St. Joseph County
Emergency Medical Services Committee
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The St. Joseph County Emergency Medical Services Committee

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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 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 providers often rush in when others rush out.

The St. Joseph County Emergency Medical Services Committee

The St. Joseph County Emergency Medical Services Committee (SJCEMSC) is a consortium of regional hospitals and EMS Provider 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 Provider Organizations and 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: Development and oversight of Standing Medical Orders for EMS Personnel, including policies and procedures related to the provision of basic and advanced life support; development and oversight of jointly sponsored EMS education; development and oversight of uniform drug and supply inventories; and development and oversight of policies and procedures related to interactions between EMS Personnel and other healthcare providers, law enforcement personnel, and the public. It also serves as a forum for Sponsored EMS Provider Organizations, and participates 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.
- An administrative representative for each of the Sponsoring Hospitals.
- A representative for each Sponsored Paramedic Provider Organization.
- A representative for all Sponsored BLS ambulance Provider Organizations.
- A representative for all Sponsored BLS non-transport Provider 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. Further details are available in the By-Laws and Agreement to Establish the St. Joseph County Emergency Medical Services Committee.

The term "Sponsoring Hospital" refers to MHSB or SJHS-MMC. The term "Supervising Hospital" refers to any hospital so designated by the Indiana EMS Commission.

The term "Medical Director" refers to a physician, designated by a Sponsoring Hospital to provide, at a minimum, the functions defined by the EMS Commission for this role.

The term "EMS Coordinator" refers to an individual, other than a Medical Director, designated by a Sponsoring Hospital to provide education, supervision, and administration of EMS Personnel.

The term "EMS Provider Organization" refers to all organizations, governmental and private, that provide EMS care under the authority of the EMS Commission. This definition includes Emergency Medical Dispatch Centers.

Effective: April 2, 2007 Revised: April 1, 2018

The St. Joseph County Emergency Medical Services Committee Guidelines

The SJCEMSC Guidelines are collectively composed of administrative and clinical guidelines, standing medical orders, and other information of interest to EMS Personnel. They represent the cumulative efforts of many physicians, nurses, and EMS Personnel who have served the community over many years. The Guidelines will continue to evolve in order to keep pace with advances in the science and practice of emergency medical services.

The Guidelines provide Sponsored EMS Provider Organizations and personnel with clinical guidance in the provision of care; **they 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 Guidelines are effective as of **April 2, 2007**, with subsequent revisions as noted. They supersede and replace any prior Guidelines, and will be adhered to by all EMS Provider Organizations and personnel practicing under the authority of the SJCEMSC. Specific and detailed information about SJCEMSC sponsored EMS education can be found in the SJCEMSC EMS Education Training Program Guidelines.

It is the responsibility of Sponsored EMS Provider 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 (in .pdf Portable Document Format) 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 DREAPL

Because EMS Personnel in the SJCEMS System may function at any of six levels of EMS certification, licensure, and authorization, color-coded symbols are used to differentiate the levels. ***Unless specifically noted, all Guidelines apply to all levels of certification and authorization****. Level-specific guidelines, or portions of them, are annotated with the appropriate symbol(s), either at the top of the page (when applicable to the entire Guideline) or after the appropriate section header or item (when applicable to a specific portion of a Guideline).*

In the Standing Medical Orders, scenario-specific numbered interventions are preceded by a symbol indicating the ***minimum*** *level of certification necessary to perform that intervention. The symbol does* ***not*** *mean that an individual with a higher level of certification should not perform the intervention if appropriate to the specific clinical encounter (see Standing Medical Orders).*

Effective: April 2, 2007 Revised: April 1, 2018

State of Indiana
Levels of EMS Certification/Licensure

Level	Minimum Initial Training Hours	Scope of Treatment Skills	Continuing Education
Emergency Medical Dispatcher (EMD) **D-DLS**	**24** classroom and skills	Caller interrogation Triage decisions Information transmission Telephone medical intervention Logistics and resource coordination	**24** hrs, including **12** hrs of audit and review, every **2** yrs
Emergency Medical Responder (EMR) **R-BLS**	**49.5** classroom and skills	Scene and patient assessment Automated defibrillation CPR Oxygen therapy; OP and NP airways BVM ventilatory support Patient stabilization and movement Splinting and bandaging Newborn delivery Intranasal Naloxone administration	**20** hrs, including
Emergency Medical Technician (EMT) **E-BLS**	**151-159 total hours** Including 16 hours of mandatory clinical time.	All the 1st Responder skills plus: Non-visualized airways; pulse oximetry Automatic Transport Ventilator (ATV) Manually Triggered Ventilator (MTV) Spine immobilization Traction Splinting Medications (oral glucose, aspirin, epinephrine auto-injectors and IM for anaphylaxis, activated charcoal, certain patient assisted medications) Mechanical CPR IV line maintenance Ambulance operations Mechanical patient restraint Blood glucose measurement 12-Lead ECG Acquisition & Transmission	**40** hrs, including **6** hrs of audit and review, plus verification of skill competency, every **2** yrs
Advanced Emergency Medical Technician (EMT-BA) **A-ALS**	EMT plus: 160 NES Core Hours 2.5 12-Lead **162.5 total hours,** plus ~Administer 15 medications ~Initiate 25 successful IV's ~Ventilate 20 live patients ~ Demonstrate the ability to perform an assessment on: • Pediatric • Adult • Geriatric ~Demonstrate ability to perform an adequate assessment & formulate & implement a treatment plan for: • Chest Pain • Respiratory Distress • Altered Mental Status	All the EMT skills plus: Peripheral IV insertion Intraosseous insertion IV/IO fluid administration IV dextrose administration IV naloxone administration SQ or IM epinephrine for anaphylaxis Inhaled beta agonist IM glucagon Nitrous Oxide for analgesia	**54** hrs, including **12** hrs of audit and review, plus verification of skill competency, every **2** yrs
Paramedic **P-ALS**	EMT plus: 452 Hours. Including Internship, course should range between **1000-1300 Hours,** to include ~No fewer than 50 attempts at airway management across all age levels, with a 90% success rate utilizing endotracheal intubation in their last 10 attempts. ~Must be 100% successful in the management of their last 20 attempts at airway management. ~Clinical experience **must** include operating room, recovery room, ICU, coronary care department, labor and delivery room, pediatrics, and emergency department. ~All students must have adequate exposure, as determined by the program medical director and advisory committee, to pediatric, obstetric, psychiatric, and geriatric patients. ~All students must complete a **Field Internship** and successfully manage, assess, and treat patients. **Minimum Team Leads** must be established by the program medical director and advisory committee and completed by every student.	All the skills of an AEMT plus: BiPAP/CPAP/PEEP Needle chest decompression Chest tube monitoring Percutaneous cricothyrotomy EtCO2/Capnography NG/OG tube Nasal and oral endotracheal intubation Airway obstruction removal via laryngoscopy ECG interpretation Interpretive 12-Lead ECG Blood chemistry analysis Central line monitoring Venous blood sampling Endotracheal medication administration IV/IO medication administration (push & infusion) Rectal medication administration Topical medication administration Accessing implanted central IV port Maintenance of blood administration Thrombolytic initiation Morgan lens Cardioversion Carotid massage Manual defibrillation, cardioversion, pacing (TCP)	**72** hrs, including **12** hrs audit and review, plus verification of skill competency every **2** yrs

St. Joseph County Emergency Medical Services Committee Sponsored EMS Provider Organizations

Organization	Level of Service	
Clay Fire Territory	Paramedic (transport)	P
Liberty Township EMS	EMT (transport)	E
Madison Township Fire Department	EMT (non-transport)	E
Mishawaka Fire & EMS Department	Paramedic (transport)	P
New Carlisle Area Ambulance Service	AEMT (transport)	A
New Carlisle Fire Department	EMT (non-transport)	E
Notre Dame Fire Department	EMT (non-transport)	E
Penn Township Fire Department	Paramedic (transport)	P
South Bend Fire Department	Paramedic (transport)	P
South Bend International Airport Public Safety Division	EMT (non-transport)	E
Southwest Central Fire Territory	AEMT (non-transport)	A
St. Joseph County Dispatch Center	Dispatch	D
Union-North Ambulance Service	EMT (transport)	E
University of Notre Dame Fire Department	EMT (non-transport)	E
University of Notre Dame Security Police Department	Dispatch	D
Walkerton-Lincoln Fire Territory	AEMT (transport)	A
Lakeville Fire Department	EMT (non-transport)	E
Warren Township Fire Department	EMT (non-transport)	E
Lapaz Fire Department	EMT (non-transport)	E

Administrative Guidelines

Key:

D Emergency Medical Dispatcher (EMD)
R Emergency Medical Responder (EMR)
E Emergency Medical Technician (EMT)
A Advanced Emergency Medical Technician (AEMT)
P Paramedic
L Lead Paramedic

Unless specifically noted, all Guidelines apply to all levels of certification, licensure, and authority*. Level-specific guidelines, or portions of them, are annotated with the appropriate symbol(s), either* ***after*** *the title (when applicable to the entire Guideline) or* ***after*** *the appropriate section header or item (when applicable to a specific portion of a Guideline). "After means only."*

Infectious Disease Control REAPL

See Body Fluid Exposure Reporting and Universal Precautions for additional information.

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 Provider 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 Provider Organization compliance with applicable federal regulations.

The SJCEMSC is available for consultation on EMS matters, and will endeavor to assist Sponsored EMS Provider 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.

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EMS Personnel Practice Requirements DREAPL

*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.*

EMS Personnel previously authorized to practice by the SJCEMSC should see Clinical Absences below. Those who believe their situation should be considered individually, or wish to request a waiver from any EMS Personnel Practice Requirements, should contact an EMS Coordinator.

The following primarily, but not exclusively, applies to EMS Personnel who received certification or licensure outside of an SJCEMSC sponsored course and are entering into practice with a Sponsored EMS Provider Organization. EMS Personnel who receive their certification or license through an SJCEMSC sponsored course and immediately begin working for a Sponsored EMS Provider Organization will have completed most, but not necessarily all, of the practice requirements during the course.

Before Starting Practice

EMS Personnel must:

- Be certified by the IDHS.
- Have received, be in the process of receiving, or have signed a waiver refusing, immunization against Hepatitis B—or present proof of immunity. **REAP**
- Have undergone tuberculosis skin testing, or have documented evidence of previous sero-conversion 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. **REAP**

Annual tuberculosis skin testing or, with evidence of previous sero-conversion, CDC recommended interview or screening, is mandatory for all EMS Personnel beyond the EMD level.

- Meet both Medical Directors and EMS Coordinators of. **AP**
- Be certified in Advanced Cardiac Life Support (ACLS). **P**

After Starting Practice APL

*Paramedics **P** must function under the direct supervision of a Lead Paramedic **L**, while completing the remaining Practice Requirements.*

EMS Personnel must:

Within 30 Days

- Successfully initiate **six** intravenous lines in a Sponsoring Hospital, or in another SJCEMSC approved setting. **AP**
- Spend a minimum of **eight** hours of clinical practice in the emergency department of each Sponsoring Hospital. **AP**
- Successfully complete level appropriate SJCEMSC Resuscitation Testing (see Resuscitation Testing). **AP**
- Successfully complete orientation in an SJCEMSC approved dialysis unit. **AP**
- Successfully complete **six** endotracheal intubations in an operating room or emergency department setting at a Sponsoring Hospital, or in another SJCEMSC approved setting. **P**

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 the immediate suspension of SJCEMSC authorization until the requirements are completed.

Within 90 Days

- If not certified, obtain certification in International Trauma Life Support (ITLS) ***or*** Pre-Hospital Trauma Life Support (PHTLS). **AP**
- If not certified, obtain certification in Pediatric Advanced Life Support (PALS) or Pediatric Education for Prehospital Providers (PEPP) with a resuscitation component. **P**
- Successfully achieve at least a score of **80%**, to the level of the EMS Personnel's certification or licensure, on an examination covering the SJCEMSC Guidelines and the St. Joseph County Emergency Medical Response Plan. **EAP**

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, except as noted, result in the immediate suspension of SJCEMSC authorization 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.

Once obtained, all required certifications must be maintained. To comply with the Practice Requirements, current documentation of certifications must be provided to an EMS Coordinator. Failure to comply may result in the immediate suspension of authorization to practice.

Clinical Absences APL

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

- The EMS Provider has been providing patient care under SJCEMSC authorization, but not at a level consistent with his/her certification, licensure, or authority.
- The EMS Provider has been providing patient care at a level consistent with his/her certification, licensure, or authority but not under SJCEMSC authorization.

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 SJCEMSC authorization, could have a Paramedic Clinical Absence but maintain AEMT practice.

An EMS Provider who has had a Clinical Absence immediately loses SJCEMSC authorization to provide patient care beyond the EMT level until he/she re-completes all of 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.

Continuing EMS Education DREAPL

Indiana continuing education (CE) requirements are delineated in the Administrative Code of the Indiana EMS Commission. The following requirements are emphasized, or are additional SJCEMSC requirements.

All Primary Instructors and Provider Organization Training Officers must be approved by the SJCEMSC before providing CE to EMS Personnel.

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

Audit and Review APL

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 an SJCEMSC 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.

Only Audit and Review conducted by a Sponsoring Hospital will be approved.

Continuing Education

EMS Personnel are responsible for obtaining the CE hours and content, based upon their level of certification, required for biannual recertification. All CE hours must be approved by a Medical Director or EMS Coordinator. EMS Personnel are responsible for providing proof of attendance.

CE may only be conducted to an instructor's level of certification; e.g., an AEMT may not conduct, nor certify as completed, Paramedic level CE.

Education by a Sponsoring Hospital

As part of the monthly quality improvement meetings, a minimum of four hours of CE are generally provided—two hours by each of the Sponsoring Hospitals—for a total of 48 hours annually. These sessions are **automatically approved** as CE if level appropriate. Other EMS education, including but not limited to: EMS certification courses (EMT, AEMT, etc.), healthcare provider 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.

Education in an Outside Setting

Accredited EMS certification courses (EMT, AEMT), etc., healthcare provider 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.

Other EMD, EMR, and EMT education in an outside setting will be approved as CE if level appropriate. DRE

The above programs do not require approval in advance.

Other AEMT and Paramedic education in an outside setting will be approved as CE **only if all of the following are true**: **AP**

- It has the written approval, in advance, of a Sponsoring Hospital EMS Coordinator.
- A record is kept that indicates when and where the education was held, how long it lasted, who taught it, and who attended. A copy of this record must be available for review by an EMS Coordinator.
- It is level appropriate.

If the above criteria have been met, the Primary Instructor or Training Officer may verify his/her own CE during the session. However, an EMS Coordinator must also verify his/her CE.

Self-directed education

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

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. **An EMS Coordinator must approve, in advance, the use of Sponsoring Hospital EMS educational media for CE**.

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.*

Skill Validation EAP

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

- The National Registry of Emergency Medical Technicians (NREMT) Practical Skills Examination, a copy of which must be submitted to an EMS Coordinator.
- A clinical rotation at a Sponsoring Hospital scheduled and approved **in advance** by an EMS Coordinator.
- An EMS skill validation session conducted by a Sponsoring Hospital.
- An outside skill validation session or practical examination, if level appropriate. **E**
- An outside AEMT or Paramedic skill validation session or practical examination will be approved only if: **AP**
  - It has the written approval, **in advance**, of an EMS Coordinator.
  - The Skill Evaluations forms are completed and kept on file with the EMS Provider Organization.

Compliance with skill validation requirements will be complete only when the Skill Evaluation forms are verified by a Medical Director or EMS Coordinator.

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.

Effective: April 2, 2007 Revised: April 1, 2018 Revised: October 1, 2018

Lead Status

Lead status is the **highest level of local credentialing**, conferred on those Paramedics who have demonstrated the ability to confidently and independently deal with the breadth of EMS practice, are fluent in the SJCEMSC Guidelines, and **have shown the capacity to lead** other EMS Personnel in providing optimal patient care.

*Before requesting Lead Status, all applicants must be in complete compliance with **all** EMS Personnel Practice Requirements, including maintaining **all** required certifications.*

Letter Option

The Letter Option is a mechanism for experienced Paramedics to apply for modification of the proctoring requirement for Lead Status (see below). **It is neither required nor available to all applicants**.

*The Letter Option is only available to Paramedics who have been certified for **more than one year** and have been actively providing level appropriate patient care in another EMS system for **at least six months** immediately prior to joining the SJCEMS System.*

Eligibility for the Letter Option is subject to approval by the Medical Directors.

Approved applicants submit letters of recommendation, including contact information for verification, from their most recent EMS Coordinator (or equivalent) and Medical Director. After reviewing the submitted letters and making any necessary inquiries, the SJCEMSC Medical Directors will determine what type, and the amount, of proctoring required.

If the Letter Option is approved, exercised, and accepted by the Medical Directors, the proctoring requirement may be reduced or eliminated. All cases will be considered individually.

Paramedic Proctoring Requirement

Applicants must practice under the direct supervision of a Lead Paramedic for **no less than** six months, during which time they must actively participate in the care and transport of **no fewer than** 30 seriously ill or injured patients requiring advanced life support.

Recommendations

SJCEMSC Sponsored EMS Provider Organizations should consider implementing a mentoring program to guide Paramedics with the nuances of high level Paramedic thinking and care. As a byproduct, such a program would help create Paramedics who would be prepared to request Lead Paramedic credentialing.

After completing any required proctoring, applicants must:

- Be recommended, in writing, by their Sponsored EMS Provider Organization.
- Submit letters of recommendation from two Lead Paramedics who have either proctored them or can otherwise attest to their skill.

Supplemental Training and Testing

Applicants must:

- Achieve at least a score of **80%** on an examination covering advanced 12-lead interpretation.
- Successfully complete any supplemental education or training that was identified during proctoring phase.

Medical Director Review

Applicants must:

- Be approved by the SJCEMSC Medical Directors, following review of **no fewer than** 20 submitted EMS Medical Records.
  - The initial submission should include a one page summary, similar to a resume, of the applicant's education, EMS experience, and employment history.
  - Applicants may submit as few as 5 cases or up to, but not exceeding, 20 cases for review by SJCEMSC Medical Directors in a single submission.
    - Each record must be accompanied by a short summary detailing why the applicant submitted the case for review.
    - Each record should demonstrate an appropriate and significant application of level appropriate knowledge and skill.
  - At the discretion of the SJCEMSC Medical Directors, a meeting between one or both of the Medical Directors and the applicant will take place after each submission and/or at the time Lead Status is granted.
  - All submitted records are subject to acceptance by the Medical Directors, and are not returnable.

Any case submitted for review without the complete Patient Care Record (PCR), including all ECG rhythms, 12-Lead ECG's, capnography waveforms, etc. that were described in the PCR will be considered incomplete and therefore disqualified from the submission.

*The submission for Lead Status is a compilation of the applicant's strongest work as a Paramedic and is intended to **prove** to the SJCEMSC Medical Directors the Paramedic's ability to successfully manage all aspects of EMS care, especially difficult and complex cases.*

During the detailed review of the submissions, it is common for the SJCEMSC Medical Directors to identify areas of the Paramedic's knowledge or skill(s) that require additional training or education.

Approval

Lead Status may be approved by the Medical Directors at any time following completion of the above requirements and will be effective upon notification of the Sponsored EMS Provider Organization. The date of approval will be noted in the minutes of the next SJCEMSC meeting.

It typically takes ~30 days for SJCEMSC Medical Directors to individually review, collaborate, and then determine the result of the submission.

Effective: April 2, 2007 Revised: April 1, 2018

Resuscitation Testing REAPL

Resuscitation testing is a "hands-on" practical examination of assessment and procedural skill. It is a component of EMS Personnel Practice Requirements for initial authorization (see EMS Personnel Practice Requirements), but may be required, by a Medical Director, anytime skill verification for an EMS Provider is deemed necessary.

Resuscitation Testing is generally available four times monthly, immediately following each Sponsoring Hospital EMS quality improvement meeting. Testing at other times will be scheduled at the discretion of the Medical Directors and EMS Coordinators.

Resuscitation Testing is administered in "megacode" format, according to current SJCEMSC Guidelines and American Heart Association (AHA) Emergency Cardiovascular Care (ECC) principles. ***Scoring is pass or fail****, and not subject to appeal.*

First Attempt

A minimum of one Medical Director or two EMS Coordinators must be present during a first attempt to pass Resuscitation Testing.

If Resuscitation Testing is failed on the first attempt, a single retest (see Second Attempt below) may be taken. Any practice limitations will remain in effect until Resuscitation Testing is passed.

Second Attempt

At least one Medical Director must be present for a second attempt to pass Resuscitation Testing, preferably not the Medical Director who administered the first attempt.

If an AEMT fails Resuscitation Testing on the second attempt, he/she must show documentation of remedial training in resuscitation skills, administered by an SJCEMSC approved instructor, prior to beginning a new round of Resuscitation Testing. **A**

If a Paramedic fails Resuscitation Testing on the 2nd attempt, they must pass an AHA Advanced Cardiac Life Support (ACLS) course prior to beginning a new round of Resuscitation Testing. **P**

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Remedial Training and Disciplinary Action DREAPL

The SJCEMSC believes that EMS Personnel should receive fair and reasonable treatment regarding disciplinary action and required remedial training. ***All*** *such measures are considered aspects of EMS quality improvement.*

Most quality of care issues that arise in the course of EMS practice can be managed on a case-specific basis, between one or both of the Medical Directors and the individual(s) involved.

Discipline is a corrective measure that always requires due process. ***The ultimate goal is public safety while allowing for fair and reasonable treatment of EMS Personnel****.*

Remedial Training

The Medical Directors must be confident that EMS Personnel are capable, at all times, of practicing to the level of their training, certification, and authorization. If they 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**.

Remedial training may include, but is not limited to:

- Reinforcement training in dispatch, basic, 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.

Example: A Paramedic who demonstrates a pattern of difficulty with intubation may be required to undergo reinforcement training in an operating room setting at a Sponsoring Hospital.

Example: 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 Provider 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 Provider believes that the requirement is unreasonable, excessive, or capricious. EMS Personnel should submit a request for due process to the SJCEMSC Chair; the request will be discussed at the next SJCEMSC meeting.

Due process may take several months to accomplish. If there are public safety concerns, remediation requirements imposed by the Medical Directors will not typically be delayed while awaiting the outcome.

Continuing education is not considered remedial training.

Remedial training triggered by SJCEMSC quality indicators is not subject to due process, but may be appealed directly to the Medical Directors*.*

Disciplinary Action

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

- Engaging in, or attempting to engage in, activity not authorized by the SJCEMSC.
- Demonstrating professional incompetence, or showing oneself otherwise unable to provide adequate emergency medical services.
- Demonstrating unprofessional conduct or poor judgment in the provision of emergency medical services.
- **Deviating from, without sufficient reason, the Guidelines**.
- 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.

Disciplinary action triggered by SJCEMSC quality indicators is not subject to due process, but may be appealed directly to the Medical Directors.

Disciplinary action includes, but is not limited to:

- Suspension of medical direction for a specified period of time, or until certain conditions are fulfilled.
- Limitation of authorization to provide emergency medical services for a specified period of time, or until certain conditions are fulfilled.
- Mandatory supervision unrelated to remedial training.
- Permanent suspension of medical direction.

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

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

Due Process

Due process is a principle of fundamental fairness. Although final decisions regarding disciplinary action necessarily rest with the Medical Directors, when EMS Personnel are potentially subject to corrective measures that would directly limit their ability to function at their level of training and certification or licensure, they are entitled to know, in detail, the allegations of wrongdoing, to confront any witnesses, and to refute the allegations in a hearing.

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, except where noted, approximate but should generally be considered the maximum reasonable duration.

Notifications

Appropriate notifications occur at each step in the process.

All official notifications should be via certified mail. In addition, EMS Personnel and EMS Provider 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 properly determined necessary or appropriately requested, the hearing should held as soon as reasonably possible. However, each individual involved in the hearing, unless he/she waives notice, must be given at least **seven days** notice.

All hearing committees are comprised of the Chair of the SJCEMSC (presiding over the hearing committee), a representative from two Sponsored EMS Provider Organizations, and four of the EMS Provider'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/she is not a member of the committee**.

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

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 Provider, the Medical Directors will review the information in an attempt to answer the following questions:

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

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

3. If disciplinary action is possible, does the information, if true, represent a potential risk to public safety?

If a patient was received by a Sponsoring Hospital, the Medical Director at that hospital will first evaluate the information. If not, either Medical Director may initially evaluate the information.

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

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 their satisfaction.
- Thanked for participating in the SJCEMSC quality improvement process.

Initial Evaluation of Information is required.

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 Provider will be **immediately** suspended, or have his/her authorization appropriately limited, pending completion of the process or until Medical Director reconsideration of the need for immediate suspension. The EMS Provider and his/her EMS Provider 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.

*Immediate Suspension or Limitation is **not** required.*

Step 3: Formal Investigation (30 days)

The purpose of the formal investigation is to establish the facts of the matter.

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 Provider and his/her EMS Provider 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/her right, as part of the investigation, to submit a written statement regarding the incident(s) in question, and the specific allegations.
- His/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)

The purpose of this hearing is to resolve, to the extent possible, any essential questions of fact.

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 Provider 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.

*A Fact Hearing is **not** required.*

Step 5: Action Decision (15 days)

The purpose of the action decision is to dismiss the allegations or determine disciplinary action.

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 Provider 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 Provider and his/her EMS Provider 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 Provider will be reinstated at the conclusion of the action and any subsequent requirements required for resolution.
- A statement that the EMS Provider has the right to request, in writing and **within 15 days**, a penalty hearing.

An Action Decision is required.

Step 6: Penalty Hearing (15 days)

The sole purpose of this hearing to appeal the severity and/or duration of the disciplinary action.

If the action decision results in disciplinary action, the EMS Provider 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 recommendation regarding the severity and duration of the action to the Medical Directors.

*A Penalty Hearing is **not** required.*

Step 7: Final Decision (15 days)

The purpose of the final decision is to conclude the matter.

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.

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

*A Final Decision is **not** required unless there is a penalty hearing.*

Step 8: Resolution

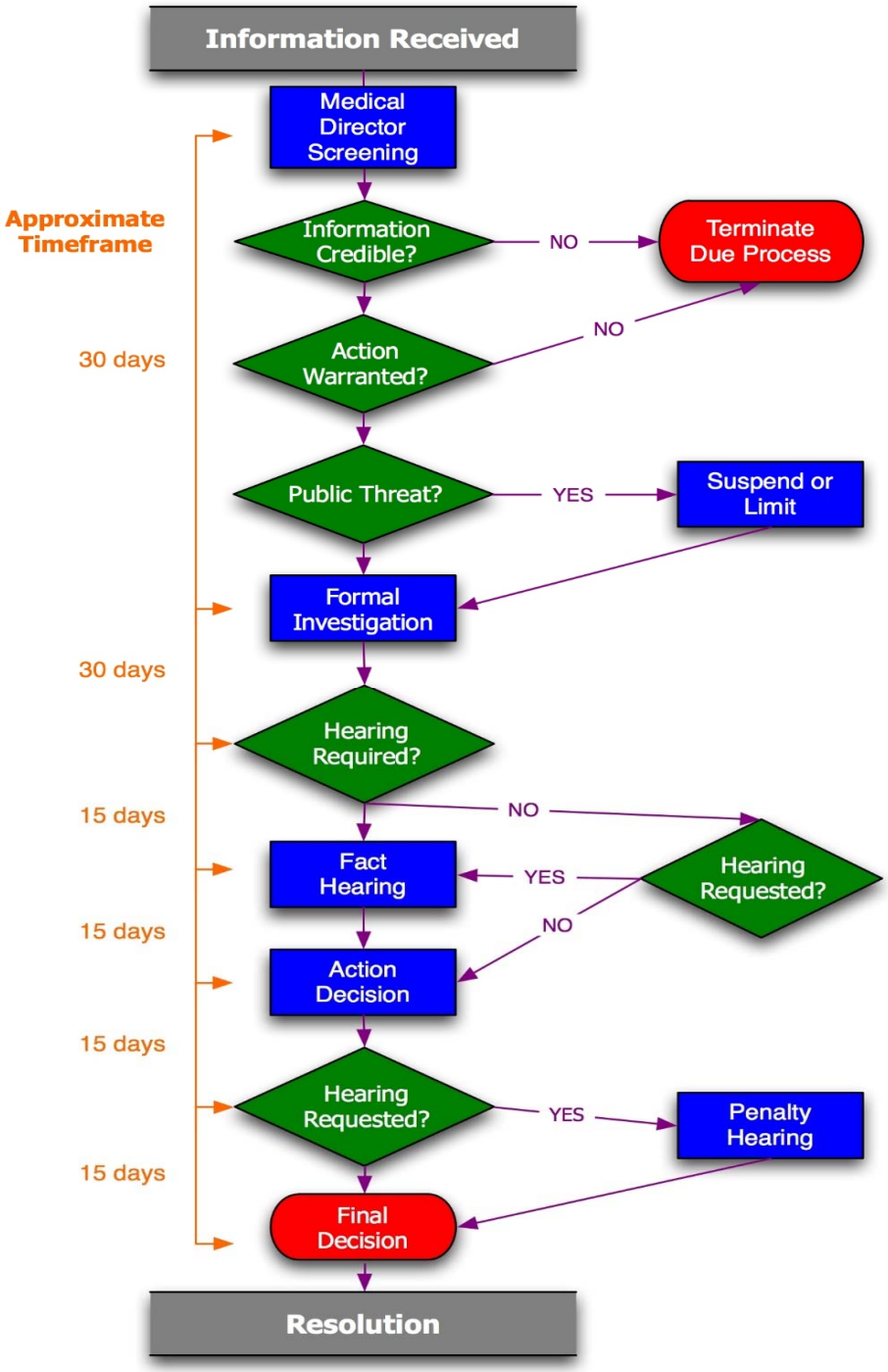
At the conclusion of any disciplinary action period, the Medical Directors will determine if **all** requirements necessary for termination of the action have been completed, and notify the EMS Provider and his/her EMS Provider Organization. If **all** requirements have been completed, the EMS Provider 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.

