called with a positive CSS and LKWT < 24 hours
- If the transport time to the thrombectomy-capable center puts the patient outside of the fibrinolytic window, but there is a hospital that is capable of administering fibrinolytic therapy which would allow the fibrinolytics to be administered within the 4.5-hour window, consider taking the patient to the closer hospital for fibrinolytic therapy and document this in your ePCR. See destination guidelines.
- If possible, send the patient's name and date of birth via a HIPAA compliant media to the receiving hospital for chart review prior to the patient's arrival.
- EMT's and AEMT's - Transmit 12-Lead EKG to medical control hospital/Destination Hospital if readout says "STEMI".
  - Contact OMCP for further instructions after EKG transmission.
- Apply defibrillation pads to any patient the EKG readout says "STEMI" or any patient with concern for ACS.

Destination Hospital Determination for Suspected Acute Ischemic Stroke	**FAST-ED Score ≥ 4**	**FAST-ED Score < 4**
LKWT < 24 hours prior to EMS evaluation	Transport to MHSB. If the extra time necessary to transport to MHSB will disqualify the patient from fibrinolytic therapy, transport to closest hospital capable of administering fibrinolytic therapy **OMCP**	If LKWT < 4.5 hours, transport to closest hospital capable of administering fibrinolytic therapy. Emergent transport at EMS discretion if LKWT < 6 hours prior to EMS evaluation Otherwise: Transport to closest certified Stroke Center
LKWT ≥ 24 hours prior to EMS evaluation	Transport to closest certified Stroke Center (ASRH, PSC, or TSC)	

Syncope/Near Syncope

Patient Assessment

Signs and Symptoms

- Shortness of breath
- Lightheadedness
- Pallor
- Diaphoretic
- Tachycardic
- Anxious
- Weakness
- Fatigue
- Chest pain

Differential Diagnosis

- Cardiac arrhythmia
- Vertigo
- Dehydration
- Hypotensive
- Shock
- Pregnancy
- GI Bleed
- Pulmonary embolism
- Seizure

Pediatric Considerations

- Dehydration
- Sepsis
- Cardiac arrhythmia
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request ALS unit
- Pulse oximetry
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management
- Ask about potential pregnancy and recent travel
- Left lateral recumbent position, if pregnant
- Consider Reverse Trendelenburg, if hypotensive
- Consider spinal motion restriction (SMR) if concern for or signs of trauma

- 12-Lead EKG
- ETCO2
- If causal factor for syncope/near-syncope is discovered, move to that specific guideline
- Stroke assessment, if altered
- Traumatic Head Injury guideline, if signs of traumatic head injury

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65 and no signs of hemorrhage

- Cardiac monitoring

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Assess for signs of trauma or other causes of syncope. Orthostasis and vasovagal are common causes, but the "emergent" causes need to be ruled out first.
- A 12-lead EKG should be done on *all* of these patients, regardless of age!

Toxicology: Carbon Monoxide/Smoke Inhalation

Patient Assessment

Signs and Symptoms

- Headache
- Disorientation/Confusion
- Ataxia
- Visual disturbances
- Seizures
- Cherry-red oral mucosa (rare)
- Dyspnea
- Arrhythmias
- Lightheaded
- Nausea and vomiting
- Unresponsive

Differential Diagnosis

- Cyanide toxicity
- Acute cardiac event
- Acute neurologic event
- Acute pulmonary event
- Acute GI illness
- Acute intoxication
- DKA
- Headache

Pediatric Considerations

- Same as adults
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Remove the patient from the toxic environment and into ambient air environment
- Immediately request ALS unit if patient is pregnant, has any cardiac or pulmonary complaints, or has neurologic signs or symptoms
- Pulse oximetry is not helpful in carbon monoxide poisoning; however, it should be monitored in case there is another underlying cause for the patient's symptoms
- CO-oximetry, if available
- Oxygen, 12L-15L non-rebreather, regardless of SpO_2 reading
- Basic airway management

- ETCO2
- 12-Lead EKG
- Transport any patient with any red flag symptoms to MHSB

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65

- Cardiac monitoring

- Advanced airway, as indicated
- If fire victim with altered mental status, or cardiac arrest, *strongly* consider cyanide toxicity

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- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- **High flow oxygen is the gold standard of treatment.**
- Half-Life of carbon monoxide bound to hemoglobin
  - Room air – 5 hours
  - 100% FiO2 – 1 hour
  - Hyperbaric Chamber – 24 min
- Red flag symptoms
  - Pregnant
  - Cardiac or pulmonary complaints
  - Neurologic changes, including altered mental status or seizure (excludes headache)
- Consider cyanide toxicity in firefighters or fire victims with altered mental status, seizures, lethargy, or cardiac arrest.

Toxicology: Cyanide Toxicity

Patient Assessment

Signs and Symptoms

- Headache
- Anxiety
- Tachycardia
- Palpitations
- Hypotension
- Tachypnea (early)
- Nausea and vomiting
- Bradycardia (late)
- Coma
- Pulmonary edema

Differential Diagnosis

- Tachycardia
- Carbon monoxide poisoning
- Stroke
- Meningitis/Encephalitis
- Head trauma
- Diabetes
- Intoxication
- Sepsis

Pediatric Considerations

- Same as adults
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Request ALS immediately
- Oxygen, 12-15L non-rebreather regardless of SpO_2 reading
- Blood glucose level (BGL) measurement
- Basic airway management, as necessary

- ETCO2

- IV/IO access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65

- Cardiac monitor

- Cyanokit/Hydroxocobalamin
  - Cyanokits may not be immediately available. Do not delay transport awaiting a Cyanokit
- 12-Lead EKG
- Epinephrine
  - Push-dose pressor for hypotension
- Advanced airway management, as necessary

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Remove contaminated clothing and decontaminate the patient prior to transport.
- If smoke inhalation, consider concomitant carbon monoxide exposure.

Toxicology: Overdose/Poisoning

Patient Assessment

Signs and Symptoms

- Salivation, Lacrimation
- Urination
- Defecation
- Emesis
- Bronchospasm
- Bronchorrhea
- Bradycardia or tachycardia
- Unresponsive

Differential Diagnosis

- Chemical exposure
- Overdose
- Stroke
- Myocardial infarction
- Asthma/COPD
- Hypotensive
- Shock
- Seizure

Pediatric Considerations

- Same as adults. Children overdoses, accident or intentional, require transport to the emergency department.
- Consider child abuse/neglect/endangered child report in these cases.
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Scene safety is paramount
- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Pit Crew CPR, if pulseless
- Treatable causes of cardiac arrest
- Airway management
- Oxygen, maintain SpO_2 greater than 94%
  - If patient has been "huffing," high flow oxygen should be applied.
- **Opiate Overdose**
  - Naloxone, only if apneic or agonal respirations or hypoxia
  - Search the patient, or ask law enforcement to search, for dangerous weapons before administering naloxone. If a dangerous weapon is found, law enforcement shall remove the weapon prior to administration of naloxone. However, this shall not delay artificial respirations by BVM with supplemental oxygen.
- Pulse oximetry

EMT / AEMT / Medic / Lead / OMCP

- 12-Lead EKG
- ETCO2

AEMT / Medic / Lead / OMCP

- IV/IO Access
- Isotonic Crystalloid, as needed for SBP < 100 mmhg or MAP less than 65 and no signs of hemorrhage
- Nausea and vomiting, as necessary

Medic / Lead / OMCP

- Cardiac monitoring

Lead / OMCP

- **Beta-Blocker or Calcium Channel Overdose**
  - Calcium chloride
  - Push-dose epinephrine, if hypotensive
  - Glucagon, if beta blocker overdose
- **Stimulant Overdose**
  - Midazolam, or Lorazepam, or Diazepam
  - Acute Psychosis Guideline, if hyperactive delirium with severe agitation
- **TCA or Phenobarbital Overdose**
  - Sodium bicarbonate
- **Organophosphate Poisoning**
  - Atropine
  - Midazolam, or Lorazepam, or Diazepam if seizing
  - Ipratropium
- Transcutaneous pacing, as indicated
- Advanced Airway Management, as necessary
- Pain management, as necessary

OMCP

- No required consults, Consult Online Medical Control [OMCP], as necessary

Toxicology: Overdose/Poisoning

Clinical Pearls

- Do not rely on patient history of ingestion, including time, amount, or specific drug/medication. This is especially true in suicide attempts.
- **Opiates**: Newer drugs, such as fentanyl, carfentanyl, or "M30's" may require high doses of naloxone. However, only enough naloxone should be given to keep the patient breathing. Use more frequent, smaller doses instead of less frequent larger doses of naloxone.
- **Depressants**: Decreased HR, hypotension, hypothermia, decreased respirations.
- **Stimulants**: Increased HR, hypertension, hyperthermia, agitation, dilated pupils, seizures.
- **Tricyclic**: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma. These patients can progress to death quickly.
- **Anticholinergics**: Increased HR, hypertension, dilated pupils, mental status changes, seizures.
- **Organophosphates/Insecticides/Cholinesterase**: Nausea, vomiting, rhinorrhea, diarrhea, bronchorrhea, pinpoint pupils. Treat the "Killer B's" (bronchorrhea, bradycardia, bronchospasm) with atropine. Continue to give atropine until the "Killer B's" resolve.
- **Hydrofluoric Acid**: Treat with calcium gluconate topical (all levels). Calcium gluconate should be applied liberally to the affected area. Obtain an EKG. If EKG changes are noted, calcium chloride.
- **Chlorine**: Supporting care, including oxygen.
- **Phosgene**: Supportive care, including oxygen. This smells like freshly cut grass or hay.
- **Solvents**: These are typically "huffed." Can nausea and vomiting, shortness of breath, and altered mental status.
- **CS Gas (Tear gas)**: Do not use water to decontaminate. This reactivates the chemical. Use a fan/air. CS will off-gas in the ambulance. Care should be taken to decontaminate the patient prior to transport, if possible. After the receiving hospital of the CS exposure as the patient will need to be decontaminated prior to entering the ED.
- **OS Spray (Mace, Pepper Spray)**: Water can be used to decontaminate the eyes. Re-exposure can occur from touching contaminated clothing.
- **Alcohol**: Alcohol can mask injuries. Look for concomitant injuries, especially traumatic injuries. Do not ignore these injuries, particularly head injuries, as a source of the patient's altered mental status.
- If large volume contamination, decontamination should be done by trained Haz-Mat personnel. Decontamination should take place prior to transport in the ambulance unless patient require immediate transport to definitive care.
- If there are any questions regarding an overdose or poisoning, contact OMCP or poison control (1-800-222-1222).

Environmental: Cold Related Injuries

Patient Assessment

Signs and Symptoms

- Cold
- Shivering
- Altered mental status
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension
- Cardiac arrest

Differential Diagnosis

- Environmental exposure
- Metabolic disorder
- Toxins
- Shock
- Sepsis

Pediatric Considerations

- Same as adults. Children are more susceptible to hypothermia than adults.
- Pediatric hypotension:
  - SBP < 70 + (age in years x 2) mm hg
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Request BLS/ALS, as indicated
- Oxygen, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement
- Remove wet clothing, provide blankets
- Warm packs to groin and axilla - ensure no thermal burns to the skin with hot packs.

EMT / AEMT / Medic / Lead

- Oral glucose for hypoglycemia, if alert enough

AEMT / Medic / Lead

- IV/IO Access
- Warmed Isotonic crystalloid
- Warm patient compartment of ambulance
- Dextrose, if hypoglycemia and unable to tolerate oral glucose

Medic / Lead

- 12-Lead EKG
- Cardiac Monitoring

Lead

OMCP

- No required consults, Consult Online Medical Control [OMCP], as necessary

Clinical Pearls

- Handle these patients with care! Rough handling can precipitate cardiac arrhythmias, ventricular fibrillation, specifically.
- EKG may show an Osborne Wave or J-Wave.
- Temperature less than about 31°C (88°F) can result in the cessation of shivering. Hypoglycemia can also lead to the cessation of shivering. Once shivering stops, core body temperature can drop precipitously.
- The most important intervention is to remove the patient from the cold environment.
- Monitor for cold blood re-entering the central circulation once extremities begin to warm. This can cause a decrease in core body temperature.
- Chilblains, Trench foot, and frost nip should be treated conservatively. The mainstay of treatment includes removal from cold environment, removal of cold wet clothing, and pain control.
- If extremity shows signs of frost bite, do not re-warm if there is a chance for re-freezing.
- **Hypothermia**
  - Mild: 32°C (90°F) - 35°C (95°F)
  - Moderate: 28°C (82°F) - 32°C (90°F)
  - Severe: < 28°C (82°F)
- **Cardiac Arrest:**
  - Temperatures less than 30°C can lead to ventricular fibrillation. Handle these patients with care. Immediate transport is warranted.
  - Hypothermia can lead to bradycardia. Do not treat the hypotension unless unresponsive to fluids.
  - Medication may not work as effectively at cold core temperatures. Withhold medications in cardiac arrest until core temperature is above 30°C. If moderate hypothermia, give normal dose, but double times between doses.
  - Cardiac arrest patients should only receive one shock, if indicated, until the core body temperature is above 30°C.
  - PEA in severely hypothermic patients does not require CPR. Any organized rhythm should not receive CPR, even if pulseless.

Environmental: Drowning

Patient Assessment

Signs and Symptoms
- Decrease mental status
- Vomiting
- Coughing
- Wheezing
- Unresponsive
- Cardiac arrest

Differential Diagnosis
- Trauma
- Underlying medical condition
- Vomiting
- Myocardial infarction
- Stroke
- Intoxication

Pediatric Considerations
- Pediatric hypotension:
  - SBP < 70 + (age in years x 2) mm hg
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Immediately request ALS
- Cardiac arrest guideline, as appropriate
- Oxygen, maintain SpO_2 greater than 94%
- Basic airway management, as necessary
- Keep the patient warm
- Evaluate the need for spinal motion restriction and C-collar application

- Albuterol or albuterol/ipratropium, if conscious and wheezing
- CPAP, if conscious with rales and/or rhonchi. Consider CPAP early.

- IV/IO Access

- 12-Lead EKG

- Monitor for cardiac arrhythmias
- Advanced airway management, as necessary

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Spinal motion restriction should be used in suspected known traumatic mechanism leading to the submersion/drowning.
- Consider an underlying medical cause of the submersion/drowning.
- Definitions:
  - **Drowning** – The process of experiencing respiratory impairment from submersion or immersion in liquid.
  - **Water rescue** – An intervention that prevents progression to drowning in an individual who is submerged but at no time develops respiratory symptoms or impairment.
  - **Non-fatal drowning** – A drowning event in which the process of respiratory impairment is stopped before death, and the victim survives.
  - **Fatal drowning** – A drowning even that results in death.
- All victims, whether water rescue or non-fatal drowning should be transported for evaluation.
- Remember – Reach, Throw, Row, Go. Drowning is a leading cause of death among "would-be rescuers." Only trained, appropriately equipped rescuers should attempt a rescue.
- On scene command will determine rescue vs recovery. Strongly consider a rescue operation for at least 20 minutes from the time of submersion. Consider longer if the water is cold.

Environmental: Heat-Related Emergencies

Patient Assessment

Signs and Symptoms
- Nausea and/or vomiting
- Cramping
- Syncope
- Decrease mental status
- Diaphoresis/anhidrosis
- Hypotension
- Altered mental status

Differential Diagnosis
- Stroke
- Dehydration
- Encephalopathy
- Meningitis/Sepsis
- Overdose/Toxin
- Hypoglycemia
- Alcohol withdrawal

Pediatric Considerations
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR, EMT, AEMT, Medic, Lead, OMCP

- Request ALS unit
- Passive cooling
  - Immediately remove restrictive clothing or loosen restrictive garments
  - Remove patient from hot environment and out of direct sunlight
- Obtain temperature
- Oxygen, maintain SpO_2 greater than 94%
- Blood glucose level (BGL) measurement

- Active Cooling if temperature ≥ 102°F and/or patient has altered mental status
  - Ice water immersion, if available
  - Misting water onto patient with fan/consistent airflow over patient allow for evaporation
  - Truncal ice packs to axilla, groin, wrists, and ankles. Ice packs can also be applied to the soles of the feet and the palms of the hands
    - If ice packs are unavailable, sheets or clothes soaked in ice water can be used
- **STOP** active cooling when temperature is 100.4 or patient's mentation improves without the ability to accurately measure temperature
- Emergent transport if patient displays altered mental status, unless ice water submersion is available. If available, ice water submersion until normalization of body temperature should be performed prior to emergent transport to the hospital

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- IV/IO Access
- Isotonic crystalloid, room temperature or cooled
- Ondansetron

- Cardiac monitor

- 12-Lead EKG
- Midazolam or lorazepam for shivering
  - **Do not allow the patient to shiver**
- Advanced airway management if significant altered mental status

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- Ice water immersion requires OMCP authorization

Clinical Pearls

- This guideline can be used for both exertional hyperthermia and classic hyperthermia
- Additional considerations with heat-related injuries include:
  - Heat cramps
  - Heat edema
  - Heat exhaustion
  - Heat tetany
  - Heat syncope
  - Heat stroke
- Of the above, heat stroke is a true, time-dependent medical emergency. In the correct setting, for the diagnosis of heat stroke, the patient needs an elevated temperature and altered mental status

Environmental: Bites and Envenomation

Patient Assessment

Signs and Symptoms
- Snake bite
- Spider bite
- Abscess/Cellulitis
- Human bite
- Insect sting
- Cellulitis

Differential Diagnosis
- Rash, skin break, wound pain, soft tissue swelling, redness
- Blood oozing from the bite wound
- Evidence of infection
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension or shock

Pediatric Considerations
- Same as adult
- Use the pedi-tape/Broselow or HandTevy for medication dosing

Treatment Guidelines

EMR / EMT / AEMT / Paramedic / Lead / OMCP

- Scene safety is paramount
- Apply ice pack to bite/sting
- Remove constricting jewelry and clothing
- Wash bite area with soap and warm water, if time and patient condition permits
- Oxygen, as necessary

- If insect envenomation:
  - Diphenhydramine, PO, adult only, for allergic reaction or pruritus
  - If evidence of an allergic reaction, go to Allergic Reaction/Anaphylaxis guideline
  - If evidence of anaphylaxis, call for ALS intercept
  - Remove stinger using flat object, do not squeeze
  - Acetaminophen, as necessary
- If snake bite/envenomation:
  - Bandage the bite
  - Splint/immobilize the extremity
  - Acetaminophen, as necessary
  - Transport to MHSB
    - All venomous snake bites should be transported

- Pain management, as necessary

- No required consults, Consult Online Medical Control [OMCP], as necessary

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients
- Do not attempt to suction the venom out of a wound
- Do not place a tourniquet on a bite or sting
- The only venomous snake in this area is of the Crotalinae subfamily – the Eastern Massasauga Rattlesnake.
  - The Potawatomi Zoo also has one of these snakes
- Do not attempt to bring the snake to the hospital. A picture, if possible, is acceptable
- Human bites, dog bites, and cat bites are especially prone to infection
- Patients should receive an updated tetanus vaccine
- Patients may need a rabies vaccine series. The most common vectors for rabies are bats, foxes, skunks, raccoons. Dogs and cats, while vectors, are lower risk.

SECTION 4
TRAUMA TREATMENT GUIDELINES

Field Triage Guidelines/Destinations

RED CRITERIA
High Risk for Serious Injury

Injury Patterns

- Penetrating injuries to head, neck, torso, and proximal extremities
- Skull deformity, suspected skull fracture
- Suspected spinal injury with new motor or sensory loss
- Chest wall instability, deformity, or suspected flail chest
- Suspected pelvic fracture
- Suspected fracture of two or more proximal long bones
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Active bleeding requiring a tourniquet or wound packing with continuous pressure

Mental Status & Vital Signs

All Patients
- Unable to follow commands (motor GCS < 6)
- RR < 10 or > 29 breaths/min
- Respiratory distress or need for respiratory support
- Room-air pulse oximetry < 90%

Age 0–9 years
- SBP < 70mm Hg + (2 x age years)

Age 10–64 years
- SBP < 90 mmHg or
- HR > SBP

Age ≥ 65 years
- SBP < 110 mmHg or
- HR > SBP

Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system

YELLOW CRITERIA
Moderate Risk for Serious Injury

Mechanism of Injury

- High-Risk Auto Crash
  - Partial or complete ejection
  - Significant intrusion (including roof)
    - >12 inches occupant site OR
    - >18 inches any site OR
    - Need for extrication for entrapped patient
  - Death in passenger compartment
  - Child (Age 0–9) unrestrained or in unsecured child safety seat
  - Vehicle telemetry data consistent with severe injury
- Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.)
- Pedestrian/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet (all ages)

EMS Judgment

Consider risk factors, including:

- Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact
- Anticoagulant use
- Suspicion of child abuse*
- Special, high-resource healthcare needs
- Pregnancy > 20 weeks
- Burns in conjunction with trauma
- Children should be triaged preferentially to pediatric capable centers

If concerned, take to a trauma center

Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)

Field Triage Guidelines/Destinations

*If the patient meets any trauma activation criteria, transport the patient to MHSB. If the patient does not meet trauma activation criteria and there is concern for sexual abuse *only*, transport the patient to SJRMC.

Patient meeting *any* trauma criteria, as listed above, shall have an ALS intercept or ALS scene response requested if only a BLS practitioner organization is on scene.

If the ALS scene response will delay patient care, the BLS crew shall transport:

- Patient's meeting any of the above ***red (High Risk)* criteria** shall be transported to the ***nearest, highest-level trauma center,*** *if within 45 minutes*.
- Patient's meeting any of the *yellow (Moderate Risk)* criteria, shall be transported to the ***nearest trauma center,*** *if within 45 minutes, or unless the patient requires transport to the highest-level trauma center based off other criteria (see Local Trauma and Specialty Referral Centers)*.
- To the pre-determined *ALS* rendezvous location, if this will not delay definitive care.
- Decision to run signal 10 (lights and sirens) shall be at the discretion of the most senior EMS practitioner and based off the "Emergency Vehicle Staffing and Safe Operation" guideline.

A TRAUMA ALERT shall be called from the field if it is thought the patient meets trauma criteria, however, it may not be activated internally if specific criteria are not met.

General Trauma

Patient Assessment

Signs and Symptoms

- **M**assive hemorrhage
- **A**irway compromise
- **R**espiratory compromise
- **C**irculatory compromise
- **H**ead injury/Hypothermia

- Crush injury
- Penetrating or blunt trauma

Differential Diagnosis

- Medical cause of trauma
- Penetrating trauma
- Blunt trauma
- Respiratory failure
- Respiratory obstruction
- Hypovolemia
- Tension pneumothorax
- Toxins or overdose
- Hypoglycemia

Pediatric Considerations

- Pediatric hypotension:
  SBP < 70 + (age in years x 2) mmhg

Treatment Guidelines

EMR, EMT, AEMT, Medic, Lead, OMCP

- Scene safety is paramount
- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- Control external hemorrhage
  - Pack wounds and/or apply direct pressure
  - Apply a tourniquet to extremity wounds, if not controlled by direct pressure or wound packing
- Oxygen, maintain SpO_2 greater than 94%. **Do not let a trauma patient become hypoxic**. If patient will require intubation, use high flow oxygen for pre-oxygenation
- Pulse oximetry
- Basic airway management
- Spinal motion restriction (SMR), if blunt trauma. If patient meets requirement for SMR, place C-collar and place in spinal motion restriction
- 3-sided chest seal or other occlusive dressing to any penetrating wound from the umbilicus to the chin
- Pelvic binder, if blunt trauma and patient is hypotensive or has signs of an unstable pelvis
- Bandage and splint wounds, as necessary
- Keep the patient warm
- Blood glucose level (BGL) measurement
- Head trauma guideline, if severe head trauma

EMT, AEMT, Medic, Lead, OMCP

- Calculate Glasgow Coma Scale (GCS) score
- Activate a TRAUMA ALERT, if patient meets any of the criteria in the field triage guidelines
- ETCO2
- Acetaminophen, minor trauma only

AEMT, Medic, Lead, OMCP

- IV/IO Access for *minor* trauma, IV/IO Access x 2 for *major* trauma, but neither should delay transport
- Isotonic crystalloid, adult 250-500 cc, pediatric 20 cc/kg, ONLY if patient shows signs of shock

Medic, Lead, OMCP

- Cardiac monitor
- Pain management with fentanyl

Lead, OMCP

- Needle decompression, as indicated for signs of tension pneumothorax
- Advanced airway management, as necessary
  - Do NOT intubate before resuscitation unless absolutely necessary to secure the airway
- Pain management with ketamine, fentanyl, or both
  - Ketamine for MAP < 65 or SBP < 90
  - Ketamine and/or Fentanyl for MAP > 65 or SBP > 90
- Push-dose epinephrine, as needed for severe hypotension not response to the isotonic crystalloid fluid bolus
- Tranexamic acid, as indicated
- Whole Blood, as indicated and available
- Field amputation[OMCP], as required

OMCP

- Field amputation procedure requires OMCP authorization

General Trauma

Clinical Pearls

- **Minimize scene time**. If patient meets TRAUMA ALERT criteria, then interventions should be performed en route, unless absolutely required to be performed on scene. Delay in transport should be documented in ePCR.
- Consider chest decompression with signs of shock and diminished/absent breath sounds. If patient arrests, then immediately perform bilateral decompression.
- Severe bleeding from an extremity not rapidly controlled by direct pressure, may necessitate the application of a tourniquet.
- Head trauma: Do not hyperventilate, Do not allow to be hypotensive, Do not allow to be hypoxic.
- Maintain SBP >90 for all adult patients. Do not give large volumes of isotonic crystalloid to do so though. If small aliquots of fluid are not maintaining the SBP > 90, permissive hypotension is reasonable.
- MAP = $\frac{(2\ x\ DBP)+SBP}{3}$
- Pulse Pressure = SBP-DBP
- Shock Index = $\frac{Heart\ Rate}{SBP}$
- Pediatric minimum systolic blood pressure: (2 x age (yrs)) + 70. Use for ages ≥ 1 year.
- Peripheral neurovascular status should be document on all extremity injuries and before and after splinting procedures.
- Neuro status should be documented before and after extrication and before/after transport.
- Multiple GCS calculations should be performed en route to the hospital.
- Hip dislocations and knee (not patellar) dislocations have a high incidence of neuro-vascular compromise. Close monitoring is required.
- Any vascular compromise should be transported emergently to Memorial Hospital.
- Amputations are time sensitive. Transport to Memorial Hospital emergently if amputation is proximal to the wrist or ankle.
- Blood loss may be concealed in extremity or pelvic injuries.
- Place a pelvic binder in hypotensive blunt trauma patients.
- Kushing's Response from increased ICP: Hypertension, bradycardia, and irregular respirations.
- Types of shock: Distributive, Obstructive, Hypovolemic, Cardiogenic
- Consider Altered Mental Status (AMS) guideline if no evidence of head trauma being the cause of the altered mental status.
- Consider physical or chemical restraint for patient and practitioner safety if the patient becomes violent.
- Any witnessed or documented loss of consciousness, prolonged confusion, or mental status abnormality should be documented, and the patient should be evaluated by a physician.
- Strongly consider supplemental oxygen for pediatric patients regardless of SpO_2 reading when there is concern for hemorrhagic hypovolemia.

SBP = Systolic Blood Pressure
DBP = Diastolic Blood Pressure
MAP = Mean Arterial Pressure

Burns, Chemical and Thermal

Patient Assessment

Signs and Symptoms

- Obvious burns
- Loss of consciousness
- Shivering
- Extreme pain
- Stridor
- Shortness of breath
- Loss of pulses
- Blistering

Differential Diagnosis

- Superficial burn
- Partial thickness burn, 2nd or 3rd degree
- Full thickness, 3rd degree
- Chemical burn
- Electrical burn
- Radiation burns

Pediatric Considerations

Consider child abuse in pediatric patients

Treatment Guidelines

EMR EMT AEMT Medic Lead OMCP

- Ensure scene safety and ensure the burn is not radiation related
- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- General trauma management
- Evaluate for other trauma
- Oxygen, maintain SpO_2 greater than 94%
- If concern for CO exposure, place the patient on non-rebreather mask with oxygen at 15 LPM
- Pulse oximetry
- Basic airway management
- Remove constricting jewelry and clothing
- If **thermal** burn:
  - < 10% total body surface area (BSA) flush burn with isotonic crystalloid or sterile water to help aid in the cooling process
  - > 10% BSA, do not flush with isotonic crystalloid or sterile water
  - Cover the burn with dry sterile dressing or clean, dry sheet
  - Do not apply any creams or ointments to the burned area
  - Consider coinciding trauma, particularly in children
- If **chemical** burn:
  - Remove contaminated clothing, brush any dry chemical or powder off the patient, then flush with copious amounts of water if the chemical is not water reactive
- Keep the patient warm, do not let them shiver

EMT AEMT Medic Lead OMCP

- Estimate the total body surface area (TBSA) involved, note the location and depth of the burns
- Memorial Hospital (MHSB) is the appropriate destination for critical burns or those meeting trauma activation criteria, as noted below
- Activate a TRAUMA ALERT if burn involves the face, neck, airway, genitals, hands, are circumferential, those that are causing vascular compromise, or encompass > 10% BSA, patient is exhibiting stridor, muffled voice, or hoarseness, or based on practitioner discretion
- ETCO2

AEMT Medic Lead OMCP

- IV/IO access x2. Do not place in area of the burn
- Isotonic crystalloid – Lactated Ringers is preferred
  - If 2nd and/or 3rd degree burn area > 10%
    - Adults: 4 mL LR x % TBSA x wt (kg) x ½ in first 8 hours
    - Children: 3 mL LR x % TBSA x wt (kg) x ½ in first 8 hours

Medic Lead OMCP

- Pain management, as necessary
- Cardiac monitor
- Racemic epinephrine for stridor, hoarse, or muffled voice

Lead OMCP

- Advanced airway, as indicated

OMCP

- No required consults, Consult Online Medical Control OMCP, as necessary

Burns, Chemical and Thermal

Clinical Pearls

- Refer to specific medication sheets for dosing and frequency for both adult and pediatric patients
- Critical burns:
  - > 20% total BSA with partial or full thickness burns in patients between 10 and 50 years of age
  - > 10% total BSA with partial or full thickness burins in patients < 10 or > 50 years of age
  - > 5% total BSA with full thickness burns in any age
  - Any partial or full thickness burns that involve the face, neck, airway, genitals, hands, are circumferential, those causing vascular compromise
- Remember CO will falsely elevate the SpO_2 reading on a pulse oximeter
- If electrical burn, ensure the power is disconnected before touching the patient
- For IV fluid resuscitation in adults, unless prolonged transport time or other significant delay, fluids can be hung wide open to gravity. If prolonged transport time or significant delay in patient hand-off is expected, consider running the IV fluids at half open to gravity.
  - For example, a 25% burn on a 100kg adult. 4 mL x 25% x 100kg = 10,000 mL in 24 hours. The first 5,000 mL should be infused over the first 8 hours. Thus, 5,000 / 8hr = 625 mL/hr
- For IV fluid resuscitation in smaller children, push/pull method may be more appropriate to ensure appropriate fluid resuscitation without over resuscitation.
  - For example, a 25% burn on a 10 kg child. 3 mL x 25% x 10kg = 750 mL in first 24 hours. The first 375 mL should be infused over the first 8 hours. Thus, 375 / 8 hours = 47 mL/hr

- Rule of 9s is below. It is also listed in the reference section here.

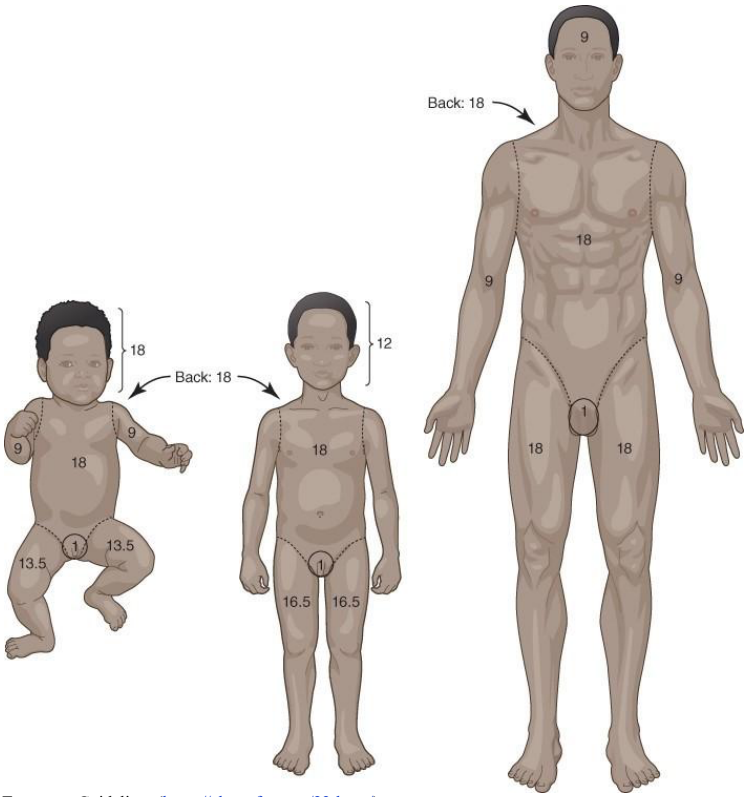

Illustration Credit: Christian Hospital EMS Field Treatment Guidelines (https://chemsftg.com/22-burn/)

Chest Trauma

Patient Assessment

Signs and Symptoms

- Penetrating chest trauma
- Blunt chest trauma
- Dyspnea
- Tachycardia
- Bruising, lacerations, penetrating wounds to chest
- Flail segment
- Absent lung sounds
- JVD

Differential Diagnosis

- Hypoxia
- AMI
- Blunt trauma
- Penetrating trauma
- Tension pneumothorax
- Aortic dissection
- Pulmonary embolism
- Pericardial tamponade

Pediatric Considerations

- Same as adult
- Consider non-accidental trauma

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Scene safety is paramount
- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- General trauma management
- Control external hemorrhage
  - Apply direct pressure, do not pack the chest
- Oxygen, maintain SpO_2 greater than 94%. Do not let a trauma patient become hypoxic
- Pulse oximetry
- Basic airway management
- 3-Sided chest seal or other occlusive dressing to any penetrating wound from the umbilicus to the chin
- Keep the patient warm
- Blood glucose level (BGL) measurement
- Stabilized flail segments with bulky dressings
- Stabilize impaled objects, do not remove them. If they must be removed for the sake of movement and transport, contact OMCP

EMT / AEMT / Medic / Lead / OMCP

- Calculate Glasgow Coma Scale (GCS) score
- Activate a TRAUMA ALERT, if patient meets any of the criteria in the field triage guidelines
- ETCO2

AEMT / Medic / Lead / OMCP

- IV/IO Access for *minor* trauma, IV/IO Access x 2 for *major* trauma
- Isotonic crystalloid, adult 250-500 cc, pediatric 20 cc/kg, ONLY if patient shows signs of shock

Medic / Lead / OMCP

- Cardiac monitor
- Pain management with fentanyl

Lead / OMCP

- Needle decompression, as indicated for signs of tension pneumothorax
- Advanced airway management, as necessary
  - Do NOT intubate before resuscitation unless absolutely necessary to secure the airway
- Pain management with ketamine, fentanyl, or both
  - Ketamine for MAP < 65
  - Ketamine and/or Fentanyl for MAP > 65
- Push-dose epinephrine, as needed for severe hypotension not response to the fluid bolus above
- Tranexamic acid, as indicated
- Whole Blood, as indicated

OMCP

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Watch for signs of tension pneumothorax after placing an occlusive dressing.
- If patient has a definitive airway and it becomes harder to bag, consider tension pneumothorax.

Crush Injuries

Patient Assessment

Signs and Symptoms
- Severe pain
- Pulselessness
- Anuria
- Fracture
- Skin degradation

Differential Diagnosis
- Crush injury
- Rhabdomyolysis
- Renal failure
- Compartment syndrome

Pediatric Considerations
- Same as adult
- Consider non-accidental trauma

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request BLS/ALS, as indicated
- Confined space treatment/rescue should be performed by appropriately trained clinicians
- Continuous air quality measuring should be performed if rescuer and patient are in a confined space
- N95 or higher particulate mask if in a dusty or dirty environment or confined space
- Oxygen, non-rebreather at 15 LPM unless contraindicated
- Remove rings, bracelets, jewelry, or other constricting objects from the crushed extremity or extremities
- Blood glucose level (BGL) measurement
- Keep the patient warm

- Albuterol, if wheezing or other respiratory symptoms with 6-10 lpm oxygen
- 12-Lead EKG
- ETCO2

- IV/IO Access x 2
- Normal Saline, **this is the most important intervention for these patients!**
  - Monitor for fluid overload with the aggressive fluid resuscitation
- Nausea and vomiting guideline, as necessary

- Cardiac monitoring
- Add 1 amp sodium bicarbonate to each liter of fluid infused
- *Continuous* albuterol
- Sodium bicarbonate 50 mEq slow IV push, at the time of release from entrapment
- Calcium chloride and sodium bicarbonate, if cardiac arrest (treat for hyperkalemia)
  - Treat according to cardiac arrest/treatable causes of cardiac arrest
- Pain management with fentanyl

- Pain management with ketamine, fentanyl, or both
  - Ketamine for MAP < 65
  - Ketamine and/or Fentanyl for MAP > 65
- Consider field amputation if patient is unstable and unable to free the patient
- Push-dose epinephrine, as needed for severe hypotension not response to the isotonic crystalloid fluid bolus
- Tranexamic acid, as indicated
- Whole Blood, as indicated and available

- Crush injury proximal to the wrist or ankle requires TRAUMA ACTIVATION
- Any field amputation procedure requires OMCP
- Consider calling Memorial Hospital to ask for a surgeon and ED physician to respond to the scene for prolonged extrication or if there is a possibility of a field amputation. Call early!

Crush Injuries

Clinical Pearls

- Isotonic crystalloid infusion should be initiated prior to extrication, if possible.
- Large volume infusions can help prevent renal failure, critical hyperkalemia, cardiac arrest, and death.
- Monitor for signs of compartment syndrome:
  - Signs of compartment syndrome (5 P's):
    - Pain out of proportion
    - Pulselessness
    - Pallor
    - Paresthesia
    - Paralysis
  - Note, the above are *late* signs of compartment syndrome
- Monitor pediatric and geriatric patients closely for fluid overload.
- The larger the volume of tissue crushed the higher the risk for secondary complications, such as rhabdomyolysis, renal failure, cardiac arrest, and death.
- Practitioners should have a high suspicion for rhabdomyolysis in trauma patients who are injured or debilitated and are on the on the floor for prolonged periods of time.

Dental Trauma and Dental Bleeding

Patient Assessment

Signs and Symptoms

- Severe pain
- Hemorrhage
- Tooth fracture
- Tooth avulsion
- Tooth pain
- Jaw pain

Differential Diagnosis

- Dental/Face trauma
- Dental caries
- Tooth fracture
- Hemorrhage status-post tooth procedure/surgery
- Cardiac etiology of pain

Pediatric Considerations

- Same as adult
- Consider non-accidental trauma

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- If severe bleeding, have the patient sit upright leaning forward and give the patient a suction catheter
- Oxygen, maintain SpO_2 greater than 94% Do not let a trauma patient become hypoxic
- Pulse oximetry
- Head trauma guideline, if severe head trauma
- Evaluate dental or jaw pain for association with cardiac etiology
  - If no dental or jaw trauma is noted, consider cardiac etiology for the pain
- If dental injury is associated with significant or multisystem trauma, control bleeding with direct pressure (folded up gauze – do not place your finger in the patient's mouth) and manage other injuries according to the appropriate trauma guideline(s)
- For dental avulsions, place the avulsed tooth in milk or saline. Do not rub or scrub the avulsed tooth. Do not attempt to replace the tooth
- Always consider coinciding trauma
- If no trauma and the patient has a bleeding gum/tooth from a recent procedure, consider using a cold-water gargle to help with hemostasis

- Acetaminophen for pain control

- Tranexamic acid for uncontrolled dental bleeding. Topical via soaked gauze directly onto the bleed

- No required consults, Consult Online Medical Control[OMCP], as necessary

Clinical Pearls

- Unless associated with trauma, narcotic pain medication is not typically indicated.

Extremity Trauma

Patient Assessment

Signs and Symptoms
- Disarticulation
- Amputation
- Hemorrhage
- Fracture
- Lacerations
- Contusions

Differential Diagnosis
- Compartment syndrome
- Amputation
- Penetrating trauma
- Blunt trauma
- Fractures
- Dislocation
- Hemorrhage

Pediatric Considerations
- Same as adults
- Consider non-accidental trauma

Treatment Guidelines

EMR EMT AEMT Medic Lead OMCP

- Scene safety is paramount
- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- General trauma management
- If crush injury, see Crush Guideline
- Control of life-threatening external hemorrhage takes precedence over any other treatment
- Control external hemorrhage by apply direct pressure
- Tourniquet, if direct pressure is unsuccessful
  - The preferred tourniquet is the CAT or SOFT-T
- Oxygen, maintain SpO_2 greater than 94%. Do not let a trauma patient become hypoxic
- Pulse oximetry
- Basic airway management
- Keep the patient warm
- Blood glucose level (BGL) measurement
- Stabilize impaled objects

- Calculate Glasgow Coma Scale (GCS) score
- Activate a TRAUMA ALERT, if the patient meets any of the criteria in the field triage guidelines or a tourniquet was applied
- ETCO2 with major trauma

- IV/IO Access for *minor* trauma, IV/IO Access x 2 for *major* trauma
- Isotonic crystalloid, adult 250-500 cc, pediatric 20 cc/kg, ONLY if patient shows signs of shock

- Cardiac monitoring
- Pain management with fentanyl

- Advanced airway management, as necessary
  - Do NOT intubate before resuscitation unless absolutely necessary to secure the airway
- Push-dose epinephrine, as needed for severe hypotension not response to the fluid bolus above
- Pain management with ketamine, fentanyl, or both
  - Ketamine for MAP < 65
  - Ketamine and/or Fentanyl for MAP > 65
- Tranexamic acid, as indicated
- Whole Blood, as indicated
- Field amputation [OMCP], as required

- Any field amputation procedure requires OMCP
- Consider calling Memorial Hospital to ask for a surgeon and ED physician to respond to the scene for prolonged extrication or if there is a possibility of a field amputation. Call early!

Clinical Pearls

- Apply the tourniquet 3-4" above the arterial bleed. If unable to confirm all injuries to the extremity, place the tourniquet "high and tight."
- Hemorrhage control takes precedent over all other interventions.

Head Trauma

Patient Assessment

Signs and Symptoms

- Decrease mental status
- "Raccoon eyes"
- CSF leaking from nose or ears
- Battle's sign
- Ataxia
- Amnesia
- Headache
- Vomiting
- Bradycardia
- Anisocoria
- Contusions, abrasions, lacerations

Differential Diagnosis

- Traumatic brain injury
- Closed head injury
- Concussion
- Drug or alcohol intoxication
- Meningitis
- Migraine

Pediatric Considerations

- Same as adult
- Consider non-accidental trauma

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Scene safety is paramount
- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- General trauma management
- Non-Rebreather Oxygen, maintain SpO_2 between above 94%. **Do not ever let a head trauma patient become hypoxic**
  - Non-rebreather mask should be placed on any suspected moderate to severe brain injury.
- Pulse oximetry
- Basic airway management
- Keep the patient warm
- Blood glucose level (BGL) measurement
- Stabilize impaled objects
- Keep head of bed upright at 30 degrees
- Keep NPO
- Pupillary exam
- *Strongly* consider spinal motion restriction (SMR) in blunt trauma head injuries

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- Calculate Glasgow Coma Scale (GCS) score
- Activate a TRAUMA ALERT, if patient meets any of the criteria in the field triage guidelines
- ETCO2
  - Maintain ETCO2 between 35-40 if using BVM for isolated head injuries
  - Values may differ with multi-system trauma or severe illness due to poor perfusion

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- IV/IO Access for *minor* trauma, IV/IO Access x 2 for *major* trauma
- Isotonic crystalloid, adult 250-500 cc, pediatric 20 cc/kg, if patient's SBP < 100 mmhg or MAP < 65. **Keep the SBP > 100 at all times for all head traumas, Keep SBP > 110 for *isolated* head traumas**

- Pain management with fentanyl
- Cardiac monitor

- Advanced airway, as indicated
- Atropine for bradycardia
- Consider sedation with midazolam, if agitated as agitation can increase ICP

- No required consults, Consult Online Medical Control[OMCP], as necessary

Head Trauma

Clinical Pearls

- The “H Bombs” of head trauma. If any one of these occur, the chances for mortality are significantly increased.
  - Do not allow the patient to become **H**ypoxic
  - Do not **H**yperventilate the patient
  - Do not allow the patient to be **H**ypotensive
- PECARN criteria for children. These are the “concerning findings” in a pediatric patient with head trauma.
  - Children older than 2
  - Altered mental status (GCS < 15)
  - Signs of basilar skull fracture
  - High mechanism of injury

Ocular Trauma

Patient Assessment

Signs and Symptoms

- Ocular pain
- Facial trauma
- Blown pupil or constricted pupil
- Nonreactive pupil to light
- Vision loss
- Inability to move eye in one or more directions
- Inability to open eye(s)
- Scleral injection

Differential Diagnosis

- Facial trauma
- Ruptured globe
- Extraocular muscle entrapment
- Iritis
- Retained ocular foreign body
- UV keratitis
- Corneal abrasion
- Corneal laceration
- Closed angle glaucoma

Pediatric Considerations

- Same as adult

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Request BLS/ALS, as indicated based on patient condition and severity of trauma
- General trauma management
- Oxygen, maintain SpO_2 greater than 94%. Do not ever let a head trauma patient become hypoxic
- Pulse oximetry
- Perform a pupillary exam and document pupil size and reactivity
- **For blunt injuries**:
  - Cover *both* the affected eye and the unaffected eye with an eye patch or non-stick gauze
  - Do not use regular gauze to cover the affected eye as it may stick to the eye causing additional injury, unless there is complete enucleation of the eye, then cover the socket with saline moistened gauze
  - If no impaled foreign object, check extraocular muscle movement in all directions
  - Contact lenses should be removed when possible
  - Keep head of bed upright at 30 degrees
- **For chemical injuries**:
  - Contact lenses should be removed
  - Irrigate the eye with a minimum of 2L of isotonic crystalloid
- **Impaled Objects**:
  - Stabilize impaled object
  - Cover the unaffected eye with an eye patch
  - Keep head of bed upright at 30 degrees
- *Strongly* consider spinal motion restriction (SMR) in blunt trauma head injuries

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- Ondansetron for nausea and vomiting
- Pain management

- No required consults, Consult Online Medical Control OMCP, as necessary

Clinical Pearls

- Ask about contact lens usage.
- Ask about glasses usage.
- Ask about blurred vision.
- Patients with severe ocular injuries can present with normal visual acuity.
- Orbital fractures can cause entrapment of extraocular muscles.

Sexual Assault

Patient Assessment

Signs and Symptoms

- Patient states he or she has been "sexually assaulted", "raped", or "sexually abused."

Differential Diagnosis

- None

Pediatric Considerations

- The guideline below also applies to children.

Treatment Guidelines

EMR EMT AEMT Medic Lead OMCP

- Perform standard physical exam of the patient to determine if life-threatening injuries exist. If life or limb threat exists, necessary medical intervention shall take priority over evidence preservation. However, if no life or limb threat exists, help maintain evidence collection in coordination with law enforcement.
- Try to avoid removing clothing or separating the patient from evidence on their person.
- If removing clothing, attempt to bag, in a brown paper bag, each article of clothing separately to avoid cross contamination.
- If cutting clothing, attempt to stay at least six inches (6") away from tears, holes, or visibly soiled areas.
- Keep all equipment and supplies that are used to care for the patient and include them as evidence.
- Patient belongings should be transported to the hospital with the patient. *Chain of custody must be maintained*.
- All belongings, removed or otherwise, should be documented in the patient's chart.
- Patient shall remain NPO (nothing by mouth).
- If the patient must urinate, vomit, or defecate, the evidence should be collected in a clean, sterile container. The patient should not wipe afterwards. The container/specimen should be appropriately labeled.
- Do not allow the patient to urinate, wash hands, or "clean up." If the patient insists, explain to the patient that this may destroy evidence which could be paramount in the investigation.
- Law enforcement should be notified of the sexual assault allegation, if the patient consents to the notification and the patient is not a minor.
- Do not argue with the patient about the allegations or situation surrounding the sexual assault. Take what the patient states at face value. This applies even if the patient is intoxicated or otherwise inhibited or altered.

- **The patient's medical needs will always take priority over evidence collection/preservation.**
- Patient's not requiring emergent intervention for their traumatic injuries, patients who do not meet destination criteria for Memorial Hospital South Bend, or who do not specifically request to be transported to Memorial Hospital, **<u>shall</u> be transported to St. Joseph Regional Medical Center for a medical forensic exam and ongoing medical care.**

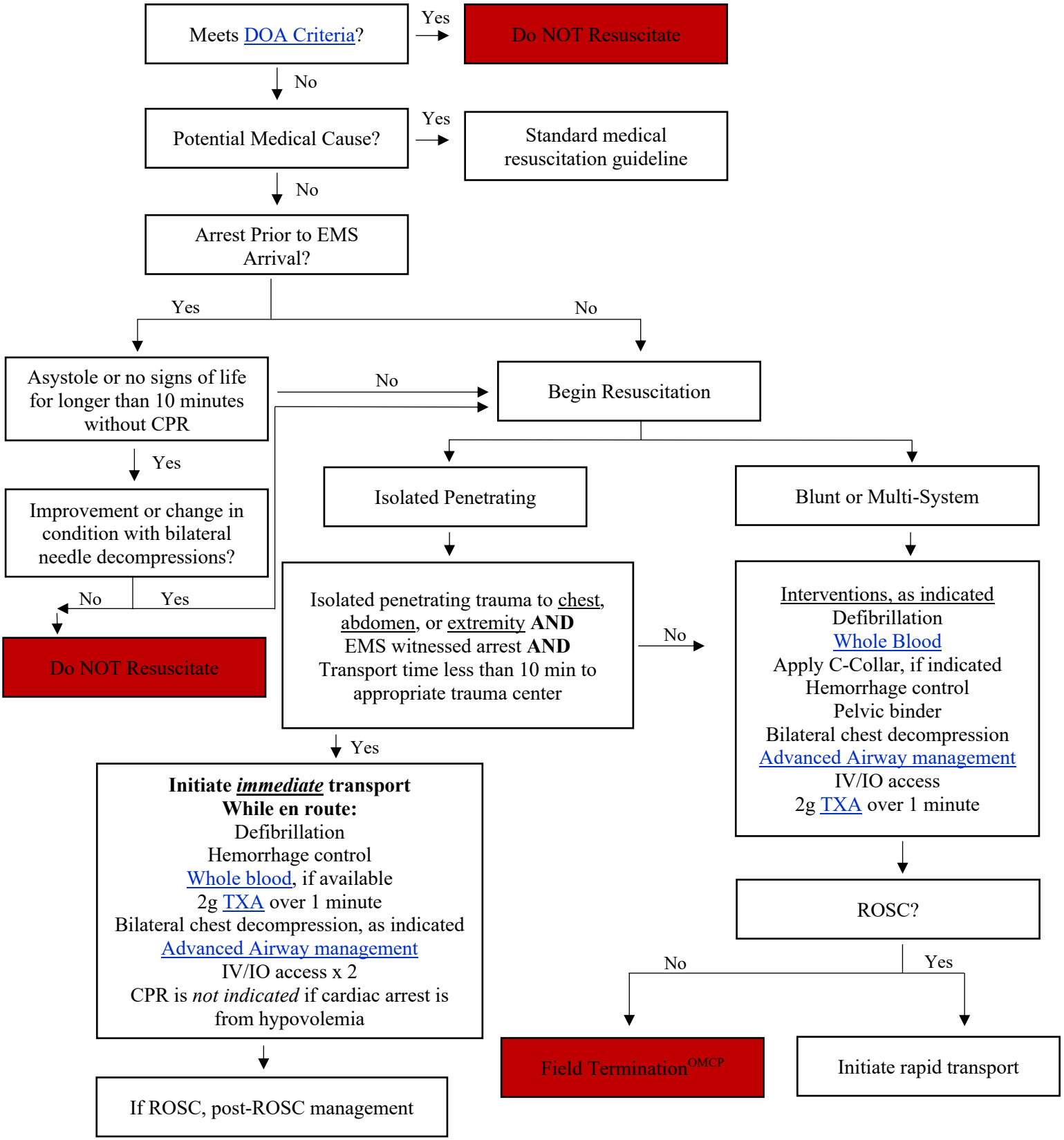
- No required consults, Consult Online Medical Control[OMCP], as necessary

Clinical Pearls

- The medical needs of the patient will ***always*** outweigh the collection and preservation of evidence.
- Ensure you are safe to transport the patient. If there is concern the suspect may attempt to disrupt the transport, ask for a police escort or have an officer accompany the patient in the back of the ambulance.
- The sexual assault exam and care are covered by the state sexual assault victim's fund.
- St. Joseph Hospital's Forensic Department helps the victim by providing a comprehensive forensic exam, providing victim's advocates, providing HIV prophylaxis, providing STI prophylaxis, and comprehensive follow-up. This applies to both adults and children.
- See definition of sexual assault and rape in the definitions section. The Indiana statute that defines sexual assault and rape is IC 35-42-4.

