Regional Patient Care

Protocols, Policies, and Procedures

Effective: 03/01/2018

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Peninsulas EMS Council, Inc.

6876 Main Street
Gloucester, VA 23061
Phone: (804) 693-6234 Fax: (804) 693-6277
Email: pems@vaems.org
www.peninsulas.vaems.org

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2018 Protocol Revisions

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Acknowledgements

We thank the following individuals and agencies for their contributions to this document:

Peninsula EMS Council Partners:

Acknowledgements

Protocols, Policies and Procedures Committee Members:

Tony Balog	Middle Peninsula Administrator - Gloucester VFR	Bradley Beam	VA Peninsula Administrator - Williamsburg Fire Department
Shanon Beam	Helicopter EMS -VCU LifeEvac	Amanda Bryant	Commercial Transport - Medical Transport LLC
Kevin Caroll	Northern Neck Provider - Lancaster County EMS	Seth Craig	PEMS Staff
Lindsay Enzor, PharmD	Pharmacy Committee Representative	Mary Haigh	Hospital - Riverside Regional Medical Center
Lauren Hogge	Northern Neck Administrator – Rappahannock General Hospital	Karen Jowers	At-Large – Gloucester Volunteer Fire Rescue
David Justis, MD	Operational Medical Director-West Point VFD & RS	Janet McCoig	Hospital – Sentara Williamsburg RMC
Lori Messina	Middle Peninsula Provider-Middlesex County VRS	Sal Messina	Middle Peninsula Provider-Middlesex County VRS
Juliette Sausy	Hospital – Riverside Tappahannock Hospital	Vest, Ellen	EMS Education Program – Rappahannock Comm College
Mark Wright	VA Peninsula Provider – James City County Fire Department		

Medical Advisory Committee Members:

Steve Apostoles, MD	Newport News Shipbuilding Fire Department	Chris Baker, MD	Hampton Div of Fire & Rescue/ Heartsong Care Transport/NuCare Carolina Amb
Gregory Bass, MD	Mathews Volunteer Rescue Squad	Clarence Clarke, DO	Lancaster Co EMS/Lancaster-Kilmarnock CVRS/Upper Lancaster VRS
Christianne Clifford, MD	Joint Base Langley-Eustis	Lisa Dodd, DO	Northumberland & Richmond Co Fire & EMS Agencies/Central Middlesex VRS
James Dudley, DO	Riverside Health Systems, Middle Pen & Northern Neck Fire & EMS Agencies	Dunn, Chad (MD)	Camp Perry/Williamsburg Fire Department
Lindsay Enzor, PharmD	Pharmacy Committee Representative	Eleanor Erwin, MD	James City County Fire Department/Eastern State Hospital
James Fish, Jr., MD	Newport News Bomb Squad/Hazmat Team	Jason Garrison, MD	Poquoson Fire Department
Sudershan Gupta, MD	Abingdon Vol Fire & Rescue/Gloucester VFR/Central Middlesex VRS	Chris Haas, MD	Riverside Patient Transport
Kimberly Harper	Emergency Nurses Association	Christopher James, MD	Fort Eustis Fire Department/McDonald Army Hospital
Torino Jennings, MD	Cardinal Ambulance Service	David Justis, MD	West Point Volunteer Fire Department
Jim Laing	EMS Operations Committee Representative – Virginia Peninsula	Joanne Lapetina, MD	Eagle Medical Transport
Cheryl Lawson, MD	Peninsulas EMS Council/Newport News Fire Department	James McCorry, DO	AMR, Inc/Busch Gardens/Water County USA/Anheiser Busch
Terrance McGregor	EMS Operations Committee Representative -Northern Neck Peninsula	Gaylord Ray, MD	Rappahannock Community College EMS Program
Steven Skrip, MD	Medical Transport LLC	Paul Sutherland, MD	Northern Neck Agencies/Middlesex Co Vol Rescue Squad
Brent Weber, MD	Joint Base Langley-Eustis		

Acknowledgements

PEMS Board of Directors

J. David Barrick (Vice President)	At Large	Beasley, Jeff	City/County Government - Northern Neck
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Knott, Nicole	Middle Peninsula Consumer	Lawson, Cheryl (MD)*	Regional Medical Director/ Medical Advisory Committee
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PEMS Staff

Amy Ashe	EMS Field Coordinator – Community Health	Jeffrey Bendit	EMS Field Coordinator - Operations
Seth Craig	EMS Field Coordinator – Clinical Care	Paul Hoyle	EMS Planning and Emergency Management Coordinator
Latonya King	Business Manager	Michael Player	Executive Director
Debbie Thomas	EMS Field Coordinator – Clinical Programs		

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Participating EMS Agencies

The following EMS services, under the guidance and direction of their operational medical directors, have adopted these regional protocols as standard operating procedures for the provision of pre-hospital emergency care in the Peninsulas EMS Council region.

Abingdon Volunteer Fire-Rescue	Mangohick Volunteer Fire Department
American Medical Response	Mathews Volunteer Rescue Squad
Anheuser Busch Fire-Rescue	Mattaponi Volunteer Rescue Squad
Busch Gardens/Water Country EMS	McDonald Army EMS
Callao Volunteer Rescue Squad	Medical Transport LLC
Camp Peary Fire Department	Mid-County Volunteer Rescue Squad
Cardinal Ambulance Services	Middlesex County Volunteer Rescue Squad
Central Middlesex Volunteer Rescue Squad	Montross Volunteer Rescue Squad
Colonial Beach Volunteer Fire Department	Navy Region Mid-Atlantic Fire and Emergency Services
Colonial Beach Volunteer Rescue Squad	Newport News Fire Department
Cople District Volunteer Fire Department	Newport News Shipbuilding Fire Department
Eagle Medical Transport	Northumberland County Emergency Services
Essex County EMS	Northumberland County Volunteer Rescue Squad
Gloucester Volunteer Fire-Rescue	NuCare Carolina Ambulance, Inc.
Hampton Division of Fire and Rescue	Poquoson Fire Department
Heartsong Care Transport	Richmond County Department of Emergency Services
James City Bruton Volunteer Fire Department and Rescue Squad	Richmond Volunteer Rescue Squad
James City County Fire Department	Riverside Patient Transport
Joint Base Langley-Fort Eustis Fire Department and EMS	Tappahannock Volunteer Rescue Squad
Kilmarnock-Lancaster Volunteer Rescue Squad	Tappahannock-Essex Volunteer Fire Department
King and Queen Emergency Services	Upper Lancaster Volunteer Rescue Squad
King and Queen Volunteer Rescue Squad	VCU LifeEvac
King William Emergency Services	Westmoreland Volunteer Rescue Squad
King William Volunteer Rescue Squad	West Point Volunteer Fire Department
Lancaster County Emergency Services	Williamsburg Fire Department
Lower King and Queen Volunteer Rescue Squad	York County Department of Fire and Life Safety

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Introduction

PROTOCOLS POLICIES AND PROCEDURES COMMITTEE MISSION STATEMENT

The intent is to provide current, well-researched, and accepted standards with the ultimate goal of minimizing the morbidity and mortality of our patients, and to provide guidelines for the treatment of specific emergency conditions in the pre-hospital setting.

PROTOCOLS, POLICIES AND PROCEDURES COMMITTEE GOALS

1. To establish minimum standards for appropriate patient care.
2. To ensure a structure of accountability for operational medical directors, physician course directors, facilities, agencies, and providers.
3. To establish the knowledge base for certification and recertification in the region.

AUTHORITY

The Peninsulas EMS Council regional medical protocols are developed by consensus of participating agencies under Virginia Emergency Medical Services Regulations *12VAC5- 31* (Performance Standards). Each agency OMD must approve the protocols and has the authority to limit or expand implementation of protocols within their agency. Virginia Emergency Medical Services Regulations *12VAC5-31* (Responsibilities of Operational Medical Directors) grants authority to establish and enforce protocols, policies and procedures. All prehospital medical care is carried out with the express written authority of the operational medical directors and under their supervision. Virginia Emergency Medical Services Regulations *12VAC5-31* (Operational Medical Director Authorization to Practice) states “EMS personnel may only provide emergency medical care while acting under authority of the operational medical director for the EMS agency with which they are affiliated and within the scope of the EMS agency license”.

INTRODUCTION

The following protocols were developed as a collective effort by a group of dedicated and knowledgeable EMS providers, EMS educators, and operational medical directors of the EMS agencies of Peninsulas EMS Council (PEMS). These individuals, who recognized a need for a "Standard of Excellence," volunteered for the PEMS Protocols, Policies, and Procedures *(PPP)* Committee, a sub-committee of the PEMS Medical Advisors Committee *(MAC)*. This committee researched and reviewed the following patient care guidelines.

This collaborative effort provides a dynamic document that is based on national and state standards of care that include but are not limited to:

- Virginia Department of Health
- American Heart Association - Advanced Cardiac Life Support and Pediatric Advanced Life Support
- American Academy of Pediatrics - Pediatric Education for Prehospital Professionals American College of Surgeons Committee on Trauma - Advanced Trauma Life Support
- National Association of Emergency Medical Technicians

These protocols are reviewed continuously and updates provided to the MAC for deliberation and approval as national, state, and regional standards change and are supported by scientific research and literature.

The primary purpose of these protocols is to establish a foundation and a minimum standard of care for the pre-hospital care delivered in our region. This is best served by active EMS operational medical directors and dedicated EMS providers supported by continued education, review, quality improvement and continuous pursuit of excellence.

Although no document can specifically address every possible variation of injury or disease, this manual provides a foundation for the care of the patients we serve. The education, experience, and judgment of the pre-hospital provider should be recognized as the paramount part of sound clinical decision-making processes regarding pre-hospital care. The complexity of emergency medicine and the pre-hospital setting requires a team approach using every appropriate, accepted and available resource to provide optimal patient care. In many cases, that resource is on-line medical control for consultation, advice, guidance, and authorization or modification of treatment not specifically addressed in this manual. The specific handling of these situations is determined by the operational medical director responsible for that particular EMS agency and the EMS providers they oversee, and for that reason is intentionally not addressed in this manual.

The departmental policies are the responsibility of each agency and operational medical director. All are encouraged to support the premise of regional care and the collective effort on which these guidelines were founded.

The provision of emergency care does not, and should not, occur in isolation. It requires many individuals and organizations working together towards a common goal - optimizing our patients' clinical outcomes. The efforts provided by the PPP Committee while working in conjunction with the MAC will provide a basis for the development of a regional EMS approach to the "Standard of Excellence".

How to Read the Protocols

LEVELS OF CERTIFICATION (KEY)	
EMR	**Emergency Medical Responder**
EMT	**Emergency Medical Technician**
A	**Advanced Emergency Medical Technician**
I	**Intermediate**
P	**Paramedic**
[ ]	**Medical Control**
	**Go to Other Protocol**
	**Caution**

The following are your new protocols. These have been formatted in a way that is different from what you have seen in the Peninsulas EMS (PEMS) Council previously. The new layout accomplishes several things including minimizing space, thus saving paper, as well as proactively mirroring a proposed statewide protocol format. Though different, with a brief explanation you will find these protocols to be straightforward and easy to use.

The protocols are color-coded in addition to having the level of care beside each possible treatment. The levels of care are reflective of the Office of EMS' (OEMS) changes to the titles of certification. First Responders will from here on be known as **Emergency Medical Responders (EMR)**, the former EMT-Basic is now the **EMT**, the EMT-Enhanced is now the **Advanced EMT (A)**, EMT-Intermediate will now be **Intermediate (I)** and EMT-Paramedic will now be **Paramedic (P)**. As in the previous revisions, brackets [ ] indicate a need for medical control to be contacted at the bracketed level of care (e.g. Intermediate intervention requiring medical control is shown as **[I]**).