Effective: April 2, 2007 Revised: April 1, 2018

Due Process Flow Chart



Clinical Guidelines

Key:

D Emergency Medical Dispatcher (EMD)

R Emergency Medical Responder (EMR

E Emergency Medical Technician (EMT)

A Advanced Emergency Medical Technician (AEMT)

P Paramedic

L Lead Paramedic

Unless specifically noted, all Guidelines apply to all levels of certification*. Level-specific guidelines, or portions of them, are annotated with the appropriate symbol(s), either* ***after*** *the title (when applicable to the entire Guideline) or* ***after*** *the appropriate section header or item (when applicable to a specific portion of a Guideline). "After means only."*

Universal Precautions DREAPL

See Body Fluid Exposure Reporting and Infectious Disease Control for additional information.

This Guideline summarizes, but does not replace, certain OSHA requirements. It is meant as a quick reference. Sponsored EMS Provider 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 sec 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.

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 (see Body Fluid Exposure Reporting)

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 Provider 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.

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.

Effective: April 2, 2007 Revised: April 1, 2018

Emergency Medical Dispatch DREAPL

Emergency Medical Dispatchers (EMD's) have appropriately been called "first First Responders." The State of Indiana and the SJCEMSC consider organizations that provide emergency medical dispatch services (Emergency Medical Dispatch Centers) to be EMS Provider Organizations.

*"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.*

EMS Provider 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).

The 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) (in Standard F 1258-95).

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 and construction, 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
Priority 3	**A**: Alpha	BLS **COLD**; ALS ambulance (if needed) **COLD**
Priority 2	**B**: Bravo	BLS **HOT**; ALS ambulance (if needed) **COLD**
Priority 1	**C**: Charlie	BLS **HOT**; ALS vehicle **HOT**
Priority 1	**D**: Delta	BLS **HOT**; Paramedic vehicle **HOT**
Priority 1	**E**: Echo	Multiple **HOT**
	^: Omega	Poison Center Referral only

Dispatch Arenas

All emergency medical responses require a transporting vehicle (ambulance).

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**.

Effective: April 2, 2007 Revised: April 1, 2018

EMS Vehicle Staffing and Safe Operation REAPL

Basic Life Support Ambulances E

For information about interfacility transfers, see that section below.

Sponsored EMT Provider Organizations must ensure that each basic life support ambulance is staffed by at least one EMT (or higher), and one driver (or higher).

During all basic life support transports, the patient compartment must be staffed by at least one EMT (or higher).

*If the need for advanced life support is a **reasonable possibility**, a Ground Vehicle Intercept (GVI) must be requested. If the need for Paramedic assessment or intervention skills is a **reasonable possibility**, a Paramedic GVI must be requested (see Vehicle Intercepts and EMS Authority).*

Air Ambulance Intercepts (AAI's) are discussed in Vehicle Intercepts and EMS Authority.

Advanced Life Support Ambulances AP

For information about interfacility transfers, see that section below.

Advanced-EMT Ambulances A

Sponsored AEMT Provider Organizations must ensure that each AEMT ambulance is staffed by at least one AEMT and one EMT (or higher).

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 Provider(s) with the highest level of certification.

During advanced life support transports, or transports in which the need for advanced life support is a **reasonable possibility**, a Paramedic (as appropriate to the patient condition) must staff the patient compartment (see Mandatory Staffing below).

*If the need for Paramedic assessment or intervention skills is a **reasonable possibility**, a Paramedic GVI must be requested (see Vehicle Intercepts and EMS Authority).*

Air Ambulance Intercepts (AAI's) are discussed in Vehicle Intercepts and EMS Authority.

Paramedic Ambulances APL

Sponsored Paramedic Provider Organizations must ensure that each Paramedic ambulance is staffed by at least one Lead Paramedic and one AMT (or higher).

During basic life support transports, the patient compartment must be staffed by at least one AEMT (or higher). All decisions and responsibility regarding patient compartment staffing rest with the on-scene EMS Provider(s) with the highest level of certification.

During advanced life support transports, or transports in which the need for advanced life support is a **reasonable possibility**, a Paramedic (as appropriate to the patient condition) must staff the patient compartment (see Mandatory Staffing below). This includes any patient requiring cardiac monitoring, has abnormal vital signs, receiving IV fluids to maintain normal vital signs, or received a paramedic only approved medication.

Mandatory Staffing of the Patient Compartment by Lead EMS Personnel **L**

At least one (1) 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.

The Lead EMS Provider(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 Provider(s) remain(s) ultimately responsible for the patient at **all** times.

At no time will a patient's care be transferred to an EMS Provider 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 **RE**

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 (NTV's) include fire apparatus and "chase" vehicles so approved by the EMS Commission.

Basic life support NTV's must be staffed in by at least one EMS Provider holding a certification equal to the level of vehicle certification (e.g., an EMT NTV must be staffed by at least one EMT).

Advanced Life Support Non-Transport Vehicles **APL**

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 (NTV's) include fire apparatus and "chase" vehicles so approved by the EMS Commission.

Advanced life support NTV's must be staffed by at least one AEMT **or** one Paramedic when responding as

- An additional advanced life support vehicle, with at least one other advanced life support vehicle also responding.
- The sole advanced life support vehicle, with at least one AEMT 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 NTV's must be staffed by at least one Lead Paramedic **and**, preferably, one AEMT (or higher), when responding as:

- The sole advanced life support vehicle, except as above.

Advanced life support NTV's that exclusively respond with a Paramedic ambulance are not required to carry a full complement of medications (see Approved Medications). The required medications are indicated on the medication list with the ◈ symbol. ***All other advanced life support NTV's must carry a full complement of level-appropriate medications****.*

Interfacility Transfers EAPL

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/her designee, as discussed below.*

Basic Life Support Interfacility Transfers E

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

- **Patient-controlled** intravenous medication administered via an infusion pump.
- 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 is 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.

No patient who requires advanced life support may be transported in a basic life support ambulance unless:

- 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 Provider 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.
- Permission is obtained from a Medical Director or, if none is available, an OMCP.

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

Patients who require Paramedic assessment or interventional skills should be transferred in a Paramedic ambulance.

Paramedic Transfers **PL**

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.
- SJCEMSC-approved medications, including infusions of those medications **via an adjustable or non-adjustable infusion pump** (see Approved Medications).
- When administered in accordance with a written physician order:
  - Over-the-counter oral medications.
  - 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 Provider Organization ventilator in an otherwise stable patient.

EMS Personnel utilizing an EMS Provider Organization ventilator must have completed a ventilator education program, and annual skills validation specific to the ventilator model used.

*The EMS Provider 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 Provider Organization ventilator must have continuous cardiac rhythm, oximetric, and capnographic 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 Provider Organization to arrange for such supplemental personnel**.

Safe Operation REAPL

All EMS vehicles should be operated in a manner consistent with Indiana law. All EMS Personnel 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 (see Emergency Medical Dispatch). **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**.*

The SJCEMSC recommends the Emergency Vehicle Operations Course (EVOC) to **all** EMS Personnel involved in EMS vehicle operations.

Effective: April 2, 2007 Revised: September 1, 2007 Revised: June 1, 2013 Revised: April 1, 2018

Vehicle Intercepts and EMS Authority DREAPL

A vehicle intercept occurs when, in the course of caring for a patient, EMS Personnel rendezvous to provide optimal patient care. **The most typical vehicle intercept occurs when SJCEMSC authorized EMT's or AEMT's rendezvous with SJCEMSC 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 SJCEMSC authorized Paramedic ambulance.

EMS On-Scene Authority

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

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

Occasionally, a patient may initially be in the care of EMS Personnel operating under another EMS authority. If this occurs, SJCEMSC authorized EMS Personnel 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 turned over to SJCEMSC authorized EMS Personnel.

It is prudent, in all situations, that an EMS Provider with the highest on-scene level of certification 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 SJCEMSC 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 (GVI) involves the rendezvous of **basic life support personnel with Paramedic vehicle, or of AEMT's with a Paramedic vehicle**.

EMS Dispatch should occur in accordance with an Emergency Medical Dispatch Program (see Emergency Medical Dispatch). EMS Personnel must request a GVI, 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 authorization; i.e., their scope of practice. Criteria for EMS Personnel, depending upon their scope of practice, to request a GVI include, but are not limited to:

- Serious physical or mental complaints, including possible acute coronary syndrome.

- Airway instability.
- Abnormal or unstable vital signs.
- Serious mechanism of injury.
- Acutely altered or changing mental status.
- Illness or injury induced combativeness.

There are unique circumstances in which patients may require Paramedic services. Such services include, but are not limited to:

- Continuous positive airway pressure (CPAP) administration.
- Drug-assisted endotracheal intubation.
- Nasotracheal intubation.
- Cricothyrotomy.
- Advanced medication administration.
- Chemical restraint.
- Assessment of unusual or complex medical conditions.

A GVI 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 a GVI should be based on the unique circumstances of each patient encounter, ***including consideration of patient condition and transport time to the Destination Hospital****.*

It is important for all EMS Personnel, when requesting a GVI, to always specify if they, based on the unique circumstances of the patient encounter, require a Paramedic GVI. Emergency Medical Dispatch Centers should assist in making this determination, based on dynamic dispatch priorities.

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

Intercepting EMS Personnel may cancel a GVI 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 a GVI, and therefore may not cancel a GVI, solely based on the patient's clinical assessment by requesting EMS Personnel****.*

After the intercepting EMS Personnel arrive and evaluate the patient, they may release him/her 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 of **both** the requesting and intercepting EMS Personnel.

No release of patient care to requesting EMS personnel may occur if those personnel feel uncomfortable assuming care of the patient. ***In that case, the patient will be transported in the care of the intercepting EMS Personnel****.*

If the patient is not released to the requesting EMS Personnel, the intercepting EMS Personnel 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 GVI 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 Personnel should be resolved through Online Medical Consultation or preferably, after the transport is completed, with Medical Director consultation.*

Air Ambulance Intercepts

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

- The patient requires advanced life support services that cannot be provided in a reasonable timeframe through GVI, **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 AAI at any time after dispatch if they believe there is a **reasonable possibility** that the patient requires, or will require, air medical services.

AAI requests should generally be made through St. Joseph County Dispatch. However, SJCEMSC authorized EMS Personnel responding in a mutual aid capacity should request an AAI through the agency that requested mutual aid.

Location information is the most important data necessary when requesting an AAI. 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.

NAEMSP Criteria for Consideration of Air Medical Transport from Trauma 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 provider 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
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
Near Drowning Injuries

*Consideration of an AAI does **not** mean requesting an AAI; requesting an AAI does **not** mean the patient should be released to the air medical crew. All AAI decisions should take into account the unique circumstances of each trauma scene. **AAI's and air medical transport should be utilized only when the expected benefit clearly outweighs the inherent risk**.*

AAI 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 AAI occurs before a SJCEMSC authorized Lead Paramedic arrives on the scene, the air medical crew will assume authority for patient care/disposition decisions. **If a SJCEMSC authorized Lead Paramedic is on-scene before the AAI occurs, he/she will determine whether or not to transfer care to the air medical crew**.

SJCEMSC authorized EMS Personnel should obtain AAI training from an Indiana certified Rotorcraft Ambulance Service Provider Organization.

EMS Personnel should undergo AAI training before participating in an AAI.

The reasoning behind requesting an AAI, the patient disposition, and the reasoning behind that disposition should be documented in the EMS Medical Record. **For any dispatch in which an AAI 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.

Effective: April 2, 2007 Revised: April 1, 2018

The EMS Medical Record DREAPL

An EMS Medical Record 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.

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 improvement copy should be provided to one of the Sponsoring Hospitals.

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 Personnel depart 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.

In the absence of extraordinary circumstances, all EMS Medical Records should be submitted to the appropriate hospital(s) ***within 3 hours*** *of patient disposition.*

Electronic transmission of EMS Medical Records is acceptable with prior notification of the receiving hospital. EMS Personnel must comply with applicable patient privacy requirements.

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, in the course of EMS operations, PHI may be disclosed by EMS Provider Organizations and personnel to appropriate entities (such as hospitals, physicians, and other healthcare providers) for a number of purposes, including:

- Immediate treatment needs of the patient.
- Consultation between healthcare providers.
- 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 Provider 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 providing quality patient care*. The second most important thing to remember is that unnecessary PHI disclosures are unnecessary, and therefore should not occur.*

Effective: April 2, 2007 Revised: April 1, 2018

Scene Imaging REAPL

Never delay patient evaluation, care, or transport in order to obtain scene imaging.

Imaging is only permitted at trauma scenes. Imaging of non-trauma scenes is permitted only with Online Medical Consultation unless a SJCEMSC approved HIPAA secure device is used. **OMCP**

Images of trauma scenes may be helpful in evaluating the mechanism of injury, identifying the risk for potential injuries in individual patients, and as a training tool.

Before obtaining images of trauma scenes, EMS Personnel should be familiar with the legal and ethical principles of EMS photography and video.

The SJCEMSC requires adherence to the following principles when it's authorized EMS Personnel record images at trauma scenes:

- **Patient care comes first. No delay in patient evaluation, care, or transport is permitted in order to obtain images**.
- Patient privacy must be respected. All EMS Personnel should be familiar, and comply, with applicable privacy laws, including the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (see The EMS Medical Record).

Patient privacy must be respected at all times.

- Images of a trauma scene may be obtained when EMS Personnel determine that the images will be useful in the evaluation of the patient, or for training purposes.
- In order to facilitate image transfer all images &/or video should be sent to the receiving hospital's dedicated EMS station, such as the CAREpoint Workstation®.
- No images of patients or bystanders are permitted if a person's identity could be determined from such images, either individually or collectively unless a SJCEMSC approved HIPAA secure device is used.

When imaging vehicles, it is important that license plates and other uniquely identifying characteristics are excluded from the image.

- If anyone on the scene objects to the recording of images, do not obtain them.
- **No images may be obtained inside a residence or other private building** unless a SJCEMSC approved HIPAA secure device is used.
- **No images may be obtained inside an ambulance or hospital** unless a SJCEMSC approved HIPAA secure device is used.
- Whenever possible, images should be downloaded to the computer system at the Destination Hospital. At MHSB and SJRMC, a specific computer has been designated for this purpose. Hospital personnel will perform the download.

Effective: April 2, 2007 Revised: April 1, 2018

Standard Scene Operations DREAPL

This guideline discusses standard scene operations for treating and transporting patients. For unique aspects and special scene operations, see Crime Scene Operations, Refusal of Care, and Initiation and Continuation of Resuscitative Efforts. Issues related to specific patient care scenarios are addressed in the Standing Medical Orders.

Communications REAPL

Except in situations specifically addressed elsewhere in the Guidelines, EMS Personnel will establish communication with a Destination Hospital (see below) during all patient encounters. Communication may be brief, as in a simple notification of the estimated time of arrival (ETA), or involve complicated Online Medical Consultation (see below). In all cases, the type of communication should be appropriate to the specific clinical scenario.

Basic life support reports are typically transmitted via the Indiana Hospital Emergency Radio Network (IHERN). Advanced life support reports are typically transmitted via IHERN but may include telephone &/or electronic data. Each of the Sponsoring Hospitals maintains an exclusive telephone line for EMS communications.

If it is not possible to contact the Destination Hospital, one of the Sponsoring Hospitals should be contacted. Contacting one of the Sponsoring Hospitals will not necessarily change the Destination Hospital, but will allow for Online Medical Consultation.

Communication should be established early in the course of EMS treatment, especially if Online Medical Consultation is necessary.

The Online EMS Report REAPL

When contacting a Destination Hospital, use the following reporting procedure:

1. Hail the hospital. Information should include the EMS unit (vehicle or personnel) calling, the hospital being called, and the ETA (if known). If there are multiple patients, report this immediately and discuss each individually, beginning with the most seriously ill but potentially viable patient.
2. Report the patient's age, gender, and chief complaint or problem.
3. Report the vital signs and any striking physical findings pertinent to the chief complaint or problem, especially if life threatening.
4. Report a **pertinent** history of the current problem, including relevant historical information, such as allergies, medications, and important past medical history.
5. Report **pertinent** physical exam findings, in a head-to-toe fashion.
6. Report any treatment performed and the results of that treatment.
7. Report an overall diagnostic impression.
8. Request any specific orders, or orders in general.
9. Confirm all orders by repeating them back; update the ETA if appropriate.
10. Reestablish contact for significant changes in patient status, for further orders, or per the direction of the Online Medical Consulting Physician (OMCP).

Online EMS Reports should be brief and to the point, focusing on important clinical data.

Patient Medications REAPL

All available current patient medications should be brought to the Destination Hospital and documented in the patient care report.

Providing hospital staff with the patient's medications is a significant intervention that can improve outcome.

Destination Hospitals

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 (see below).

Emergency Scene Response

If the patient's condition permits, EMS Personnel will honor a **reasonable** request to be transported to a specific hospital. However, the request will **not** be honored if:

- The additional time necessary to transport the patient to the requested hospital is **reasonably** likely to place the patient's health at additional risk.
- The Guidelines, because of differences in hospital capabilities, designate a specific Destination Hospital for all individuals with the patient's emergency medical condition (see Scenario-Specific Diversion).
- The requested hospital, usually due to staffing or facility issues, has declared "diversionary status," and is not currently accepting ambulances transporting individuals with the patient's emergency medical condition.

"Diversionary Status," including time of initiation, time of cessation, and specific patient conditions being "diverted," should be communicated to EMS Provider Organizations by Emergency Medical Dispatch Centers.

- The additional time necessary to transport the patient to the requested hospital will unacceptably reduce the St. Joseph County EMS System's ability to respond to additional emergencies.

In cases where the patient makes no specific Destination Hospital request, or in cases where the request cannot be honored, the Destination Hospital will either be the hospital designated by the Guidelines (see Scenario-Specific Diversion) or, if none is designated, the closest hospital.

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 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.

In case of conflict or question about the Destination Hospital, Online Medical Consultation should be obtained immediately.

An Online Medical Consulting Physician (OMCP) can direct EMS Personnel to transport a patient to any facility he/she deems necessary and appropriate under the circumstances. EMS Personnel will then consider that facility to be the Destination Hospital.

Physician Responsibility REAPL

EMS Personnel provide medical care to their patients under medical supervision, and are directly responsible to the Medical Directors for their actions. Indirect medical supervision is provided by the Guidelines, most specifically in the Standing Medical Orders. Direct medical supervision (Online Medical Consultation) is provided by a physician, either on-scene or via telecommunication.

Online Medical Consulting Physicians

The Medical Directors are the only physicians who may establish Standing Medical Orders for SJCEMSC authorized EMS Personnel. They, or their designees, are the only physicians authorized to provide Online Medical Consultation.

The Medical Directors have designated any emergency physician on duty at the Destination Hospital to be authorized to provide Online Medical Consultation. Exclusive of the Medical Directors, the OMCP has the ultimate authority in issuing orders to EMS Personnel.

On-Scene Physicians

Any person who is unknown to EMS Personnel, and who identifies himself as a physician, should be asked to produce an Indiana wallet license or other substantial proof.

Exclusive of the Medical Directors, no on-scene physician, including a physician attending his/her own patient in his/her own office, may issue orders to EMS Personnel unless authorization has been given by the OMCP.

Physicians who may be present on-scene include the patient's personal physician or a Good Samaritan physician. The OMCP may relinquish care of the patient to the on-scene physician, but it should be made clear to the on-scene physician that it would then be appropriate for him/her to accompany the patient to the Destination Hospital.

Once an on-scene physician has assumed care, with OMCP approval, EMS Personnel will make themselves and their equipment available to assist in the care of the patient. However, EMS Personnel will not exceed the limits of their training, certification, and authorization. In addition, **EMS Personnel will not accept orders that deviate from the Guidelines if they believe such orders to be imprudent, or potentially dangerous to the patient**.

In case of conflict or question, a Sponsoring Hospital or Medical Director should be contacted. If the OMCP refuses to authorize the on-scene physician to issue orders to EMS Personnel, orders will not be accepted from the on-scene physician.

Effective: April 2, 2007 Revised: April 1, 2018

Spinal Motion Restriction REAPL

Long spine boards are not 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.

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.

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 a height.
- Striking the head during a fall.
- Blows to the head or neck.

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.

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

***Non-spinal restriction in patients at risk for spine injury requires detailed documentation of the absence of all spinal motion restriction criteria**.*

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. Under unique circumstances, more significant patient control methods may be necessary, but may only be utilized with Online Medical Consultation (see Patient Restraint). **OMCP**

Non-spinal motion restriction in uncooperative patients at risk for spine injury requires documentation of the reasoning behind the decision not to immobilize.

Effective: April 2, 2007 Revised: April 1, 2018

Emergency Cardiovascular Care DREAPL

EMS Personnel must be, to their level of certification, experts in Emergency Cardiovascular Care.

EMD's are authorized to provide, in clinical scenarios requiring emergency cardiovascular care, pre-arrival instructions consistent with their EMDP.

*Bystanders with cardiac arrest victims who are children, and those with adult victims in whom **asphyxiation** is a likely cause, should receive ventilation and compression phone instructions. Bystanders with adult victims in whom asphyxiation is **not** a likely cause should receive compression-only phone instructions.* **D**

On-scene EMS Personnel are authorized to provide, to the level of their training, certification, and authorization, in all clinical scenarios requiring emergency cardiovascular care, treatment consistent with the current algorithms developed by the American Heart Association (AHA). This includes Basic Cardiac Life Support (BCLS), Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS), and the Neonatal Resuscitation Protocol (NRP).

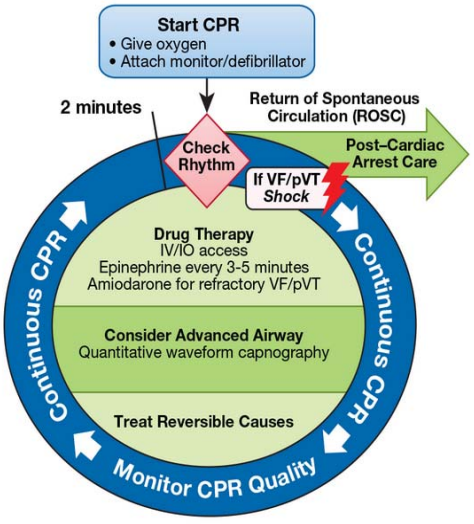
If there is a conflict between SJCEMSC and AHA Guidelines not addressed here, SJCEMSC Guidelines should be followed and Online Medical Consultation obtained immediately. **OMCP**

If complex medical decision-making is required, or in any situation requiring expert consultation, Online Medical Consultation should be obtained before proceeding with treatment. **OMCP**

Special Considerations

Endorsement of High-Quality Cardiopulmonary Resuscitation (CPR) REAPL

The SJCEMSC endorses the concept that high-quality CPR is a cornerstone of effective resuscitative efforts for adult and pediatric patients with pulseless arrest. Two minutes of CPR should be interposed between **single** shocks and **brief** rhythm checks. Example:



Insertion of an Advanced Airway E

EMS personnel should carefully balance the benefits of continuous and effective chest compressions against the time required to place an advanced airway.

*If adequate ventilations are being provided via bag-valve-mask (BVM) ventilation, or with a supraglottic airway device (SAD), endotracheal intubation (ETI) is **not** a resuscitative priority.*

Cardiac Arrest REAPL

Patients who suffer cardiac arrest should receive high quality CPR and, if indicated, defibrillation as soon as the device is ready for use.

High quality chest compressions and defibrillation are the priority in suspected VF cardiac arrest.

Use of a Semi-Automatic Defibrillator (AED) REAPL

The SJCEMSC endorses early defibrillation as vital to survival from sudden cardiac arrest, and makes the following statements regarding AED use:

- The AED should be utilized in conjunction with high-quality CPR (see above).
- Electrodes should be placed in accordance with manufacturer recommendations.
- Patients should immediately receive two minutes of CPR after each shock, **before checking for a rhythm change**.
- When EtCO2 is in place, do not check for a pulse if there is no change in the rhythm and no increase in the EtCO2 value.
- Biphasic AED's are preferred, and should be set to deliver energy, whether fixed or escalating, according to manufacturer specifications.
- **Monophasic AED's should be set to always deliver 360 J**.
- AED's are appropriate for use in patients ≥ 1 yr. For children 1-8 yrs, a pediatric dose attenuator system (usually built in to the pads) should be used, if available. Otherwise, a standard AED should be used. An AED should only be used on a child < 1 yr with Online Medical Consultation. **OMCP**

Use of Amiodarone L

Lead Paramedics may administer amiodarone, in accordance with AHA Guidelines, in the following clinical scenarios:

- Recurrent ventricular fibrillation.
- Recurrent pulseless ventricular tachycardia.
- Recurrent hemodynamically unstable ventricular tachycardia. **OMCP**

Any other use of amiodarone, and specifically its use anytime there is a pulse, must be authorized via Online Medical Consultation. **OMCP**

Use of Diltiazem L

In the EMS setting, diltiazem is utilized primarily for rate control in patients with atrial fibrillation and a rapid ventricular response. Its use must be authorized via Online Medical Consultation. **OMCP**

Transport of patients in cardiac arrest EAPL

Most patients who suffer a non-traumatic cardiac arrest, and for whom advanced life support is available at the scene, should receive it **at the scene**. Many patients who do not have a return of spontaneous circulation (ROSC) should not be transported. Decisions regarding the transport of patients in cardiac arrest, like decisions regarding discontinuation of resuscitative efforts (see Initiation and Continuation of Resuscitative Efforts), should be made with Online Medical Consultation. **OMCP**

Initiation and Continuation of Resuscitative Efforts DREAPL

Except as discussed below, all SJCEMSC authorized EMS Personnel should immediately initiate resuscitative efforts, including CPR and advanced life support, to a degree commensurate with their training, certification, and authority, for any patient suffering respiratory or cardiac arrest.

Once resuscitative efforts are initiated, they must continue until one of the following occurs:

- There is a return of spontaneous circulation (ROSC).
- Resuscitative efforts have been transferred to other persons of at least equal training, skill, and certification.
- The rescuer is exhausted and physically unable to continue resuscitative efforts.
- One of the exceptions below applies.

Exception Based on Explicit Signs of Death REAPL

It is appropriate **not to initiate or continue resuscitative efforts** when immediate assessment of the patient reveals one or more of the following explicit signs of death:

- Decapitation
- Apnea and pulselessness in conjunction with one of the following:
  - Rigor mortis without profound hypothermia.
  - Widespread dependent livor mortis (lividity).
  - Skin deterioration or decomposition (putrefaction).
  - Mummification.
- **Initial findings of apnea, pulselessness, and no blood pressure in the clinical setting of obvious severe blunt trauma**.

Exception Based on a Verbal Physician Order REAPL

It is appropriate **not to initiate or continue resuscitative efforts** if a physician who is licensed to practice in Indiana, and is at least one of the following, gives that direct order to EMS Personnel:

- A SJCEMSC Medical Director.
- One of the patient's physicians.
- An Online Medical Consulting Physician (OMCP).

Exception Based on a "Do Not Resuscitate" Order REAPL

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—a "do not resuscitate" order.

There are three types of "do not resuscitate" orders:

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

A POST, DNR, or OOHDNR order is typically given for a terminally ill patient for whom no further therapy directed at the underlying disease process can hope to bring about a cure, or prolong life—death is imminent and expected.

Such physician orders are consistent with patient wishes, principles of medical ethics, and Indiana law; they should not be disregarded without adequate reason.

A patient, his/her legal representative, or a physician can revoke a POST, DNR or OOHDNR order at any time. In such a case, resuscitative efforts should be immediately initiated when necessary.

If the validity of a POST, DNR, or OOHDNR 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 as soon as possible.

POST, DNR, and OOHDNR orders are not valid during a 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. To be valid, a POST, DNR, or OOHDNR order **must** be signed by the patient's physician.

If there is any doubt about the validity of a POST, DNR, or OOHDNR order, EMS Personnel should initiate resuscitative efforts and contact online medical control as soon as possible. ***There is no medical effort that, once initiated, cannot be stopped.***

A copy of a properly executed POST or OOHDNR order is considered as valid as the original.

It is important to note that the order is appropriately completed, signed, and dated. It should include the name, signature, and medical license number of the patient's physician.

The presence of the POST or OOHDNR order, the attending physician's name, and the date the order was signed should be documented in the EMS Medical Record.

An OOHDNR identification device, developed by the EMS Commission and inscribed with the patient's name, date of birth, and the words "Do Not Resuscitate," while not a substitute for, is considered equivalent to an OOHDNR declaration-order when it is worn by, or in the possession of, the patient. ***The device must accompany the patient during transport.***

Effective: April 2, 2007 January 1, 2018

Latex Sensitivity Precautions REAPL

EMS Personnel should be alert to the possibility of latex sensitivity in all patients.