Traumatic Cardiac Arrest

Patient Assessment



Traumatic Cardiac Arrest

MEDICAL CONTROL/REQUIRED CONSULTATIONS

- Medical control should be consulted when activating a mass casualty incident to alert of the potential for a large influx of patients to the emergency department.
- Dispatch should be notified of a mass casualty event and an EMS plan should be activated, per EMS Plan Guideline.

Clinical Pearls

- Mass Casualty Incident/Mass Patient Incident (MCI) should be considered anytime the number of potential patients exceeds the number of available resources. When an MCI is confirmed, patient triage must be the first priority.
- Mass casualty (patient) events can be as simple as a two-vehicle accident with entrapment in a rural area or as complex as a stadium collapse at a high school or college.
- Error on the side of caution and request more resources than are believed to be required

SECTION 5
SPECIAL OPERATIONS

Mass Gatherings: Notre Dame Football On-Field Cardiac Arrest

Patient Assessment

Signs and Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential Diagnosis
- Respiratory Arrest
- Trauma
- Tension Pneumothorax
- Hypoglycemia
- Acidosis
- Genetic cardiomyopathy

Pediatric Considerations
- Use pediatric medication dosing and defibrillation doses for children under 37kg, as defined by the Pedi Tape or Broselow Tape

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Pit Crew CPR, if pulseless and apneic
  - Mechanical CPR is permitted after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Oxygen through BVM
- Basic Airway management, with supplemental oxygen
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Immediately request on-field ambulance response
- Request privacy blankets

EMT / AEMT / Medic / Lead / OMCP

- BLS airway management with LMA, King LT, or other non-visualized or supraglottic airway
- $EtCO_2$
- Once ambulance arrives
  - If the Lucas® Device or other mechanical CPR device is available
    - Apply the Lucas® Device or other mechanical CPR (mCPR) device, per guideline
      - Ensure the Lucas® Device or other mechanical CPR device will fit the patient before starting to apply the device
    - Secure the patient on a backboard while continuing mCPR
    - Move the patient into the ambulance
      - When deciding to move the patient, it should be determined that the move will not interrupt CPR for more than 10 seconds. *If moving the patient will delay CPR or other lifesaving intervention by more than 10 seconds, leave the patient in place, unless the benefits of moving the patient outweigh the risks of the delay in CPR*
  - If the Lucas® Device or other mechanical CPR device is not available
    - Continue manual CPR
    - Do not move/transport the patient until the patient is secured to a backboard, the on-field ambulance is ready, and disruption of CPR will be less than 10 seconds
- If ROSC is achieved, perform post-resuscitative checklist and move the patient to the on-field ambulance

AEMT / Medic / Lead / OMCP

- IV/IO access

Medic / Lead / OMCP

- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline

Lead / OMCP

- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline
- *Do not terminate resuscitation in the field on an athlete or coach*. Apply the mechanical CPR device, if available and not already applied. If no ROSC after 10 minutes of high-quality CPR, transfer the patient to the ambulance and transport the patient to Memorial Hospital while continuing high quality CPR/mCPR

OMCP

- Use on-site medical control

Clinical Pearls

- If the patient is a collegiate athlete, use on-site medical control, if available, otherwise call Memorial Hospital Medical Control
  - For home football games, an emergency medicine physician will be on-field with the ALS crew for management of these patients. This physician shall act as medical control for these patients
- A team physician or athletic training shall be permitted to ride with the patient in the ambulance, although, space permitting, may be required to sit in the front seat

Mass Gatherings: On-Field/Court/Ice/Track Cardiac Arrest

Patient Assessment

Signs and Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential Diagnosis
- Respiratory Arrest
- Trauma
- Tension Pneumothorax
- Acidosis
- Acute MI/PE
- Genetic cardiomyopathy

Pediatric Considerations
- Use pediatric medication dosing and defibrillation doses for children under 37kg, as defined by the Pedi Tape or Broselow Tape

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Pit Crew CPR, if pulseless and apneic
  - Mechanical CPR is permitted after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Request ALS unit
- Oxygen through BVM
- Basic Airway management, with supplemental oxygen
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM
- Request privacy blankets

- $ETCO_2$
- Mechanical CPR Device
  - If the Lucas® Device or other mechanical CPR device is available
    - Apply the Lucas® Device or other mechanical CPR (mCPR) device, per guideline
      - Ensure the Lucas® Device or other mechanical CPR device will fit the patient before starting to apply the device
    - Secure the patient on a backboard while continuing mCPR
    - Move the patient into the ambulance/off the playing surface to an appropriate location, as indicated
      - When deciding to move the patient, it should be determined that the move will not interrupt CPR for more than 10 seconds. *If moving the patient will delay CPR or other lifesaving intervention by more than 10 seconds, leave the patient in place, unless the benefits of moving the patient outweigh the risks of the delay in CPR*
  - If the Lucas® Device or other mechanical CPR device is not available
    - Continue manual CPR
    - Do not move/transport the patient until the patient is secured to a backboard, the on-field ambulance is ready, and disruption of CPR will be less than 10 seconds
- If ROSC is achieved, perform post-resuscitative checklist and move the patient to the ALS ambulance, when available

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- IV/IO access

- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline

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- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline
- *Do not terminate resuscitation in the field on an athlete or coach*. Apply the mechanical CPR device, if available and not already applied. If no ROSC after 10 minutes of high-quality CPR, transfer the patient to the ambulance and transport the patient to Memorial Hospital while continuing high quality CPR/mCPR

- No required consults, Consult Online Medical Control[OMCP], as necessary

Clinical Pearls

- If the patient is a collegiate athlete, use on-site medical control, if available, otherwise call Memorial Hospital Medical Control
- A team physician or athletic training shall be permitted to ride with the patient in the ambulance, although, space permitting, may be required to sit in the front seat
- Athletes and coaches from Notre Dame's campus and coaches shall go to Memorial Hospital. All others shall go to the closest most appropriate hospital.

Mass Gatherings: Spectator Cardiac Arrest

Patient Assessment

Signs and Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential Diagnosis
- Respiratory Arrest
- Trauma
- Tension Pneumothorax
- Hypoglycemia
- Acidosis
- Acute MI/PE
- Genetic cardiomyopathy

Pediatric Considerations
- Use pediatric medication dosing and defibrillation doses for children under 37kg, as defined by the Pedi Tape or Broselow Tape

Treatment Guidelines

EMR / EMT / AEMT / Medic / Lead / OMCP

- Assess for unresponsiveness, inadequate breathing, and pulselessness
- Pit Crew CPR, if pulseless and apneic
  - Mechanical CPR is permitted after a minimum of 3 cycles of manual compressions
- Apply AED, follow prompts for defibrillation
- Request ALS unit
- Oxygen through BVM
- Basic Airway management, with supplemental oxygen
- Passive Oxygenation with 25 LPM nasal cannula in addition to BVM

- $ETCO_2$
- Mechanical CPR Device
  - If the Lucas® Device or other mechanical CPR device is available
    - Apply the Lucas® Device or other mechanical CPR (mCPR) device, per guideline
      - Ensure the Lucas® Device or other mechanical CPR device will fit the spectator before starting to apply the device
    - Secure the patient on a backboard while continuing mCPR
    - Move the patient into the ambulance or other appropriate location amenable to high quality resuscitation
      - When deciding to move the patient, it should be determined that the move will not interrupt CPR for more than 10 seconds. *If moving the patient will delay CPR or other lifesaving intervention by more than 10 seconds, leave the patient in place, unless the benefits of moving the patient outweigh the risks of the delay in CPR*
  - If the Lucas® Device or other mechanical CPR device is not available
    - Continue manual CPR
    - Do not move/transport the patient unless high quality resuscitation is not possible due to location, ie on the bleachers, in the middle of the road, in the middle of a large crowd, etc.
- If ROSC is achieved, perform post-resuscitative checklist and move the patient to the ALS ambulance, when available

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- IV/IO access

- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline

---

- Manage patient according to the VF/pVT guideline or Asystole/PEA guideline

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- No required consults, Consult Online Medical Control[OMCP], as necessary

Patient Assessment

- This guideline applies to all spectators of an athletic event in cardiac arrest
- This does *not* apply to athletes or field crew. See "**Mass Gatherings: Notre Dame Football On-Field Cardiac Arrest"** or "**Mass Gatherings: On-Field/Court/Ice/Track Cardiac Arrest"**
- If the patient requires transport to a local hospital for the use of the morgue, given the public venue, refer to guideline Alternative Destination Guideline

Public Safety Rehab

Patient Assessment

Signs and Symptoms

- Shortness of breath
- Elevated temperature
- Altered mental status
- Tachycardia
- Tachypnea
- Nausea/Vomiting
- Anhidrosis or Profuse sweating
- Red, flushed skin

Differential Diagnosis

- Cardiac arrhythmia
- Electrolyte imbalance
- Exhaustion
- Carbon monoxide inhalation
- Cyanide exposure

Pediatric Considerations

- NA

Treatment Guidelines

EMR | EMT | AEMT | Medic | Lead | OMCP

- Baseline assessment
  - Confirm **no** chest pain, shortness of breath, nausea/vomiting, headache, or weakness
  - Confirm **no** severe cramps
  - Confirm **no** symptoms of heat or cold related injuries
  - Confirm **no** changes in speech, gait, or affect
  - Ensure patient **is** alert and oriented
- Obtain baseline set of vitals – Blood Pressure, Pulse, SpO_2, Respiratory Rate
  - Blood glucose level (BGL) and temperature only need to be obtained if the patient is altered
- Once vital signs are completed and if the emergency responder does not have any acute alterations on the baseline exam or acute complaints, the emergency responder should be directed to the rest and recovery area for hydration and nutrition
  - The emergency responder should be assigned to the rest and recovery area for a *minimum* of 20 minutes
  - If extreme heat, ensure both passive and active cooling measures are available
  - If extreme cold, ensure both passive and active rewarming measures are available
- If the patient has any acute complaints or symptoms, move to the appropriate patient care guideline and remove the emergency responder from service at the incident
  - If only minor cuts, burns, or abrasions the emergency responder need not be removed from service
- Pre-Redeployment Assessment
  - Confirm **no** chest pain, shortness of breath, nausea/vomiting, headache, or weakness
  - Confirm **no** severe cramps
  - Confirm **no** symptoms of heat or cold related injuries
  - Confirm **no** changes in speech, gait, or affect
  - Ensure patient **is** alert and oriented
- Obtain repeat set of vitals – Blood Pressure, Pulse, SpO_2, Respiratory Rate
  - Repeat vitals should show trend toward normal and should be within the expected/acceptable range (see Clinical Pearls below) prior to redeployment
- If the Pre-Redeployment Assessment is acceptable, the emergency responder is appropriate for redeployment
- If the Pre-Redeployment Assessment is **not** acceptable but the emergency responder has no acute complaints, the emergency responder should be reassigned to the rest and rehab area for another 20 minutes
  - After 20 minutes, re-assess the emergency responder via the "Pre-Redeployment Assessment" above
    - If the Pre-Redeployment Assessment is acceptable, the emergency responder is appropriate for redeployment
    - If the Pre-Redeployment Assessment is **not** acceptable, the emergency responder should be removed from service at the incident
- If the emergency responder requires medical intervention other than oral rehydration, nutrition, and passive heating/cooling see below. If not, the emergency responder can be released for duty and no additional assessments or interventions are required
- Emergency responders requiring intervention
  - Oxygen, keep $SpO_2 \geq 94\%$
  - Move to appropriate guideline based on chief complaint for management or move to the General Medical Guideline

Public Safety Rehab

- No required consults, Consult Online Medical Control[OMCP], as necessary

Clinical Pearls

- Based off of NFPA 1584 - Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises
- Per NFPA 1854, the rehab site should be setup in a location that provides shelter for the emergency responders and is far enough away from the active scene so protective gear/turnout gear can be doffed without risk of exposure or environmental conditions.
  - Ideally, the rehab site will be setup in a location out of site from the public and from the immediate scene as to help the emergency responder decompress and be shielded from the emergency scene. This will hopefully help decrease emergency responders' angst and decrease the desire of the emergency responder to enter or exit rehab inappropriately.
  - This guideline applies to emergency scenes, training exercises, and any response where the emergency responder is exerting himself or herself for more than 40 minutes.
- Criteria for entering rehab
  - All firefighters should go through the rehab process after meeting one of the following criteria:
    - Use of a second 30-minute SCBA bottle or 45-minute **OR**
    - Use of a single 60-minute SCBA bottle **OR**
    - 45 minutes of intense work without an SCBA
- Use the Public Safety Rehab Document, if available, to track throughput of the rehab patients
- Baseline Vitals Assessment
- Pre-Redeployment Vital Signs
  - To be redeployed, the emergency responder must have vital signs as below:
    - Heart rate below 100 bpm with no irregular beats
    - SBP below 160 mmhg
    - DBP below 100 mmhg
    - Respiratory rate between 12-20 per minute
    - No abnormal neurological findings (per the Pre-Redeployment exam above
    - No acute complaints
- See Heat Index chart for incidents during the summer.
- See Wind Chill chart for incidents during the winter.
- Emergency Responder – Firefighters, EMS Practitioners, and Law Enforcement. This could also encompass USAR, TRT, etc.
- Specific availability of hydration and nutrition will be left up to the individual departments. However, a mixture of water and electrolyte containing solutions should be available for rehydration.

Rescue Taskforce (RTF)/Active Shooter

Guideline currently in development in conjunction with law enforcement. It will be released at a later time.

Operational K9 Medicine

Patient Assessment

Signs and Symptoms
- Unresponsive
- Excessive Panting
- Ataxia
- Tachypnea

Differential Diagnosis
- Dehydration
- Toxin Exposure/Ingestion
- Trauma
- Hyperthermia

Pediatric Considerations
- NA

Treatment Guidelines

EMR EMT AEMT Medic Lead OMCP

- Do not attempt to handle or treat a conscious operational canine without a trained canine handler or agency representative available to restrain the animal
- Apply a muzzle to protect care providers unless respiratory distress precludes its use. If possible, have the canine handler apply the muzzle to avoid undue stress on the animal
- Move the operational canine to a safe location. Keep collars and tactical vests in place to aid restraint and movement unless they are causing obvious harm to the animal
- If K9 is unresponsive, pulseless, and apneic, basic life support CPR should be initiated
- Naloxone, if concern for opiate overdose or ingestion
- The operational canine should be assessed for external hemorrhage as well as potential unrecognized hemorrhage
  - The EMS practitioner should work to control all sources of hemorrhage using direct pressure, wound packing, and/or circumferential pressure dressing. Use of impregnated hemostatic dressings or other suitable absorbent material is acceptable
  - The use of tourniquets is controversial in operational canines. Their use should be judiciously considered and limited to injuries located on the distal limb and tail when possible
  - Do *not* use TXA on a K9
- Place the canine in a position that favors air movement with the least amount of expended energy and minimizes stress on the patient
  - If airway obstruction is suspected and a patient airway cannot be achieved using an endotracheal tube the EMS professional may attempt the Heimlich maneuver
- Administer oxygen either via flow-by route, loose-fitting face mask, vented bag-valve-mask (BVM), or oxygen hood when the airway is not obstructed
- Practitioners may consider the use of manual stabilization or the temporary application of a splint if the operational K9 has a fracture or joint luxation of the distal limb. This procedure may help avoid further soft tissue and neurovascular injury.
  - If transport times are anticipated to be less than 20 minutes and patient movement can be minimized the EMS professional may consider delaying splinting or bandaging until the animal is transferred to the veterinary hospital
  - Open wounds should be covered with a clean nonadherent dressing
  - Temporary stabilization may be achieved using a soft padded bandage
  - The bandage should incorporate the joint above and below the point of injury to limit motion and pressure
  - The K9 should have restricted movement during transport to reduce pain and further injury

EMT AEMT Medic Lead OMCP

AEMT Medic Lead OMCP

Medic Lead OMCP

- IV/IO access
  - Paramedics who have received and maintained specific canine intravenous access skills training may place a large bore intravenous catheter in the cephalic or lateral saphenous vein to allow for administration of crystalloid or colloid solutions
  - Isotonic crystalloids, if concern for hypovolemic shock, dehydration, or in cardiac arrest

Lead OMCP

- Endotracheal intubation, if airway cannot be established with basic maneuvers
- Needle tracheotomy or cricothyrotomy **if authorized by the licensed, receiving veterinarian**

OMCP

- Once treatment of a working K9 has been authorized by the handler and is indicated, stabilizing interventions should be started while another practitioner is calling one of the emergency veterinarian numbers below. **A veterinarian must be consulted.**

Operational K9 Medicine

Clinical Pearls

- Emergency Veterinary Care Center
  5714 N. Main St.
  Mishawaka, Indiana 46545
  (574) 406-1957

  Emergency Veterinary Care Center
  1645 U.S. 421 (On Purdue university Northwest Campus)
  Westville, Indiana 46391
  (219) 356-6138

- Treatment of operational K9s should focus on the XABCD algorithm, just like a human.
- The individual accompanying the operational K9 has the right to refuse any treatment option that is offered for the care of the dog.
- Canines requiring CPR have about a 6% chance of survival.
- Any skill above the EMR level requires the practitioner to be specifically trained in K9 TCCC.
- Ambulances are authorized to transport and resuscitate the working K9, per IC 16-31-13.
- All of the above guidelines and recommendations have been taken from the Indiana State Board of Animal Health *Recommendations for Pre-Hospital Care of an Operational Canine, Injured or Ill in the Line-Of-Duty*.

Mass Casualty

Refer to the most up-to-date EMRP.

See SALT TRIAGE Procedure.

SECTION 6
PROCEDURES

Procedure: Cardioversion, Chemical

Background: Chemical cardioversion is an alternative to electrical cardioversion for some tachydysrhythmias. While there are multiple medications which are indicated for chemical cardioversion, adenosine will be the primary medication used for narrow complex tachydysrhythmias, and amiodarone or lidocaine will be the primary medications used in wide complex tachydysrhythmias.

Indications:

- *Stable* tachydysrhythmias with a pulse.
  - Supraventricular tachycardia (SVT).
  - Regular, narrow complex tachycardia (not sinus tachycardia).
  - Regular, wide complex tachycardia.

Contraindications:

- *Unstable* tachydysrhythmias > proceed directly to electrical cardioversion.
- Stable atrial fibrillation or atrial tachycardia with RVR.
- Sinus tachycardia.

Procedure:

1. Confirm the rhythm with a 12-lead EKG.
2. Ensure the cardiac monitor pads are in firm contact with the patient's bare skin.
   - The pads should be placed in the anterior/posterior positions, if possible.
3. Explain the procedure to the patient while preparing to perform the procedure and explain the negative feeling they will likely experience particularly with adenosine administration.
4. Administer the medication, per the medication monograph.
   - Narrow complex tachycardia – Adenosine.
   - Wide complex tachycardia – Amiodarone or lidocaine.
5. Reassess the patient to ensure the chemical cardioversion was successful.
6. If at any time the patient deteriorates into ventricular fibrillation (VF) or pulseless ventricular tachycardic (pVT), immediately perform an *unsynchronized* cardioversion/defibrillation and move to the appropriate guideline for ongoing resuscitation.
7. Document the procedure, including times, in the ePCR.

Notes:

- Do not delay electrical cardioversion on hemodynamically unstable patients.
- Specific indication for cardioversion of atrial fibrillation with RVR must be documented in the ePCR.
- If the patient has undergone chemical cardioversion previously and required 12mg of adenosine, proceed directly to 12mg and skip the 6mg dose. Document this in the ePCR.
- Ensure the tachycardia is not related to sepsis.

Procedure: Cardioversion, Electrical

Background: Electrical cardioversion, or synchronized cardioversion, is an alternative to chemical cardioversion. This method should be reserved for those patients who show signs of instability. In cases of instability, procedural sedation nor analgesic medications may not be indicated. However, when there is time to administer procedural sedation medications and analgesic medications, it should be done. In general, unless there are extenuating circumstances, electrical cardioversion should not be performed for patients in atrial fibrillation with RVR.

Indications:

- *Unstable* tachydysrhythmias with a pulse.
  - Regular monomorphic narrow complex tachycardia, supraventricular tachycardia (SVT), atrial fibrillation or atrial flutter with rapid ventricular response.
  - Regular monomorphic wide complex tachycardia.
  - Irregular monomorphic wide complex tachycardia.

Contraindications:

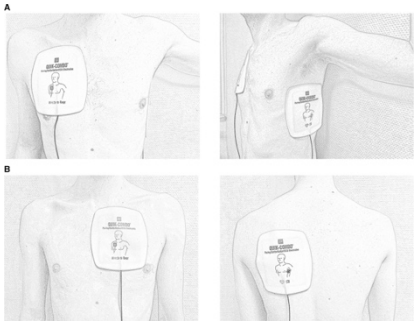
- Repetitive, or non-sustained, tachydysrhythmias.
- Sinus tachycardia.

Procedure:

1) Confirm the rhythm.
2) Ensure the LifePak pads are in firm contact with the patient's bare skin.
   a) The pads should be placed in the anterior/posterior positions, if possible.
3) Set the monitor to the "sync" mode.
   a) There should be a marker above (or below) each R wave of each QRS complex.
4) If the patient is awake and alert, explain the procedure to the patient while preparing to perform the procedure.
5) If the patient is stable enough, consider the use of procedural sedation or analgesics prior to proceeding. As noted in the "notes" section below, electrical cardioversion should not be delayed to perform procedural sedation and/or administer analgesics if the patient is severely hemodynamically unstable.
6) **Ensure the LifePak is synced!**
7) Charge the LifePak to the appropriate level (usually 200 J).
8) Clear all personnel from direct patient contact.
9) Push and hold the discharge button until the electrical charge has been delivered.
   a) Note, because this is a synchronized cardioversion, there may be a delay from the time of initially depressing the discharge button to the time the electrical charge is delivered.
10) Reassess the patient to ensure the synchronized cardioversion was successful.
11) If at any time the patient deteriorates into ventricular fibrillation (VF) or pulseless ventricular tachycardic (pVT), immediately perform an *unsynchronized* cardioversion/defibrillation and move to the appropriate guideline for ongoing resuscitation.
12) Document the procedure, including times, in the ePCR.

Notes:

- Do not delay electrical cardioversion on hemodynamically unstable patients for sedation or analgesia.
- Specific indication for cardioversion of atrial fibrillation with RVR must be documented in the ePCR.
- As necessary, consider placing the pads *under* breast tissue rather than over/on the breast tissue.



Procedure: Defibrillation

Background: Defibrillation should be performed when the patient is in cardiac arrest. Rhythms amenable to defibrillation are ventricular fibrillation and pulseless ventricular tachycardia.

Indications:

- Patient in cardiac arrest with a shockable rhythm – ventricular fibrillation, pulseless ventricular tachycardia.

Contraindications:

- Cardiac arrest without a shockable rhythm.

Automated External Defibrillation (AED)*:
Procedure:

1. Power on the AED.
2. Follow the prompts.
   a. Attach the pads to the patient and ensure they are in firm contact with the patient's bare chest.
      i. The pads should be placed in the anterior/posterior position, if possible.
      ii. If the anterior/posterior position is not available, the pads should be placed in the position shown on the pads or as recommended by the manufacturer.
   b. Stop CPR and clear the patient for analysis of the rhythm.[#]
      [#]Note, some new AED models allow for analysis *during* compressions so continuing CPR is possible. Follow the commands on the AED as noted above.
   c. If shock is indicated, clear the patient prior to delivery of the shock.
   d. Deliver the defibrillation.
   e. Immediately resume CPR.
3. Document the procedure, including times, in the ePCR.

Manual Defibrillation:
Procedure:

1. Confirm the rhythm is ventricular fibrillation or pulseless ventricular tachycardia.
2. Ensure the LifePak pads are in firm contact with the patient's bare skin.
   - The pads should be placed in the anterior/posterior positions, if possible.
3. Charge the LifePak to the appropriate discharge (Joules) level
   - Use the manufacturer's recommendations. If unknown, use the maximum available energy.
4. Clear all personnel from direct patient contact.
5. Push the discharge button until the electrical charge has been delivered.
6. Immediately resume CPR.
7. Document the procedure, including times, in the ePCR.

Notes:

- Dry the chest wall if the patient is wet or diaphoretic.
- Do not place pads over mediation patches. Patches should be removed and the skin wiped dry. Do not place pads over nitroglycerin paste. Wide the skin dry.
- Do not place pads over ICD (implantable cardioverter devices) or pacemakers.
- If the patient has not converted after 2-3 defibrillations, consider moving the pads to another position to change the vector of the electrical discharge. Also consider dual sequential defibrillation (see below).

***EMR, EMT, and AEMT only permitted to perform automated external defibrillation (AED).**

Procedure: Dual Sequential Defibrillation

Background: Dual sequential defibrillation should be performed when the patient is in cardiac arrest and the patient's cardiac rhythm is refractory to standard defibrillation techniques. Recent literature has shown the vector changes and/or dual sequential defibrillation can be successful in terminating ventricular fibrillation or pulseless ventricular tachycardia which were refract to standard defibrillation techniques.

Indications:

- Patient in cardiac arrest with a shockable rhythm – ventricular fibrillation, pulseless ventricular tachycardia, and has failed standard defibrillation attempts.

Contraindications:

- Cardiac arrest without a shockable rhythm.

Dual Sequential Defibrillation with an Automated External Defibrillation (AED):
Procedure:

1. Power on the AED.
2. Follow the prompts.
   a. Attach the pads to the patient and ensure they are in firm contact with the patient's bare chest.
      i. The pads should be placed in the anterior/posterior position, if possible.
      ii. If the anterior/posterior position is not available, the pads should be placed in the position shown on the pads or as recommended by the manufacturer.
   b. Stop CPR and clear the patient for analysis of the rhythm.[#]
      [#]Note, some new AED models allow for analysis *during* compressions so continuing CPR is possible. Follow the commands on the AED as noted above.
   c. If shock is indicated, charge the AED while continuing CPR.
3. Ensure the manual defibrillation device is also attached and in firm contact with the patient's bare skin.
   a. The pads should be placed in the alternative positions from the AED.
4. Charge the manual defibrillation device to 360 J
   a. Use the manufacturer's recommendations. If unknown, use the maximum available energy.
5. Clear all personnel from direct patient contact.
6. The same EMS practitioner should discharge the AED *first* and then *immediately after* discharge the manual defibrillation device
   a. Note, this is dual *sequential* defibrillation, **not** dual simultaneous defibrillation
7. Immediately resume CPR.
8. Document the procedure, including times, in the ePCR.

Dual Sequential Defibrillation with two manual defibrillation devices:
Procedure:

1. Confirm the rhythm is ventricular fibrillation or pulseless ventricular tachycardia.
2. Ensure both manual defibrillation device have both pads in firm contact with the patient's bare skin.
   - One set of pads should have anterior/lateral placement while the other has anterior/posterior placement
3. Charge both manual defibrillation device to 360J
1. Clear all personnel from direct patient contact.
2. Push the discharge button on one of the manual defibrillation device and once the energy has been delivered immediately push the discharge button on the other manual defibrillation device. The same person should discharge both units to ensure simultaneous delivery is *not* performed.
3. Immediately resume CPR.
4. Document the procedure, including times, in the ePCR.

Notes:

- The same EMS practitioner should push *both* defibrillation buttons to ensure simultaneous delivery of electrical discharges is *not* performed.
- Do not place pads over mediation patches. Patches should be removed and the skin wiped dry. Do not place pads over nitroglycerin paste. Wide the skin dry.
- Do not place pads over ICD (implantable cardioverter devices) or pacemakers.

***EMR, EMT, and AEMT only permitted to perform automated external defibrillation (AED).**

Procedure: Electrocardiogram (EKG)

Background: An electrocardiogram, EKG (or ECG), uses electrodes on the chest to evaluate the electrical activity of the heart. The test is painless. It records voltage (mV) vs. time (ms).

Indications:

- Patients with chest pain, shortness of breath, altered mental status, weakness, stroke-like symptoms, sepsis, seizure, syncope, lightheadedness, or any other symptom which could be related to a cardiac arrythmia.

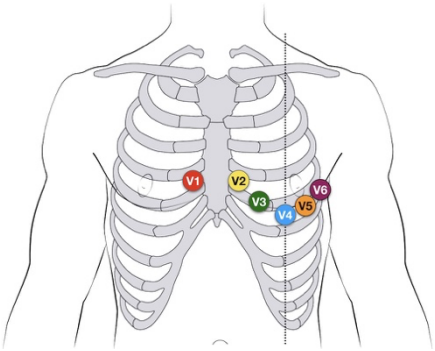
Contraindications:

- None in the emergent setting.

Procedure:

Standard Lead Placement

1. Expose the bare chest. Modesty should be respected as best as possible.
2. Prep the patient's chest, as indicated.
3. Apply the leads in the following positions:
   a. **RA** – Right Arm
   b. **LA** – Left Arm
   c. **RL** – Right Leg
   d. **LL** – Left Leg
   e. **V1** – 4th intercostal space to the right of the sternal border
   f. **V2** – 4th intercostal space to the left of the sternal boarder
   g. **V3** – Directly between V2 and V4
   h. **V4** – 5th intercostal space in the midclavicular line
   i. **V5** – Level with V4 at the left anterior axillary line
   j. **V6** – Level with V5 at the left midaxillary line

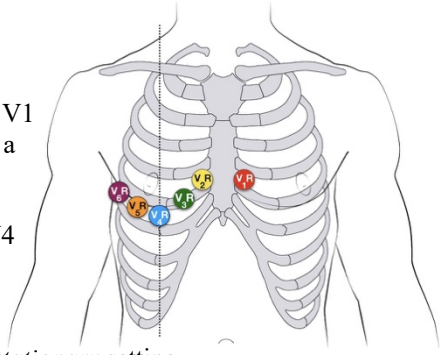


4. Ensure the leads are connected to the cardiac monitor.
5. Enter the required patient information into the cardiac monitor.
6. Instruct patient to hold as still as possible. Ideally, the EKG will be performed in a *stationary* setting.
7. Press the appropriate button to acquire the EKG.
8. For patients with ongoing shortness of breath or chest pain, keep the leads connected to the patient to allow for automated ST-Segment monitoring.
9. Repeat 12-Lead EKG acquisition as indicated by patient's condition.
10. Document the procedure, time, and interpretation in the ePCR.
11. If an EMT or AEMT, if EKG reads "STEMI", the EKG should be transmitted immediately to the destination hospital with a follow-up call to OMCP.

Right-Sided EKG*

* Note, there are several ways of obtaining a right-sided EKG. This is only one option.

1. If an inferior STEMI is identified, consider obtaining a right-sided EKG.
2. After acquiring the standard placement 12-lead EKG, leave the limb leads and leads V1 and V2 in their usual position. Move leads V3-V6 onto the right side of the chest in a mirror image of the standard lead placement.
3. Apply leads V3-V6 in the following positions:
   a. **V3** – Becomes V3R, directly between V1 (V2 if V1 and V2 are reversed) and V4
   b. **V4** – Becomes V4R, 5th intercostal space in the midclavicular line
   c. **V5** – Becomes V5R, level with V4R at the left anterior axillary line
   d. **V6** – Becomes V6R, level with V5R at the left midaxillary line

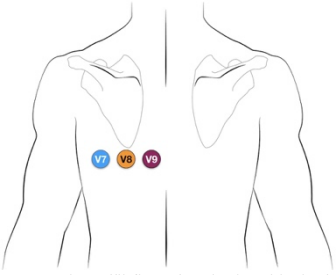


4. Instruct patient to hold as still as possible. Ideally, the EKG will be performed in a *stationary* setting.
5. Press the appropriate button to acquire the EKG.
6. Document the procedure, time, and interpretation in the ePCR. Make sure to document it is a *right-sided* EKG and mark the right-sided leads as above.

Procedure: Electrocardiogram (EKG)

Posterior EKG

1. If there is concern for a posterior STEMI, typically significant ST-depression in leads V1 and V2, consider obtaining a posterior EKG.
2. After acquiring the standard placement 12-lead EKG, leave the limb leads and leads V1-V3 in their usual position. Move leads V4-V6 onto the patient's left back.
3. Apply leads V4-V6 in the following positions:
   a. **V4** – Becomes V7, in the same plane as V6 in the posterior axillary line
   b. **V5** – Becomes V8, in the same plane as V6, at the inferior tip of the scapula
   c. **V6** – Becomes V9, in the same plane as V6, in the left paraspinal region
4. Instruct patient to hold as still as possible. Ideally, the EKG will be performed in a *stationary* setting.
5. Press the appropriate button to acquire the EKG.
6. Document the procedure, time, and interpretation in the ePCR. Make sure to document it is a *posterior* EKG and mark the posterior leads as above.



Images: https://litfl.com/ecg-lead-positioning/

Procedure: External Cardiac Pacing

Background: External cardiac pacing is indicated when a patient has unstable bradycardia and is unresponsive to atropine (adult) or epinephrine and aggressive oxygenation and ventilation (peds). External pacing is a temporary intervention to more definitive care.

Indications:

Adult Patients:

- Unstable bradycardia
  - Heart rate < 60 and
  - SBP < 90 mmhg or MAP < 65 or
  - Change in mental status or
  - Heart failure or
  - Chest pain

Pediatric Patients:

- Unstable bradycardia
  - Unresponsive to treatable causes and
  - SBP < 70 + (age in years x 2) mmhg and
  - Unresponsive to aggressive oxygenation and ventilation attempts

Contraindications:

- Severe hypothermia

Procedure:

1. Expose the bare chest. Modesty should be respected as best as possible.
2. Prep the patient's chest, as indicated.
3. Attach the cardiac monitor's standard 4 leads.
4. Apply defibrillation/pacing pads to the chest.
   a. There can be attached in the anterior/lateral position or the anterior/posterior position.
   b. For pediatric patients, use the correct size/type of pads for pacing and patient weight.
5. Select pacing mode on the monitor.
6. Adjust the heart rate to 80 bpm (adult) or 100 bpm (peds).
7. Adjust the mA to 100.
8. Note the presence of pacer spikes.
9. Increase the output until electrical capture is noted on the monitor. This will be evidence when there is a pacer spike preceding every QRS complex. (Electrical capture)
   a. If unable to obtain capture with maximum output, discontinue transcutaneous pacing immediately.
10. Once appropriate capture is noted, check for corresponding peripheral pulses. (Mechanical capture)
11. Re-assess vital signs.
12. If still hypotensive, increase rate until SBP > 90 mmhg or MAP > 65.
13. Consider analgesia or procedural sedation.
14. Document the procedure, time, and response to the procedure in the ePCR.

Procedure: Mechanical CPR (mCPR)

Background: Mechanical CPR devices (mCPR), for example, LUCAS® and AutoPulse® devices, have been proposed to improve the effectiveness of cardiopulmonary resuscitation (CPR). The initial thought behind this is the mechanical devices produce constant, reproducible chest compressions at the correct rate and depth when compared to manual CPR. However, after thorough literature reviews, the current evidence does not support this hypothesis. The gold standard of care remains bystander CPR, high quality chest compressions, and, when indicated, early defibrillation. The American Heart Association still considers manual CPR the gold standard. However, there are circumstances where mechanical CPR can be beneficial. These are the indications approved by SJCEMSC medical direction.

Indications: mCPR has been approved for patients 18 years of age and older whose body habitus will permit the use of the mechanical CPR device in the following scenarios:

1. **Limited staffing**. Smaller services, particularly those more rural services and volunteer services, may benefit from using mechanical CPR devices due to limited staffing on scene. In those instances, mCPR is permitted. In this circumstance, manual CPR must be performed for at least the first 3 cycles of CPR. After the third complete cycle of manual CPR, mCPR may be considered. The indication for mCPR must be documented in the patient care report (PCR).

2. **Prolonged resuscitation**. Rescuer fatigue leading to poor quality chest compressions can worsen outcomes in out-of-hospital cardiac arrest. In instances where resuscitation has been ongoing for a prolonged time (refractory VF, recurrent VF, ongoing CPR with PEA) mCPR is permitted. In this circumstance, manual CPR should have been performed for several cycles before mCPR is considered as this exception is only permitted in *prolonged or refractory* cases. The indication for mCPR must be documented in the patient care report (PCR).

3. **Resuscitation during transport of a pulseless patient**. There are rare scenarios where CPR must continue when moving a pulseless patient. Examples of this would include a patient who obtained ROSC while on scene and then lost pulses while en route to the hospital, a patient at a mass gathering event where guidelines allow for them to be moved to a more secure, private location, a special circumstance requiring transport of a pulseless patient, and patients in an austere or unsafe environment. In these cases, mCPR is permitted. Except for the unsafe scene, manual CPR must be performed for at least the first 3 cycles of CPR. After the third complete cycle of manual CPR, mCPR may be considered and the patient moved. However, during the first 3 cycles of CPR, the mCPR may be applied. In the instance of an unsafe scene, the patient should be moved to a safe location immediately. The indication for mCPR must be documented in the patient care report (PCR).

4. **After manual CPR**. If after the third two-minute cycle of manual CPR, the patient remains in cardiac arrest, whether that be VT/pVT or asystole/PEA, a mechanical compression device is authorized. mCPR is not required after the third cycle, but it is authorized to be used at the EMS practitioner's discretion.

Contraindications: 1. Age restrictions, per the manufacturer 2. Patient is too small (if the mCPR device does not adequately secure to the patient or the device compresses too deep); 3. Patient is too large (if the mCPR device does not adequately secure to the patient or the device will not compress deep enough); 4. Instances where the mCPR devices cannot be safely or appropriately attached to the patient; 5. Traumatic arrest; 6. LVAD patient

Notes/Precautions: **At no time should applying a mCPR device delay high quality CPR. The *gold standard* is still manual high-quality CPR with early defibrillation, when indicated.** It will likely take several cycles of high-quality CPR to get the mCPR device in place. mCPR is *not* permitted as first line resuscitation and is only permitted if the patient meets one of the criteria listed above. EMS practitioners using mCPR devices must participate in at least one resuscitative scenario every 6 months to demonstrate proficiency with the device. Please refer to the owner's procedure manual for specific instructions on application and administration of the mCPR device.

Procedure: Pit Crew CPR

Background: Pit Crew CPR helps clearly define roles during cardiac arrest. This is BLS-centered CPR with the goal to have a compression ratio greater than 90%. Pit Crew CPR helps to create a uniform and consistent team approach to high quality CPR and helps facilitate close-loop communication. This has been shown to improve outcomes with both ROSC *and* survival with good neurological outcomes.

Indications:
- Any adult patient in cardiac arrest.

Contraindications:
- None.

Positions:
- Position 1: On the patient's RIGHT side of the chest.
- Position 2: On the patient's LEFT side of the chest.
- Position 3: Head/Airway.
- Position 4: Patient's LEFT side near the head.
- Position 5: On the patient's RIGHT side near the legs.
- Position 6: On the patient's LEFT side near the legs.

Procedure:
Initial Steps:
1. Assess/confirm cardiopulmonary arrest immediately upon arrival at the patient's side.
2. Move the patient to an appropriate position/space before beginning CPR. This includes ensuring both the responders and patient are in a safe location and the space is conducive to CPR. This move should be medically necessary.
3. Position 1: Confirm the patient is pulseless and apneic and immediately begin chest compressions. Continue compressions until the AED or LifePak is ready to analyze the patient's heart rhythm.
4. Position 2: Immediately place the AED pads or the LifePak pads onto the patient's bare chest. Power on the AED or LifePak and place the AED or LifePak next to the patient's left shoulder.
5. Position 3: Hold the BVM onto the patient's face covering the mouth and nose. Use the two-hand technique to secure the mask to the face. Position 1 will squeeze the bag during the ventilation steps until additional personnel arrive.
6. Position 4 (Ideally the lead paramedic for the scene):
   - Assumes the team leader role and assists Position 3 with inserting the OPA and applying a nasal cannula at a rate of 25 lpm.
   - Assists with oxygen connections for BVM and OPA.
   - Assists with applying capnography to the patient.
   - Monitors the quality of compressions and ensures no unnecessary stoppages in chest compressions.
   - Directs the actions of the rescuers based on the Pit Crew CPR checklist.
   - Narrate all steps being taken during the resuscitation so everybody is clear on the procedure and steps being taken to resuscitate the patient.
   - Starts the metronome on HandTevy or other app, as available.
   - Considers reversible causes of cardiac arrest.
   - Continues to monitor end-tidal CO_2 during the code.

1st Rhythm Analysis and Defibrillation:
1. Position 1: Check for carotid pulse during analysis.
2. Position 2: Analyzes rhythm.
3. Position 4: Analyzes rhythm with position 2.
4. Position 3: Begins preparing supraglottic airway or inserts OPA, if not already performed.
5. Position 1: If defibrillation is advised and AED or LifePak isn't pre-charged, resumes compressions during the charging phase of the AED or LifePak.
6. Position 2: Charges and delivers defibrillation, as indicated.
7. Position 2: After defibrillation or after rhythm check if defibrillation is not indicated, takes over compressions.
8. Position 3: Resumes holding BVM seal with two hands.

Procedure: Pit Crew CPR

1st 220 compression cycle (2 minutes):

1. Position 1: Squeezes BVM every 30 compressions.
2. Position 2: Compresses at a rate of 110 compressions per minute in a 30 compressions to 2 ventilations ratio.
3. Position 3: Hold the BVM mask with two hands creating a tight seal on the patient's face.
4. Position 4: Continuously monitors the quality of compressions, including the rate, depth, and recoil. Gives feedback to the team to ensure high-quality CPR.

2nd Rhythm Analysis and Defibrillation:

1. Position 1: Check for carotid pulse during analysis.
2. Position 2: Analyzes rhythm.
3. Position 4: Analyzes rhythm with position 2.
4. Position 3: Prepares supraglottic airway for insertion, if not already done.
5. Position 1: If defibrillation is advised and AED or LifePak isn't pre-charged, resumes compressions during the charging phase of the AED or LifePak.
6. Position 2: Charges and delivers defibrillation, as indicated.
7. Position 1: After defibrillation or after rhythm check if defibrillation is not indicated, takes over compressions.
8. Position 3: Resumes holding BVM seal with two hands.

2nd 220 Compression Cycle (2 minutes):

1. Position 1: Compresses at a rate of 110 compressions per minute in a 30 compressions to 2 ventilations ratio.
2. Position 2: Squeezes BVM every 30 compressions.
3. Position 3: Hold the BVM mask with two hands creating a tight seal on the patient's face.
4. Position 4: Continuously monitors the quality of compressions, including the rate, depth, and recoil. Gives feedback to the team to ensure high-quality CPR.

3rd and Subsequent Analysis and Defibrillation:

1. Position 1: Check for carotid pulse during analysis.
2. Position 2: Analyzes rhythm.
3. Position 4: Analyzes rhythm with position 2.
4. Position 3: Prepares supraglottic airway for insertion, if not already done.
5. Position 1: If defibrillation is advised and AED or LifePak isn't pre-charged, resumes compressions during the charging phase.
6. Position 2: Charges and delivers defibrillation, as indicated.
7. Position 1 and 2 alternate compressor roles in each subsequent iteration.

3rd and Subsequent 220 Compression Cycle (2 minutes):

1. Position 1: Compresses at a rate of 110 compressions per minute in a 30 compressions to 2 ventilations ratio.
2. Position 2: Squeezes the BVM every 30 compressions until supraglottic airway device has been inserted.
3. Position 3: Inserts supraglottic airway (3rd cycle) without stopping compressions, unless endotracheal intubation is specifically indicated. If supraglottic airway is in place, continues to ventilate every 6 seconds.
4. Position 4: Continuously monitors the quality of compressions, including the rate, depth, and recoil. Gives feedback to the team to ensure high-quality CPR.

Positions 5 and 6:

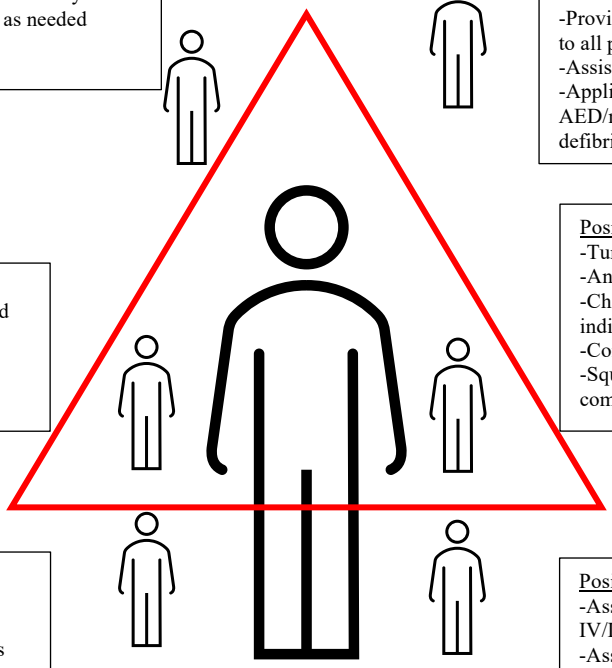
1. Position 5: Established IV or IO access as early as feasible.
2. Position 6: Assists position 5 with medication preparation.
3. Position 5 and 6: Provide medication cross-check prior to administration.
4. Position 5 and 6: Can rotate into positions 1 and/or 2 to help fatigued compressors.

Repeat 3rd and Subsequent Analysis and Defibrillation and 3rd and Subsequent 220 Compression Cycle (2 minutes) until ROSC or TOR.

Procedure: Pit Crew CPR

Notes:

- The focus should be in minimizing interruptions in chest compressions.
- Compressors should focus on appropriate depth, quality of CPR, and recoil of chest compressions.
- Rotation of compressors is imperative to minimize fatigue.
- If there are only two rescuers use the 2-person modified procedure.



Position 3:
-Manages the airway
-Inserts supraglottic airway
-Suctions airway, as needed

Position 4:
-Team leader
-Monitors CPR quality
-Monitors End-Tidal CO2
-Considers reversible causes
-Provides feedback and narration to all personnel on scene
-Assists in procedures, as needed
-Applies AED pads from second AED/monitor for dual sequential defibrillation, as indicated

Position 1:
-Assesses patient for pulses and respirations
-Compressions
-Squeezes BVM on off compression cycle

Position 2:
-Turns on AED/LikePak
-Analyzes rhythm
-Charges and defibrillates, as indicated
-Compressions
-Squeezes BVM on off-compression cycles

Position 5:
-Established IV/IO Access
-Administers medications
-Alternate for compressions, as needed for fatigue

Position 6:
-Assists with establishment of IV/IO
-Assists in preparing and cross-checking medication prior to administration
-Alternate for compressions, as needed for fatigue

Procedure: Pit Crew CPR

Modified Two-Person Method:

Positions:

- Position 1: On the patient's RIGHT side of the chest.
- Position 2: On the patient's LEFT side of the chest.

Initial Steps:

1. Move the patient to an appropriate position/space before beginning CPR. This includes ensuring both the responders and patient are in a safe location and the space is conducive to CPR.
2. Position 1: Confirm the patient is pulseless and apneic and immediately begin chest compressions. Continue compressions until the AED or LifePak is ready to analyze the patient's heart rhythm. If the practitioners are trained in ACLS (ie paramedics) the LifePak may be in manual mode. Otherwise, the LifePak should be set to AED mode and automatically interpret the rhythm.
3. Position 2: Immediately place the AED pads or the LifePak pads onto the patient's bare chest. Power on the AED or LifePak and place the AED or LifePak next to the patient's left shoulder.
4. Position 1: An OPA should be placed during the initial rhythm analysis.

1st Rhythm Analysis and Defibrillation:

1. Position 1: Inserts OPA during analysis and applies a nasal cannula at a flow rate of 25 lpm.
2. Position 1: Starts the metronome on HandTevy or other app, as available.
3. Position 2: If paramedic, manually analyze the rhythm. Otherwise, the Position 2 manages the AED or LifePak.
4. Position 1: Confirms manual rhythm analysis by Position 2, if a paramedic.
5. Position 1: If defibrillation is advised and AED or LifePak isn't pre-charged, resumes compressions during the charging phase of the AED or LifePak.
6. Position 2: Charges and delivers defibrillation, as indicated.

1st 220 compression cycle:

1. Position 1: Holds the BVM mask with two hands creating a tight seal on the patient's mouth and nose.
2. Position 2: Compresses at a rate of 110 compressions per minute in a 30 compressions to 2 ventilations ratio.
3. Position 2: Squeezes the BVM every 30 compressions.
4. Position 1: Continuously monitors the quality of compressions, including the rate, depth, and recoil. Gives feedback to the team to ensure high-quality CPR.

Subsequent Cycles:

5. Position 1 and position 2 alternate compressor roles during each 2-minute cycle.
6. The position *not* compressing should hold the BVM mask over the patient's mouth and nose ensuring a tight seal. The *compressor* role should ventilate the patient by squeezing the BVM.
7. Position 2 operates the AED or LifePak. If the practitioners are trained in ACLS (ie paramedics) the LifePak may be in manual mode. Otherwise, the LifePak should be set to AED mode and automatically interpret the rhythm.

Once additional trained personnel arrive, return to normal Pit Crew CPR operations.

Procedure: Push-Dose Epinephrine

Background: Push-dose epinephrine can be used when the patient is not in cardiac arrest but requires vasopressor medication. This push-dose vasopressor can be used for patient who are hypotensive, bradycardic, or peri-arrest.

Indications:
- Hypotension
- Bradycardia
- Peri-arrest

Contraindications:
- None in the emergent setting.

Procedure:
1. Remove 1 mL of normal saline from a 10 mL saline flush.
2. Add 1 mL of 1:10,000 epinephrine to the remaining 9 mL normal saline flush.
3. Mix thoroughly.
4. The resulting mixture yields 10 mcg/mL of epinephrine.
5. Administer 1 mL – 5 mL of epinephrine to effect.

https://rebelem.com/rebel-review/rebel-review-74-push-dose-epinephrine-adrenalin/push-dose-epinephrine-adrenalin/

Procedure: Aerosolized/Nebulized Breathing Treatments

Background: Aerosolized medications are growing in popularity as it allows the medications to reach deep into the lungs (bronchospasm) or work directly at the side of injury (TXA). It also allows for smaller doses of medication than what would otherwise be required systemically. Several medications in the SJCEMS formulary have an aerosolized/nebulized delivery method indication.

Indications:

- Patients meeting indications for specific medications where it is felt aerosolized medication would be more beneficial than systemic administration.
- See medication formulary and specific medication monograph.

Contraindications:

- Hypersensitivity to medication.
- Medication not approved for nebulized delivery.