The major change in this format is that rather than listing each level of care which can perform an action, simply **the most basic certification which can perform an action is listed**. For example, if an action shows the code EMR beside it, anyone of the Emergency Medical Responder, EMT, Advanced EMT, Intermediate, or Paramedic levels of care can perform the task whereas a step showing [A] beside it means EMR and EMT providers may **not** perform the action, Advanced EMTs must call for orders and Intermediate or Paramedic providers may perform it as a standing order. Any action with the code MC beside it means that any level of care **must call for orders before performing this action.**

ALS and BLS Protocols for adults and pediatrics have been combined into one set of tasks.Also in this version of the protocols is the **PEARLS** section of each protocol. This section provides important considerations and points for taking your patient care from mediocre to exceptional! Cautions to be considered for each step are listed next to an **alarm bell**.

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Administrative Policies Table of Contents

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Abuse Recognition & Mandatory Reporting

PURPOSE

To identify and comply with mandatory reporting requirements of the Commonwealth of Virginia to the degree they impose requirements on EMS providers to report specific situations or circumstances

Guidelines

- Child abuse and/or neglect **800-552-7096** *§ 63.2-1509*
- Elder abuse/neglect/exploitation **888-83-ADULT (888-832-3858)** *§63.2-1606(A)*
- Hunting Accidents **804-367-1258** or **804-367-2251** *§29.1-100* & *§29.1-530.4*

CHILD ABUSE OR NEGLECT

Virginia EMS providers are identified as mandated reporters. Mandated reporters must report the situation immediately to the local department of social services in the locality where the child resides or where the abuse is believed to have occurred or make reports to the 24-hour, toll-free Virginia Department of Social Services (VDSS) Child Protective Services (CPS) hotline. Failure to do so shall lead to monetary penalties. If transporting the child in question it is also acceptable to report to the attending physician at the hospital. Provide appropriate documentation on the PCR "made notification to Dr.___." For more details, see *§63.2-1509*.

- Physical abuse - the use of physical force that may result in bodily injury, physical pain, or impairment
- Neglect - the refusal or failure to fulfill any part of a person's obligations or duties to a child such as abusing dependence
  - Neglect may also include failure of a person who has fiscal responsibilities to provide care for a child (e.g., pay for necessary home care services)
  - The failure on the part of an in-home service provider to provide necessary care
- Sexual abuse - non-consensual sexual contact of any kind; sexual contact with any person incapable of giving consent is also considered sexual abuse
- Sexual exploitation - can involve the following: possession, manufacture and distribution of child pornography, online enticement of children for sexual acts, child prostitution, child sex tourism, and child sexual molestation
- Emotional/mental injury - the infliction of anguish, pain, or distress through verbal or nonverbal acts such as ridiculing values or spiritual beliefs, threats, intimidation, guilt and blame
- Abandonment - the desertion of a minor child by an individual who has assumed responsibility for providing care for the child, or by a person with physical custody of the child

Assessment Guidelines

- Assess for and document psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders
- Assess for and document physical signs of abuse, including any injuries inconsistent with the reported mechanism of injury, or do to non-age-appropriate activities
- Assess for and document symptoms or signs of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregivers, or indications of malnutrition

Abuse Recognition & Mandatory Reporting

ELDER ABUSE OR NEGLECT

Virginia EMS providers are identified as mandated reporters. *§63.2-1606(A)*

- Mandated reporters must report the following to Adult Protective Services and law enforcement:
  - Physical abuse – the use of physical force that may result in bodily injury, physical pain, or impairment
  - Sexual abuse - non-consensual sexual contact of any kind. Sexual contact with any person incapable of giving consent is also considered sexual abuse
  - Emotional or psychological abuse - the infliction of anguish, pain, or distress through verbal or nonverbal acts such as ridiculing values or spiritual beliefs, threats, intimidation, guilt and blame
  - Neglect - the refusal or failure to fulfill any part of a person's obligations or duties to an elder such as abusing dependence
    - Neglect may also include failure of a person who has fiscal responsibilities to provide care for an elder (e.g., pay for necessary home care services)
    - The failure on the part of an in-home service provider to provide necessary care
  - Abandonment - the desertion of an elderly person by an individual who has assumed responsibility for providing care for an elder, or by a person with physical custody of an elder
  - Financial or material exploitation - the illegal or improper use of an elder's funds, property, or assets
  - Self-neglect - the behavior of an elderly person that threatens his/her own health or safety. Self-neglect generally manifests itself in an older person as a refusal or failure to provide himself/herself with adequate food, water, clothing, shelter, personal hygiene, medication (when indicated), and safety precautions
- Suspected sexual abuse, death, serious bodily injury or disease believed to be the result of abuse or neglect; applies to an adult 60 years of age or older or an adult 18 years of age or older who is incapacitated and is being abused, neglected or exploited
  - Mandated reporters must report the situation immediately to the local department of social services in the locality where the adult resides or where the abuse is believed to have occurred.
  - Report to the 24-hour, toll-free VDSS APS hotline.
- Any other criminal activity involving abuse or neglect that places the adult in imminent danger of death or serious bodily injury
  - Mandated reporters must report to the appropriate medical examiner and law enforcement agency when there is reason to suspect that a vulnerable adult died as a result of abuse or neglect.

Assessment Guidelines

- Assess for and document psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders
- Assess for and document physical signs of abuse, including any injuries inconsistent with the reported mechanism of injury
- Assess for and document symptoms or signs of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentative caregivers, or indications of malnutrition

MANDATED REPORTING OF HUNTING ACCIDENTS

§29.1-530.4 requires *"that any emergency medical service provider that receives a report [that a person engaged in hunting] as defined in §29.1-100 has suffered serious bodily injury or death, shall immediately give notice of the incident to the Department of Game and Inland Fisheries."*

- EMS providers are required to report the event to the Department of Game and Inland Fisheries within five days of the incident
- It is a Class 4 misdemeanor to fail to report this information
- Call the Department of Game and Inland Fisheries 24-hour law enforcement dispatch center.

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ALS Release To BLS

PURPOSE

To permit the transfer of patients not requiring Advanced Life Support care to Basic Life Support providers

POLICY

The ALS provider may not leave the scene until medical control contact has been made. This process must not be used to avoid the appropriate care and/or transport of a patient, nor because a provider has reached the end of his/her shift. In the case of a communication failure, ALS personnel must transport the patient.

PROCEDURE

- A complete, pertinent patient history and physical assessment, **including a full set of vital signs**, must be completed by the ALS provider
- The BLS provider must be willing to accept responsibility for the patient
- BLS personnel must be capable of providing a level of care that meets the assessed and documented needs of the patient's condition
- The ALS provider must contact on-line medical control to:
    - Provide a summary of the presentation and any interventions provided, AND
    - Report that the BLS provider has expressed willingness to accept the patient, AND
    - Request permission to release the patient to the BLS provider
- The ALS provider must complete documentation to include the patient history, physical findings, transfer of care, and physician consultation on the Patient Care Report
- The BLS provider must complete a Patient Care Report
- Any ALS Release to BLS must be reviewed by the agency QA/QI* process
- A determination of inappropriate release by the QA/QI review should be reported, quarterly, to the PEMS PI Committee

* Quality Assurance/Quality Improvement

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Communications

PURPOSE

To effectively communicate with Medical Control

POLICY

The HEAR (Hospital Emergency Administrative Radio) system is used to notify Hospitals of basic and advanced life support patients NOT requiring on-line physician intervention. The HEAR system may be used for physician consultation only when COR (Consultation, Order, Refusal) access is not available. HEAR system reporting should be **brief**; **a detailed patient report should be given to the receiving hospital staff upon arrival**. The COR system shall be used for direct contact with Medical Control in any situation where physician consultation is appropriate. Reports should follow the recommended regional format. When Medical Control authorization is needed for medication administration or procedures, as required by PEMS Patient Care Protocols, Policies and Procedures, authorization may be given by a **licensed Physician, Physician Assistant (PA), or Nurse Practitioner (NP).**

Proper uses of the HEAR or COR include but **are not limited to**:

- Providing pre-arrival report, as early as possible
- Any unstable/unsecured airway goes to the **closest hospital**
- Patients requiring activation of specialized care teams (i.e. Rape, Burn, STEMI)
- Consultation regarding patient refusal
- ALS release to BLS
- Medical control as needed

PROCEDURE

Mass-casualty or disaster incidents:

Once communication has been established with the coordinating emergency department, a request to follow Regional Medical Protocols as delineated for the various skills can be granted by Medical Control. This will allow providers to perform skills approved for their level of certification without having to contact Medical Control during the MCI.

During an MCI, routine ambulance-to-emergency department communications are suspended. The transport group supervisor/unit leader will communicate patient information directly to the coordinating emergency department. The coordinating emergency department will relay the information to the receiving emergency departments.

For further information, see the *Hampton Roads Mass Casualty Incident Response Guide*

Communications

THE PRE-ARRIVAL REPORT SHOULD INCLUDE THE FOLLOWING

- Give your agency/unit/technician ID/estimated time of arrival (ETA)
- Patient age, gender, and chief complaint
- History of present illness or injury
- Pertinent medical history
- Significant physical findings
- Vital signs
- Treatment

COMMUNICATIONS FAILURE

CRITERIA

When a provider is unable to make contact with medical control for orders after attempting two times by each of two different methods (i.e. two times via radio and two times via cell for a total of four attempts).

PROTOCOL

Follow the most appropriate protocol from your PEMS Regional Patient Care Protocols, Policies and Procedures. Proceed with treatments listed in the protocol as the clinical situation warrants, and **as appropriate for your level of certification. All orders within your scope of practice are considered standing orders in this situation.**

Carefully document events including:

- Time of call
- Nature and location of the communication problem
- Clinical status of the patient
- Protocol(s) used
- Patient response

Fill out and turn in a copy of the Medical Control Incident Form.

A copy of this form and the PCR must be provided to your Operational Medical Director (OMD) within 48 hours of the occurrence. The OMD may require additional information and/or a personal meeting with the technician(s) to review the incident.

Inappropriate actions, failure to comply with, or abuse of this procedure may result in suspension of privileges at the discretion of the OMD. The OMD should notify the appropriate agency's administration regarding problem incidents.

The OMD may wish to review such incidents with the Medical Advisors Committee to evaluate system performance and improvement needs.

Communications

REGIONAL RESOURCES & TELEPHONE NUMBERS

Air Transport

Nightingale Air Ambulance (Norfolk, VA)	(800) 572-4354	(757)388-5597
Med-Flight Air Ambulance (Richmond, VA)		(800) 468-8892
VCU Life-Evac Air Ambulance (Richmond, VA)	(877) 902-7779	(804) 652-0171
Life-Evac III Air Ambulance (West Point, VA)	(877) 902-7779	(804) 785-2463
Air-Care Air Ambulance (Fredericksburg, VA & Fairfax, VA)	(800) 258-8181	(703) 698-2980
UVA Pegasus Air Ambulance (Charlottesville, VA)	(800) 552-1826	(434) 978-4426

COR

Careplex	(757) 224-4188
Riverside Regional	(757) 594-2057
Sentara Williamsburg	(757) 984-7185
Mary Immaculate	(757) 886-6266
Riverside Walter Reed	(804) 693-4600

Critical Incident Stress Management

PEMS CISM Team (757) 220-4356

Haz-Mat

Department of Emergency Management (DEM) for Regional Hazardous Materials Response Team (804) 674-2400

Metropolitan Medical Response System (MMRS) York County Dispatcher (757) 890-3621 (757) 890-3622

Poison Control (800) 222-1222

Terrorism

VA State Police Terrorism Hotline (866) 488-8554

Water & Technical Rescue

Divers Alert Network Emergencies : (919) 684-8111 information : (919) 684-2948

Sentara Leigh Hyperbaric Medicine (757) 466-2325

U.S. Coast Guard (Group Hampton Roads Command Center) (small boat requests) (757) 483-8567

U.S. Coast Guard (Fifth District & Atlantic Area Command Center) (helicopter requests) (757) 398-6231

Peninsula Regional Technical Rescue Team (York County Dispatcher) (757) 890-3621 (757) 890-3622

Tidewater Regional Technical Rescue Team (Virginia Beach Dispatcher) (757) 427-5033 (757) 427-5943

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Death & Criteria for Withholding Resuscitation

TERMINATION CRITERIA

When cardiac arrest is refractory to appropriate and available prehospital interventions based on provider certification level, Medical Control may direct EMS providers to cease resuscitation efforts.