Latex/natural rubber allergy is an **uncommon but potentially fatal condition** that can be present in any patient. Most latex sensitive patients will report a history of allergic reactions after exposure to latex products. Patients at risk for latex sensitivity include those with a history of:

- Experiencing unexplained anaphylactic reactions during surgery, bladder catheterization, rectal or vaginal examination, or dental treatment.
- Neural tube defects; e.g., spina bifida.
- Genitourinary anomalies requiring chronic or intermittent bladder catheterization.
- Being on therapeutic protocols for neurogenic bowel and/or other bladder disorders.
- Multiple surgeries.
- Multiple allergies (atopy).

Latex sensitivity is often discovered in patients with allergies to avocados, bananas, cherries, celery, chestnuts, figs, kiwi, melons, milk (not including lactose intolerance), nectarines, papayas, passion fruits, peaches, plums, potatoes, and tomatoes.

The SJCEMSC recommends that Sponsored EMS Provider Organizations strive for a latex-free EMS care environment.

Sponsored EMS Provider Organizations should have, at a minimum, the following non-latex items, in adult and pediatric sizes, available to all EMS Personnel who have patient contact. Ideally, these items will be organized into a level appropriate "latex-free" kit.

- Exam gloves.
- Oxygen administration equipment (bag-valve-mask (BVM) combinations, facemasks, and nasal cannula).
- Oral airways and suction catheters.
- Endotracheal tubes and supraglottic airway devices (SAD's).
- Plastic or cloth tape.
- Cloth sleeve or plastic wrap (to place over latex containing BP cuffs, splints, etc.).
- ECG electrodes and defibrillator pads.

Because latex use is so widespread in medical equipment, it may be impossible to eliminate the risk of latex exposure, especially in the back of a closed ambulance.

To help minimize the exposure of latex sensitive patients, yet properly provide care to all patients, EMS Personnel should take the following precautions:

- Become familiar with what equipment in the vehicle contains latex, recognizing that many items may contain latex but not indicate it in their labeling.
- If already wearing latex gloves when latex sensitivity is identified, but outside of a closed environment such as an ambulance, very carefully remove the latex gloves well away from the patient.

Careless removal will aerosolize allergens and make a serious reaction more likely.

- If already wearing latex gloves when latex sensitivity is identified, and inside of a closed environment such as an ambulance, simply put latex-free gloves on over the latex gloves.

It is unsafe to remove latex gloves in a closed environment, such as an ambulance.

- Cover any latex containing equipment with a cloth sleeve or plastic wrap.
- If time permits before loading the patient, wipe down the interior of the patient compartment with a wet towel.

Latex allergens are water-soluble and may be rinsed away.

- Notify the Destination Hospital to prepare for a latex sensitive patient, and clearly document the presence of latex sensitivity in the EMS Medical Record.
- Monitor the patient carefully for signs of anaphylaxis, and treat accordingly (see Anaphylaxis).

Effective: April 2, 2007 Revised: April 1, 2018

Scenario-Specific Diversion REAPL

Patients with certain clinical problems require diversion to a specific Destination Hospital, based on the services available in the community.

See Standard Scene Operations for more information on Destination Hospital selection.

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 Medical Record.

Trauma (see Major Blunt or Penetrating Trauma for Transport Decision Algorithm)

The following patients should be transported to a level 1 or 2 trauma center:

- All trauma patients who meet Trauma Transport Decision steps 1, 2, and 3.
- Any trauma patient who meets Trauma Transport Decision step 4 and either:
  - The trauma center is the patient's hospital of choice **or**
  - OMCP request the patient transported to a trauma center **or**
  - The judgement of the on-scene EMS personnel.

Pediatric Critical Care

Patients < 15 yrs who are likely to require pediatric critical care should be transported to MHSB. Conditions likely to require such care include:

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

Suspected Carbon Monoxide Toxicity

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

- Headache.
- Tinnitus (ringing in the ears).
- Pallor and/or cyanosis.
- Weakness and/or dizziness.
- Dimmed vision.
- Vomiting.
- Cardiovascular instability.
- Bladder or bowel incontinence.
- Seizure activity.
- Loss of consciousness or depressed neurological function.
- Flushing of the skin, lips, mucus membranes, or tongue.

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Crime Scene Operations REAPL

The primary duty of EMS Personnel 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 immediately.

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 Personnel 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 Personnel, or others, in jeopardy**. If a person at a crime scene dies, or has died (see Initiation and Continuation of Resuscitative Efforts), EMS Personnel (FR level or higher) should await the arrival of law enforcement personnel, **unless scene safety is in doubt**.

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 Initiation and Continuation of Resuscitative Efforts), 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 Medical Record.
- In asphyxiation cases (including hangings), avoid cutting through or untying knots in any material around the neck unless necessary to free the airway.
- In stabbing cases, leave any impaled object in place.

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 by medication removal), or occurs inadvertently, inform on-scene law enforcement personnel.

Arrested Patients

EMS Personnel 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, they should assist an officer who requests their assistance.

If EMS Personnel 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 Medical Record**.

The arresting officer has direct authority over an arrested patient. If a patient is confirmed to be under arrest, EMS Personnel 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 the patient is being restrained solely to prevent fleeing, it is especially important for an officer to accompany the patient in the ambulance. If this is not possible, an officer should be asked to escort the ambulance to the hospital, driving behind the ambulance for better visualization of the patient compartment. In this case, **EMS Personnel should obtain, from the officer, a key to any restraint**.

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.

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

If the patient has been restrained and **either** of the following conditions exists, obtain Online Medical Consultation **before** transporting the patient:

- The patient is restrained to prevent fleeing and a law enforcement officer will not be available, in the ambulance or in an escort vehicle, to provide assistance. **OMCP**
- EMS Personnel will not be able to immediately unrestrain the patient if necessary. **OMCP**

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

EMS Personnel may not physically restrain a patient except in the case of an immediate threat to the safety of the patient, bystanders, or EMS Personnel; or with the approval of the OMCP.

Conflicts that arise regarding arrested patients should be resolved through Online Medical Consultation, 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.

Thomas A. Swift Electric Rifle (TASER®) Patients

The TASER® is a safe and effective law enforcement weapon, with little risk of serious harm.

The TASER® can ignite gasoline fumes and other flammable or combustible substances. EMS Personnel should inform law enforcement personnel if they suspect any such substances to be present on or around the patient.

The TASER® is a high voltage, low energy (< 2 J's), non-lethal weapon used by law enforcement to subdue and disable dangerous and uncooperative individuals.

The TASER® shoots two darts that can penetrate clothing and lodge in a person's skin. An electrical charge is then delivered to the darts through attached wires. The electrical charge overwhelms the person's voluntary muscle control, usually resulting in a fall to the ground and loss of coordinated muscle activity.

CAUTION: Patients can become injured during the fall.

The law enforcement officer, who can administer one or more shocks, controls the TASER® charge. After being "tasered," patients may:

- Be dazed for several minutes.
- Have involuntary muscle twitching and dizziness.
- Be amnestic of the incident.

There is generally no effect on heart rhythm or implanted electrical devices. Minor skin irritation can develop, and eye injury is possible if the dart strikes in this area.

Do not approach, touch, or attempt to remove darts from a "tasered" patient unless authorized to do so by law enforcement personnel.

With the approval of law enforcement personnel, TASER® darts can be removed by holding the skin around the penetration taut, and pulling the dart straight out. Each wound should be treated as a simple puncture, and the darts placed in a "sharps" container.

CAUTION: Do not remove any dart that is embedded in an eye, the neck, face, groin, or other sensitive tissue. If authorized by law enforcement personnel, cut the wire above the dart, prior to transport.

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Refusal of Care REAPL

*During **no** patient care encounter will EMS Personnel accept an order to treat or transport a refusing patient who the OMCP has determined is competent. If such an order is received and confirmed, an EMS Coordinator or Medical Director should be contacted immediately.*

***Any patient for whom Emergency Medical Services have been called will be evaluated, treated, and transported to a Destination Hospital**.*

The following exceptions apply:

- The patient refuses evaluation, treatment, or transport, as described in this guideline.
- The patient meets criteria for **not** initiating or continuing resuscitative efforts (see Initiation and Continuation of Resuscitative Efforts).
- Evaluation, treatment, and transport are impractical **because of scene safety**.
- The EMS response is cancelled prior to patient contact.

***The determination of who requires hospital evaluation is outside the scope of EMS practice**. EMS Personnel must earnestly encourage the evaluation, treatment, and transport of **all** patients. They 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.*

*An EMS Medical Record must be completed for **all** patient encounters, including those involving refusal of evaluation, treatment, or transport. The EMS Provider Organization must maintain a copy of the record, including any associated forms discussed below.*

General Principles

Informed Medical Consent

One of our fundamental rights is the right to decide what is done to our bodies. Indiana law requires informed consent prior to performing any medical intervention, including EMS evaluation, treatment, and transport.

Obtaining informed consent involves explaining the benefits and risks of a medical intervention to a patient, or a person legally responsible for a patient, and obtaining his/her consent or refusal to perform the intervention.

When EMS Personnel are providing lifesaving interventions to an unconscious person, or are evaluating and treating a cooperative patient, telling the patient what they are doing and why, consent is implicit. **Problems usually arise only when patients refuse care**. These problems are typically related to one or both of the following: Patient competence and age.

Implied consent exists when a patient is deemed incapacitated by shock or trauma and is unable to give informed judgment, and the patient has a health threatening disease or injury that requires immediate treatment to prevent death or impairment.

Competence

A patient cannot provide informed consent if he/she is incompetent. **Competence is the capacity to make a decision concerning medical care by understanding and considering all the relevant facts necessary to make a rational (though not necessarily reasonable) judgment**.

There is no simple set of questions to determine competence. In general, patients should be alert, oriented, and able to clearly express their understanding of the situation and the risk(s) involved in refusing care. Sobriety is not required, but apparently intoxicated patients should be exceptionally scrutinized before a determination is made. Criteria used to determine competence must be documented in the EMS Medical Record in all cases of refusal of care.

Minors

Persons under the age of 18 yrs are considered minors in Indiana. Though there are unusual exceptions for certain minors, the vast majority **cannot** give informed consent. In addition, the issue of who can give consent on behalf of a minor can often be complicated.

An OMCP should be contacted to help sort out consent issues for all refusals involving minors when no clear legal guardian is available.

Immunity from Adverse Action

IC 16-36-1-10 provides legal immunity for healthcare providers, 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**.

Refusal of Care (Evaluation, Treatment, or Transport)

If a patient refuses care by EMS Personnel, apply the following principals and procedure:

1. If the patient meets criteria for implied consent (see above), resolution of the immediate threat to life or limb takes precedence over other considerations.
2. Determine if the patient can demonstrate competence (see above).
   a. If the patient fails to demonstrate competence, proceed with care as able and obtain Online Medical Consultation as soon as possible. The OMCP will give specific orders regarding patient care, including transport. **OMCP**

*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; or with the approval of the OMCP. Chemical restraint may also be necessary.*

   b. If the patient demonstrates competence, determine if a clear and immediate risk to the patient's health exists. This determination will be based upon whatever evaluation is possible during the specific patient encounter.

A Clear and Immediate Risk is Not Present

*An EMS Personnel determination that a clear and immediate risk to the patient's health does **not** exist should be documented in the EMS Medical Record.*

1. Specifically document any refusal of care in the EMS Medical Record.
2. Complete either a Refusal of Evaluation or Refusal of Transport form, based on what the patient is refusing and the specific circumstances of the case. Document any "risks of refusing" on the form and ensure the patient understands them. If the patient offers any reasons for refusing care, document them in the EMS Medical Record.
3. Ask the patient and a witness to sign the form. Law enforcement personnel make excellent witnesses.

If the patient refuses to sign the Refusal of Evaluation *or* Refusal of Transport *form, this should be documented on the form and in the EMS Medical Record.*

4. Provide whatever care the patient will permit, including evaluation, treatment, and transport; then terminate the patient encounter.

Online Medical Consultation is always available but is not required in cases of competent refusal of care, except as below, if there is **no** clear and immediate risk to the patient's health.

Online Medical Consultation is always required if the refusing patient is a minor and no established legal guardian is available, or if a refusing adult patient fails to demonstrate competence and no person authorized to consent to healthcare for him/her is available.

A refusing patient must be informed how to obtain EMS services later if his/her situation changes.

A Clear and Immediate Risk is Present

An EMS Personnel determination that a clear and immediate risk to the patient's health exists should be documented in the EMS Medical Record.

1. Document any refusal of care in the EMS Medical Record.
2. Make an additional effort to convince the patient to consent to care. Obtain the assistance of family members, friends, and law enforcement personnel in persuading the patient to consent to care—**emphasize clear and immediate health risks**.

No lying, threats of incarceration, or other coercive means may be used to procure a patient's consent to care. ***Emphasize the clear and immediate risks to his/her health.***

3. If the patient still refuses transport, obtain Online Medical Consultation for assistance in determining patient disposition. If the OMCP concurs that the refusal of care is based on a competent person making an informed decision:
   a. Complete either a Refusal of Evaluation or Refusal of Transport form, based on what the patient is refusing and the specific circumstances of the case. Document any "risks of refusing" on the form and ensure the patient understands them. If the patient offers any reasons for refusing care, document them in the EMS Medical Record.
   b. Ask the patient and a witness to sign the form. Law enforcement personnel make excellent witnesses.

If the patient refuses to sign the Refusal of Evaluation or Refusal of Transport form, this should be documented on the form and in the EMS Medical Record.

4. Provide whatever care the patient will permit, including evaluation, treatment, and transport; then terminate the patient encounter.

Online Medical Consultation is always required prior to encounter termination if EMS Personnel determine that a clear and immediate risk to a patient's health is present.

A refusing patient must be informed how to obtain EMS services later if his/her situation changes.

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Patient Restraint REAPL

Combative patients represent a risk to themselves and others. Careful attention to patient rights, proper restraint and, above all, safety, is the key to successful management.

Physical restraint of a patient by EMS Personnel is prohibited except in the case of an immediate threat to the safety of the patient, bystanders, or EMS Personnel.

CAUTION: Always consider causes of violent behavior, such as: Post-ictal state, hypoglycemia, hypoxia, brain injury, intoxication, and acute psychosis. Obtain as much information as possible. Administer appropriate patient care to the extent possible.

Indications for Patient Restraint

Patients may require restraint when they behave in a way that represents a danger to themselves or others. Issues can range from an elderly extended care facility patient with dementia and agitation, to an acutely psychotic younger patient with severe paranoia. **The underlying consideration is that patient restraint is used in the interest of safety**.

Competent patients have a right to refuse medical care (see Refusal of Care).

Approach to the Patient

The use of verbal techniques to calm the patient can be very effective in reducing the likelihood of violence, and it avoids the risks involved in direct physical contact. When attempting to verbally manage the situation, apply the following:

- Be honest, straightforward, and calm; lies, threats, and provocation will worsen the situation. **Attempt to de-escalate, not control**.
- Avoid direct eye contact and do **not** encroach upon the patient's personal space.
- Avoid unnecessary or sudden movements.
- Show respect for the patient and maintain his/her dignity.
- **Have enough extra assistance in case the situation escalates**.
- Do **not** let the patient get between you and an escape route.

Obtain police assistance in managing violent patients, before restraint becomes necessary.

If an unrestrained patient becomes violent during transport, the situation cannot be safely controlled in the patient compartment, and the safety of EMS Personnel is at risk, the patient should not be prevented from exiting the vehicle, once stopped. EMS Personnel should request police assistance immediately and remain on-scene, if safe, until police arrive.

***Beware of concealed weapons**.*

Physical Restraint

If physical restraint becomes necessary, the **least** restrictive form necessary to provide safety to all persons should be utilized. Padded soft restraints are usually adequate for elderly patients with dementia and mild combativeness. More significant restraints or, with police involvement, handcuffs or shackles may be necessary for some patients.

If restraint is likely to be problematic, obtain police assistance early in the encounter.

When utilizing physical restraint, apply the following:

- Obtain Online Medical Consultation either before, or as soon as possible after, physical restraint is applied. **OMCP**

To the extent possible, maintain patient dignity.

- Place the patient in a supine, Fowler, semi-Fowler, or decubitus position.
- Utilize a four-point restraint method if possible. Additional tethering of the thorax may be necessary, and a surgical mask may be used to prevent spitting.

Transport of patients in the "hobble" (hog-tied) position, especially prone, may be dangerous and is prohibited without OMCP approval. **OMCP**

- Whatever method of physical restraint is used, it should permit monitoring of pulse and respirations, and should not restrict the patient's or EMS Provider's ability to protect the airway in case of vomiting. **It should permit full tidal volume breaths and must not compromise the neck**.

Restraints must be easily removable in case of emergency (see Crime Scene Operations).

Do not leave a restrained patient alone, ever.

- Restrained extremities should be monitored for circulation and peripheral motor-sensory function every 10 minutes; document findings in the EMS Medical Record.

To the extent possible, continue to provide appropriate patient care based on patient condition.

- Promptly notify the Destination Hospital that a restrained patient will be arriving, to permit a smooth turnover of care.
- Carefully document all aspects of the restraint process, including:
  - The reasoning behind patient restraint.
  - The consideration of patient competency (see Refusal of Care).
  - The method used to restrain the patient, and the personnel involved.
  - Continuous assessment of the patient during physical restraint.

Chemical Restraint **L**

Chemical restraint may be necessary in the following situations:

- The patient is violent to a degree that physical restraint cannot be applied safely.
- The patient exhibits violent movement to a degree that he/she may injure him/herself, even with physical restraint applied.

CAUTION: Severe patient struggling after restraint application can lead to hyperkalemia, rhabdomyolysis, acidemia, and cardiac arrest.

If chemical restraint becomes necessary, apply the following:

- Obtain Online Medical Consultation as soon as possible, preferably before administering any medication. **OMCP**
- If unable to obtain Online Medical Consultation before chemical restraint must be utilized, administer haloperidol 5 mg IV or 10 mg IM, followed by diphenhydramine 25 mg IV or 50 mg IM.

Diphenhydramine may decrease the likelihood of extrapyramidal symptoms (dystonic reaction) in a patient who receives haloperidol.

- If necessary, additional doses, or additional (alternative) medications such as benzodiazepines and/or ketamine, may be administered with Online Medical Consultation. **OMCP**

Patients with Excited Delirium often present partially clothed or naked, violent, and with 'super human' strength may benefit from ketamine. Due to the complexity of this disorder consultation with online medical control should be obtained as soon as possible. **OMCP**

Patients with acute psycho-stimulant (amphetamine, methamphetamine, cocaine, methylenedioxymethamphetamine (MDMA, "Ecstasy"), etc.) induced combativeness may benefit from ketamine &/or benzodiazepine administration as an alternative to, or prior to, haloperidol-diphenhydramine administration. Discuss the treatment of acute psycho-stimulant induced combativeness with the OMCP. **OMCP**

Key Considerations

- Carefully document the rationale for the use of any patient restraint, including considerations of safety and patient competence (see Refusal of Care).
- Obtain Online Medical Consultation early in the course of care, and carefully document it.
- Be sure to consider treatable medical causes of patient violence.
- Use the minimum amount of restraint necessary to achieve safe patient care and transport.
- Do **not** transport a patient in the handcuffed-hogtied-prone position without obtaining OMCP approval. **OMCP**
- Patients who require chemical restraint may require airway management.
- Maintain the patient's dignity.
- BE CAREFUL! EMS Personnel safety comes first. **Do not become a patient**.

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Medication Maintenance, Administration, and Special Handling of Scheduled Medication REAPL

All medication administration must be documented in the EMS Medical Record.

Medication Administration and Maintenance

EMS Personnel may administer medication commensurate with their level of certification, and in accordance with the Guidelines. EMS Personnel should be familiar with the indications, contraindications, warnings, potential adverse reactions, dosage, and administration of all medications they are authorized to administer (see Approved Medications).

CAUTION: Unless circumstances prohibit doing so (e.g., patient is unconscious and no bystanders are available), always inquire about medication allergies before administering any medication.

Errors in medication administration must be:

- Reported to a charge nurse at the receiving nursing unit, if the patient is transported.
- Reported to a physician at the Destination Hospital, if available.
- Recorded on an EMS Provider Organization incident report form. A copy must be sent to the EMS Coordinator at one of the Sponsoring Hospitals.
- **Recorded as a medication administration error in the EMS Medical Record**.
- Reported to the patient and/or patient's family.

On the **first day of every month**, the expiration date of each medication should be checked. Any medication due to expire should be disposed of appropriately and replaced.

Special Handling of Scheduled Medications (Controlled Substances) PL

Medication storage is subject to applicable requirements of the Indiana Board of Pharmacy.

Any scheduled medication must be stored in accordance with 836 IAC 2-2-3 (h). Specifically, all scheduled medication must be stored in a locked container within a locked compartment inside the emergency vehicle. The advanced life support personnel staffing the vehicle are responsible for proper medication storage, and should maintain possession of the key(s) or their personalized activation code at all times.

Once per shift, two personnel must count all scheduled medications in the vehicle, and record the medication counts in a scheduled medication control log.

If there is a scheduled medication counting discrepancy, an EMS Provider Organization incident report form must be completed. A supervisor and EMS Coordinator must be notified immediately.

When scheduled medication is used, the empty container must be submitted to the Destination Hospital nursing staff, or to a Sponsoring Hospital emergency department nurse if no transport occurred, to be properly discarded. A nurse will record this on a medication control sheet that will be signed by the nurse and the Paramedic who administered the medication.

Unused scheduled medication requires proper disposal, with proper documentation.

When unused for any reason, scheduled medication requires proper disposal. The medication must be disposed of in the presence of a member of the Destination Hospital nursing staff, or in the presence of a Sponsoring Hospital emergency department nurse if no transport occurred, recorded on the medication control sheet, and signed by the nurse and the Paramedic who discarded the unused medication.

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Body Fluid Exposure Reporting REAPL

See Infectious Disease Control and Universal Precautions for additional information.

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 Providers 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 SJCEMSC authorized EMS Personnel are covered by IC 16-41-10.

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

EMS Personnel 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:

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

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.

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/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 Provider Organization or the ISDOH. If the patient refuses, a court can order appropriate specimens to be obtained and appropriate testing done.

How Does Notification of EMS Personnel Occur?

A medical facility must, **within 72 hours** of receiving proper notification of exposure (see above), notify an SJCEMSC Medical Director, or another EMS Personnel designated physician (see Section 4 of Indiana State Form 51467 (9-03)), of the results of any testing performed on the patient.

836 IAC 1-2-1 provides that, with regard to testing and results, the SJCEMSC Medical Directors can act as a liaison between the EMS Provider Organizations, EMS Personnel, and hospitals.

Within 48 hours of receiving the test results, whichever physician receives them (an SJCEMSC Medical Director or another designated physician) will notify the affected EMS Personnel of the results of any testing performed on the patient, and:

- Explain, without disclosing information about the patient, any dangerous communicable disease to which the affected EMS Personnel were exposed.
- Provide for any medically necessary treatment and counseling, related to the exposure, required by the affected EMS Personnel.

Who Pays for Testing, Treatment, and Counseling?

The expenses of any testing, treatment, and counseling are the responsibility of the affected EMS Personnel or the EMS Provider Organization.

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).

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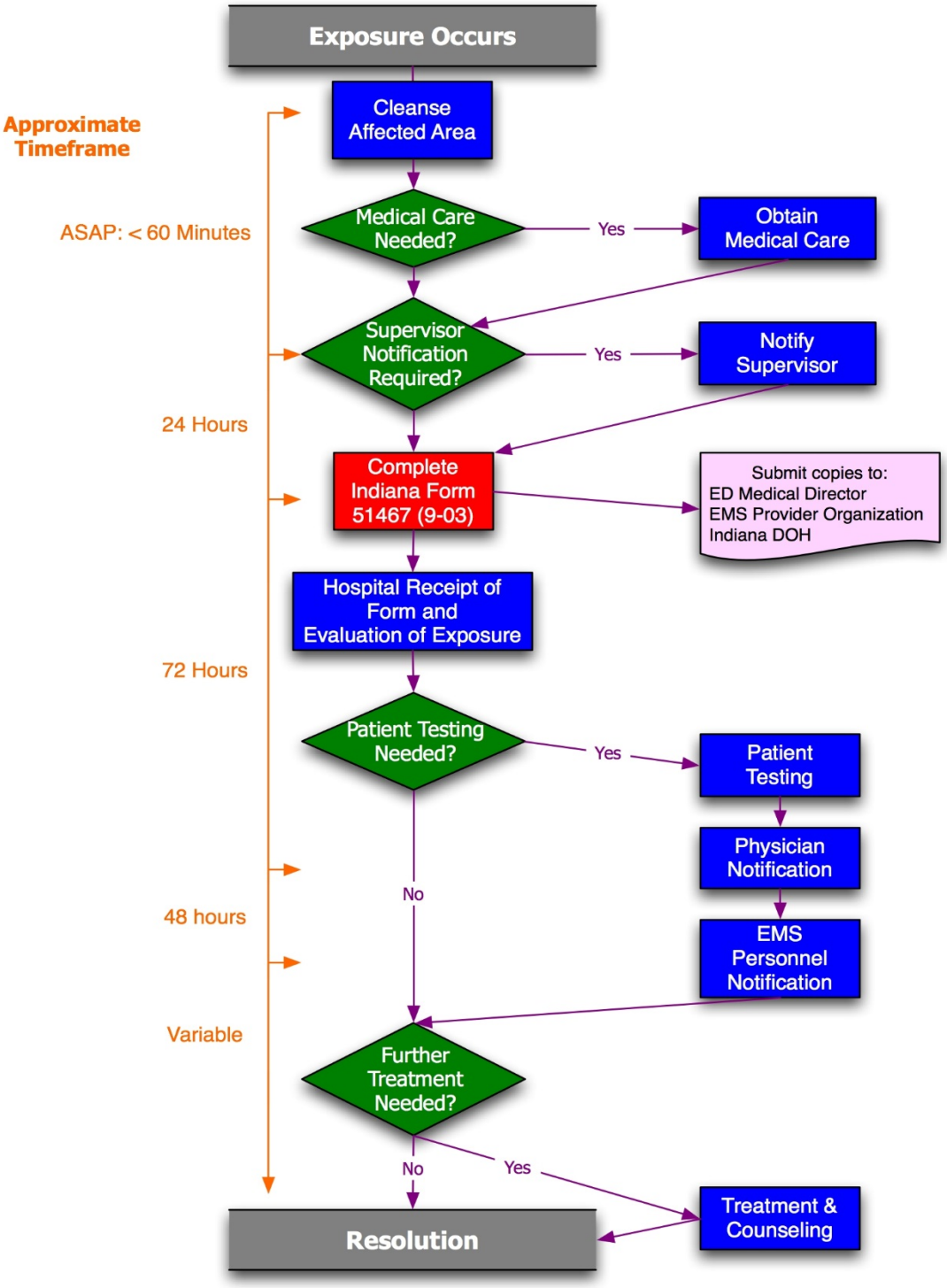
Body Fluid Exposure Flow Chart



Standing Medical Orders

Key:

D Emergency Medical Dispatcher (EMD)

R Emergency Medical Responder (EMR

E Emergency Medical Technician (EMT)

A Advanced Emergency Medical Technician (AEMT)

P Paramedic

L Lead Paramedic

***Unless specifically noted, all Guidelines apply to all levels of certification**. Level-specific guidelines, or portions of them, are annotated with the appropriate symbol(s), either **after** the title (when applicable to the entire Guideline) or **after** the appropriate section header or item (when applicable to a specific portion of a Guideline). "After means only."*

*Scenario-specific numbered interventions in the Standing Medical Orders are preceded by a symbol indicating the **minimum** level of certification necessary to perform that intervention. The symbol does **not** mean that an individual with a higher level of certification should not perform the intervention if it is appropriate to the specific clinical encounter. "Before means 'at least'."*

Standing Medical Orders for EMS Personnel REAPL

Remember to make sure the scene is safe before approaching the patient, and to wear appropriate personal protective equipment (PPE). ***Do not become a patient****.*

A Framework for Care

The SJCEMSC recognizes the expertise that EMS Personnel bring directly to the out-of-hospital patient. EMS Personnel should always provide care commensurate with their training, certification, and authorization. **The Guidelines and, specifically, the Standing Medical Orders, provide a framework for that care**. In the interest of expediting patient management, Standing Medical Orders allow EMS Personnel to implement many assessments, treatments, procedures, and dispositions without Online Medical Consultation.

In **all** situations, first aid and basic life support should be promptly and appropriately instituted. Consider all applicable Standing Medical Orders.

In **all** situations referring to intravenous (IV) administration of fluids and medications, the intraosseous (IO) route may be utilized if clinically necessary; **all fluids and medications that can be given IV can be given IO**.

If Online Medical Consultation is required, the Destination Hospital should be contacted as soon as possible without compromising patient care. ***Medically prudent orders given by the Online Medical Consulting Physician (OMCP) supersede the Guidelines****.*

Conventions in the Standing Medical Orders

Most interventions are listed in numerical order. This indicates a generic sequence of events only—**it is not a cookbook**. It is understood that, in specific EMS scenarios, many interventions may occur simultaneously, out of order, or not at all. Efforts were made to list basic life support interventions first, moving on to advanced life support interventions later in the list, but this was often not possible.

Except as specifically noted with **PEDIATRIC**, all dosages are for adults only. If you do **not** see **PEDIATRIC**, do not administer the medication to patients < 18 yrs without Online Medical Consultation. **Unless otherwise noted, the maximum pediatric dose, based on patient weight, is the adult dose for the same medication**.

OMCP indicates that authorization from an Online Medical Consulting Physician is required prior to the intervention.