Procedure:

1. Ensure all pieces of the delivery system are available.
    a. T-piece
    b. 6” tubing
    c. Mouthpiece and/or facemask
    d. Medication chamber
    e. Oxygen tubing
2. Assemble the nebulizer.
    a. Attach larger female port of T-piece firmly to male adapter on medication chamber.
        i. If the mask is being used, connect the medication chamber directly to the mask.
    b. Attach the female port of the T-piece to the mouthpiece.
    c. Attach the 6” tube to the male port on the T-Piece.
    d. Attach the oxygen tubing to the bottom port of the medication chamber.
3. Perform a medication cross-check.
4. Once medication has been cross-checked, unscrew the top of the medication chamber, add medication to be nebulized into the medication chamber.
5. Connect the oxygen tubing to the oxygen source.
6. Set flow rate based on equipment specifications. However, this is typically 6-8 LPM.
7. Ensure medication is flowing.
8. Place the mouthpiece in the patient’s mouth or place the mask on the patient’s face or over his or her tracheostomy.
9. Instruct the patient to inhale slowly and deeply. Instruct them to hold the medication in his or her lungs as long as possible before exhaling.
10. Ensure the medication chamber remains vertical/upright to ensure proper aerosolization of the medications.
11. If the patient is intubated:
    a. Same steps as in 1-7.
    b. Attach the non-rebreathing patient port of the BVM to the 6” tubing.
    c. Attach a 90-degree endotracheal tube adapter to the endotracheal tube or supraglottic airway.
    d. Ensure suctioning port on 90-degree adapter is closed.
    e. Begin ventilating the patient.
12. Continue treatment until all medication has been delivered.
13. Continue to monitor breathing status of patient. Re-assess vital signs and lung sounds.
14. Document observed patient response in ePCR.

NOTE: Nebulized medications can be used with most CPAP and BVM devices as well. Refer to the CPAP procedure instructions for details.

Procedure: Bag-Valve Mask (BVM) Ventilation

Background: Bag-Valve Mask ventilations are arguably the most important airway skill. This procedure will help establish a standardized method of effectively using a BVM to assist an apneic patient with ventilation and oxygenation.

Indications:

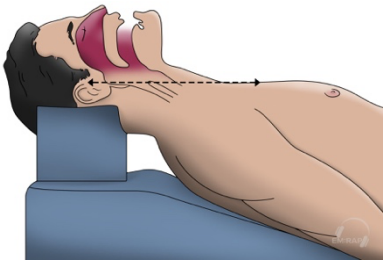
- Patient in respiratory failure or respiratory arrest requiring ventilation, oxygenation, and/or rate control.

Contraindications:

- Facial trauma not conducive to allowing BVM ventilation.

Procedure:

1. Select an appropriately sized bag and mask for the patient.
    a. Infant < 7kg, maximum tidal volume 200 mL.
    b. Child 7-30 kg, maximum tidal volume 500 mL.
    c. Adult > 30 kg, maximum tidal volume of 750 mL.
2. Connect BVM to minimum of 10 LPM supplemental oxygen and ensure the reservoir is filling.
3. Prepare supplemental airway equipment, adjuncts, and suctioning.
4. SpO_2 should be monitored by all practitioners and ETCO2 should be monitored by all credentialed practitioners.
5. Suction airway, as necessary.
6. Ensure no airway obstructions are present.
7. Position the patient in the sniffing position, ramping the shoulders, and having the ears in line with the sternal notch.
8. Consider inserting an NPA or OPA as an adjunct while using the BVM.
9. **Utilize a two-person technique to ensure appropriate facial seal and tidal volume**, if a second practitioner is available to assist. This technique is mandatory with two or more practitioners on scene.
10. Secure the mask to the face using the two-thumbs up/down technique while making sure *not* to grab the soft tissues below the mandible.
11. Gently squeeze the BVM to the appropriate tidal volume over 1-2 seconds and then release the bag.
    a. Neonates – 40-60 breathes per minute (1 breath every 1-1.5 seconds)
    b. Infants and Children – 12-20 breaths per minute (1 breath every 3-5 seconds)
    c. Adults – 10-12 breaths per minute (1 breath every 5-6 seconds)
12. Attach SpO_2 and ETCO2 monitors if not already attached.
13. Consider adding a PEEP valve or manual PEEP while using the BVM.
14. Titrate ventilation rate, tidal volume, FiO2, and PEEP to a target:
    a. SpO_2: Target to specific treatment guideline, typically 94%-100%
    b. ETCO2: 35-45 mmhg (non-head injury)
    c. ETCO2: 30-35 mmhg (head injury)
15. Auscultate lung sounds to ensure bilateral breath sounds.
16. Monitor for gastric distention. Consider OG tube if significant gastric distention.
17. If breath sounds aren't audible or bagging is ineffective, adjust the patient to open the airway.
18. If BVM is unsuccessful, consider a more advanced airway maneuver such as an iGel, LMA, or endotracheal tube.



EMRAP C3

https://www.criticalcarepractitioner.co.uk/6-ways-to-be-better-with-the-bag-valve-mask-2/

Procedure: Continuous Positive Airway Pressure (CPAP) Ventilation

Background: Continuous positive airway pressure (CPAP) has made a significant difference in how COPD, CHF, and severe respiratory distress patients are managed. This device has been able to stabilize patients in severe respiratory distress without the need for intubation, thus decreasing hospital length of stay and providing less invasive care for the patients.

Indications:

- Patients in moderate to severe respiratory distress from acute bronchospasm (Asthma or COPD exacerbation), Congestive Heart Failure (CHF) exacerbation, Pulmonary Edema, Submersion or non-fatal drowning

Contraindications:

- Respiratory arrest, agonal respirations, or cardiopulmonary arrest
- Patient unable to secure their own airway
- Pneumothorax
- Recent significant neck or chest trauma
- Facial trauma, including burns
- Active vomiting
- SBP < 90 mmhg
- Cardiogenic shock

Procedure:

1. While another source of oxygen is supplying supplemental oxygen to the patient, remove the CPAP from the packaging and ensure all parts are assembled.
2. Attach the CPAP oxygen adapter to the *high flow* output from the oxygen supply (DISS port) or the standard oxygen port depending on which model is being used.
3. Ensure oxygen is flowing prior to putting the mask on the patient's face.
4. Fully explain the procedure to the patient.
5. If possible, ask the patient to hold the mask to their face and take slow deep breaths. Once the patient is tolerating the mask and pressure, the mask can be secured to the face/head.
6. Set the PEEP. Typically starting at 7.5 cm H_2O.
7. Continuously monitor the patient's respiratory effort, SpO_2, and ETCO2.
8. Consider running an inline aerosol (albuterol or albuterol/ipratropium) for patients with evidence of an acute bronchospasm from COPD or asthma. **Note: this requires a second oxygen source.**
    a. Connect the medication chamber directly to the blue adapter on the CPAP mask. This is similar to how the medication chamber would be connected to the mask delivery method for nebulized medications.
    b. Connect the oxygen tubing from the medication chamber to the secondary oxygen source. Adjust to flow rate to 6-8 LPM.
    c. Follow instructions in the Aerosolized/Nebulized Medication procedure.
9. If the patient decompensates, terminate the use of the CPAP and manage the patient with another airway adjunct, as indicated
    a. Decompensation includes: Decreases in level of consciousness (LOC), Bradycardia with hypotension or other signs of hypoperfusion with cardiac insufficiency, Respiratory arrest, agonal respirations, or ineffective respiratory effort.

Precautions:

1. Caution with patients with known blebs or severe lung diseases. Monitor for spontaneous bleb rupture/pneumothorax
2. Monitor for decrease in patient's mentation which may necessitate the patient being removed from the CPAP mask
3. Monitor for gastric distension
4. Monitor for worsening hypotension or signs of reduced cardiac output

Procedure: Cricothyrotomy, Needle

Background: Cricothyrotomy is the final step in airway management. It should be kept as a last resort if the patient is unable to be ventilated or oxygenated by less invasive methods.

Indications:

- Patient 10 years or *under* who are not able to be ventilated or oxygenated with less invasive means of airway management.
- Failed airway – Patient cannot be oxygenated or ventilated by endotracheal intubation or supraglottic airway or non-visualized airway or other conventional methods of oxygenation.

Contraindications:

- Anytime a less invasive airway maneuver would allow for adequate ventilation and oxygenation of the patient.
- Tracheal transection.
- Fractured larynx, significant damage to cricoid cartilage or larynx, or inability to identify appropriate landmarks.

Precautions/Preparation:

- Facial and eye covering are *highly recommended* as this procedure can be bloody.
- Ensure all equipment is available:
- If the patient is awake, consider Fentanyl or Ketamine for anesthesia, as time allows.
- Ensure all monitoring equipment is available: monitor, ETCO2, Pulse oximeter

Procedure:

1. Position the patient supine with the head slightly extended, unless contraindicated by concern for cervical spine injury.
2. Locate the cricothyroid membrane (see notes below).
3. Mark the skin over the cricothyroid membrane with a sharpie, if available.
4. Prepare the anterior surface of the neck with chlorhexidine or betadine.
5. Place the thumb and index finger of the non-dominant hand on each side of the tracheal cartilage to stabilize the trachea.
6. Anchor the trachea and stretch the skin over the cricothyroid membrane.
7. Connect the appropriately sized angiocath (typically a 10, 12, or 14 gauge) to a 10cc (or larger) syringe.
8. Pierce the skin at a 45-degree angle directing the catheter tip inferiorly. While advancing the syringe, continue to pull suction on the syringe plunger until air is freely aspirated. An alternative to this is to have a few mL's of water in the syringe so it creates bubbles during aspiration once the needle enters the trachea.
9. Stabilize the needle and advance the catheter until the hub is at the skin.
10. Connect a 3.0mm pediatric endotracheal tube adapter to the catheter hub. (ALTERNATIVE: Attach a 7.5 endotracheal tube adapter to a 3 mL syringe and attach the syringe to the catheter hub.)
11. Attach a BVM to the endotracheal tube adapter and ventilate with 100% FiO_2 supplemental oxygen.
12. Once confirmed in place, tape the catheter in place. A Tegaderm can also be used to secure the catheter.
13. The catheter should also be secured by hand at all times during transport and hand-off, even after the catheter is secured by tape or string.

Notes:

- The practitioner performing the procedure and subsequently stabilizing the endotracheal tube is in charge of patient movement.
- The BVM should be disconnected from the syringe adapter any time the patient is moved.
- The cricothyroid membrane can otherwise be found by palpating the thyroid cartilage (Adam's Apple) and moving the fingertip inferiorly until it rests in the first depression felt. This is the cricothyroid membrane and sits between the thyroid cartilage and the cricoid cartilage.

Procedure: Cricothyrotomy, Surgical

Background: Cricothyrotomy is the final step in airway management. It should be kept as a last resort if the patient is unable to be ventilated or oxygenated by less invasive methods.

Indications:
- Patient 10 years or older who are not able to be ventilated or oxygenated with less invasive means of airway management.
- Failed airway – Patient cannot be oxygenated or ventilated by endotracheal intubation or supraglottic airway or non-visualized airway or other conventional methods of oxygenation.

Contraindications:
- Anytime a less invasive airway maneuver would allow for adequate ventilation and oxygenation of the patient.
- Tracheal transection.
- Fractured larynx, significant damage to cricoid cartilage or larynx, or inability to identify appropriate landmarks.

Precautions/Preparation:
- Facial and eye covering are *highly recommended* as this procedure can be bloody.
- Ensure all equipment is available: Safety retracting scalpel, Bougie, 6.0 Endotracheal tube, suction equipment, chlorhexidine or betadine, and a securing device (typically tape or string).
- If the patient is awake, consider Fentanyl or Ketamine for anesthesia, as time allows.
- Ensure all monitoring equipment is available: monitor, ETCO2, Pulse oximeter

Procedure:
1. Position the patient supine with the head slightly extended, unless contraindicated by concern for cervical spine injury.
2. Position yourself on the same side of the patient as *your* dominant hand. For example, if the paramedic is right-handed, the paramedic should be on the patient's right side.
3. Locate the cricothyroid membrane (see notes below).
4. Mark the skin over the cricothyroid membrane with a sharpie, if available. Do this as soon as possible in preparation for a cricothyrotomy. Do not wait until the decision is made to perform the procedure.
5. Prepare the anterior surface of the neck with chlorhexidine or betadine.
6. Place the thumb and index finger of the non-dominant hand on each side of the tracheal cartilage to stabilize the trachea.
7. Anchor the trachea and stretch the skin over the cricothyroid membrane.
8. With the dominant hand, make a midline vertical incision approximately 2 inches in length. (One inch superior to the membrane and one inch inferior to the membrane). The dominant hand can be stabilized on the patient's chest while incising the neck.
9. Bluntly dissect down to the membrane until it can be visualized.
10. Once visualized, perform a horizontal punch/stab incision through the membrane.
11. Cut horizontally from one edge of the membrane to the other. Activate the scalpel safety mechanism and remove the scalpel.
12. Dilate the hole with a gloved finger of the non-dominant hand.
13. Insert the angled end of the bougie into the trachea past the gloved finger. Advance the Bougie until resistance is felt.
14. Advance an appropriately sized endotracheal tube (typically 6.0) over the Bougie.
15. Inflate the cuff on the endotracheal tube and confirm placement by auscultating bilateral lungs and attaching the ETCO2 monitor.
16. Secure the endotracheal tube with tape or cotton string.
17. The Endotracheal tube should also be secured by hand at all times during transport and hand-off, even after the tube is secured by tape or string.

Notes:
- The practitioner performing the procedure and subsequently stabilizing the endotracheal tube is in charge of patient movement.
- The BVM should be disconnected from the endotracheal tube adapter any time the patient is moved.
- The endotracheal tube should be reassessed following completion of any patient movement.
- A quick way to locate the approximate location of the cricothyroid membrane in adults is to take your index finger, middle finger, and ring finger and place them horizontally across the patient's neck. With the head in a neutral position, Place the ring finger at the level of the sternal notch. The top of the index finger should lie at or near the level of the cricothyroid membrane.

Procedure: Cricothyrotomy, Surgical

- The cricothyroid membrane can otherwise be found by palpating the thyroid cartilage (Adam's Apple) and moving the fingertip inferiorly until it rests in the first depression felt. This is the cricothyroid membrane and sits between the thyroid cartilage and the cricoid cartilage.

Procedure: Drug-Assisted Intubation

Background: Drug-Assisted Intubation, also referred to as RSI or DSI, is an important skill which allows the paramedic to manage an impending airway compromise before the airway is completely

Indications:

- Inability to maintain patient's airway patency with basic airway adjuncts.
- Inability to protect the airway against aspiration.
- Concern for impending airway loss due to inhalation, expanding hematoma, edema, or anaphylaxis.
- A conscious or semi-conscious patient with a gag reflex who does not demonstrate an adequate respiratory effort or has expected deterioration of a patent airway.
- Inability to adequately ventilate and oxygenate a patient after insertion of iGel or LMA or other basic airway device.

Contraindications:

- Ventilation and oxygenation improve with basic airway management or less invasive airway adjuncts *and* without expectation of further airway patency deterioration.
- Anticipated difficulty oxygenating and ventilating the patient after paralysis.
- Lead paramedic is not on scene.

Notes:

- The Drug-Assisted Intubation Checklist must be used for every intubation.
- **Resuscitate *then* intubate!**
  - Avoid hypoxia, hypotension, and hypoventilation/acidosis.
  - Consider push-dose epinephrine if the patient is peri-arrest prior to intubation.
- Drug-assisted intubation should be done in a methodical, controlled manner which will allow for the highest chance of first-pass success.
- Preferably, drug-assisted intubation should be done in the ambulance or other controlled environment.
- SALAD technique should be used with all drug-assisted intubation attempts.

Procedure:

1. Review the Drug-Assisted Intubation Checklist.
2. Delegate roles and responsibilities.
3. Ensure monitoring equipment (cardiac monitor, SpO_2, $EtCO_2$) are in place and functioning.
4. Oxygen via BVM with an additional 15 lpm passive oxygenation in place.
5. OPA or NPA in place.
6. Ramp the patient to around 30 degrees.
7. If C-Collar is present, open the C-Collar with maintain manual inline C-spine stabilization.
8. Ensure back-up devices, including 0.5 to 1.0 size smaller endotracheal tube *and* a supraglottic airway, are available.
9. Ensure suction is on and ready.
10. Power on the video laryngoscope and prepare with the appropriate blade.
11. Draw up and label the induction agent and the paralyzing agent. Confirm the concentration and dose of both medications via the drug administration checklist.
12. Prepare the endotracheal tube and load onto the bougie or hyperangulated GlideScope stylet.
13. Administer the induction agent.
14. Once sedated, continue to use BVM and ensure the patient is *easily* bagged.
15. Administer the paralytic agent.
16. Suction the airway and the laryngoscope is advanced into the mouth.
17. Once visualization of the vocal cords is present, pass the bougie through the cords until resistance is felt.
18. Pass the endotracheal tube over the bougie and ensure the tube passes the cords.
19. Inflate the balloon on the endotracheal tube once the tube is at the correct depth (approximately 3x the diameter of the tube).
20. Remove the bougie or GlideScope stylet.
21. Confirm endotracheal tube placement with $EtCO_2$, bilateral breath sounds in the lungs, and absent breath sounds over the epigastrium.
22. Secure the tube.
23. Continue post-intubation sedation.

NOTE: RSA, Rapid Sequence Airway, should be used as the primary back-up for a failed intubation attempt.

Procedure: End-Tidal Capnography (ETCO2) Monitoring

Background: End-Tidal CO_2 (ETCO2) measures the partial pressure or volume of the exhaled CO_2 at the end of exhalation. It is a direct measure of the perfusion, metabolism, and ventilation of the body.

Indications:

1. All patients with potential or actual changes in metabolism, circulation, perfusion, and/or respiratory function.
2. All patients receiving CPR or with an advanced airway in place. This should be in place *before and after* the advanced airway is attempted and values should be documented in the ePCR.
3. Hypoventilatory states.
4. Acute exacerbation of shortness of breath/bronchospasm/reactive airway diseases.
5. Chest pain with respiratory distress.
6. Congestive heart failure exacerbation.
7. Hypoperfusion/shock states.
8. Patients presenting with altered mental status.
9. All patients receiving a sedating mediation.
10. All patients receiving a magnesium infusion.

Contraindications:

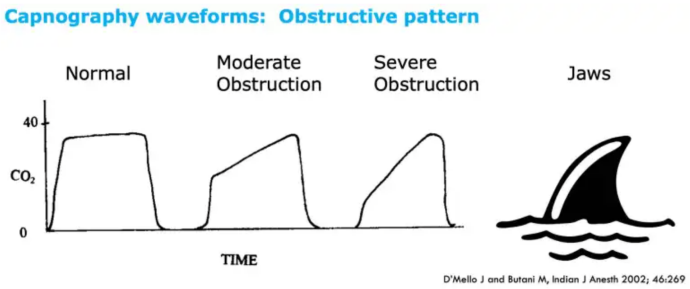
- None

Precautions:

- While a normal ETCO2 is between 35-45 mmhg, some patients with COPD or chronic respiratory diseases are chronic retainers and may have higher ETCO2 levels at baseline.
- Continue to monitor for abrupt changes in ETCO2 or no ETCO2 detected. Abrupt changes or no ETCO2 detection typically indicates:
    1. Loss of airway function, improper tube placement, or apnea
    2. Loss of circulatory function, ie pulmonary embolism, cardiac arrest, or significant blood loss
    3. Equipment failure

Procedure:

1. Turn on the monitor and ensure the ETCO2 is functioning.
2. Connect the ETCO2 tubing to the monitor.
3. Connect the detector to the patient's airway device or appropriately place the nasal prongs.
4. Record and interpret the waveforms and end-tidal values.
5. For patients meeting the requirement for continuous capnography, ETCO2 should continue throughout the care and transport of the patient.
6. Continuous capnography should be monitored as any airway procedures are performed to help aid in the identification of correct adjunct airway equipment placement, equipment malfunction, or airway problems.
7. Any loss of acute decline of ETCO2 should be immediately evaluated for loss of the airway, circulation, or equipment failure. The cause should be immediately intervened upon.
    - ETCO2 should be > 20 mmhg in all patients with a pulse.
    - ETCO2 should be > 10 mmhg if a patient is in cardiac arrest and adequate CPR is being performed.
    - ETCO2 should be kept between 30-35 mmhg for traumatic head injuries.



Procedure: King LTS-D Laryngeal Tube Airway

Background: The King LT is an alternative to the LMA, iGel, or AirQ, in that it is a blindly inserted airway. It also works as a supplement to the BVM. The King LT is inserted blindly into the hypopharynx and into the esophagus. The ventilation ports line up with the larynx permitting ventilation and oxygenation.

Indications:

- Cardiac arrest.
- Non-cardiac arrest patient without a gag reflex.
- Intubation is difficult or impossible due to patient access or anatomy.
- LMA, iGel, or AirQ is not indicated or is ineffective.

Contraindications:

- Conscious patient.
- Intact gag reflex.
- Ingestion of caustic substance.
- Known esophageal disease.
- Upper airway obstruction.
- Children/Adults less than 4 feet tall.
- Significant oral trauma or distorted anatomy.
- iGel, AirQ, or LMA is available.

Procedure:

1. Select the appropriately sized supraglottic airway device. (See below)
2. Ensure the device is not damaged.
3. Ensure the airway device is patent and no foreign body is obstructing the distal opening.
4. Remove the patient's dentures prior to insertion of the supraglottic airway device.
5. Lubricate the distal end, anterior surface, and posterior surface of the device cuff.
6. Place the patient in the sniffing position, either by head-tilt chin lift, jaw thrust, or grabbing the lower mandible and lifting.
7. Use a tongue blade/depressor or a finger to keep the tongue pushed toward the mandible and out of the way of the supraglottic airway device as it is being inserted.
8. Insert the supraglottic airway device into the lateral aspect of the mouth rotating the device back and forth until definitive resistance is felt. **Do not force the supraglottic airway device past the resistance.**
9. Inflate the balloon with 60 mL of air.
10. Prior to securing the device, 1-2 breaths with a BVM should be performed to ensure appropriate positioning of the supraglottic airway device. The device should have the distal tip in the esophagus while the cuff is positioned over the laryngeal opening.
11. If breath sounds are heard over both lungs, and the supraglottic airway device is felt to be in the correct position, the supraglottic airway device should be secured in place. If breath sounds aren't heard or if there is resistance, retract the device slightly until ventilation can be performed without resistance.
12. Apply the $EtCO_2$ detector and continue to ventilate using the BVM supplemented with oxygen. Confirm appropriate $EtCO_2$ readings.
13. Reassess the supraglottic airway device's position after any patient movements.

	Size 3	Size 4	Size 5
Patient Size	4' – 5'	5' – 6'	> 6'
Cuff Pressure	60 mL	60 mL	60 mL

Procedure: Laryngeal Mask Airway (LMA), AirQ, iGel

Background: Supraglottic airway devices are designed to help maintain an open airway allowing ventilation and oxygenation in patients without a gag reflex. Supraglottic airway devices are used in lieu of an endotracheal tube. The advantage of the supraglottic airway is that it allows for blind insertion, stable hemodynamics, and decreased airway morbidity.

Indications:

- Cardiac arrest.
- Non-cardiac arrest patient without a gag reflex.
- Intubation is difficult or impossible due to patient access or anatomy.

Contraindications:

- Conscious patient.
- Patient with an intact gag reflex.
- Appropriately sized supraglottic airway device unavailable.
- Patient with known esophageal disease or known or suspected ingestion of caustic substance.
- Significant facial trauma which precludes the proper seating of the supraglottic airway.

Procedure:

1. Select the appropriately sized supraglottic airway device. (See below)
2. Ensure the device is not damaged.
3. Ensure the airway device is patent and no foreign body is obstructing the distal opening.
4. Remove the patient's dentures prior to insertion of the supraglottic airway device.
5. Lubricate the distal end, anterior surface, and posterior surface of the device cuff.
6. Place the patient in the sniffing position, either by head-tilt chin lift, jaw thrust, or grabbing the lower mandible and lifting.
7. Use a tongue blade/depressor or a finger to keep the tongue pushed toward the mandible and out of the way of the supraglottic airway device as it is being inserted.
8. Insert the supraglottic airway device into the mouth gliding it along the hard palate with continuous, but gentle pressure, until definitive resistance is felt. **Do not force the supraglottic airway device past the resistance.**
9. Prior to securing the device, 1-2 breaths with a BVM should be performed to ensure appropriate positioning of the supraglottic airway device. The device should have the distal tip in the esophagus while the cuff is positioned over the laryngeal opening.
10. If breath sounds are heard over both lungs, and the supraglottic airway device is felt to be in the correct position, the supraglottic airway device should be secured in place.
11. Apply the $EtCO_2$ detector and continue to ventilate using the BVM supplemented with oxygen. Confirm appropriate $EtCO_2$ readings.
12. Reassess the supraglottic airway device's position after any patient movements.
13. The supraglottic airway device shall be stabilized in place *manually* for any child, infant, or neonatal sizes.

Procedure: Laryngeal Mask Airway (LMA), AirQ, iGel

LMA Sizing:

LMA Size	Age	Weight	Max Cuff Volume
1	Neonate	≤ 5 kg	4 mL
1.5	Infant	5-10 kg	7 mL
2	Child	10-20 kg	10 mL
2.5	Child	20-30 kg	14 mL
3	Child	30-50 kg	20 mL
4	Adult	50-70 kg	30 mL
5	Adult	70-100 kg	40 mL
6	Large Adult	≥ 100 kg	50 mL

AirQ Sizing:

AirQ Size	Age	Weight	Max Cuff Volume
0	Neonate	≤ 2 kg	0-0.5 mL
0.5	Neonate	2-4 kg	0-0.5 mL
1	Child	4-7 kg	0.5-1 mL
1.5	Child	7-17 kg	1 mL
2	Child	17-30 kg	1-2 mL
3	Child/Small Adult	30-60 kg	2-3 mL
4	Adult	60-80 kg	3-4 mL
5	Large Adult	> 80 kg	4-5 mL

iGel Sizing:

iGel Size	Age	Weight
1	Neonate	≤ 5 kg
1.5	Infant	5-12 kg
2	Child	10-25 kg
2.5	Child	25-35 kg
3	Small Adult	30-60 kg
4	Adult	50-90 kg
5	Large Adult	≥ 90 kg

Procedure: Nasopharyngeal Airway

Background: Nasopharyngeal (NPA) Airways are a hollow rubber tube which is inserted into the nasal passage and into the posterior pharynx to help displace the tongue and soft palate anteriorly to allow for the unobstructed passage of air into the lungs. The nasopharyngeal airway is also called a nasal trumpet due to its shape. An NPA or OPA (see next procedure) should be used when using a BVM to ventilate a patient.

Indications:

- An adult or pediatric patient who is in respiratory distress or arrest requiring the use of a BVM to ventilate/oxygenate.

Contraindications:

- Significant facial trauma or basilar skull fracture.
- Significant epistaxis.
- Nasal obstruction – Choanal atresia, nasal polyps, marked septal deviation.
- CSF rhinorrhea.
- Suspected epiglottitis.

Procedure:

1. Assess the upper airway for obstruction.
2. Ensure no facial trauma which would allow communication from the nasal passage to the intracranial cavity.
3. Measure the distance from the tip of the nose to the tragus of the ear to determine the correct size NPA.
4. Lubricate the nasopharyngeal airway.
5. Insert the nasopharyngeal airway into the larger of the two nares *at a 90-degree angle to the face* with the bevel toward the septum.
   a. Do not insert the NPA in a superiorly directed angle. The nasal passages run anterior/posterior. Insert the NPA perpendicular to the face and slide it posteriorly.
6. If resistance is felt, a rotary (back-and-forth) motion may help facilitate the advancement of the NPA.
7. If the NPA is unable to be inserted, remove it, and try the other naris.
8. If it is determined the airway is too short or too long, adjust accordingly.
9. Document the procedure, time, and response in the ePCR.

Procedure: Needle Decompression

Background: Needle decompression is an essential skill to help decompression a tension pneumothorax. A pneumothorax can develop secondary to trauma or can be spontaneous. As air becomes trapped between the lung and the chest wall in the pleural space, the intrathoracic pressure on the affected side begins to increase. This further compresses the lung. This can also impede venous return into the chest. The needle decompression relieves the pressure allowing the lung to re-expand and improving venous return.

Indications:

- Patient with a suspected pneumothorax.
  - Hypotension SBP < 90 mmhg
  - Clinical signs of hypoperfusion.
  - Increased resistance during ventilation of a patient with a BVM.
  - Absent breath sounds and/or hyperresonance on affected side.
  - Jugular venous distention (JVD).
  - Tracheal deviation away from affected size.
- Traumatic arrest with chest or abdominal trauma in whom resuscitation is indicated.
  - In this case, bilateral decompressions should be performed.
- Asthmatic or COPD cardiac arrest
  - In this case, bilateral decompressions should be performed.

Contraindications:

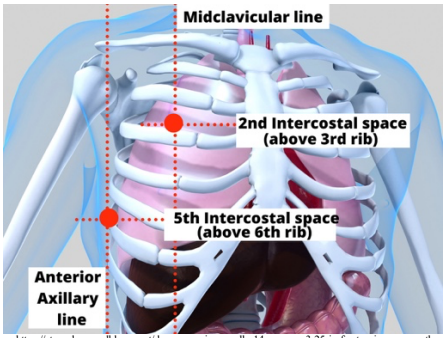
- None in emergent setting.

Procedure:

1. Administer high-flow oxygen.
2. Identify an appropriate location for decompression.
   - Second intercostal space in the mid-clavicular line OR
   - Fourth or fifth intercostal space on the anterior axillary line.
3. Clean the site with betadine or chlorhexidine.
4. Insert the over the catheter needle perpendicular to the chest wall *over the top of the lower rib*. Do not angle the needle inferiorly while performing this procedure in the 5th intercostal space.
   - Stop advancing the needle once it enters the pleural space.
5. While stabilizing the needle, and make sure not to advance the needle any further, advance the catheter until the hub is in contact with the chest wall.
6. Remove the needle.
7. Keep the catheter in place and secure it.
8. A syringe can be used to aspirate air to confirm placement. Consider connecting a one-way valve or three-way stopcock to the hub of the catheter to avoid allowing entrainment of air into the thorax.

Note: This procedure may need to be repeated if the tension pneumothorax reaccumulates. Continuously re-assess for signs of tension pneumothorax.

Acceptable catheters for this procedure include: 10g, 12g, or 14g angiocath, NAR ARS 14g or 10g catheter, Turkel needle. All need to measure *at least* 3.5" in length.



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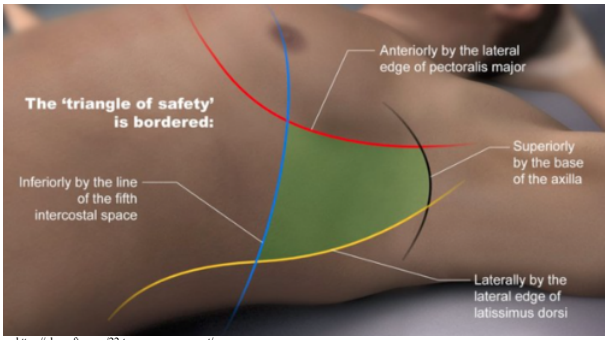

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Procedure: Airway Obstruction

Background: Airway obstruction can be detrimental to a patient and can ultimately lead to death if it is a complete obstruction. Signs and symptoms typically include coughing, wheezing, gagging, stridor, or complete airway obstruction causing hypoxia and unresponsiveness.

Indications:

- Sudden onset of respiratory distress due to a foreign body obstruction. This can be due to an ingested foreign body, a mass, or edema.
- Respiratory arrest where ventilation cannot be accomplished after repositioning of the airway.

Contraindications:

- None

Procedure:

1. Assess the degree of obstruction. If the patient is able to pass any air, it is a partial obstruction. If no air is able to be passed, it is a complete obstruction.
2. If the patient has only a mild or partial obstruction, encourage the patient to cough and continue to try and clear the obstruction.
3. If the patient cannot make any sound or cannot move any air or is making the universal choking sign, this is likely a complete or severe obstruction.
    - For infants: Deliver 5 back blows followed by 5 chest compressions until the object is expelled or the patient becomes unresponsive.
        - Ensure the patient's head is *lower* than the rest of the body during the back blows and chest compressions to force the object out.
    - For children: Perform abdominal thrusts (Heimlich Maneuver) until the object is expelled or the patient becomes unresponsive.
    - For adults: Perform abdominal thrusts (Heimlich Maneuver) until the object is expelled or the patient becomes unresponsive. Chest thrusts/compressions can also be used in morbidly obese patients.
    - For late-stage pregnant females: Chest thrusts/compressions should be used in late stages of pregnancy.
4. If the patient becomes **unresponsive**:
    - Lower the patient to the ground.
    - Begin Pit Crew CPR.
    - Reposition the airway, but to not perform a bind finger sweep. Only remove the object if it can be seen.
    - Look into the airway before each ventilation.
    - If the object is visible, remove it.
    - Paramedics and Lead Paramedics should use a laryngoscope to visualize the posterior pharynx to try and visualize the foreign object. Magill forceps should be used to remove the object if seen.
    - Once the object is removed, check for a pulse. If a pulse is *present*, follow the ROSC procedures. If a pulse is *not present*, continue Pit Crew CPR.
    - For severe obstruction which has led to cardiac arrest, a cricothyrotomy may be indicated.

Note: An airway obstruction presents very differently than an impacted food bolus in the esophagus. In an airway obstruction, the patient cannot move air. In an esophagus obstruction, the patient cannot swallow their own saliva, may be vomiting, or having chest pain.

Procedure: Oropharyngeal Airway

Background: Oropharyngeal (OPA) Airway is a curved, rigid piece of plastic inserted into the mouth of an unresponsive patient to help prevent the tongue from covering the epiglottis. This prevents obstruction of the airway and allows for improved ventilation of the patient. This cannot be used on a patient with an intact gag reflex.

Indications:

- An adult or pediatric patient who is in respiratory distress or arrest requiring the use of a BVM to ventilate/oxygenate.

Contraindications:

- Intact gag reflex.
- Foreign object causing airway obstruction.
- Skull fracture.
- Trismus.
- Recent oral surgery.

Procedure:

1. Ensure no upper airway obstruction other than the tongue.
2. Measure the distance from the corner of the mouth to the bottom of the ear lobe.
3. Open the mouth with a jaw thrust (trauma) or head-tilt-chin lift (non-trauma).
4. Insert the OPA with the curved tip facing the hard pallet.
5. Once fully inserted, rotate the OPA 180 degrees into position.
6. Continue holding the airway open with jaw thrust while performing BVM ventilation for maximum airway patency.

Notes/Precautions:

- Do not use in a patient with a gag reflex.
- Caution in patients with pallet injuries.

Procedure: Orotracheal Intubation, Direct (Direct Laryngoscopy)

Background: Orotracheal intubation is the gold standard for securing an airway. It is also a high risk, low frequency skill. Recent literature has indicated paramedic intubations can lead to poorer outcomes if not done correctly or successfully. While video laryngoscopy has become the gold standard for intubation, there are times where video laryngoscopy is not indicated or not feasible. This guideline will help to standardize the orotracheal intubation process to help facilitate first attempt success and decrease patient risk.

Indications:

- Inability to ventilate and oxygenate a patient with a BVM.
- An unconscious patient without a gag reflex who is apneic or does not demonstrate an adequate respiratory effort.
- Inability to adequately ventilate and oxygenate a patient after insertion of iGel or LMA or other basic airway device.
- When the risk to benefit evaluation benefits orotracheal intubation over iGel or LMA.
- Concern for impending airway loss due to inhalation, expanding hematoma, edema, or anaphylaxis.
- Patient requiring intubation where video laryngoscopy is not feasible or practical.

Contraindications:

- None in the presence of an emergent situation which requires definitive airway management, per the above indications.
- When video laryngoscopy is available, feasible, and indicated.
- When a less invasive airway device/maneuver permits adequate ventilation and oxygenation of the patient.
- While not contraindicated, video laryngoscopy is preferred with C-Collar in place.

Procedure:

1. Use the Advanced Airway Management Checklist
2. Prepare, position, and oxygenate the patient using basic airway maneuvers and positioning as well as 100% oxygen.
3. The patient shall have a pulse oximeter and cardiac monitor in place prior to any drug-assisted intubation attempt. This is not a requirement for a “crash” airway.
4. While providing 100% oxygen with BVM during the preparatory stages, end-tidal shall be used. Ensure the end-tidal is functioning properly.
5. Use high flow (25 lpm or flush flow) nasal cannula oxygen in conjunction with BVM during the preparatory steps.
6. Continue to use the high flow nasal cannula oxygen for apneic oxygenation during intubation attempt.
7. Select the proper endotracheal tube (ETT) size for the patient.
    a. An adult male should typically be a 7.5 or 8.0 ETT.
    b. An adult female should be a 7.0 or 7.5 ETT, but an 8.0 ETT is also acceptable.
    c. At no time, unless concern for severe airway edema, airway obstruction, hematoma or failed attempt with a 7.0 ETT should an ETT smaller than a 7.0 be used on an adult patient.
    d. For pediatric patients, use the Pedi-Tape, Handtevy, or Broselow Tape to determine appropriate size of ETT and blade size.
8. Prepare the intubating equipment including the correctly sized laryngoscope blade, bougie, a smaller sized ETT in case of failed intubation attempt, suction, end-tidal CO_2 monitor adaptor, and a rescue airway device such as an iGel or LMA. The endotracheal tube should be preloaded onto the bougie.
9. Using the laryngoscope, insert the blade into the mouth, sweeping the tongue out of the line of sight of the vocal cords. Cricoid pressure or the BURP (backwards, upwards, rightward pressure) technique can be used for difficult-to-visualize airways.
10. Limit the intubation attempt to less than 20 seconds in a non-cardiac arrest patient and less than 10 seconds in a cardiac arrest patient.
11. With visualization of cords, pass the bougie through the cords. Tactile feedback might be felt with the bougie against the tracheal rings. If tactile feedback is not felt, advance the bougie until tactile feedback is felt or until resistance is felt.
12. Without removing the laryngoscope blade, while holding the bougie securely, pass the endotracheal tube over the bougie to the proper depth. A quick determination of depth is 3 times the diameter of the ETT. For example, an 8.0 ETT should be at 24 cm at the teeth.
13. If the tube will not pass through the cords (hold up), rotate the tube 90 degrees and attempt to advance the tube again.
14. Once the ETT has passed through the cords to the proper depth, securely hold the ETT and remove the bougie.
15. Inflate the ETT cuff with 5-10 mL of air.
16. Apply the ETCO2 monitor. After approximately 3 ventilations, the $EtCO_2$ should rise above 10 mmhg. If the values stay below 10, *strongly* consider an esophageal intubation. However, if confident of a tracheal intubation, consider equipment failure as a cause. If no evidence of equipment failure, remove the ETT and begin bagging the patient with a BVM.

Procedure: Orotracheal Intubation, Direct (Direct Laryngoscopy)

17. With appropriate ETCO2 values, auscultate over both lungs to ensure bilateral breath sounds. If unilateral breath sounds, typically right sided, consider withdrawing the tube slightly and re-auscultate. (Don't forget to deflate and then re-inflate the cuff when moving the ETT).
18. Auscultate over the epigastrium to ensure absence of air movement in the epigastrium.
19. Once successfully confirmed ETT placement, secure the ETT using a commercial tube holder unless severe facial burn patient or other severe facial trauma patient. In this instance, use cotton twine – but do not secure around the neck.
20. Once the tube is secured, record the initial ETCO2 value, tube size, depth of the tube, time of successful intubation, number of attempts, adjunct tools used during intubation, grade of the view of the cords, presence of bilateral breath sounds over the lungs, absence of breath sounds over the epigastrium, and indication for intubation in the ePCR.
21. Continuous end-tidal monitoring shall be used after intubation.
22. Auscultation of lungs and epigastrium shall be re-performed with every move of the patient.
23. Consider gastric distention. If concern for gastric distension, place an OG tube.
24. If a failed attempt, poor ETCO2, or esophageal intubation, remove the tube and bougie.
25. A BVM shall be used between intubation attempts.
26. If failed attempt secondary to not being able to visualize the cords, adjust the patient's position or use a different blade prior to re-attempting intubation.
27. No more than two *total* attempts at intubation are authorized without OMCP authorization.

Notes/Precautions:

- **Video laryngoscopy is the preferred method of orotracheal intubation. If available, video laryngoscopy with recording is required.**
- See Drug-Assisted Intubation.
- See Procedural Sedation guideline for ongoing sedation, if needed.
- If the ETCO2 is not working, do not attempt intubation. Tube placement must be confirmed by end-tidal CO_2 monitoring.
- Use the SALAD technique for all intubations.

Procedure: Orotracheal Intubation, Video (Video Laryngoscopy)

Background: Orotracheal intubation is the gold standard for securing an airway. It is also a high risk, low frequency skill. Recent literature has indicated paramedic intubations can lead to poorer outcomes if not done correctly or successfully. Video laryngoscopy has become the gold standard for intubation attempts. This guideline will help to standardize the video laryngoscope-assisted orotracheal intubation process to help facilitate first-attempt success and decrease patient risk.

Indications:

- Inability to ventilate and oxygenate a patient with a BVM.
- An unconscious patient without a gag reflex who is apneic or does not demonstrate an adequate respiratory effort.
- Inability to adequately ventilate and oxygenate a patient after insertion of iGel or LMA or other basic airway device.
- When the risk to benefit evaluation benefits orotracheal intubation over iGel or LMA.
- Concern for impending airway loss due to inhalation, expanding hematoma, edema, or anaphylaxis.

Contraindications:

- None in the presence of an emergent situation which requires definitive airway management, per the above indications.
- When a less invasive airway device/maneuver permits adequate ventilation and oxygenation of the patient.

Procedure:

1. Use the Advanced Airway Management Checklist
2. Prepare, position, and oxygenate the patient using basic airway maneuvers and positioning as well as 100% oxygen.
3. The patient shall have a pulse oximeter and cardiac monitor in place prior to any drug-assisted intubation attempt. This is not a requirement for a "crash" airway.
4. While providing 100% oxygen with BVM during the preparatory stages, end-tidal shall be used. Ensure the end-tidal is functioning properly.
5. Use high flow (25 lpm or flush flow) nasal cannula oxygen in conjunction with BVM during the preparatory steps.
6. Continue to use the high flow nasal cannula oxygen for apneic oxygenation during intubation attempt.
7. Select the proper endotracheal tube (ETT) size for the patient.
    a. An adult male should typically be a 7.5 or 8.0 ETT.
    b. An adult female should be a 7.0 or 7.5 ETT, but an 8.0 ETT is also acceptable.
    c. At no time, unless concern for severe airway edema, airway obstruction, hematoma or failed attempt with a 7.0 ETT should an ETT smaller than a 7.0 be used on an adult patient.
    d. For pediatric patients, use the Pedi-Tape, Handtevy, or Broselow Tape to determine appropriate size of ETT and blade size.
8. Prepare the intubating equipment including the correctly sized laryngoscope blade, rigid stylet or bougie, a smaller sized ETT in case of failed intubation attempt, suction, end-tidal CO_2 monitor adaptor, and a rescue airway device such as an iGel or LMA. The endotracheal tube should be preloaded onto the bougie.
9. While preparing the video laryngoscope, ensure the video display is attached.
10. Power the device on and ensure the camera is working appropriately.
11. Suction the airway to ensure no blood, secretions, or vomitus is present as to not obscure the camera.
12. Using a standard scissor technique, open the patient's mouth and place the blade into the patient's mouth in a midline position. There is no need to insert the blade and sweep the tongue with the video laryngoscope. Insert the tip of the blade into the vallecula. The technique should be similar to the direct intubation Macintosh Blade technique. However, if an appropriate view of the cords is not seen, a Miller Blade technique approach can be used by lifting the epiglottis to visualize the cords.
13. Cricoid pressure or the BURP (backwards, upwards, rightward pressure) technique can be used for difficult-to-visualize airways as well.
14. Limit the intubation attempt to less than 20 seconds in a non-cardiac arrest patient and less than 10 seconds in a cardiac arrest patient.
28. With visualization of cords, pass the rigid stylet or bougie through the cords. Tactile feedback might be felt with the bougie against the tracheal rings. If tactile feedback is not felt, advance the bougie until tactile feedback is felt or until resistance is felt. **Note**: Tactile feedback is not available with a rigid stylet as it should not pass the edge of the endotracheal tube.
15. Without removing the laryngoscope blade, while holding the bougie securely, pass the endotracheal tube over the bougie to the proper depth. A quick determination of depth is 3 times the diameter of the ETT. For example, an 8.0 ETT should be at 24 cm at the teeth.
16. If the tube will not pass through the cords (hold up), rotate the tube 90 degrees and attempt to advance the tube again.

Procedure: Orotracheal Intubation, Video (Video Laryngoscopy)

17. Once the ETT has passed through the cords to the proper depth, securely hold the ETT and remove the bougie.
18. Inflate the ETT cuff with 5-10 mL of air.
19. Apply the ETCO2 monitor. After approximately 3 ventilations, the ETCO2 should rise above 10 mmhg. If the values stay below 10, *strongly* consider an esophageal intubation. However, if confident of a tracheal intubation, consider equipment failure as a cause. If no evidence of equipment failure, remove the ETT and begin bagging the patient with a BVM.
20. With appropriate ETCO2 values, auscultate over both lungs to ensure bilateral breath sounds. If unilateral breath sounds, typically right sided, consider withdrawing the tube slightly and re-auscultate. (Don't forget to deflate and then re-inflate the cuff when moving the ETT).
21. Auscultate over the epigastrium to ensure absence of air movement in the epigastrium.
22. Once successfully confirmed ETT placement, secure the ETT using a commercial tube holder unless severe facial burn patient or other severe facial trauma patient. In this instance, use cotton twine – but do not secure around the neck.
23. Once the tube is secured, record the initial ETCO2 value, tube size, depth of the tube, time of successful intubation, number of attempts, adjunct tools used during intubation, grade of the view of the cords, presence of bilateral breath sounds over the lungs, absence of breath sounds over the epigastrium, and indication for intubation in the ePCR.
24. Continuous end-tidal monitoring shall be used after intubation.
25. Auscultation of lungs and epigastrium shall be re-performed with every move of the patient.
26. Consider gastric distention. If concern for gastric distension, place an OG tube.
27. If a failed attempt, poor ETCO2, or esophageal intubation, remove the tube and bougie.
28. A BVM shall be used between intubation attempts.
29. If failed attempt secondary to not being able to visualize the cords, adjust the patient's position or use a different blade prior to re-attempting intubation.
30. No more than two *total* attempts at intubation are authorized without OMCP authorization.
31. Once completed with intubation attempt, ensure proper cleaning of non-disposable parts of the video laryngoscope.

To Clean:

- Follow the manufacturer's instructions but ensure to use a germicidal wipe on video screen and non-disposable stylet.

Notes/Precautions:

- Video laryngoscopy is the preferred method of orotracheal intubation. If available and not contraindicated, video laryngoscopy with recording is required.
- Maintain as anterior of an approach as possible with the blade to avoid getting blood or secretions on the camera.
- Vomit, blood, or secretions can obscure the camera making intubation with a video laryngoscope difficult.
- Large body habitus can make inserting the video laryngoscope difficult. Consider using an OPA to help open the airway while inserting the video laryngoscope. The video laryngoscope may also be inserted without the display screen attached to help facilitate insertion on patients with a large body habitus. Once in position, the display screen can be attached.
- See Drug-Assisted Intubation.
- See Procedural Sedation guideline for ongoing sedation, if needed.
- If the ETCO2 is not working, do not attempt intubation. Tube placement must be confirmed by end-tidal CO_2 monitoring.
- Use the SALAD technique for all intubations.

Procedure: Positive End Expiratory Pressure (PEEP)

Background: Positive End Expiratory Pressure (PEEP) is used to help give continuous back pressure on the alveoli of the lungs to help facilitate oxygenation and decrease the amount of atelectasis.

Indications:
- Patients in moderate to severe respiratory distress from acute bronchospasm (Asthma or COPD exacerbation)
- Congestive Heart Failure (CHF) exacerbation, Pulmonary Edema
- Poor lung compliance secondary to an underlying pulmonary disease

Contraindications:
- Cardiopulmonary arrest
- Acute traumatic head/brain injury
- SBP < 90 mmhg or MAP < 60 mmhg
- Pneumothorax

Procedure:
1. PEEP can be applied using a PEEP valve or CPAP (see CPAP procedure for indications)
2. Attach the appropriate device to the patient or airway adjunct
3. Set PEEP to 7.5 cm H_2O
4. Increase or decrease the PEEP by 2.5 cm H2O every 3-5 minutes, as needed, to achieve targeted SpO_2 levels, ETCO2 levels, and clinical improvement in the patient's condition
    - In adults, total PEEP should not exceed 20 cm H_2O without OMCP approval
    - In newborns, > 20 cm H_2O may be indicated. Discuss with OMCP prior to increasing the PEEP values > 20 cm H_2O

Precautions:
1. Caution with patients with known blebs or severe lung diseases. Monitor for spontaneous bleb rupture/pneumothorax
2. Monitor for decrease in patient mentation which may necessitate the patient being removed from the CPAP mask
3. Monitor for gastric distension
4. Monitor for worsening hypotension or signs of reduced cardiac output

Notes/Clinical Pearls:
- If SBP or MAP decrease below the required thresholds (above), consider dropping the PEEP pressure to a lower value to help relieve the intrathoracic pressure and improve preload.
- If the patient acutely worsens or becomes more tachypneic and hypoxic, or the patient's work of breathing worsens, indicating more airway resistance, reassess for a pneumothorax and consider another airway care plan.

Procedure: Pulse Oximetry

Background: Pulse oximetry is helpful in determining the percentage of hemoglobin (Hgb) that is saturated with oxygen molecules.

Indications:
- All patients as part of vital signs.
- Continuous pulse oximetry should be used for patients in respiratory distress or with chest pain.

Contraindications:
- None (see notes below)

Procedure:
1. Turn on the pulse oximeter or LifePak.
2. Ensure the probe is plugged into the LifePak, if applicable.
3. Place the pulse oximeter probe on one of the patient's fingers.
4. Ensure the probe is attached securely.
5. Allow the oximeter's value to stabilize.
6. Document the SpO_2 value.

Notes/Clinical Pearls:
1. States of decreased perfusion, ie shock, including hypotension, hypothermia, and/or hypoperfusion can affect the pulse oximeter readings.
2. Look at the plethysmograph (pleth) to confirm adequate perfusion/reading.
3. Carbon monoxide will give a falsely elevated reading.
4. Methemoglobinemia and cyanide poisoning can also affect the accuracy of the reading.
5. Fingernail polish can affect the accuracy of readings.
6. Excessive ambient light will affect the accuracy of the pulse oximeter reading.
7. **Do not withhold oxygen from a patient in respiratory distress or a patient with known or suspected carbon monoxide poisoning!**

Procedure: Suctioning

Background: Suctioning helps patients remove obstructions, such a mucus, excess saliva, and blood from the airway. Suctioning can be performed in the oropharynx, nasopharynx, tracheostomy, or cricothyrotomy.

Indications:
- Excess secretions in the airway.
- Airway obstruction.
- Hemorrhage obstructing the airway.

Contraindications:
- None.

Procedure:
1. Ensure the suctioning device is turned on and functional.
2. Basic Suctioning
   - Insert the suction catheter into the oropharynx.
   - Once in position, cover the suction port on the catheter.
   - Suction for no more than 10 seconds as the catheter is withdrawn.
   - This may be repeated, as necessary.
3. Advanced Suctioning – suctioning an endotracheal tube, tracheostomy, or cricothyrotomy.
   - Pre-oxygenate the patient.
   - Try to keep the suction catheter sterile.
   - For an endotracheal tube, measure the anticipated depth of suctioning by using top of the endotracheal tube and the sternal notch. For a tracheostomy or cricothyrotomy, clinical judgement should be used.
   - Remove BVM, if applicable, from the airway.
   - Advance the suction catheter to the predetermined depth with the thumb port uncovered.
   - Once at the correct depth, cover the thumb port and withdraw the catheter slowly, but no more than 10 seconds.
   - If a large mucus plug is felt to be obstructing the airway, a small amount of normal saline (< 5 mL) can be used to lavage the airway and help breakdown mucus plugs to allow for suctioning.
   - Once suctioning is complete, re-attach the BVM or other ventilation support device.
4. Document procedure and results in the ePCR.

Notes:
- Ensure appropriate oxygenation during the procedure.
- If a large volume of fluid/debris is present in the oropharynx, a large-bored catheter, ie a Ducanto catheter, should be used.
- For endotracheal suctioning, tracheostomy suctioning, and cricothyrotomy suctioning, a flexible catheter should be used.
- See the SALAD Technique for intubation.