Termination Protocol		
EMT	Provide full basic life support care including AED, pulse ox, EtCO2, and supraglottic airway.	**EMT**
I	Provide full advanced life support level care. This includes defibrillation (as indicated), advanced airway, IV/IO access, and medication administration in accordance with ACLS.	**I**
MC	***Contact Medical Control*** Provide a thorough report of patient history, condition, and treatment. If resuscitation efforts are terminated at the scene, document time and physician name on the PCR.	**MC**
EMT	Follow agency protocols/policies concerning notification of law enforcement and/or medical examiner. Remain on scene until proper authorities arrive.	**EMT**
EMT	Be attentive to the emotional needs of any family members or bystanders present.	**EMT**

PEARLS

- Termination of resuscitation efforts is a Medical Control decision only.
- Resuscitation efforts and transport to the emergency department are indicated for any patient having suspected hypothermia.
- Consider patient's previously diagnosed medical condition.

Death & Criteria for Withholding Resuscitation

WITHHOLDING RESUSCITATION CRITERIA

In accordance with Commonwealth of Virginia law, full resuscitation measures shall be undertaken for all victims of cardiopulmonary arrest except in the presence of one or more of the indications of death:

- A valid Virginia Durable DNR/POST order form or approved jewelry (does not expire). For reference, see the *Code of Virginia §54.1-2987.1, § 54.1-2982*
- Decapitation or other obvious mortal injury
- Rigor mortis
- Dependent lividity
- Decomposition

During mass-casualty incidents, resources must be directed toward viable patients.

Withholding Protocol		
MC	When treating cardiac arrest victims who possess a "living will" or an advanced directive (other than a valid DDNR order/POST), full resuscitative efforts should be initiated and **Medical Control consulted as quickly as possible** regarding the continuation or termination of treatment. Be prepared to review the reason(s) why resuscitation efforts may not be indicated (i.e. terminal illness).	**MC**
EMT	Providers shall honor any form issued or approved by the VA Department of Health; this document must accompany the patient to the hospital. An original or a copy of a DDNR form must be in a patient's chart when responding to a call from a nursing home or hospice. A photocopy is acceptable.	**EMT**
EMT	Providers shall honor a physician order when a patient is in a licensed health care facility. The form must include the patient's full legal name, physician's signature, and date issued, and can be a photocopy. A patient who is travelling outside his home or between healthcare facilities should have an original or photocopy DDNR or other DNR or alternate jewelry accompanying him. *12 VAC 5-6640*	**EMT**
EMT	EMS providers shall honor a direct verbal order from a physician who is present and in the attendance of the patient at the time of death. Record physician's name and time of order on PCR.	**EMT**
MC	EMS providers cannot honor a living will or DDNR order from another state. **Medical Control should be consulted as quickly as possible** regarding questions concerning the out-of-state DDNR.	**MC**
EMT	If resuscitation efforts were discontinued at the scene per Medical Control, document the time and physician's name on the PCR form.	**EMT**
EMT	Document physical findings and patient history on the PCR form.	**EMT**
EMT	If the patient is DOA or resuscitation efforts were ended before transport from the scene, follow department policies/protocols concerning the notification of law enforcement and/or medical examiner.	**EMT**
EMT	Be attentive to the emotional needs of family members and bystanders.	**EMT**

Death & Criteria for Withholding Resuscitation

PEARLS

- For POST (Physician Orders for Scope of Treatment) forms, Section A qualifies as a DDNR
- If you have any questions regarding the orders, ask Medical Control
- Providers are reminded they are still not to exceed their Scope of Practice

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Regional Hospital Diversion

PURPOSE

To establish guidelines for the management and documentation of situations when it is necessary for a regional hospital to divert EMS units to another facility.

Indications:

1. Special Divert – Hospital Equipment or Systems Failure or Event (ER or specialty area of hospital effected)
2. Divert - Hospital Equipment or Systems Failure or Event(Entire hospital effected)
3. Disaster– ER Receiving patients from a community or internal hospital mass casualty event, hospital may be attempting to decompress their facility to handle the increased load
4. Closed – Dangerous Situation/Hospital Experiencing Event Dangerous to Life Safety (i.e. Active Shooter)

Policy:

Stable patients should generally be transported to the hospital of their choice, unless otherwise indicated in the agency's written standard operating procedures. Critical patients should be transported to the closest most appropriate facility as directed by PEMS *Regional Patient Care Protocols, Policies and Procedures.* **Diversion to another hospital may become necessary only for the indications listed above. Patients will not be diverted due to a crowded ER, lack of critical care beds, lack of staffing, or lack of a specialty service / physician. The receiving facility will accept the patient, stabilize as needed, and then arrange for appropriate transport to another facility if required. It is not appropriate to hold or delay EMS crews to receive a patient turnover or to have EMS Agency re-transport to another facility.**

Designated referral centers in diversion status ***may*** continue to receive specialty patients that meet specific triage criteria. EMS units may contact online medical control to determine the most appropriate hospital to receive the patient. All hospitals **may** continue to receive critical patients as defined in this policy when in diversion status**.**

EMS units should not transport patients to a closed facility under any circumstances until it is declared open. To knowingly do so may place the lives of the patient and EMS crew in danger.

Regional Hospital Diversion

Procedure:

PEMS hospitals shall notify EMS of a change of status using the Virginia Healthcare Alert and Status System (VHASS) at https://www.vhha-mci.org.

All PEM EMS agencies and public safety answering points (PSAPs) dispatching EMS agencies shall register appointed officials with VHASS to receive diversion alerts directly to mobile devices and emails. These representatives will be able to view status boards, access regional and statewide healthcare coalition information, training and exercise information and more. A best practice would be for EMS agencies to register EMS Supervisors' and for PSAPs to register Shift Supervisors.

EMS agencies are responsible to ensure that their units in the field are informed of the change of status of hospitals for their service area so that patients can be routed to the most appropriate facility. It is up to each EMS agency, in consultation with their operational medical director and local emergency department(s), to determine what they will do with the diversion/closure information, and further communicate their plans to the local emergency departments.

Each EMS Agency shall preview and update their organization and member information in VHASS annually or when staffing changes require.

Quality Assurance:

After a diversion/closure request has been mitigated, that hospital shall submit a PEMS Medical Incident Review form making note of all issues and problems associated with system processes. Units diverted by medical control should be documented by EMS agencies using a PEMS Medical Incident Review Form.

Definition of a Critical Patient:

These are guidelines and are not meant to be comprehensive and apply only to this policy. A Critical patient is any patient:

- Currently undergoing cardiopulmonary resuscitation (CPR) or has undergone successful CPR
- Who required prehospital endotracheal intubation and continues to deteriorate

- Who requires prehospital ventricular pacing
- Whose vital signs are acutely deteriorating
- Who, despite prehospital treatment is in severe respiratory distress, resulting in severe hypoxemia as manifested by cyanosis or SPO2 <88%; is severely hypotensive accompanied by or resulting in acutely altered level of consciousness; is in persistent malignant cardiac dysrhythmias such as ventricular tachycardia or symptomatic bradycardia
- Who, in the judgment of EMS personnel, in consultation with on-line medical control, is in such condition that cardiopulmonary failure is impending or bypassing the nearest hospital jeopardizes their condition.

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Helicopter EMS (HEMS)

INDICATIONS

- Patients meeting specialty care criteria including but not limited to:
  - STEMI
  - Stroke
  - Trauma
  - Burns
  - Critical Pediatrics
  - Ventricular Assist Device (LVAD/BiVAD/VAD as directed per VAD Coordinator or Medical Control)
- The air ambulance service can provide needed medical capability at the scene.
- Difficult-access situations:
  - Wilderness rescue
  - Ambulance egress or access impeded at the scene by road conditions, weather, or traffic

POLICY

Technicians can request HEMS without authorization by medical control.

PROCEDURE

1. Establish a safe and logistically feasible landing zone.
2. Request air ambulance standby/response according to department procedure.
3. Establish number of patients, primary injuries/medical condition, and approximate patient weight(s). Forward this information to the responding air medical service.
4. Trauma patients should be fully immobilized. IV/IO access should be established as time allows.
5. On scene one individual should be responsible for providing the patient report(s) to the flight crew upon arrival.
6. Ensure PCR is provided to receiving facility as per *12 VAC 5-31*

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Infant Abandonment

PURPOSE

To identify the circumstances under which a parent may surrender an infant under the Virginia Safe Haven Law. Reference *§18.2-371, §18.2-371.1, §40.1-103*

POLICY

Providers in the PEMS region will follow all laws.

PROCEDURE

- A parent may leave an infant (within the first 14 days of the child's life) at a hospital that provides 24-hour emergency services or to an attended rescue squad that employs emergency medical technicians.
- The child must have been delivered in a manner reasonably calculated to ensure the child's safety.
- Providers receiving an infant under these circumstances should contact Child Protective Services or local law enforcement resources and, if indicated, transport to an appropriate facility.

IMMUNITY

Personnel of a hospital or rescue squad receiving a child under the circumstances previously described shall be immune from civil liability or criminal prosecution for injury or other damage to the child unless such injury or other damage is the result of gross negligence or willful misconduct by such personnel. Reference § *8.01-226.5:2*

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Patient Refusals

PURPOSE

To establish guidelines for the management and documentation of situations where patients refuse treatment or transportation, or insist on transportation to a destination other than that recommended by EMS personnel.

Patient Assessment

- Providers should attempt to obtain a history and physical in as much detail as is permitted by the patient
- Conduct Three Assessments: Providers should attempt to assess three major areas prior to permitting a patient to refuse care and/or transportation:
  - Decision-making Capacity Assessment
    - Patient must be at least 14 years of age in order to refuse care (See PEARLS)
    - Patients subject to a court decree of incapacity are not legally competent to refuse care
    - Emancipated Juveniles may refuse care
  - Mental Status Assessment
    - Start with the presumption that all patients are mentally competent unless your assessment clearly indicates otherwise
    - Ensure the patient is oriented to person, place, time, and event
    - Establish the patient is not a danger to himself or others
    - Ensure the patient understands the risks of refusing care or transportation and any proposed alternatives. Consider whether the patient is exhibiting any other signs or symptoms of potential mental incapacity, including drug or alcohol influence, unsteady gait, slurred speech, etc.
  - Medical or Situational Screening
    - Ensure the patient is suffering from no acute medical conditions which might impair their ability to make an informed decision to refuse care or transportation
    - If possible, rule out conditions such as hypovolemia, hypoxia, head trauma, unequal pupils, metabolic emergencies (e.g., diabetic coma), hypothermia, hyperthermia, etc.
    - Attempt to determine if patient lost consciousness for any period of time
    - If any conditions impair patient's decision-making ability, patient *may* not be capable of refusing care and your documentation should clearly establish the patient understood the risks, benefits and advice given to him

Medical Control

Contact Medical Control for a decision in situations including but not limited to:

- You believe patient is in need of further medical attention yet refuses care
- ALS care has been established and the patient refuses transport

Who May Refuse Treatment/Transport

- The patient
  - If patient is legally, mentally and situationally competent, the patient has a right to refuse treatment/transport; obtain refusal signature
  - Implied consent – if the patient is unconscious and seriously injured or in need of further medical attention, treat and transport patient despite patient's inability to consent.