A level of certification is listed prior to each intervention, indicating the minimum level of certification necessary to perform the intervention*.*

Example: "**A** Initiate venous access." *means that an EMS Provider must have a* ***minimum*** *certification of Advanced EMT in order to perform this intervention.* ***It does not mean that only providers at this level of certification should perform this intervention****.*

Medications REAPL

Standing Medical Orders for the administration of scenario-specific medications are located throughout. The Medication section contains detailed information about all SJCEMSC-approved medications. EMS Personnel authorized to utilize these medications must be familiar with their use; including their indications, contraindications, adverse reactions, dosage, pediatric use, etc.

Online Medical Consultation is always available and should be sought whenever there are questions regarding the use of a medication.

Deviations

EMS practice is dynamic and highly case-specific. 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 Medical Record.

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

Life Support Maneuvers

Life support maneuvers are often an important component of EMS care, both at the basic and advanced life support levels. These include, but are not limited to: CPR, airway stabilization (including endotracheal intubation and gastric tube placement), defibrillation, vascular access (including peripheral venous, external jugular, and intraosseous access), cardiac pacing, cricothyrotomy, and relief of tension pneumothorax. Life support maneuvers may be carried out by appropriately trained, certified, and authorized personnel, if medically necessary, within any clinical situation. The techniques for performing such procedures are well described in other references and are not reproduced in the Guidelines. The notable exception is drug-assisted intubation (see Airway Management).

Paramedics **P** *are not permitted to perform intubations (nasotracheal or endotracheal), drug-assisted intubation, cricothyrotomy, synchronized cardioversion, or certain drug administrations without a Lead Paramedic* **L** *on scene.*

The Ultimate Standing Medical Order

Careful consideration of risks and benefits should be given to all interventions. ***What we choose not to do is as important to patient care as what we choose to do****.*

The indications, contraindications (including allergies), appropriate and alternative techniques, and potential complications should be kept in mind for all patient interventions, procedural and pharmacological. **Prudent, appropriate patient care is the ultimate Standing Medical Order**.

CAUTION: Unless impossible because of the clinical situation, always assess patient allergies before touching the patient or administering any medication.

Effective: April 2, 2007 Revised: April 1, 2018

Standard Initial Care of Ill or Injured Persons REAPL

In any clinical situation, when medically appropriate, follow current AHA Emergency Cardiovascular Care (BCLS, ACLS, PALS, and NRP) and BTLS/PHTLS Guidelines.

When clinically indicated, initiate:

- **R** Airway management.
- **R** Automated External Defibrillation.
- **R** Oxygen administration.
- **R** Suctioning.
- **R** Control of bleeding.
- **R** Extremity immobilization.
- **E** Spinal motion restriction.
- **E** Blood glucose monitoring.
- **E** Pulse oximetry monitoring.
- **E** 12-lead acquisition & transmission ONLY.
- **E** Pelvic binding.
- **A** Intravenous or intraosseous access (see below).
- **P** Cardiac monitoring.
- **P** CPAP/PEEP application.
- **P** 12-lead interpretation.
- **P** End-tidal carbon dioxide $ETCO_2$ monitoring.
- **P** Manual Defibrillation.
- **L** Cardioversion.
- **L** NG/OG tube placement.
- **L** External pacing.
- **L** Endotracheal/Nasotracheal intubation.
- **L** Decompression of tension pneumothorax.
- **L** Drug-assisted intubation.
- **L** Cricothyrotomy.

*Lead Paramedic interventions, at the discretion of the on-scene Lead Paramedic, may be delegated to other EMS Personnel, **to their level of certification or licensure,** unless specified elsewhere in the Guidelines. However, the Lead Paramedic is ultimately responsible for the entire intervention.*

Oxygen Administration

Oxygen is a medication administered to EMS patients, with rare adverse reactions. However, though the issue remains controversial, in most cases **supplemental oxygen is not required if the oxyhemoglobin saturation is ≥ 90%**. Until more data is available, oxygen therapy is best based on patient comfort. Comfortable patients not displaying signs and symptoms of hypoxia should receive **little or no** supplemental oxygen. **Dyspneic patients should receive oxygen titrated to their comfort, usually to achieve an SpO_2 of 90-99%.**

CAUTION: ***Do not withhold oxygen from any dyspneic patient****. Treat the patient, not the data provided by a device.*

Venous Access APL

Specific scenario-based orders for initiating venous access are located throughout the Standing Medical Orders. It is impossible to anticipate all situations in which it is appropriate. **Venous access, if necessary, should be initiated for the anticipated or actual infusion of fluids and administration of medications**.

IV access is preferable to IO access. However, when IO access is necessary, it is considered equivalent to IV access with regard to medication and fluid administration. ***All medications that can be administered IV can be administered IO****.* **APL**

Endotracheal (ET) medication administration, though permitted when necessary, is highly undesirable. ET medication administration requires Lead Paramedic decision. **L**

AEMT's may initiate intravenous access and fluid therapy, with normal saline (NS), in accordance with specific clinical scenarios identified in the Standing Medical Orders. Paramedics may also initiate intravenous access (or intraosseous access if necessary) and fluid therapy **outside the scenarios**, when they perceive those interventions would be of benefit during the specific patient encounter.

Not every patient requires venous access, and not every patient who requires venous access requires intravenous infusion. Venous access and/or infusion should be performed, as with all interventions, ***only*** *when there is an expected patient benefit, and all risks have been considered.*

Effective: April 2, 2007 Revised: April 1, 2018

Airway Management REAPL

*Supraglottic Airway Device (SAD) or endotracheal tube (ETT) placement is **not** always required, and is **not** synonymous with good airway management. Manage the airway as most appropriate to the patient, using the **least** invasive method that provides adequate oxygenation, ventilation, and airway protection.*

*CAUTION: Intubation is a Lead Paramedic procedure. If the unique characteristics of a patient encounter require it, other EMS Personnel may participate **to their level of certification**. However, **one** Lead Paramedic on scene is responsible for, and must remain in control of, the entire procedure.*

*CAUTION: If intubation is necessary and performed, **confirm tube placement** with primary and secondary techniques. **Do not over-inflate the cuff**. Secure the tube carefully and avoid ligatures around the neck. **Do not hyperventilate the patient**. The use of capnography is **mandatory** for all intubated patients. $ETCO_2$ should be kept at an appropriate level for the clinical scenario.* **L**

In almost every clinical scenario, with the conspicuous 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. For simplification, airway management is detailed in this Standing Medical Order, and emphasized in other selected Standing Medical Orders. **It applies to all patient encounters**.

R Perform BLS airway maneuvers as indicated.

R Assist ventilation if necessary.

R Suction as indicated.

R Administer oxygen as indicated.

E Place the patient on a pulse oximeter.

E Insert an approved supraglottic airway if necessary.

P Place patient on capnography monitoring as appropriate.

P Place the patient on a cardiac monitor.

L Intubate the trachea if necessary.

L Intubate with drug assistance if necessary (see below).

L Consider cricothyrotomy if necessary and appropriate (typically in major trauma).

*Endotracheal intubation is indicated and appropriate when **adequate** oxygenation, ventilation, and, to a lesser, degree airway protection cannot reasonably be accomplished by less invasive means.*

If obstructive laryngospasm develops during laryngoscopy, lidocaine 20-40 mg **(PEDIATRIC: 1 mg/kg)**, *sprayed directly on the glottis, will often reduce the spasm, and permit intubation.*

If unable to intubate, utilize an SAD if possible, perform BVM ventilation as able, consider alternative means of airway management, and manage the airway as effectively as possible.

Drug-assisted Intubation L

CAUTION: Consider alternative methods of airway management before considering intubation with drug assistance.

Drug-assisted intubation is a series of maneuvers and pharmacological interventions employed to achieve orotracheal intubation. When medication is utilized to sedate and paralyze the patient for intubation, the procedure is called rapid sequence intubation (RSI).

The decision to perform drug assisted intubation is complex and one that is required to be made by the Lead Paramedic that is in charge of the case. This Lead Paramedic should direct, as appropriate, other EMS Personnel to participate ***to their level of certification or licensure****. However,* ***one*** *Lead Paramedic on scene is responsible for, and must remain in control of, the entire procedure.*

Contraindications

- Severe facial trauma or any other factor that will prohibit adequate airway visualization, or make adequate airway visualization extremely difficult.
- Succinylcholine, and therefore intubation with drug assistance, is contraindicated in:
  - Significant hyperkalemia.
  - Major burns > 48 hours **and** < 6 months old.
  - Extensive crush injury > 48 hours **and** < 6 months old.
  - Myopathies/skeletal muscle denervation syndromes; e.g., multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS), muscular dystrophy, stroke (unless acute), spinal cord injury (unless acute), etc.
  - A history, or family history, of malignant hyperthermia (very rare) or other life threatening anesthesia reactions.
  - Acute organophosphate poisoning.

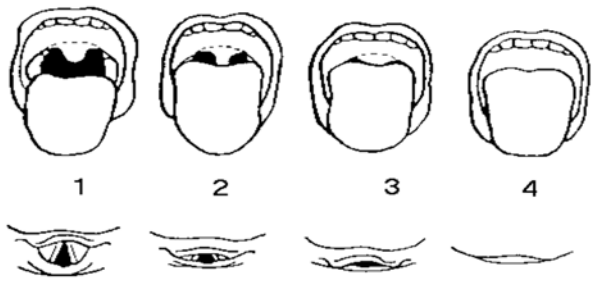
Procedure

CAUTION: Do not proceed if succinylcholine is contraindicated. Sedation without available neuromuscular blockade is dangerous.

1. **L** Assess the airway and ensure no contraindications exist.

P R E P A R E

Predict how difficult it will be to visualize the airway.



The Mallampati Score is helpful but not 100% accurate:

Generally, the higher the score, the more difficult endotracheal intubation will be.

PREOXYGENATE

2. **E** Deliver oxygen at ≥ 15 lpm via a nasal cannula ***and***
   a. **E** NRB mask at ≥ 15 LPM; if unable to achieve SpO2 ≥ 95% replace with
   b. **P** CPAP at 5-10 cm/H2O with highest FiO2 available, as appropriate ***or***
   c. **P** BVM with PEEP valve at up to 10-15 cm/H2O, as clinically indicated.

CAUTION: Avoid BVM ventilation if possible. If BVM ventilation is necessary, avoid gastric inflation of the stomach.

3. **E** Ensure the patient is on a pulse oximeter.
4. **P** Ensure the patient is on a cardiac monitor.
5. **E** Ensure suctioning is available **and functioning**.
6. **P** Ensure all airway equipment is available **and functioning**.
7. **L** **Ensure alternative methods of airway management are immediately available.**
8. **A** Ensure proper venous access; IO access may be used if necessary.

PRETREAT

9. **P** Administer fentanyl 2 mcg/kg **(PEDIATRIC: 2 mcg/kg OMCP)**, maximum 200 mcg, if practical and not contradicted.
10. **P** Administer lidocaine 0.75 mg/kg **(PEDIATRIC: 1 mg/kg OMCP)** IV, up to a maximum of 100 mg, if practical and not contraindicated by cardiac rhythm, or previously administered via nebulizer.
11. **P** Administer atropine 0.5-1 mg **(PEDIATRIC: 0.02 mg/kg OMCP)** IV (min. dose: 0.1 mg) to patients with baseline bradycardia (HR < 60) or age ≤ 10 yrs if appropriate.
12. **P** **If pretreatment medications are administered, wait three minutes, if practical, for them to be effective**.

PARALYZE

13. **P** Administer **one** available induction agent:
    a. Etomidate 0.3 mg/kg **(PEDIATRIC: 0.3 mg/kg OMCP)** IV/IO, up to 40 mg. **OR**
    b. Ketamine 2 mg/kg IV/IO **(PEDIATRIC: 2 mg/kg OMCP)** is the optimal choice if patient is hypotensive, at risk of hypotension, or has bronchospasm.
14. **P** Attempt intubation if practical. **Terminate the procedure and utilize other methods of airway management if it appears that neuromuscular blockade will not improve visualization of the glottis**.
15. **P** Administer succinylcholine 1-1.5 mg/kg **(PEDIATRIC: 0.3 mg/kg OMCP)** IV. Watch for muscle fasciculation after 20-30 sec.
16. **P** Intubate the trachea **(refer to Difficult Airway Algorithm below)**.

PLACE

17. **L** Confirm endotracheal placement with **primary** (clinical) and **secondary** (non-clinical) techniques. **Obtain a "Tube Ticket".**
18. **P** Inflate the cuff enough to make a seal—**do not over-inflate**.
19. **P** Secure the tube carefully **with a commercial device**. To allow venous drainage, especially in patients with traumatic brain injury (TBI) or other causes of elevated intracranial pressure (ICP), avoid ligatures around the neck.

EMS management consists of maintaining the secured airway and preventing dislodgement of the tube, providing proper ventilatory support and oxygenation, and providing for maximum feasible patient comfort. As in almost all airway management scenarios, ***adequate oxygenation trumps all other considerations****.*

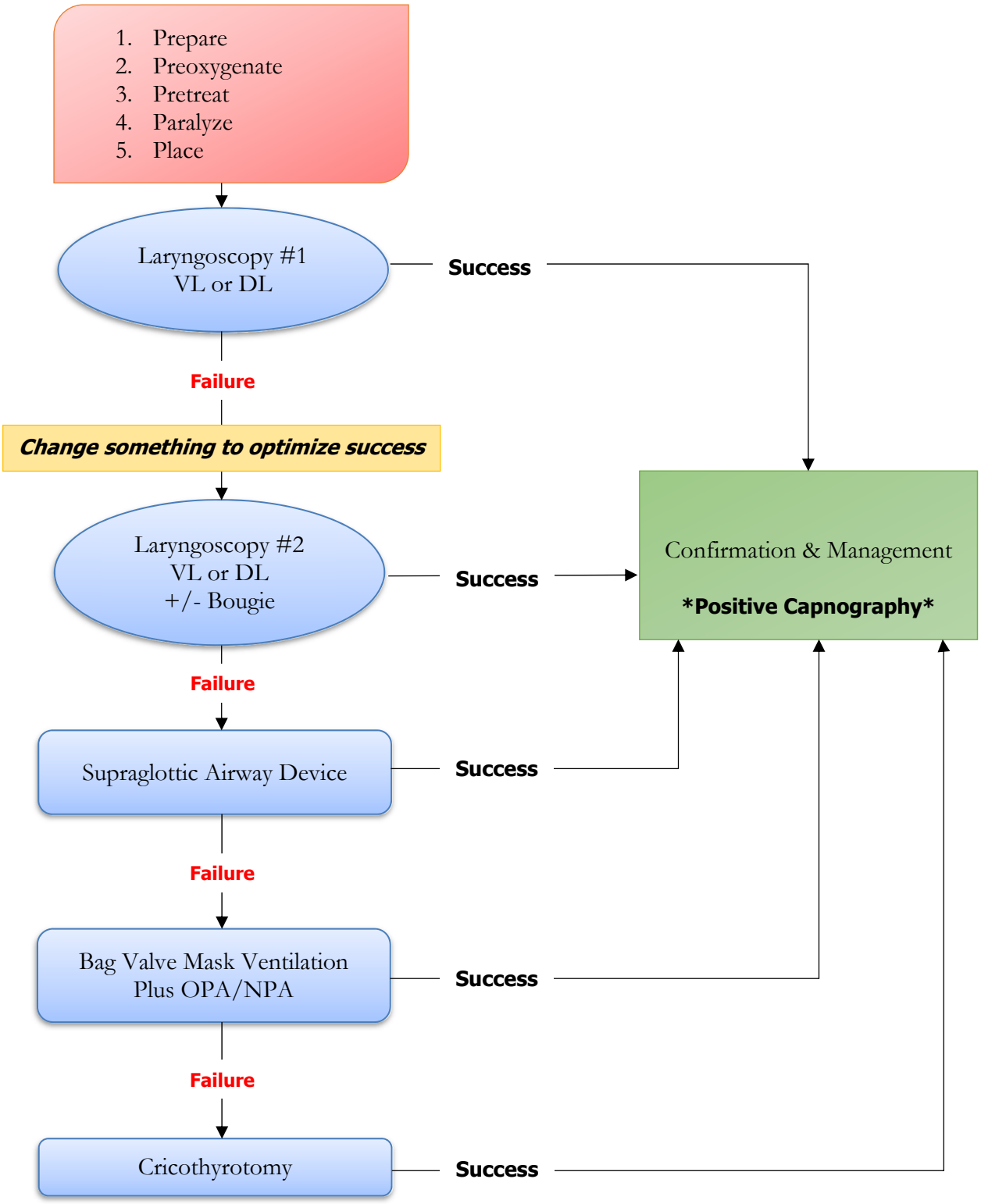
Post-Intubation Management L

1. **L** Confirm ETT placement with primary (clinical) and secondary (non-clinical) techniques frequently.
2. **E** Continuous oximetry monitoring is required for all ventilated patients.
3. **P** Continuous waveform capnography is required for all intubated patients.
4. **P** Ventilate the patient as appropriate, typically, with a PEEP of 0-10 cm/H2O (5 cm/H20 is appropriate in most patients, including pediatrics) titrated for clinical scenario and a rate of 8-12 breaths per minute titrated for clinical scenario.
5. **E** Oxygen administration should be titrated, typically, to maintain an SpO2 of ≥92-94%. Do not use more oxygen than is necessary unless the patient is suffering from possible carbon monoxide toxicity.
6. **E** Suction the patient as needed, using standard sterile technique.
7. **P** If necessary to treat bronchospasm, (albuterol 2.5 mg and ipratropium bromide 0.5 mg), may be administered via an inline nebulizer. Be aware that patients with bronchospastic disease often develop severe bronchospasm after intubation.
8. **P** If possible, place a gastric tube to reduce gastric insufflation.
9. **P** Analgesia and sedation are important, even essential, and appropriate for intubated patients if hemodynamically stable. Use caution as these agents can cause hypotension in hemodynamically unstable patients, especially if a benzodiazepine is combine with a narcotic. Use the smallest doses necessary for patient comfort.
    - Analgesia:
        - Fentanyl 2 mcg/kg **(PEDIATRIC: 2 mcg/kg OMCP)**, up to a maximum dose of 100 mcg, IV/IO. Additional dosing requires online medical consultation.
    - Sedation: (Use **one** of the following) additional dosing available with **OMCP**.
        - Midazolam 0.1 mg/kg **(PEDIATRIC: 0.1 mg/kg OMCP)**, up to a maximum dose of 5 mg, IV/IO. Avoid if patient is hypotensive.
        - Ketamine 1 mg/kg **(PEDIATRIC: 1 mg/kg OMCP)**, IV/IO is the optimal choice if patient is at risk of hypotension or with bronchospasm.
10. **E** To prevent self-extubation, physical restraint may be required.
11. **L** With every patient movement (e.g., ground to cot, etc.) re-confirm ETT placement by the methods listed above, and re-note the ETT depth.

Key Considerations

- Do **not** do the same thing if it failed the first time, **change** something to succeed.
- If there is not a positive capnography waveform- **pull the tube**.
- Patients with small jaws, short necks, stiff spines, and beards make poor candidates for RSI because these factors will **not** improve with sedation and neuromuscular blockade.
- **DO NOT PANIC!** Almost any airway can be acceptably managed for a short time with either an SAD or BVM ventilation—**have them ready**.
- If possible, always place a gastric tube following endotracheal tube placement.
- **Cricothyrotomy is difficult**. Utilize this skill **only** when absolutely necessary.

Difficult Airway Algorithm L



Effective: April 2, 2007 Revised: April 1, 2018

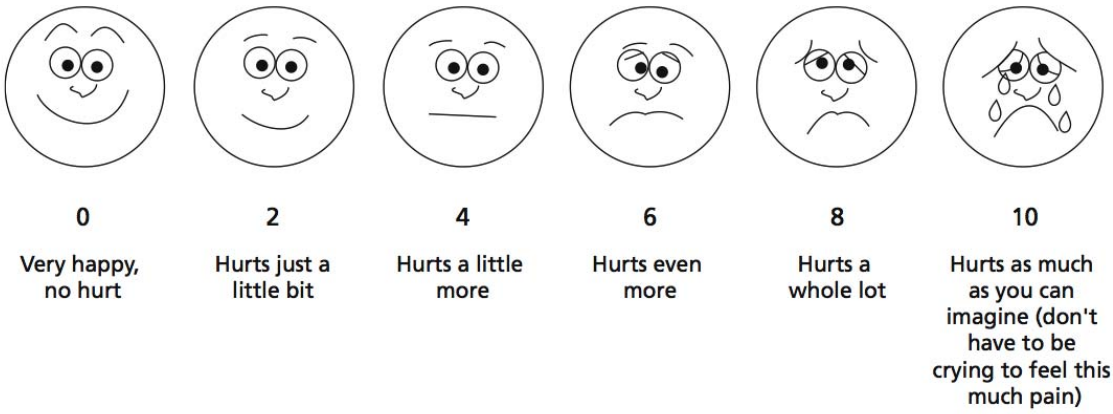
Pain Management

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 Personnel to administer analgesic medication, during specific patient encounters, without Online Medical Consultation.

*This Standing Medical Order does **not** apply to patients with major trauma; for those patients, see the pain management guidelines in Major Blunt or Penetrating Trauma).*

Pain management begins with pain assessment.

1. **R** Assess patient pain using a 1-10 scale, in which 1 = no pain and 10 = the worst imaginable pain. Alternatively, or for children, utilize a visual analog scale (VAS):



Pain should be reassessed periodically, and after interventions.

2. **R** Apply comfort measures, including repositioning, splinting, and reassurance.
3. **P** **Consider whether parenteral analgesia may be appropriate for this patient**.

*This determination is based on the unique circumstances of each patient encounter, including patient history, exam, and consideration of the transport time. If determined not to be appropriate, do **not** proceed. Online Medical Consultation is always available, and should be obtained in difficult cases.*

4. **P** Determine if the patient meets SJCEMSC criteria for parenteral analgesic administration by Standing Medical Order:

Caution: Intoxication from any illicit drug or alcohol consumption can exacerbate the potential respiratory effects of opiates. Patients who appear intoxicated require Online Medical Consultation prior to administration of any parenteral analgesic. **OMCP**

One or More of the Listed Problems…	and All of the Following:
Extremity trauma with deformity or amputation	Age ≥ 8 yrs
Acute abdominal pain	**No** altered mental status
Acute back pain	**No** cardiac or hemodynamic instability
Suspected "kidney stone"	**No** respiratory instability
Burn injury	**No** suspected recent cocaine use
Acute sickle cell crisis	Cardiac/SpO2/EtCO2 monitoring is in place
	Naloxone is available in case of emergency

5. **P** If appropriate, and criteria are met, administer fentanyl 25-50 µg **(PEDIATRIC: 1 µg/kg)** IV.

   L May repeat fentanyl every 5-10 min as needed, up to a total cumulative dose of 200 µg; **or**

   L Morphine sulfate 2-5 mg **(PEDIATRIC: 0.1 mg/kg)** slow IV every 5-10 min as needed, up to a cumulative dose of 20 mg; **or**

   L Ketamine 0.25 mg/kg **(PEDIATRIC: 0.25 mg/kg OMCP)** (maximum dose 20 mg) slow IV every 5 minutes (maximum cumulative dose 40 mg) as needed. Optimal choice if patients is at risk of hypotension.

6. **L** Pain refractory to opiate administration consider addition of ketamine 0.25 mg/kg **(PEDIATRIC: 0.25 mg/kg OMCP)** (maximum dose 20 mg) slow IV every 5 minutes (maximum cumulative dose 40 mg) as needed.

L *If venous access is unobtainable,* ***fentanyl*** *1 µg/kg up to 100 µg* ***(PEDIATRIC: 1 µg/kg)*** *may be administered intranasal via a Mucosal Atomizer Device (MAD).*

Caution: If parenteral analgesic medication is administered at any time during the patient encounter, a Paramedic must staff the patient compartment during transport.

7. **A** Maintain a venous infusion with NS at an appropriate rate.
8. **P** Be cognizant of the therapeutic endpoints of parenteral analgesic administration:
   - Adequate pain relief is obtained, **or**
   - The patient shows signs of sedation, **or**
   - An adverse reaction, such as nausea, hypotension, or hypoxemia occurs.
9. **P** Consider ondansetron, administer 4 mg **(PEDIATRIC: 0.15 mg/kg max 4mg)** IV for opiate induced nausea.
10. **R** Reassess and document pain periodically, and after all pain management interventions.

Key Considerations

- All patients in pain, adult and pediatric, deserve to have their pain assessed, managed, and reassessed, in a manner appropriate to their unique clinical situation.
- Fentanyl, morphine, and ketamine are generally safe in therapeutic doses.
- Even when parenteral analgesia cannot be administered by Standing Medical Order, authorization for its use can be obtained through Online Medical Consultation. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018 Revised: June 1, 2018

Major Blunt or Penetrating Trauma

Notify the Destination Hospital as soon as possible with patient condition and ETA.

*Delay transport only because of scene safety issues, extrication, and **possibly** endotracheal intubation. **Keep scene times as short as safely possible**.*

*Be alert for, carefully evaluate, and treat tension pneumothorax but do **not** perform needle decompression indiscriminately, nor **solely for unilaterally decreased breath sounds**. The most common cause, **by far**, of unilaterally decreased breath sounds following intubation is mainstem bronchus intubation—check tube insertion depth.* **L**

1. **R** Control serious external bleeding, use a tourniquet as necessary.
2. **R** Administer oxygen and proceed with airway management as indicated.
3. **R** Assist ventilation if necessary. Suction as indicated.
4. **E** Initiate rapid transport to the appropriate facility as soon as possible. (See Trauma Transport Decision Algorithm below)

Protect from the patient from heat loss. Increase patient compartment to target of ~ 80-82°F. **E**

5. **E** Place the patient on a pulse oximeter.
6. **P** Place the patient on a cardiac monitor.
7. **E** Insert an SAD if necessary, **OR**
8. **L** Tracheally intubate if necessary, **OR**
9. **L** Consider cricothyrotomy if necessary and appropriate (typically in facial trauma.)

*CAUTION: Confirm endotracheal tube placement with primary and secondary techniques. Secure tube carefully. **Do not hyperventilate the patient**. Use capnography to maintain $ETCO_2$ ~ 35 mm Hg.*

10. **A** Initiate intravenous access with at least one large bore catheter; two are preferred in major trauma but **do not delay transport to initiate intravenous access**.

IO access should be obtained if IV access is unobtainable and venous access is critical. **A**

11. **L** Intubate with drug assistance if necessary (see Drug-assisted Intubation).
12. **A** Administer 250 ml NS IV boluses, **warmed if possible**, to maintain a radial pulse, or a systolic blood pressure (SBP) of 80-90 mm Hg (100 mm Hg if brain or spinal cord injury are strongly suspected).

*CAUTION: Indiscriminate use of IV fluid may be **harmful** in trauma patients.*

13. **B** If an unstable pelvic fracture is present, use a sheet or other pelvic binder to stabilize the pelvis.

*The binder should be applied at the level of the **femoral greater trochanters**.*

14. **L** For pain, and in the absence of signs of shock (including significant tachycardia), respiratory depression, or intoxication, consider administering:
    a. Fentanyl 25-50 µg **(PEDIATRIC: 1 µg/kg)** slow IV every 5-10 min, up to a cumulative dose of 200 µg **and/or**

b. Ketamine 0.25 mg/kg **(PEDIATRIC: 0.25/kg OMCP)**, maximum 20 mg, slow IV every 5-10 min, up to a cumulative dose of 40 mg for:

- Pain refractory to opiate administration ***or***
- Consider, without fentanyl, for a concern of potential hypotension.

Fentanyl may reduce intracranial pressure (ICP) in patients with severe traumatic brain injury.

CAUTION: Fentanyl may cause hypotension and ventilatory depression. Use the lower dose (25 µg), at least initially, for elderly patients.