Procedure: Tracheostomy Care

Background: A tracheostomy is a surgical opening on the anterior neck which allows for air exchange and suctioning. Patients who are "trach dependent" occasionally will occlude their tracheostomy openings and become dyspneic. The patients may also become hypoxic, hypercapnic, or both. Knowing how to troubleshoot a tracheostomy to ensure adequate oxygenation and ventilation is imperative.

Indications:
- Inability to ventilate and oxygenate the patient with a tracheostomy despite suctioning.
- Displacement of tracheostomy.
- Inability to suction the tracheostomy tube.

Contraindications:
- None in emergency setting.

Procedure:
Preparation:
1. Ensure the patient has continuous pulse oximetry.
2. Ensure the patient has continuous EtCO2.

Oxygenation/Ventilation:
1. Place the patient on high flow oxygen via nasal cannula or non-rebreather mask over the stoma or tracheostomy.
   - If this doesn't help oxygenate the patient or the tracheostomy is plugged or dislodged, ventilate and oxygenate via the mouth and nose.
   - If this helps, consider suctioning the tracheostomy (see below) and continue to oxygenate, as above.
2. If high flow oxygen via nasal cannula or non-rebreather mask is not indicated or sufficient, a bag-valve-mask (BVM) should be used.
   - Attach BVM to the inner cannula.
   - If there is no inner cannula, try to use an inner cannula from the patient's supplies.
   - If an inner cannula is not immediately available, an endotracheal tube adapter a half size larger than the tracheostomy tube may be inserted into the outer cannula.
3. If the tracheostomy is occluded, and the patient is unable to be ventilated and oxygenated through the tracheostomy, a BVM should be used over the mouth and nose (standard positioning).
4. Ensure the patient has continuous pulse oximetry.
5. Assess and frequently reassess the tracheostomy airway for easily reversible causes of distress (D.O.P.E.).
6. Consider suctioning if difficulty with ventilation or oxygenation.

Suctioning:
1. Ensure the suctioning device is turned on and functional.
2. Pre-oxygenate the patient.
3. Use a flexible suction catheter.
4. Measure 3-6 cm (1.5-3 inches).
5. Instill 2-5 mL of normal saline into the airway.
6. Once at the correct depth, cover the thumb port and withdraw the catheter slowly, but no more than 10 seconds.
7. Once suctioning is complete, re-attach the BVM or other ventilation support device.

Replacing the Tracheostomy Cannula:
1. Once all equipment is in place, remove all devices securing the tracheostomy tube.
2. Deflate the cuff, if applicable. Deflate the cuff by aspirating the air from the balloon using a syringe. If a syringe is not available, cut the balloon.
3. Remove the tracheostomy tube.
4. Insert the replacement tube.
   - If there is resistance placing the tube, insert a smaller tube size.
   - If placement is still not possible, consider using a BVM over the mouth and nose (standard placement) or orotracheally intubating the patient.
5. Confirm placement using standard confirmation techniques, ie waveform capnography.

Procedure: Tracheostomy Care

Notes:

- Always talk to the family/caregiver before attempting procedures with a tracheostomy.
- Always deflate the cuff, if present, before removing the tracheostomy tube.
- Suction depth is usually 3-6 cm. Ask the family or caregiver as they typically know this value.
- Instill 2-3 mL normal saline prior to suctioning.
- If suction catheter cannot be passed, **do not force it**. If the catheter cannot be passed, then the tracheostomy tube should be changed.
- DOPE – **D**isplaced, **O**bstructed, **P**neumothorax, **E**quipment failure
- Anticipate difficult tube exchanges in immature tracheostomy sites. Ideally, those less than 2 weeks will not be changed out by EMS.

Procedure: Whole Blood Administration

Background: Whole blood is a viable lifesaving tool for EMS practitioners. Studies have shown blood product administration to the appropriate patient has a significant decrease on mortality. However, delay in blood administration leads to significant *increase* in mortality in hemorrhagic shock and cardiac arrest. A recent study shows for every minute of blood product administration delay it increases mortality by 2%. Thus, having the ability to administer blood products early in the field is a potentially critical piece in the patient's survival chances.

Indications:

- Shock criteria indicated in charts below with reasonable suspicion of shock due to **HEMORRHAGIC** causes
- Witnessed cardiac arrest reasonably suspected to be from a **HEMORRHAGIC** cause with control of major hemorrhage, and blood products are available for administration within 5 minutes of loss of pulses

Adult

BOTH of the following:
1. MAP < 65 or SBP < 90
2. HR > 110

OR

ONE of the following:
1. ETCO2 < 30 mmhg
2. Shock index ≥ 1 (SI = HR / SBP)
3. Pulse Pressure < 40 (SBP – DBP)
4. **OMCP** Approval

Pediatric

Any **ONE** of the following:
1. ETCO2 < 30 mmhg
2. SBP < (70 + [2 x age]) or < 90 (if > 10 yo)
3. Bradycardic or Tachycardic heart rate
   a. Neonate – (< 29 days) <100 or >180
   b. Infant – (1 to 12 months) <80 or >160
   c. Child – (1 to 10 yrs) <60 or >130
   d. Older Child (> 10 yrs) <60 or >110
4. **OMCP** Approval

CONTACT OMCP IF PATIENT < 3 YEARS OF AGE

Contraindications:

- Patients not meeting the indicated criteria listed above.
- Personal or religious objection to receiving blood products.
- Unable to establish patent IV or IO access.

Procedure:

1. Ensure patent IV (18g or larger is preferred) or IO access.
   A. **Note**: Blood requires a dedicated line for administration.
2. Ensure the patient meets indications for emergent whole blood administration.
3. Obtain informed consent, if possible.
4. Obtain a complete set of baseline vital signs including heart rate, respirations, SpO_2, blood pressure, and temperature.
5. Prepare the blood transfusion unit and transfuse the unit of O positive whole blood.
   A. Setup and prime the Y tubing with normal saline. Ensure the ensure filter chamber is filled with normal saline. **NOTE: ONLY NORMAL SALINE SHOULD BE USED.**
   B. Connect the Y tubing to the QinFlow disposable unit to the "IN" connection and flush the unit until fluid drains from the tubing.
   C. Clamp the normal saline.
   D. Verify the blood product is suitable for transfusion with *two* paramedics (the specially trained Lead Paramedic and one other paramedic)
      a. Confirm the blood is O positive whole blood (can be confirmed during morning duty checks).
      b. Confirm expiration date of the blood has not passed (can be confirmed during morning duty checks).
      c. Confirm the appearance of the blood is as expected.
      d. Confirm blood is at the correct storage temperature prior to warming.
   E. If the blood is confirmed and is permissible to be transfused, spike the blood and place inside of a pressure bag and pump the pressure bag up to 250-300 mmhg.
   F. Attach the QinFlow warmer to the QinFlow disposable unit.
      a. This should automatically turn the QinFlow Warmer on.

Procedure: Whole Blood Administration

G. Prime the line with whole blood – clamping the line just prior to the blood draining from the tubing.
H. Connect the patient's IV or IO access to the "OUT" connection of the QinFlow disposable unit.
I. Open the clamp on the blood line to allow the blood to flow.
    a. For pediatric patients, infuse 10 mL/kg, call OMCP for additional volume.
    b. For adult patients, titrate volume to sustain improvement in the clinical indication for blood product infusion.

6. Transfuse 1g Calcium Chloride through separate IV/IO access.
7. Monitor for signs of transfusion reaction.
    A. Fever (1°C increase in temperature), Anaphylaxis, pulmonary edema, back pain, abdominal pain.
    B. If a transfusion reaction occurs:
        a. Immediately stop the transfusion.
        b. Replace the blood tubing with normal saline and begin administration.
            - Keep the blood tubing and unit of blood and give them to the blood bank representative or charge nurse at Memorial Hospital.
        c. Refer to anaphylaxis/allergic reaction guideline.
        d. Immediately notify medical control.
8. At the time of patient hand-off:
    A. Give bag of blood product and tubing to the nursing staff (particularly important if transfusion is complete).
    B. Ensure a representative (RN, Blood Bank technician, or physician) prints their name and signs the Pre-Hospital Blood Product Transfusion Record, indicating receipt of the blood product and copy of the form.
9. Prior to leaving the hospital after patient hand-off, document the following on the Pre-Hospital Blood Product Transfusion Record (Appendix C: 12003):
    A. Patient name.
    B. FIN Number.
    C. Age/Approximate Age and Gender.
    D. Product number.
    E. Product type (whole blood).
    F. Infusion start time.
    G. Total amount of infusion completed at the time of hand-off.
    H. Indicate whether the transfusion was complete or ongoing at the time of hand-off.
    I. Indicate whether a suspected transfusion reaction occurred. If a transfusion reaction is suspected, document action taken in the "comments" section of the form.
    J. Which medic unit administered the blood product.
    K. Receiving facility.
    L. Type of call (Trauma – with descriptor, Medical – with descriptor).
    M. Indication for blood product administration.
    N. OMCP contact, if performed.
10. Leave the yellow and pink copies of the Pre-Hospital Blood Product Transfusion Record with the patient in the emergency department.
11. Keep the white copy of the Pre-Hospital Blood Product Transfusion Record for the EMS (ESO) record.
    A. Attach as an attachment to the ESO chart.

Notes:
* Authorization for administration of Whole Blood is restricted to specially trained Lead Paramedics. **There are no exceptions**.

Procedure: Cervical Collar Placement

Background: Cervical collars (C-collars) were introduced to prevent secondary injury to the spinal cord by immobilizing a potentially unstable cervical spine. However, while the collar can help prevent secondary injury, this must be used in conjunction with spinal motion restrictions (SMR). A cervical collar on its own is not effective in preventing secondary injury.

Indications:

- Adult or pediatric patients

Contraindications:

- Patient with altered mental status fighting

Procedure:

1. Apply manual inline stabilization.
2. Instruct the patient not to move his or her neck.
3. Measure for the appropriate-sized collar.
   a. Measure the distance from the chin line to the trapezius.
4. Place the chin support under the submental region.
5. While still holding manual inline stabilization, wrap the collar around the neck of the patient carefully sliding the posterior aspect under the posterior neck without moving the neck.
6. Ensure proper fit and tighten the hook and loop strap.
7. Ensure the patient is able to breath and the collar is not too restricting.
8. Continue to hold inline manual stabilization until the head is secured to the backboard or cot.
9. If a cervical collar is placed, the patient should be placed in full spinal motion restrictions (SMR).
10. Document the procedure in the ePCR.

Procedure: Hare Traction Splint

Background: Traction Splinting is indicated for a midshaft femur fracture. This helps to re-align the femur into a more anatomic alignment. Many times, this will reduce overriding bone fragments, improve pain, and reduce the possibility of vascular or muscular injury from sharp bone fragments.

Indications:

- Adult or pediatric patient with a midshaft femur fracture.

Contraindications:

- Suspected or obvious pelvic fracture.
- Distal or proximal femur fracture.
- Suspected or obvious knee fracture. (Not applicable to a patellar dislocation)
- Suspected or obvious tibia or fibular fracture.
- Suspected or obvious ankle fracture.
- Suspected or obvious foot fracture.

Procedure:

1. Manually stabilize the bone.
2. Direct second EMS practitioner to apply manual traction. The traction should be steady, constant and in the long axis of the bone.
3. Assess pulse, motor, and sensation distal to the injury site. This is typically done in the foot.
4. Prepare the splint and measure for the appropriate length on the *non-injured* leg.
5. Adjust the length of the splint to approximately 6" past the end of the foot.
6. Apply the ankle strap. This can then be used for manual traction.
7. Place the splint at the level of the ischial tuberosity.
8. Apply the ischial strap.
9. Attach the ankle hitch to the traction device and apply appropriate mechanical traction. At this point, the manual traction can be removed.
    - Ensure the injured leg length does not exceed the length of the uninjured leg.
10. Apply and secure the remaining support straps.
11. Secure the splinted extremity to the body, backboard, or cot, as necessary.
12. Reassess pulse, motor, and sensation distal to the injury site after the splint has been applied.
13. If accurate, document the presence of pulse, motor, and sensation distal to the injury site before and after the splint placement in the ePCR.
14. Document in the procedure in the ePCR.

Notes/Precautions:

- Always document evaluation of pulse, motor, and sensation *before and after* splint placement and, is necessary, reduction, in the ePCR.

Procedure: Helmet Removal

Background: Helmet removal is an important procedure for both football helmets, motorcycle helmets, and other sporting helmets, such as skateboarding or BMX biking. Helmets can help maintain inline stabilization of the cervical spine but can also impede the airway. The decision to remove a helmet should be made in an individual basis.

Indications:

- Any patient wearing a helmet and involved in a trauma where the helmet obstructs access to the face and airway.

Contraindications:

- None in the emergency setting.

Procedure:

1. Ensure 2 practitioners are available for the removal of the helmet.
2. Practitioner A should be at the head of the bed holding manual inline stabilization of the cervical spine.
   a. The practitioner should place one arm on each side of the helmet stabilizing it similar to head rolls.
   b. The hands should be placed with the fingers on the patient's back and thumbs over clavicles to help stabilize the patient.
3. Practitioner B should unstrap or cut the shin strap.
4. From the anterior aspect of the patient, Practitioner B should then place his or her hands under the helmet between the clavicles and mandible.
   a. The fingers should be placed under the occiput with the thumbs on the mandible/chin. Ensure the pressure is on the bone and not the soft tissue under the tongue.
   b. Ensure not to flex or extend the neck.
5. At this time, Practitioner A can let go of manual inline stabilization as Practitioner B has taken over.
6. If the helmet has an emergency release, it can be release now.
7. If the helmet does not have an emergency release, Practitioner A at the head can grab the sides of the helmet and expand it to clear the ears.
   a. If the helmet has a full facemask the helmet may need to be rotated posteriorly for the facemask to clear the nose.
8. Once the helmet has been removed, Practitioner A should take over manual inline stabilization.
   a. NOTE: Practitioner B should not release manual inline stabilization until Practitioner A has taken over manual inline stabilization.
9. A C-collar should be placed on the patient with standard application technique.
10. Spinal Motion Restrictions (SMR) should be implemented, as indicated.

Notes/Precautions:

- The helmet can be left on as long as it does not impede the airway and EMS practitioners unobstructed access to the airway in case of airway compromise.
- Many times, the helmet allows for appropriate alignment of the spine.
- Newer helmets have emergency releases or removable ear pads allowing for easier removal and access.
- If the patient has a football helmet on and access to the face/airway is required, the plastic clips holding the facemask can be cut or unscrewed. This allows access to the face/airway without removing the entire helmet.

Procedure: Pelvic Binder

Background: Pelvic binders, whether commercially available or impromptu devices, are used for open book pelvic fractures. The idea is to "close the book" to help close the potential space in the pelvis and help tamponade any active bleeding in the pelvis. The pelvic binder may also help stabilize the pelvis during transport which may prevent additional injuries.

Indications:

- Evidence of or concern for open book pelvic fracture.

Contraindications:

- None in the emergency setting.

Procedure:

1. Remove clothing over the area of the pelvis. Note: This is not required but ideally will be done.
2. Ensure nothing is in the way of the pelvic binder, such as large objects - phones, knives, etc., in the patient's pockets if the pants are not removed.
3. Locate the greater trochanters of each femur.
4. Gently maneuver the pelvic binder under the patient to the level of the greater trochanters. This can be done by sliding the binder under the patient's knees and then working the binder back and forth while moving the binder superiorly until it is centered over the greater trochanters.
5. Tighten the pelvic binder.
6. Cross the patient's legs at the ankles or tape the great toes together to help augment the binder in "closing the book."
7. Check for and document, if present, pulse, mote, and sensation distally to the binder.

Notes/Precautions:

- Do not place the pelvic binder over the iliac crests. It should be placed over the *greater trochanter* of the femurs.
- A sheet or blanket can be used in place of a commercially available pelvic binder.
    - The steps are the same except the sheet or blanket must be tied on the anterior aspect to prevent the sheet or blanket from loosening.

Procedure: Sager Splint

Background: Traction Splinting is indicated for a midshaft femur fracture. This helps to re-align the femur into a more anatomic alignment. Many times, this will reduce overriding bone fragments, improve pain, and reduce the possibility of vascular or muscular injury from sharp bone fragments.

Indications:
- Adult or pediatric patient with a midshaft femur fracture.

Contraindications:
- Suspected or obvious pelvic fracture.
- Distal or proximal femur fracture.
- Suspected or obvious knee fracture. (Not applicable to a patellar dislocation)
- Suspected or obvious tibia or fibular fracture.
- Suspected or obvious ankle fracture.
- Suspected or obvious foot fracture.

Procedure:
1. Manually stabilize the bone.
2. Direct second EMS practitioner to apply manual traction. The traction should be steady, constant and in the long axis of the bone.
3. Assess pulse, motor, and sensation distal to the injury site. This is typically done in the foot.
4. Prepare the splint and measure for the appropriate length on the *non-injured* leg.
5. Adjust the length of the splint to approximately 6" past the end of the foot.
6. Adjust the proximal end so the adjustable side (articulating head) of the ischial pad faces posteriorly on the patient.
7. Ensure the wheel on the distal end of the Sager Splint faces laterally and is just past the foot.
8. Place the splint between the patient's legs and against the pelvis on the effected side.
9. Apply the ischial strap.
10. Apply the ankle strap. This can then be used for manual traction.
11. Attach the ankle hitch to the traction device and apply appropriate mechanical traction. At this point, the manual traction can be removed.
    - Ensure the injured leg length does not exceed the length of the uninjured leg.
12. Apply and secure the three remaining support straps.
13. Secure the splinted extremity to the body, backboard, or cot, as necessary.
14. Reassess pulse, motor, and sensation distal to the injury site after the splint has been applied.
15. If accurate, document the presence of pulse, motor, and sensation distal to the injury site before and after the splint placement in the ePCR.
16. Document in the procedure in the ePCR.

Notes/Precautions:
- Always document evaluation of pulse, motor, and sensation *before and after* splint placement and, is necessary, reduction, in the ePCR.
- Do not apply more than 15 lbs of traction.

Procedure: SALT Triage

Background:

Mass casualty or mass injury can quickly overwhelm an EMS system and a hospital system. Accurately and quickly triaging patients can save lives and help determine the appropriate destination of an injury patient. SALT triage is meant to quickly and accurately triage patients/victims involved in a mass casualty/injury incident while also allowing for life-saving interventions to help stabilize a patient until they can be transported to more definitive care. This can, and should, be performed by all levels of clinician in the St. Joseph County EMS System.

Purpose:

- To accurately triage and perform lifesaving interventions, as indicated, on the largest number of patients in the shortest amount of time to help save the largest number of lives possible during a mass casualty/injury event.

Indications:

- Mass casualty events
- Multiple injured patients where casualties outnumber the available resources
- Adults and children

Contraindications:

- None

Notes/Precautions:

- Mass Casualty Incident/Mass Patient Incident (MCI) should be considered anytime the number of potential patients exceeds the number of available resources. When an MCI is confirmed, patient triage must be the first priority.
- Mass casualty (patient) events can be as simple as a two-vehicle accident with entrapment in a rural area or as complex as a stadium collapse at a high school or college.
- Error on the side of caution and request more resources than you initially think are required.
- Medical control should be consulted when activating a mass casualty incident to alert of the potential for a large influx of patients to the emergency department.
- Dispatch should be notified of a mass casualty event and an EMS plan should be activated, per EMS Plan Guideline.

Procedure:

1. Initial triage should be done by the *lowest* trained EMS clinician on scene who is adequately trained in SALT triage methodology.
   a. The *highest* trained EMS clinician on scene shall setup the Casualty Collection Point (CCP) and help pre-stage equipment.
      i. If manpower allows, once triage has been completed or is ongoing and larger numbers of patients are at the CCP, a medic shall be assigned to each color in the CCP to allow for more efficient management, monitoring, and re-triaging.
      ii. Each assigned medic should work closely with the triage and transport officer in determining who should be transported and to which destination the patient should be transport.
   b. The first responding firefighters or medical personnel, if not assigned to a rescue assignment, shall begin transporting the triaged patients from the "hot zone" to the CCP, or directly to awaiting ambulances, depending on the number of patients and the available resources.
   c. Triage should be performed according to the Sort, Assess, Life Saving Interventions, Treat/Transport (SALT) triage method.
      i. Global Sorting
      - Each medic performing the initial triage shall start with the global sorting. If the casualty is able to ambulate, the casualty shall ambulate to the CCP for triaging and evaluation.
        - Once the casualty arrives at the CCP, he or she should be formally triaged and a colored ribbon assigned to the patient and tied on his or her *right wrist* (if accessible) *or the left wrist* (if the right wrist is not available).
      - If the patient is unable to ambulate but responds to the verbal command during the global sorting stage, triage these patients *second.*
      - If the patient is unable to ambulate and does *not* respond to verbal commands during the global sorting stage, triage these patients *first.*

Procedure: SALT Triage

- The patients shall be triaged into the following categories based on the SALT triage algorithm:
  - Green – "Walking wounded"/Minimal
  - Yellow – Delayed
  - Red – Immediate
  - Grey/Orange (Striped) – Expectant
  - Black/White (Striped) – Dead
  - Pink – Contaminated
    - The pink ribbon should be used *in addition* to the triage color. This is only to indicate the patient needs to be decontaminated.

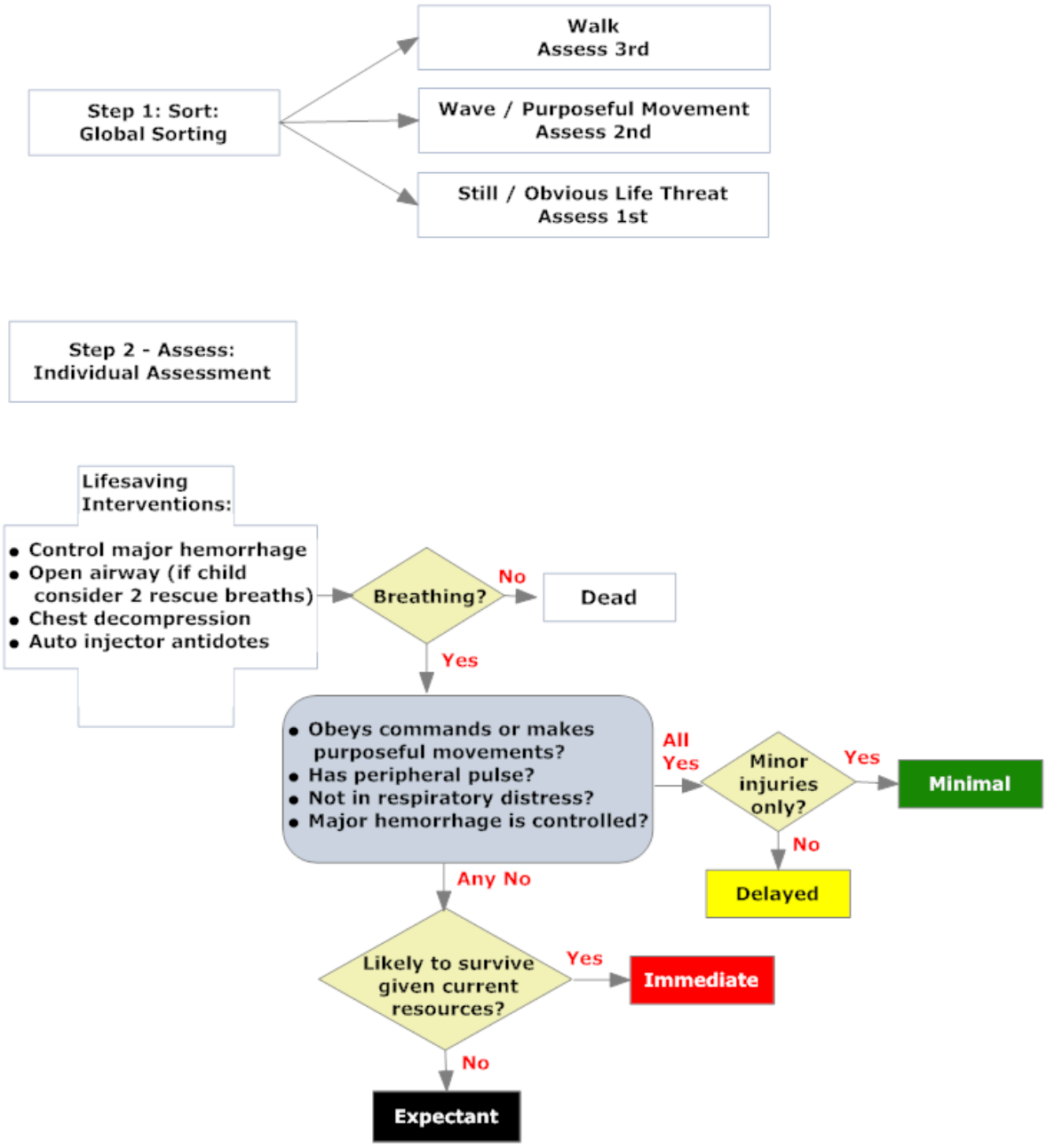
- **Assessment**
  - Assessment shall be performed based on the SALT triage algorithm.
    - If a lifesaving intervention is required, perform it, if within your scope of practice (see "Lifesaving Interventions" below).
    - Each patient shall be assigned a color category (as above) and a ribbon placed on their *right wrist* (if accessible) *or the left wrist* (if the right wrist is not available).
    - No triage tags should be used at this time.
    - Triage tags are to be used at the CCP or en route to the hospital in the ambulance if the patient was a "load and go."
- **Lifesaving Interventions**
  - Control Major hemorrhage with a commercially available tourniquet (CAT®, Soft-T®) – ALL LEVELS
  - Open Airway (Jaw Thrust), can give 2 rescue breaths to pediatric patients - ALL LEVELS
  - Auto-injector administration (Epi-Pen®, 2-PAM) – ALL LEVELS
  - Needle /Chest Decompression –Paramedic and Lead Paramedic

- **Casualty Collection Point (CCP)**
  - Each patient entering the CCP shall be re-triaged by the triage officer by their colored ribbon (as above) to ensure no changes in the patient's condition is noted.
  - The patients should be separated by their triage color in the CCP.
  - Once sorted, the patient shall have a triage tag placed on their *right wrist* (if accessible) *or the left wrist* (if the right wrist is not available).
  - The triage tag should be completed per the "Triage Tag" section below.
  - Particular attention should be given to the "red" category, but all categories should be re-triaged once they arrive at the CCP and placed into their color category.
  - Interventions and treatment should be provided per county guideline, if possible, and only if resources permit.
  - The transport officer shall be kept up to date on the number of patients within each category.

- **Triage Tags**
  - Shall be completed with the following patient information:
    - Name, if known
    - Gender
    - Age
    - Notable injuries
    - Interventions
    - One set of vital signs
    - Triage color, initial
    - Triage color, at time of transport
    - Whether the patient required decontamination

- **Transportation**
  - Patients requiring special interventions shall be transported to the appropriate hospital.
  - Transport destination shall be designated by the Transport Officer.
  - Any patient falling into the "Red" category shall be transported signal 10 (lights and sirens) unless otherwise advised by medical control or the transport officer.
  - If resources are limited, and ongoing emergent transport is necessary, the ambulance should return to the scene signal 10 (lights and siren).

Procedure: SALT Triage



Procedure: Spinal Motion Restriction

Background: Spinal Motion Restriction is a method of spine immobilization to try and prevent secondary injuries to potentially unstable spines. Spinal motion restriction includes immobilizing (or restricting) movement of the head, cervical spine, thoracic spine, lumbar spine, and sacral spine to prevent additional injury. The goal of SMR is to reduce excess movement of the spine.

Indications:

- Adult or pediatric patients who have known, suspected, or potential cervical spine, thoracic spine, lumbar spine, or sacral injuries.

Contraindications:

- None in the emergent setting.

Procedure:

1. Apply manual inline stabilization.
2. Instruct the patient not to move his or her neck.
3. Apply a cervical collar, if indicated.
4. Re-assess pulse, motor, and sensation in all four extremities.
5. Continue to hold inline manual stabilization until the head is secured to the backboard or cot.
6. There are two options for securing a patient to ensure spinal motion restriction: the backboard and the EMS cot.
   a. If securing to a backboard:
      ii. While still maintaining manual C-spine, have a minimum of two EMS practitioners roll the patient to one side
      iii. Slide the backboard under the patient.
      iv. Roll the patient onto the backboard.
      v. Secure the patient with the straps.
      vi. *After* securing the patient's body to the backboard, secure the patient's head to the backboard with commercially available straps or tape. Ensure the head is also immobilized with commercially available head blocks or other aftermarket headblock, such as a towel roll.
      vii. Pad any cervices between the patient and the backboard.
      viii. Re-assess pulse, motor, and sensation.
      ix. Ideally the patient should be moved from the backboard as soon as feasible to avoid skin breakdown. See note below.
   b. If securing to the cot:
      x. Ensure the cot is completely reclined.
      xi. Place the patient in the middle of the cot.
      xii. Secure the patient with the straps.
      xiii. Re-assess pulse, motor, and sensation in all four extremities.
7. Instruct the patient to remain as still as possible.
8. Document the procedure in the ePCR.

Note:

- If using a backboard, the backboard should only be used to move patients and then the patient should be taken off the backboard and onto the cot.
- However, prior to moving the patient off the backboard and onto the cot, the risks and benefits of doing so must be taken into consideration. The benefits must outweigh the risks to proceed.

Procedure: Splinting

Background: Splinting can be applied to most boney injuries in both pediatric and adult patients. Splints are meant to immobilize fractures and other soft tissue injuries to prevent further vascular, nerve, and soft tissue damage. Splints can also aid in pain control. Splints are not circumferential which allows for swelling to take place without increasing the risk for compartment syndrome. Pulse, motor, and sensation should be checked, and documented, prior to *and* after splint placement.

Indications:

- Adult or pediatric patients who have known, suspected, or potential cervical spine, thoracic spine, lumbar spine, or sacral injuries.

Contraindications:

- None in the emergent setting.

Procedure:

Long Bone:

1. Manually stabilize the bone.
2. Measure the length of the splint on the *non-injured* extremity.
   a. Note, the splint should ideally immobilize the joint above and the joint below the injury site.
3. Confirm presence of pulse, motor, and sensation distal to the injury site on the injured extremity prior to applying the splint.
   a. Note, if the patient does not have pulse, or has delayed capillary refill, or no sensation distal to the injury site, reduction of the injury may be necessary.
   b. Ideally the bone will be splinted in anatomical position, but if unable to do so, splint the extremity in the position it was found after the injury.
4. Apply the splint to the injured extremity.
5. Secure the splint to the extremity.
6. Secure the splinted extremity to the body, backboard, or cot, as necessary.
7. Reassess pulse, motor, and sensation distal to the injury site after the splint has been applied.
8. If accurate, document the presence of pulse, motor, and sensation distal to the injury site before and after the splint placement in the ePCR.
9. Document the procedure in the ePCR.

Joint:

1. Manually stabilize the joint.
2. Confirm presence of pulse, motor, and sensation distal to the injury site on the injured extremity prior to applying the splint.
3. Choose the appropriate splint.
4. Apply the splint to the injured joint, ensuring adequate padding to the joint and void spaces.
5. If possible, immobilize the bone above the injured joint.
6. If possible, immobilize the bone below the injured joint.
7. Secure the splinted extremity to the body, backboard, or cot, as necessary.
8. Reassess pulse, motor, and sensation distal to the injury site after the splint has been applied.
9. If accurate, document the presence of pulse, motor, and sensation distal to the injury site before and after the splint placement in the ePCR.
10. Document the procedure in the ePCR.

Notes/Precautions:

- Splints may include disposable cardboard splint, vacuum splints, cravats, SAM® Splints, or other commercially available splints.
- Always document evaluation of pulse, motor, and sensation *before and after* splint placement and, is necessary, reduction, in the ePCR.

Procedure: Tourniquet Application

Background: A tourniquet is a device which tightly constricts around the arm or leg to compress an artery against the long bone(s) of the extremity to impede blood flood distal to the tourniquet. A tourniquet should be used for arterial bleeds and be placed proximal to the arterial injury. This tourniquet is different from the rubber tourniquets used for venipuncture.

Indications:

- Arterial bleeding uncontrolled by direct pressure.
- Severe venous bleeding uncontrolled by direct pressure.
- Proximal extremities which have amputated parts.

Contraindications:

- Bleeding which can be controlled with direct pressure.
- Injuries not on an extremity.

Procedure:

1. Apply constant, direct pressure over the wound.
   a. If the bleeding is controlled with direct pressure a tourniquet is *not* indicated.
2. While holding direct pressure, attempt to pack the wound with clean, sterile dressing (Kerlix or other similar product).
   a. Continue to hold direct pressure after the wound is packed.
3. If there are only a limited number of practitioners and there are additional interventions which must be accomplished which would preclude a practitioner from continuing to hold pressure, and the bleeding continues, despite appropriate pressure being maintained by an ACE wrap or other similar product, a tourniquet may be used to ensure hemostasis while the primary practitioner continues to assess and treat the patient.
4. If constant, direct pressure fails to control the bleeding of an extremity bleed, use a commercially available tourniquet.
   a. Ideally a CAT or SOF-T tourniquet will be used. A SAM tourniquet is also acceptable.
   b. If a commercial tourniquet is not available, the use of a wide, soft, flat material made be used (BP cuff or cravat).
7. If the wound *can* be fully visualized, place the tourniquet approximately 2" proximal to the wound.
8. If the wound *cannot* be fully evaluated, place the tourniquet as proximally to the torso as possible on the thigh or arm.
9. Pull the tourniquet strap as tight as possible prior to twisting the windlass.
10. One the tourniquet strap is tight, twist the windlass until the bleeding stops.
    a. If the bleeding is not controlled with one tourniquet, ensure that it is on properly.
    b. If the bleeding is still not controlled, a second tourniquet may be applied.
11. Lock the tourniquet windless in the clip mechanism.
12. Document the time and the location the tourniquet was applied.
13. During the pre-hospital report *AND* the hand-off report, ensure the hospital staff is aware a tourniquet was placed, include both the time and the location of application in the report.
14. Treat hypovolemic shock, as indicated, per guideline.
15. Document the tourniquet application as a procedure in the ePCR report.

Notes/Precautions

- **Unless obviously indicated, if law enforcement or a civilian placed the tourniquet, EMS practitioners should take the tourniquet down to ensure it is indicated. If bleeding resumes, retighten the tourniquet.**
- Control of life-threatening external hemorrhage takes precedence over any other treatment.
- If bleeding cannot be controlled with direct pressure or a tourniquet, hemostatic dressings may also be applied.
  - Do NOT use liquid or powder hemostatic agents.
  - Place in direct contact with source of bleeding.
  - Continue to hold pressure over wound.
  - These agents can also be used on chest and abdomen.

Procedure: Wound Care/Wound Packing

Background: Wound Packing

Indications:

- Adults or pediatric patients with gaping wounds with uncontrolled bleeding despite direct pressure over the non-chest cavity (thorax) wound.

Contraindications:

- None in the emergent setting.

Procedure:

1. Identify the arterial bleeding or large venous bleeding.
2. Place direct pressure on the injured vessel, if identified.
3. If available, place hemostatic gauze directly over, and in contact with, the injured vessel.
4. Using kerlix, while still maintaining direct pressure over the injured vessel, begin layering the Kerlix over the top of the injured vessel.
5. Continue packing the wound until no additional Kerlix can be applied within the laceration.
6. Take the remaining Kerlix and place it over the top of the wound.
7. Using an ACE wrap, or similar device, wrap it around the injured extremity getting circumferential pressure over the wound.
8. Direct manual pressure may also still be necessary.
9. If this is unsuccessful, a tourniquet may be indicated.
10. Document the procedure in the ePCR.

Notes/Precautions:

- Watch for bone shards or other sharp shrapnel in the wound when manually packing the wound.
- Do not pack the chest cavity (thorax). Direct pressure can be placed on a thoracic injury, but do not pack the thorax.

Procedure: Auto-Injector Administration

Background: Auto-Injectors allow for laypersons or non-paramedic practitioners to administer medication and dosage for a specific indication without the need to draw-up medication into a syringe or perform med-math to ensure the appropriate dosing of a medication for a patient. Auto-injectors previously have been only epi-pens and atropine. However, auto0injectors are becoming more ubiquitous and are being made with additional medications.

Indications:

- An adult or pediatric patient who requires the administration of a medication pre-loaded into an auto-injector. This could include medications such as epinephrine, diazepam, atropine, or 2-PAM chloride.

Contraindications:

- None in the emergency setting.

Procedure:

1. Confirm the appropriate indication for the intended medication is met.
2. Confirm the dosage of the medication is correct.
3. Confirm the medication is not expired.
4. Clean the intended injection site, the vastus lateralis muscle (thigh).
5. Remove the cover/packaging from the auto-injector.
6. Remove the back end-cap, if present.
7. Remove the cover from the needle/injection site.
8. With a quick motion, push the auto-injector against the thigh until the spring-loaded needle is activated.
9. Hold the needle against the thigh for approximately 10 seconds.
10. Massage the area for approximately 10 seconds.
11. Record the time of injection.
12. Monitor for adverse reactions.
13. Place a band-aid or other covering over the injection site, if possible.

Notes/Precautions:

- Auto-injectors are made to go through pants. However, if possible, the skin should be cleaned and the injector placed directly against the skin.

Procedure: Delivery

Background: Infant delivery can be a stressful procedure for EMS practitioners. Delivery will proceed naturally without complication for the majority of the prehospital deliveries. Unfortunately, there are a small number of cases which will require expert intervention to facilitate a successful delivery of the infant. The procedure below gives guidance to both an uncomplicated and complicated deliveries. In all complicated cases, the patient should be transported signal-10 (lights and sirens) to the hospital with contact to OMCP or the laborist while en route.

Indications:

- Female in active labor with crowning of the baby.
- Female in active labor with breech presentation.

Contraindications:

- None in the emergent setting.

Standard Delivery
Procedure:

1. Ensure the patient is in active labor with crowning of the baby.
2. Prepare a sterile area, or as sterile as possible, to prepare for the delivery.
3. Remove the patient's pants and undergarments.
4. Place the patient in the lithotomy position. Additional assistants may be needed to help hold the legs back toward the abdomen.
5. Open and prepare the obstetrics kit.
6. During contractions encourage the patient to push.
7. Use a very small amount of pressure against the head to help control the delivery. Delivery should be controlled, slow procedure to avoid injury to the neonate and the mother.
8. Once the baby's head exits the vaginal introitus, check for a nuchal cord.
    a. If a nuchal cord is discovered, unwrap the cord from the baby's neck before having the mother continue to push.
    b. If the cord cannot be removed, double clamp the cord and cut the cord between the clamps.
9. Deliver the anterior shoulder with slight downward pressure.
10. Once the anterior shoulder has been delivered, deliver the posterior shoulder with slight upward pressure.
11. Deliver the rest of the baby.
12. Note the time of delivery.
13. Place the neonate on the bare chest of the mother if the neonate is in no acute distress.
14. Encourage the mother to breastfeed.
15. After 30-60 seconds, place 2 clamps on umbilical cord about 3-4" from the umbilicus leaving a small space between the clamps.
16. Cut the umbilical cord between the clamps.
17. Leave the clamps in place.
18. Calculate an APGAR score at 1 minute.
19. Reassess the mom's vital signs.
20. Control maternal bleeding, as necessary.
21. Massage the fundus in the lower abdomen and encourage breastfeeding to help stimulate uterine contractions to help stop post-partum hemorrhage.
22. Deliver the placenta.
    a. A small amount of traction can be kept on the umbilical cord attached to the placenta, but *do not pull the placenta hard to deliver it.* Allow the placenta to be delivered naturally.

Procedure: Delivery

Breach Delivery
This is a delivery where the head is delivered last. This can be particularly dangerous for the neonate. There are three types of breech presentations: Complete, Frank, and Footling. A breech delivery is best performed by obstetricians at the hospital as many times a cesarean section (C-section) is required. However, in the event of an imminent delivery requiring prehospital delivery, the following procedure for a breech delivery can be followed.

Procedure:

1. Ensure the patient is in active labor with presentation of the foot or buttock.
2. When a breech presentation is discovered, have a second practitioner call OMCP immediately and tell then to prepare the operating room for emergency Cesarean section.
3. Prepare a sterile area, or as sterile as possible, to prepare for the delivery.
4. Remove the patient's pants and undergarments.
5. Place the patient in the lithotomy position. Additional assistants may be needed to help hold the legs back toward the abdomen.
6. Open and prepare the obstetrics kit.
7. Allow the fetus to deliver naturally up to the point of the umbilicus.
8. Once the fetus has been delivered to the level of the umbilicus, attempt to deliver one of the feet. Splint the medial thigh parallel to the femur and sweep the thigh laterally.
9. Repeat on the other side so that both legs are delivered.
10. Support the infant with your forearm and palm.
11. Wrap a towel around the infant.
12. If possible, once at the level of the umbilicus, gently extract 4-6" of umbilical cord as to not pull excess traction on the cord during the delivery.
13. Place your hand around the buttocks with fingers on the anterior, superior iliac spines (ASIS) and thumbs on the sacrum.
14. Assist the mother in her natural laboring with *gentle* traction to deliver the infant up to the level of the scapulae.
15. Rotate the infant in either direction so that one of the shoulders is anterior.
16. Gently guide the infant downward to deliver the anterior shoulder.
17. If not able to easily deliver the anterior shoulder, grab the anterior arm, sweep it across the chest and deliver the anterior shoulder.
18. Gently guide the infant upward to deliver the posterior shoulder.
    a. If unable to deliver the posterior shoulder, attempt to rotate the infant 180 degrees to get the opposite shoulder anterior and deliver the shoulder using the same method.
19. When delivering the head, do not have the infant face or abdomen facing the maternal pubic symphysis.
20. Typically, the head will deliver without difficulty. However, do not use excess traction or rotation on the head to avoid spinal injuries.
21. As the occiput passes the maternal pubic symphysis, gently guide the infant upward to allow the mouth to pass the perineum, then immediately suction the mouth and then the nose.
22. If the head does not spontaneously deliver in an expeditious manner, immediate action must be taken to avoid allowing the infant to suffocate.
    a. Place a gloved hand into the vagina. Form a "V" with your index and middle finger and place them on the infant's maxillae- one on each side of the nose.
    b. Gently tilt the chin toward the infant's chest while pushing away the vaginal wall from the infant's face.
    c. Continue to try and deliver the infant's head with gentle upward movement of the infant and gentle suprapubic pressure.
23. Once delivered, note the time of delivery.
24. Place the neonate on the bare chest of the mother if the neonate is in no acute distress.
25. Encourage the mother to breastfeed.
26. After 30-60 seconds, place 2 clamps on umbilical cord about 3-4" from the umbilicus leaving a small space between the clamps.
27. Cut the umbilical cord between the clamps.
28. Leave the clamps in place.
29. Calculate an APGAR score at 1 minute.
30. Reassess the mom's vital signs.
31. Control maternal bleeding, as necessary.

32. Massage the fundus in the lower abdomen and encourage breastfeeding to help stimulate uterine contractions to help stop post-partum hemorrhage.
33. Deliver the placenta.
    a. A small amount of traction can be kept on the umbilical cord attached to the placenta, but *do not pull the placenta hard to deliver it.* All the placenta to be delivered naturally.

Shoulder Dystocia

This occurs when the anterior shoulder becomes wedged against the pubic symphysis and prevents the shoulder from being delivered. Delivery entails assisting the shoulder under the pubic symphysis or rotating the baby to facilitate delivering the shoulders to deliver the remainder of the baby. To help facilitate the delivery of a baby with shoulder dystocia, the following procedure can be used:

Procedure:

1. Ensure the patient is in active labor with crowning of the baby.
2. Prepare a sterile area, or as sterile as possible, to prepare for the delivery.
3. Remove the patient's pants and undergarments.
4. Place the patient in the lithotomy position. Additional assistants may be needed to help hold the legs back toward the abdomen.
5. Open and prepare the obstetrics kit.
6. During contractions encourage the patient to push.
7. Use a very small amount of pressure against the head to help control the delivery.
8. Once the baby's head exits the vaginal introitus, check for a nuchal cord.
    a. If a nuchal cord is discovered, unwrap the cord from the baby's neck before having the mother continue to push.
9. Attempt to deliver the anterior shoulder with slight downward pressure.
10. If the anterior shoulder will not deliver, attempt suprapubic pressure with flexion of the knees and hyperflexion at the hips (McRoberts Maneuver). This helps increase the diameter of the pelvis.
11. If this is unsuccessful, attempt to gently rotate the fetal shoulder girdle into the wider oblique diameter. Attempt to rotate the posterior by placing a finger (or two) on the anterior aspect of the posterior shoulder pushing posteriorly. Continue with suprapubic pressure and help rotation the fetus by pushing in the opposite direction of the internal rotation. The posterior shoulder will typically spontaneously deliver.
12. Once the posterior shoulder has been delivered, deliver the anterior shoulder.
13. Deliver the rest of the neonate. If delivery does not occur, maintain airway patency and transport signal-10 to the hospital. If delivery does occur, continue down this procedure.
14. Note the time of delivery.
15. Place the neonate on the bare chest of the mother if the neonate is in no acute distress.
16. Encourage the mother to breastfeed.
17. After 30-60 seconds, place 2 clamps on umbilical cord about 3-4" from the umbilicus leaving a small space between the clamps.
18. Cut the umbilical cord between the clamps.
19. Leave the clamps in place.
20. Calculate an APGAR score at 1 minute.
21. Reassess the mom's vital signs.
22. Control maternal bleeding, as necessary.
23. Deliver the placenta.
    a. A small amount of traction can be kept on the umbilical cord attached to the placenta, but *do not pull the placenta hard to deliver it.* All the placenta to be delivered naturally.

Procedure: Delivery

Umbilical Cord Prolapse

Umbilical cord prolapse occurs when the umbilical cord slips through the cervix and into the vagina or out of the vagina after the amniotic membranes have ruptured. The umbilical cord is the lifeline to the fetus until delivered. Compression of the cord can cause asphyxiation of the fetus if the compression is not relieved before delivery.

1. If the umbilical cord is seen in the vagina or protruding from the vagina, insert two gloved fingers into the vagina and gently elevate the presenting part of the fetus off the cord until an umbilical pulse is felt. Do not attempt to push the cord back into the uterus.
2. Continue elevating the presenting part of the fetus until arrival in the operating room with the mother. This patient will typically require emergent Cesarean section.
3. Place the patient in the Trendelenburg position or knee-to-chest position to assist in relieving compression on the cord.
4. Do not allow the mother to "bear down" during contractions.
5. Apply moist sterile dressing to the exposed umbilical cord, if possible.
6. Have a second practitioner call OMCP immediately and tell them to prepare the operating room for emergent Cesarean section.

Post-Partum Hemorrhage

Post-partum hemorrhage is defined as the loss of 500 mL of more within the 24-hours following delivery. The most common cause is uterine atony, however there are several other causes. To help facilitate the treatment of post-partum hemorrhage:

1. Begin fundal message.
2. Administer Tranexamic Acid (TXA).
3. Whole blood.

Post-Delivery Neonatal Care

- **With no complications**
- **With complications**

Notes/Precautions:

- **If any complications arise during the delivery process, contact OMCP immediately. Signal-10 (lights and sirens) transport should be initiated.**
- Consider calling for a second ambulance and additional manpower as there is the potential for 2 patients.

Procedure: Determination of Capacity

Background: Determination of capacity is an essential skill for EMS practitioners. At times, a patient may receive an evaluation or intervention and decide not to seek additional treatment in the emergency department or a bystander calls EMS and ultimately the patient decides not to seek medical attention. In these cases, it is imperative that EMS practitioners ensure the patient has the capacity to refuse treatment.

Indications:

- Patient wanting to refuse treatment or transport.

Contraindications:

- Person wanting to refuse care does not meet the definition of a patient.

Procedure:

1. If the patient is suicidal or homicidal, contact law enforcement for assistance immediately.
2. In order to have decision making capacity, the patient shall first meet the following requirements:
   a. Be 18 years of age or an emancipated minor AND
   b. Not be suicidal nor homicidal AND
   c. Has not had his or her decision-making capacity revoked by the court system AND
3. If the patient does not meet the requirements of #2, the patient cannot refuse treatment and does not have decision-making capacity.
4. If the patient does meet the requirements of #2, the patient must have the ability to demonstrate understanding of the following requirements:
   a. The patient must understand his or her illness or injury and the benefits of treatment and/or evaluation AND
   b. The patient must understand the consequences, including death, of not seeking treatment and/or evaluation of their illness or injury AND
   c. The patient must understand the alternatives to care being offered AND
   d. The patient must be able to explain back to the EMS practitioner each of the above components and give a reason for his or her decision of refusing treatment and/or transport.
5. Any individual who meets the requirements of #1, #2 and #4 have the right to refuse medical treatment, even if that refusal is contradictory to the beliefs of the EMS practitioner. It is the EMS practitioner's responsibility to provide the patient with the information about the risks and benefits or treatment, refusal, and alternative therapies so the patient can make an *informed* decision.
6. Document any history and physical that has been obtained/performed in the ePCR.
7. Document the required items from the Patient Initiated Refusal > Required Documentation.

Notes:

- If there are any concerns or uncertainty about the patient's mental capacity, contact OMCP.
- Utilize the Determination of Capacity Checklist.

Procedure: Nasogastric (NG) Tube Insertion

Background: Nasogastric (NG) tubes are long flexible tubes inserted through the nose and into the stomach. NG tubes allow for stomach decompression when hooked to suction and allow for medication administration and nutrient repletion for critically ill patients or those who are unable to tolerate PO or need to bypass the oropharyngeal region. NG tubes can be used on a patient with a gag reflex.

Indications:

- Adult or pediatric patients in cardiac arrest or unresponsive following placement of advanced airway.
- Patients who are vomiting or at risk for aspiration due to altered mental status and have an advanced airway in place or otherwise do not have an intact gag reflex.

Contraindications:

- Suspected fracture(s) of the cribriform place secondary to severe maxillofacial trauma.
- Actual or suspected laceration or perforation of the esophagus.
- Ingestion of caustic substances.

Procedure:

1. Select the appropriately sized NG tube.
   a. For adults, typically 16F – 18F
   b. For children, use HandTevy or other reference to determine the appropriate size. Many times, this is double the endotracheal tube size.
2. Measure the length for insertion.
   a. To measure: While holding the distal end of the tube, measure from the earlobe to the bridge of the patient's nose, and from the bridge of the nose continue to just below the xiphoid process.
   b. Make note of the distance. That is the depth of insertion.
3. Lubricate the distal 3"-6" of the NG tube.
4. Choose the largest patent naris.
5. Slide the lubricated end of the NG tube posteriorly (toward the back of the head) and into the posterior pharynx. Continue to advance the NG tube until an insertion depth equal to the previously measured depth has been achieved.
   a. If the patient is awake and/or sitting up, support the back of the patient's head and have the patient lean his or her head slightly forward. Once the NG tube is in the posterior pharynx, have the patient swallow to help facilitate the NG tube going into the esophagus rather than the trachea.
   b. If resistance is felt, do not force the tube through. Readjust/rotate the tube and try to advance again.
6. After reaching the predetermined depth and ensuring the tube is not coiled in the back of the oropharynx, while auscultating over the stomach inject 20-30 mL of air into the NG tube. Gurgling/air should be heard in the stomach.
   a. If no sounds are heard over the epigastrium or fogging is noted in the tube, consistent with the tube being in the airway and not in the esophagus/stomach, immediately withdraw the tube and oxygenate the patient. After oxygenation, another attempt to place the NG is acceptable.
7. Attempt to aspirate gastric contents from the NG tube. Note, gastric contents may not always be present.
8. Once confirmed in the correct position, secure the NG tube to the tip of the nose with tape or commercial NG holder.
9. Attach the proximal end of the tube to suction. Suction as needed.

Notes/Precautions:

- Anticoagulant use or coagulopathy is a *relative* contraindication.
- If the patient has an advanced airway, an OG tube is preferred over an NG tube. However, an NG tube is not contraindicated.
- If the patient is awake or has a gag reflex an NG tube is indicated.