- Parent
  - A custodial parent (i.e., a parent with a legal right to custody of a minor child) may refuse treatment/transport on behalf of a minor child; obtain refusal signature from parent
  - A parent of a patient who is 14 years of age or older may not refuse treatment/transport on behalf of their child (unless the parent also happens to be a legal guardian – see below)
  - A parent who is a minor (i.e., under 14 years of age) may refuse treatment/transport for -their child. Obtain refusal signature from the minor parent
- Guardian
  - A legal guardian is one who is appointed by a court to act as "guardian of the person" of an individual who has been found by a court to be incapacitated
  - A legal guardian may also be appointed in lieu of parents for a minor
  - If a person indicates they are a legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.) and attach to the PCR. If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient
- Medical Power of Attorney
  - A person appointed by the patient in a medical power of attorney document may refuse treatment/transport on behalf of the patient if the power of attorney contains such authorization
  - Attempt to obtain a copy of the medical power of attorney document to attach to the PCR. If no such documentation is available, you may obtain refusal signature from a medical power of attorney as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as the medical power of attorney of the patient
- Incompetent Patient
  - If patient is incompetent, and no other authorized individual is available to provide a refusal signature, patient may be treated and transported as long as you act in good faith and without knowledge that the patient or authorized individual would refuse treatment/transport
  - Take all reasonable steps to secure treatment or transportation for a patient who is legally or mentally incompetent to refuse treatment/transport, but do not put yourself or your crew in jeopardy

Refusal Procedure

- Conduct assessment as outlined above
- Contact Medical Control if necessary
- Determine who may sign refusal form as outlined above
- Complete all sections of EMS Agency Refusal Form
- Review form with patient or authorized signer
- Provide detailed explanation of possible risks and danger signs to patient or other authorized signer
- Inform the patient or authorized signer to call 9-1-1, call their doctor, or go to an Emergency Department if they reconsider, symptoms persist or get worse, or any of the danger signs you inform them of appear
- Obtain the signature of the patient or authorized signer; if they refuse to sign, document this fact on the Refusal Form as well as the PCR
- Have the patient or authorized signer date the form
- Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient and who watched the patient sign the form
  - If no witness is available, a crew member may sign as a last resort
  - All witnesses should be 18 years of age or older if possible
- The crew member who obtained the refusal and completed the Refusal Form should also sign the form on the appropriate line

- The crew member who obtained the refusal and completed the Refusal Form should also sign the form on the appropriate line
- Complete PCR in addition to the EMS Agency Refusal Form. PCR narrative must include the following documentation:
  - Patient assessments (listed above)
  - Results of history and physical exam
  - The clinical symptoms upon which the need for transport was based
  - Information provided to fully inform the patient and/or other authorized individual of the consequences of their refusal of treatment/transport
  - The patient's understanding of the risks and potential complications of his/her choice to refuse
  - Medical Control instructions, if any
  - Alternatives offered
  - Crew signatures

PEARLS

§ 54.1-2969. Authority to consent to surgical and medical treatment of certain minors. (Portions relevant to EMS included below.)

Whenever delay in providing medical or surgical treatment to a minor may adversely affect such minor's recovery and no person authorized in this section to consent to such treatment for such minor is available within a reasonable time under the circumstances, no liability shall be imposed upon qualified emergency medical services personnel as defined in § 32.1-111.1at the scene of an accident, fire or other emergency, a licensed health professional, or a licensed hospital by reason of lack of consent to such medical or surgical treatment. However, in the case of a minor 14 years of age or older who is physically capable of giving consent, such consent shall be obtained first.

Whenever delay in providing transportation to a minor from the scene of an accident, fire or other emergency prior to hospital admission may adversely affect such minor's recovery and no person authorized in this section to consent to such transportation for such minor is available within a reasonable time under the circumstances, no liability shall be imposed upon emergency medical services personnel as defined in § 32.1-111.1, by reason of lack of consent to such transportation. However, in the case of a minor 14 years of age or older who is physically capable of giving consent, such consent shall be obtained first.

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Patient Restraint

PURPOSE

To ensure the safety of patients and responders: patient restraint should be utilized only if the patient is exhibiting behavior that is an immediate danger to self or others

Restraint Guidelines

- Use the minimum level of physical restraint required to accomplish patient care and ensure safe transportation (soft restraints may be sufficient).
  - If law enforcement or additional staff is needed, call for assistance prior to attempting restraint procedures.
  - Do not endanger yourself or other responders or the patient.
- Avoid placing restraints in such a way as to prevent evaluation of the patient's medical needs.
- Consider and treat medical causes of combativeness (hypoxia, head injury, hypoglycemia).
- Consider whether the patient is exhibiting any other signs or symptoms of potential mental incapacity, including signs of drug or alcohol use, unsteady gait, slurred speech, etc.

PHYSICAL RESTRAINT PROCEDURE

- Evaluate the personnel needed to safely restrain the patient.
- Place the patient face up on a long backboard – **NEVER PRONE.**
- Secure all extremities to the backboard- check circulation in restrained extremities every 15 minutes.
- Attempt to restrain lower extremities first, using soft restraints around both ankles.
- Restrain the patient's arms at their sides.
- If necessary, utilize cervical spine precautions (tape, foam blocks, CID, etc.) to control violent head or body movements.
- Secure the backboard to the stretcher using the straps on the stretcher, particularly the over-the-shoulder straps.
- Evaluate the patient's respiratory and cardiac status to assure no airway compromise exists; attempt to place SpO_2 device and apply supplemental oxygen if indicated.
- **DO NOT** tighten chest straps to the point of impeding respiratory function.

CHEMICAL RESTRAINT PROCEDURE

- Assess vital signs within the first 5 minutes and thereafter as appropriate (at least every 10 minutes and prior to any repeat dose of medication), or document reason for lack of vital signs assessment.
- Monitor ECG, obtain 12-Lead, consider IN medications and establish IV/IO if possible.
- Sedative agents may be needed to restrain the violently combative patient. If chemical restraint is required, see ***Behavioral Emergencies Protocol.***

Patient Restraint

RESTRAINT DOCUMENTATION PROCEDURE

Document a response to each of the following questions:

- In what manner was your patient violent? Record patient's comments *verbatim.*
- Did you feel threatened? Why?
- Were you concerned about your patient's outcome without emergency medical interventions? Why?
- Could you treat your patient appropriately without the use of restraints?
- Which law enforcement officer was present? If patient was transported in handcuffs, which officer accompanied patient to ED in ambulance? If no law enforcement officer accompanied patient, why?
- What kind of restraints did you use?
- Where on your patient were these restraints used?
- Document the frequency of respiratory and mental status change assessments. Constant evaluation of your patient's airway status is extremely important.

Safe Transport of Pediatric Patients

PURPOSE

To identify the "best practice" for ambulance transportation of ill or injured pediatric patients. Ambulances are **NOT EXEMPT** from state child safety laws.

POLICY

Safety measures should be used to provide safe transport for all patients.

PROCEDURE

- Drive cautiously and at safe speeds, observing applicable traffic laws.
- Attempt to arrange for transportation of adults and children who are not patients by alternative means.
- Secure all monitoring devices and other equipment to prevent injury.
- Ensure pediatric patients under 40 kg (88 lbs) are restrained with approved child restraint devices secured per the manufacturer's instructions.
- Ensure that all EMS providers use available restraining devices or systems during transport.
- For pediatric patients having medical conditions aggravated by stress, make every reasonable attempt to maximize safety while comforting the child.
- **DO NOT** allow parents, caregivers or any passenger to be unrestrained during transport.
- **DO NOT** hold, attempt to hold, or permit parents or caregivers to hold the patient during transport; parents or caregivers should be secured using safety belts.
- Infants and children meeting Trauma Triage criteria should be transported in a child restraint device unless requiring relocation to or placement on an immobilization device.

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STEMI Field Triage

PURPOSE

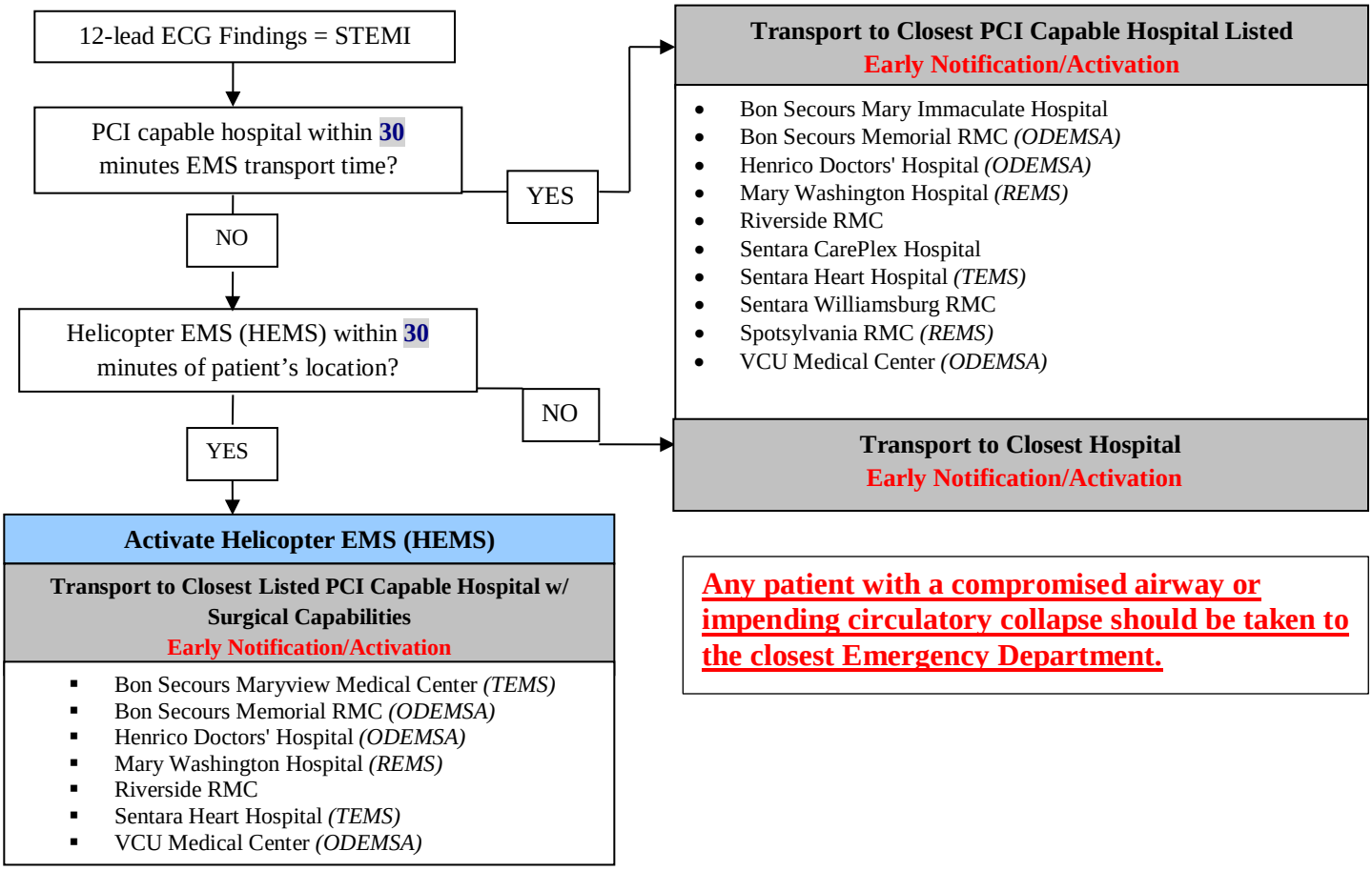
To rapidly get those patients undergoing a STEMI event to definitive care.