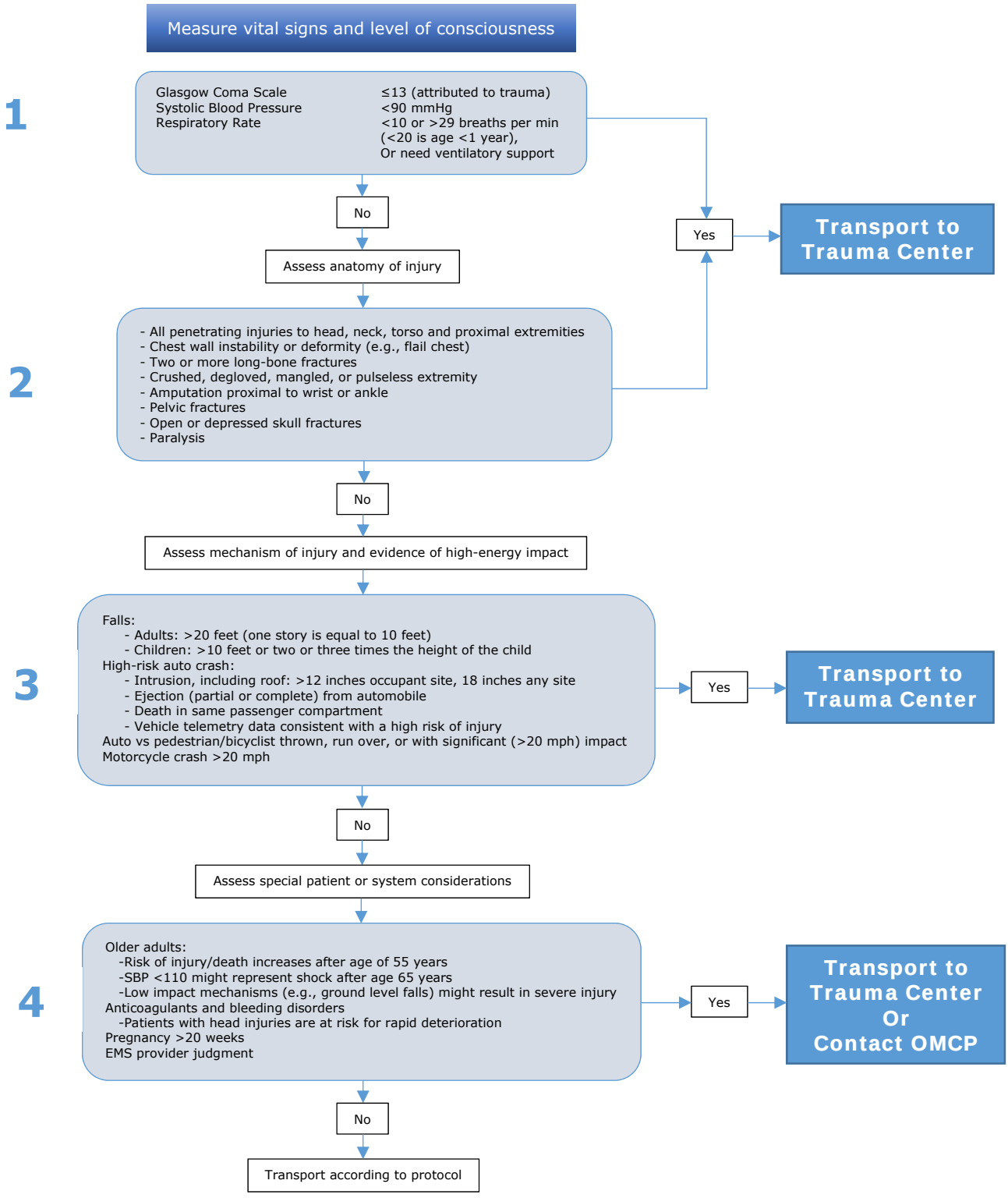
15. **L** For combativeness associated with head injury, consider administering haloperidol 5 mg IV and diphenhydramine 25 mg IV ***or*** ketamine 1-2 mg/kg slow IV every 5-10 minutes as needed.
16. **L** Consider reducing obvious fractures or dislocations if there is distal vascular compromise or to facilitate transport if positioning would otherwise prohibit normal patient transfer.
17. **R** Expose the patient, as indicated, for complete assessment.
18. **R** Splint injured extremities.
19. **R** Bandage open wounds.

Use a "three-sided" petroleum gauze bandage for "sucking chest wounds."

Key Considerations

- Rapid transport is essential to the outcome of patients with major trauma, especially penetrating trauma. **"Scoop and Run" works!**
- **Tension pneumothorax can be a fatal but reversible cause of shock**. Be alert for tension pneumothorax and perform decompression if necessary. Do **not** perform needle decompression unless the patient is hypotensive with unilaterally decreased breath sounds and, if intubated, is "difficult to bag." Confirm tube position first (see below).
- The most common cause of unilaterally decreased breath sounds, especially on the left side, in an intubated patient is a **mainstem bronchial intubation**.
- Indiscriminate use of IV fluid has **not** been shown to benefit outcome in trauma patients, and may be **harmful** in patients with penetrating torso trauma.
- Pelvic binding may significantly reduce hemorrhage in unstable pelvic fractures.
- **Cricothyrotomy is difficult**. Utilize this procedure only when absolutely necessary.
- Major trauma cases are urgent and stressful. DRIVE CAREFULLY!

Trauma Transport Decision Algorithm



When in doubt, transport to a trauma center

Effective: April 2, 2007 Revised: April 1, 2018

Acute Bronchospasm

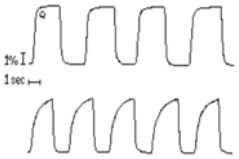
Acute bronchospasm is a condition that may occur alone, as in response to an inhaled irritant, or as part of a disease process such as asthma, COPD, pulmonary edema, etc. It can produce cough, wheezing, or silence due to airway narrowing.

Not all wheezing is due to bronchospasm. Be alert for airway obstruction, especially in children.

1. **R** Administer oxygen. Proceed with airway management as indicated.

CAUTION: If the patient has a history of COPD, titrate oxygen administration to comfort.

2. **R** Assist ventilation if necessary. Suction if indicated.
3. **P** Place the patient on a cardiac monitor.
4. **E** Place the patient on a pulse oximeter.
5. **P** Use $ETCO_2$ monitoring if appropriate.



Normal Capnograph

Severe Bronchospasm

CAUTION: Bronchospasm can lead to respiratory failure. Be prepared to manage the airway.

*CAUTION: If intubation becomes necessary, **do not ventilate aggressively**. Monitor capnography and use $ETCO_2$ to guide ventilation. **Allow adequate exhalation**.*

6. **L** **If** the patient has severe bronchospasm **and** is unable to adequately inhale nebulized medication, administer 0.3-0.5 ml of 1:1000 epinephrine **(PEDIATRIC: 0.01 ml/kg)** IM. If necessary, this may be repeated once, in 5 min.

CAUTION: Avoid IM epinephrine in the elderly, and in patients with coronary artery disease.

7. **E** Assist the patient to use his/her own "rescue" inhaler if available, **OR**
8. **A** Administer albuterol 2.5 mg **(PEDIATRIC: 2.5 mg)** via nebulizer. If necessary, this may be repeated up to a total of 3 "treatments."
9. **P** Ipratroprium bromide 0.5 mg **(PEDIATRIC: 0.25 (< 1 year of age)-0.5 mg)** may be added to the nebulizer with albuterol.

"Rescue" inhalers include albuterol, levalbuterol, ipratroprium, or combinations. They work best when used with a "spacer." Assist the patient to use a "spacer" if available.

10. **A** Initiate an intravenous reseal, or an infusion if appropriate.
11. **P** Consider administering CPAP 5 cm H_2O. Titrate FiO_2 as indicated.
    L Titrate CPAP 5-10 cm H_2O & FiO_2 as indicated.
12. **L** Consider administering magnesium sulfate (dosage/rate per OMCP). **OMCP**

Key Considerations

- Bronchospasm usually responds to inhaled bronchodilators.
- Beware of the patient with severe wheezing who appears **tired**—he/she probably is.
- Beware of the patient with severe respiratory distress who is not wheezing; he/she may not be moving enough air to wheeze.
- Intubation often worsens bronchospasm. Nebulizer treatments can be administered "inline."
- **Aggressive ventilation can lead to barotrauma and tension pneumothorax**. Check tube insertion depth, avoid aggressive ventilation, and be alert for tension pneumothorax.

Effective: April 2, 2007 Revised: April 1, 2018

Suspected Acute Coronary Syndrome (ACS)

*Patients with ACS may have a normal 12-lead ECG, or may have an ST segment elevation MI (STEMI). Time to percutaneous coronary intervention (PCI) is **paramount** in STEMI patients.*

1. **R** Administer oxygen if hypoxic. Proceed with airway management as indicated.
2. **R** Have a defibrillator immediately available.
3. **E** Place the patient on a pulse oximeter.
4. **P** Place the patient on a cardiac monitor.
5. **E** Perform a 12-lead ECG, if available, as soon as possible (< 10 min after initiating care) and transmit to the receiving hospital.
6. **P** Perform a 12-lead ECG as soon as possible (< 10 min after initiating care).

CAUTION: If the 12-lead ECG demonstrates a pattern of acute injury (ST segment elevation in two or more associated leads, often with reciprocal ST segment depression in several other leads) notify the Destination Hospital immediately. **P**

CAUTION: A normal 12-lead ECG does not rule out ACS; treat the patient, not the ECG.

Electronically transmit the 12-lead ECG to the Destination Hospital. **E**

CAUTION: Performing additional lead ECG's (e.g., right sided, 15-Lead, and 18-Lead) should never delay transport.

7. **R** Administer aspirin 324 mg PO (81 mg x 4, chewed).
8. **A** Initiate an intravenous reseal, or an infusion if appropriate.
9. **E** If available, assist the patient in self-administering his/her own nitroglycerin, 0.4 mg, every 5 min if ACS is strongly suspected and SBP ≥ 100 mm Hg, **OR**

   A Administer nitroglycerin (see caution below) 0.4 mg lingually every 5 min if ACS is strongly suspected and SBP ≥ 100 mm Hg. Monitor the patient's BP carefully to avoid hypotension.

*CAUTION: Nitroglycerin is contraindicated in patients who have taken sildenafil (Viagra®) or vardenafil (Levitra®) or avanafil (Stendra®) within **24 hours**, or tadalafil (Cialis®) within **48 hours**.*

10. **L** Consider administering fentanyl 25-50 µg IV every 5 min if ACS is strongly suspected, discomfort is unrelieved by nitroglycerin, and SBP ≥ 100 mm Hg. Monitor respiratory status and BP closely.

*CAUTION: Patients with ACS may develop dysrhythmias with little or no warning. Monitor the patient closely and be prepared to treat dysrhythmias. **Place defibrillation pads on the patient if ECG indicates a pattern of acute injury.***

Key Considerations

- Right patient + right presentation + right 12-lead ECG = Rapid PCI.
- Pacing may be required if the patient develops symptomatic bradycardia due to atrioventricular block.
- Hypotension due to inferior wall ischemia, or nitroglycerin administration, usually responds to Trendelenburg positioning and careful 250-500 ml intravenous NS boluses.
- **Time = Muscle**. MINIMIZE TIME TO ECG AND MINIMIZE SCENE TIME!

Effective: April 2, 2007 Revised: April 1, 2018

Acute Pulmonary Edema

CAUTION: Be prepared to manage the airway (see Airway Management).

Consider the possibility of acute coronary syndrome (see Acute Coronary Syndrome (ACS)).

1. **R** Administer oxygen. Proceed with airway management as indicated.
2. **E** Place the patient on a pulse oximeter.
3. **P** Place the patient on a cardiac monitor.
4. **A** Initiate an intravenous reseal, or an infusion if appropriate.
5. **P** Use $ETCO_2$ monitoring if appropriate.
6. **L** Administer lingual nitroglycerin (see caution below) every 5 min—dosage based upon the chart below—until symptoms are improved. **Monitor the patient's blood pressure carefully after every dose to avoid hypotension**.

Systolic Blood Pressure	Nitroglycerin Dosage
> 160 mm Hg	1.2 mg
120-160 mm Hg	0.8 mg
101-119 mm Hg	0.4 mg
≤ 100 mm Hg	DO NOT ADMINISTER

*CAUTION: Nitroglycerin is contraindicated in patients who have taken sildenafil (Viagra®) or vardenafil (Levitra®) or avanafil (Stendra®) within **24 hours**, or tadalafil (Cialis®) within **48 hours**.*

7. **P** Initiate continuous positive airway pressure (CPAP) at 5-7.5 cm H_2O. **Monitor the patient closely for signs of increasing distress**. Titrate to 10 cm H_2O if necessary and tolerated. Use the **minimum** pressure necessary to improve symptoms, and monitor blood pressure.

CAUTION: CPAP should be used with caution in patients with a diminished level of consciousness or hypotension.

8. **L** Consider one "treatment" of albuterol 2.5 mg via nebulizer; it may be helpful for wheezing. Use caution if the patient is tachycardic, or known to be hypokalemic.
9. **L** Other medications, including morphine and additional nebulizer "treatments," may be administered only with Online Medical Consultation. **OMCP**
10. **E** Acquire 12-Lead ECG (see Suspected Acute Coronary Syndrome).

CAUTION: If the patient has a history of COPD, titrate oxygen administration to comfort.

Key Considerations

- Onset can be acute, or progressive over several days.
- Most patients with pulmonary edema are **dyspneic, hypertensive, pale, cold, diaphoretic, and anxious**. Question the diagnosis if the patient is **hot and dry**.
- The presence of rales alone does **not** indicate pulmonary edema.
- Wheezing may be due to bronchospasm or airway edema.
- Aggressive management to reduce preload and provide ventilatory support are vital.
- Overaggressive preload reduction can produce relative hypovolemia and hypotension.

Effective: April 2, 2007 Revised: April 1, 2018

Acute Non-Traumatic Altered Level of Consciousness

There are many potential causes, including hypoglycemia, hypoxemia, drug ingestion, sepsis, dehydration (especially at the extremes of age), seizure (post-ictal state), intracranial hemorrhage, and ischemic stroke. Identify and treat the cause(s) if possible.

CAUTION: Be prepared to manage the airway. Depending on the cause, patients may undergo rapid deterioration with simultaneous airway compromise.

1. **R** If indicated, administer oxygen. Proceed with airway management as necessary.
2. **E** If indicated, place the patient on a pulse oximeter.
3. **P** If indicated, place the patient on a cardiac monitor.
4. **P** If indicated, place the patient on capnography.
5. **A** Initiate an intravenous reseal, or an infusion if appropriate.

CAUTION: ***Naloxone administration to patients with opioid dependence can result in an acute withdrawal syndrome. Do not administer naloxone indiscriminately.***

6. **A** If, based on the clinical scenario, opioid use is suspected and airway compromise is a concern, administer naloxone 0.5 mg aliquots titrated to effect up to 2 mg **(PEDIATRIC: 0.1 mg/kg)** IV, **or**
7. **R** If venous access is not available, administer naloxone 2 mg IN, **or**
   L If venous access is not obtainable, administer naloxone 0.5-2 mg IN as appropriate.

The goal of naloxone administration is to restore airway patency, oxygenation and adequate ventilation; not to "wake up" the patient.

CAUTION: Naloxone can take up to 3-5 min for desired effect IV, up to 8-10 min IN. Adequate oxygenation and BVM ventilation must be provided during this time.

8. **E** Measure blood sugar (BS) with a glucometer.

CAUTION: ***Dextrose administration can be detrimental in a variety of conditions; do not administer dextrose indiscriminately. Check the blood sugar****.*

9. **E** If the patient is hypoglycemic (BS < 60 mg/dl or BS = 61-79 mg/dl with a history of diabetes), administer an oral glucose supplement if available and practical.

CAUTION: Do not administer anything PO if the patient is unable to protect his/her airway.

CAUTION: If the patient is hypoglycemic and a history of alcoholism is suspected, administer thiamine 100 mg IV, if available, before administering intravenous dextrose. **P**

10. **A** If the patient is hypoglycemic and an oral sugar supplement is unavailable, not safe to administer, or ineffective, administer IV dextrose, slowly titrate to effect **(PEDIATRIC: 10% dextrose 2 ml/kg IV, up to a maximum dose of 100 ml)**, **or**
    - **A** If IV access is unobtainable, administer glucagon 1 mg IM **(PEDIATRIC: 0.5 mg if ≤ 5-yo; 1 mg if > 5-yo)**.
    - **A** If the patient is unresponsive to glucagon, administer 10% dextrose in 50-100 ml aliquots IO, titrated to effect **(PEDIATRIC: 10% dextrose 2 ml/kg IV, up to a maximum dose of 100 ml)**.

IO access is acceptable in any clinical scenario if, in the judgment of the provider, venous access is necessary and IO access is the best choice under the unique case circumstances. **A**

Measure BS ~ 10 min after administration of glucose, dextrose, or glucagon. **R**

Key Considerations

- The most obvious cause is often correct, but not always; **consider other causes**.
- If thiamine is not administered to a thiamine deficient patient (usually patients with a history of alcoholism) **before** dextrose, acute Wernicke's encephalopathy may result.
- **W** Wernicke's is:
- **A** Ataxia
- **C** Confusion
- **O** Ocular problems

Effective: April 2, 2007 Revised: April 1, 2018

Suspected Acute Ischemic Stroke

*Patients who present with suspected acute ischemic stroke, **within 6 hours of onset**, are considered **"time-critical"** and may benefit from fibrinolytic therapy and/or mechanical thrombectomy.*

***The most important historical data in any patient with a possible acute ischemic stroke is the time of onset of symptoms, Last Known Well Time (LKWT).** The time of onset for a patient who wakes up with symptoms is the time he/she went to sleep. The time of onset for a patient with symptoms who cannot communicate is the last time that he/she was seen to be without symptoms.*

*Perform evaluations and interventions **en route** to the Destination Hospital if possible. Do not delay transport to initiate venous access unless a life threatening dysrhythmia is present.*

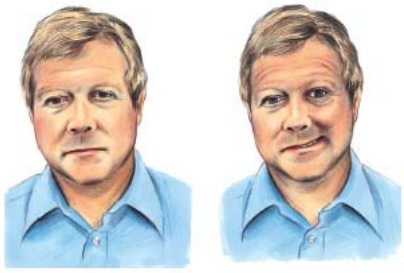
*If symptoms began **less than 6 hours** prior to patient evaluation by EMS Personnel, contact the destination hospital immediately and consult with OMCP to activate a 'Code Stroke'. Transport emergently, if appropriate. **Time = Brain.** **OMCP***

1. **R** Administer oxygen, if hypoxic. Proceed with airway management as indicated.
2. **P** Place the patient on a cardiac monitor.
3. **E** If indicated, place the patient on a pulse oximeter.
4. **A** Initiate an intravenous reseal, or an infusion if appropriate.
5. **R** Obtain a rapid, focused history, concentrating on:
    - **The exact time of onset of symptoms**. If the exact time is difficult to determine, try to determine at what time the patient was last known to be without acute neurological deficits, **Last Known Well Time (LKWT)**.
    - Current reported neurological deficits.
    - Whether symptoms are progressing, improving, or staying the same.
    - Any history of stroke or neurological deficit due to any cause.
    - Any history of seizures, or a seizure in association with the current event.
    - Surgery within the last three months.
    - All medications the patient is currently taking, especially "blood thinners."

Caution: The postictal phase of a seizure can manifest with unilateral weakness or paralysis, called Todd's Paralysis, can mimic a stroke and can last for up to 48 hours. Gathering the events leading up to stroke-like presentation is critical.

6. **R** Perform a rapid neurological assessment, focusing on:
    - Level of alertness and orientation.
    - Cranial nerve deficits—especially slurred speech or facial droop.
    - Extremity weakness (paresis) or paralysis.

*The Cincinnati Prehospital Stroke Scale may be helpful but **does not rule out stroke**.*



Cincinnati Prehospital Stroke Scale (If any test is abnormal, stroke probability ~ 70%)	
Facial Droop (have the patient smile or show his/her teeth)	***Normal***: Both sides of the face move equally; there is no significant asymmetry
	Abnormal: One side of the face does not move as well as the other side
Arm Drift (patient closes eyes and extends both arms straight out, palms up, for 10 sec)	***Normal***: Both arms move the same or neither arm moves at all
	Abnormal: One arm does not move at all or one arm drifts down compared to 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 of speech
	Abnormal: Patient slurs words, uses the wrong words, or is unable to speak at all

7. **A** Measure blood sugar (BS) with a glucometer (see Acute Non-Traumatic Altered Level of Consciousness).

Unless the patient is a diabetic, do not administer dextrose without Online Medical Consultation. **OMCP**

8. **R** Monitor vital signs every five minutes.
9. **R** Upon arrival at the Destination Hospital, give a verbal report directly to an emergency physician.

Key Considerations

- Ischemic stroke symptoms may be subtle. Assess the patient carefully.
- **Hypoglycemia can mimic stroke**. Check the BS. Administer dextrose to a known diabetic with hypoglycemia; otherwise, only with Online Medical Consultation. **OMCP**
- Left hemispheric ischemic stroke is more likely to cause difficulty saying the correct words, a condition known as aphasia.
- **Patients with aphasia may still understand everything that is being said**.
- Fibrinolytic therapy is never contraindicated solely on the basis of age.
- Depending on lab results, fibrinolytic therapy may sometimes be administered to patients receiving anticoagulants, such as warfarin (Coumadin®).
- **Time = Brain**.

Effective: April 2, 2007 Revised: **April 1, 2018**

Anaphylaxis

*Anaphylaxis is a **severe allergic reaction** manifested by urticaria (hives), bronchospasm, angioedema, and hypotension. Not all symptoms may occur but all should be anticipated.*

CAUTION: Airway compromise can occur rapidly. Be prepared to aggressively manage the airway.

1. **R** Administer oxygen. Proceed with airway management as indicated.
2. **P** If indicated, place the patient on a cardiac monitor.
3. **E** If indicated, place the patient on a pulse oximeter.
4. **E** **If indicated by the severity of symptoms**, administer epinephrine 0.3 mg IM with an auto-injector **(PEDIATRIC (≥ 15 kg): 0.15 mg auto-injector)**, **OR**
   E **If indicated by the severity of symptoms**, administer 0.3-0.5 ml of 1:1000 epinephrine (0.3-0.5 mg) **(PEDIATRIC: 0.01 mg/kg)** IM. If necessary, this may be repeated, in 5 min, up to a total of 2 doses/transport.

*In less severe reactions, epinephrine may not be required. In **extreme** situations, epinephrine may be administered IV (0.3-0.5 mg of 1:10,000 concentration).* **L**

5. **A** Initiate an intravenous reseal, or a NS infusion if appropriate. Administer fluid aggressively **(PEDIATRIC: 10-20 ml/kg boluses)** if hemodynamically unstable.

CAUTION: Hypotension may be a late finding of hemodynamic instability, especially in pediatric patients—consider tachycardia as a sign of hemodynamic instability.

6. **L** If the patient is taking a ß-blocker, such as metoprolol, consider administering glucagon 1-2 mg IV/IM, especially if epinephrine administration is required.
7. **P** Administer diphenhydramine 25-50 mg **(PEDIATRIC: 1 mg/kg)** IV/IM.

*In **extreme** situations, where the patient is administered multiple doses of epinephrine yet remains hypotensive consider an epinephrine drip, typically utilizing a 'Dirty Epi Drip'; mix 1 mg epinephrine in 1 liter of NS, infuse at a wide open rate (~20-30 µg/min with 18 g IV) titrating to effect.* **OMCP**

8. **E** If the patient develops bronchospasm, assist the patient to use his/her own "rescue" inhaler if available, **OR**
   A Administer albuterol 2.5 mg **(PEDIATRIC: 1.25 (< 1 year of age)-2.5 mg)** via nebulizer. If necessary, this may be repeated up to a total of 3 "treatments."
   P Ipratroprium bromide 0.5 mg **(PEDIATRIC: 0.25 (< 1 year of age)-0.5 mg)** may be added to the nebulizer with albuterol **(PEDIATRIC: Ipratroprium bromide may be used only once/transport)**.

Key Considerations

- Treat the patient in accordance with the **severity of signs and symptoms**; not all patients require epinephrine.
- Be aggressive with fluid replacement in hypotensive patients. Also consider other causes of hypotension if the diagnosis of anaphylaxis is uncertain.
- Glucagon may be effective in enhancing the response to epinephrine in patients taking ß-blockers.

Effective: April 2, 2007 Revised: April 1, 2018 Revised: October 1, 2018

Grand Mal Seizures

Grand mal seizures are generalized events characterized by loss of consciousness and involuntary tonic-clonic muscle contractions. ***They are usually, but not always, self-limited****.*

CAUTION: Be alert for possible causes, including: Intracranial hemorrhage, ischemic stroke, toxic ingestion, eclampsia, hyponatremia, and alcohol withdrawal.

CAUTION: Seizures, and their treatment, can result in hypoventilation. Be prepared to manage the airway.

1. **R** Administer oxygen. Proceed with airway management as indicated.
2. **R** Position the patient to reduce the likelihood of injury and aspiration. A bite block may be utilized but should **never** be forced into the patient's mouth.
3. **P** If indicated, place the patient on a cardiac monitor.
4. **E** If indicated, place the patient on a pulse oximeter.
5. **A** Initiate an intravenous reseal, or an infusion if appropriate.
6. **E** Measure the patient's blood sugar (BS) with a glucometer. Treat hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).
7. **P** Use EtCO2 monitoring if appropriate.

Utilize the following regimen only if the seizure lasts > five (5) minutes, or is a recurrent seizure during the same emergency response, or if eclampsia is suspected.

8. **L** Administer **lorazepam** 2 mg **(PEDIATRIC: 0.05 mg/kg)** IV **unless eclampsia is suspected** (see below), **OR**

If unable to obtain intravenous access in a pediatric patient, consider administering midazolam **(PEDIATRIC: ~0.2 mg/kg)** *intranasally (see table below, and use 1 ml syringe). Do not administer >1 ml/nostril. Weights listed are approximate, based on age; use actual patient weight or Broselow® tape if possible.* **L**

Age (yrs)	Weight (kg)	Intranasal Midazolam Dose (5mg/ml)
Neonate	3	0.1 ml (0.5 mg)
< 1	6	0.3 ml (1 mg)
1	10	0.4 ml (2 mg)
2	14	0.5 ml (2.5 mg)
3	16	0.6 ml (3 mg)
4	18	0.7 ml (3.5 mg)
5	20	0.8 ml (4 mg)
6	22	0.9 ml (4.5 mg)
7	24	1 ml (5 mg)
8	26	1 ml (5 mg)
9	28	1.1 ml (5.5 mg)
10	30	1.2 ml (6 mg)
11	32	1.3 ml (6.5 mg)
12	34	1.4 ml (7 mg)
Small teen	40	1.6 ml (8 mg)
Full grown teen	50	2 ml (10 mg)

*If unable to obtain venous access in an adult, **and eclampsia is not suspected**, consider administering midazolam 10 mg intranasally.* **L**

L If the patient is in the third trimester of pregnancy, or up to two weeks postpartum, **suspect eclampsia** and administer magnesium sulfate 2 gm slow IV, over 2-4 min.

Eclampsia should be suspected in any pregnant, or recently postpartum, patient. *Other findings, though not required, may include a history of pre-eclampsia or eclampsia, gestational hypertension (BP > 140/90), and edema of the face, hands, or feet.*

*CAUTION: If eclampsia is suspected, magnesium sulfate should be the **only** anticonvulsant administered without Online Medical Consultation.* **OMCP**

9. **L** If seizure activity persists for > 5 min following initial IV administration of lorazepam, administer one (1) repeat dose.

CAUTION: Rectal and intranasal benzodiazepine administration may be repeated only with Online Medical Consultation. **OMCP**

10. **L** If seizure activity persists despite repeated benzodiazepine dosing or, in a case of suspected eclampsia, despite administration of magnesium sulfate, obtain Online Medical Consultation for further instructions. **OMCP**

Key Considerations

- **Most seizures will stop spontaneously.** Use medication to treat those that don't.
- Epilepsy and alcohol withdrawal are the most common adult etiologies encountered.
- Febrile convulsions typically occur in children 1-5 yrs, are usually single seizure events associated with a high fever, and usually self-abort in < 5 min; they usually do **not** require anticonvulsants.
- **Be alert for other etiologies**, including trauma and drug ingestion, especially when there is no personal history of seizures.
- Use a bite block carefully and **never** put your fingers into the patient's mouth.
- The use of assisted ventilation, a supraglottic airway device, or endotracheal intubation to manage the airway of a patient who develops respiratory depression following benzodiazepine use to abort prolonged seizure activity is **not** a patient care failure.

Effective: April 2, 2007 (Special Use: December 2, 2011 thru June 30, 2012) Revised: April 1, 2018

Hypothermia

Hypothermia results in predictable pathophysiological changes that tend to resolve with warming.

NO HYPOTHERMIA VICTIM IS DEAD UNTIL WARM AND DEAD!

Rapid but cautious transport is essential. When feasible, perform any interventions en route to the Destination Hospital. Delay transport only for extrication and possibly airway management. Consider conditions that may have precipitated hypothermia; e.g., trauma, hypoglycemia, intracranial hemorrhage, ischemic stroke, etc.

1. **R** Administer oxygen. Proceed with airway management as indicated.

CAUTION: Deeply hypothermic patients will be physiologically bradypneic and bradycardic. Intubate only if apneic, allowing up to 45 sec to check. Avoid pharyngeal stimulation as much as possible. ***Do not hyperventilate an intubated patient****.*

2. **R** Remove wet garments; protect against heat loss and wind chill, using blankets and insulating equipment.

CAUTION: Maintain the patient in a horizontal position and avoid rough movement; excessive activity or stimulation may precipitate ventricular fibrillation.

3. **R** Check carefully for pulselessness. If the patient is pulseless, initiate CPR.
4. **R** Apply an AED. If a shock is indicated, attempt defibrillation **only once**. Defer further attempts until arrival at the Destination Hospital, **OR**
   P Place the patient on a cardiac monitor. If the patient is in ventricular fibrillation or pulseless ventricular tachycardia, attempt defibrillation **only once**. Defer further attempts until arrival at the Destination Hospital.
5. **E** Place the patient on a pulse oximeter.
6. **A** Initiate an intravenous reseal, or an infusion if appropriate. If an infusion is necessary, use NS warmed to 43° C (109° F) if possible.

CAUTION: Avoid large fluid infusions in the out-of-hospital setting.

7. **A** Measure the patient's blood sugar (BS) with a glucometer. Treat hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).
8. **P** Use $ETCO_2$ monitoring if appropriate.
9. **P** Avoid intravenous medications if possible, especially if the patient's core temperature is suspected to be ≤ 30° C (86° F).