Procedure: Orogastric (OG) Tube Insertion

Background: Orogastric (OG) tubes are long flexible tubes inserted through the mouth and into the stomach. OG tubes allow for stomach decompression when hooked to suction and allow for medication administration and nutrient repletion for critically ill patients or those who are unable to tolerate PO or need to bypass the oropharyngeal region.

Indications:

- Adult or pediatric patients in cardiac arrest or unresponsive following placement of advanced airway.
- Patients who are vomiting or at risk for aspiration due to altered mental status and have an advanced airway in place or otherwise do not have an intact gag reflex.

Contraindications:

- Patient with a gag reflex.
- Actual or suspected laceration or perforation of the esophagus.
- Ingestion of caustic substances.

Procedure:

1. Select the appropriately sized OG tube.
   a. For adults, typically 16F – 18F
   b. For children, use HandTevy or other reference to determine the appropriate size. Many times, this is double the endotracheal tube size.
2. Measure the length for insertion.
   a. To measure: While holding the distal end of the tube, measure from the earlobe to the bridge of the patient's nose, and from the bridge of the nose continue to just below the xiphoid process.
   b. Make note of the distance. That is the depth of insertion.
3. Lubricate the distal 3"-6" of the OG tube.
4. Slide the lubricated end of the OG tube along the roof of the mouth and into the posterior pharynx. Continue to advance the OG tube until an insertion depth equal to the previously measured depth has been achieved.
   a. If the patient has a supraglottic airway that has a suction port, the OG tube should be inserted through the suction port.
   b. If resistance is felt, do not force the tube through. Readjust/rotate the tube and try to advance again.
5. After reaching the predetermined depth and ensuring the tube is not coiled in the back of the oropharynx, while auscultating over the stomach inject 20-30 mL of air into the OG tube. Gurgling/air should be heard in the stomach.
   a. If no sounds are heard over the epigastrium or fogging is noted in the tube, consistent with the tube being in the airway and not in the esophagus/stomach, immediately withdraw the tube and oxygenate the patient. After oxygenation, another attempt to place the OG is acceptable.
6. Attempt to aspirate gastric contents from the OG tube. Note, gastric contents may not always be present.
7. Once confirmed in the correct position, secure the OG tube to the endotracheal tube or supraglottic airway, if present.
8. Attach the proximal end of the tube to suction. Suction as needed.

Notes/Precautions:

- Anticoagulant use or coagulopathy is a *relative* contraindication.
- If the patient has an advanced airway, an OG tube is preferred over an NG tube. However, an NG tube is not contraindicated.
- If the patient is awake or has a gag reflex an NG tube is indicated.

Procedure: Point of Care (POC) Capillary Glucose Testing

Background: Point of Care (POC) glucose testing allows for rapid identification of severe alterations of in blood glucose. A small blood sample is analyzed at the patient's bedside rather than having to send blood to a lab analyzer. Blood glucose should be checked in any altered mental status patient, those where the EMS practitioner has concern for hypoglycemia or hyperglycemia, and stroke patients.

Indications:

- Altered mental status.
- Diabetic patient with concern for hypoglycemia or hyperglycemia.
- Stroke patients.

Contraindications:

- None in the emergent setting.

Procedure:

1. Prepare all equipment
   a. Ensure the glucometer powers on and does not have an error message.
   b. Insert the test strip into the glucometer.
2. Clean the site, typically a distal finger, with alcohol.
3. Allow the area to completely dry after cleaning with the alcohol swab.
4. Puncture the finger with the lancet.
5. If an adequate amount of blood is not expelled with the initial skin puncture, gently squeeze the finger to obtain an adequate blood volume for the glucose testing.
6. Apply a small drop of blood to the test strip in the glucometer.
7. Wait for the results.
8. Interpret the results.
9. Place a band-aid/bandage over the puncture site.
10. Record the blood test results in the ePCR.

Procedure: Restraints (Physical and Chemical)

Background:

For the safety of the EMS practitioner and the patient, physical restraint of patients is occasionally required. At times, EMS is also requested to transport patients for law enforcement who are in custody and physically restrained via handcuffs. Patients in physical restraints may continue to fight against the restraints which can lead to additional harm to the patient. Patients may also exhibit extreme behavior, such as in Hyperactive Delirium Syndrome with Severe Agitation, which can ultimately lead to emergent medical conditions, such as rhabdomyolysis and extreme sympathetic surge. The need to physically restraint, chemically sedate, or both can be life-saving.

Indications:

- Any patient who, **after EMS practitioner evaluation and attempt at de-escalation**, is exhibiting behavior that the EMS practitioner believes will present a danger to the patient, the crew, other personnel, or bystanders.

Contraindications:

- None in the emergency setting

Notes/Precautions:

- The EMS practitioner *may use only the minimum force necessary to accomplish the necessary restraint to provide patient care and ensure safe transport.*
- If it is not safe for EMS practitioners to restrain the patient, call for assistance prior to attempting restraint procedures. *Do not endanger yourself or the rest of the crew.*
- Once restraints are placed, they should not be removed until patient care is transferred at the hospital, unless given permission by **OMCP**, or in case of emergency where the benefits of removing the restraints outweigh the risks
- The patient *shall never* be "hog-tied" or hobbled, and shall not be transported in the prone position (see #4 below)
- EMS Personnel are *not* authorized to use nor apply metal handcuffs or flex-cuffs. However, they may assist law enforcement in applying such devices, if requested.
- EMS personnel shall have an immediate means of releasing the restraints.
- Soft restraints are the preferential restraint type.
- **EMS Personnel must be able to immediately and completely unrestrain a patient in the event of an emergency**.
- **The patient must never be restrained to any irremovable fixture in the vehicle**. Ideally, the patient is restrained to a backboard or other moveable device in case of airway complication. The patient should not be handcuffed to the cot rails.

Procedure:

1) Ensure the scene is safe.
2) Attempt to verbally de-escalate the patient, explaining that if the patient continues to be a threat to himself or herself that he or she will be physically or chemically restrained or both. Layout the clear expectation for the patient. *This conversation must be documented* in the PCR.
3) Ensure there are enough personnel to safely control the patient while straining. It is preferable to use law enforcement assistance, when available.
4) Position the patient for safe transport:
   a) Place the patient in the supine position. At no point shall a patient be restrained in the prone position unless it is *medically indicated*, for example a penetrating injury to the back which prevents a patient from being transported in the supine position. In this case, however, the patient shall be transported in the lateral position, again, unless contraindicated or complicated by some medical condition making lateral positioning inappropriate.
   b) ADULT AND CHILDREN 13 YEARS OF AGE OR OLDER: Use 4-point restraints (two arms and two legs). Ideally, one arm will be above the head and one arm will be below the head. Ideally, the patient is restrained to a backboard or other moveable device in case of airway complication. However, soft restraints secured to the cot are acceptable. Handcuffs secured to the cot are not approved.
   c) PEDIATRICS LESS THAN 13 YEARS OF AGE: Use 3-point restraints (two arms and a leg). Ideally, one arm will be above the head and one arm will be below the head. Ideally, the patient is restrained to a backboard or other moveable device in case of airway complication. However, soft restraints secured to the cot are acceptable. Handcuffs secured to the cot are not approved.

Procedure: Restraints (Physical and Chemical)

d) If necessary, use a C-collar to control violent head or body movements.
e) Place padding under the patient's head. Pad any other area needed to prevent the patient from further harming himself or herself. Ensure the patient's circulation is not restricted.

5) If the patient continues to struggle against the restrains and demonstrate he or she is a danger to himself or herself, EMS personnel, or law enforcement, the patient should receive chemical sedation per the Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies guideline.
6) Secure the patient onto the stretcher for transport, as would be standard for any other patient. Use additional straps, if necessary. Always be prepared to logroll, suction, and maintain airway, especially in the event of vomiting or other concern for airway compromise, particularly after administering chemical sedation.
7) Monitor the patient's airway status continuously. This includes applying a pulse oximeter, end-tidal CO_2, obtaining a complete set of vital signs, blood glucose, assessing capillary refill, motor, and sensation in the retrained extremities. If this is not possible due to patient cooperation, you must document this in your PCR narrative. However, if the practitioner is not able to obtain a full set of vitals and can't monitor the patient with pulse oximetry and end-tidal CO2, chemical sedation should strongly be considered, if not already given, as this is now a patient safety concern during transport.
8) Repeat vital signs every 5 minutes including continuous pulse oximetry and end-tidal CO_2.
9) Assess the patient for medical or traumatic causes of the patient's agitation while transporting.
10) **Required documentation**:
    a) The de-escalation techniques and verbal discuss with the patient.
    b) The use of only the minimum force necessary to restrain the patient for his or her safety.
    c) Vital signs (initial and every 5 minutes).
    d) Physical exam to exclude medical and traumatic causes of the agitation.
    e) Whether law enforcement was involved and whether the patient was in law enforcement custody.
    f) The type of restraint used and the location of the restraints.
    g) The patient's position during transport (ie supine).
11) If at any time the patient receives chemical sedation, the patient *must* be transported in the ambulance with medical personnel and is not permitted to be transported by law enforcement.

Special Circumstances:

Patient in custody:

- If the patient is in custody or handcuffed (metal or flex-cuffs), the patient should be transported with the law enforcement officer in the patient compartment or following immediately behind the ambulance.
- The patient should *not* be transported with their hands handcuffed behind their back. The hands should be handcuffed in front of their body unless absolutely necessary to have hands behind the back due to safety issues. This should be a shared decision between law enforcement and EMS. However, if the patient is to be transported with his or her hands behind the back, *law enforcement must be in the patient compartment*. There are no exceptions to this rule. If the EMS agency is not comfortable transporting with the patient's hands behind their back, then the patient will not be transported, regardless of whether or not the law enforcement officer is in the patient compartment.
- Law enforcement retains primary responsibility for safe transport of patients under arrest or placed on involuntary detention.
- Law enforcement must search the patient for weapons and/or drugs prior to transport.
- If the law enforcement officer is not in the patient compartment and the patient becomes belligerent or attempts to flee, the ambulance shall be stopped and the patient allowed to leave – assuming they have the capacity to make their own medical decisions. EMS personnel should attempt to beckon law enforcement but shall not put themselves in danger trying to restrain or subdue a suspect attempting to flee. The patient is in law enforcement custody, *not* in EMS custody.
- EMS shall always maintain possession of a cuff key if the patient is in handcuffs. The cuff key shall be in the physical possession of the Lead Paramedic during the entirety of the transport in case of emergency and the need to uncuff the patient.
- Medical evaluation and intervention will always outweigh the law enforcement detention once EMS has been summoned.
- Hand cuffs can be used with spinal motion restriction.
- If, in the unfortunate circumstance law enforcement and EMS practitioners cannot agree on the safest way to transport the patient and the patient is in law enforcement custody, and in the EMS practitioner's judgment stable enough to be transported by law enforcement, law enforcement should transport the patient with EMS following

Procedure: Restraints (Physical and Chemical)

behind the officer transporting the suspect in case of medical emergency. As noted above, the patient is in law enforcement custody, not in EMS custody. If the patient requires an ambulance transport, but EMS clinicians are not comfortably transporting the patient for safety reasons, but clinicians and law enforcement still cannot agree on a safe transport plan, attempt to contact the Medical Director. If the Medical Director is unavailable, contact **OMCP**.

Procedure: Sedation, Procedural

Background: Procedural Sedation is a technique of administering sedatives or dissociative agents with or without analgesics to induce a state that allows the patient to tolerate unpleasant procedures while maintaining cardiorespiratory function. Procedural sedation is intended to result in a depressed level of consciousness that allows the patient to maintain oxygenation and airway control independently. - American College of Emergency Physicians (ACEP)

Indications:

- Adult or pediatric patient who require a procedure which is likely to induce severe pain.
- Adult or pediatric patient who need complete muscle relaxation for procedural success.

Contraindications:

- Drug-Assisted Intubation (See Drug-Assisted Intubation specific procedure).
- Appropriate monitoring equipment is not available.
- Patients at high risk for aspiration.

Procedure:

1. Obtain verbal consent to proceed with the procedure and procedural sedation, if possible. (See below)
2. Ensure all equipment is available, functioning, and applied to the patient, as necessary.
   a. Cardiac monitor attached and monitoring.
   b. IV or IO with isotonic crystalloid free flowing.
   c. Suction.
   d. Bag-valve mask with supplemental oxygen.
   e. Nasal End-tidal CO_2 with supplemental oxygen.
   f. Supraglottic airway at bedside and available, do not have to open package.
   g. Push-dose epinephrine at bedside and available, do not have to open or mix unless required for use.
   h. Antidote (naloxone) available, if using an opiate.
3. Obtain a complete baseline set of vital signs.
4. Confirm medication, dose, and route with the medication cross-check.
5. Ensure there is a dedicated EMS practitioner to monitor the cardiac monitor, blood pressure, SpO2 monitor, $EtCO_2$ level, and patient's airway.
6. Administer the medication to proceed with the procedural sedation.
7. Once appropriate sedation has been achieved, proceed with the procedure.
8. Document a complete set of vital signs every 3 minutes during the procedure.
   a. Should there be any complications or abnormalities in vital signs during the procedure, intervene, as necessary, and document in the ePCR.
9. At the completion of the procedure, continue to monitor the patient until he or she is awake, alert, and oriented.
10. Obtain a complete post-procedure set of vital signs.
11. Document the procedural sedation procedure in the ePCR.
12. Document the interventional procedure in the ePCR.

Notes/Precautions:

- Procedural sedation procedure <u>requires</u> transportation to the hospital for evaluation.
- Verbal Consent Script:

  I have discussed the risks, benefits, and alternatives to [PROCEDURE] with you and/or proxy. I have explained these risks, benefits, and alternatives and answered any questions to the best of my ability. This includes explaining why this [PROCEDURE] is necessary to be performed on your [RIGHT or LEFT] [ANATOMICAL LOCATION].

  In addition to the procedure risks, benefits, and alternatives, I have explained the risks, benefits, and alternatives to the procedure sedation. This specifically includes the risks of respiratory depression, decreased blood pressure, and other medication side-effects. Additionally, I have explained the steps that will be taken to continuously monitor your condition and vital signs.

  With, [SECONDARY PRACTIONER] as a witness, do you have any questions or concerns that have not been addressed? [Answer Questions]

  Do I have your permission to proceed with the procedural sedation and the procedure?

Procedure: Sedation, Procedural

- If there are additional questions or concerns that cannot be resolved, consult OMCP, as needed, and continue care alternatives to the procedure.
- Once all questions and concerns have been addressed, re-read the consent to the patient or proxy before proceeding with the procedural sedation and procedure.

Procedure: Sedation, Ongoing

Background: Ongoing sedation the process of keeping a patient sedated and amnestic to ongoing interventions, such as endotracheal intubation. This is a continuation of procedural sedation or drug-assisted intubation. This should be used for procedures which are ongoing during transport.

Indications:

- Adult or pediatric patients who require ongoing sedation after a procedure to ensure analgesia and amnesia to the procedure and ongoing intervention.

Contraindications:

- None in the emergent setting.

Procedure:

1. Ensure all equipment is available, functioning, and applied to the patient, as necessary.
   i. Cardiac monitor attached and monitoring.
   j. IV or IO with isotonic crystalloid free flowing, as indicated.
   k. Suction.
   l. Bag-valve mask with supplemental oxygen.
   m. Nasal End-tidal CO_2 with supplemental oxygen.
   n. Supraglottic airway at bedside and available, do not have to open package.
   o. Push-dose epinephrine at bedside and available, do not have to open or mix unless required for use.
   p. Antidote (naloxone) available, if using an opiate.
2. Confirm medication, dose, and route with the medication cross-check.
3. Ensure there is a dedicated EMS practitioner to monitor the cardiac monitor, blood pressure, SpO2 monitor, $EtCO_2$ level, and patient's airway.
4. Administer the medication to continue the sedation.
5. Ensure adequate sedation with a RASS of -1 to -2.
6. Document a complete set of vital signs every 5 minutes during the sedation. Note, however, vital signs should be continually monitored.
   c. Should there be any complications or abnormalities in vital signs during the procedure, intervene, as necessary, and document in the ePCR.
7. Document the ongoing sedation procedure in the ePCR.

Notes/Procedure:

- Ongoing sedation should be used for patients who have received drug-assisted intubation, rapid-sequence airway, or have ongoing procedures, such as transcutaneous pacing, being performed throughout transportation to the hospital.

Procedure: TASER Barb Removal

Background: A TASER is a conducted energy device used to temporarily incapacitate people. The TASER barbs are propelled out of the TASER at approximately 120 mph imbedding themselves in the clothing or skin of the suspect. The TASER barbs are attached to the TASER via insulated copper wires and deliver an electrical discharge of approximately 50,000 volts with very little amperage. The electrical discharge causes involuntary muscle contractions and neuromuscular incapacitation.

Indications:

- Retained taser barb in a patient.

Contraindications:

- Taser barb in an eye, mucus membrane, scrotum or anus.

Procedure:

8. Ensure the scene is safe and law enforcement has requested the taser barbs to be removed.
9. Ensure appropriate PPE, including eye protection, is donned.
10. Identify the number of taser barbs and their locations. (Note, this number is usually 2 unless multiple tasers have been deployed).
11. Explain the procedure to the patient, including the pain that will ensue, while removing the barbs.
12. Remove the taser barb.
    a. Using a needle-nose pliers, or similar tool, grasp metal portion of the taser barb firmly.
    b. The practitioner's non-dominant hand should have the index finger and thumb placed on each side of the barb to stabilize the skin. Be sure not to put the fingers too close to the barb insertion site to avoid accidentally puncturing the EMS practitioner's skin.
    c. Pull the barb straight out. Do not twist. This will minimize skin damage.
13. If the barb is embedded too deeply, irrigate the wound when it is removed.
14. Apply pressure with gauze to control any bleeding after removal of the barb.
15. Dress the wound with a bandage or gauze.
16. Document the procedure in the ePCR.

Notes/Precautions

- Be aware of retained barb fragments, excess bleeding, or significant contamination of the area.
- Be sure to evaluate for other signs/symptoms of injury as the patient may have sustained an injury from the events leading up to the tasing or from the fall associated with the tasing.

Procedure: Central Venous Catheter/Dialysis Catheter/PICC Access

Background: Central Venous Catheter Access allows for direct access to large venous structures in the body. Typically, these include the axillary veins, subclavian veins, internal jugular veins, and superior vena cava. Occasionally, these will also include the femoral vein and the inferior vena cava. These catheters are typically used for long-term antibiotics, dialysis, chemotherapy, or other long-term need for venous access. These sites are sterile and should only be used as a last resort for venous access.

Indications:
- Patients in cardiac arrest.
- Patients in severe respiratory distress or peri-arrest where other access is not available or accessible.

Contraindications:
- Alternative IV or IO access is available.

Procedure:
1. Clean the access port with alcohol or chlorhexidine wipes.
2. Unclamp the port/line.
3. Aspirate a small amount (5-10 mL) of blood into a syringe to ensure the catheter is intravascular and remove any air or heparin that may be in the catheter. Dispose of the syringe with the blood.
4. Flush the catheter with 10 mL normal saline to ensure patency.
5. Begin using the catheter, as needed, for resuscitation.
6. Document the indication for accessing the central venous catheter in the ePCR.

Notes/Precautions:
- This type of access should only be used as a last resort for vascular access.
- Indications for access to these catheters must be included in the ePCR.

Procedure: Dialysis Fistula Access

Background: Central Venous Catheter Access allows for direct access to large venous structures in the body. Typically, these include the axillary veins, subclavian veins, internal jugular veins, and superior vena cava. Occasionally, these will also include the femoral vein and the inferior vena cava. These catheters are typically used for long-term antibiotics, dialysis, chemotherapy, or other long-term need for venous access. These sites are sterile and should only be used as a last resort for venous access.

Indications:

- Patients in cardiac arrest.
- Patients in severe respiratory distress or peri-arrest where other access is not available or accessible.

Contraindications:

- Alternative IV or IO access is available.

Procedure:

1. Thoroughly clean the AV fistula with alcohol or chlorhexidine wipes.
2. Unclamp the port/line.
3. Aspirate a small amount (5-10 mL) of blood into a syringe to ensure the catheter is intravascular and remove any air or heparin that may be in the catheter. Dispose of the syringe with the blood.
4. Flush the catheter with 10 mL normal saline to ensure patency.
5. Begin using the catheter, as needed, for resuscitation.
6. Document the indication for accessing the central venous catheter in the ePCR.

Notes/Precautions:

- This type of access should only be used as a last resort for vascular access.
- Indications for access to these catheters must be included in the ePCR.

Procedure: Intramuscular and Subcutaneous Injections

Background: Intramuscular and Subcutaneous Injections are alternative ways to give patients without IV or IO access medications. It also is a way to administer medications to combative patients where IV administration is not possible. Additionally, vaccines should be administered in this fashion.

Indications:
- Patients without IV or IO access who require emergent medications.
- Combative patients.

Contraindications:
- None in the emergent setting.

Procedure:
1. Ensure the correct patient, mediation, dosage/concentration, time, and route.
2. Confirm the medication cross-check.
3. Draw up medication into the syringe.
4. Identify the correct injection site.
    b. Deltoid
    c. Anterolateral thigh (vastus lateralis/thigh)
    d. Upper-outer quadrant of the gluteus maximus (glute)
5. Thoroughly clean the area with alcohol, chlorhexidine, or other antiseptic for venipuncture starting from the center and moving outward in a circular motion.
6. Pinch or stretch the skin in the area of puncture. Maintain sterility.
7. Warn the patient of impending needle stick.
8. Insert the needle at the appropriate angle.
9. Aspirate to ensure the needle is not in a vein or artery.
10. Administer the medication.
11. Remove the needle and immediately dispose of it in the sharps container.
12. Apply direct pressure to the injection site.
13. Cover with band-aid or other sterile dressing.
14. Observe the patient for adverse reactions.
15. Document the administration in the ePCR.

Notes/Precautions:
- Maximum subcutaneous volumes: Adult 1 mL (25g-27g), children 0.5 – 1 mL (25g-27g)
- Maximum intramuscular volumes: See table below

	Needle Length	Needle Gauge	Max Volume (mL)
Adults:			
Deltoid	1 – 2”	20g-23g	2 mL
Glute	1.5” – 2”	20g-23g	5 mL
Thigh	1” – 2”	20g-23g	5 mL
Child:			
Deltoid	5/8” – 1”	23g-25g	0.5 – 1 mL
Glute	1” – 1.5”	23g-25g	1 – 2 mL
Thigh	1” – 1.25”	23g-25g	1 – 2 mL
Infant:			
Thigh	5/8”	25g-27g	0.5 mL

Procedure: Intraosseous (IO) Access

Background: Intraosseous (IO) Access is a procedure which involves inserting a needle into the bone marrow of a patient to deliver fluids and medication to a patient. All medications which can be administered through an IV can be administered through an IO.

Indications:

- Adult or pediatric patients requiring emergent intravenous medications or fluids where IV attempts are not indicated or have failed.

Contraindications:

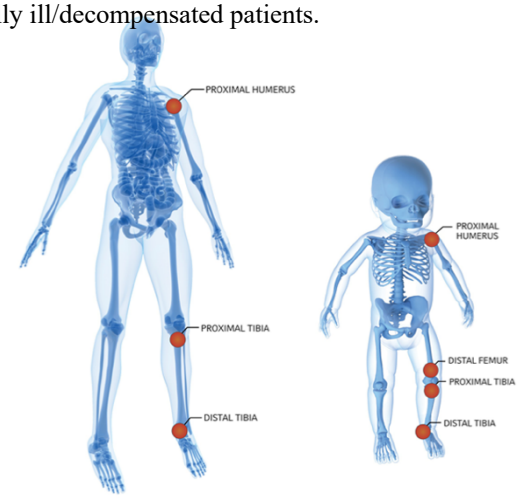
- Appropriate, functioning IV is in place.

Procedure:

1. Prepare venipuncture equipment.
   a. Appropriately sized IO catheter.
   b. Alcohol, chlorhexidine, or other antiseptic wipes.
   c. Securing device.
   d. J-Loop.
2. Thoroughly clean the area with alcohol, chlorhexidine, or other antiseptic for intraosseous access starting from the center and moving outward in a circular motion.
3. Choose the correct size of IO catheter.
   - Pink (Peds) (15 mm)
   - Blue (25 mm)
   - Yellow (45mm)
4. Remove IO catheter from the packaging ensuring ongoing sterility.
5. Inspect the needle for burrs or other manufacturing defects. If found, discard IO needle and obtain a new setup.
6. Place the IO needle onto the IO driver.
7. Stabilize the extremity. Continue to ensure sterility.
8. Push the needle into the skin and down to the bone at a 90-degree angle to the bone.
9. Engage the driver until the needle enters the marrow cavity. Once the needle enters the marrow cavity, IO needle hub is against the skin, disengage the needle driver. Do not twist/damage the skin by continuing to drill.
10. Remove the inner cannula from the IO.
11. Secure the needle in place.
12. Attach the J-loop.
13. Aspirate slowly to see if bone marrow return is present.
14. Once placement is confirmed, flush the IO with 10 mL normal saline.

Notes/Precautions:

- Lidocaine 2-3 mL infusion through the IO is permissible for pain control if the patient is awake.
- IO access should be reserved for cardiac arrest, peri-arrest, and critically ill/decompensated patients.
- Acceptable locations for IO access are:
  - Adults:
    - Humerus (Higher flow rates)
    - Proximal Tibia
    - Distal Tibia
  - Children:
    - Humerus
    - Proximal Tibia
    - Distal Tibia
    - Distal Femur



https://www.teleflex.com/ca/en/product-areas/emergency-medicine/intraosseous-access/arrow-ez-io-system/use-and-application/index.html

Background: Venous Access is a technique which allows for administration of fluids, medications, and nutrition directly into the vein. This is commonly used for rehydration and nutrition for those patients who are not able to tolerate oral hydration or nutrition. It is also an expedient way to provide analgesic, sedatives, and procedural medications to a patient.

Indications:

- Adult or pediatric patients requiring or has an anticipation of requiring intravenous medications or fluids.

Contraindications:

- None in the emergent setting.

Procedure:

1. Prepare venipuncture equipment.
   a. Appropriately sized IV catheter.
   b. Alcohol, chlorhexidine, or other antiseptic wipes.
   c. Tape and Tegaderm.
   d. Rubber tourniquet.
   e. J-Loop, as necessary.
   f. Cap, as necessary.
2. Apply the tourniquet proximally to the area anticipated of being used for venipuncture.
   a. Do *not* place a tourniquet on the neck to place an EJ.
3. Palpate a suitable vein for venipuncture.
4. Thoroughly clean the area with alcohol, chlorhexidine, or other antiseptic for venipuncture starting from the center and moving outward in a circular motion.
5. Remove IV catheter from the packaging ensuring ongoing sterility.
6. Inspect the needle for burrs or other manufacturing defects. If found, discard IV catheter and obtain a new catheter setup.
7. Stabilize the vein by grasping and stretching the skin. Continue to ensure sterility.
8. Warn the patient of impending needle stick.
9. Puncture the skin with the needle/catheter at a 35-45 degree angle with the bevel up.
10. Once the "flash" of blood is noted in the needle and flash chamber, lower the needle ankle and advance the needle slightly.
11. Advance the catheter over the needle until the hub is at the skin.
    a. If the catheter doesn't advance adjust the needle and ensure the needle/catheter are still intravenous and not through the vessel.
    b. Occasionally, the catheter may not advance due to being "back walled" or against a vein. Consider "flushing" the catheter into the vessel by using a 10 mL normal saline syringe and injecting the normal saline through the catheter while trying to advance the catheter. If it still doesn't advance, remove the catheter. Do not reintroduce the needle into the catheter.
12. Palpate the skin just over the tip of the catheter and apply pressure to keep backflow of venous blood through the catheter as the needle is being removed.
13. Immediately place the needle in the sharps container.
14. Attach the J-loop or cap to the hub of the catheter.
15. Secure the catheter/hub with a Tegaderm.
16. Remove rubber tourniquet.
17. Tape the J-loop to the skin, as indicated.
18. Flush line with normal saline.

Notes/Precautions:

- The catheter tip should always point toward the heart.
- Do not place an IV in the foot or leg of a diabetic patient unless the patient is peri-arrest or in cardiac arrest.
- Peripheral IV sites are preferred to external jugular sites.
- IV fluids are not superior to oral hydration unless the patient is NPO or critically ill.

SECTION 7
MEDICATION FORMULARY

Medication Formulary

Medication (Generic)	Medication (Brand)	Level(s)					Typical Concentration and Amount	ALS Transport	ALS Non-transport
Acetaminophen	Tylenol	R	E	A	P	L	500 mg tablet, 160mg/ 5 mL liquid	1g & 120 mL	▲
Adenosine	Adenocard	R	E	A	P	L	3 mg/mL in 2 mL vial (6 mg)	30 mg	18 mg
Albuterol	Ventolin, ProAir	R	E	A	P	L	0.83 mg/mL in 3 mL vial (2.5 mg)	5 vials	2 vials
Amiodarone		R	E	A	P	L	50 mg/mL in 3 mL vial (150 mg)	450 mg	300 mg
Aspirin (Chewable)	ASA	R	E	A	P	L	81 mg per chewable tablet	≥ 324 mg	≥ 324 mg
Atropine		R	E	A	P	L	0.1 mg/mL in 10 mL syringe (1mg)	3 mg	1 mg
Blood, Whole		R	E	A	P	L*	1 unit whole blood	Only SBFD 1660	
Calcium Chloride (10%)		R	E	A	P	L	100 mg/mL in 10 mL syringe (1 g)	2 g	1 g
Calcium Gluconate (2.5%)▲		R	E	A	P	L	25g 2.5% gel	25 g▲	▲
CyanoKit		R	E	A	P	L	One 5 g bottle required on at least 1 response vehicle/dept		
Dextrose (D50W, D10W)		R	E	A	P	L	1 g/10 mL in a 250 mL bag (25 g)	50 g	25 g
Diazepam	Valium	R	E	A	P	L	5 mg/mL in 2 mL vial (10mg)	JITSO	JITSO
Diltiazem ▲	Cardizem	R	E	A	P	L	5 mg/mL in 5 mL vial (25 mg)	25 mg	▲
Diphenhydramine	Benadryl	R	E	A	P	L	25 mg tablet*, 50 mg/mL in 1 mL (50mg)	100mg ea	▲
Dopamine▲		R	E	A	P	L	1.6 mg/mL in 250 mL bag (400 mg)	JITSO	JITSO
Epinephrine	Adrenaline	R	E	A	P	L	1 mg/mL	≥ 4 mg	≥ 2 mg
Epinephrine (Cardiac)	Adrenaline	R	E	A	P	L	1 mg/10 mL	≥ 8 mg	≥ 2 mg
Epinephrine, Racemic		R	E	A	P	L	0.5 mL of 2.25%	0.5 mL	▲
Etomidate	Amidate	R	E	A	P	L	2 mg/mL in 20 mL vial (40 mg)	80 mg	▲
Fentanyl	Sublimaze	R	E	A	P	L	50 mcg/mL in 2 mL ampule (100 mcg)	200 mcg	▲
Glucagon		R	E	A	P	L	1 mg/mL in a 1 mL vial with diluent (1mg)	2 mg	1 mg
Glucose (Oral)		R	E	A	P	L	15 g/unit dose tube	15 g	15 g
Haloperidol	Haldol	R	E	A	P	L	5 mg/mL in 1 mL ampule (5 mg)	10 mg	▲
Ipratropium Bromide	Atrovent	R	E	A	P	L	0.2 mg/mL in 2.5 mL vial (0.5 mg)	≥ 2 vials	▲
Isotonic Crystalloids	NS or LR	R	E	A	P	L	1 L, 500 mL, 250 mL	3 L	1 L
Ketamine	Ketalar	R	E	A	P	L	500 mg/5 mL vial (500 mg)	≥ 500 mg	▲
Lidocaine (2%)	Xylocaine	R	E	A	P	L	20 mg/mL in 5 mL syringe (100 mg)	200 mg	100 mg
Lorazepam▲	Ativan	R	E	A	P	L	2 mg/mL in 1 mL vial (2 mg)	4mg▲	▲
Magnesium Sulfate		R	E	A	P	L	1 g/2 mL vial (1 g)	4 g	2 g
Midazolam	Versed	R	E	A	P	L	5 mg/mL in 1 mL vial (5 mg)	10 mg	▲
Morphine		R	E	A	P	L	1 mg/mL in 10 mL vial (10 mg)	10 mg	▲
Naloxone	Narcan	R	E	A	P	L	1 mg/mL in 2 mL syringe (2 mg)	6 mg	4 mg
Nitroglycerin	Nitrostat	R	E#	A	P	L	0.4 mg tablets or 0.4 mg/spray	≥ 9 tablets	≥ 3 tablets
Ondansetron	Zofran	R	E	A	P	L	4 mg/2 mL vial (4 mg), 4 mg ODT	8 mg ea	4 mg ea
Oxygen		R	E	A	P	L	Flow rates vary by delivery method		
Sodium Bicarbonate		R	E	A	P	L	1 mEq/mL in 50 mL syringe (50 mEq)	100 mEq	▲
Succinylcholine	Anectine	R	E	A	P	L	20 mg/mL in 10 mL vial (200 mg)	200 mg	▲
Tranexamic Acid	TXA	R	E	A	P	L	100 mg/10 mL in 10 mL vial (1g)	2g	▲

BLS Units require the following medications at a minimum: Naloxone (4mg), Aspirin (324mg), Oral Glucose (25g), Epinephrine (1:1000) (1mg), Oxygen

- Permitted with patient's own prescription

▲ - Optional

The quantities listed are *minimum* requirements.

Acetaminophen

ADULT DOSING – Acetaminophen (500 mg tablet or 160 mg chewable)			
Indication	**Route**	**Dose**	**Notes**
Fever Headache	PO	500 mg – 1,000 mg	**Max single dose is 1,000 mg** Max *daily* consumption is 4,000 mg Consider lower dose for chronically ill patients
Mild to Moderate Pain	PO	500 mg – 1,000 mg	

PEDIATRIC DOSING – Acetaminophen (160 mg/5 mL or 500 mg tablet or 160 mg chewable)			
Indication	**Route**	**Dose**	**Notes**
Fever Headache Mild or Moderate Pain	PO	15 mg/kg **Max dose:** 650 mg	Maximum single dose is 15 mg/kg up to 650 mg Maximum daily consumption is 75 mg/kg/day up to 4,000 mg Can cut 500 mg tablet in half to get 250 mg

Brand Names: Tylenol®, Paracetamol, APAP

Contraindications: Known drug class allergy, acute or chronic liver impairment, malnourishment, active/chronic alcoholic patient, vomiting

Pregnancy: Analgesic/Antipyretic of choice in pregnancy

Drug Class: Antipyretic, Centrally-acting nonopioid analgesic

Mechanism of action: Not well understood. Thought to inhibit cyclooxidase (COX) pathway in the central nervous system

Adverse Reactions:
Minor: Rash, Nausea/Vomiting, hearing loss
Major: Anaphylaxis, Steven-Johnson Syndrome, Toxic epidermal necrolysis, Hepatic failure

Precautions: Maximum single dose is 1,000 mg. Max daily *adult* dose (all sources) is 4,000 mg (although many experts recommend 3,000mg or less). **Only a single dose of acetaminophen is permitted by EMS**. Caution if giving for a possible surgical problem as patient should remain NPO. If patient is cachectic/malnourished, or is elderly consider only giving 500mg. Do not administer if patient has taken any acetaminophen containing medications within the last 4 hours.

Guidelines: Pain Management
General Medical

Notes:

- Chewable acetaminophen is recommended if the ambulance does not carry water.

Adenosine

ADULT DOSING – Adenosine (3 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Supraventricular tachycardia	IV/IO **Rapid** push followed by 10-20 mL NS	6 mg (first dose) (May go directly to 12mg if patient has a history of PSVT requiring 12mg)	Give RAPID IV PUSH followed immediately by 20 mL normal saline Repeat q1 min (up to a total of 3 doses), if unsuccessful converting No more than (2) 12mg doses are permitted
	IV/IO **Rapid** push followed by 10-20 mL NS	12 mg (second and third doses)	

PEDIATRIC DOSING – Adenosine (3 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Supraventricular tachycardia	IV/IO **Rapid** push followed by 10-20 mL NS	0.1 mg/kg (first dose) **Max dose: 6 mg**	Give RAPID IV PUSH followed immediately by 10 mL normal saline May repeat 1 time (2 total doses), if unsuccessful converting
	IV/IO **Rapid** push followed by 10-20 mL NS	0.2 mg/kg (second and third dose) **Max dose: 12 mg**	

Brand Names: Adenocard®

Contraindications: Hypersensitivity to the medication, Second- or Third-Degree AV nodal blocks or sick sinus syndrome if a functioning pacemaker is not present, known prolonged QT_c syndrome

Pregnancy: Class C. However, adenosine is recommended for the acute treatment of SVT in pregnant women. The usual recommended doses may be used, although higher doses may be needed in some cases (ACC/AHA)

Drug Class: Antiarrhythmic, Endogenous nucleoside

Mechanism of action: Slows conduction time through the AV node, interrupting the re-entry pathways through the AV node, with goal of restoring normal sinus rhythm

Adverse Reactions:
Minor: Flushing, Dizziness, Chest Pain, Lightheadedness, Dyspnea, Numbness, Headache, Nausea/Vomiting, Diaphoresis, Palpitations, Metallic taste
Major: Bradycardia, Hypotension, Anaphylaxis, Cardiac arrest

Precautions: Adenosine is generally safe, but be prepared to manage unexpected reactions, especially profound bradycardia and hypotension.

Advising patient of the side effects of adenosine prior to administering can help minimize patient anxiety.

Large bore IV, antecubital access or IO access & IV wide open during administration; it may help to have your partner administer the fluid bolus

Start your EKG printout before administration and continue printing through bolus and conversion

Guidelines: Cardiac – Narrow Complex Tachycardia with a Pulse

Notes:

- This will not convert atrial flutter, atrial fibrillation, or sinus tachycardia
- **Attempt to perform vagal maneuvers prior to giving adenosine**, unless the patient is unstable

Albuterol

ADULT DOSING – Albuterol (2.5 mg/3mL)			
Indication	**Route**	**Dose**	**Notes**
Acute Bronchospasm	Inhaled	2 puffs with or without spacer	May repeat MDI q5min PRN up to three total times (6 puffs) May repeat 1-2 vials PRN Repeat doses of albuterol require ALS intercept
	Nebulized	2.5 – 5 mg (1-2 vials)	
Hyperkalemia	Nebulized	10 mg (4 vials)	Requires cardiac monitoring Should have EKG changes concerning for hyperkalemia with clinical background supporting hyperkalemia
Crush Syndrome	Nebulized	10 mg (4 vials)	

PEDIATRIC DOSING – Albuterol (2.5 mg/3mL)			
Indication	**Route**	**Dose**	**Notes**
Acute Bronchospasm	Inhaled	1 – 2 puffs with spacer	Repeat doses of albuterol, as needed. Requires ALS intercept
	Nebulized	1.25 – 2.5 mg (0.5-1 vial)	
Crush Syndrome	Nebulized	**OMCP**	

Brand Names: Ventolin®, ProAir®

Contraindications: Hypersensitivity to drug class

Pregnancy: Safe in pregnancy and breastfeeding

Drug Class: Beta-2 Agonist, Sympathomimetic

Mechanism of action: Acts selectively on Beta2 receptor sites in the lungs, relaxing bronchial smooth muscle, decreasing airway resistance, & relief of bronchospasm. Although Albuterol is beta selective, it will cause some CNS stimulation, cardiac stimulation, increased diuresis, & gastric acid secretion. Higher doses of albuterol shift potassium into the cells.

Adverse Reactions:
Minor: Palpitations, Tachycardia, Anxiety, Nervousness, Headache
Major: Chest Pain, Dysrhythmias, Hypokalemia

Precautions: Tachycardia, Underlying/known hypokalemia

Guidelines:
Acute Bronchospasm/Asthma/COPD
Anaphylaxis/Allergic Reaction
Hyperkalemia
Procedure: Continuous Positive Airway Pressure (CPAP)
Trauma: Crush Injury

Notes:

- Continuous albuterol or treatment of hyperkalemia requires ALS intercept
- Repeat dosing of MDI or more than 2 vials of albuterol requires ALS intercept
- This medication is available at the paramedic and Lead Paramedic level at all agencies

Amiodarone

ADULT DOSING – Amiodarone (50 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Ventricular Fibrillation (V-Fib) Pulseless Ventricular Tachycardia (pVT) Cardiac Arrest	IV/IO	300 mg (first dose) 150 mg (second dose)	4 minutes between 1st and 2nd doses
Wide Complex Tachycardia with a Pulse[OMCP] V-fib or pVT post-resuscitation care[OMCP] Recurrent Hemodynamically Unstable Ventricular Tachycardia with a Pulse[OMCP]	IV/IO Infusion	150 mg Infused over 10 minutes	Infuse over 10 minutes

PEDIATRIC DOSING – Amiodarone (50 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Ventricular Fibrillation Pulseless Ventricular Tachycardia (pVT) Cardiac Arrest	IV/IO push	5 mg/kg (first dose) **Max dose: 300 mg** 5 mg/kg (second dose) **Max dose: 150 mg**	4 minutes minimum between 1st and 2nd dose
V-fib or pVT post-resuscitation care[OMCP]	IV/IO Infusion	5 mg/kg **Max dose: 150 mg** Infused over 20 minutes	Infuse over 20 minutes

Brand Names: Cordarone®, Pacerone®

Contraindications: Without a pulse – None

With a pulse – bradycardia, second- or third-degree AV block, Cardiogenic shock, Hypotension

Pregnancy: Class D (see notes below)

Drug Class: Antiarrhythmic, Primarily class III but has characteristics of all of the classes

Mechanism of action: Prolongs the duration of the action potential and refractory period of all Cardiac fibers. Depresses the Phase 0 slope by causing a sodium blockade. Causes a Beta block as well as a weak calcium channel blockade. Primarily a Potassium-channel blocker (Class III antiarrhythmic), blocks the potassium channels that are responsible for phase 3 repolarization. Blocking these channels slows (delays) repolarization, which leads to an increase in action potential duration and an increase in the effective refractory period (ERP). Relaxes vascular smooth muscle, decreases peripheral vascular resistance, and increases coronary contractility.

Adverse Reactions:
Minor: Increased QT_C interval
Major: Bradycardia, Hypotension, Anaphylaxis, Ventricular tachycardia, AV block

Precautions: --

Guidelines:
Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)
Cardiac – Wide Complex Tachycardia with a Pulse
Cardiac – Return of Spontaneous Circulation (ROSC)

Notes:

- EMS use during pregnancy should be avoided if lidocaine is available and effective, but is permissible with Online Medical Consultation[OMCP]
- Remember, the majority of pediatric cardiac arrests are *respiratory* induced. Make sure to correct the respiratory/hypoxia/hypercapnia in conjunction with the cardiac dysfunction

Aspirin

ADULT DOSING – Aspirin 81mg			
Indication	**Route**	**Dose**	**Notes**
Suspected Acute Coronary Syndrome (ACS)	PO	324mg (81mg x 4)	Total dose should be 324mg Supplement ASA taken by patient prior to EMS arrival as needed
STEMI	PO	324mg (81mg x 4)	

PEDIATRIC DOSING – Aspirin 81mg			
Indication	**Route**	**Dose**	**Notes**
---NONE---			

Brand Names: ASA, Bayer Aspirin, "Baby Aspirin"

Contraindications: Hypersensitivity to drug class, pregnancy, children under 18 years of age, GI Bleeding, gastric or duodenal ulcer (relative contraindication), use of another antiplatelet medication within the last 12 hours (relative contraindication)

Pregnancy: Category D. There is evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective). However, its use in pregnancy is contraindicated.

Drug Class: NSAID, Antipyretic, Analgesic, Platelet Inhibitor

Mechanism of action: Inhibits the formation of prostaglandins associated with pain, fever, and inflammation. Inhibits platelet aggregation by acetylating cyclooxygenase permanently disabling it so that it cannot synthesize prostaglandins and thromboxane. Since Thromboxane A2 is important in clotting, its absence does not allow blood to clot effectively.

Adverse Reactions:
Minor: Nausea/Vomiting, Epigastric discomfort
Major: Anaphylaxis

Precautions: None

Guidelines:
Cardiac – Chest Pain/Acute Coronary Syndrome (ACS)
Congestive Heart Failure (CHF) Exacerbation/Pulmonary Edema

Notes:

- Aspirin has been shown to reduce mortality in patients with acute coronary syndrome. It should be administered to all patients with chest pain who are suspected of having myocardial ischemia as a cause of their discomfort.
- Aspirin is contraindicated for children in our system.

Atropine

ADULT DOSING – Atropine 0.1 mg/mL			
Indication	**Route**	**Dose**	**Notes**
Symptomatic Bradycardia	IV/IO	1 mg rapid IV push (5 mL)	Repeat IV/IO doses q3-5min OMCP Total dose of 0.04 mg/kg or up to 3mg
	ET Tube	1 mg (10 mL)	
Organophosphate Poisoning	IV/IO/IM	2 mg (20 mL)	Repeat dose ever 5 minutes Significant amounts of atropine may be required. There is no max dose for this indication. Give until lungs are clear to auscultation. However, after 6mg, contact **OMCP** **EMR, EMT, and AEMTs are permitted to administer this medication ONLY FOR THIS INDICATION AND ONLY WITH PRE-MEASURED/PRE-DOSED AUTOINJECTORS**

PEDIATRIC DOSING – Atropine 0.1 mg/mL			
Indication	**Route**	**Dose**	**Notes**
Symptomatic bradycardia unresponsive to oxygen therapy	IV/IO	0.02 mg/kg **Min single dose: 0.1 mg** **Max single dose: 0.5 mg**	Repeat IV/IO doses q3-5min OMCP Total dose of 0.04 mg/kg or up to 3mg, whichever is less
	ET Tube		
Organophosphate Poisoning	IV/IO/IM	< 18 kg (40 lbs) 0.5 mg (5 mL)	Repeat dose ever 5 minutes Significant amounts of atropine may be required. There is no max dose for this indication. Give until lungs are clear to auscultation. However, after 3 doses, contact **OMCP** **EMR, EMT, and AEMTs are permitted to administer this medication ONLY FOR THIS INDICATION AND ONLY WITH PRE-MEASURED/PRE-DOSED AUTOINJECTORS**
		19 - 40 kg (41-90 lbs) 1 mg (10 mL)	
		> 40 kg (91 lbs) 2 mg (20 mL)	
Bradycardia prevention during drug-assisted intubation	IV/IO	0.02 mg/kg **Minimum single dose: 0.1 mg** **Maximum single dose: 0.5 mg**	Use a single dose prior to intubation

Atropine

Brand Names: AtroPen®

Contraindications: **None for severe organophosphate exposure.** Hypersensitivity to atropine, closed angle glaucoma, GI obstructions, myasthenia gravis, thyrotoxicosis, ulcerative colitis, prostatic hypertrophy, tachycardia, severe hepatic disease, myocardial ischemia

Pregnancy: Category C. EMS use in pregnancy is permitted.

Drug Class: Anticholinergic, Parasympatholytic

Mechanism of action: Competitive antagonist that selectively blocks all muscarinic responses to acetylcholine. Blocks vagal impulses, thereby increasing SA node discharge, thereby enhancing AV conduction and cardiac output. Potent anti-secretory effects caused by the blocking of acetylcholine at the muscarinic site. Atropine is also useful in the treatment of the symptoms associated with nerve agent exposure.

Adverse Reactions:
Minor: Pupil dilation, tachycardia, headache, dry mouth
Major: V-Tach, V-Fib

Precautions: Paradoxical bradycardia can occur if given atropine is given slowly or in low doses

Guidelines:
Cardiac – Bradycardia with a Pulse
Cardiac – Pediatric Bradycardia with a Pulse
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning

Notes:

- Pediatric bradycardia is often caused by hypoxia. Initial treatment of pediatric bradycardia should be oxygen/ventilation therapy.
- For organophosphate toxicity remember the "Killer B's"
  - Bradycardia
  - Bronchorrhea
  - Bronchospasm

Whole Blood

Indications:

1. Shock criteria indicated in charts below with reasonable suspicion of shock due to HEMORRHAGIC causes

--- OR ---

2. Witnessed cardiac arrest reasonably suspected to be from a HEMORRHAGIC cause with control of major hemorrhage, and blood products are available for administration within 5 minutes of loss of pulses

Adult

BOTH of the following:

1. MAP < 65 or SBP < 90
2. HR > 110

OR

ONE of the following:

1. ETCO2 < 30 mmhg
2. Shock index ≥ 1 (SI = HR / SBP)
3. Pulse Pressure < 40 (SBP – DBP)
4. **OMCP** Approval

Pediatric

Any **ONE** of the following:

1. ETCO2 < 30 mmhg
2. SBP < (70 + [2 x age]) or < 90 (if > 10 yo)
3. Bradycardic or Tachycardic heart rate
   a. Neonate – (< 29 days) <100 or >180
   b. Infant – (1 to 12 months) <80 or >160
   c. Child – (1 to 10 yrs) <60 or >130
   d. Older Child (> 10 yrs) <60 or >110
4. **OMCP** Approval

CONTACT OMCP IF PATIENT < 3 years of age

ADULT DOSING – Whole Blood

Indication	Route	Dose	Notes
Hemorrhagic shock	IV/IO	Titrate to effect	Monitor for signs of transfusion reaction
Cardiac Arrest from suspected hemorrhagic source with control of the hemorrhage source	IV/IO	1 unit of whole blood	

PEDIATRIC DOSING – Whole Blood

Indication	Route	Dose	Notes
Hemorrhagic shock	IV/IO	10 mL/kg	Additional volume over 10 mL/kg requires **OMCP** approval
Cardiac Arrest from suspected hemorrhagic source with control of the hemorrhage source	IV/IO	10 mL/kg	May give up to 20 mL/kg prior to **OMCP** approval

Contraindications: Personal or religious objection to receiving blood products.
Unable to establish patent IV or IO access.

Pregnancy: No contraindications

Drug Class: Blood product

Adverse Reactions: **Minor:** Fever, Unexplained back or abdominal pain
Major: Anaphylaxis, Rash, Medication reaction, Pulmonary edema

Whole Blood

Preparation:

1. Ensure adequate personnel are on scene to appropriately manage all concurrent priorities.
2. Patent IV or IO access dedicated for blood product administration.
3. Ensure pre-transfusion vital signs including pulse rate, respiratory rate, blood pressure, ETCO2 & SpO2, and body temperature are obtained.
4. Only remove blood products from the cooler immediately prior to transfusion.
5. Ensure temperature indicator on the blood product bag is indicating appropriate temperature storage. If the product has reached unacceptable storage temperature, then do not transfuse the product.
6. Blood product has been warmed to ~ 38 C (100.4 F).

Guidelines:

Cardiac – Treatable Causes of Cardiac Arrest
Crashing Medical Patient – Adult
Crashing Medical Patient – Pediatric
Abdominal Pain/GI Bleed
OB: Vaginal Bleeding
Trauma: General Trauma
Trauma: Chest Trauma
Trauma: Extremity Trauma
Trauma: Traumatic Cardiac Arrest
Procedure: Whole Blood

Notes:

- In cases of whole blood shortage, O+ packed red blood cells (PRBC) can be substituted using this same guideline.
- The administration paperwork must be filled out in ESO.