PROCEDURE

When executing the Acute Coronary Syndromes Protocol, acquire a 12-lead ECG within 5 minutes of arrival at Patient. If interpretation by a qualified provider or machine is that of STEMI or a left bundle branch block which is not known to be in the patient's history, activate the STEMI system by notifying the closest PCI center within five minutes. Use the STEMI Triage Decision Scheme to decide method of transport and appropriate facility. When in doubt, contact local medical control.

Field STEMI Triage Decision Scheme

1. Cardiac symptoms **AND**
   - 12-lead ECG criteria of 1 mm (or more) ST elevation in 2 (or more) contiguous leads **OR**
   - 12-lead ECG interpretation with an "ACUTE MI" statement **OR**
   - New or presumably new LBBB (Left Bundle Branch Block)



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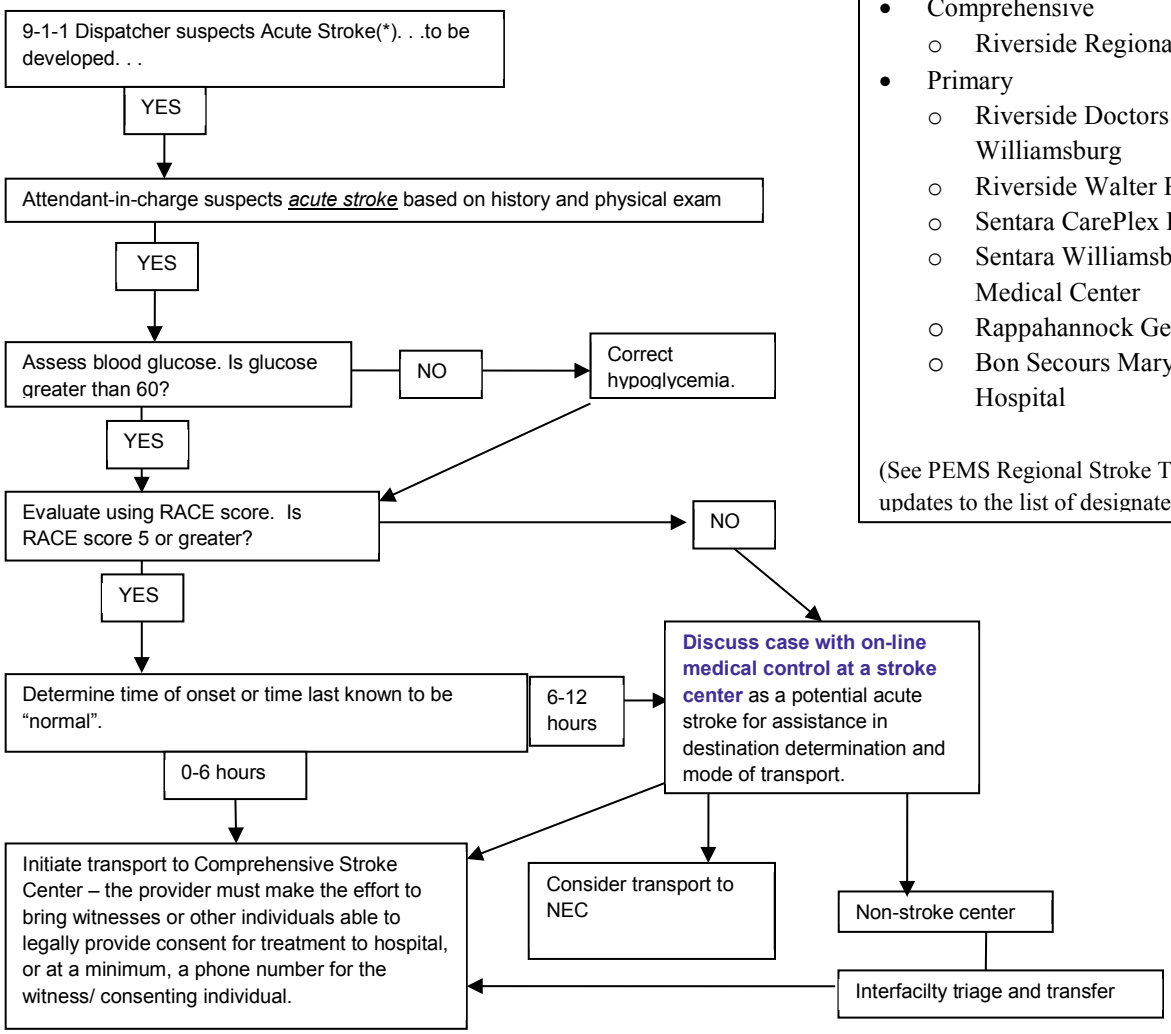
Stroke Field Triage

PURPOSE

To rapidly get those patients experiencing a stroke to definitive care.

PROCEDURE

When executing the stroke protocol, evaluate the patient using the RACE exam. If any part of the test returns positive, activate the stroke system by notifying the appropriate facility. Use the stroke triage decision algorithm below to decide method of transport and appropriate facility. If you have questions contact local medical control.



Designated Stroke Centers in PEMS

- Comprehensive
  - Riverside Regional Medical Center
- Primary
  - Riverside Doctors' Hospital Williamsburg
  - Riverside Walter Reed Hospital
  - Sentara CarePlex Hospital
  - Sentara Williamsburg Regional Medical Center
  - Rappahannock General Hospital
  - Bon Secours Mary Immaculate Hospital

(See PEMS Regional Stroke Triage Plan for updates to the list of designated stroke centers.)

Provide early notification to on-line medical control and/or Designated Stroke Center of patient with acute stroke presentation. Provide care during transport as directed by protocols or on-line medical control.

If transport to Comprehensive Stroke Center increases transport time by 15 minutes or greater, transport to nearest Primary Stroke Center.

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Transportation & Destination Determination

PURPOSE

To assure respect for patient decision-making capacity, while still providing safe, appropriate medical transportation.

PROCEDURE

1. Patients with decision-making capacity are to be transported to the hospital emergency department of their choice within the policies of the transporting agency* with the following exceptions:
   a. The patient exhibiting the symptoms and/or clinical criteria consistent with an ST elevation MI (STEMI); the patient destination should be consistent with the *PEMS Regional STEMI Plan*, i.e. a STEMI Receiving Center.
   b. The patient exhibiting the symptoms and/or clinical criteria consistent with a Stroke/CVA; the patient destination should be consistent with the *PEMS Stroke Triage Plan*, to a designated stroke center.
   c. The patient exhibiting symptoms and/or clinical criteria identified below and consistent with an acute traumatic injury; the patient destination should be consistent with the *PEMS Regional Prehospital and Interhospital Trauma Plan*, i.e. a trauma center
      i. Physiologic
      ii. Anatomic
      iii. Mechanism of injury
      iv. Special considerations
   d. The patient exhibiting the symptoms and/or clinical criteria such that the patient should be transported to a burn center.
   e. The patient requires EMERGENT transport to the closest hospital when, in the judgment of the AIC, the patient is unstable due to one or more of the following conditions:
      i. Inability to establish or maintain a protected airway
      ii. Severe respiratory distress unresponsive to prehospital therapies
      iii. Circulatory failure with an inability to achieve hemodynamic stability
      iv. Abnormal delivery (e.g., breech, shoulder, or prolapsed cord)
      v. Post cardiac arrest
      vi. Continuing seizures unresponsive to midazolam or lorazepam
      vii. Patient presenting in non-trauma related shock
      viii. Any other life-threatening condition the AIC believes to be time critical

2. If the patient has no hospital preference, transport should be to the closest appropriate hospital.

3. Any time a patient is transported to a hospital other than the one requested, the reason for the change and destination hospital shall be documented on the Patient Care Report.

4. Certified providers may contact HEMS (Medical Control permission not necessary) if HEMS can provide transportation more beneficial to the patient than the resources on scene. **If the patient is ready for transport AND air ambulance is delayed for more than 10 minutes, initiate ground transport to the closest hospital, or helispot/helipad.**

* Agencies shall have an internal policy explaining the destination policy specific to that agency (i.e., the agency will not transport further than a specified hospital due to the extended time away from the community).

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Trauma Field Triage

PURPOSE

To rapidly get trauma victims to definitive care.

PROCEDURE

A trauma patient who meets any of the following criteria shall be transported to the **closest appropriate** trauma center within a 30-minute ground transport time. Trauma victims who are not within 30 minutes ground transport radius to a trauma center should be transported to the closest hospital unless they can be delivered to a trauma center more rapidly by helicopter EMS (HEMS).

Physiologic Criteria

- Glasgow Coma Scale of less than 14, or
- Systolic blood pressure of less than 90 mmHg, or
- Respiratory rate of less than 10 or greater than 29 breaths per minute (less than 20 breaths per minute in infants less than 1 year old)

Anatomic Criteria

- Penetrating injury to head, neck, torso or extremities proximal to elbow and knee
- Flail chest
- Two or more proximal long-bone fractures
- Crushed, degloved, or mangled extremity
- Amputation proximal to wrist and ankle
- Pelvic fracture
- Open or depressed skull fracture
- Paralysis

Mechanism of Injury

- **Falls**
  - Adults – greater than 20 feet
  - Children less than 15 years old – greater than 10 feet, or two to three times child's height
- **High-risk auto crash**
  - Intrusion – more than 12 inches into occupant site or more than 18 inches into any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury
- **Auto versus pedestrian/bicyclists -** thrown, run over, or with significant impact (greater than 20 mph)
- **Motorcycle crash** at speed greater than 20 mph

Special Considerations

The following situations should increase your index of suspicion for injury:

- **Burns (**with or without other trauma) – absent other trauma, burns that meet burn center criteria should be transported to a burn center

- **Pregnancy** – injured women who are more than 20 weeks pregnant should be considered for transport to trauma center or a hospital with obstetrical resources

- **Age** – greater than 55 years
- **Anticoagulation and bleeding disorders** – EMS should contact medical control and consider transport to a trauma center.
- **End-Stage Renal Disease** – Patients with end-stage renal disease requiring dialysis
- **Time-sensitive extremity injury** – open fracture(s) or fracture(s) with neurovascular compromise
- **EMS provider judgement** – EMS providers have the experience and expertise to make judgments regarding atypical patient presentation

Procedure:

Agencies operating ***within a 30-minute ground transport radius*** of a trauma center (e.g. Riverside Regional Medical Center, Sentara Norfolk General Hospital, Mary Washington Hospital, and Virginia Commonwealth University Medical Center)

1. Provide appropriate care and initiate immediate transport (scene time less than 10 minutes) towards trauma center.
2. Establish early radio contact to alert trauma center staff.
3. Transport immediately, otherwise document the reason for the delay.