Key Considerations

- Adequate ventilation (adjusted for physiological need), chest compressions, insulation, and transportation are the most important EMS interventions in hypothermic cardiac arrest.
- **Bradycardia and bradypnea may be physiologic, based on core temperature**.
- Atrial fibrillation commonly occurs during hypothermia, and tends to resolve with warming.
- **Avoid active warming in the out-of-hospital setting**.
- **No hypothermia victim is dead until warm and dead**. If unsure of how to proceed, initiate resuscitation and obtain Online Medical Consultation. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Care of the Hemodialysis Patient

Dialysis patients present a unique challenge to EMS Personnel. They are often chronically ill, can have life threatening fluid and electrolyte abnormalities, and venous access may be problematic.

CAUTION: Do not measure the blood pressure in an extremity containing an arteriovenous (AV) fistula or AV graft (also known as an AV shunt).

Venous Access APL

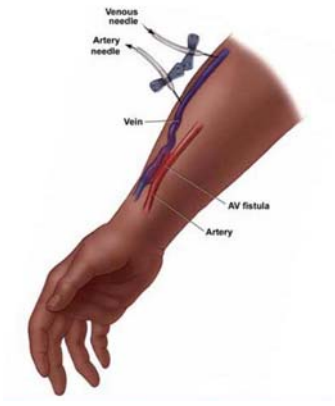
If necessary, intravenous access should be obtained. The following apply:

- AV fistulae and grafts can become infected. Do not use a limb containing an AV fistula or graft unless the only alternative would be to use the fistula or graft itself.
- Use the AV fistula, graft, or external catheter for venous access only if lifesaving drugs or fluids need to be administered to the patient. **L**

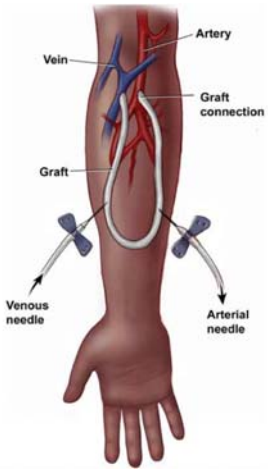
CAUTION When an external catheter is used to infuse fluid or administer medication, always aspirate blood back to the hub and discard the aspirate, which may contain air and a high concentration of heparin, before injecting. **L**

Always check the chest wall for an external dialysis catheter, such as a Permcath®.

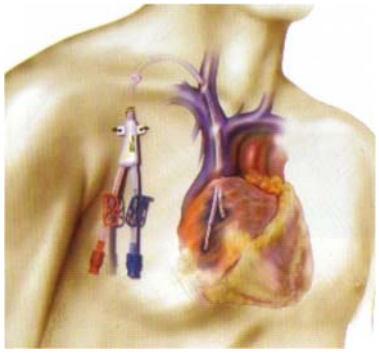
- If the patient is hypoglycemic, consider administering glucagon 1 mg IM before considering utilizing the AV fistula, graft, or external catheter to administer dextrose. (see Acute Non-Traumatic Altered Level of Consciousness). **APL**



AV Fistula



AV Graft



Permcath®

Hyperkalemia, Wide-Complex Rhythms, and Cardiac Arrest

CAUTION: Monitor the patient's cardiac rhythm at all times. **P**

If the patient has a slow wide-complex rhythm associated with hypotension, or refractory ventricular fibrillation, perform the following interventions in addition to providing standard emergency cardiovascular care:

1. **L** Administer 10 % calcium chloride 1 gm **slow** IV.
2. **P** Administer albuterol 2.5 mg via nebulizer and repeat, up to three "treatments"/transport.
3. **L** Administer sodium bicarbonate 100 mEq IV.

CAUTION: If the patient is in cardiac arrest, perform these interventions simultaneously with high-quality CPR (see Emergency Cardiovascular Care).

Obtain Online Medical Consultation as soon as possible.

Congestive Heart Failure APL

If the patient has acute pulmonary edema, do not initiate venous access solely for the purpose of administering medication. The mainstays of treatment are oxygen, nitroglycerin, CPAP, and hemodialysis (see Acute Pulmonary Edema). Diuretics will not be effective.

Graft or Fistula Hemorrhage

Apply the following principles:

- **Hemorrhage from an AV fistula or graft can be fatal**.
- Apply only enough direct pressure to the bleeding site to stop the bleeding. Excessive pressure may damage the site and cause more hemorrhage.
- Avoid using a tourniquet if possible. If one is necessary, apply it **proximal** to the AV fistula or graft, not directly over it.

*CAUTION: If the patient refuses transport, perhaps because the bleeding stops, be certain he/she understands that refusing transport is **extremely dangerous** because exsanguination and death from a bleeding AV fistula or graft may occur in minutes.*

Key Considerations

- Ask patients when their last hemodialysis session was, and when their next hemodialysis session is scheduled.
- **The most effective treatment for hemodialysis patients with fluid or electrolyte problems is hemodialysis**.
- Wide complex bradycardia in a hemodynamically unstable hemodialysis patient is often secondary to hyperkalemia. Initiate treatment and obtain Online Medical Consultation as soon as possible. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Newborn Delivery

Transporting a laboring mother to the Destination Hospital before newborn delivery is not always possible. EMS Personnel must be prepared to provide care to both mother and baby.

*CAUTION: This Standing Medical Order is **not** meant to replace formal training in newborn delivery and postpartum care; it is meant to emphasize key aspects of care.*

Notify the Destination Hospital with an impending or recent delivery as soon as possible. Initiate patient transport as soon as possible under the unique case circumstances.

1. **R** Administer oxygen as indicated. Proceed with airway management as indicated.
2. **P** If indicated, place the patient on a cardiac monitor.
3. **E** If indicated, place the patient on a pulse oximeter.
4. **A** Initiate an intravenous reseal, or an infusion if appropriate.
5. **R** Obtain a rapid, focused history, concentrating on:
    - Number of pregnancies (Gravida), including the current one, and number of deliveries after 20 weeks of gestation (Para).
    - Estimated Date of Confinement (EDC)—the "due date."
    - Gestational age in weeks (use a "Pregnancy Wheel" if available).
    - Frequency and duration of contractions.
    - Sensation of a need to have a bowel movement—delivery is imminent.
    - Whether the amniotic membranes have ruptured—"water has broken."
    - Whether there have been any complications during this pregnancy.
6. **R** Perform a rapid assessment, concentrating on:
    - The presence or absence of bleeding.

*CAUTION: **Do not insert anything into the vagina unless a prolapsed umbilical cord is present (see below)**. Vaginal bleeding should be presumed to be due to placenta previa until proven otherwise. Be prepared to treat hemorrhagic shock.*

- The presence or absence of crowning.
    - If no crowning is present, transport the patient in the left lateral recumbent position.
    - If any other body part, or anything else is presenting, obtain Online Medical Consultation immediately. **OMCP**
    - If the umbilical cord is prolapsed, elevate the presenting part with a gloved hand and place the patient in the Trendelenburg position.

CAUTION: Transport rapidly. Maintain elevation and Trendelenburg position until relieved by a physician, usually in the operating room.

- If crowning is present without umbilical cord prolapse, prepare for imminent delivery.

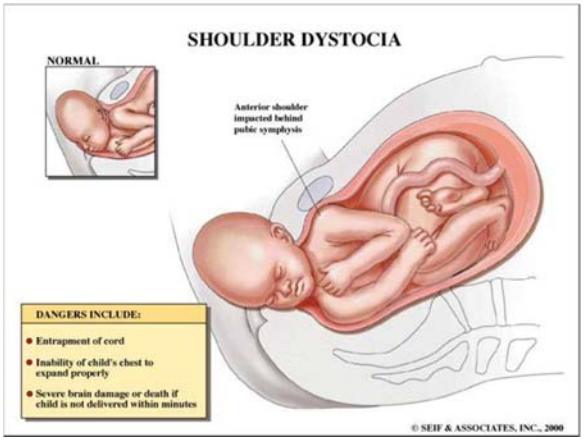
7. **A** Measure the patient's blood sugar (BS) with a glucometer. Treat hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).
8. **P** Use ETCO_2 monitoring if appropriate.
9. **R** Assist with the delivery:
   - **Guide and control but do not try to stop the delivery**.
   - Do not pull on the infant's head or put traction on the umbilical cord.
   - If the cord is wrapped around the infant's neck, gently slip it over the head. If unable to do so, immediately clamp the cord in two places, cut between the clamps, and continue with the delivery.

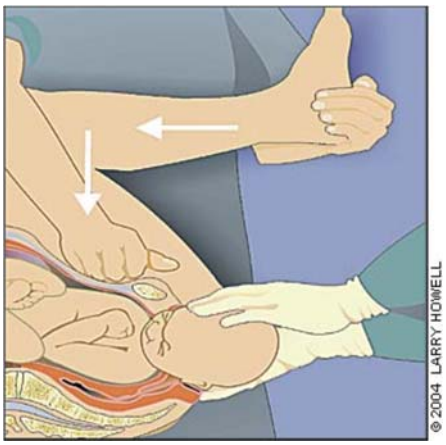
CAUTION: There may be more than one wrapped loop of umbilical cord.

CAUTION: Once the cord is severed, rapid delivery and initiation of ventilation, either spontaneous or assisted, is essential.

- Look for evidence of meconium staining (see Neonatal Care). After the head is delivered, gently suction the neonate's mouth and nose only if there is significant meconium present. A finger wrapped in gauze can also be used to gently wipe meconium from the mouth.

CAUTION: Be alert for shoulder dystocia. If shoulder dystocia occurs, obtain Online Medical Consultation immediately. **OMCP**





- Immediately after delivery, keep the neonate briefly at the level of the perineum (the cord may still be pulsating) before double clamping (6 and 8 inches from baby's umbilicus) and cutting the cord between the clamps.
- Once the umbilical cord is cut, provide neonatal care (See Neonatal Care).
- Assist with delivery of the placenta.

CAUTION: Apply only minimal traction to assist in placental delivery.

The placenta will usually be delivered about 5 min after the baby. Wrap it in a towel and bring it to the Destination Hospital.

10. **R** Massage the uterine fundus every 5 min after delivery of the placenta, until bleeding has slowed and the fundus is firm.
11. **R** Continue to monitor the mother following delivery, especially watching for:
    - Significant postpartum hemorrhage.
    - Hypotension.
    - Respiratory distress.
    - Seizure activity.

Notify the Destination Hospital with any significant change in the mother's status.

Key Considerations

- DON'T PANIC! Most out-of-hospital deliveries are **precipitous and uncomplicated**.
- Help the mother to remain calm and breathe properly during labor.
- Initiate transport as soon as circumstances allow. Early Destination Hospital notification allows the hospital to be optimally prepared when the patient(s) arrive(s).
- Prior to delivery, the best way to care for the fetus is to care for the mother.

Effective: April 2, 2007 January 1, 2018

Neonatal Care

Most neonates require little care and should not be separated from their mother. EMS Personnel must be ready to provide care to the occasional neonate who requires more.

CAUTION: This Standing Medical Order is not meant to replace formal training in neonatal resuscitation and care. The AHA Neonatal Resuscitation Program (NRP) is highly recommended as a supplement to standard EMS curricula.

Notify the Destination Hospital with an impending or recent delivery as soon as possible. Initiate patient transport as soon as possible under the unique case circumstances.

If EMS Personnel believe that, based on the unique circumstances of the case, resuscitative efforts would be futile, but explicit signs of death are not present (see Initiation and Continuation of Resuscitative Efforts), resuscitative efforts should be initiated, if possible, and Online Medical Consultation should be obtained immediately. **OMCP**

1. **R** Obtain a rapid, focused history and exam, concentrating on the following:
   - Was the baby born after a full-term (36-40 wk) gestation?
   - Is the amniotic fluid clear of meconium?
   - Is the baby breathing or crying?
   - Does the baby have good muscle tone?

   If the answer to **all** four questions is yes, the baby will generally not require resuscitation and should not be separated from the mother. Otherwise, proceed with resuscitative efforts as indicated (see below).

Dry the neonate, cover with dry linen, and place him/her directly on the mother's chest. Continue to monitor breathing, activity, and color. Measure the Apgar Score at one and five min after birth.

Normal neonatal respiratory rate = 40-60/min. Normal heart rate (HR) = 120-160 bpm.

Apgar Sign	**0**	**1**	**2**
Heart rate (bpm	Absent	Slow (< 100 bpm)	≥ 100 bpm
Respirations	Absent	Slow, irregular	Good, crying
Reflex irritability to tactile stimulation	No response	Grimace	Cough, sneeze, cry
Muscle tone	Limp	Some flexion	Active motion
Color	Blue or pale	Pink body with blue extremities	Completely pink

2. **R** Provide warmth and tactile stimulation.
3. **P** If indicated, place the neonate on a cardiac monitor.
4. **E** If indicated, place the neonate on a pulse oximeter.
5. **R** Administer oxygen if necessary, **especially if there is cyanosis**.

Do not administer high flow oxygen indiscriminately. Monitor the neonate's HR, color, and pulse oximetry (if available) and titrate accordingly, using a "blow-by" method if possible.

Some neonates require only tactile stimulation before they "pink up;" others require advanced airway care, endotracheal suctioning, and ventilation through an endotracheal tube.

6. **R** Clear the airway if necessary.

If meconium is present, or there was meconium staining, and the neonate is vigorous (strong respiratory effort and the HR ≥ 100 bpm), suction the nasopharynx and oropharynx gently.

7. **R** Proceed with airway management as needed.

If the neonate remains apneic or gasping, if the HR < 100 bpm, or if there is persistent central cyanosis after clearing the airway and administering supplemental oxygen, assist ventilation.

*Assisted ventilation should be applied **gently**, at 40-60 breaths/min, to achieve and maintain a HR > 100 bpm. Chest rise and pulse oximetry are supplemental measures of adequate ventilation. **Avoid large volume inflation**.*

BVM ventilation is usually adequate in the EMS setting. Endotracheal tube placement is only indicated if BVM ventilation is ineffective.

8. **R** Initiate chest compressions if the HR < 60 bpm after 30 sec of adequate ventilation with supplemental oxygen.

***Ensure that adequate oxygenation and ventilation are being provided**.*

Use the two thumbs–encircling hands technique, on the lower third of the sternum, at a rate of 120/min. Intersperse ventilations at a ratio of 3:1 (3 compressions for each ventilation).

Continue coordinated chest compressions and assisted ventilation until the HR ≥ 60 bpm.

9. **A** Initiate an intravenous reseal, or an infusion if necessary and possible. Signs of neonatal shock include pale skin, poor perfusion, and weak pulses.
   P Initiate interosseous access if intravenous access is unobtainable and necessary.

Fluid infusion and medication administration is rarely necessary. If an infusion is necessary, NS 10 ml/kg IV should be administered cautiously.

10. **L** Administer epinephrine **(PEDIATRIC: 0.02 mg/kg IV)** if other measures fail to result in a HR ≥ 60 bpm.

Key Considerations

- Neonates almost always respond to stimulation and warmth.
- Suctioning and assisted ventilation, when needed, will resolve most other problems.
- BE GENTLE! Avoid overaggressive oxygenation, ventilation, and compressions.

Effective: April 2, 2007 Revised: April 1, 2018

Suspected Cyanide Toxicity

Cyanide toxicity most commonly results from exposure to closed-space fire smoke, though it can occasionally result from ingestion or dermal exposure, especially in industrial settings. Cyanide acts quickly; rapid treatment is essential when clinical suspicion of toxicity is high.

*Patients who do not meet **all** the eligibility criteria, or who have a history of anaphylactic reactions to hydroxocobalamin or cyanocobalamin (vitamin B12), should **not** receive hydroxocobalamin without Online Medical Consultation.* **OMCP**

*CAUTION: Hydroxocobalamin is incompatible with **benzodiazepines**, **dopamine**, and **fentanyl**. If possible, it should be administered through exclusive venous access. After infusion, flush line with a minimum of 20 ml NS prior to any other medication.*

*CAUTION: Secondary exposure can occur. Be sure proper decontamination and personal protective equipment procedures are followed. **Do not become a patient**.*

1. **R** Administer 100% oxygen. Proceed with airway management as indicated.
2. **P** Place the patient on a cardiac monitor.
3. **E** Place the patient on a pulse oximeter.
4. **A** Initiate an intravenous reseal, or an infusion if appropriate.
5. **E** Measure the patient's blood sugar (BS). Treat hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).
6. **P** Use $ETCO_2$ monitoring if appropriate.

*Administer hydroxocobalamin (Cyanokit®) if the patient meets **all** the following criteria:*
Exposure to fire smoke in an enclosed area
Soot present around the mouth, nose, and/or oropharynx
Markedly altered mental status (GCS ≤ 9), including seizure and cardiac arrest

*If the patient does not meet **all** the above criteria, yet cyanide toxicity is suspected, especially if there is hemodynamic instability or a GCS 10-13, hydroxocobalamin use may only be considered with Online Medical Consultation.* **OMCP**

7. **L** Obtain blood specimens for later testing (tubes located in Cyanokit®)
8. **L** Administer hydroxocobalamin 5 g **(PEDIATRIC: 70 mg/kg)** IV per Cyanokit® instructions, over 15 min.

A second dose, if available and indicated due to the severity of the poisoning and the clinical response, may only be considered with Online Medical Consultation. **OMCP**

*If the number of patients in need of treatment exceeds available supplies, a reduced dose (2.5 gm **(PEDIATRIC: 35 mg/kg)**) may be considered with Online Medical Consultation.* **OMCP**

9. **R** If carbon monoxide toxicity is suspected, transport the patient to MHSB (see Scenario-Specific Diversion)

Key Considerations

- Hydroxocobalamin may be administered intraosseously.
- Hydroxocobalamin may cause **transient hypertension**, nausea, vomiting, diarrhea, abdominal pain, eye irritation, red colored urine, and red colored skin.
- Watch carefully for signs of anaphylaxis and treat accordingly.

Effective: June 1, 2013 Revised: April 1, 2018

Medications

Key:

D Emergency Medical Dispatcher (EMD)

R Emergency Medical Responder (EMR)

E Emergency Medical Technician (EMT)

A Advanced Emergency Medical Technician (AEMT)

P Paramedic

L Lead Paramedic

The following pages describe all the medications, exclusive of oxygen, which have been approved for EMS Personnel use by the SJCEMSC. The table (see next page) lists the medications, levels authorized to carry each medication, typical concentrations, and expected supply level to be maintained.

Approved Medications

Medication	Level(s)	Typical Concentration and Amount	Ambulance	NTV
Adenosine	L	3 mg/ml in 2 ml vial (6 mg)	30 mg	6 mg
Albuterol	APL	0.83 mg/ml in a 3 ml dose vial (2.5 mg)	5 vials	2 vials
Amiodarone	L	50 mg/ml in a 3 ml vial (150 mg)	450 mg	300 mg
Aspirin	REAPL	81 mg/chewable tablet	≥ 324 mg	≥ 324 mg
Atropine	L	0.1 mg/ml in a 10 ml syringe (1 mg)	3 mg	1 mg
Calcium Chloride 10%	L	100 mg/ml in a 10 ml syringe (1 g)	2 gm	1 gm
Dextrose 10%	APL	1 gm/10 ml in a 250 ml bag (25 g)	50 gm	25 gm
Diltiazem ◈	L	5 mg/ml in a 5 ml vial (25 mg)	25 mg	◈
Diphenhydramine	L	50 mg/ml in a 1 ml syringe (50 mg)	100 mg	50 mg
Dopamine	L	1.6 mg/ml in 250 ml bag (400 mg)	400 mg	◈
Epinephrine 1:10,000	PL	0.1 mg/ml in a 10 ml syringe (1 mg)	≥ 8 mg	≥ 2 mg
Epinephrine 1:1000	EAPL	1 mg/ml in a 1 ml ampule (1 mg)	≥ 4 mg	≥ 2 mg
EpiPen® 1:1000 ◈	RE	1 mg/ml in a 0.3 ml syringe (0.3 mg)	◈0.3 mg	◈0.3 mg
EpiPen Jr.® 1:2000 ◈	RE	0.5 mg/ml in a 0.3 ml syringe (0.15 mg)	◈0.15 mg	◈
Etomidate	L	2 mg/ml in a 20 ml syringe (40 mg)	80 mg	◈
Fentanyl	PL	50 µg/ml in a 2 ml ampoule (100 µg)	200 µg	◈
Glucagon	APL	1 mg/ml in a 1 ml vial with diluent (1 mg)	2 mg	1 mg
Glucose	EAPL	12.5-15 g/unit dose tube	≥ 24 gm	≥ 12.5 gm
Haloperidol	L	5 mg/ml in a 1 ml ampoule (5 mg)	10 mg	◈
Ipratroprium Bromide	PL	0.2 mg/ml in a 2.5 ml vial (0.5 mg)	≥ 3 vials	≥ 1 vial
Ketamine ◈	L	500 mg/5 ml vial	≥ 500 mg	◈
Lidocaine	L	20 mg/ml in a 5 ml syringe (100 mg)	200 mg	100 mg
Magnesium Sulfate	L	1 gm/2 ml vial (1 gram)	4 gm	2 gm
Midazolam	L	5 mg/ml in a 1 ml vial (5 mg)	10 mg	◈

Morphine	L	1 mg/ml in a 10 ml vial (10 mg)	20 mg	◈
Naloxone	REAPL	1 mg/ml in a 2 ml syringe (2 mg)	6 mg	2 mg
Nitroglycerin	EAPL	0.4 mg tablets	≥ 9 tablets	≥ 3 tablets
Ondansetron ODT ◈	PL	4 mg dissolvable tablet	8 mg	◈4 mg
Ondansetron Injectable ◈	PL	4 mg/2 ml vial	8 mg	◈4 mg
Sodium Bicarbonate	L	1 mEq/ml in a 50 ml syringe (50 mEq)	100 mEq	◈100 mEq
Succinylcholine	L	20 mg/ml in a 10 ml vial (200 mg)	200 mg	◈200 mg
Thiamine	PL	100 mg/ml in a 1 ml vial (1 g)	100 mg	100 mg

◈ Optional with consultation of medical directors

*The above medications are **required**, and are the only ones **permitted** on EMS Vehicles. Since various medications may come in various forms, listed concentrations and amounts are approximate. **Reasonable** variation is permitted but, without Medical Director authorization, the Supply column listings are considered a minimum stock requirement.*

The above concentrations may not accurately reflect what is in the EMS Vehicle; check the concentration of the medication actually being administered to the patient.

Considerable variation may exist between non-transport vehicles (NTV) whose primary mission is 1st responding versus a Lead Paramedic NTV vehicle that has a primary mission of responding with Non-Lead Paramedic ambulances.

Effective: April 2, 2007 Revised: April 1, 2018 Revised: June 1, 2018 Revised: October 1, 2018

Medication Monographs EAPL

IMPORTANT: *The monographs on the following pages describe the approved medications in detail.* ***They are intended as a reference only, and are not Standing Medical Orders****. In the absence of a Standing Medical Order specific to the EMS scenario, or Online Medical Consultation specific to the patient encounter, the use of any of these medications is considered a deviation from the Guidelines. The reasoning for the deviation, including the reason(s) why Online Medical Consultation could not reasonably be obtained prior to use,* ***must*** *be documented in the EMS Medical Record.*

The following information relates primarily to the ***EMS use*** *of these medications; it is not comprehensive. EMS Personnel must be proficient with all medications they are authorized to administer. More complete information is available at the link(s) provided for each medication.*

EMS Personnel may encounter different brands in the course of practice. Brand names are included only as a reference; they are not an endorsement of any brand.

Epocrates is an excellent online drug information resource, at: https://online.epocrates.com/.

Medication Use in Pregnancy

Medication use in pregnancy is categorized according to fetal risk:

Category	Risk
A	Controlled studies fail to demonstrate a risk to the fetus in the first trimester and there is no evidence of risk in later trimesters; risk of fetal harm appears remote.
B	Either animal studies have not demonstrated a fetal risk but there are no controlled human studies, or animal studies have shown a risk that was not confirmed in human studies in the first trimester, and there is no evidence of risk in later trimesters.
C	Either animal studies have revealed fetal risk and there are no human studies, or studies in women and animals are not available. Drugs in this category should be given only if the benefit justifies the risk.
D	There is evidence of fetal risk but the benefits may be acceptable despite the risks, as in life-threatening diseases for which safer treatments cannot be used or are ineffective.
X	Studies in animals and humans have demonstrated fetal risk; there is evidence of fetal risk based on human experience, or both. Drugs in this category are strongly contraindicated.

Emergency medications given to save a woman's life are **never** absolutely contraindicated during pregnancy. However, in situations that are not immediately life threatening, consideration must be given to fetal risk. The pregnancy category for each medication is noted (e.g., **PREGNANCY: C**), and information regarding each medication's use during pregnancy is listed in the **Notes** section for each medication.

If there is doubt regarding the appropriate use of a medication during pregnancy, obtain Online Medical Consultation prior to administration. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Adenosine (Adenocard®) L

Adenosine is used primarily in the treatment of supraventricular tachycardias (SVT's), for which it is the **treatment of choice**. It has an extremely short half-life and must be given rapidly through a **proximal** (usually antecubital) venous catheter. **PREGNANCY: C**

*Adenosine is generally safe, but be prepared to manage unexpected reactions, especially **profound bradycardia** and hypotension.*

Classification: Nucleoside antidysrhythmic.

Actions:

- Slows conduction through the AV node and may disrupt reentrant pathways in the atrioventricular (AV) node.
- **Does not** convert atrial fibrillation/flutter or ventricular tachycardia.

Indications:

- First line therapy for "chemical cardioversion" of paroxysmal PSVT's especially narrow complex PSVT's.

Contraindications and Warnings:

- Know hypersensitivity to adenosine.
- Underlying sinus node disease with symptomatic bradycardia.
- 2°/3° AV block, in the absence of a functioning pacemaker
- Known ventricular tachycardia if administration would delay electrical cardioversion
- Use caution in patients taking dipyridamole or carbamazepine.

Adult Dosage and Route:

- 6 mg IV rapid IV PUSH (3 mg in patients taking dipyridamole or carbamazepine), immediately followed by NS 20 ml rapid IV PUSH.
- If ineffective after 1-2 min, may repeat with 12 mg (same technique), and again after an additional 1-2 min.

Pediatric Dosage and Route:

- 0.1 mg/kg, up to 6 mg, rapid IV PUSH, followed immediately by ≥ 5 ml NS IV.
- If ineffective after 1-2 min, may repeat with 0.2 mg/kg, up to 12 mg (same technique), and again after an additional 1-2 min.

Adverse Effects:

- Facial flushing is common.
- Lightheadedness.
- Transient dyspnea.
- Dysrhythmias and hypotension are uncommon.

Notes: Adenosine's effects are inhibited by methylxanthines, such as theophylline and caffeine. Adenosine should be administered rapidly, through a proximal (antecubital at least) IV. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Albuterol 0.083% (Proventil®, Ventolin®) EAPL

Albuterol, either alone or in combination with ipratroprium bromide, is used as a bronchodilator in the treatment of bronchospasm due to asthma, COPD, inhalation irritant exposure, or other causes. **PREGNANCY: C**

EMT's may assist the patient in the utilization of his/her own metered dose inhaler (MDI). The preferred route of administration in EMS scenarios is via hand-held nebulizer or mask. Administration via endotracheal tube is also effective.

Classification: $ß_2$ sympathetic agonist.

Actions:

- Stimulates $ß_2$ receptors, primarily in the lungs, causing bronchodilation.
- Albuterol may also lower serum potassium.

Indications:

- Treatment of acute bronchospasm (see Acute Bronchospasm, Acute Pulmonary Edema, and Anaphylaxis).
- Hyperkalemia, as adjunctive therapy (see Care of the Hemodialysis Patient).

Contraindications:

- Known hypersensitivity to albuterol.
- Use with caution in patients with known hypokalemia.

Adult Dosage and Route:

- Unit dosage (2.5 mg in 3 ml solution with NS) administered via handheld nebulizer or mask, at 8-10 L/min gas flow, or via endotracheal tube.
- 2 "puffs" with an MDI, preferably using a "spacer."
- Repeat "treatments" may be administered if necessary but be watchful for cardiovascular side effects such as tachydysrhythmias and hypertension.

Pediatric Dosage and Route:

- Unit dosage (2.5 mg in 3 ml solution with NS) administered via handheld nebulizer, mask, or "blow-by," at 8-10 L/min gas flow, or via endotracheal tube.
- 2 "puffs" with an MDI, preferably using a "spacer."
- Repeat "treatments" may be administered if necessary but be watchful for cardiovascular side effects such as tachydysrhythmias.

Adverse Effects:

- Sinus tachycardia is the most common, though other tachydysrhythmias may occur.
- Hypertension, tremors, agitation, and vomiting.
- Serious hypokalemia associated ECG abnormalities are rare but can occur in patients with underlying hypokalemia, especially with numerous "treatments."

Notes: Albuterol is generally safe and effective, and is first line therapy for bronchospasm, especially due to primary lung diseases (asthma, COPD). Carefully consider all causes of wheezing, especially in patients with no history of bronchospastic illness. **EMS use during pregnancy is permitted for acute bronchospasm and life threatening hyperkalemia**.

Effective: April 2, 2007 Revised: April 1, 2018

Amiodarone (Cordarone®, Pacerone®) L

Amiodarone is a complex antidysrhythmic that is used in EMS scenarios to treat refractory ventricular fibrillation and hemodynamically unstable ventricular tachycardia. It has not been proven to improve survival-to-discharge for these patients. Pediatric use requires Online Medical Consultation. **PREGNANCY: D**

Classification: Broad spectrum antidysrhythmic.

Actions:

- Delays repolarization.
- Prolongs the action potential in cardiac cells.
- Slows electrical conduction through the heart.
- Reduces sinoatrial (SA) node firing rate.
- Slows conduction through accessory pathways.