*****Authorization for administration of Whole Blood is restricted to specially trained Lead Paramedics. There are no exceptions.*****

Calcium Chloride (10%)

ADULT DOSING – Calcium Chloride (500 mg/5 mL)			
Indication	**Route**	**Dose**	**Notes**
Cardiac arrest with suspected hyperkalemia or calcium channel blocker overdose	IV/IO	1g (10 mL)	
Hydrofluoric Acid Burn	IV/IO	500 mg (5 mL) SLOW IV Push	
Hypermagnesemia	IV/IO	500 mg (5 mL) SLOW IV Push	
Calcium Channel or Beta Blocker Overdose[OMCP]	IV/IO	1g (10 mL) SLOW IV Push	
Crush Injury (Prolonged, Large parts of the body)	IV/IO	1g (10 mL) SLOW IV Push	
Blood Product Administration	IV/IO	1g (10 mL) SLOW IV Push	**Must be through dedicated medication line and not the blood line**

PEDIATRIC DOSING – Calcium Chloride (500 mg/5 mL)			
Indication	**Route**	**Dose**	**Notes**
Cardiac arrest with suspected hyperkalemia or calcium channel blocker overdose	IV/IO	20 mg/kg **Max dose: 1 g**	
Calcium Channel or Beta Blocker Overdose[OMCP]	IV/IO	20 mg/kg SLOW IV Push **Max dose: 1 g**	
Blood Product Administration			**Must be through dedicated medication line and not the blood line**

Brand Names:

Contraindications: None in the emergency setting

Pregnancy: Category C

Drug Class: Electrolyte, Inotropic Agent

Mechanism of action: Replaces elemental calcium, which is essential for regulating excitation threshold of nerves and muscles. Calcium is also essential for blood clotting mechanisms, maintenance of renal function, and bone tissues. In hyperkalemia, calcium re-establishes the proper resting membrane voltage/potential and helps to stabilize the myocardium. Calcium increases myocardial contractile force (inotrope) and ventricular automaticity. Additionally, serves as an antidote for magnesium sulfate and calcium channel blocker toxicity. For hypermagnesemia, calcium competitively inhibits magnesium.

Adverse Reactions:
Minor: Hypercalcemia, phlebitis
Major: Cardiac arrest, Syncope, Bradycardia, Hypotension

Precautions: Do NOT mix with sodium bicarbonate – it will precipitate.

Guidelines:
Cardiac – Treatable Causes of Cardiac Arrest
Cardiac – Bradycardia with a Pulse
Cardiac – Pediatric Bradycardia with a Pulse
Cardiac – Pulseless Electrical Activity/Asystole
Hyperkalemia
Procedure: Whole Blood

Notes:

Calcium Gluconate (2.5%)

ADULT DOSING – Calcium Gluconate (15g)			
Indication	**Route**	**Dose**	**Notes**
Hydrofluoric Acid (HF) Exposure	TD	Copious	Rub into burn/exposure until pain resolves. Reapply q15 min

PEDIATRIC DOSING – Calcium Gluconate (15g)			
Indication	**Route**	**Dose**	**Notes**
Hydrofluoric Acid (HF) Exposure	TD	Copious	Rub into burn/exposure until pain resolves. Reapply q15 min

Brand Names: NA

Contraindications: None in the emergency setting

Pregnancy: Category C

Drug Class: Electrolyte, Minerals

Mechanism of action: Calcium binds the fluoride ion keeping it from further tissue destruction. HF is lipophilic and can cross cell membranes. The fluoride penetrates into the tissues ultimately binding to calcium and magnesium leading to systemic depletion of calcium and magnesium. The goal of calcium gluconate is to stop the binding of the fluoride to systemic calcium and magnesium as well as to bind free fluoride ions which stops the tissue destruction/burning process.

Adverse Reactions:
Minor: Urticaria, Pruritus, Localized swelling, Erythema, Nausea
Major: NA

Precautions: Patient should have rinsed the exposure for *at least* 5 minutes if applying calcium gluconate (2.5%) cream.
If not applying cream, the area should be rinsed for *at least* 15 minutes

When applying the cream, the medic *must* wear nitrile gloves covered by neoprene gloves to keep from being exposes to the HF acid.

Guidelines: Toxicology/Environmental: Overdose/Poisoning

Notes:

- This is an optional medication. However, it is recommended in locations with industrial locations.

CyanoKit (Hydroxocobalamin)

ADULT DOSING – Hydroxocobalamin (5 g vial)			
Indication	**Route**	**Dose**	**Notes**
Cyanide Poisoning	IV/IO	5g over 15 minutes	Mix 5g vial into 200 mL isotonic crystalloid for 25 mg/mL concentration

PEDIATRIC DOSING – Hydroxocobalamin (5 g vial)			
Indication	**Route**	**Dose**	**Notes**
Cyanide Poisoning	IV/IO	70 mg/kg over 15 minutes **Max dose**: 5g	Mix 5g vial into 200 mL isotonic crystalloid for 25 mg/mL concentration

Brand Names: Cyanokit

Contraindications: Known anaphylaxis to hydroxocobalamin or cyanocobalamin

Pregnancy: Benefits outweigh risks during pregnancy

Drug Class: Cobalamin derivative, Vitamin

Mechanism of action: Metalloprotein binds cyanide to form a nontoxic cyanocobalamin complex which is then excreted in the urine

Adverse Reactions:
Minor: Turns skin, urine, and secretions red, Urticaria, Pruritus, Chest tightness, Edema
Major: Anaphylaxis, Hypertension, Dyspnea

Guidelines: Toxicology/Environmental: Cyanide Poisoning

Notes: Hydroxocobalamin is incompatible with benzodiazepines, dopamine, and fentanyl. It should be given through exclusive venous access.

Dextrose (D50W, D10W)

ADULT DOSING – Dextrose			
Indication	**Route**	**Dose**	**Notes**
Symptomatic hypoglycemia	**D50** IV/IO (25g/50mL)	12.5-25 grams (25-50 mL)	Rule of 50 50/50 = 1 mL/kg 50/10 = 5 mL/kg Titrate and repeat dosing to effect
Altered mental status with glucose < 50	**D10** IV/IO (25g/250mL)	5-10 grams (50-100 mL aliquots up to 250 mL)	

PEDIATRIC DOSING – Dextrose			
Indication	**Route**	**Dose**	**Notes**
Symptomatic hypoglycemia	**D10** IV/IO (25g/250mL)	0.5-1 gram/kg (5-10 mL/kg) **Max dose: 25 grams**	Titrate and repeat dosing to effect D50 not recommended for younger children
Newborn bradycardic with glucose < 50			
Hypoglycemia (> 8 years)	**D10** IV/IO (25g/250mL)	0.5-1 gram/kg (5-10 mL/kg) **Max dose: 25 grams**	
	D50 IV/IO (25g/50mL)	12.5-25 grams (25-50 mL)	

Brand Names: None

Contraindications: Stroke or trauma without objective evidence of hypoglycemia, Elevated ICP, Hyperglycemia

Pregnancy: Category C

Drug Class: Carbohydrate

Mechanism of action: Glucose is readily processed in the blood. Through glycolysis, glucose is turned into pyruvate giving off a small amount of chemical energy (ATP). Pyruvate is further processed through the Citric Acid Cycle yielding even more energy. It also causes an osmotic pressure as concentrations vary across membranes.

Adverse Reactions:
Minor: Burning at site of infusion
Major: Tissue necrosis with extravasation of higher concentrated mixtures

Precautions: Careful with patients with suspected increased ICP, suspected stroke, or intracranial hemorrhage. Hyperglycemia can be detrimental in these cases, so be sure to check the blood sugar in these patients prior to administration of dextrose.

Guidelines:
Altered Mental Status
Diabetic Emergencies/Hypoglycemia/Hyperglycemia
Cardiac – Treatable Causes of Cardiac Arrest
Neonatal Resuscitation
Stroke

Notes:

- **Rule of 50**
  - Neonates: D10 – 5 mL/kg
  - Children: D25 – 2 mL/kg
  - Adults: D50 – 1 mL/kg
- The concentration and the volume per kg should equal 50.

Diazepam

ADULT DOSING – Diazepam (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Seizures	IV/IO	10 mg *slow* IV push	IM diazepam is *not* recommended IV push should be no faster than 5mg/min May repeat IN dose once
	IN	0.2 mg/kg	
Seizures from organophosphate or nerve agent exposure	IM (Autoinjector)	10 mg	May be used by ALL levels This delivery method is not required to be carried by units. These are available in WMD caches
Cocaine/Crack Use	IV/IO/IM:	1st Dose: 0.25 mg/kg over 2 min	
		2nd Dose: 0.35 mg/kg over 2 min	

PEDIATRIC DOSING – Diazepam (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Seizures	IV/IO/IN	0.2 mg/kg *slow* IV push **Max single dose 5 mg**	IM diazepam is *not* recommended IV push should be no faster than 5mg/min May repeat IN dose once
	PR	0.5 mg/kg **Max single dose 10 mg**	
Seizures from organophosphate or nerve agent exposure	IM (Autoinjector)	10 mg	May be used by ALL levels This delivery method is not required to be carried by units. These are available in WMD caches

Brand Names: Valium

Contraindications: Known hypersensitivity, but otherwise none in the emergency setting

Pregnancy: Category D

Drug Class: Benzodiazepine

Mechanism of action: Binds to benzodiazepine receptors on the postsynaptic GABA neuron at several sites within the central nervous system, including the limbic system and reticular formation. Promotes relaxation by enhancing the inhibitory effect of GABA on neuronal excitability making the nerves more hyperpolarized and stable (increases seizure threshold). It has half the affinity for benzodiazepine receptors as midazolam.

Adverse Reactions:
Minor: Nausea, local venous irritation
Major: Hypotension, Reflex tachycardia, Respiratory depression, Confusion, Ataxia, Psychomotor Impairment

Precautions: Caution with geriatrics with respiratory depression

Guidelines:
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning
Toxicology/Environmental: Stimulant Overdose
Seizures

Notes:

- Diazepam is a **third line medication.** Do not administer diazepam unless *both* lorazepam (Ativan) and midazolam (Versed) are unavailable. This is in the formulary in case of national shortage of both midazolam and lorazepam.

Diltiazem

ADULT DOSING – Diltiazem (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Atrial Fibrillation with RVR without hypotension[OMCP]	IV/IO	1st Dose: 0.25 mg/kg over 2 min **Max dose: 15 mg**	SBP must remain above 90 mmhg **OMCP** required for second dose 15 minutes after first dose
Paroxysmal SVT refractory to adenosine[OMCP]		2nd Dose: 0.35 mg/kg over 2 min **Max dose: 25 mg**	

PEDIATRIC DOSING – Diltiazem (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
---NONE---			

Brand Names: Cardizem

Contraindications: Known hypersensitivity to diltiazem or other calcium channel blockers, SBP < 90, Myocardial infarction, Pulmonary edema, Sinus tachycardia, History of or current EKG showing WPW, Sick sinus syndrome or 2nd or 3rd degree AV block except with functioning pacemaker

Pregnancy: Category C

Drug Class: Calcium channel blocker

Mechanism of action: Nondihydropyridine calcium-channel blocker. Inhibits extracellular calcium ion influx across membranes of myocardial cells and vascular smooth muscle cells, resulting in inhibition of cardiac and vascular smooth muscle contraction resulting in dilation of main coronary and systemic arteries; no effect on serum calcium concentrations; substantial inhibitory effects on cardiac conduction system, acting principally at AV node, with some effects at sinus node.

Adverse Reactions:
Minor: Turns skin, urine, and secretions red, urticaria, pruritus, chest tightness, edema
Major: Anaphylaxis, hypertension, dyspnea

Precautions: Monitor for hypotension

Guidelines: Cardiac – Narrow Complex Tachycardia with a Pulse

Notes:

Diphenhydramine

ADULT DOSING – Diphenhydramine (50 mg/mL) or 25 mg tablet			
Indication	**Route**	**Dose**	**Notes**
Allergic Reaction/Pruritus	PO	25 mg	Max *daily* consumption is 300 mg This is the only formulation permitted for EMTs or AEMTs EMTs: Do not administer if patient has taken a diphenhydramine containing medication within the last 4 hours
Allergic Reaction/Pruritus	IV/IO/IM	25-50 mg slow IVP	
Haldol Administration Persistent Nausea and Vomiting	IV/IO/IM	25 mg	May repeat 1 time for a total of 50mg

PEDIATRIC DOSING – Diphenhydramine (50 mg/mL) or 25 mg tablet			
Indication	**Route**	**Dose**	**Notes**
Allergic Reaction/Pruritus[OMCP]	PO	**Ages 6-11**: 12.5 – 25 mg **Ages 12+**: 25 mg	Max *daily* consumption is: 150 mg (6-11 yo) 300 mg (12+ yo) EMTs: Do not administer if patient has taken a diphenhydramine containing medication within the last 4 hours Can be tablet or liquid formulation

Brand Names: Benadryl

Contraindications: Known drug class allergy

Pregnancy: Generally considered safe in pregnancy

Drug Class: Antihistamine, 1st Generation; Anticholinergic

Mechanism of action: Histamine (H1) blocker. Diphenhydramine blocks the effects of Histamine (H1 histamine) on the H1 receptor site through a competitive competition for the peripheral H1 site. When diphenhydramine is bound the H1 site cannot be stimulated preventing the effects of histamines.

Adverse Reactions:
Minor: Fatigue, Sedation, Palpitations, photophobia, ataxia
Major: Anaphylaxis, Anticholinergic reaction, Hyperthermia, Hypotension

Precautions: Overdose can lead to anticholinergic syndrome. If a patient has taken an OTC "cough and cold," "allergy," or "sleep" medication, highly suspect it contains diphenhydramine.

Guidelines:
Allergic Reaction/Anaphylaxis
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies
Medication: Haloperidol

Notes:

- Anticholinergic Syndrome: "red as a beet, dry as a bone, hot as a hare, blind as a bat, mad as a hatter, and full as a flask"
- This medication route (oral) is *not* indicated in anaphylaxis where vomiting or airway compromise is present
- If anaphylaxis is suspected, ALS intercept is required
- When in doubt or questioning airway compromise, hypotension (shock), or patient has signs of worsening allergic reaction, administer epinephrine (1:1000) IM, per guideline

* This medication is ***only available*** to EMTs and AEMTs whose department has authorized them to administer this medication. EMTs and AEMTs must have completed the lecture module, testing module, and given authorization to administer this medication by the Medical Directors. This must be a departmental authorization and is not available to individual EMTs or AEMTs.

Dopamine

ADULT DOSING – Dopamine (1.6 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Symptomatic Hypotension after fluid replacement	IV/IO	2-20 mcg/kg/min	Volume replacement first or in conjunction with dopamine administration
Shock – Septic, Cardiogenic			
Symptomatic Bradycardia			SECOND line after atropine. Also consider pacing prior to dopamine for this indication

PEDIATRIC DOSING – Dopamine (1.6 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Symptomatic Hypotension after fluid replacement	IV/IO	2-20 mcg/kg/min	SBP < (2 x age (yrs)) + 70 Volume replacement first or in conjunction with dopamine administration
Shock – Septic, Cardiogenic			
Symptomatic Bradycardia			SECOND line after atropine. Also consider pacing prior to dopamine for this indication. In children, fix respiratory derangements first

Brand Names: Intropin

Contraindications: Pheochromocytoma, uncorrected tachydysrhythmias, including VF

Pregnancy: Category C. Permitted during pregnancy with **OMCP**.

Drug Class: Sympathomimetic, vasopressor, inotrope

Mechanism of action:

Low dose infusion (0.5-2 mcg/kg/min): Vasodilation secondary to stimulation of dopaminergic receptors in the renal, mesenteric, coronary, and cerebral vascular beds. Hypotension can occur. This dose increases renal perfusion leading to increased urinary output.

Intermediate dose infusion (2-10 mcg/kg/min): Increases heart rate and myocardial contractility secondary to beta-1 receptor stimulation in the myocardium. This dose has little effect peripherally but is most effective at increasing inotropy.

High dose infusion (10-20 mcg/kg/min): Beta-1 effects as with intermediate dose, plus peripheral vasoconstriction secondary to alpha-1 receptor stimulation. This dosing range has maximal effects on blood pressure.

Exceptionally high dose infusion (>20 mcg/kg/min): Use only as a last resort in extreme circumstances[OMCP]

Adverse Reactions:

Minor: Nausea, Vomiting, Tachycardia, Headache, Palpitations, Piloerection, Anxiety
Major: Hypotension (low doses), Anginal Pain, Hypertension, Ventricular Dysrhythmias, Dyspnea

Precautions: Do not administer with sodium bicarbonate. Sodium bicarbonate can deactivate the dopamine. Extravasation can lead to tissue necrosis. Use a larger bore IV. If extravasation occurs, notify the receiving hospital immediately. **Monitor for tachydysrhythmias as these are common with dopamine infusions.** Decrease rate if tachydysrhythmia occurs.

Guidelines:

Cardiac – Bradycardia with a Pulse
Cardiac – Pediatric Bradycardia with a Pulse

DOSING: Drip rate (drops/min) = patient weight (kg) x desired infusion rate (µg/kg/min) x 0.0375

Notes:

Epinephrine

ADULT DOSING – Epinephrine			
Indication	**Route**	**Dose**	**Notes**
Cardiac Arrest	IV/IO/ETT	1 mg (1:10,000) (10 mL)	q3-5 minutes, flush with 20 mL NS
Cardiac Arrest associated with Beta or Calcium channel blockers		1 mg, as above, -or- Up to 0.2 mg/kg[OMCP]	
Anaphylaxis -OR- Severe Asthma Exacerbation	IM	0.3 mg (1:1,000)	**This is the only delivery option available for EMTs and AEMTs** May repeat every 5 minutes up to a total of 1.2 mg EMT and above, administer in the anterolateral thigh All levels, including EMR, may assist with epinephrine autoinjector
	Nebulizer	2 mg (1:1,000)	2 mL of 1:1,000 mixed with 1 mL NS
	IV/IO (push dose)	2-20 mcg	Titrate to respiratory and circulatory effect Repeat as needed
Non-hemorrhagic Hypotension unresponsive to Isotonic Crystalloids	IV/IO (push dose)	2-20 mcg	Titrate to MAP > 65 Repeat as needed
Bradycardia			
BP support prior to sedation			
Uncontrolled external hemorrhage	Topical	1 mg (1:1000)	For dental/gum bleeding, soak a gauze pad and place the gauze directly on source of bleeding with direct pressure (ie patient biting onto the gauze) For epistaxis use IN atomizer or soak a gauze pad and place the gauze inside the bleeding naris
	Nebulized		Tonsil. Mix 1 mL into 2.5 mL NS and put in a nebulizer

^ EMR may administer IM epinephrine only if in a pre-dosed autoinjector for anaphylaxis
* EMT may only administer IM epinephrine for anaphylaxis or severe asthma exacerbation
# AEMT may administer IV epinephrine for cardiac arrest and IM epinephrine for anaphylaxis or severe asthma exacerbation as well as nebulized epinephrine for croup/stridor at rest

Epinephrine

PEDIATRIC DOSING – Epinephrine

Indication	Route	Dose	Notes
Cardiac Arrest	IV/IO/ETT	0.01 mg/kg (1:10,000) **Max dose: 1 mg**	Can repeat q3-5 min during CPR, flush with 10 mL NS
Anaphylaxis	IM	0.15 mg (8 – 29.9 kg) (1:1,000)	**This is the only delivery method available for EMTs and AEMTs** **OMCP** required for *repeat* IM dose Do not administer < 8 kg All levels, including EMR, may assist with Epi-Pen autoinjector
		0.3 mg (³ 30 kg) (1:1000)	
	IV/IO (push dose)	2-20 mcg	See "Push-Dose Epinephrine" below Repeat as needed
Bradycardia	IV/IO	0.01 mg/kg **Max dose: 1 mg**	Titrate to respiratory and circulatory effect See "Push-Dose Epinephrine" below Repeat as needed
	IV/IO (push dose)	2-20 mcg	
Hypotension	IV/IO (push dose)	2-20 mcg	**OMCP** required after first dose
Severe Respiratory Distress -OR- Stridor/Barking Cough at rest -OR- < 2 yo bronchiolitis	IM	0.01 mg/kg (1:1,000) **Max dose: 1 mg**	**OMCP** required for IM dose
	Nebulized	5 mg (5 mL 1:1,000)	Use if no racemic epinephrine available
Uncontrolled external hemorrhage	Nebulized	1 mg (1 mL 1:1000)	Tonsil. Mix 1 mL into 2.5 mL NS and put in a nebulizer
	Topical	1 mg (1 mL 1:1000)	For dental/gum bleeding, soak a gauze pad and place the gauze directly on source of bleeding with direct pressure (ie patient biting onto the gauze) For epistaxis use IN atomizer or soak a gauze pad and place the gauze inside the bleeding naris

^ EMR may administer IM epinephrine only if in a pre-dosed autoinjector for anaphylaxis
* EMT may only administer IM epinephrine for anaphylaxis or severe asthma exacerbation
# AEMT may administer IV epinephrine for cardiac arrest and IM epinephrine for anaphylaxis or severe asthma exacerbation as well as nebulized epinephrine for croup/stridor at rest

Brand Names: Adrenaline

Contraindications: None in the emergency setting

Pregnancy: Category C

Drug Class: Sympathetic agonist, Catecholamine (Potent Alpha and Beta adrenergic stimulant)

Mechanism of action: Epinephrine works directly on alpha- and beta-adrenergic receptors. This causes an increase in heart rate, cardiac contractile force, increases electrical activity in the myocardium, increases systemic vascular resistance, thus increasing blood pressure, and increases automaticity, thus increasing heart rate. It also causes bronchodilation.

Adverse Reactions: **Minor:** Tachycardia, Hypertension, Anxiety, Palpitations, Tremors, Nausea, Vomiting
Major: Increased myocardial oxygen demand

Precautions: Caution with conditions where increased myocardial demand could be detrimental

Epinephrine

Guidelines:

Allergic Reaction/Anaphylaxis
Acute Bronchospasm/Asthma/COPD Exacerbation
Congestive Heart Failure (CHF) Exacerbation/Pulmonary Edema
Cardiac – Adult Emergency Cardiac Care
Cardiac – Pediatric Emergency Cardiac Care
Cardiac – Bradycardia with a Pulse
Cardiac – Pediatric Bradycardia with a Pulse
Cardiac – Return of Spontaneous Circulation (ROSC)
Cardiac – Treatable Causes of Cardiac Arrest
Cardiac – Pulseless Electrical Activity/Asystole
Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)
Cardiac – Left Ventricular Assist Device (LVAD)
Neonatal Resuscitation
Epistaxis

Notes

Racemic Epinephrine

ADULT DOSING – Racemic Epinephrine (11.25 mg/0.5 mL)			
Indication	**Route**	**Dose**	**Notes**
Croup (Moderate to severe)	Nebulized	0.5 mL 2.25% Dilute with add'l 3 mL NS	This would be rare in this age group

PEDIATRIC DOSING – Racemic Epinephrine (11.25 mg/0.5 mL)			
Indication	**Route**	**Dose**	**Notes**
Croup (Moderate to severe)	Nebulized	0.05 mL/kg Dilute with add'l 3 mL NS **Max 0.5 mL**	Indication is moderate to severe respiratory distress with **audible stridor at rest**

Brand Names:

Contraindications: None

Pregnancy: May use during pregnancy

Drug Class: Adrenergic Agonists (non-selective)

Mechanism of action: Stimulates alpha and beta adrenergic receptors, reducing mucosal secretions and relaxing bronchial smooth muscles. It also has some effect in relieving the subglottic edema associated with croup.

Adverse Reactions:
Minor: Nausea, Nervousness, Dizziness, Headache, Tachycardia
Major: Paradoxical bronchospasm, Arrhythmia, Seizure

Precautions: Patients receiving racemic epinephrine must be transported and must be on cardiac monitor.

Guidelines: Pediatric: Dyspnea

Notes:

Etomidate

ADULT DOSING – Etomidate			
Indication	**Route**	**Dose**	**Notes**
Drug Assisted Intubation Induction	IV/IO	0.3 mg/kg **Max dose: 40 mg**	

PEDIATRIC DOSING – Etomidate			
Indication	**Route**	**Dose**	**Notes**
Drug Assisted Intubation Induction	IV/IO	0.3 mg/kg **Max dose: 30 mg**	**10 Years of Age and Older ONLY**

Brand Names: Amidate

Contraindications: Known drug class allergy, Known adrenal insufficiency (relative), History of focal seizures (relative)

Pregnancy: Category C. However, Etomidate is permitted for drug assisted intubation in pregnancy.

Drug Class: General anesthetic. Ultra-short acting non-barbiturate, non-benzodiazepine, non-opioid sedative/hypnotic agent.

Mechanism of action: Exact mechanism unknown. May have GABA-like effects. Depresses brain stem reticular formation activity causing hypnosis.

Adverse Reactions:
Minor: Fatigue, Sedation, Palpitations, photophobia, ataxia
Major: Anaphylaxis, Adrenal suppression

Precautions:

Guidelines: Procedure: Drug Assisted Intubation

Notes:

- Etomidate is nearly an ideal agent for drug-assisted intubation, due to its short time of onset, cerebroprotective properties, short duration of action, and lack of significant hemodynamic effects. However, **it is important to remember that etomidate has no analgesic characteristics.**

Fentanyl

ADULT DOSING – Fentanyl			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Pain from all Causes Procedural Analgesia Suspected Acute Coronary Syndrome (ACS)	IV/IO/IM/IN	25 mcg – 100 mcg **Max *total* dose 250 mcg**	Weight-based dose is 1 mcg/kg May repeat up to 1 mcg/kg (max 100 mcg) q5-10 minutes. Titrate to effect. Monitor for oversedation Use higher doses for IM Use lower doses for geriatric/frail patients
Post-Intubation/Ongoing Sedation	IV/IO	100 mcg	This dose does not count against the maximum dose of 250 mcg, but patient must be intubated Repeat dose PRN for RASS -1 - -2

PEDIATRIC DOSING – Fentanyl			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Pain from all Causes	IV/IO/IM/IN	**FIRST DOSE:** 1 mcg/kg **SUBSEQUENT DOSES:** 0.5 mcg/kg **Maximum single dose:** **100 mcg**	IN is preferred for patients not requiring IV access or those who IV access is not obtainable May repeat doses q10 minutes for a total of 2 mcg/kg Maintain SBP > 70 + (2 x age(yrs)) mmhg

Brand Names: Sublimaze

Contraindications: Known drug class hypersensitivity, hypotension with SBP < 100 (adult) or SBP < 70 + (2 x (age(yrs)) (peds)

Pregnancy: Category C. Use in the acute phase during pregnancy is permitted.

Drug Class: Opioid analgesic, short duration

Mechanism of action: Binds to the mu receptor as well as other opioid receptors producing analgesia and sedation.

Adverse Reactions:
Minor: Nausea, vomiting
Major: Anaphylaxis, Muscle rigidity/rigid chest syndrome (rare), Respiratory depression, Hypotension, Bradycardia, Oversedation

Precautions: Naloxone (Narcan) should be readily available for reversal. Consider lower doses for geriatric and/or frail patients.

Guidelines:
Airway Management
Pain Management
Procedure: Procedural and Ongoing Sedation

Notes:

Glucagon

ADULT DOSING – Glucagon (1 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Hypoglycemia without IV or IO access	IM	1 mg (1 mL)	Can repeat once after 15 minutes for persistent hypoglycemia
Anaphylaxis unresponsive to epinephrine	IV/IO/IM	1 mg (1 mL)	May repeat up to 3mg Monitor blood pressure
Beta Blocker Overdose	IV/IO	5 mg (5 mL)	If less than 5mg is available, use what is available

PEDIATRIC DOSING – Glucagon (1 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Hypoglycemia without IV or IO access	IM	0.1 mg/kg **Max dose: 1 mg**	**Standard Dosing:** Less than 6 years old: 0.5 mg 6 years or older: 1 mg Maintain SBP > 70 + (2 x age(yrs)) mmhg May repeat with beta or calcium channel blocker overdose[OMCP]
Beta Blocker Overdose	IV/IO		
Calcium Channel Overdose			

Brand Names: GlucaGen

Contraindications: Known drug class hypersensitivity, known pheochromocytoma

Pregnancy: Category B

Drug Class: Polypeptide Hormone

Mechanism of action: A 29 amino acid polypeptide that exists as a natural hormone. Glucagon increases blood glucose levels by causing the liver to convert stored glycogen into glucose. It also relaxes the smoother muscle. Glucagon also bypasses the beta receptors in cardiac muscle reducing the effects of a beta blocker.

Adverse Reactions:
Minor: Tachycardia, Nausea, Vomiting, Urticaria
Major: Anaphylaxis, Hypotension

Precautions: Glucagon can exhibit chronotropic and inotropic effects. **Vomiting is also extremely common after administration**. Will likely not work with cachectic or chronically ill patients, including chronic alcoholics.

Guidelines:
Diabetic Emergencies/Hypoglycemia/Hyperglycemia
Toxicology/Environmental: Beta-Blocker/Calcium Channel Overdose

Notes:

Oral Glucose

ADULT DOSING – Oral Glucose			
Indication	**Route**	**Dose**	**Notes**
Symptomatic Hypoglycemia	PO	15 grams	Repeat PO doses q15 min

PEDIATRIC DOSING – Oral Glucose			
Indication	**Route**	**Dose**	**Notes**
Symptomatic Hypoglycemia	PO	7.5 grams	Repeat PO doses q15 min

Brand Names: None

Contraindications: Known allergy, unresponsive, cannot tolerate medication by mouth, aspiration risk

Pregnancy: NA

Drug Class: Monosaccharide, Carbohydrate

Mechanism of action: After absorption from GI tract, glucose is distributed in the tissues and provides a prompt increase in circulating blood sugar

Adverse Reactions:
Minor: Nausea/Vomiting
Major: Anaphylaxis

Precautions: Caution with concern for airway compromise

Guidelines: Diabetic Emergencies/Hypoglycemia/Hyperglycemia

Notes:

Haloperidol

ADULT DOSING – Haloperidol (5mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Mental Mood Disorders/Severe Agitation	IM	5 – 10 mg (1-2 mL)	Typically administered with diphenhydramine to avoid dystonic reactions Typically given with a benzodiazepine as well. Consider administering haloperidol, a benzodiazepine, and diphenhydramine together for this indication.
Intractable nausea and vomiting/Cannabinoid hyperemesis			Give as second line after ondansetron

PEDIATRIC DOSING – Haloperidol (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
---NONE---			

Brand Names: Haldol®

Contraindications: Known allergy, unresponsive, cannot tolerate medication by mouth, aspiration risk

Pregnancy: Category C

Drug Class: First generation anti-psychotic, Butyrophenone

Mechanism of action: Selectively antagonizes dopamine D2 receptors.

Adverse Reactions:
Minor: Nausea/Vomiting
Major: Anaphylaxis

Precautions: Caution with concern for airway compromise

Guidelines:
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies
Procedure: Restraint (Chemical)
Nausea and Vomiting

Notes: Onset of action: up to 20 minutes (IV) and 30 minutes (IM)
Effects peak around 30 minutes after administration and can last up to 3 hours (IV) and 2 hours (IM)

Ipratropium Bromide

ADULT DOSING – Ipratropium Bromide (0.5 mg/2.5 mL)			
Indication	**Route**	**Dose**	**Notes**
Bronchospasm from Asthma or COPD Organophosphate Exposure	Nebulized	0.5mg (2.5 mL)	May give up to 2, which may be given simultaneously Can also mix with albuterol

PEDIATRIC DOSING – Ipratropium Bromide (0.5 mg/2.5 mL)			
Indication	**Route**	**Dose**	**Notes**
Bronchospasm from Asthma or COPD Organophosphate Exposure	Nebulized	0.5 mg (2.5 mL)	May give up to 2 doses, which may be given simultaneously Can also mix with albuterol

Brand Names: Atrovent

Contraindications: Known hypersensitivity

Pregnancy: Former pregnancy category B

Drug Class: Anticholinergic

Mechanism of action: Ipratropium is a parasympatholytic used in the treatment of respiratory emergencies. It causes bronchodilation and dries respiratory tract secretions. Ipratropium acts by blocking acetylcholine. Approximately 15% of dose reaches lower airway.

Adverse Reactions:
Minor: Anxiety, Palpitations, Dizziness, Headache, Nervousness, Hypertension, Cardiac arrythmias, Nausea, Vomiting, Dry eyes, Dry mouth
Major: Anaphylaxis

Precautions: --

Guidelines: Acute Bronchospasm/Asthma/COPD
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning

Notes:

Isotonic Crystalloids

ADULT DOSING – Isotonic Crystalloids			
Indication	**Route**	**Dose**	**Notes**
Hypotension	IV/IO	Less than 3,000 mL	Titrate to MAP > 65 Titrate to SBP > 110 mm hg for isolated traumatic brain injury
Dehydration			
Sepsis		30 mL/kg	
Crush Injury		1000 mL/hr during extrication 500 mL/hr after extrication, if hemodynamically stable	Monitor for fluid overload/pulmonary edema for prolong extrications
Stridor	Nebulized	3 mL Normal Saline	

PEDIATRIC DOSING – Isotonic Crystalloids			
Indication	**Route**	**Dose**	**Notes**
Hypotension	IV/IO	Pediatric: 20 mL/kg Newborn: 10 mL/kg	Can repeat bolus doses up to three times. Call OMCP after second bolus Titrate to: SBP > 70 + (2 x age)
Dehydration			
Sepsis			
Crush Injury		30 mL/kg/hr during extrication 20 mL/kg/hr after extrication, if hemodynamically stable	
Stridor	Nebulized	3 mL Normal Saline	

Brand Names: Normal Saline, Lactated Ringers, Ringer's Lactate

Contraindications: Pulmonary edema, Congestive heart failure exacerbations

Pregnancy: None

Drug Class: Isotonic to human plasma

Mechanism of action: Isotonic crystalloid fluids are administered for volume expansion. While these add volume, they do not add oxygen binding capacity and may dilute the blood volume present. Rapid volume resuscitation may be indicated in the acute setting for hypotension.

Always monitor for signs of fluid overload and titrate to a desired effect. Maintenance infusion is indicated, as needed, to maintain patent access or minimum volume to maintain volume homeostasis or appropriate MAP.

Adverse Reactions:
Minor: None
Major: Congestive heart failure exacerbation, Pulmonary edema

Precautions: Caution with known congestive heart failure. Caution with large volume hemorrhage.

Guidelines:
Allergic Reaction/Anaphylaxis
General Medical
Abdominal Pain/GIB
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies
Anaphylaxis/Allergic Reaction
Altered Mental Status
Acute Bronchospasm/Asthma/COPD
Diabetic Emergencies/Hypoglycemia/Hyperglycemia
Headache

Isotonic Crystalloids

Hyperkalemia
Nausea and Vomiting
Pediatric Dyspnea
Neonatal Resuscitation
Vaginal Bleeding
Imminent Delivery
Seizures
Shock, Non-Traumatic
Stroke
Syncope/Near-Syncope
Toxicology/Environmental: Beta-Blocker/Calcium Channel Overdose
Toxicology/Environmental: Carbon Monoxide Poisoning
Toxicology/Environmental: Chlorine/Phosgene Exposure
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning
Toxicology/Environmental: Cold Injuries
Toxicology/Environmental: Cyanide Poisoning
Toxicology/Environmental: Heat Injuries
Toxicology/Environmental: Hydrofluoric Acid Exposure
Toxicology/Environmental: Opiate Overdose
Toxicology/Environmental: Stimulant Overdose
Cardiac – Adult Emergency Cardiac Care
Cardiac – Pediatric Emergency Cardiac Care
Acute Bronchospasm/Asthma/COPD Exacerbation
Cardiac – Bradycardia with a Pulse
Cardiac – Pediatric Bradycardia with a Pulse
Cardiac – Return of Spontaneous Circulation (ROSC)
Cardiac – Treatable Causes of Cardiac Arrest
Cardiac – Pulseless Electrical Activity/Asystole
Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)
Cardiac – Left Ventricular Assist Device (LVAD)
Cardiac – Chest Pain/Acute Coronary Syndrome (ACS)
Cardiac – Narrow Complex Tachycardia with a Pulse
Head Trauma

Notes:

Ketamine

ADULT DOSING – Ketamine (500 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to severe pain	IV/IO	0.25 mg/kg **Single Max Dose: 20 mg**	May repeat dose once after 10 minutes Preferable method of giving this medication for these indications is mixed in a 250 mL bag of saline. The second best option is giving it as a *slow* IV push
	IN	0.5 mg/kg **Single Max Dose: 40 mg**	
Drug-Assisted Intubation Induction	IV/IO	1 – 2 mg/kg **Single Max Dose: 200 mg**	
Ongoing Sedation	IV/IO	1 mg/kg **Single Max Dose: 200 mg**	Give the same dose as with drug assisted intubation. Repeat dosing q10min, as needed Goal RASS -1 - -2 Requires continuous pulse oximetry and end-tidal CO_2 monitoring
Procedural Sedation	IV/IO	0.5 - 1 mg/kg **Single Max Dose: 100 mg**	Requires continuous pulse oximetry and end-tidal CO_2 monitoring
Hyperactive Delirium Syndrome with Severe Agitation/Life-Saving Procedure	IV/IO	1 mg/kg **Single Max Dose: 100 mg**	May repeat dose after 10 minutes, as needed
	IM	**First Dose:** 4 mg/kg **Single Max Dose: 400 mg** **Second Dose:** 2 mg/kg **Single Max Dose: 250 mg** **Max Cumulative Dose 650 mg**	May repeat dose after 10 minutes, as needed Goal RASS -1 - +1 Requires continuous pulse oximetry and end-tidal CO_2 monitoring

PEDIATRIC DOSING – Ketamine (500 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Pain[OMCP]	IV/IO	0.25 mg/kg **Single Max dose: 15 mg**	**OMCP** required for repeat dosing Preferable method of giving this medication for this indication is mixed in a 100 or 250 mL bag of saline. The second best option is giving it as a *slow* IV push.
	IN	0.5 mg/kg **Single Max Dose: 25 mg**	
Drug-Assisted Intubation Induction	IV/IO	2 mg/kg **Single Max Dose: 200 mg**	Requires continuous pulse oximetry and end-tidal CO_2 monitoring
Ongoing Sedation			Requires continuous pulse oximetry and end-tidal CO_2 monitoring Repeat dosing q10min, as needed Goal RASS -1
Procedural Sedation	IV/IO/IN	1 mg/kg **Single Max Dose: 100 mg**	Requires continuous pulse oximetry and end-tidal CO_2 monitoring

Ketamine

Brand Names: Ketalar®

Contraindications: Known hypersensitivity to ketamine, stable schizophrenia, relative contraindication with eye trauma, relative contraindication for known cardiovascular disease

Pregnancy: Category N (Not assigned)

Drug Class: General anesthetic, NDMA receptor antagonist

Mechanism of action: NMDA receptor antagonist. It potentially selectively depresses the thalamoneocortical system before significantly obtunding the reticular-activating and limbic systems. This produces dissociative analgesia and sedation.

Adverse Reactions:
Minor: Tachycardia, Elevated blood pressure, Depressed reflexes, Hallucinations
Major: Laryngospasm, Respiratory depression, Emergence delirium

Precautions: If laryngospasm occurs, open the airway and use a BVM. If unable to ventilate or oxygenate, succinylcholine can be used as a paralytic to get the cords to relax. As a last resort, a cricothyrotomy can be performed. However, in most instances, bagging the patient through the reaction is sufficient.

Guidelines:
Airway Management
Pain Management
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies
Procedure: Restraint (Chemical)
Procedure: Drug Assisted Intubation
Procedure: Procedural and Ongoing Sedation

Notes:

- Any use of ketamine **requires** the use of end-tidal CO2, pulse oximetry, and, if feasible given patient demeanor, cardiac monitoring.
- Repeat vital documentation is **required** every 5 minutes.
- Ketamine can be used synergically with fentanyl allowing for a reduced dosage of each mediation for analgesia.
- Once patient has received ketamine, they should not be permitted to refuse transport. They may refuse any further interventions but must be monitored and transported to the hospital. If there are questions or concerns or the patient has capacity and is adamantly refusing transport, contact **OMCP**.

Lidocaine

ADULT DOSING – Lidocaine (100 mg/5 mL)			
Indication	**Route**	**Dose**	**Notes**
Ventricular Fibrillation/ Pulseless Ventricular Tachycardic Cardiac Arrest	IV/IO	**FIRST DOSE**: 1.5 mg/kg (max dose 150mg) **SECOND DOSE**: 0.75 mg/kg (max dose 75mg) **THIRD DOSE**: 0.75 mg/kg (max dose 75mg)	First line antiarrhythmic in ACLS Repeat every 5-10 minutes PRN Maximum cumulative dose *from all sources*: 3 mg/kg
Ventricular Tachycardia with a Pulse		**FIRST DOSE**: 1.5 mg/kg (max dose 150mg) **SECOND DOSE**: 0.75 mg/kg (max dose 75mg) **THIRD DOSE**: 0.75 mg/kg (max dose 75mg)	Repeat every 5-10 minutes PRN Maximum cumulative dose *from all sources*: 3 mg/kg
Pain Associated with IO Infusion	IO	20mg (1 mL)	Consider diluting in 5 mL NS
Intubation of Awake Patient	Nebulized/IN	100mg (5 mL)	Nebulize 5 mL with 10 LPM for orotracheal intubation Atomize 5 mL

PEDIATRIC DOSING – Lidocaine (100 mg/5 mL)			
Indication	**Route**	**Dose**	**Notes**
Ventricular Fibrillation/ Pulseless Ventricular Tachycardic Cardiac Arrest	IV/IO	**FIRST DOSE**: 1.5 mg/kg (max dose 150mg) **SECOND DOSE**: 0.75 mg/kg (max dose 75mg) **THIRD DOSE**: 0.75 mg/kg (max dose 75mg)	First line antiarrhythmic in ACLS Repeat every 5-10 minutes PRN Maximum cumulative dose *from all sources*: 3 mg/kg
Wide Complex Ventricular Tachycardia with a Pulse		**FIRST DOSE**: 1.5 mg/kg (max dose 150mg) **SECOND DOSE**: 0.75 mg/kg (max dose 75mg) **THIRD DOSE**: 0.75 mg/kg (max dose 75mg)	Repeat every 5-10 minutes PRN Maximum cumulative dose *from all sources*: 3 mg/kg
Pain Associated with IO Infusion	IO	0.5 mg/kg (max dose 20mg)	Consider diluting in 5 mL NS
Intubation of Awake Patient	Nebulized/IN	1.5 mg/kg (max dose 100mg)	Nebulize dose with 10 LPM for orotracheal intubation Atomize up to 5 mL

Lidocaine

Brand Names: Xylocaine

Contraindications: Known hypersensitivity to lidocaine or other amide anesthetics, Wolff-Parkinson-White (WPW) Syndrome, High degree SA/AV nodal block, intraventricular conduction delay

Pregnancy: Category B. Generally considered safe in pregnancy.

Drug Class: Sodium channel blocker, Amide anesthetic, Class 1B antiarrhythmic

Mechanism of action: By blocking sodium channels, lidocaine inhibits the nerve impulse initiation and conduction leading to local anesthesia. It also depresses the action potential phase 0 of the cardiac cycle (Class 1B antiarrhythmic).

Adverse Reactions:
Minor: Anxiety, Tremor, Confusion, Lightheaded, Nausea
Major: Seizures, Respiratory arrest, Bradycardia, Hypotension, Cardiovascular collapse

Precautions: --

Guidelines:
Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)
Cardiac – Wide Complex Tachycardia with a Pulse
Procedure: Drug Assisted Intubation
Procedure: Intraosseous (IO) Access

Notes:
- Maximum cumulative dose *from all sources*: 3 mg/kg. This includes if lidocaine is given for analgesia with IO placement.

Lorazepam

ADULT DOSING – Lorazepam (2 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Seizures: -Anticonvulsant/Grand Mal Seizure (Non-Pregnant) -Alcohol Withdrawal/Delirium Tremens/Seizure -Grand Mal Seizure (Pregnant) OMCP	IV/IO	**2 mg** (1 mL)	Repeat IV/IO doses q3-5min Repeat IM/IN doses q10-15min Maintain MAP > 65 mm hg Requires use of ETCO2
	IM	**2 mg** (1 mL)	
Acute Psychosis, Behavioral Emergencies OMCP	IV/IO	**2 mg** (1 mL)	Requires use of ETCO2 when safe for patient and clinician
	IM	**2 mg** (1 mL)	
Uncontrolled Anxiety/Panic Attack OMCP	IV/IO	**1-2 mg** (0.5-1 mL)	Single dose only
	IM	**1-2 mg** (0.5-1 mL)	

PEDIATRIC DOSING – Lorazepam (2 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Seizures/Anti-convulsant	IV/IO	0.05 mg/kg **Max single dose: 2 mg**	**Do not administer if under 5 kg** Repeat PRN to desired effect Requires use of ETCO2 IV requires ***slow*** push
	IM	0.05 mg/kg **Max single dose: 2 mg**	
Procedural Sedation, Maintenance of sedation OMCP	IV/IO	0.05 mg/kg **Max single dose: 2 mg**	

Brand Names: Ativan®

Contraindications: Known hypersensitivity to lorazepam, diazepam, or other benzodiazepines, Acute glaucoma, Acute alcohol intoxication or other CNS depression

Pregnancy: Category D

Drug Class: Intermediate-Acting Benzodiazepine

Mechanism of action: Binds to benzodiazepine receptors which increases GABA effects leading to sedation and respiratory depression.

Adverse Reactions:
Minor: Vascular irritation
Major: Respiratory depression, Hypotension, Thrombophlebitis

Precautions: Caution in elderly and those with respiratory depression

Guidelines:
Seizures
Toxicology/Environmental: Heat Injuries
Cardiac – Chest Pain/Acute Coronary Syndrome (ACS)
Cardiac – Narrow Complex Tachycardia with a Pulse
Cardiac – Wide Complex Tachycardia with a Pulse
Toxicology/Environmental: Stimulant Overdose
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies

Notes: **This is a second line medication. Midazolam is first line.**

Magnesium Sulfate

ADULT DOSING – Magnesium Sulfate (1000 mg/2 mL)			
Indication	**Route**	**Dose**	**Notes**
Eclampsia-Related Seizure Activity	IV/IO	4 g (8 mL diluted in 100 or 250 mL NS)	Must monitor reflexes and respiratory status Administer over 5-10 minutes
Pulseless Torsades de Pointes or Cardiac Arrest with Known Hypomagnesemia	IV/IO	2 g (4 mL diluted in 10 mL NS) given over *1-2* min	Hypomagnesemia and hyponatremia often correspond with one another
Torsades de Pointes *with a Pulse*	IV/IO	2 g (4 mL diluted in 10 mL NS) given over *15* min	
Status Asthmaticus	IV/IO	25-50 mg/kg (diluted in 10 mL NS) given over 10 min **Max Dose: 2 g**	

PEDIATRIC DOSING – Magnesium Sulfate (1000 mg/2 mL)			
Indication	**Route**	**Dose**	**Notes**
Pulseless Torsades de Pointes or Cardiac Arrest with Known Hypomagnesemia	IV/IO	25-50 mg/kg (diluted in 10 mL NS) **Max Dose: 2 g**	
Status Asthmaticus	IV/IO	25 mg/kg **Max Dose: 2 g**	

Brand Names:

Contraindications: Known hypersensitivity to magnesium sulfate, Renal failure, High degree SA, AV, or intraventricular conduction delay

Pregnancy: Category A

Drug Class: Cation electrolyte, mineral, Enzymatic cofactor

Mechanism of action: Magnesium has multiple mechanisms of action. Magnesium is a divalent cation which acts as a cofactors for enzymatic activation and biological pathways. Intracellular magnesium works with neurochemical transmission and muscular contractions. Magnesium competes on voltage-gated calcium channels affecting the distribution of calcium uptake and release. Over half of the magnesium stores in the body are taken up by the bones. Magnesium given PO leads to osmotic shifts helping alleviate constipation. By increasing the magnesium levels, this inhibits the calcium influx into cells which leads to inhibition of acetylcholine release and thus slowed muscle contraction.

Adverse Reactions:
Minor: Decreased reflexes
Major: Renal failure, Hypotension, Respiratory depression, Ventricular dysrhythmias

Precautions: Monitor reflexes and watch for respiratory depression.

Guidelines:
Cardiac – Wide Complex Tachycardia with a Pulse
Acute Bronchospasm/Asthma/COPD Exacerbation
Seizures

Notes: Hypermagnesemia can induce a widening P-R interval, widening QRS complex, and peaked T waves on EKG.

Midazolam

ADULT DOSING – Midazolam (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Anticonvulsant/Grand Mal Seizure (Non-Pregnant) Alcohol Withdrawal/Delirium Tremens Grand Mal Seizure (Pregnant) OMCP	IV/IO	**5 mg** (1 mL)	Repeat IV/IO doses q3-5min Repeat IM/IN doses q10-15min Maintain MAP > 65 mm hg Requires use of ETCO2
	IM/IN	**10 mg** (2 mL)	
Procedural Sedation, Maintenance of Sedation	IV/IO	**2.5-5 mg** (0.5-1 mL)	
	IM/IN	**5-10 mg** (1-2 mL)	
Acute Psychosis, Behavioral Emergencies OMCP	IV/IO	**2.5-5 mg** (0.5-1 mL)	
	IM/IN	**5-10 mg** (1-2 mL)	
Shivering hyperthermic patient or ROSC	IV/IO	**2.5 mg** (0.5 mL)	
Rapid Sequence Intubation	IV/IO	**5-10 mg** (1-2 mL)	
Uncontrolled Anxiety/Panic Attack OMCP	IV/IO	**0.5-1 mg** (0.1-0.2 mL)	
	IM/IN	**1-2 mg** (0.2-0.4 mL)	

PEDIATRIC DOSING – Midazolam (5 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Anti-convulsant	IV/IO/IM/IN	0.2 mg/kg **Max single dose: 5 mg**	**Do not administer if under 5 kg** Repeat PRN to desired effect OMCP Requires use of ETCO2 IV requires ***slow*** push IV route reserved for refractory seizures
Shivering hyperthermic patient or ROSC	IV/IO	0.2 mg/kg Max single dose: 2.5 mg	
Procedural Sedation, Maintenance of sedation OMCP	IV/IO	0.05 mg/kg **Max single dose: 5 mg**	

Brand Name: Versed®

Contraindications: Known drug class allergy, Shock/Hypotension, Coma, Closed angle Glaucoma, Open angle glaucoma (untreated)

Pregnancy: Weigh risk/benefit during pregnancy, especially in 3rd trimester if prolonged (>3h) or repeated administration for sedation/anesthesia use; possible risk of teratogenicity based on conflicting human data with benzodiazepine class; risk of neonatal withdrawal symptoms and floppy infant syndrome near term based on human data with benzodiazepine class. Pregnancy category D.

Drug Class: Benzodiazepine

Mechanism of action: Binds to benzodiazepine receptors on the postsynaptic GABA neuron at several sites within the central nervous system, including the limbic system and reticular formation. Promotes relaxation by enhancing the inhibitory effect of GABA on neuronal excitability making the nerves more hyperpolarized and stable (increases seizure threshold). It has twice the affinity for benzodiazepine receptors as diazepam and is 3-4 times more potent than diazepam.

Adverse Reactions:
Minor: Nausea/Vomiting, Headache, Drowsiness, Lethargy, Amnesia of event
Major: Respiratory depression/Apnea, Bradycardia, Hypotension, Anaphylaxis, Cardiac arrest

Precautions: Interaction of midazolam and an opiate may potentiate the CNS depressant effects leading to apnea

Consider reducing the adult dose by half (50%) for elderly or those under the influence of another CNS depressant.

Midazolam

Guidelines:

Airway Management
Seizures
Toxicology/Environmental: Heat Injuries
Cardiac – Chest Pain/Acute Coronary Syndrome (ACS)
Cardiac – Narrow Complex Tachycardia with a Pulse
Cardiac – Wide Complex Tachycardia with a Pulse
Toxicology/Environmental: Stimulant Overdose
Toxicology/Environmental: Organophosphate/Cholinergic Poisoning
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies
Procedure: Procedural and Ongoing Sedation

Notes:

- **Non-Lead Paramedics are only authorized to administer midazolam for active seizures/anticonvulsant. The additional listed indications are for Lead Paramedics only or require online medical consultation.**
- When performing procedural sedation, the end goal should be to achieve a *moderate sedation* (Diminished but purposeful response to verbal and light tactile stimulation and slurred speech).
- Midazolam during pregnancy is only permitted with Online Medical Control permission. OMCP

Morphine Sulfate

ADULT DOSING – Morphine (10 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Pain	IV/IO	2-5 mg (2-5 mL)	Weight-Based dose is 0.1 mg/kg May repeat 2-5 mg q5-10 minutes. Titrate to effect. Maintain MAP > 65 mm hg Use lower doses for geriatric/frail patients
	IM	5-10 mg	
Procedural Pain Control	IV/IO	2-5 mg (2-5 mL)	A single dose is permitted prior to procedure, but requires End-Tidal CO_2 to be monitored in conjunction with the procedure if using a sedative
ACS Chest Pain	IV/IO	2-5 mg	Caution in right-sided AMI

PEDIATRIC DOSING – Morphine (10 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Pain	IV/IO/IM	0.1mg/kg **Max single dose: 5 mg**	**Do not administer if under 5 kg** Repeat PRN to desired effect OMCP
Procedural Pain Control	IV/IO	0.05 mg/kg **Max single dose: 5 mg**	

Brand Names: MS Contin® (Tablet), Roxanol® (Liquid), Duramorph®

Contraindications: Known hypersensitivity to morphine or its derivatives, hemodynamic instability, hypotension

Pregnancy: Category C. Use in the acute phase during pregnancy is permitted.