Agencies operating ***outside a 30-minute ground transport time*** to a trauma center:

1. Field transports of trauma patients by helicopter (HEMS) should be considered:
   a. if patient meets the clinical triage criteria for transport and should be transported to a Level I or Level II trauma center
   b. if patient requires a level of care greater than can be expected from the local ground provider **AND** HEMS can be on scene in a time shorter than the ground unit can transport to the closest hospital
2. Technicians can request HEMS transport without authorization by medical control.
3. If HEMS is delayed or unavailable, transport patients meeting trauma center criteria to the closest hospital keeping in mind the on-scene time should be 10 minutes or less.
4. Establish early contact with the destination hospital. A facility may divert patients to a trauma center en route or expedite transfer after arrival.
5. For patients that meet mechanism of injury criteria, but ***do not*** meet anatomic and physiologic criteria, the technician should **contact medical control** to determine the destination hospital

PEARLS

- Transport all patients with unmanageable airway problems to the **closest** hospital emergency department
- ***Traumatic cardiac arrest with any electrical cardiac activity*** – transport to designated trauma center if transport time is less than 10 minutes difference from the closest hospital.
- Consider transport to a Level I trauma center for ***pediatric patients, patients with critical burns, and patients with amputations*** (e.g. Sentara Norfolk General or VCU Medical Center). Both Level I trauma centers within the PEMS catchment have access to pediatric-capable trauma centers.
- Pregnant (greater than 20 weeks) patients that do not meet trauma criteria should be transported to the closest hospital with obstetrical resources.
- Consider contacting medical control to address concerns about patient care, appropriate receiving facility, or air transport decisions.
- See *Helicopter EMS* (Administrative Policies).

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Universal Patient Care/Initial Patient Contact

General

CRITERIA

- The Universal Patient Care/Initial Patient Contact protocol applies to all patients, and encompasses the basic foundation of initial treatment of any protocol. Utilizing a universal patient care statement allows eac h protocol's content to focus on the main goals of patient treatment in each specific protocol. It should be understood that the dynamics of an emergency scene may dictate that the items listed here are subject to a change in the order in which they may occur.

PROTOCOL

EMR	**SCENE SAFETY/PPE/PATIENT CONTACT** • Utilize appropriate agencies and resources as needed including lift assistance, personnel, ALS or law enforcement • Bring all necessary equipment to patient's side	**EMR**
EMR	**INITIAL ASSESSMENT** • Perform Primary and Secondary Survey as indicated by patient status • Consider spinal immobilization if indicated by mechanism of injury or history from patient or witnesses • See pediatric age guidelines chart	**EMR**
EMR	**ENSURE ADEQUATE AIRWAY AND OXYGENATION** • Use the appropriate method to ensure adequate airway if patient is unable to protect their own. • Home oxygen should be maintained unless the patient's oxygen saturation and symptoms indicate an increase. • Administer up to 15 LPM oxygen through appropriate delivery device for patient's condition. *(See Airway Management)*	**EMR**
EMR	**VITAL SIGNS** • Blood pressure, pulse rate, respirations, temperature, Glasgow Coma Scale and blood glucose • Reassess the patient (stable- every 15 or unstable- every 5 minutes), paying special attention to immediately before or after an intervention.	**EMR**
EMT	**CONSIDER PULSE OXIMETRY/ $EtCO_2$ / SpCO**	**EMT**
EMT	**CONSIDER CARDIAC MONITORING** • 12-Lead, Right-Sided, 15-Lead • Proper placement of 12 lead ECG within 5 minutes of patient contact and transmission/notification should be accomplished within 10 minutes of patient contact • EMT can obtain, but not interpret	**EMT**
A	**Establish IV {or IO access I/P skill only}** where indicated	**A**
EMT	**DRUG ADMINISTRATION** • Check all medication administration "Rights" • Confirm medication concentration and dosage	**EMT**

Universal Patient Care/Initial Patient Contact

General

	**GO TO APPROPRIATE PROTOCOL** • If no protocol applies, consider contacting medical control	
EMT	**TRANSPORT PATIENT** • Transport should be based on patient's clinical condition	**EMT**
EMT	• Deliver your pre-arrival report as soon as practical • Consult with Medical Control when necessary	**EMT**

Glasgow Coma Scale						
	1	**2**	**3**	**4**	**5**	**6**
Eye Opening	**Does Not Open**	**Opens to Pain**	**Opens to Voice**	**Spontaneous Eye opening**		
Verbal	**Makes no Sound**	**Incomprehensible sounds**	**Inappropriate words**	**Confused, disoriented**	**Oriented and converses normally**	
Motor	**Makes no movement**	**Extension on Pain (Decerebrate)**	**Abnormal Flexion to Pain (Decorticate)**	**Flexion or Withdrawal to Pain**	**Localizes Pain**	**Obeys Commands**

Infant Age Guidelines	
Newborn	Up to 24 hours following birth
Neonates	Up to 28 days following birth

Obstruction/Foreign Body

Airway

CRITERIA

- Adult patients where airway and ventilatory support are required
- This includes both medical and trauma conditions

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	If suspected obstructed airway, perform obstructed airway sequences in accordance with current American Heart Association guidelines • Continue sequence until obstruction is cleared or patient becomes unconscious • Then perform obstructed airway sequences in accordance with American Heart Association guidelines while preparing airway equipment	**EMT**
A	Perform laryngoscopy and remove any visible foreign bodies with Magill forceps if unable to ventilate	**A**
EMT	Reassess compliance with BVM: • If adequate oxygenation/ventilation, **continue to BVM or NPA/OPA/Blind Insertion Airway Device (BIAD)**.	**EMT**
I	**Attempt Endotracheal Intubation [I- only if patient is over 12 years old]** • **Confirm tube placement and ventilate at 10 breaths per minute** • If unsuccessful after 3 attempts or anatomy inconsistent with intubation attempts, **continue with protocol**	**I**
P	If there is significant facial trauma or airway swelling with inadequate oxygenation/ventilation, **consider Surgical Cricothyrotomy** or **Needle Cricothyrotomy**	**P**
EMT	Consider spinal immobilization	**EMT**

PEARLS

- Ventilatory rate should be 10 breaths per minute to maintain $EtCO_2$ of 35 to 45mmHg
- Use suction to remove blood, secretions and vomitus
- DO NOT suction for more than 10 seconds between ventilations
- An intubation attempt is defined as 30 seconds of non-ventilatory support to include visualization, suctioning of the airway, and tube placement
- Use of a continuous $EtCO_2$ monitoring device is required to monitor correct tube placement

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Sedation Assisted (Non-Paralytic)

Airway

CRITERIA

- Adult patients where airway and ventilatory support are required
- This includes both medical and trauma conditions

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.*	**EMR**
[I]	After establishment of advanced airway, if patient is conscious and agitated, reassess patient and confirm advanced airway placement, then consider administration of ***Midazolam (Versed) 2 mg IN or slow IV/IO, may repeat as needed 5 minutes after initial dose up to maximum dose of 5 mg*** (including any doses administered during intubation).	**[I]**
EMT	Reassess tube placement and quality of ventilation frequently during transport and after patient movement	**EMT**

PEARLS

- Ventilatory rate should be 10 breaths per minute to maintain $EtCO_2$ of 35 to 45 mmHg
- Use suction to remove blood, secretions and vomitus
- Use of a continuous $EtCO_2$ monitoring device is required to monitor correct tube placement

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Asystole

Cardiac Arrest

CRITERIA

- Patient unresponsive, without pulse or respiration, and with Asystole evident on ECG (check 2 leads) or AED advising not to shock
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g. decapitation) are excluded
- Determine DNR status

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Follow American Heart Association guidelines for CPR	**EMR**
I	Administer one dose of ***Epinephrine 1:10,000 1 mg IV/IO***. Epinephrine should be administered every 3-5 minutes during cardiac arrest.	**I**
I	For arrest in **Renal Dialysis patients only,** also administer the following medications: ***Calcium Chloride 1 g IV/IO push*** followed by ***Normal Saline 40 mL flush*** followed by ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available	**I**
EMT	Consider spinal immobilization	**EMT**
	For Return Of Spontaneous Circulation (ROSC) refer to *Cardiac Arrest – Post Resuscitation Care protocol*	

DETERMINING MEAN ARTERIAL PRESSURE

$$MAP = \frac{2(DBP) + SBP}{3}$$

PEARLS

The American Heart Association guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the non-shockable cardiac arrest protocols:

- Do not compromise CPR to obtain an advanced airway; consider Blind Insertion Airway Device
- Once advanced airway is obtained, perform asynchronous CPR
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity

Asystole

Cardiac Arrest

- Identify and treat potentially reversible causes:
    - Hypoxia
    - Hyperkalemia or hypokalemia
    - Hypothermia
    - Hypovolemia
    - Hydrogen ion (acidosis)
    - Tablets (drug overdose)
    - Tension pneumothorax
    - Tamponade (cardiac)
    - Thrombosis (cardiac, pulmonary)
    - Toxins
    - Trauma
- All medications in the treatment of non-shockable cardiac arrest are standing order for paramedics
- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*: *1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***
- **DO NOT** place combo pads or electrodes directly atop an Automated Internal Cardiac Defibrillator (AICD), implanted pacemaker or medication patch.

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS.

Post Resuscitation Care

Cardiac Arrest

CRITERIA

Resuscitated cardiac arrest.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider NPA/OPA/Blind Insertion Airway Device (BIAD).	**EMT**
I	Consider advanced airway.	**I**
A	Establish two large bore IVs/consider IO access.	**A**
A	Administer ***0.9% Normal Saline 1 – 2 L IV/IO***.	**A**
	If rhythm changes, *see appropriate cardiac protocol*.	
	If blood glucose is low, *see Medical – Altered Mental Status protocol*.	
I	For Return of Spontaneous Circulation (ROSC), consider ***Dopamine 2 – 20 mcg/kg/min IV/IO***; titrate to Mean Arterial Pressure of 90 – 100 mmHg or ***Epinephrine IV Infusion 0.1 – 0.5 mcg/kg/min IV/IO (1 mg of 1:1,000 in 250 mL 0.9% Normal Saline).***	**I**
EMT	Obtain 12-lead ECG, right-side ECG, or 15-lead ECG where practical. If STEMI present, *see Administrative Policy – STEMI Field Triage*.	**EMT**

DETERMINING MEAN ARTERIAL PRESSURE

$$MAP = \frac{2(DBP) + SBP}{3}$$

PEARLS

- Maintain normal ventilation rate: Continually monitor ETCO2 with target range being 35 - 45 mgHg.
- Identify and treat potentially reversible causes:
    - Hypoxia
    - Hyperkalemia or hypokalemia
    - Hypothermia
    - Hypovolemia
    - Hydrogen ion (acidosis)
    - Tablets (drug overdose)
    - Tension pneumothorax
    - Tamponade (cardiac)
    - Thrombosis (cardiac, pulmonary)
    - Toxins
    - Trauma

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Pulseless Electrical Activity

Cardiac Arrest

CRITERIA

- Patient unresponsive, without pulse or respiration, and with Pulseless Electrical Activity evident on ECG (check 2 leads) or AED advising not to shock
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g. decapitation) are excluded
- Determine DNR status

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Follow American Heart Association guidelines for CPR	**EMR**
I	Administer one dose of ***Epinephrine 1:10,000 1 mg IV/IO***. Epinephrine should be administered every 3-5 minutes during cardiac arrest.	**I**
I	For arrest in **Renal Dialysis patients only,** also administer the following medications: ***Calcium Chloride 1 g IV/IO push*** followed by ***Normal Saline 40 mL flush*** followed by ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available	**I**
EMT	Consider spinal immobilization	**EMT**
	For Return Of Spontaneous Circulation (ROSC) refer to *Cardiac Arrest – Post Resuscitation Care protocol)*	

DETERMINING MEAN ARTERIAL PRESSURE

$$MAP = \frac{2(DBP) + SBP}{3}$$

PEARLS

The American Heart Association guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the non-shockable cardiac arrest protocols:

- Do not compromise CPR to obtain an advanced airway; consider Blind Insertion Airway Device
- Once advanced airway is obtained, perform asynchronous CPR
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity

Pulseless Electrical Activity

Cardiac Arrest

- Identify and treat potentially reversible causes:
    - Hypoxia
    - Hyperkalemia or hypokalemia
    - Hypothermia
    - Hypovolemia
    - Hydrogen ion (acidosis)
    - Tablets (drug overdose)
    - Tension pneumothorax
    - Tamponade (cardiac)
    - Thrombosis (cardiac, pulmonary)
    - Toxins
    - Trauma
- All medications in the treatment of non-shockable cardiac arrest are standing order for paramedics
- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*: *1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***
- **DO NOT** place combo pads or electrodes directly atop an Automated Internal Cardiac Defibrillator (AICD), implanted pacemaker or medication patch.