Indications:

- Recurrent ventricular fibrillation or pulseless ventricular tachycardia (see Emergency Cardiovascular Care).
- Recurrent hemodynamically unstable ventricular tachycardia with pulses (see Emergency Cardiovascular Care).

Contraindications:

- No absolute contraindications if used to treat life-threatening dysrhythmias.
- Known hypersensitivity to amiodarone or iodine.
- Severe sinus bradycardia.
- 2°/3° AV block.

Adult Dosage and Route:

- For ventricular fibrillation and pulseless ventricular tachycardia unresponsive to CPR, defibrillation, and a vasopressors therapy: 300 mg IV/IO.
- If necessary, a second dose of 150 mg IV/IO may be administered in 3-5 min.
- For recurrent hemodynamically unstable ventricular tachycardia with pulses: 150 mg over 10 min and repeated in accordance with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route:

- For ventricular fibrillation and pulseless ventricular tachycardia unresponsive to CPR, defibrillation, and vasopressors therapy: 5 mg/kg IV/IO up to a maximum single dose of 300 mg.
- If necessary, a single repeat dose of 5 mg/kg may be administered. **OMCP**

Adverse Effects:

- Hypotension.
- Bradycardia.
- AV blockade.

Notes: Online Medical Consultation is not required to use amiodarone in the treatment of refractory ventricular fibrillation or pulseless ventricular tachycardia. Online Medical Consultation is required to use amiodarone in the treatment of hemodynamically unstable ventricular tachycardia. **EMS use during pregnancy should be avoided if lidocaine is available and effective, but is permissible with Online Medical Consultation**. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Aspirin DREAPL

Aspirin is a 100-year-old medication 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. **PREGNANCY: D**

Classification: Non-steroidal anti-inflammatory drug (NSAID).

Actions:

- Numerous actions: Anti-inflammatory, antiplatelet, antipyretic, and analgesic effects.
- For its use in EMS care (see Suspected Acute Coronary Syndrome (ACS)), aspirin primarily blocks the enzyme cyclooxygenase (COX), inhibiting the formation of thromboxane A_2 (a potent platelet aggregation agonist and vasoconstrictor) and resulting in platelet inhibition.

Indications:

- Acute ST segment elevation myocardial infarction (STEMI) (see Suspected Acute Coronary Syndrome (ACS)).
- Symptoms suspected of being secondary to myocardial ischemia.

Contraindications:

- Known hypersensitivity to aspirin or other NSAID's (ibuprofen, naproxen sodium, etc.).
- Relatively contraindicated in patients with active peptic ulcer disease or asthma.
- Do not use in patients with suspected stroke if brain hemorrhage has not been ruled out.

Adult Dosage and Route:

- 324 mg (81 mg chewable tablets x 4) or a single 325 mg tablet PO, preferably chewed.

Pediatric Dosage and Route: None.

Adverse Effects: Rare. Stomach upset may occur.

Notes: Aspirin is generally safe and highly effective in reducing mortality due to acute coronary syndrome (ACS). **EMS use during pregnancy is contraindicated**.

Effective: April 2, 2007 Revised: April 1, 2018

Atropine Sulfate L

Atropine sulfate is used primarily in the treatment of severe symptomatic bradycardia and during pediatric (see below) rapid sequence intubation. **PREGNANCY: C**

In appropriate patients, do not delay external pacing in order to administer atropine sulfate.

Classification: Antimuscarinic anticholinergic.

Actions:

- Blocks vagus nerve (X) activity at muscarinic sites, including the heart, increasing HR.
- Decreases salivary gland activity, resulting in decreased oral secretions.

Indications:

- First line drug therapy for symptomatic sinus bradycardia.
- May be effective in symptomatic Mobitz I AV block; not in Mobitz II or 3° AV block.
- Organophosphate poisoning. **OMCP**
- Bradycardia prevention (≤ 1 yrs) during drug-assisted intubation (see Airway Management). **OMCP**
- Pediatric bradycardia unresponsive to oxygenation; **not** indicated for pediatric asystole.

Contraindications:

- Known hypersensitivity to atropine.
- Use with caution in the presence of suspected myocardial ischemia.
- Bradycardia due to hypothermia.

Adult Dosage and Route:

- Bradycardia: 0.5 mg IV every 3-5 min, as needed, up to a total of 0.04 mg/kg (3 mg).
- Organophosphate poisoning: Extremely large doses may be required. **OMCP**

Pediatric Dosage and Route:

- All indications: 0.02 mg/kg IV, every 3-5 min as needed, up to a total of 0.04 mg/kg, or as listed:
  - Minimum single dose: 0.1 mg.
  - Maximum single dose: (Child: 0.5 mg); (Adolescent: 1 mg).
  - Maximum total dose: (Child: 1 mg); (Adolescent: 2 mg).
  - For drug-assisted intubation pretreatment, use a single dose. **OMCP**

Adverse Effects:

- Sinus tachycardia is the most common.
- Paradoxical bradycardia can occur with adult doses < 0.5 mg or pediatric doses < 0.1 mg, and in patients with infranodal of AV block.
- Atropine may increase myocardial oxygen demand.

Notes: Pediatric bradycardia is often due to hypoxemia; initial treatment is oxygenation and ventilation. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Calcium Chloride 10% L

Calcium chloride has limited use in EMS practice, but can be lifesaving in patients with symptomatic hyperkalemia—it is uniquely useful in renal failure patients with a cardiac arrest. It may be useful in calcium channel or ß-blocker overdose. **PREGNANCY: C**

Calcium chloride may cause cellular toxicity and is not intended for routine use in cardiac arrest.

Classification: Cation electrolyte; mineral.

Actions:

- Participates in many physiological processes, including muscular contraction.
- Essential for proper cardiac electrical activity; in hyperkalemia, re-establishes the proper resting membrane voltage.

Indications:

- Known or suspected hyperkalemia, as in chronic renal failure, with severe ECG abnormalities or cardiac arrest (see Care of the Hemodialysis Patient).
- Calcium channel or ß-blocker overdose associated hypotension or dysrhythmias. **OMCP**
- Known hypomagnesemia. **OMCP**

An excellent review of ß-blocker and calcium channel blocker overdose treatment is available at: http://www.ajhp.org/cgi/reprint/63/19/1828.

Contraindications:

- Known hypersensitivity to calcium chloride.
- Known or suspected digitalis toxicity.
- Known or suspected hypercalcemia.

Adult Dosage and Route:

- 500-1000 mg (5-10 ml) of a 10% solution IV for hyperkalemia associated cardiac arrest (renal failure).
- 500-1000 mg (5-10 ml) of a 10% solution IV for hyperkalemia associated with severe ECG abnormalities or symptomatic calcium channel blocker overdose. **OMCP**

Pediatric Dosage and Route:

- 20 mg/kg (0.2 ml/kg) of a 10% solution slow IV (1 ml/min) for hyperkalemia associated cardiac arrest (renal failure).
- 20 mg/kg (0.2 ml/kg) of a 10% solution slow IV (1 ml/min) for symptomatic calcium channel blocker overdose. **OMCP**

Adverse Effects:

- Rapid IV administration can cause hypotension, bradycardia, and asystole, particularly if the patient is receiving digitalis.
- Precipitation of crystals can occur if given with, or immediately before or after, sodium bicarbonate ($NaHCO_3$)
- Extravasation can lead to tissue necrosis.

Notes: % solutions = gm per 100 ml. 10% calcium chloride = 10 g/100 ml, or 0.1 g/ml. Each ml of 10% calcium chloride contains 27.2 mg of elemental calcium. Calcium chloride is irritating to veins and highly toxic to tissue—necrosis can occur. Use extreme caution when injecting. Use an intervening flush before and after $NaHCO_3$. **EMS use during pregnancy is permitted for severe hyperkalemia or cardiac arrest**.

Effective: April 2, 2007 Revised: April 1, 2018

Dextrose (D50%, D25%, D10%) Injection APL

In EMS practice, dextrose is used almost exclusively in the treatment of symptomatic hypoglycemia. With the availability of blood glucose measurements, it should not be used indiscriminately for patients with an altered level of consciousness of unknown etiology.
PREGNANCY: C

CAUTION: *Dextrose administration can be detrimental in a variety of conditions, including thiamine deficiency, stroke, and spontaneous intracranial hemorrhage.* ***Check the Blood Sugar (BS)****.*

In order to prevent encephalopathy, patients with thiamine deficiency, such as chronic alcoholics, should receive intravenous thiamine, if possible, before receiving dextrose.

Classification: Carbohydrate; simple sugar. Molecules often exist in mirror image forms (right: dextro; and left: levo) called isomers, sometimes with different chemical characteristics. Dextrose is the dextro-isomer (D-isomer) of glucose.

Actions:

- Acts as a metabolic substrate for the intracellular production of energy essential for normal cell function.

Indications:

- Acute symptomatic hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).

Contraindications:

- Known hypersensitivity to dextrose.
- Acute hyperglycemia.
- Acute stroke or traumatic brain injury, unless hypoglycemia is clearly present.

Adult Dosage and Route:

- D10%: 50-100 ml (5-10 grams) aliquots, up to 250 ml (25 grams), slow IV titrated to effect. Repeat as indicated.
- D50%: 20-50 ml (10-25 grams) aliquots, slow IV titrated to effect. Repeat as indicated.

Pediatric Dosage and Route:

- D10%: 2 mL/KG slow IV titrated to effect.
- D25%: 1-2 mL/KG slow IV titrated to effect.

Adverse Effects:

- Vascular irritation and thrombophlebitis.
- Extravasation can lead to tissue necrosis.

Notes: Dextrose is structurally and functionally a form of glucose. % Solutions = gm per 100 ml. 10% dextrose = 10 gm/100 ml. In patients with suspected thiamine deficiency, usually due to alcoholism, thiamine should be administered before dextrose (see Thiamine). **EMS use during pregnancy is permitted for severe hypoglycemia not treatable with, or responsive to, oral glucose**.

Effective: April 2, 2007 Revised: April 1, 2018

Diltiazem (Cardizem®) L

In EMS practice, diltiazem is used almost exclusively for rate control in atrial fibrillation or flutter, but only with Online Medical Consultation. **PREGNANCY: C**

Diltiazem can produce significant bradycardia and hypotension, especially in patients already receiving ß-Blockers. ***It is best to start with a low dose and add to it.***

Classification: Calcium channel blocker; antidysrhythmic and antihypertensive.

Actions:

- Acts on cardiac cell calcium channels to inhibit the inflow of calcium ions, leading to prolonged AV node conduction. In atrial fibrillation and flutter, this leads to slower ventricular response and occasional conversion to sinus rhythm.
- Acts on vascular smooth muscle, causing relaxation, reduced systemic vascular resistance, and lower blood pressure.

Indication:

- Atrial fibrillation or flutter with a rapid ventricular response but no hemodynamic instability (see Emergency Cardiovascular Care). **OMCP**
- Refractory SVT in patients unresponsive to adenosine. **OMCP**

Contraindications:

- Known hypersensitivity to diltiazem or other calcium channel blockers.
- Wide QRS tachycardias of uncertain origin.
- Wolff-Parkinson-White syndrome plus atrial fibrillation or flutter.
- Sick sinus syndrome or AV block.
- Use caution in patients receiving ß-Blockers.

Adult Dosage and Route:

- 10-15 mg (0.25 mg/kg) IV/IO over 2 min. **OMCP**
- The dose may be repeated, in 15 min if necessary. **OMCP**

Pediatric Dosage and Route: None.

Adverse Effects:

- Hypotension.
- Bradycardia.

Notes: Calcium chloride may be effective in treating toxicity from diltiazem (see Calcium Chloride 10%); discuss with the OMCP if applicable. Be prepared to externally pace the patient in the unlikely event severe bradycardia occurs. Intravenous infusion of NS, and Trendelenburg positioning, are usually effective in treating hypotension. **EMS use during pregnancy is permitted with Online Medical Consultation**. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Diphenhydramine (Benadryl®) L

In EMS practice, diphenhydramine is used primarily as part of the treatment spectrum for severe allergic reactions, and secondarily to treat acute extrapyramidal symptoms (dystonic reaction). **PREGNANCY: B**

Classification: H_1 and H_2 blocker (antihistamine), and anticholinergic.

Actions:

- Blocks activity at H_1 and H_2 histamine sites, leading to decreased secretions and decreased peripheral vascular dilation.
- Has CNS anticholinergic effects, making it antidotal for phenothiazine induced extrapyramidal symptoms (dystonic reaction).

Indications:

- Anaphylaxis (see Anaphylaxis).
- Acute extrapyramidal symptoms (dystonic reaction) (see Patient Restraint).

Contraindications:

- Known hypersensitivity to diphenhydramine or similar antihistamines.
- Nursing mothers (risk to baby).
- Acute glaucoma.

Adult Dosage and Route:

- 25-50 mg IV or IM.

Pediatric Dosage and Route:

- 1 mg/kg IV or IM.

Adverse Effects:

- Sedation.
- Psychosis (rare) due to anticholinergic effects.

Notes: Diphenhydramine is generally safe and has a low side effect profile. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Dopamine (Intropin®) L

Dopamine is a naturally occurring catecholamine, used in EMS practice to augment HR and BP in non-hypovolemic shock. Dopamine has several serious potential adverse reactions (see below) and should be used with caution. **PREGNANCY: C**

Dopamine can be dysrhythmogenic. Monitor the patient closely for tachydysrhythmias.

Classification: Catecholamine; pressor.

Actions:

- Low dose infusion (0.5-2 µg/kg/min): Vasodilatation secondary to stimulation of dopamine receptors in the renal, mesenteric, coronary, and cerebral vascular beds; increased urine output and hypotension can occur.
- Intermediate dose infusion (2-10 µg/kg/min): Increased HR and myocardial contractility secondary to $ß_1$ receptor stimulation in the myocardium—little peripheral effect.
- High dose infusion (10-20 µg/kg/min): $ß_1$ effects as above, plus peripheral vasoconstriction secondary to $\langle_1$ receptor stimulation—maximum effect on BP.
- $\langle_1$ effects predominate at infusions > 20 µg/kg/min; use only in extreme circumstances.

Indications:

- Second-line therapy for symptomatic bradycardia (after atropine (see Atropine)). **OMCP**
- Hypotension with signs and symptoms of shock, after hypovolemia is corrected. **OMCP**

Contraindications:

- Known hypersensitivity to dopamine.
- Pheochromocytoma.
- Uncorrected tachydysrhythmias, including ventricular fibrillation.

Adult Dosage and Route: 1600 µg/ml concentration and 60 drop/ml tubing **ONLY**.

- Usual infusion dose is 2-20 µg/kg/min, titrated to desired effect, as directed Online Medical Consultation. Taper slowly; do not abruptly discontinue.
- Drip rate (drops/min) = patient weight (kg) x infusion rate (µg/kg/min) x 0.0375.
- If an infusion pump is used (60 drop/ml tubing), rate in ml/hr is the same as drops/min.

Pediatric Dosage and Route: 1600 µg/ml concentration and 60 drop/ml tubing **ONLY**.

- Usual infusion dose is 2-20 µg/kg/min, titrated to desired effect, as directed by Online Medical Consultation. Taper slowly; do not abruptly discontinue. **OMCP**
- Drip rate (drops/min) = patient weight (kg) x infusion rate (µg/kg/min) x 0.0375.
- If an infusion pump is used (60 drop/ml tubing), rate in ml/hr is the same as drops/min.

Adverse Effects:

- Sodium bicarbonate ($NaHCO_3$) may deactivate dopamine; do not administer together.
- Extravasation can lead to tissue necrosis due to peripheral vasoconstriction. If extravasation occurs, notify the Destination Hospital immediately.
- Tachydysrhythmias are common. Watch for increased ventricular ectopy; reduce infusion rate if necessary and possible.

Notes: Dopamine is useful to augment cardiac function in shock states. It is important to correct hypovolemia prior to, or concomitant with, dopamine use. Infusion rate is based on a number of factors (concentration, patient weight, and tubing size). EMS Personnel should use only the 1600 µg/ml concentration and only with 60 drop/ml tubing. **EMS use during pregnancy is permitted with Online Medical Consultation**. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Epinephrine (1:1000 (1 mg/ml) and 1:10,000 (0.1 mg/ml)) EAPL

Epinephrine has broad use in EMS practice. It can be used in the treatment of cardiac arrest, symptomatic bradycardia, hypotension, bronchospasm, and anaphylaxis. It is also important to remember that epinephrine has side effects and is dysrhythmogenic. **PREGNANCY: C**

Classification: Nonspecific sympathomimetic agent.

Actions:

- Stimulates both ⟨ and ß receptors, leading to widespread sympathetic effects, including:
  - Bronchodilation.
  - Peripheral vasoconstriction.
  - Inotropic and chronotropic cardiac effects.
  - Elevated blood sugar, tremors, and dysrhythmogenesis.

Indications:

- Cardiac arrest (VF, pulseless VT, asystole, and pulseless electrical activity (PEA)).
- Symptomatic bradycardia unresponsive to atropine, as an alternative to dopamine.
- Severe hypotension. **OMCP**
- Anaphylaxis, combined with fluid infusion and antihistamines (see Anaphylaxis).
- Severe bronchospasm, when aerosol therapy is not feasible (see Acute Bronchospasm).

Contraindications:

- None in a life threatening emergency.
- High doses do not improve survival in cardiac arrest patients, and may cause harm.

Adult Dosage and Route:

- Cardiac arrest (1:10,000 (0.1 mg/ml) concentration):
  - **P** 1 mg IV/IO every 3-5 min during arrest, followed by 20 ml NS flush and arm elevation.
  - **L** Higher doses, up to 0.2 mg/kg, may be used for specific indications (ß-blocker or calcium channel blocker overdose) with Online Medical Consultations. **OMCP**
- Severe anaphylaxis associated with hypotension and unresponsive to IM administration.
  - **L** 0.3 mg IV/IO (1:10,000 (0.1 mg/ml) concentration.
  - **L** "Dirty Epi Drip"- mix 1 mg epinephrine in 1 liter of normal saline, typically infuse wide open (~20-30 mcg/min) and titrate to effect. **OMCP**
- Severe hypotension unresponsive to fluid resuscitation (1:10,000 (1 mg/ml)):
  - **L** "Push Dose Epi", temporizing measure to avoid cardiac arrest, vigorously mix 1 ml (1:10,000) of epinephrine in 9 ml of normal saline (1:100,000 (10 mcg/ml) concentration). Administer 1-5 ml/min (10-50 mcg/min) titrated to effect. **OMCP**
  - **L** "Dirty Epi Drip"- mix 1 mg epinephrine in 1 liter of normal saline, typically infuse wide open (~20-30 mcg/min) and titrate to effect. **OMCP**
- Bronchospasm and anaphylaxis (1:1000 (1 mg/ml) concentration):
  - **E** 0.3-0.5 mg IM (up to maximum dose of 1 mg if severe).
  - **E** Epinephrine auto-injector: 0.3 mg IM administered to anterolateral thigh.

Pediatric Dosage and Route:

- Cardiac arrest and symptomatic bradycardia (1:10,1000 (0.1 mg/ml) concentration):
  - **L** 0.01 mg/kg IV every 3-5 min during arrest.

- **L** Use in symptomatic bradycardia determined with Online Medical Consultation. **OMCP**

- Bronchospasm and anaphylaxis (1:1000 (1 mg/ml) concentration):
  - **A** 0.15 mg/kg (< 30 kg)-0.3 mg/kg (≥ 30 kg) IM.
  - **E** Epinephrine pediatric auto-injector: 0.15 mg IM administered to anterolateral thigh.

Adverse Effects:

- Tremors and anxiety.
- Increased myocardial oxygen demand, possibly resulting in ischemia.
- Tachydysrhythmias and elevated blood pressure.

Notes: **EMS use during pregnancy is permitted for life threatening conditions. Always properly label all medications.**

Push-Dose Epinephrine
10 µg/mL
Date:
Time:
Mix 1 mL of Cardiac EPI (1:10,000) in 9 mL of NS SHAKE WELL

Dirty Epi Drip Epinephrine
1 µg/mL
Date:
Time:
Mix 1 mg of Epinephrine in 1000 mL of NS SHAKE WELL

Effective: April 2, 2007 Revised: April 1, 2018 Revised: October 1, 2018

Etomidate (Amidate®) L

Etomidate is a potent and fast acting sedative with a short duration of action. In EMS practice, it is used almost exclusively during drug-assisted intubation. **PREGNANCY: C**

Classification: Ultra-short acting non-barbiturate, non-benzodiazepine, non-opioid sedative-hypnotic agent with no analgesic properties.

Actions:

- Produces rapid sedation with no significant cardiovascular depression. Respiratory depression can occur. Etomidate also decreases intracranial pressure, making it the agent of choice for the hypotensive trauma patient with a head injury.

Indications:

- Drug-assisted intubation (see Airway Management).
- Post-intubation sedation, rarely.
- Procedural sedation, rarely. **OMCP**

Contraindications:

- Known hypersensitivity to etomidate.
- Known adrenal insufficiency is a relative contraindication.
- A history of focal seizures is a relative contraindication.

Adult Dosage and Route:

- 0.3 mg/kg, up to 40 mg, IV (Onset: 10-30 sec. Duration: 3-10 min).

Pediatric Dosage and Route:

- 0.3 mg/kg, up to 30 mg, IV (Onset: 10-30 sec. Duration: 3-10 min).

Adverse Effects:

- Respiratory depression can occur.
- May suppress cortisol production after a single dose.
- May cause myoclonic activity (coughing, hiccups), and may exacerbate focal seizures.

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. Endotracheal intubation can often, but not always, be accomplished with etomidate alone. However, it is important to remember that etomidate has no analgesic characteristics. **EMS use during pregnancy is permitted for drug-assisted intubation**.

Effective: April 2, 2007 Revised: April 1, 2018

Fentanyl Citrate (Sublimaze®) PL

Fentanyl is a potent opioid. A dose of 100 µg is approximately equivalent, with regard to narcotic analgesic properties, to 10 mg of morphine sulfate. Fentanyl does not cause as much nausea and vomiting as morphine, and produces no histamine release—therefore induces less hypotension than morphine (see Morphine Sulfate). **PREGNANCY: C**

CAUTION:	*Patients who receive fentanyl must be carefully monitored for respiratory depression and hypotension. Naloxone (a reversal agent) should be immediately available (see Naloxone). Be prepared to manage the airway.*

Classification: Rapid acting, short duration narcotic analgesic.

Actions:

- Produces rapid analgesia, with immediate onset and peak activity in 10-15 min.
- Respiratory depression may occur, and may persist after the analgesic effect diminishes.

Indications:

- **P** Analgesia in accordance with Standing Medical Orders (see Pain Management and Suspected Acute Coronary Syndrome).
- **L** Analgesia during patient encounters not covered by Standing Medical Orders. **OMCP**
- **L** Drug-assisted intubation (as an adjunct) (see Airway Management).
- **L** Post-intubation analgesia.
- **L** Procedural analgesia (cardioversion, extrication, etc.).

Contraindications:

- Known hypersensitivity to fentanyl.
- Hemodynamic, respiratory, or central nervous system instability.

Adult Dosage and Route:

- Analgesia: 25-50 µg IV every 5-10 min as needed, up to a total of 200 µg. If IV access is not readily available 100 µg intranasally may be administered.
- Acute Coronary Syndrome: 25-50 µg IV, every 5 min as needed, up to a total of 100 µg.
- Drug-assisted intubation (as an adjunct): 50-100 µg IV as a single dose.
- Post-intubation: 50-100 µg IV as a single dose.

Pediatric Dosage and Route:

- Analgesia: 1 µg/kg, up to 50 µg, IV every 5-10 min as needed, up to a total of 100 µg.
- Drug-assisted intubation (as an adjunct): 2 µg/kg, up to 100 µg, IV as a single dose. **OMCP**

Adverse Effects:

- Respiratory depression can occur.
- Hypotension can occur.
- Bradycardia may occur rarely, and usually responds to atropine.
- Muscular rigidity is a rare adverse reaction.

Notes: Fentanyl is a useful analgesic that is not associated with some of the adverse reactions attributed to morphine (nausea, histamine release, and significant hypotension). It is ideal when short duration analgesia is required and hemodynamic stability is unclear, making it an excellent choice for trauma patients, and those with possible acute coronary syndrome. Caution is still required as respiratory depression, hypotension, and bradycardia can occur. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018 Revised: June 1, 2018

Glucagon APL

Glucagon is a 29 amino acid polypeptide that exists as a natural hormone. Its use in EMS practice is primarily to treat severe hypoglycemia when intravenous access is unavailable and intraosseous access is otherwise unnecessary. It may also have some utility in the treatment of ß-blocker and calcium channel blocker overdose as well as in anaphylaxis if the patient takes a ß-blocker. **PREGNANCY: B**

CAUTION: *Patients without adequate liver glycogen stores; e.g., due to malnourishment, will not respond to glucagon administered for hypoglycemia. Administer dextrose to all patients with severe symptomatic hypoglycemia as soon as possible.*

Classification: Polypeptide hormone.

Actions:

- Promotes the breakdown of liver glycogen to glucose.
- Relaxes smooth muscle in the gastrointestinal tract.
- Bypasses ß receptors in cardiac muscle, reducing the effects of ß-blockade.

Indications:

- Acute severe symptomatic hypoglycemia, when IV access is unavailable and IO access is otherwise unnecessary (see Acute Non-Traumatic Altered Level of Consciousness).
- Anaphylaxis unresponsive to epinephrine, and the patient is taking a ß-blocker.
- Hypotension and dysrhythmias associated with ß-blocker and calcium channel blocker overdose (see Anaphylaxis). **OMCP**

Contraindications:

- Known hypersensitivity to glucagon.
- Known pheochromocytoma (glucagon may precipitate massive catecholamine release).

Adult Dosage and Route: Vomiting after glucagon administration is **very** common.

- **A** 1 mg IM for hypoglycemia if venous access is not obtainable.
- **L** 1-2 mg IV/IM for anaphylaxis unresponsive to epinephrine, and the patient is taking a ß-blocker.
- **L** Additional or alternative dosing only with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route: Vomiting after glucagon administration is **very** common.

- Patient age ≤ 5 yrs: 0.5 mg IM.
- Patient age > 5 yrs: 1 mg IM.
- Additional or alternative dosing only with Online Medical Consultation. **OMCP**

Adverse Effects:

- Nausea and vomiting are common, but are also common with hypoglycemia.
- Patients with pheochromocytoma (rare) may develop severe catecholamine toxicity, manifested by tachycardia and hypertension.

Notes: Glucagon can be an important medication when mobilization of glycogen stores is needed; it is remarkably effective when used for this purpose in hypoglycemic patients. It's utility in ß-blocker and calcium channel blocker overdose is unclear. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Glucose (Insta-Glucose®, Glutose®) EAPL

Glucose is used exclusively in the oral treatment of symptomatic hypoglycemia. With the availability of blood glucose measurements, it should not be used indiscriminately for patients with an altered level of consciousness of unknown etiology. **PREGNANCY: B**

CAUTION: Patients with a diminished level of consciousness may have impaired swallowing and airway reflexes. Use caution when administering any oral agent as aspiration may occur.

CAUTION: Do not administer anything PO if the patient is unable to protect his/her airway.

Classification: Carbohydrate; simple sugar.

Actions:

- Acts as a metabolic substrate for the intracellular production of energy essential for normal cell function.

Indication:

- Acute severe symptomatic hypoglycemia (see Acute Non-Traumatic Altered Level of Consciousness).

Contraindications:

- Acute hyperglycemia.
- Acute stroke or traumatic brain injury, unless hypoglycemia is clearly present.

Adult Dosage and Route:

- 1 tube (15-24 g) PO. Use caution if the patient has a diminished level of consciousness. Administer slowly and monitor absorption.

Pediatric Dosage and Route:

- ½ tube (7.5-12 g) PO. Use caution if the patient has a diminished level of consciousness. Administer slowly and monitor absorption.

Adverse Effects:

- Aspiration is possible if the patient has a diminished level of consciousness, impaired swallowing, or impaired protective airway reflexes.

Notes: Insta-Glucose® contains 24 g of glucose is equivalent to the amount of carbohydrates in an average candy bar. Glutose® is another brand that may occasionally be encountered, containing 15 g of glucose per tube. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Haloperidol (Haldol®) L

Haloperidol is an antipsychotic with broad properties. It is generally used in the treatment of schizophrenia and Tourette's Disorder. Its use in EMS practice is primarily to help acutely control behavior in patient's exhibiting severe combativeness, especially if felt to be due to acute psychosis or traumatic brain injury. **PREGNANCY: C**

CAUTION:	*Patients should not receive haloperidol without caution. Other techniques for controlling patient behavior (see Patient Restraint) should be considered before considering chemical restraint with haloperidol.*

CAUTION:	*Patients who receive haloperidol should be monitored carefully for adverse reactions, including hypotension and respiratory depression.*

Classification: Butyrophenone antipsychotic.

Actions:

- The mechanism of action is unknown.

Indication:

- Sedation of patients with severe agitation and combativeness, especially if due to acute psychosis or acute traumatic brain injury, uncontrollable by alternative techniques (see Patient Restraint and Major Blunt or Penetrating Trauma). **OMCP**

Contraindications:

- Known hypersensitivity to haloperidol.
- Parkinson's Disease.
- Coma.
- Known seizure disorder or seizure activity during the current encounter.
- Use caution in patients who take lithium (Lithobid®).