Drug Class: Opioid analgesic, moderate duration

Mechanism of action: Binds to the mu receptor as well as other opioid receptors producing analgesia and sedation. (Opioid agonist)

Adverse Reactions:
Minor: Nausea, Vomiting, Lightheaded, Drowsiness, Headache
Major: Anaphylaxis, Respiratory depression, Hypotension, Bradycardia, Oversedation

Precautions: Naloxone (Narcan) should be readily available for reversal. Consider lower doses for geriatric and/or frail patients. Higher doses may be needed for chronic pain patients who have acute pain. Caution with alcohol intoxication and right-sided MI.

Guidelines: Pain Management
Procedure: Procedural and Ongoing Sedation

Notes:

Naloxone

ADULT DOSING – Naloxone (1 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Opiate Overdose	IV/IO/IN	0.5-2 mg	Repeat q3min until the patient has adequate spontaneous respirations

PEDIATRIC DOSING – Naloxone (1 mg/mL)			
Indication	**Route**	**Dose**	**Notes**
Opiate Overdose	IV/IO/IN	0.01 mg/kg	Repeat q3min until the patient has adequate spontaneous respirations

Brand Name: Narcan

Contraindications: None in the emergency setting

Pregnancy: Benefits outweigh the risks, there is a risk of fetal withdrawal.

Drug Class: Opiate antagonist

Mechanism of action: Antagonizes the Mu-receptor as well as other opiate receptors.

Adverse Reactions:
Minor: Nausea/Vomiting, Headache, tachycardia, hypertension, hypotension
Major: Opiate withdrawal, pulmonary edema, seizures, ventricular arrhythmias

Precautions: Giving too much naloxone can put a patient into acute opiate withdrawal. It can also precipitate pulmonary edema. Give only enough naloxone to stimulate adequate spontaneous respirations. The goal is not for the patient to be completely awake, combative, vomiting, or in withdrawal. The goal is for adequate spontaneous respirations.

Guidelines:
Toxicology/Environmental: Opiate Overdose
Pain Management
Medication: Fentanyl
Medication: Morphine

Notes:

- Onset of action: 1-2 min, Duration of action 20-90 min
- The goal of naloxone is to give enough for the patient to breathe but not go into withdrawal or become combative.

Nitroglycerin

ADULT DOSING – Nitroglycerin (0.4 mg/tablet)			
Indication	**Route**	**Dose**	**Notes**
ACS Chest Pain	SL	0.4 mg (one tablet) q5 min x 3 doses PRN Chest Pain	A total of three (3) doses are permitted for ongoing chest pain of suspected coronary etiology Relative contraindication in right-sided AMI **This is the only indication for EMTs**
Congestive Heart Failure Exacerbation/ Pulmonary Edema	SL	0.4mg (1 tablet) for SBP ≥ 100 mm hg 0.8 mg (2 tablets) for SBP ≥ 150 mm hg 1.2 mg (3 tablets) for SBP ≥ 200 mm hg	Maintain MAP > 65 mm hg Use lower doses for geriatric/frail patients Q3 min as needed and tolerated

PEDIATRIC DOSING – Nitroglycerin			
Indication	**Route**	**Dose**	**Notes**
---NONE---			

Brand Name: Nitrostat, Nitrolingual

Contraindications: Known hypersensitivity to drug, Hypotension (SBP < 100 mmhg), Use of Viagra (sildenafil) or Levitra (vardenafil) within 24 hours or use of Cialis (tadalafil) within 48 hours, Right-sided MI (relative)

Pregnancy: Category C

Drug Class: Organic Nitrate

Mechanism of action: Stimulates cGMP production leading to vascular smooth muscle relation/dilation.

Adverse Reactions:
Minor: Headache, Flushing
Major: Hypotension

Precautions: Always ask about PDE-5 medication use (Viagra, Levitra, Cialis) before administering nitroglycerin. Note, while erectile dysfunction is a common indication for PDE-5 medications, women also have indications for these medications, most notably pulmonary hypertension.

Guidelines:
Cardiac – Chest Pain/Acute Coronary Syndrome (ACS)
Congestive Heart Failure (CHF) Exacerbation/Pulmonary Edema

Notes:

- The patient shall have an IV/IO prior to administering nitroglycerin for cardiac chest pain.
- Per the current literature, there is no morbidity or mortality improvement with nitroglycerin in cardiac chest pain.

* EMTs limited to patient's prescribed nitroglycerin. All other levels may administer EMS-carried nitroglycerin.

Ondansetron

ADULT DOSING – Ondansetron (4 mg/2 mL) or 4 mg ODT			
Indication	**Route**	**Dose**	**Notes**
Nausea and/or Vomiting	IV/IO	4 mg (2 mL)	Repeat once, as necessary
	PO	4 mg tablet	May repeat twice, as necessary

PEDIATRIC DOSING – Ondansetron (4 mg/2 mL) or 4 mg ODT			
Indication	**Route**	**Dose**	**Notes**
Nausea and Vomiting	IV/IO	0.20 mg/kg **Max Single Dose: 4 mg**	Repeat doses require **OMCP**
	PO	**≤ 7 years old** ½ tablet	If > 31 kg, one repeat PO dose is permitted
		> 7 years old 1 tablet	

Brand Name: Zofran®

Contraindications: Known hypersensitivity to drug

Pregnancy: Category C

Drug Class: Antiemetic

Mechanism of action: Selectively antagonizes serotonin 5-HT3 receptors helping release nausea and vomiting.

Adverse Reactions:
Minor: Headache, Flushing
Major: Hypotension

Precautions: --

Guidelines: Nausea and vomiting

Notes: This medication is included in multiple guidelines, but the only indication is for nausea/vomiting, thus only the nausea and vomiting guideline is listed.

Oxygen

ADULT DOSING – Oxygen			
Indication	**Route**	**Dose**	**Notes**
SpO2 ≤ 92%, Moderate to Severe Respiratory Distress, Respiratory Failure, Hypoxemia	Nasal Cannula	1-6 LPM	Titrate to lowest required supplemental oxygen
	Non-Rebreather	10-15 LPM	
	Nebulized	6-10 LPM	
	CPAP	DISS Connection	
	BVM	15 LPM	

PEDIATRIC DOSING – Oxygen			
Indication	**Route**	**Dose**	**Notes**
SpO2 ≤ 92%, Moderate to Severe Respiratory Distress, Respiratory Failure, Hypoxemia	Nasal Cannula	1 – 6 LPM	Titrate to lowest required supplemental oxygen
	Non-Rebreather	10 – 15 LPM	
	Nebulized	6 – 10 LPM	
	BVM	15 LPM	

Brand Name: --

Contraindications: None in the emergency setting

Pregnancy: Category C

Drug Class: Element

Mechanism of action: Oxygen diffuses into the tissues where it participates in the cellular respiration helping create ATP and energy for the body. Depending on the indication/use, oxygen also helps scavenge free radicals, suppresses cellular senescence, enhances angiogenesis, and alleviates inflammation via various pathways.

Adverse Reactions:
Minor: Lightheaded
Major: Apnea in COPD with hypoxic drive

Precautions: Monitor for apnea in a COPD patient on high flow oxygen for prolonged periods of time.

Guidelines: All guidelines, if indicated

Notes:

Sodium Bicarbonate

ADULT DOSING – Sodium Bicarbonate (50 mEq/50 mL)			
Indication	**Route**	**Dose**	**Notes**
Acidosis in Cardiac Arrest (suspected) *Consider in renal dialysis patients and hyperactive delirium syndrome with severe agitation	IV/IO	100 mEq (100 mL)	May repeat dose q10min PRN
Crush Injury	IV/IO	50 mEq (50 mL)	50 mEq push followed by maintenance infusion of 50 mEq mixed in 1 L LR wide open
	IV/IO Infusion	50 mEq (50 mL)	
Hyperkalemia with a Pulse (suspected)	IV/IO	50 mEq (50 mL)	Slow IV push May repeat dose if no change is noted on 12-lead EKG
TCA or Phenobarbital Overdose	IV/IO	50 mEq (50 mL)	50 mEq push followed by maintenance infusion of 100 mEq mixed in 1 L LR wide open
	IV/IO Infusion	100 mEq (100 mL)	
Chlorine Gas Exposure	Nebulized	2 mEq (2 mL)	Mix with 3 mL NS and nebulize. This is an adjunct to 100% FiO_2 supplemental oxygen

PEDIATRIC DOSING – Sodium Bicarbonate (50 mEq/50 mL)			
Indication	**Route**	**Dose**	**Notes**
Acidosis in Cardiac Arrest (suspected)	IV/IO	1 mEq/kg **Max Single Dose: 50 mEq (50 mL)**	May repeat q10 min PRN[OMCP]
TCA or Phenobarbital Overdose			
Crush Injury			

Brand Name: --

Contraindications: Known hypersensitivity to drug, although none in the emergency setting

Pregnancy: Category C, but EMS use is permitted in pregnancy

Drug Class: Alkalizing agent

Mechanism of action: Increases serum bicarbonate, Raises pH by buffering the hydrogen ion

Adverse Reactions:
Minor:
Major: Metabolic alkalosis (rare), Hypernatremia (rare), Extravasation (can lead to tissue necrosis)

Precautions: --

Guidelines:
Trauma – Crush Injury
Hyperkalemia
Toxicology/Environmental: TCA Overdose
Cardiac – Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (pVT)
Cardiac – Pulseless Electrical Activity/Asystole
Agitation/Acute Delirium/Acute Psychosis/Behavioral Emergencies

Notes:

Succinylcholine

ADULT DOSING – Succinylcholine (200 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Drug Assisted Intubation Paralysis	IV/IO	1.5 – 2 mg/kg **Max Dose: 200 mg**	

PEDIATRIC DOSING – Succinylcholine (200 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Drug Assisted Intubation Paralysis	IV/IO	1.5 – 2 mg/kg **Max Dose: 200 mg**	

Brand Name: Anectine®

Contraindications: Known sensitivity to drug, Hyperkalemia, Major burns > 48 hours, Myopathies/skeletal muscle denervation syndromes (MS, ALS, Muscular dystrophy, Chronic spinal cord injury), Extensive crush injuries – particularly those > 48 hours, Acute organophosphate toxicity, Personal or family history of malignant hyperthermia, Personal or family history of serious adverse anesthesia reactions

Pregnancy: Category C, but EMS use is permitted in pregnancy

Drug Class: Depolarizing skeletal muscle paralytic

Mechanism of action: Competitively binds (stimulates) neuromuscular junction motor endplate acetylcholine receptors, producing depolarization (fasciculations) followed by flaccid paralysis.

Adverse Reactions:
Minor: --
Major: Malignant hyperthermia (rare), Paralysis (expected), Apnea (Expected)

Precautions: --

Guidelines: Procedure: Drug Assisted Intubation

Notes: Though generally safe, always consider the contraindications before administering succinylcholine. Succinylcholine has an onset of action within 30 sec, muscle fasciculations followed by flaccid paralysis in < 1 min, and will start to wear off in 5-10 min.

Tranexamic Acid (TXA)

ADULT DOSING – Tranexamic Acid (TXA) (1000 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Hemorrhage (less than 3 hours old)	IV/IO	2 g (20 mL)	Administer over 1-minute IVP **Monitor for hypotension** Should be given only after resuscitation has begun and the source of bleeding, if possible, is controlled
	Topical	1 g (10 mL)	Epistaxis – Soak gauze and place intranasally or use an atomizer in affected naris Dental – Soak gauze and place on affected area. Direct pressure is also indicated
	Nebulized		Tonsil – Nebulize 5 mL, can repeat x1, if needed

PEDIATRIC DOSING – Tranexamic Acid (1000 mg/10 mL)			
Indication	**Route**	**Dose**	**Notes**
Moderate to Severe Hemorrhage (less than 3 hours old)	IV/IO	15 mg/kg	Administer over 1-minute IVP **Maximum 2g** **Monitor for hypotension** Should be given only after resuscitation has begun and the source of bleeding, if possible, is controlled
	Topical		Epistaxis – Soak gauze and place intranasally or use an atomizer in affected naris Dental – Soak gauze and place on affected area. Direct pressure is also indicated
	Nebulized		Tonsil – Nebulize dose and add NS for a total of 5 mL

Brand Name: --

Contraindications: Known hypersensitivity to drug, Active intravascular clotting, Hemorrhage over 3 hours old

Pregnancy: Category B

Drug Class: Hemostatic agent, Antifibrinolytic Agent

Mechanism of action: Competitively inhibits plasminogen activation which decrease plasmin formation and fibrinolysis.

Adverse Reactions:
Minor: Lightheaded, Chest pain, Nausea, Vomiting
Major: Hypotension, Blood clot formation

Precautions: Use with caution in patients with history of thrombotic events or potentially having an active MI or PE.

Guidelines:
Trauma: Extremity Trauma
Trauma: Multi-System Trauma
Trauma: Hemorrhage Control
Trauma: Dental Trauma/Dental Bleeding
Vaginal Bleeding
Epistaxis

SECTION 8
CLINICAL DECISION SUPPORT TOOLS

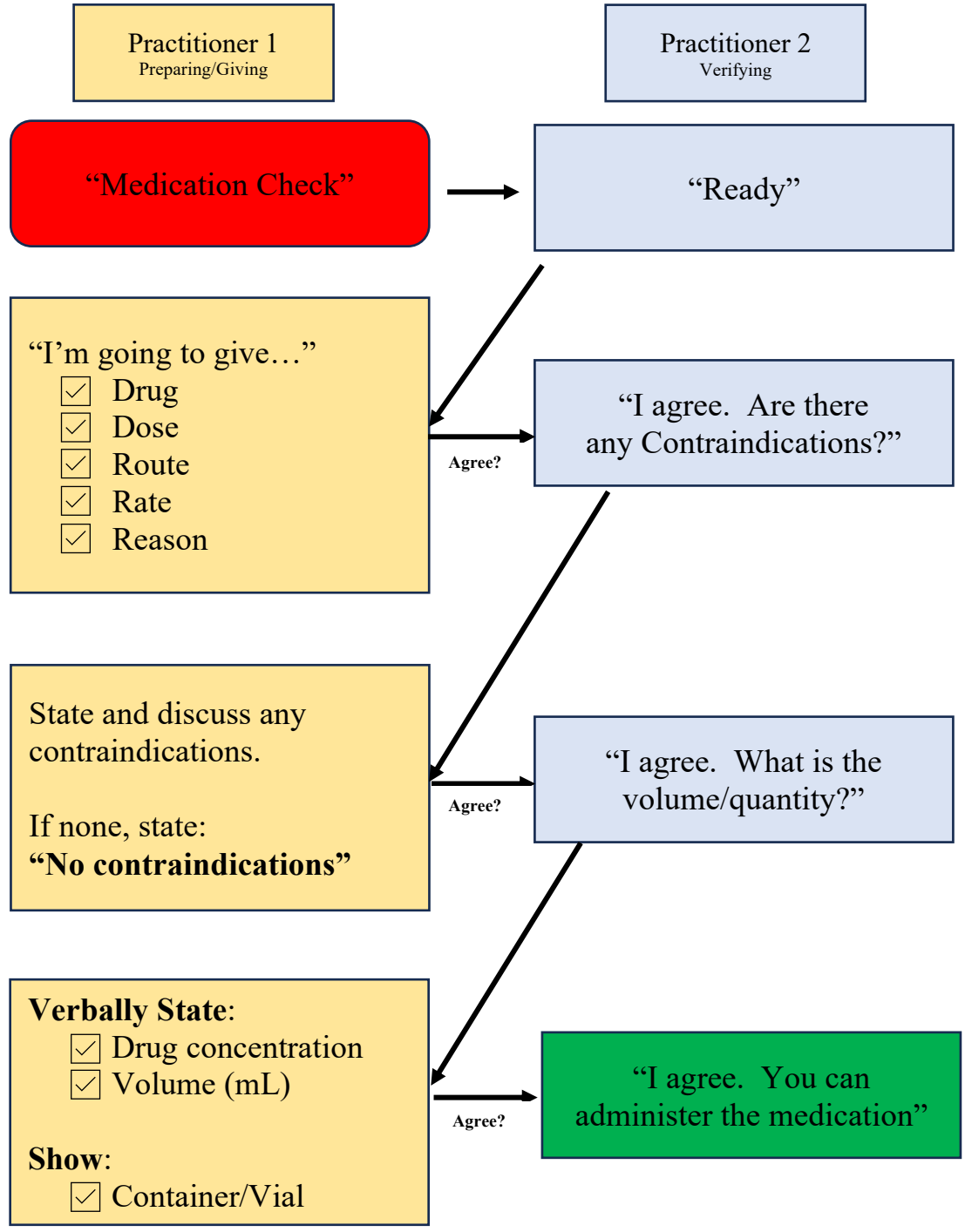
Clinical Decision Tools: Medication Administration Cross-Check

The medication administration cross-check must be completed prior to the administration of any medication.

If there are any discrepancies, resolve the discrepancy and start at the beginning of the algorithm again.

Contraindications to consider include:
-Expiration of medication
-Known patient allergy
-Wrong indications

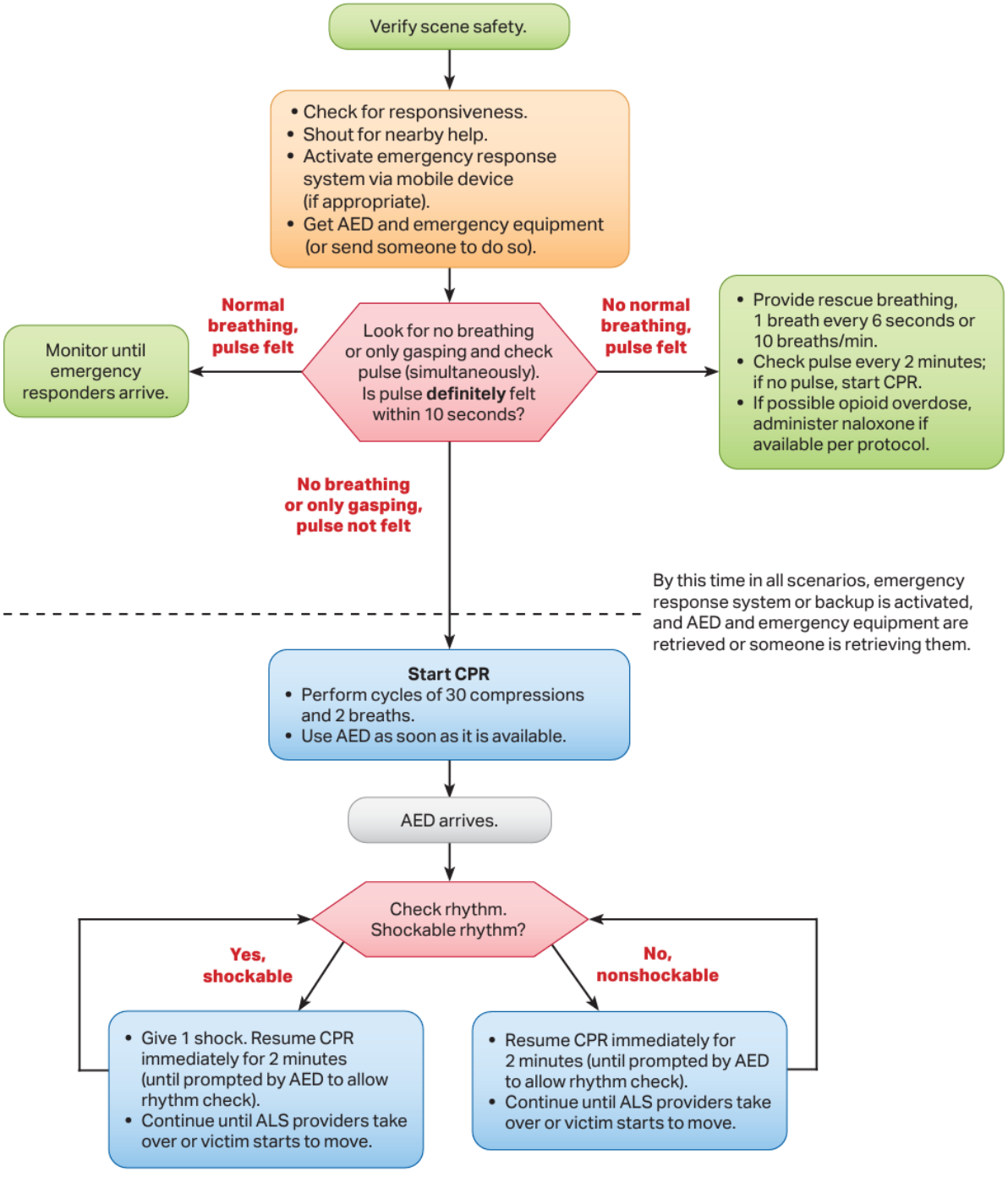
Practitioner 2 must verify authorize the administration of the medication.



Never give contents of a syringe that isn't labeled or without visualizing the vial or ampule from which the medication was immediately drawn.

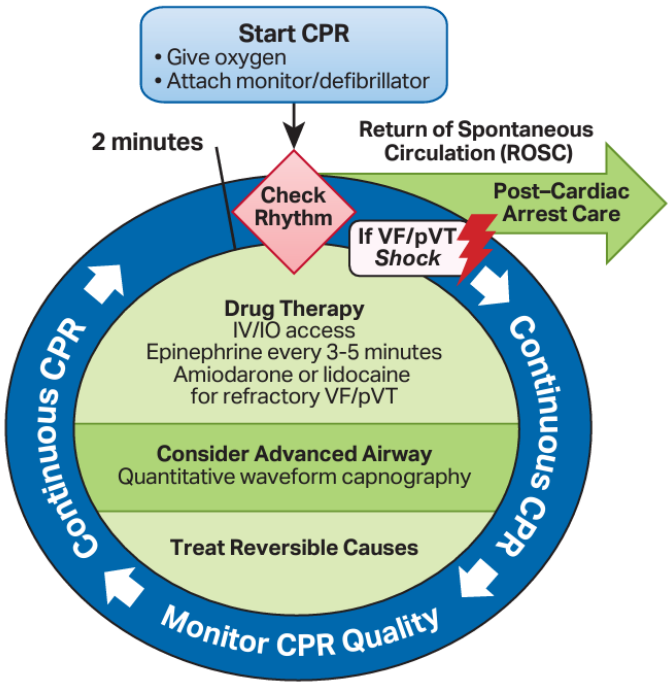
Clinical Decision Tools: Adult BLS Cardiac Arrest

Adult Basic Life Support Algorithm for Healthcare Providers



Clinical Decision Tools: ACLS Cardiac Arrest

Adult Cardiac Arrest Circular Algorithm



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

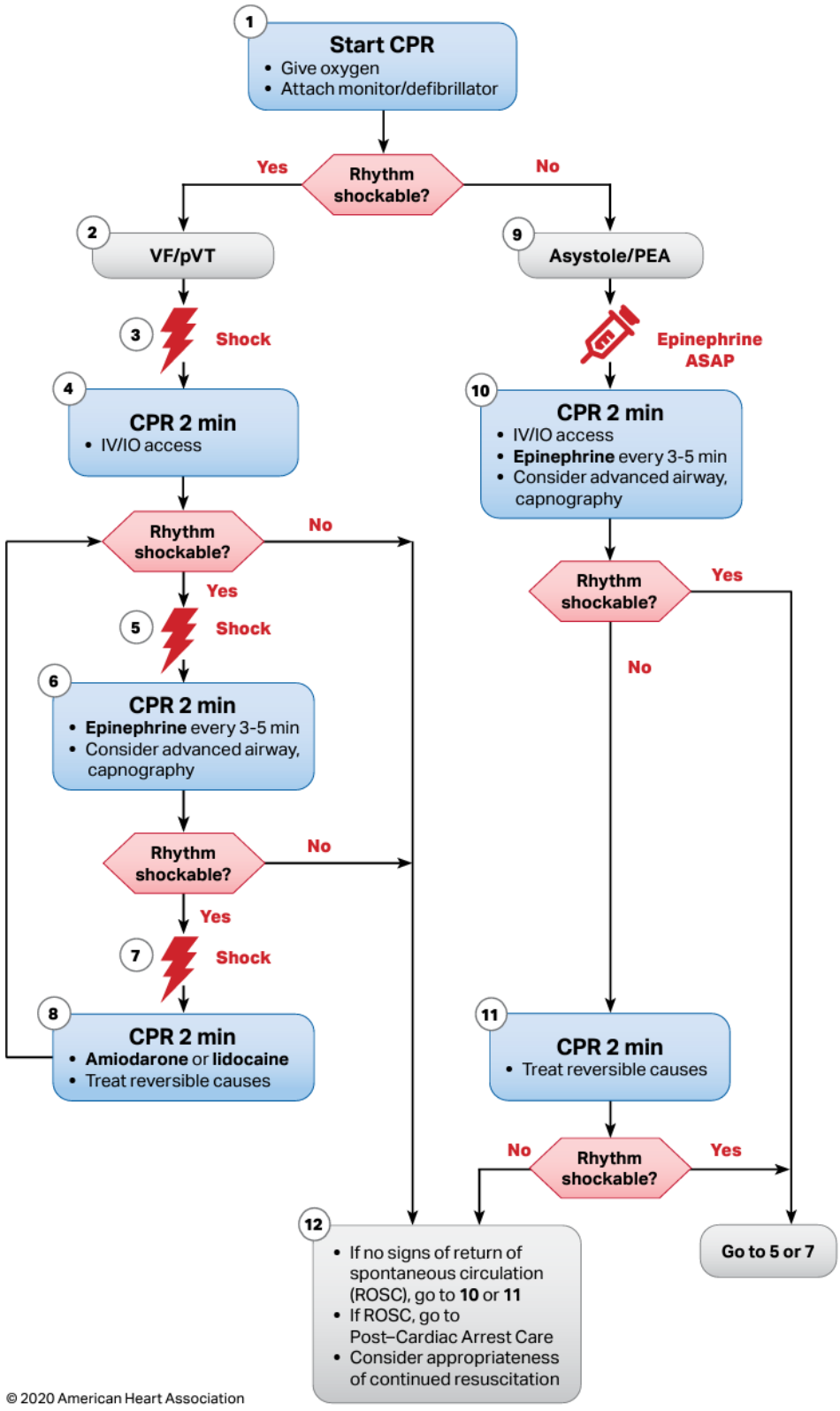
- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Clinical Decision Tools: ACLS Cardiac Arrest

Adult Cardiac Arrest Algorithm



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio
- Quantitative waveform capnography
  - If $PETCO_2$ is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

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- **Monophasic**: 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
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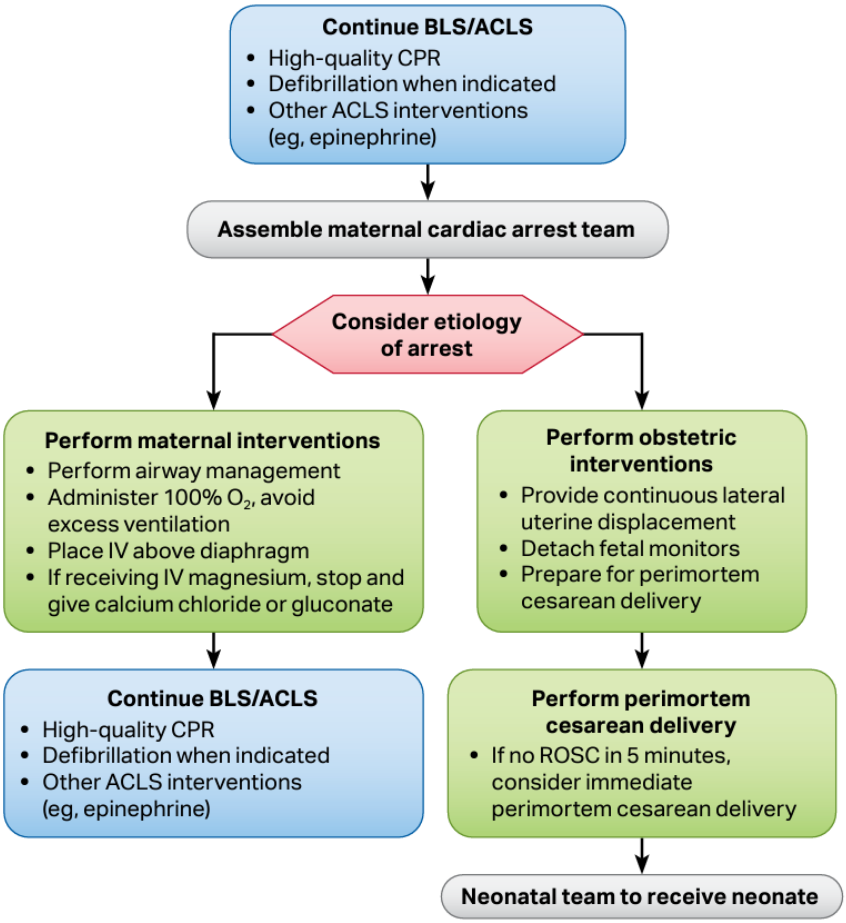
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Clinical Decision Tools: ACLS Pregnant Cardiac Arrest

Cardiac Arrest in Pregnancy In-Hospital ACLS Algorithm



Maternal Cardiac Arrest

- Team planning should be done in collaboration with the obstetric, neonatal, emergency, anesthesiology, intensive care, and cardiac arrest services.
- Priorities for pregnant women in cardiac arrest should include provision of high-quality CPR and relief of aortocaval compression with lateral uterine displacement.
- The goal of perimortem cesarean delivery is to improve maternal and fetal outcomes.
- Ideally, perform perimortem cesarean delivery in 5 minutes, depending on provider resources and skill sets.

Advanced Airway

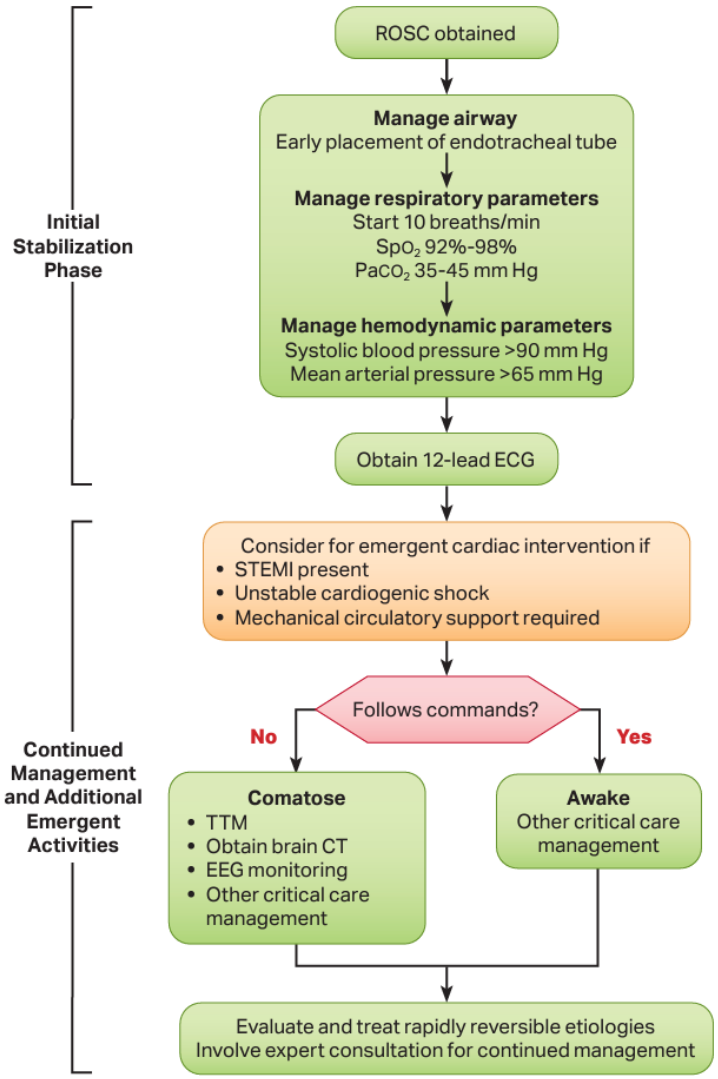
- In pregnancy, a difficult airway is common. Use the most experienced provider.
- Provide endotracheal intubation or supraglottic advanced airway.
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.

Potential Etiology of Maternal Cardiac Arrest

A Anesthetic complications
B Bleeding
C Cardiovascular
D Drugs
E Embolic
F Fever
G General nonobstetric causes of cardiac arrest (H's and T's)
H Hypertension

Clinical Decision Tools: ACLS Return of Spontaneous Circulation (ROSC)

ACLS Healthcare Provider Post–Cardiac Arrest Care Algorithm



Initial Stabilization Phase

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently. However, if prioritization is necessary, follow these steps:

- Airway management: Waveform capnography or capnometry to confirm and monitor endotracheal tube placement
- Manage respiratory parameters: Titrate FIO_2 for SpO_2 92%-98%; start at 10 breaths/min; titrate to $PaCO_2$ of 35-45 mm Hg
- Manage hemodynamic parameters: Administer crystalloid and/or vasopressor or inotrope for goal systolic blood pressure >90 mm Hg or mean arterial pressure >65 mm Hg

Continued Management and Additional Emergent Activities

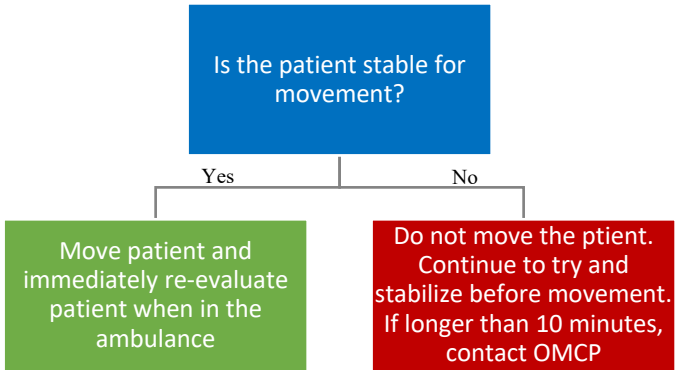
These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- Emergent cardiac intervention: Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- TTM: If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- Other critical care management
  - Continuously monitor core temperature (esophageal, rectal, bladder)
  - Maintain normoxia, normocapnia, euglycemia
  - Provide continuous or intermittent electroencephalogram (EEG) monitoring
  - Provide lung-protective ventilation

H's and T's

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypokalemia/**h**yperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

Clinical Decision Tools: ACLS ROSC Checklist

RETURN OF SPONTANEOUS CIRCULATION (ROSC) CHECKLIST	
A	☐ Confirm airway is secured via supraglottic airway or endotracheal tube ☐ Confirm the tube is secured ☐ Consider placing OG tube and applying to suction to decompress the stomach
B	☐ Confirm ETCO2 is in place and functioning appropriately ☐ Confirm SpO_2 is in place and functioning appropriately ☐ Continue ventilating at a rate of 10-12 breaths per minute ☐ Auscultate lungs bilaterally to ensure bilateral ventilation and no evidence of pneumothorax
C	☐ Obtain full set of vital signs including blood pressure, heart rate, ETCO2, SpO_2 ☐ Obtain a 12-lead EKG ☐ Consider isotonic crystalloid infusion for hypotension, if no signs of pulmonary edema ☐ Consider giving push-dose epinephrine if hypotensive
D	☐ Obtain blood glucose ☐ Pupillary exam ☐ GCS ☐ Consider sedation, as needed ☐ Consider benzodiazepines for seizure or shivering
	

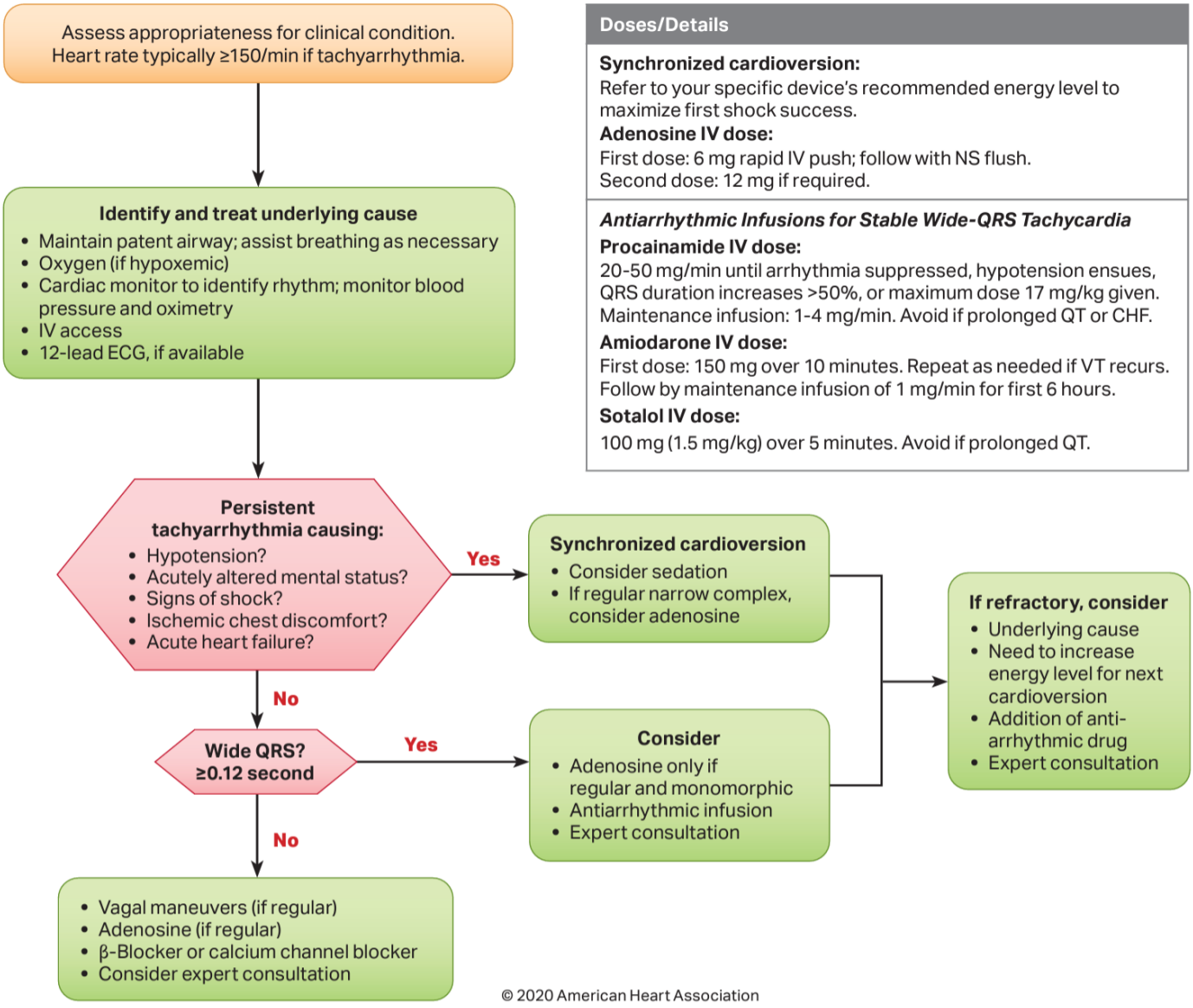
Perform the ROSC Checklist *before* moving the patient to the ambulance.

Clinical Decision Tools: ACLS Bradycardia

Adult Bradycardia Algorithm

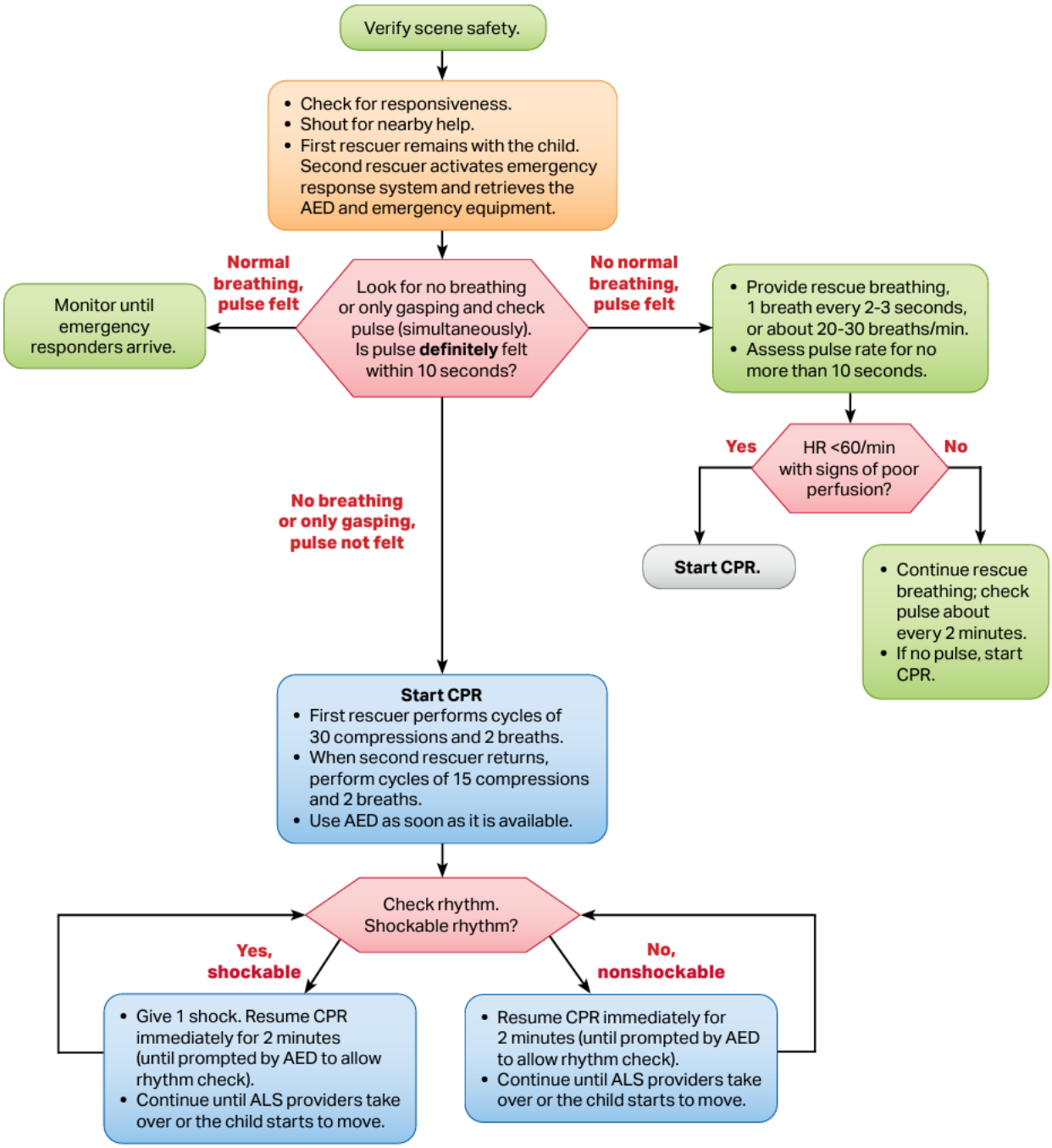
Clinical Decision Tools: ACLS Tachycardia

Adult Tachycardia With a Pulse Algorithm



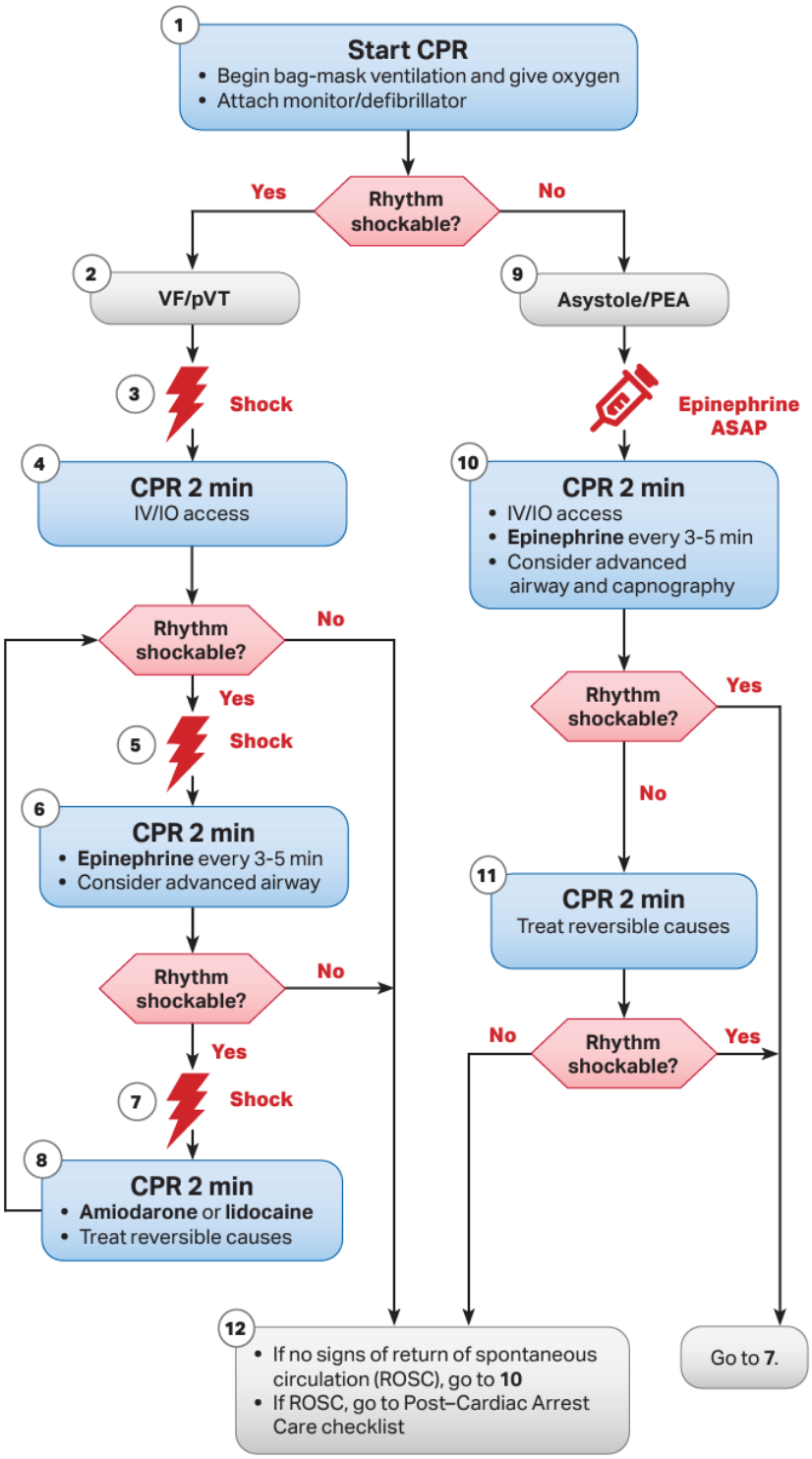
Clinical Decision Tools: Pediatric BLS Cardiac Arrest

Pediatric Basic Life Support Algorithm for Healthcare Providers—2 or More Rescuers



Clinical Decision Tools: PALS Cardiac Arrest

Pediatric Cardiac Arrest Algorithm



CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds

Shock Energy for Defibrillation

- First shock 2 J/kg
- Second shock 4 J/kg
- Subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IV/IO dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Max dose 1 mg. Repeat every 3-5 minutes. If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IV/IO dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT
  or
  Lidocaine IV/IO dose: Initial: 1 mg/kg loading dose

Advanced Airway

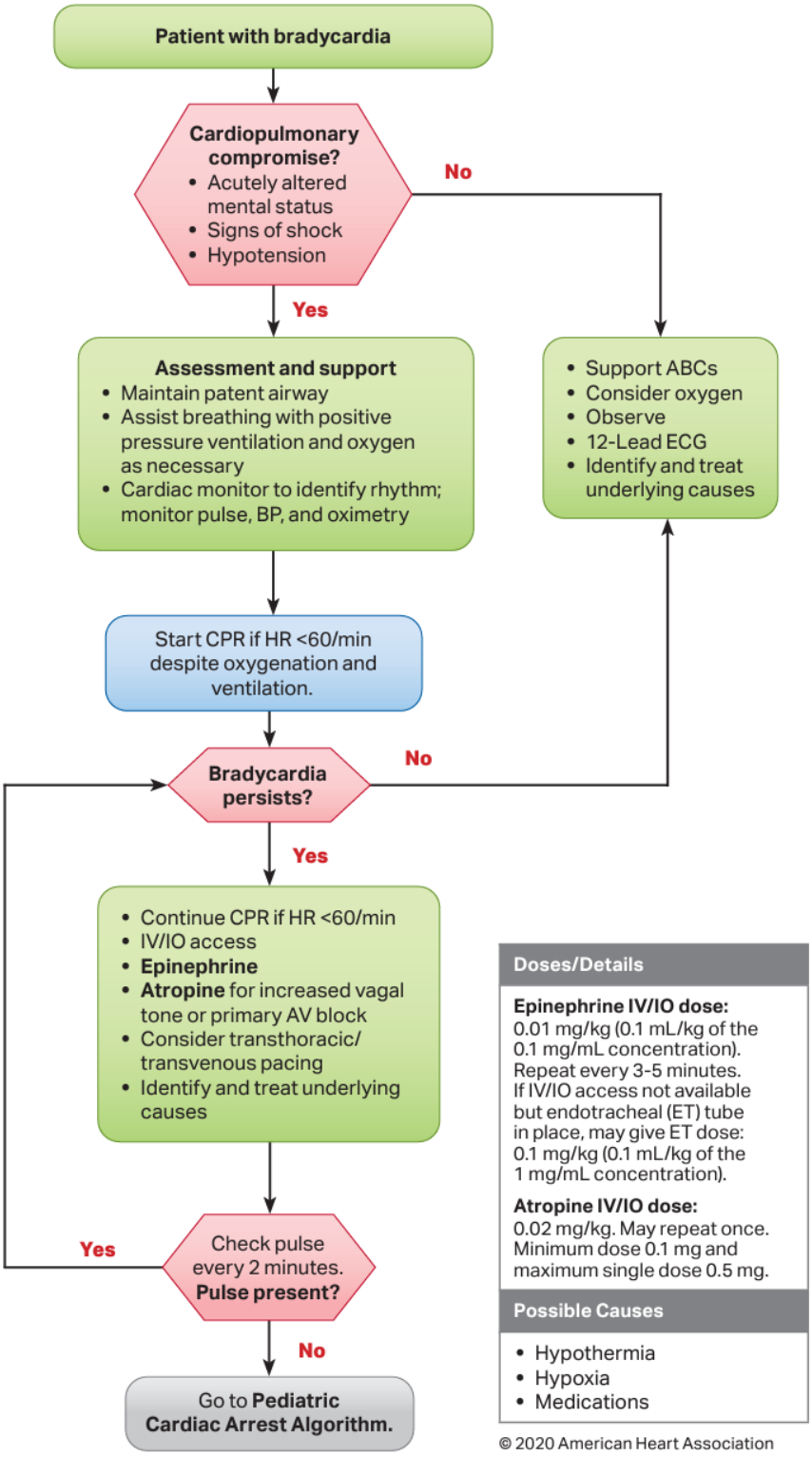
- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

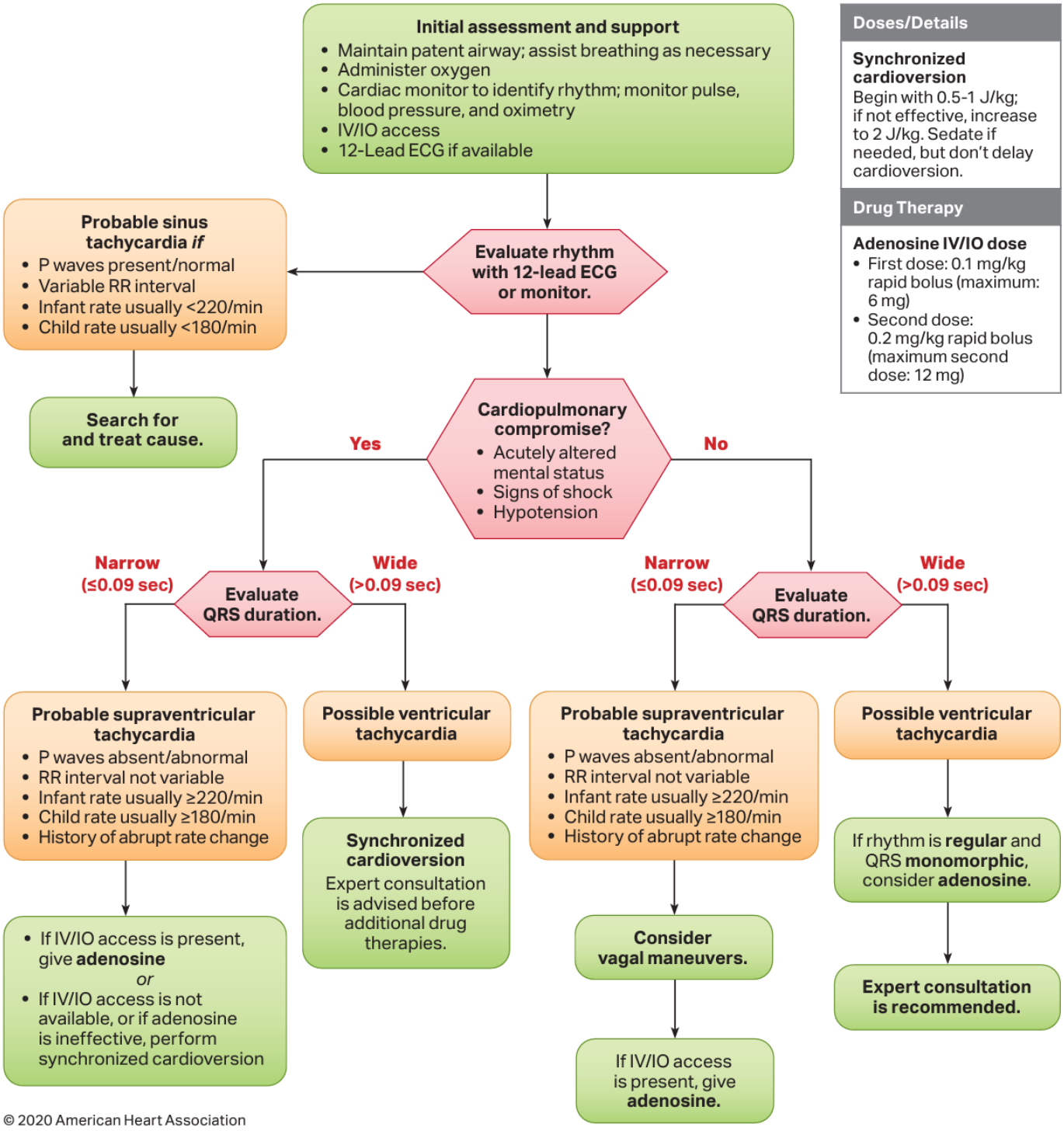
Clinical Decision Tools: PALS Bradycardia

Pediatric Bradycardia With a Pulse Algorithm



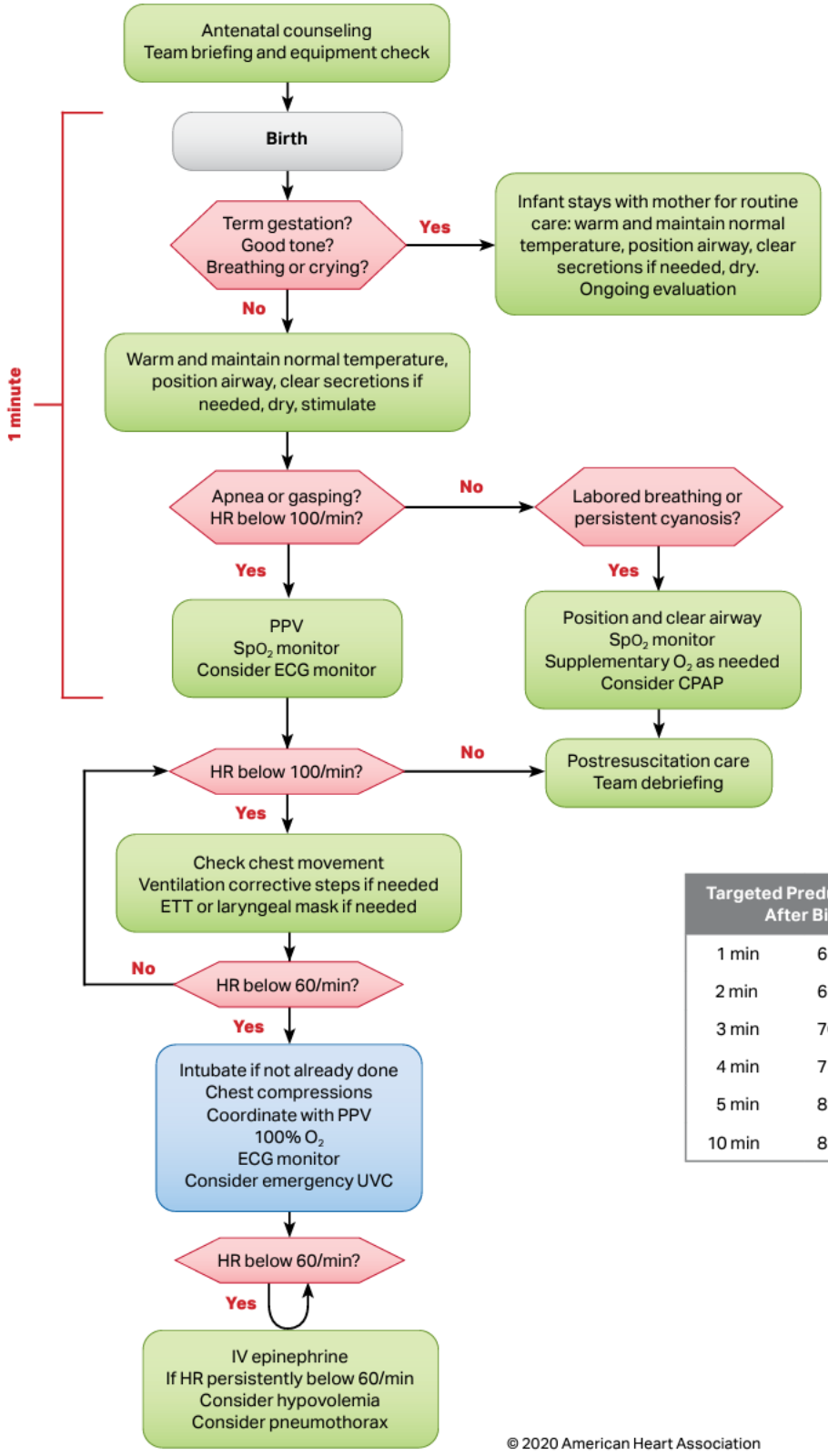
Clinical Decision Tools: PALS Tachycardia

Pediatric Tachycardia With a Pulse Algorithm



Clinical Decision Tools: Neonatal Cardiac Arrest

Neonatal Resuscitation Algorithm



Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Clinical Decision Tools: Cincinnati Stroke Scale

Facial droop

(have patient show teeth or smile)

NORMAL

- Both sides of face move equally.