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS.

V-Fib/Pulseless V-Tach

Cardiac Arrest

CRITERIA

- Patient unresponsive, without pulse or respiration, and/or showing VF or pulseless VT on monitor or AED advising shock.
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g., decapitation) are excluded.
- Determine DNR status.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Follow American Heart Association (AHA) Guidelines for CPR.	**EMR**
I	• If VF or VT present, defibrillate once at: *Biphasic: 200 joules* or manufacturer's recommendation; *Monophasic: 360 joules.* • Perform 2 minutes of CPR after first defibrillation. If rhythm remains shockable, defibrillate again, then consider medication therapy as listed below. • Second and subsequent defibrillations should be equivalent or higher doses, based on manufacturer guidelines for your defibrillator device, as long as the rhythm remains shockable. • Every 2 minutes, evaluate the rhythm and the patient and, if indicated, perform subsequent defibrillations adhering to AHA CPR Guidelines throughout care.	**I**
I	Administer one dose of ***Epinephrine 1:10,000 1 mg IV/IO***. Epinephrine should be administered every 3 - 5 minutes during cardiac arrest.	**I**
I	• Administer antidysrhythmic ***Amiodarone (Cordarone) 300 mg IV/IO***, mixed in ***0.9% Normal Saline 20 mL.*** • If Amiodarone is not available ***Lidocaine 1mg/kg IV/IO (maximum dose of Lidocaine is 3mg/kg).*** • Begin preparations for transport.	**I**
I	For arrest in **Renal Dialysis patients only** administer the above medications along with the following medications: ***Calcium Chloride 1 g IV/IO push*** followed by ***0.9% Normal Saline 40 mL flush*** followed by ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available.	**I**
I	Consider ***Magnesium Sulfate 2 g IV/IO mixed in 0.9% Normal Saline 10 mL over 5 minutes.***	**I**
I	Repeat antidysrhythmic used: ***Amiodarone (Cordarone) 150 mg IV/IO*** mixed in ***0.9% Normal Saline 10 mL*** **or** ***Lidocaine 0.5 mg/kg IV/IO (maximum dose of Lidocaine is 3mg/kg).***	**I**
EMT	Consider spinal immobilization.	**EMT**

V-Fib/Pulseless V-Tach

Cardiac Arrest

[I]	For Return Of Spontaneous Circulation (ROSC) consider ***Dopamine 2 - 10 mcg/kg/min IV/IO.*** or ***Epinephrine IV infusion 0.1- 0.5 mcg/kg/min IV/IO*** (***1 mg of 1:1,000 in 0.9% Normal Saline 250 mL***) titrated to Mean Arterial Pressure of 90-100 mmHg. *See Cardiac Arrest – Post Resuscitation Care protocol*.	[I]

DETERMINING MEAN ARTERIAL PRESSURE

$$MAP = \frac{2(DBP) + SBP}{3}$$

PEARLS

The American Heart Association Guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the shockable cardiac arrest protocol:

- Do not compromise CPR to obtain an advanced airway; consider Blind Insertion Airway Device
- Once advanced airway is obtained, perform asynchronous CPR
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity
- Identify and treat potentially reversible causes:
  - Hypoxia
  - Hyperkalemia or hypokalemia
  - Hypothermia
  - Hypovolemia
  - Hydrogen ion (acidosis)
  - Tablets (drug overdose)
  - Tension pneumothorax
  - Tamponade (cardiac)
  - Thrombosis (cardiac, pulmonary)
  - Toxins
  - Trauma
- Following IV/IO access:
  - Medication should be given without the interruption of CPR
  - Magnesium Sulfate should be considered for but not limited to:
    - Recommended for use in cardiac arrest only if Torsades de pointes or suspected Hypomagnesia is present
    - Life-threatening ventricular arrhythmias due to digitalis toxicity
- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*: *1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***
- **DO NOT** place combo pads or electrodes directly on top of an Automated Internal Cardiac Defibrillator (AICD) or implanted pacemaker

Ensure high quality CPR and effective (at least 100/min) compressions.

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS.

ALS providers arriving on scene shall not interrupt defibrillation in progress.

Cold Exposure

Environmental

CRITERIA

Patient exposed to extreme environmental conditions with symptoms that might include, but are not limited to:

- CNS depression
- Cardiac dysrhythmias
- Abnormal vital signs
- Suspect hypothermia in:
  - High-risk patients: very young or old patients, immobilized patients (e.g. prolonged entrapment), alcohol use, trauma/significant burns
  - High-risk environment: cold, windy environments, acute immersion incident

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*. Use warmed and humidified O_2 if available.	**EMR**
EMR	Place patient in a warm environment and prevent further heat loss	**EMR**
EMR	Remove all wet clothing and replace with warm blankets. Handle the patient gently and avoid excessive movement (risk of cardiac arrest)	**EMR**
EMR	In the event of cardiac arrest, make persistent attempts at resuscitation for victims of prolonged cold exposure. Perform CPR and continuous warming procedures.	**EMR**
EMT	Transport patient immediately with resuscitation efforts continued en route	**EMT**
	Localized Cold Injury	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Apply loose, sterile dressings to affected part	**EMR**

PEARLS

- Hypothermia patients are fragile: Rough handling, IV insertion, intubation, etc. might cause VF that is refractory to defibrillation and antiarrhythmic agents- use AHA guidelines for hypothermic arrest.
- **DO NOT** place heat packs, hot water bottles, IV bags, or other heat-retaining devices directly on skin
- Contact Medical Control prior to use of AED
- *If cardiac arrest occurs*, start CPR. Do not delay transport waiting for ALS
- *If the patient is alert and responsive*, use active external rewarming with heat packs, warm blankets, etc
- Assess pulse and respiratory rate for at least 60 seconds.
- *In Localized injuries **DO NOT***:
  - Allow patient to use the affected part
  - Rub the affected part
  - Expose the part to direct dry heat
  - Immerse the part in snow or hot water
  - Attempt to debride blisters
- Remove jewelry and constricting items
- During cardiac arrest, medications should be spaced at longer intervals

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Heat Exposure/Exhaustion

Environmental

CRITERIA

Patient exposed to extreme environmental conditions with symptoms that might include but are not limited to:

- CNS depression
- Cardiac dysrhythmias
- Abnormal vital signs

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Place patient in cool environment.	**EMR**

EMT	• Remove excess clothing.
	• ***If skin temperature is normal to touch***:
	  ○ Apply cool compresses.
	• ***If skin temperature is hot to touch***:
	  ○ Treat as life-threatening emergency.
	  ○ Immediately start cooling process:
	  ▪ Fan the patient with cool mist if available.
	  ▪ Place ice packs in armpits, groin, and neck areas.
	  ▪ Place cool wet sheet over the patient.
	  ▪ If patient begins to shiver, slow cooling process.
		EMT

A	**Suspected heat stroke or hypovolemia: *20 mL/kg 0.9% Normal Saline up to 1000 mL bolus***, continuously reassessing need for further fluid administration.	**A**
EMT	Continuously reassess patient.	**EMT**

PEARLS

Consider cold IV fluids, if available, in heat stroke patient **only**. Use caution in the conscious patient.

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Heat Stroke/Hyperthermia

Environmental

CRITERIA

Patient exposed to extreme environmental conditions with symptoms that might include, but are not limited to:

- CNS depression
- Cardiac dysrhythmias
- Abnormal vital signs

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Place patient in cool environment.	**EMR**

EMT	• Remove excess clothing.
	• ***If skin temperature is normal to touch***:
	  ○ Apply cool compresses.
	• ***If skin temperature is hot to touch***:
	  ○ Treat as life-threatening emergency.
	  ○ Immediately start cooling process:
	  ▪ Fan the patient with cool mist if available.
	  ▪ Place ice packs in armpits, groin, and neck areas.
	  ▪ Place cool wet sheet over the patient.
	  ▪ If patient begins to shiver, slow cooling process.
		EMT

A	**Suspected heat stroke or hypovolemia:** ***20 mL/kg 0.9% Normal Saline up to 1000 mL bolus***, continuously reassessing need for further fluid administration	**A**
EMT	Continuously reassess patient	**EMT**

PEARLS

- Consider cold IV fluids, if available, in heat stroke patient **only**. Use caution in the conscious patient.

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Behavioral/Patient Restraint

General

CRITERIA

Patients with signs and symptoms of behavioral emergencies that may cause harm to themselves or others

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Use de-escalation guidelines.	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	Combative Patients	
EMT	Restrain patient (see *Administrative Policy – Patient Restraint*)	**EMT**
[I]	If chemical restraint is required, administer ***Lorazepam (Ativan) 1mg IV/IM*** • ***If patient still requires chemical restraint, administer Midazolam (Versed) 5mg IN/IM or 2.5mg IV***, then restrain patient. • If continued chemical restraint is required, consider ***Haloperidol (Haldol) 5mg IM***	**[I]**
A	If patient shows signs of dystonic reaction after Haldol administration, consider ***Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO***	**A**
	Suspected Psychotic/Behavioral Agitation	
P	If psychotic/behavioral agitation is suspected, consider ***Haloperidol (Haldol) 5mg, Lorazepam (Ativan) 2mg, and Diphenhydramine (Benadryl) 50mg.*** Combine medications in a single syringe and administer in a large IM site.	**P**

PEARLS

Consider alternative causes for altered mental status, such as but not limited to:

- Hypoglycemia
- Stroke
- Overdose
- Head injury
- Encephalitis or other CNS infection

Contact Law Enforcement early

If patient is capable of refusing treatment and/or transport, document all events meticulously. Documentation must be complete, including a description of the patient's mental status and your rationale for obtaining a refusal.

De-Escalation Guidelines:

- Remain calm and friendly. Be aware of your emotions.
- Be mindful of your body language.
- Position yourself between the patient and your exit.
- Maintain a safe distance and refrain from touching patient.
- Keep your hands in front of your body (non-threatening manner).
- Only one provider should communicate with the patient.

Behavioral/Patient Restraint

General

- Maintain a soothing tone of voice.
- Listen to the patient's concerns.
- Empathize. Use positive feedback.
- Be reassuring. Outline the patient's choices.
- Be willing to slow down and disengage if appropriate.
- Calmly set boundaries of acceptable behavior.
- Make every attempt to ***not*** aggravate or worsen existing injuries or medical conditions.
- To determine a patient's mental capacity, consider the following:
  - Is the patient in danger of hurting himself or others?
  - Could a potential underlying medical emergency exist that might lead to death or which could worsen considerably if not treated soon?
  - Is a medical intervention required to avoid deterioration in the patient's condition?
  - Has the patient been advised about, and does he understand, the risks of refusing these treatments or interventions?
- Do not place patients who are restrained in the prone position.