Adult Dosage and Route:

- 5 mg IV or 10 mg IM. Online Medical Consultation should be obtained prior to administration if possible; otherwise as soon as possible after administration. **OMCP**
- Additional or alternative dosing only with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route: (None)

Adverse Effects:

- Extrapyramidal symptoms are possible (uncontrollable movements, tongue fasciculation's, opithotonos, oculogyric crisis, and others). These are often improved with administration of diphenhydramine, which is often given adjunctively (see Diphenhydramine).
- Central nervous system depression.
- Hypotension (especially orthostatic) and respiratory depression can occur.
- Neuroleptic Malignant Syndrome is a rare but serious adverse reaction, characterized by hyperpyrexia, muscle rigidity, altered mental status, and dysrhythmias.

Notes: Haloperidol is a potent medication with potentially serious side effects. However, it can be extremely effective in controlling agitated and combative behavior when other techniques are ineffective or unfeasible. Haloperidol can be used safely to reduce short-term agitation in patients with traumatic brain injury. **EMS use during pregnancy is permitted only with Online Medical Consultation**. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Ipratroprium Bromide 0.02% (Atrovent®) PL

Ipratroprium bromide is typically used in combination with albuterol (see Albuterol) for the treatment of acute bronchospasm (see Acute Bronchospasm). **PREGNANCY: B**

Classification: Topical anticholinergic.

Actions:

- Blocks Vagus nerve mediated (via acetylcholine as a neurotransmitter) bronchoconstriction.
- Effects of inhaled solution are relatively limited to the lungs.

Indication:

- Treatment of acute bronchospasm, often adjunctively with a $ß_2$ agonist, such as albuterol (see Acute Bronchospasm and Anaphylaxis).

Contraindication:

- Known hypersensitivity to ipratroprium bromide or atropine.

Adult Dosage and Route: "Back-to-back" use permitted when necessary.

- Unit dosage (0.5 mg of ipratroprium bromide in 2.5 ml) administered with albuterol via handheld nebulizer or mask, at 8-10 L/min gas flow, or via endotracheal tube.
- See Albuterol.

Pediatric Dosage and Route: No "back-to-back" use.

- Age ≥ 1 year: Unit dosage (0.5 mg of ipratroprium bromide in 2.5 ml) administered with albuterol via handheld nebulizer, mask, or "blow-by," at 8-10 L/min gas flow, or via endotracheal tube, **no more frequently than every four hours**.
- Age < 1 year: ½ unit dosage (0.25 mg of ipratroprium bromide in 1.25 ml) administered with albuterol via "blow-by," at 8-10 L/min gas flow, or via endotracheal tube, **no more frequently than every four hours**.
- See Albuterol.

Adverse Effects:

- Tachycardia and palpitations.
- Anxiety.
- Dry mouth.
- Cough.
- Blurred vision (rare).

Notes: Ipratroprium bromide is an excellent Para sympatholytic adjunct to the treatment of bronchospasm with sympathetic agonists. It is relatively well tolerated and safe. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Ketamine (Ketalar®) L

Ketamine is a rapid-acting general anesthetic producing an anesthetic state characterized by profound analgesia, normal pharyngeal-laryngeal reflexes, normal or slightly enhanced skeletal muscle tone, cardiovascular and respiratory stimulation, and occasionally a transient and minimal respiratory depression. **PREGNANCY: N**

CAUTION: Emergence reaction can occur as ketamine is wearing off; presents as anxiety, hallucinations, or nightmares. For severe reactions, consider a benzodiazepine. ***OMCP***

Classification: Dissociative anesthetic.

Actions:

- Creates a state of dissociation from reality.
- Spinal reflexes are reduced.
- Catecholamines (epinephrine & norepinephrine) are released.

Indications:

- Analgesia in accordance with Standing Medical Orders (see Pain Management).
- Drug-assisted intubation (as an adjunct) (see Airway Management).
- Post-intubation sedation (see Airway Management).
- Procedural analgesia (cardioversion, extrication, etc.). **OMCP**
- Excited Delirium. **OMCP**

Contraindications:

- Schizophrenia.
- Relative contraindication in penetrating eye trauma.
- Relative contraindication in patients with known cardiovascular disease.

Adult Dosage and Route:

- Analgesia: 0.25 mg/kg (maximum single dose 20 mg) slow IV/IO every 5 minutes (max. total cumulative dose 40 mg) as needed. If no IV access available 0.5 mg/kg IN (max. dose 40 mg).
- Drug-assisted intubation: 2 mg/kg IV/IO over 1-2 minutes as an induction agent. Agent of choice for patients presenting with potential hypotension or bronchospasm (provides bronchodilation).
- Post-intubation sedation: 1 mg/kg slow IV/IO every 5-10 minutes as needed.
- Excited Delirium: 5 mg/kg IM and may repeat 2.5 mg/kg IM in 5 minutes. **OMCP**
- Procedural sedation: 1 mg/kg IV/IO. **OMCP**

Pediatric Dosage and Route: **OMCP**

- Analgesia: 0.25 mg/kg (maximum dose 20 mg) slow IV/IO. If no venous access available 0.5 mg/kg IN (maximum dose 40 mg). **OMCP**
- Drug-assisted intubation: 2 mg/kg IV/IO over 1-2 minutes as an induction agent. **OMCP**
- Post-intubation sedation: 1 mg/kg slow IV/IO every 5-10 minutes as needed. **OMCP**
- Procedural sedation: 1 mg/kg IV/IO. **OMCP**

Adverse Effects:

- Hypersalivation
- Hallucinations
- Respiratory depression can occur.
- Laryngospasm.
- Emergence delirium.
- Elevated Blood Pressure.
- Depressed reflexes.

Notes: Ketamine can be used synergistically with fentanyl, typically at a reduced dosage of each, for analgesia. **OMCP**

Lidocaine (Xylocaine®) L

Lidocaine is a local anesthetic with antidysrhythmic properties. Prior to the introduction of amiodarone, it was the most commonly used intravenous antidysrhythmic. It still has a role to play in the treatment of ventricular tachydysrhythmias, maintains controversial use in drug-assisted intubation, and is also effective, as a nebulized aerosol, in anesthetizing the pharynx during preparation for endotracheal intubation. **PREGNANCY: B**

CAUTION:	*Lidocaine should be administered carefully to patients with possible impaired hepatic function, including the elderly.*

CAUTION:	*Lidocaine should not be administered to patients with any significant SA, AV, or intraventricular block, especially if a pacemaker is unavailable.*

CAUTION:	*Lidocaine should not be used "prophylactically" in acute coronary syndrome.*

Classification: Amide-type local anesthetic; antidysrhythmic.

Actions:

- Inhibits neuronal ion flux, preventing action potential generation and nerve impulse transmission.
- Modifies conduction through Purkinje fibers in cardiac tissue, decreasing automaticity and raising the ventricular fibrillation threshold.

Indications:

- Cardiac arrest due to ventricular tachycardia (VT) or ventricular fibrillation (VF), as an alternative to amiodarone.
- Topical anesthesia, via nebulizer, during preparation for endotracheal intubation (see Airway Management).
- Drug-assisted intubation, as adjunctive therapy to suppress intracranial pressure elevations and adverse airway reflexes (controversial) (see Airway Management).
- Local anesthetic at intraosseous site for patients responsive to pain.

Contraindications:

- Known hypersensitivity to lidocaine or other amide-type local anesthetics.
- Wolff-Parkinson-White (WPW) Syndrome.
- High degree sinoatrial (SA), atrioventricular (AV), or intraventricular conduction delay.

Adult Dosage and Route:

- Cardiac arrest due to VT or VF: 1-1.5 mg/kg, up to a maximum of 100 mg, IV/IO. For refractory VF, additional does of 0.5-0.75 mg/kg, up to a maximum of 75 mg, IV/IO, every 5-10 min as needed, up to a total of 3 doses.
- Stable VT or wide-complex tachycardia of uncertain type: 0.5-0.75 mg/kg, up to a maximum of 100 mg, IV/IO, every 5-10 min as needed, up to a total of 3 doses.
- Drug-assisted intubation: 0.75 mg/kg, up to a maximum of 75 mg, IV/IO (see Airway Management).
- Pharyngeal anesthesia prior to nasotracheal intubation: 60 mg (3 ml of 2% solution) via nebulizer at 8-10 L/min.
- Intraosseous anesthetic for those responsive to pain: Slowly infuse 40 mg IO over 2 minutes, wait 1 minute, and then flush with 5-10 ml of NS.

Pediatric Dosage and Route:

- VT or VF: 1 mg/kg, up to a maximum of 100 mg, IV.

- Wide-complex tachycardia of uncertain type: 1 mg/kg, up to a maximum of 100 mg, IV.
- Additional dosing is permitted only with Online Medical Consultation. **OMCP**
- Intraosseous anesthetic for those responsive to pain: Slowly infuse 0.5 mg/kg, not to exceed 40mg, over 2 minutes, wait 1 minute, and then flush with 5-10 ml of NS. **OMCP**

Adverse Effects (rare and somewhat dose dependent):

- Central nervous system effects: Anxiety, tremor, confusion, dizziness, nausea, seizures, and respiratory arrest.
- Cardiac effects: Bradycardia, hypotension, and cardiovascular collapse.

Notes: Amiodarone has not been shown to improve survival to discharge in cardiac arrest patients, relative to lidocaine. The use of lidocaine as an adjunct in drug-assisted intubation has been controversial for a decade, and the debate continues. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Lorazepam (Ativan®) L

Lorazepam has multiple uses in EMS practice. Though primarily utilized as an anticonvulsant, it also has sedative properties that make it useful in the management of acute CNS stimulant (e.g., cocaine, amphetamines, etc.) intoxication and alcohol withdrawal. **PREGNANCY: D**

Lorazepam is a potent sedative that can lead to respiratory depression. Monitor the patient closely and be prepared to manage the airway. Be especially cautious in elderly patients and those with COPD.

CAUTION: ***Dosage warning:*** *Lorazepam is related to diazepam but* ***not*** *identical; it* ***cannot*** *be used interchangeably at the same dose.*

Classification: Benzodiazepine; anticonvulsant and sedative.

Actions:

- Interacts with the ɣ-aminobutyric acid (GABA)-benzodiazepine receptor complex. GABA is the chief inhibitory neurotransmitter in the central nervous system (CNS).
- Exerts a general calming effect on the central nervous system, causing sedation, and eventually respiratory depression.

Indications:

- Acute seizure activity (see Grand Mal Seizures).
- Acute alcohol withdrawal. **OMCP**
- Procedural sedation, though midazolam is generally a better choice. **OMCP**
- Acute CNS stimulant (e.g., cocaine, amphetamines, etc.) intoxication, especially if associated with seizures or delirium. **OMCP**

Contraindications:

- Known hypersensitivity to lorazepam, diazepam, or other benzodiazepines.
- Acute glaucoma.
- Alcohol intoxication or other causes of CNS depression.

Adult Dosage and Route:

- Grand mal seizure: 2 mg IV every 5 minutes as needed, maximum 4 mg.
- Acute cocaine intoxication: 1-2 mg IV. **OMCP**
- Acute alcohol withdrawal: 1-2 mg IV. **OMCP**
- Procedural sedation: 1-2 mg IV. **OMCP**

Pediatric Dosage and Route:

- Grand mal seizure: 0.05 mg/kg, up to 2 mg, IV every 5 min until seizure activity stops or a total of two (2) doses has been administered. Additional dosing requires Online Medical Consultation. **OMCP**
- Procedural sedation: 0.05 mg/kg IV. **OMCP**

Adverse Effects:

- Respiratory depression, especially in pediatric, geriatric, and COPD patients.
- Hypotension, especially in patients with poor hemodynamic reserve.
- Vascular irritation and thrombophlebitis.

Magnesium Sulfate L

Magnesium is a common element with several uses in EMS practice, none of which are common. It is indicated for the treatment of eclampsia and may have value in the treatment of atrial and ventricular tachydysrhythmias (especially torsades de pointes) and asthma.
PREGNANCY: A

CAUTION: *Magnesium must be administered **slowly** (see below). Rapid administration can result in cardiovascular collapse and ventricular fibrillation.*

Classification: Enzymatic cofactor; cation electrolyte; mineral.

Actions:

- Participates, as a cofactor, in many enzymatic reactions.
- Decreases neuromuscular junction (NMJ) impulse transmission/NMJ acetylcholine release.
- Produces vasodilatation and reductions in blood pressure.
- Stabilizes cardiac cell membranes and prevents after-depolarizations.
- Bronchodilation in some patients; mechanism unclear.

Indications:

- Pulseless torsades de pointes; or cardiac arrest with known hypomagnesemia.
- Eclampsia related seizures (see Grand Mal Seizures).
- Torsades de Pointes with a pulse. **OMCP**
- Life-threatening ventricular tachydysrhythmias due to digitalis toxicity. **OMCP**
- Refractory atrial and ventricular tachydysrhythmias. **OMCP**
- Status asthmaticus. **OMCP**

Contraindications:

- Known hypersensitivity to magnesium sulfate.
- Renal failure.
- High degree sinoatrial (SA), atrioventricular (AV), or intraventricular conduction delay.

Adult Dosage and Route:

- Eclampsia related seizure activity: 1-2 g (2-4 ml of a 50% solution diluted in 10 ml NS) IV over 2-4 min. Monitor the patient closely.
- Pulseless torsades de pointes; or cardiac arrest with hypomagnesemia: 1-2 g (2-4 ml of a 50% solution diluted in 10 ml NS), IV over 5 min.
- Status asthmaticus: 25 mg/kg, up to 2 g (diluted in 10 ml NS), IV over 10 min. **OMCP**
- All other indications: In accordance with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route:

- Pulseless torsades de pointes; or cardiac arrest with hypomagnesemia: 25-50 mg/kg, up to 2 g (diluted in 10 ml NS), IV over 5 min.
- Status asthmaticus: 25 mg/kg, up to 2 g (diluted in 10 ml NS), IV over 10 min. **OMCP**

Adverse Effects (uncommon; related to rate of administration):

- Hypotension.
- Ventricular dysrhythmias.
- Paralysis with respiratory depression.

Notes: Magnesium is extremely important in the treatment of eclampsia related convulsions, and torsades de pointes. It's use in other dysrhythmias, and in asthma, remains controversial. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Midazolam (Versed®) L

Midazolam is used for sedation in the out-of-hospital setting. It is a short acting (< 10 min), cerebroprotective, and well-tolerated agent. It does have a tendency to cause or worsen hypotension in hypovolemic patients, and can cause respiratory depression. **PREGNANCY: D**

CAUTION:	*Patients who receive midazolam must be carefully monitored for respiratory depression and hypotension.* ***Be prepared to manage the airway****.*

CAUTION:	*If the patient is on supplemental oxygen, pulse oximetry will not reliably reflect the adequacy of ventilation;* ***continuous capnography****, if available, along with* ***continuous direct observation*** *of the patient's breathing is essential to effectively monitor ventilation.*

Classification: Benzodiazepine; sedative and anticonvulsant.

Actions:

- Exerts a general calming effect on the central nervous system, causing sedation, and eventually respiratory depression.
- Acts on the limbic, thalamic, and hypothalamic regions of the CNS to potentiate the effects of inhibitory neurotransmitters, raising the seizure threshold.

Indications:

- Procedural sedation (cardioversion, fracture reduction, etc.).
- Acute, non-eclampsia related, seizure activity (see Grand Mal Seizures).

Contraindications:

- Known hypersensitivity to midazolam or other benzodiazepines.
- Acute glaucoma.

Adult Dosage and Route:

- Procedural sedation: DOSAGE MUST BE INDIVIDUALLY TITRATED; 2.5 mg IV, every 2-3 min, until moderate sedation (diminished but purposeful response to verbal or light tactile stimulation, and slurred speech) is achieved, or a total of 5 mg has been administered. Additional dosing requires online medical consultation. **OMCP**
- Grand mal seizure (intranasal use): One dose of 10 mg.
- Grand mal seizure (IV use): In accordance with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route:

- Procedural sedation: DOSAGE MUST BE INDIVIDUALLY TITRATED; 0.1 mg/kg, up to 2.5 mg, IV, every 2-3 min, until moderate sedation (diminished but purposeful response to verbal or light tactile stimulation, and slurred speech) is achieved, or a total of 6 mg has been administered. **OMCP**
- Grand mal seizure (intranasal use): One dose (see table in Grand Mal Seizures).

Adverse Effects:

- Partial or complete amnesia of events during sedation is common.
- Respiratory depression, especially in pediatric and geriatric patients.
- Hypotension, especially in patients with poor hemodynamic reserve.

Notes: Careful monitoring of patient ventilation, including the use of capnography, until the patient fully recovers from midazolam's effects, is most important. **EMS use during pregnancy is permitted only with Online Medical Consultation**. **OMCP**

Effective: April 2, 2007 Revised: April 1, 2018

Morphine Sulfate L

Morphine is one of the oldest medications in use. Its primary benefit is as an analgesic. There are also secondary effects that are sometimes desirable and useful—sometimes they preclude its use. As attention to pain management in the out-of-hospital setting grows, so will the use of opioid analgesics such as morphine. **PREGNANCY: C**

CAUTION:	*Patients who receive morphine must be carefully monitored for respiratory depression and hypotension. Naloxone (a reversal agent) should be immediately available (see Naloxone).* ***Be prepared to manage the airway****.*

Classification: Rapid acting, moderate duration opiate analgesic.

Actions:

- Produces rapid analgesia, with onset in < 5 min and peak activity in < 30 min.
- Respiratory depression may occur, even after 30 min, and may persist even after the analgesic effect diminishes.

Indications:

- Analgesia in accordance with Standing Medical Orders (see Pain Management and Suspected Acute Coronary Syndrome).
- Analgesia during patient encounters not covered by Standing Medical Orders. **OMCP**
- Procedural analgesia (cardioversion, extrication, etc.) **OMCP**

Contraindications:

- Known hypersensitivity to morphine.
- Hemodynamic or respiratory instability.

Adult Dosage and Route:

- Analgesia: 2-5 mg IV, every 5-10 min as needed, up to a total of 20 mg.
- Suspected Acute Coronary Syndrome: 2-4 mg IV, every 5 min as needed, up to a total of 10 mg.

Pediatric Dosage and Route:

- Analgesia: 0.1 mg/kg IV, up to 5 mg, every 5-10 min as needed, up to a total of 10 mg.

Adverse Effects:

- Respiratory depression can occur.
- Hypotension can occur, especially in hypovolemic states and with right ventricular myocardial infarction.

Notes: Morphine remains a prominent analgesic for out-of-hospital pain management. It's benefit in acute coronary syndrome is controversial. Caution is required as respiratory depression and hypotension can occur. Naloxone is antidotal (see Naloxone). **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Naloxone (Narcan®) REAPL

Naloxone is an opioid antagonist. It was originally used during the heroin "epidemic" of the 1960's and '70s. It remains a potentially lifesaving intervention for opioid intoxication but should not be used indiscriminately (see below). **PREGNANCY: C**

CAUTION: *The use of naloxone in patients with opioid dependence can result in acute withdrawal syndrome.* ***Use naloxone selectively and cautiously****.*

Classification: Competitive opioid antagonist.

Actions:

- Competitively binds at opioid receptor sites in the central nervous system.
- Naloxone has pure opioid antagonist properties and no opioid agonist properties.

Indications:

- Complete or partial reversal of opioid induced respiratory, hemodynamic, and neurological depression (see Acute Non-Traumatic Altered Level of Consciousness).

Contraindications:

- Known hypersensitivity to naloxone.
- Known opioid chemical dependence (relative; naloxone is still indicated for life-threatening opioid ingestion).

Adult Dosage and Route:

- 0.5-2 mg intranasally, titrated to effect. Maximum of 1 ml per nare. May repeat as required.
- 0.5 mg aliquots IV, titrated to effect, up to 2 mg. May repeat as required.

Pediatric Dosage and Route:

- 0.1 mg/kg, up to a maximum of 2 mg, IV.
- 2 mg intranasally. Maximum of 1 ml per nare.
- Additional dosing is permitted only with Online Medical Consultation. **OMCP**

Adverse Effects:

- Signs of opioid withdrawal: Nausea, vomiting, anxiety, agitation, runny nose, abdominal cramps, shivering, sweating, tachycardia, and increased BP.
- Seizures and ventricular tachydysrhythmias, while rare have been reported; some have been fatal.

Notes: Naloxone is the drug of choice for suspected acute opioid intoxication respiratory, hemodynamic, or neurological instability and, in EMS practice, should be used exclusively for this purpose. It should **never** be used "diagnostically" in a stable awake patient. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Nitroglycerin (Nitrolingual®) EAPL

Nitroglycerin is a potent preload reducer, used in the treatment of angina and acute pulmonary edema. Along with oxygen and aspirin, it is one of the most commonly used medications in EMS practice. **PREGNANCY: C**

CAUTION:	*Nitroglycerin is contraindicated in patients who have taken sildenafil (Viagra®) or vardenafil (Levitra®) or avanafil (Stendra®) within **24 hours**, or tadalafil (Cialis®) within **48 hours**.*

Classification: Organic nitrate.

Actions:

- Vasodilatation of arteries and veins, with an emphasis on the latter.

Indications:

- Chest discomfort of suspected coronary origin (see Suspected Acute Coronary Syndrome).
- Acute pulmonary edema (see Acute Pulmonary Edema).

Contraindications:

- Known hypersensitivity to nitroglycerin.
- Recent phosphodiesterase inhibitor use (see *CAUTION* above).
- Hemodynamic instability; hypotension.
- Use carefully in inferior wall myocardial infarction.

Adult Dosage and Route:

- Chest discomfort of suspected coronary origin: 0.4 mg lingually (sprayed **on** the tongue) every 5 minutes as needed and tolerated (see Suspected Acute Coronary Syndrome).
- Acute pulmonary edema: 0.4-1.2 mg lingually every 5 minutes as needed and tolerated (see table in Acute Pulmonary Edema).

Pediatric Dosage and Route: (None)

Adverse Effects:

- Headache and flushing are common.
- Hypotension can occur, and is usually responsive to 100-250 ml fluid boluses, and possibly Trendelenburg positioning.
- Hypotension due to PDE-5 inhibitor interaction may be severe, difficult or impossible to reverse, and life threatening.

Notes: Nitroglycerin is generally safe and effective for the treatment of angina and cardiogenic pulmonary edema. **Always ask about PDE-5 inhibitor use and note that there are indications for women as well**, most commonly pulmonary hypertension. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Ondansetron (Zofran®) PL

Ondansetron is used for the treatment of nausea and vomiting resulting from various etiologies. It has been proven to be safe and effective in the prehospital setting; having very few adverse effects while potentially relieving patients discomfort.

PREGNANCY: B

Classification: Antiemetic/nausea, Serotonin 5-HT3 receptor antagonists.

Actions:

- Blocks the action of serotonin, a natural substance that may cause nausea.

Indications:

- Nausea and vomiting due to chemotherapy.
- Prophylactic use prior to administration of pain management medication.
- Nausea and vomiting with suspected dehydration or electrolyte imbalance.

Contraindications:

- Known hypersensitivity to ondansetron or to any medicine similar, including dolasetron (Anzemet), granisetron (Kytril), or palonosetron (Aloxi).
- History of, or family history, of Long QT Syndrome.

Adult Dosage and Route:

- 4 mg slow IV push; may repeat dose one time after 10 minutes.
- If IV access is not readily accessible 4 mg PO may be administered lingually or IM; may repeat one time after 10 minutes.

Pediatric Dosage and Route:

- >15 kg: 0.15 mg/kg slow IV push or 4 mg PO may be administered lingually. Additional doses require Online Medical Consultation. **OMCP**

Adverse Effects:

- GI: Constipation, diarrhea, dry mouth.
- Neurological: Headache, dizziness, drowsiness/sedation.
- Immunological: Anaphylaxis (rare).
- Cardiovascular: Cardiac dysrhythmias (rare),
- Respiratory: Bronchospasm.
- Musculoskeletal: Muscle pain.

EMS use during pregnancy is permitted only with Online Medical Consultation. OMCP

Effective: March 1, 2011 Revised: April 1, 2018

Sodium Bicarbonate L

Sodium bicarbonate used to be standard therapy for all cardiac arrests. Today its use in EMS practice is limited to the treatment of hyperkalemia and cyclic antidepressant overdose. It still has a role in cardiac arrest resuscitative efforts, but that role is limited. **PREGNANCY: C**

CAUTION: Sodium bicarbonate administration will result in increased carbon dioxide production. Ensure that ventilation is adequate; use capnography if available.

Classification: Electrolyte replenisher and systemic alkalizer.

Actions:

- Buffers hydrogen ions and raises blood pH.

Indications:

- Known or suspected hyperkalemia, as in chronic renal failure, with severe electrocardiographic abnormalities or cardiac arrest (see Care of the Hemodialysis Patient).
- Known bicarbonate-responsive acidemia: e.g., diabetic ketoacidosis, cyclic antidepressant or aspirin overdose, and cocaine or diphenhydramine intoxication. **OMCP**
- Prolonged resuscitative efforts with effective ventilation; upon return of spontaneous circulation after long arrest interval. **OMCP**

Contraindications:

- Known hypersensitivity to sodium bicarbonate.

Adult Dosage and Route:

- Hyperkalemia with severe electrocardiographic abnormalities or cardiac arrest: 100 mEq IV (see Care of the Hemodialysis Patient).
- Metabolic acidemia: 50-100 mEq IV every 10 min in accordance with Online Medical Consultation. **OMCP**
- Prolonged resuscitative efforts: 50-100 mEq IV every 10 min in accordance with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route:

- Hyperkalemia, metabolic acidemia, cyclic antidepressant overdose, and prolonged resuscitative efforts with effective ventilation: 1 mEq/kg IV every 10 min in accordance with Online Medical Consultation. **OMCP**

Adverse Effects:

- Metabolic alkalosis (rare).
- Hypernatremia (from sodium component).
- Extravasation can lead to chemical cellulites and tissue necrosis.

Notes: Sodium bicarbonate can be lifesaving in certain conditions, including hyperkalemia and cyclic antidepressant overdose. Its use in cardiac arrest resuscitative efforts is limited to prolonged resuscitation situations only; it is not for routine use. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Succinylcholine (Anectine®) L

Succinylcholine is, by far, the most commonly used neuromuscular blocking (NMB) agent in EMS practice. Its rapid onset and short half-life make it almost ideal, though it is associated with some drawbacks and cautions (see below). **PREGNANCY: C**

CAUTION:	*Succinylcholine will induce complete skeletal muscular paralysis and apnea. It is administered exclusively in the setting of drug-assisted ventilation; manual ventilation will be required.*

Classification: Depolarizing skeletal muscle relaxant.

Actions:

- Competitive binding at neuromuscular junction receptor sites, producing depolarization (fasciculations) followed by flaccid paralysis.

Indications:

- Muscular relaxation, in association with sedation, to facilitate endotracheal intubation as part of a drug-assisted intubation procedure (see Airway Management).
- Muscular relaxation, in association with sedation, to facilitate safe transport of an intubated and manually ventilated patient. **OMCP**

Contraindications:

- Hypersensitivity to succinylcholine.
- Significant, known or suspected, hyperkalemia.
- Major burns > 48 hours and < 6 months old.
- Extensive crush injury > 48 hours and < 6 months old.
- Myopathies/skeletal muscle denervation syndromes (e.g., MS, ALS, muscular dystrophy, stroke (unless acute), or spinal cord injury (unless acute)).
- History or family history of malignant hyperthermia (very rare) or other life threatening anesthesia reactions.
- Acute organophosphate toxicity.

Adult Dosage and Route:

- 1.5-2 mg/kg, up to 200 mg, IV.
- Additional dosing is permissible only with Online Medical Consultation. **OMCP**

Pediatric Dosage and Route:

- 1.5 mg/kg, up to 150 mg, IV. **OMCP**
- Additional dosing is permissible only with Online Medical Consultation. **OMCP**

Adverse Effects:

- Respiratory depression and apnea (expected).
- Malignant hyperthermia (rare).
- Bradycardia (in already bradycardic adults and children ≤ 10 yrs). Pretreat with atropine (see Atropine and Airway Management).

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. **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018

Thiamine PL

Thiamine is vitamin B_1. It is essential for carbohydrate metabolism. Malnutrition and malabsorption, often due to alcoholism, or other drug addiction, can lead to deficiency and cerebral dysfunction, known as Wernicke's encephalopathy. **PREGNANCY: A**

CAUTION:	*If the patient is hypoglycemic and a history of alcoholism, or other drug addiction, is suspected, administer thiamine 100 mg IV (IM if necessary) before administering intravenous dextrose.*

Classification: Vitamin; enzymatic cofactor.

Actions:

- Combines with adenosine triphosphate (ATP) to form thiamine pyrophosphate coenzyme, essential for normal carbohydrate metabolism.

Indications:

- Acute hypoglycemia, prior to administration of dextrose, when alcoholism or chronic malnutrition is suspected (see Acute Non-Traumatic Altered Level of Consciousness).
- Known Wernicke's encephalopathy. **OMCP**

Contraindications:

- Hypersensitivity to thiamine.

Adult Dosage and Route:

- 100 mg slow IV.

Pediatric Dosage and Route: (None)

Adverse Effects:

- Hypotension (occasionally if rapidly injected).
- Anxiety.
- Diaphoresis.
- Nausea and vomiting.
- Flushing.
- Anaphylaxis (rare).

Notes: Thiamine administration, prior to dextrose administration, is important to prevent Wernicke's encephalopathy (mental confusion, ataxia, and ophthalmoplegia). **EMS use during pregnancy is permitted**.

Effective: April 2, 2007 Revised: April 1, 2018