ABNORMAL

- One side of face does not move as well as the other side.

Arm drift

(patient closes eyes and extends both arms straight out, with palms up for 10 seconds)

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.

Abnormal speech

(have the patient say "you can't teach an old dog new tricks")

- Normal — Patient uses correct words with no slurring.

- Abnormal — Patient slurs words, uses the wrong words, or is unable to speak.

Clinical Decision Tools: FAST-ED Score

Facial Palsy	
Normal or Minor Paralysis	0
Partial or Complete Paralysis	1
Arm Weakness	
No drift	0
Drift or some effort against gravity	1
No effort or movement against gravity	2
Speech Changes	
Absent	0
Mild to moderate	1
Severe, global aphasia, mute	2
Eye Deviation	
Absent	0
Partial	1
Forced deviation	2
Denial/Neglect	
Absent	0
Extinction to bilateral simultaneous stimuli in only one sensory modality	1
Does not recognize own hand or orients to only one side of the body	2

The FAST-ED scale also provides 3 distinct groups for the likelihood of large vessel occlusion (LVO) stroke:

- Score 0 or 1: <15%
- Score 2 or 3: 30%
- Score ≥ 4: >60%

Clinical Decision Tools: Normal Vital Signs

Normal Vital Signs by Age:

Age	Heart Rate	Systolic Blood Pressure	Diastolic Blood Pressure	Systolic Hypotension	Respiratory Rate
Neonate (< 28d)	100-205	67-84	16-36	< 60	30-53
Infant (1m-12m)	100-190	72-104	37-56	< 70	30-53
Toddler (1-2 yrs)	98-140	86-106	42-63	< (70 + (age x 2))	22-37
Preschool (3-5 yrs)	80-120	89-112	46-72		20-28
School Age (6-12 yrs)	75-118	97-115	57-76		18-25
Adolescent	60-100	102-120	64-83	< 90	12-20
Adult	60-100	110-131	60-80	< 90	12-20

Reference: PALS Guidelines, 2015

Age	Heart Rate	Systolic Blood Pressure	Diastolic Blood Pressure	Respiratory Rate	SpO_2
Birth	100-205	60-76	16-36	30-53	See table below

Reference: PALS Guidelines, 2015

Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Clinical Decision Tools: Glasgow Coma Score (GCS)

Adult and Pediatric (>2 yr) Glasgow Coma Score

Eye Response (Best eye-opening response)	
Opens spontaneously	4
Opens to verbal stimuli	3
Opens to painful stimuli	2
No eye opening	1
Verbal Response (Best verbal response)	
Oriented	5
Confused	4
Inappropriate words	3
Incomprehensible sounds	2
No verbal response	1
Motor Response (Best Motor Response)	
Obeys commands	6
Localizes to pain	5
Withdraws from pain	4
Flexion to pain (Decorticate)	3
Extension to pain (Decerebrate)	2
No motor response	1

TOTAL:

A designator of "T" should be used if the patient is intubated. For example, 3T for a patient with a GCS of 3 who is intubated.

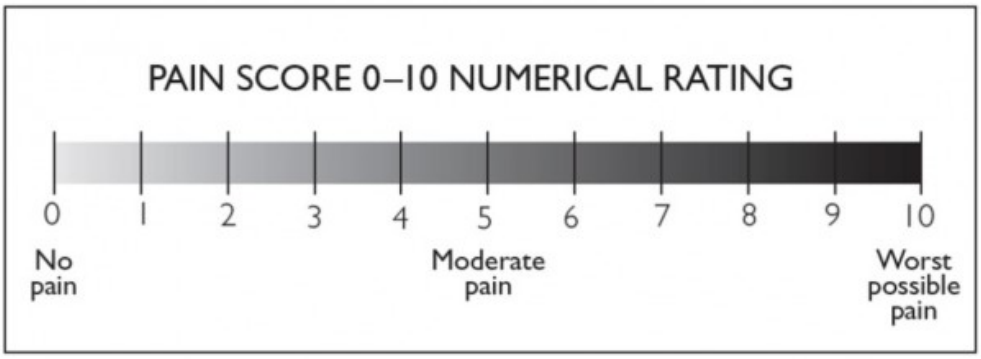
Pediatric (< 2 yr) Glasgow Coma Score

Eye Response (Best eye-opening response)	
Opens spontaneously	4
Opens to verbal stimuli	3
Opens to painful stimuli	2
No eye opening	1
Verbal Response (Best verbal response)	
Coos, Babbles	5
Irritable cries	4
Cries in response to pain	3
Moans in response to pain	2
No verbal response	1
Motor Response (Best Motor Response)	
Moves spontaneously/purposefully	6
Withdraws from touch	5
Withdraws from pain	4
Flexion to pain (Decorticate)	3
Extension to pain (Decerebrate)	2
No motor response	1

TOTAL:

Clinical Decision Tools: Pain Scales

For adult patients, the numerical rating scale 1-10 scale is preferred.



https://www.physio-pedia.com/Numeric_Pain_Rating_Scale

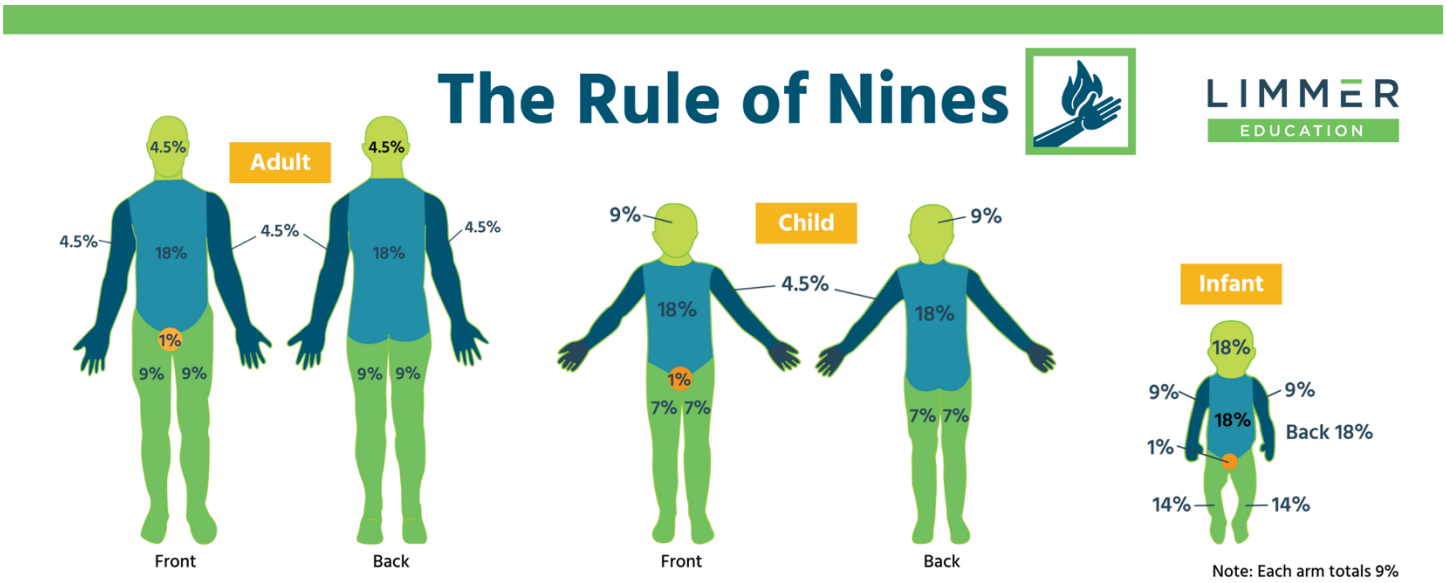
For children, the Wong-Baker faces scale is preferred.

https://wongbakerfaces.org/

For infants, the FLACC scale is preferred.

https://rebelem.com/rebel-cast-episode-49-pediatric-pain-management-pearls-with-sebrina-perkins/flacc-scale

Clinical Decision Tools: Rule of 9s (Burns)



https://limmereducation.com/article/mastering-burn-formulas/

Clinical Decision Tools: RASS Score

Richmond Agitation Sedation Scale (RASS)	
Target RASS	**RASS Description**
+4	Combative, Violent, Danger to self and/or clinicians
+3	Aggressive, Pulls or removes tubes/medical devices
+2	Frequent nonpurposive movements, Fights medical interventions (ie BVM)
+1	Anxious, Apprehensive, *Not* aggressive
0	Alert and calm, most people at baseline
-1	Awakens to voice (eye opening/contact) for more than 10 seconds
-2	Light sedation, briefly awakens to voice (eye opening/contact) but for less than 10 seconds
-3	Moderate sedation, movement and/or eye opening to voice, but no eye contact
-4	Deep sedation, no response to voice, but movement or eye opening to physical stimulation
-5	Unarousable, no response to verbal or physical stimulation

Clinical Decision Tools: Capacity Checklist

Use this checklist along with clinical judgment to determine if the patient has the capacity to make his or her own medical decisions.

- ☐ The patient is alert and oriented to person, place, time, and event.
  - Note, if the patient is not typically oriented to person, place, time, or event, then he or she should be at his or her baseline
- ☐ The patient is not currently impaired by the use of drugs or alcohol
  - This may include gait abnormalities, slurred speech, or the strong smell of alcohol or other drugs
- ☐ No evidence of severe head injury
  - No repetitive questioning, no amnesia to the event, no loss of consciousness
- ☐ The patient can explain all the following in his or her own words:
  - The nature of his or her illness or injury
  - The risks of refusing treatment, including death
  - The alternative options to EMS treatment and transport
  - Can provide a rationale for his or her refusal

Note, if the patient meets any "high risk" criteria, the patient should be discussed with OMCP. High risk criteria are listed below.

- Pulse less than 60 or greater than 100
- Systolic blood pressure less than 90 or greater than 200
- Respirations less than 12 or greater than 20 (adult)
- Blood glucose less than 60 or greater than 300
- SpO_2 less than 92% on room air which is new for the patient and is not on supplemental oxygen at baseline
- MAP less than 60
- Complaint of chest pain, shortness of breath, syncope, or other serious chief complaint
- Significant mechanism of injury/trauma

Clinical Decision Tools: STEMI Definitions

Definition of STEMI:

2. ST-Elevation of:
   (a) ≥ 2.5mm ST-Elevation in leads V2 and V3 in men under 40 years of age
   (b) ≥ 2mm ST-Elevation in leads V2 and V3 in men over 40 years of age
   (c) ≥ 1.5mm ST-Elevation in leads V2 and V3 in women
   (d) ≥ 1mm ST-Elevation in all other leads

3. Posterior ST-Elevation:
   (a) ≥ 0.5mm in V7, V8, or V9

4. LBBB or Pacemaker
   (a) Concordant ST segment elevation ≥ 1 mm in ≥ 1 when the patient has a LBBB OR
   (b) Concordant ST segment depression ≥ 1 mm in leads V1, V2, or V3 when the patient has a LBBB OR
   (c) Discordant ST segment elevation > 25% of the preceding S-Wave

A. Most STEMI patients will have chest pain that lasts 20 minutes or more
B. Most STEMI patients will have reciprocal changes, but this is not required
C. In patients with a *new* LBBB and symptoms of ACS, consider OMCP consultation

Anatomic Locations of STEMI on EKG

I	aVR	v1	v4
II	aVL	v2	v5
III	aVF	v3	v6

Lateral	I, aVL, v5, v6	Left circumflex or diagonal of LAD
Inferior	II, III, aVF	RCA or left circumflex
Anterior/Septal	v1 – v4	LAD

Clinical Decision Tools: Drug-Assisted Intubation Checklist

*****Remember – Resuscitate *then* intubate!*****

Drug Assisted Intubation Checklist

Preparation	☐ Monitoring equipment in place (cardiac monitor, SpO_2, $EtCO_2$) ☐ BVM or NRB **AND** NC at 15 lpm (passive oxygenation) ☐ OPA or NPA ☐ Ramp the patient 30 degrees ☐ 2-Person BVM using two-thumbs up method for sealing mask ☐ Open C-collar, if present, and hold manual inline stabilization ☐ Evaluate the patient using the HEAVEN (difficult intubation) criteria ☐ Ensure backup/alternatives devices are ready ☐ If any sign, or predicted possibility, of hemodynamic instability, draw-up 10 mL of push-dose epinephrine
Equipment	☐ Suction on and accessible ☐ Video laryngoscope on and prepped (if available) ☐ Induction agent and paralytic agent drawn up and dosing confirmed ☐ Endotracheal tube is prepped on bougie ☐ iGel or Air-Q is ready as a backup
Induction/Intubation	☐ If any signs of hemodynamic instability, ie hypotension or bradycardia, give 1-2 mL of push-dose epinephrine prior to induction ☐ Administer induction agent ☐ Administer paralytic agent ☐ Suction prior to intubation attempt ☐ Intubate ☐ Confirm endotracheal tube placement by direct visualization, $EtCO_2$, bilateral breath sounds and absent epigastrium sounds ☐ Secure tube in place ☐ If hypotension or bradycardia ensues after induction and paralyzing medications are given, continue to give small 1-2 mL aliquots of push-dose epinephrine to stabilize the hemodynamics of the patient ☐ Continue post-intubation sedation

Clinical Decision Tools: HEAVEN Criteria

Heaven criteria is meant to screen for difficult airways and difficulty with first pass intubation success.

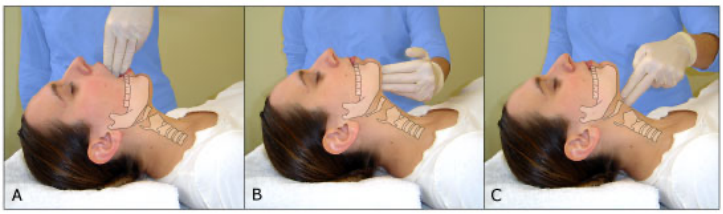
HEAVEN CRITERIA
Hypoxemia
Extremes of Size
Anatomic Disruption/Obstruction
Vomit/Blood/Fluid
Exsanguination
Neck Mobility/Neurologic Injury

Clinical Decision Tools: LEMON Criteria

LEMON is a risk stratification tool used to predict the difficulty in intubating a specific patient. Lemon stands for: Look externally, Evaluate, Mallampati, Obstructions, Neck mobility.

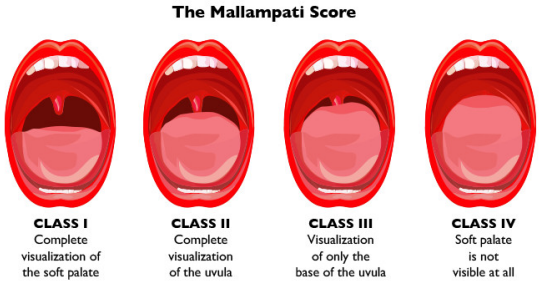
- **Look Externally**
  - Facial trauma
  - Beard or mustache
  - Large tongue
  - Large teeth

- **Evaluate the 3-3-2 rule**
  - Incisor distance – should be able to get three fingers in between the top and bottom incisors
  - Hypoid mental distance – should be able to get three fingers between the hypoid bone and the tip of the mandible (chin)
  - Thyroid-to-mouth distance – should be able to get two fingers between the base of the chin and the thyroid gland



https://medest118.com/wp-content/uploads/2015/05/3_3_2_rule.jpg

- **Mallampati Score**

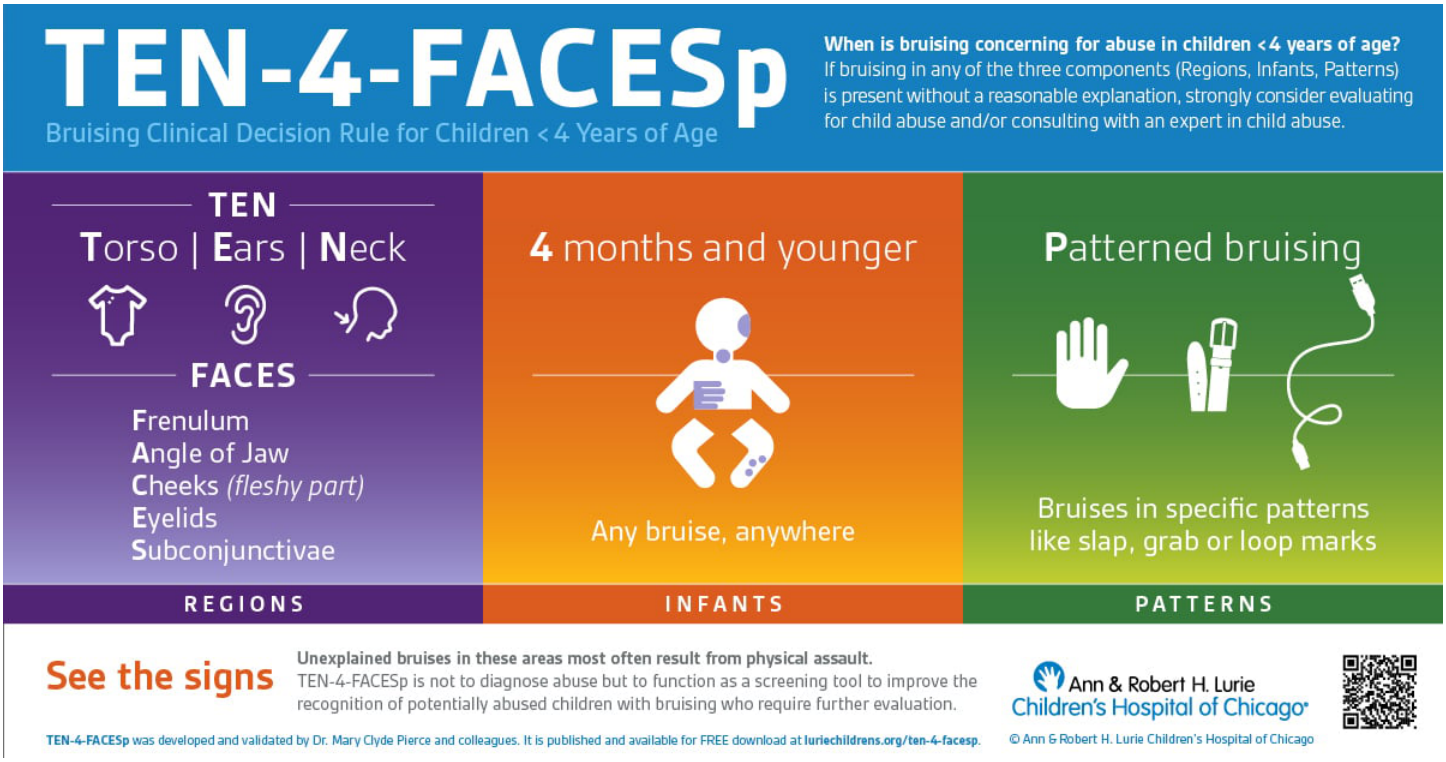


https://www.clinicaladvisor.com/features/understanding-the-mallampati-score/

- **Obstructions**
  - Trauma
  - Peritonsillar abscess
  - Enlarged tonsils
  - Angioedema
  - Epiglottitis

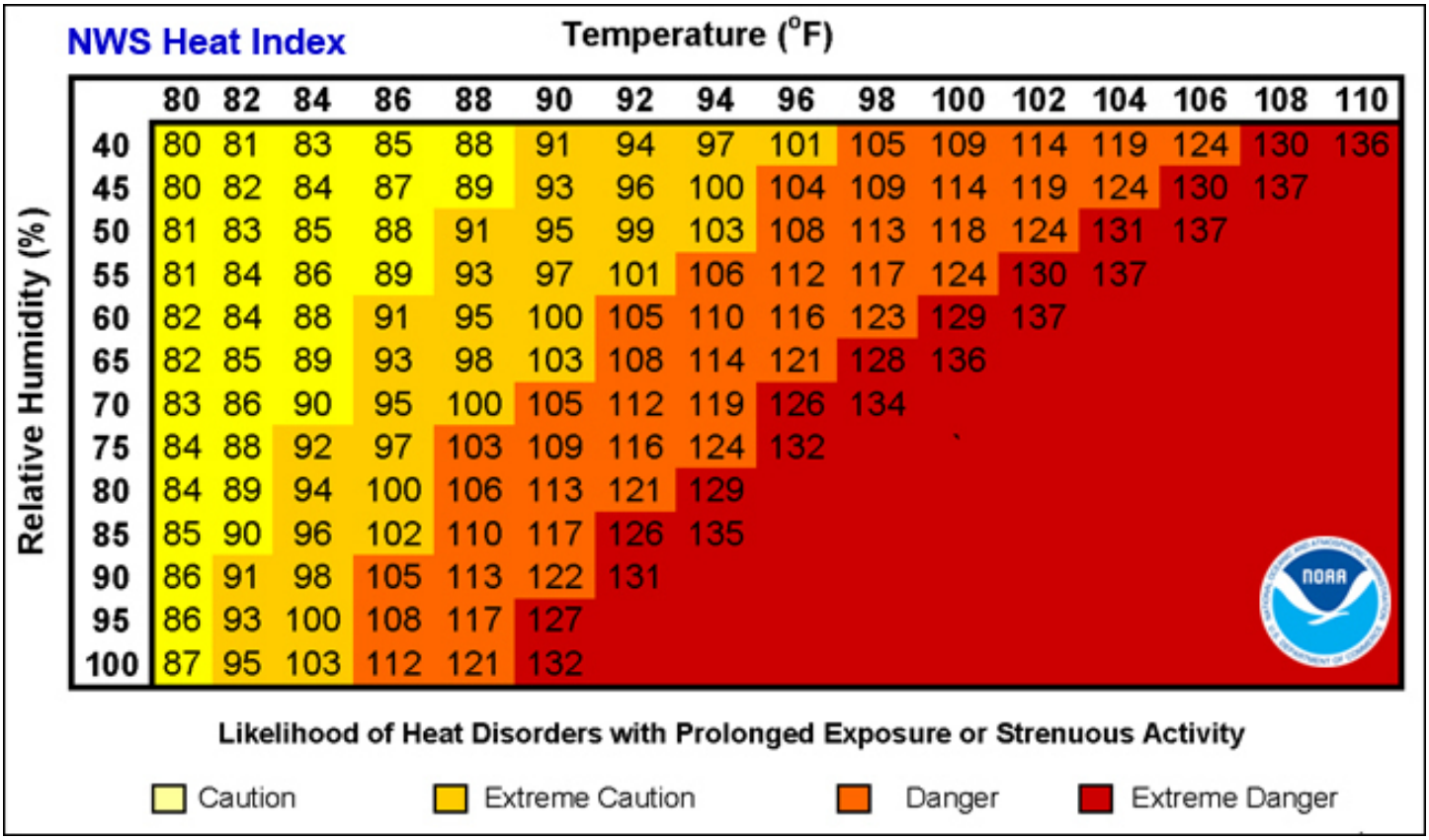
- **Neck Mobility**
  - Decreased neck mobility

Clinical Decision Tools: TEN-4-FACESp Criteria



https://research.luriechildrens.org/en/community-population-health-and-outcomes/smith-child-health-outcomes-research-and-evaluation-center/tricam/ten-4-facesp/

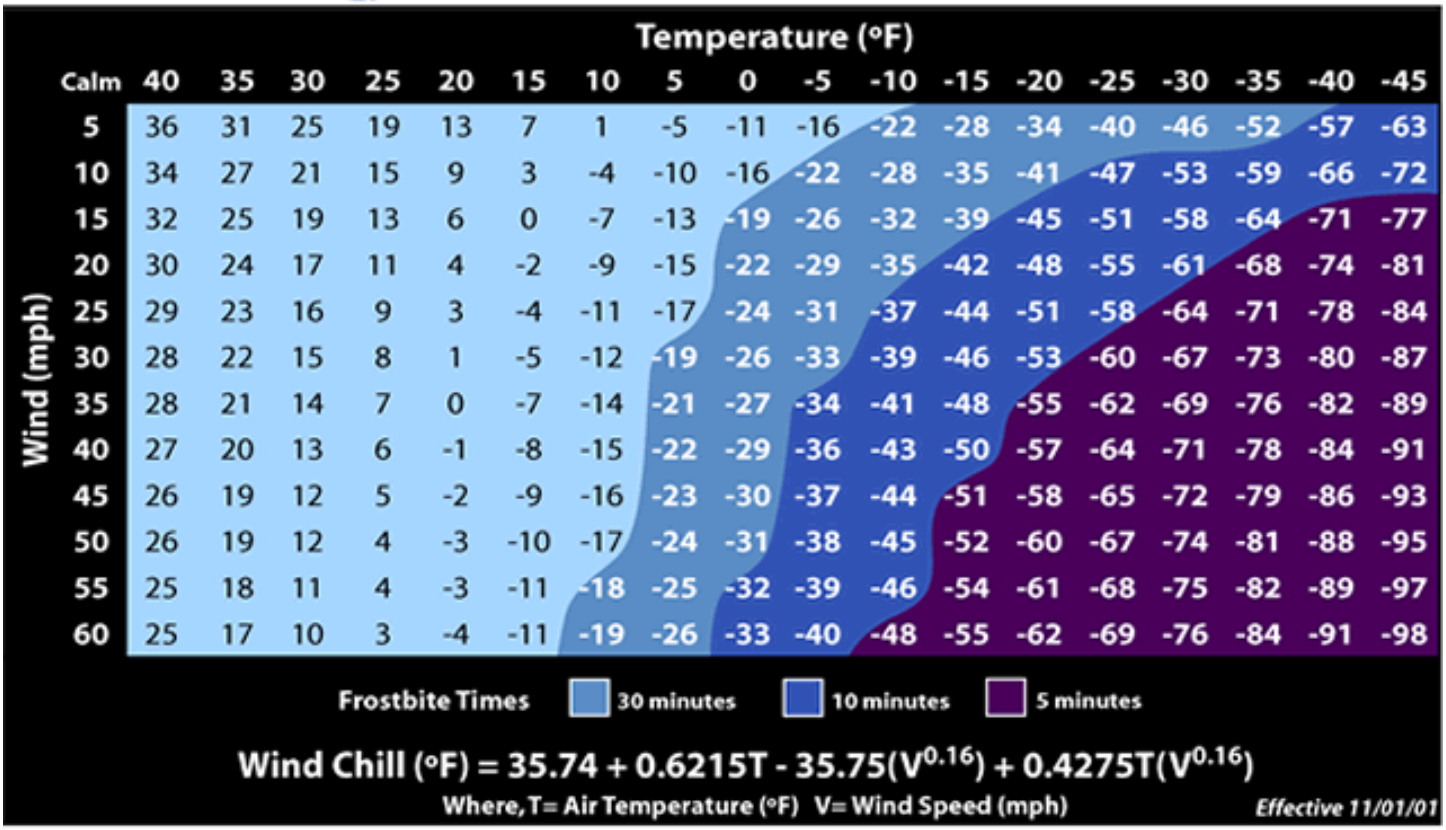
Clinical Decision Tools: NOAA Heat Index Chart



Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Clinical Decision Tools: NOAA Wind Chill Chart

Wind Chill Chart



Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F) V = Wind Speed (mph)

Effective 11/01/01

SECTION 9
CLINICAL RESEARCH/PILOT PROGRAMS

SECTION 10
DISPATCH

SECTION 11
COMMUNITY PARAMEDICINE

SECTION 12
APPENDIX

Pre-Hospital Blood Product Transfusion Record

Patient Name: _____ **Gender**: ☐ Male ☐ Female
FIN: _____ **Age**: _____
EMS Run Number: _____

Blood Product Number: _____
Product Type: ☐ Whole Blood ☐ Plasma ☐ PRBC
Confirmed TimeStrip Plus Indicating Blood Within Correct Temperature: ☐ **YES** ☐ **NO**
Infusion Start Time: _____ **Infusion End Time**: _____ ☐ Ongoing
Total amount of product transfused at time of hand-off: _____**mL**

Call Type: ☐ Trauma: _____ ☐ Medical: _____
Indication for blood product transfusion:
☐ MAP < 60 or SBP < 90 AND HR > 110
☐ ETCO2 < 30 mmhg
☐ Shock Index > 1
☐ Pulse Pressure < 40
☐ SBP < (70 + [2 x age]) or < 90 (if > 10 yo) (PEDS)
☐ Bradycardia/Tachycardia, as listed in indications (PEDS)

Did a transfusion reaction occur? ☐ Yes ☐ No
If **Yes**, describe reaction and interventions:

Department: ☐ South Bend Fire ☐ Clay Fire ☐ Mishawaka Fire ☐ Penn Fire
Medic Unit: _____
Lead Paramedic <u>authorized to administer blood products</u>: _____
Secondary practitioner who verified blood information: _____
Receiving Facility: _____

Hospital Representative Name: _____
Hospital Representative Signature: _____
OMCP Name, if applicable: _____

Indiana POST Form

INDIANA PHYSICIAN ORDERS FOR SCOPE OF TREATMENT (POST)

State Form 55317 (R6 / 6-23)
Indiana Department of Health – IC 16-36-6

INSTRUCTIONS: This form is a physician's order for scope of treatment. It should be filled out based on a discussion about the patient's current medical condition and preferences. It is voluntary and a patient may not be required to complete a POST form. The POST should be reviewed whenever the patient's condition changes. A patient may ask the health care provider to void the POST form at any time. If the patient lacks decisional capacity, the legal representative or proxy (if there is no legal representative) may complete POST on behalf of the patient and/or ask the health care provider to void POST. Any section left blank implies full treatment for that section. HIPAA permits disclosure to health care professionals as necessary for treatment. The original form is personal property of the patient. A facsimile, paper, or electronic copy of this form is a valid form.

Patient Last Name (required)	Patient First Name (required)	Middle Initial
Birth Date *(mm/dd/yyyy)*	Medical Record Number	Date Prepared *(mm/dd/yyyy)*

DESIGNATION OF PATIENT'S PREFERENCES: The following sections (A through D) are the patient's current preferences for scope of treatment.

A *Check One*

CARDIOPULMONARY RESUSCITATION (CPR): Patient has no pulse AND is not breathing. (required)

☐ Attempt Resuscitation / CPR ☐ Do Not Attempt Resuscitation / DNR

When not in cardiopulmonary arrest, follow orders in **B, C** and **D.**

B *Check One*

MEDICAL INTERVENTIONS: If patient has pulse AND is breathing OR has pulse and is NOT breathing.

☐ Comfort Measures (Allow Natural Death): Treatment Goal: Maximize comfort through symptom management. Relieve pain and suffering through the use of any medication by any route, positioning, wound care and other measures. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. Patient prefers no transfer to hospital for life-sustaining treatments. Transfer to hospital only if comfort needs cannot be met in current location.

☐ Limited Additional Interventions: Treatment Goal: Stabilization of medical condition. In addition to care described in Comfort Measures above, use medical treatment for stabilization, IV fluids (hydration) and cardiac monitor as indicated to stabilize medical condition. May use basic airway management techniques and non-invasive positive-airway pressure. Do not intubate. Transfer to hospital if indicated to manage medical needs or comfort. Avoid intensive care if possible.

☐ Full Intervention: Treatment Goal: Full interventions including life support measures in the intensive care unit. In addition to care described in Comfort Measures and Limited Additional Interventions above, use intubation, advanced airway interventions, and mechanical ventilation as indicated. Transfer to hospital and/or intensive care unit if indicated to meet medical needs.

C *Check One*

ANTIBIOTICS:

☐ Use antibiotics for infection only if comfort cannot be achieved fully through other means.

☐ Use antibiotics consistent with treatment goals.

D *Check One*

ARTIFICIALLY ADMINISTERED NUTRITION: Always offer food and fluid by mouth if feasible.

☐ No artificial nutrition.

☐ Defined trial period of artificial nutrition by tube. (Length of trial: _____ Goal: _____)

☐ Long-term artificial nutrition.

OPTIONAL ADDITIONAL ORDERS:

SIGNATURE PAGE: This form consists of two (2) pages. Both pages must be present. The following page includes signatures required for the POST form to be effective.

Indiana POST Form

Patient Name:_____ Date of Birth *(mm/dd/yyyy)*:_____

	SIGNATURE OF PATIENT, LEGAL REPRESENTATIVE, OR PROXY: In order for the POST form to be effective, the patient, legal representative, or proxy must sign and date the form below.		
E	**SIGNATURE OF PATIENT, LEGAL REPRESENTATIVE, OR PROXY** My signature below indicates that the physician, advanced practice registered nurse, or physician assistant (or their designee) discussed with me the above orders and the selected orders correctly represent the decisions made during this discussion.		
	Signature ***(required)***	Print Name ***(required)***	Date *(mm/dd/yyyy)* ***(required)***
F	**CONTACT INFORMATION FOR LEGAL REPRESENTATIVE OR PROXY IN SECTION E *(IF APPLICABLE)*:** If the signature above is other than patient's, add contact information for the representative or proxy.		
	Relationship of representative or proxy identified in Section E if patient does not have capacity	Address *(number and street, city, state, and ZIP code)*	Telephone Number
	PHYSICIAN ORDER: A POST form may be executed only by an individual's treating physician, advanced practice registered nurse, or physician assistant, and only if: (1) the treating physician, advanced practice registered nurse, or physician assistant has determined that: (A) the individual is a qualified person; and (B) the medical orders contained in the individual's POST form are reasonable and medically appropriate for the individual; and (2) the qualified person, representative, or proxy has signed and dated the POST form A qualified person is an individual who has at least one (1) of the following: (1) An advanced chronic progressive illness. (2) An advanced chronic progressive frailty. (3) A condition caused by injury, disease, or illness from which, to a reasonable degree of medical certainty: (A) there can be no recovery; and (B) death will occur from the condition within a short period without the provision of life prolonging procedures. (4) A medical condition that, if the person were to suffer cardiac or pulmonary failure, resuscitation would be unsuccessful or within a short period the person would experience repeated cardiac or pulmonary failure resulting in death.		
G	**DOCUMENTATION OF DISCUSSION: Orders discussed with *(check one)*:** ☐ Patient (patient has capacity) ☐ Health Care Representative ☐ Legal Guardian ☐ Parent of Minor ☐ Health Care Power of Attorney ☐ Proxy		
H	**SIGNATURE OF TREATING PHYSICIAN / ADVANCED PRACTICE REGISTERED NURSE / PHYSICIAN ASSISTANT** My signature below indicates that I or my designee have discussed with the patient, patient's representative, or proxy the patient's goals and treatment options available to the patient based on the patient's health. My signature below indicates to the best of my knowledge that these orders are consistent with the patient's current medical condition and preferences.		
	Signature of Treating Physician / APRN / PA ***(required)***	Print Treating Physician / APRN / PA Name ***(required)***	Date *(mm/dd/yyyy)* ***(required)***
	Physician / APRN / PA office telephone number	Physician / APRN / PA License Number	Health Care Professional preparing form if other than the physician / APRN / PA
I	**APPOINTMENT OF HEALTH CARE REPRESENTATIVE:** As a patient you have the option to appoint a representative to serve as your health care representative pursuant to IC 16-36-7. You are not required to designate a health care representative for this POST form to be effective. You are encouraged to consult with your attorney or other qualified individual about advance directives that are available to you. Forms and additional information about advance directives may be found on the IDOH web site at https://www.in.gov/health/cshcr/indiana-health-care-quality-resource-center/advance-directives-resource-center/ .		

Preceptor Lead Paramedic Recommendation Form

Lead Paramedic Candidate: _____ Department: _____

Review Number: 1 2 3 Months in lead process: _____

1. Guidelines	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Demonstrates understanding of the clinical guidelines. • Consistently follows clinical guidelines and only deviates when necessary.				
Comments:				

2. Medical Patient Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Demonstrates competence in management of general medical patients. • Demonstrates competence in management of critically ill patients. • Expresses an appropriate differential diagnosis for each patient encounter. • Recognizes a decompensating patient an appropriately intervenes.				
Comments:				

3. Trauma Patient Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Demonstrates competence in management of general trauma patients not requiring trauma alert activation. • Demonstrates competence in management of critically ill patients requiring a trauma activation. • Recognizes when a patient meets trauma alert activation criteria. • Recognizes a decompensating patient an appropriately intervenes. • Manages SMR when necessary.				
Comments:				

Preceptor Lead Paramedic Recommendation Form

4. EKG Interpretation	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Recognizes a normal EKG
- Recognizes when an EKG meets STEMI criteria and appropriately activates a STEMI alert.
- Recognizes atrial fibrillation or atrial flutter with RVR.
- Recognizes ventricular fibrillation.
- Recognizes ventricular tachycardia.
- Recognizes other abnormal EKGs.

Comments:	

5. Pharmacology	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Demonstrates understanding of the indications for medications administered.
- Demonstrates knowledge of potential side-effects of medications administered.
- Demonstrates knowledge of the correct dosing for each indication of each medication.
- Performs a medication cross-check before administration of any medications.

Comments:	

6. Procedures	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Demonstrates competence in starting IV/IO access in critical patients.
- Demonstrates understanding of indications for procedures.
- Only performs necessary procedures ensuring not to cause undue harm to the patient.
- Demonstrates competence in performing basic procedures – examples include splinting, SMR, breathing treatments, etc.
- Demonstrates competence in performing advanced procedures – examples include cardioversion, endotracheal intubation, etc.

Comments:	

Preceptor Lead Paramedic Recommendation Form

7. Scene Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Directs management of the patient on the scene. • Takes a leadership role in management of the scene. • Delegates patient care roles, as necessary. • Can manage multiple patients on a scene, when necessary.				
Comments:				

8. Communication	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Effectively communicates with partner on the scene. • Communicates with command staff on scene, when necessary. • Ensures closed loop communication during patient management. • Gives succinct, but appropriate, prehospital radio patient care report. • Gives appropriate hand-off report to the nurses and physicians when transferring care at the hospital. • Consistently interacts with the patient and his or her family with professionalism, sensitivity, and courtesy. • Responds to patient and family requests promptly, but appropriately. • Interacts with bystanders in a professional manner. • Interacts with physicians in the ED or OMCP in a professional manner.				
Comments:				

9. Documentation	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Documents appropriate HPI. • Documents relevant past medical history and social history. • Documents interventions and patient response to the intervention. • Documents required criteria for alerts. • Consistently documents medical decision making.				
Comments:				

Preceptor Lead Paramedic Recommendation Form

10. Safety	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Appropriate chooses when the patient should be transported using lights and sirens.
- Uses appropriate safety protocols while on scene.
- Performs procedures in a safe and efficient manner.
- Promotes a culture of safety within the department and on scene.
- Reports medication errors immediately upon discovery.

Comments:	

11. Comparison to Other System Lead Paramedics	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- How does this lead paramedic candidate compare to other lead paramedics within the department?
- How does this lead paramedic candidate compare to other lead paramedics within the St. Joseph County system?

Comments:	

Preceptor Lead Paramedic Recommendation Form

12. Overall Rating of this Lead Paramedic Candidate	★ ☐	★★ ☐	★★★ ☐	★★★★ ☐	★★★★★ ☐
• How would you rank this paramedic? • Would you want this paramedic responding to a medical emergency at your house? • Would you want this paramedic forming procedures on you or your family?					
Comments:					

Areas For Improvement
• List three areas where the lead paramedic candidate should focus additional training in the next year.
1.
2.
3.

Strongest Attributes
• List the three strongest clinical attributes of the lead paramedic.
1.
2.
3.

Additional Comments:

Preceptor: _____ Date: _____

Signature: _____

Shifts spent with candidate: _____

EMS Chief Lead Paramedic Recommendation Form

Lead Paramedic Candidate: _____ Department: _____

Review Number: 1 2 3 Months in lead process: _____

1. Guidelines	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Demonstrates understanding of the clinical guidelines. • Consistently follows clinical guidelines and only deviates when necessary.				
Comments:				

2. Medical Patient Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• How does this lead paramedic candidate compare to other lead paramedics within your department when managing medical patients? • In reviewing charts or physically seeing the candidate manage medical patients, how would you rate his or her care of medical patients?				
Comments:				

3. Trauma Patient Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• How does this lead paramedic candidate compare to other lead paramedics within your department when managing trauma patients? • In reviewing charts or physically seeing the candidate manage medical patients, how would you rate his or her care of trauma patients?				
Comments:				

EMS Chief Lead Paramedic Recommendation Form

4. EKG Interpretation	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• In reviewing the candidate's charts, how well does he or she interpret EKGs?				
Comments:				

5. Pharmacology	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Administers the appropriate medication when indicated. • Correctly doses medications. • Performs a medication cross-check before administration of any medications.				
Comments:				

6. Procedures	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Demonstrates competence in starting IV/IO access in critical patients. • Demonstrates understanding of indications for procedures. • Only performs necessary procedures ensuring not to cause undue harm to the patient. • Would you allow this candidate to perform a procedure on you or your loved on?				
Comments:				

7. Scene Management	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• Directs management of the patient on the scene. • Takes a leadership role in management of the scene. • Delegates patient care roles, as necessary. • Can manage multiple patients on a scene, when necessary.				
Comments:				

EMS Chief Lead Paramedic Recommendation Form

8. Communication	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Communicates with command staff on scene, when necessary.
- Ensures closed loop communication during patient management.
- Effectively communicates with EMS chief and training staff.
- Consistently interacts with the patient and his or her family with professionalism, sensitivity, and courtesy.
- Interacts with physicians in the ED or OMCP in a professional manner.

Comments:	

9. Documentation	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Documents appropriate HPI.
- Documents relevant past medical history and social history.
- Documents interventions and patient response to the intervention.
- Documents required criteria for alerts.
- Consistently documents medical decision making.

Comments:	

10. Safety	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐

- Appropriate chooses when the patient should be transported using lights and sirens.
- Uses appropriate safety protocols while on scene.
- Promotes a culture of safety within the department and on scene.
- Reports medication errors immediately upon discovery.

Comments:	

EMS Chief Lead Paramedic Recommendation Form

11. Comparison to Other System Lead Paramedics	Needs Remediation	Below Average	Above Average	Outstanding
	☐	☐	☐	☐
• How does this lead paramedic candidate compare to other lead paramedics within the department? • How does this lead paramedic candidate compare to other lead paramedics within the St. Joseph County system?				
Comments:				

12. Overall Rating of this Lead Paramedic Candidate	★	★★	★★★	★★★★	★★★★★
	☐	☐	☐	☐	☐
• How would you rank this paramedic? • Would you want this paramedic responding to a medical emergency at your house? • Would you want this paramedic forming procedures on you or your family?					
Comments:					

Areas For Improvement
• List three areas where the lead paramedic candidate should focus additional training in the next year.
4.
5.
6.

Strongest Attributes
• List the three strongest clinical attributes of the lead paramedic.
4.
5.
6.

Additional Comments:

EMS Chief: _____ Date: _____

Signature: _____

Public Safety Rehab Documentation

Incident Name/Location	Operational Period (#)		Page	
	Date: - Time -		_____ of _____	

Rehab area or Specific Treatment Area:

Name	Time Entered	Baseline Medical Exam	Initial Vitals	Interventions	Pre-Release Medical Exam	Repeat Vitals	Disposition
		Findings: NONE- A&O, Ambulatory Chest pain Shortness of breath Headache Nausea/Vomiting MSK pain or injury Heat or cold related injury Altered mental status Other neuro finding	HR: RR: BP: / SpO2: Temp: CO:	Oral Rehydration Passive warming Passive cooling Other:	Findings: NONE- A&O, Ambulatory Chest pain Shortness of breath Headache Nausea/Vomiting MSK pain or injury Heat or cold related injury Altered mental status Other neuro finding	HR: RR: BP: / SpO2: Temp: CO:	Return to work Off-duty, no transport Hospital: ALS BLS
Department, Unit Number	**Time Exited**						**EMS Name:**

Name	Time Entered	Baseline Medical Exam	Initial Vitals	Interventions	Pre-Release Medical Exam	Repeat Vitals	Disposition
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Department, Unit Number	**Time Exited**						**EMS Name:**

Name	Time Entered	Baseline Medical Exam	Initial Vitals	Interventions	Pre-Release Medical Exam	Repeat Vitals	Disposition
		Findings: NONE- A&O, Ambulatory Chest pain Shortness of breath Headache Nausea MSK pain or injury Heat or cold related injury Altered mental status Other neuro finding	HR: RR: BP: / SpO2: Temp: CO:	Oral Rehydration Passive warming Passive cooling Other:	Findings: NONE- A&O, Ambulatory Chest pain Shortness of breath Headache Nausea MSK pain or injury Heat or cold related injury Altered mental status Other neuro finding	HR: RR: BP: / SpO2: Temp: CO:	Return to work Off-duty, no transport Hospital: ALS BLS
Department, Unit Number	**Time Exited**						**EMS Name:**