Exception Protocol

General

CRITERIA

- In rare situations, it may be necessary for on-line Medical Control to direct an ALS provider to render care not explicitly within the Peninsulas Regional Patient Care Protocols, Policies & Procedures in order to maintain the life of a specific patient. Such situations may include events in which the mechanism of injury and entrapment will cause death without extreme measures and immediate intervention, including but not limited to:
  - MVC with extensive damage resulting in significant entanglement of patient body parts
  - Patient entrapment in other than MVC, in which life-threatening injuries may cause death prior to removal by normal means

ALL the following ESSENTIAL CRITERIA MUST BE MET to validate this protocol:

- On-line Medical Control and the provider must agree that the procedure is not addressed elsewhere in the protocols and this procedure is absolutely necessary to maintain the life of the patient.
- The provider must feel capable, based on the direction given by on-line Medical Control, of correctly performing the procedure.
- Upon arrival at the receiving hospital, the prehospital provider must inform the consulting and receiving physician(s) of the effect of the treatment.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Contact appropriate resources to ensure EMS provider safety and patient care	**EMR**
MC	**Contact Medical Control**	**MC**
MC	Perform the extraordinary procedure, maintaining constant open communication with the on-line medical control	**MC**
EMT	Transport to facility determined by Medical Control	**EMT**

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Hemorrhage Control

General

CRITERIA

Patients with uncontrolled or profuse external bleeding

PROTOCOL

EMR	Follow *General- Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	**Head:** Apply direct pressure to the injury if there is no depressed skull fracture.	**EMR**
EMT	**Head:** If direct pressure is ineffective, hemostatic dressing may be applied. Follow manufacturer's recommendations. Do not place over or near eyes, nose, or mouth.	**EMT**
EMR	**Extremity:** Apply direct pressure/pressure dressing. If direct pressure/pressure dressing is ineffective or impractical: • Apply commercial tourniquet 2-3 inches above the wound, not over a joint. Apply circumferential pressure by a method recommended by the manufacturer. Tighten until distal pulse is no longer palpable. Continually reassess. • If hemorrhage is not controlled – Apply second tourniquet proximal to initial tourniquet leaving no space in between tourniquets.	**EMR**
EMT	**Junctional injury (Axilla or femoral):** Pack dressing with roller gauze (use hemostatic dressing if available) tightly into wound and directly onto the source of bleeding. More than one gauze may be required to stem blood flow. Hemostatic dressing may be re-packed or adjusted in the wound to ensure proper placement. Hold pressure for at least 3 minutes. Secure dressing for transport.	**EMT**
EMR	Monitor airway and breathing. Reassess bleeding after treatments performed.	**EMR**

PEARLS

- Hemostatic dressings are contraindicated for abdominal or thoracic injuries. Follow manufacturer's recommendation
- Hemodialysis access sites may result in life threatening hemorrhage. Direct pressure/pressure dressing should be used first followed by tourniquet in the setting of life threatening hemorrhage
- Ensure date/time/location of placement is written on tourniquet
- Do not release tourniquet once applied
- If a tourniquet is placed, an alert patient may require narcotic analgesia to manage tourniquet-associated discomfort. See "Pain Management"
- If extremity wound is not accessible a tourniquet may be placed high on the extremity. Follow manufacturer's recommendations

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Pain Control

General

CRITERIA

Non-cardiac pain from causes such as, but not limited to:

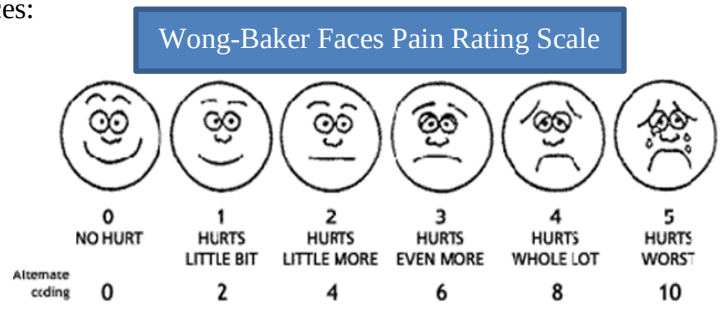
- Suspected kidney stones
- Sickle-cell crisis
- Isolated extremity injuries
- Cancer

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Assess/measure baseline pain level using scale below.	**EMR**
EMR	Assess for systolic blood pressure greater than 90 mmHg.	**EMR**
I	Administer ***Zofran (Ondansetron) 4mg IV/IO/IM.***	**I**
I	***Fentanyl (Sublimaze) 25mcg IN, IM, or IV/IO over 2 minutes as*** initial dose; may repeat ***25 – 50 mcg every 5 minutes*** titrated to pain relief, ***up to maximum dose of 200 mcg*** as long as systolic blood pressure is greater than 90 mmHg and patient remains conscious. ***or*** ***Morphine Sulfate 5 mg IV/IO, IM over 1 minute,*** repeat ***2 mg every 5 minutes,*** titrated to pain relief ***(maximum dose 10 mg)*** as long as patient's systolic blood pressure is greater than 90 mmHg.	**I**

PEARLS

- Exercise caution with patients who have used medication, alcohol, or illicit drugs prior to your arrival.
- Pain management medication options are available for the provider to select the medication that best meets the needs of the patient and assessment findings (allergies, etc.).
- If too much pain management medication is administered and the patient's mental status deteriorates, the provider may consider the use of Narcan to reverse the effects.
- When opioid medications are contraindicated, ineffective, or refused by the patient, the inclusion of non-pharmacologic procedures may help with pain control by decreasing fear and anxiety and by providing patients with a sense of control. These may be considered as a part of pain management for all patients being mindful of developmental age differences:
  - Reassurance
  - Distraction
  - Imagery
  - Music
  - Positioning or splinting
  - Providing a toy and/or pacifier
  - Hot and cold treatments
  - Therapeutic touch



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Spinal Immobilization/Clearance

General

CRITERIA

- Blunt trauma and distracting injury
- Altered mental status or suspected intoxication with possible spinal injury
- Neurological complaint associated with trauma (numbness or weakness present)
- Trauma patients with spinal pain, tenderness or deformity
- High energy mechanism of injury with the patient unable to communicate
- Any clinical suspiscion of injury
- Age greather than or equal to 18 years

PROTOCOL

EMR	Follow *General - Universal Patient Care/Initial Patient Contact protocol*.	**EMR**
	Spinal Immobilization	
EMR	• Explain the spinal immobilization procedure to the patient • Assess pulses, sensation and movement, before and after the spinal immobilization procedure • Apply appropriate sized C-collar or equivalent to the patient while maintaining manual stabilization of the C-spine • If indicated, place the patient on a long spine board and secure to the board • Secure torso and legs with securing straps • Secure head to long spine board • Place immobilized patient supine on ambulance stretcher for transport and secure board from movement on the stretcher • Documentation of all assessments and findings whether selecting to immobilize the spine or not shall be recorded on the PCR.	**EMR**
	Spinal Clearance	

EMR	• Neurological examination is normal, no focal deficits
	  ○ Patient denies midline spine or neck pain
	  ○ Absence of spinal or neck tenderness, no deformity on palpation/step offs
	  ○ Absence of spine or neck tenderness with Range of Motion (ROM)
	• No significant Mechanism of Injury (MOI)
		EMR

EMR	• Patient is Alert, Awake & Oriented to Person, Place, Time & Event • No language barrier • Patient is a reliable historian • No intoxication or provider suspiscion of intoxication by drugs or alcohol • No distracting injury	**EMR**

Spinal Immobilization/Clearance

General

PEARLS:

- Any time the EMS provider is unsure whether spinal immobilization is appropriate or not, the EMS provider should consult with online Medical Control to determine appropriate therapy.
- The long spine board should be used as an extrication device and may not be required for all patients.
- The long spine board is beneficial for providing a firm surface to perform CPR on.
- Utilization of the long spine board should take into consideration the risks versus the benefits for specific patient care and should be documented on the PCR.
- Patients who are ambulatory at the scene of blunt trauma generally do not require spinal immobilization, however careful assessment and consideration must be evaluated.
- Whether or not a long spinal board is utilized, spinal precautions are still very important in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a C-collar (or similar device) and securing the patient firmly to the ambulance stretcher, ensuring minimal movement.
- Self-extrication of patients from vehicles involved in motor vehicle accidents may best be achieved with guidance by the EMS provider. This may, in some cases, lessen the amount of movement that may occur to the patient during an extrication when the patient is not entrapped.
- Spinal immobilization may be achieved by multiple appropriate methods. Some patients, due to size or age may not be able to be immobilized by traditional spinal immobilization procedures.

Trauma

General

CRITERIA

- Occurs when the body is exposed to more energy than its tissues and organs can tolerate

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Assess patient for spinal immobilization.	**EMR**
EMT	Follow *General – Spinal Immobilization/Clearance Protocol.*	**EMT**
EMT	If airway cannot be secured, immediately transport to closest hospital.	**EMT**
I	**Respiratory insufficiency:** Intubate [if patient is over 12 years old].	**I**
P	**Obstructed airway:** Consider advanced surgical airway.	**P**
[I]	**Tension pneumothorax:** Needle decompression of affected side.	**[I]**
I	**Traumatic cardiac arrest:** Bilateral needle chest decompression, if suspected pneumothorax.	**I**
EMT	***If shock or potential for shock is present***: Keep patient warm. Control bleeding. Retrieve amputated part: • Wrap amputated part in **dry** sterile dressing. • Place part in a **dry**, sealed plastic bag. • Place plastic bag with the part in an ice water-filled container. • Mark container with date, patient name, and name of part.	**EMT**
	If the patient meets the trauma triage criteria according to the *Administrative Policies - Trauma Field Triage*, transport immediately (less than 10 minute scene time) to a Level I or Level II Trauma Center.	
A	**Suspected hypovolemia:** ***20 mL/kg 0.9% Normal Saline up to 1000 mL*** bolus, continuously reassessing need for further fluid administration.	**A**
EMT	Manage minor injuries and reassess.	**EMT**

PEARLS

- **DO NOT** delay transport to establish IV lines or wait on ALS.
- Any patient who is cool and tachycardic is considered to be in shock until proven otherwise.
- Use two large bore IVs.
- Isolated spinal injuries: handle with utmost care; rapid transport is NOT indicated.
- All pregnant patients that have suffered blunt trauma should be transported for evaluation; pregnant patients in the third-trimester should be transported with the backboard angled to the left and slightly elevated.

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Bites and Envenomation – Land

Injury

CRITERIA

Known or suspected bites/stings by venomous or non-venomous animal, insect, or snake based on physical findings. All bite/sting patients should be transported to the hospital.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Remove all rings, bracelets, or constricting items on the injured extremity. Mark inflammation boundaries and time, if known.	**EMR**
	If allergic reaction with urticaria, itching, stomach cramps, or anaphylaxis with respiratory distress or hypotension, go to *Medical – Allergic Reaction/Anaphylaxis protocol.*	
	Insect Stings/Ticks/Spider Bites	
EMT	Remove stinger if present. Do not squeeze stinger. Scrape it away with the edge of a flat surface (e.g., a credit card). Apply ice packs, elevate above heart if possible.	**EMT**
EMT	Remove a tick by grasping the body with a tweezers behind the head with a steady but not forceful upward pull until the tick is released from the skin. Retain the tick for identification in a small container.	**EMT**
I	For black widow bites with severe signs and symptoms (seizures or muscle spasms), administer ***Lorazepam (Ativan) 0.5 mg up to maximum of 2 mg IV/IM/IO*** and repeat dose in five minutes if seizure activity continues up to a ***maximum total dose of 4 mg.*** or ***Midazolam (Versed) 1.0 mg IV/IM/IO*** followed by ***1 mg every 2 minutes*** until seizure activity stops up to a ***maximum total dose of 5 mg***. or ***Midazolam (Versed) 2 mg IN*** repeated as necessary up to a ***maximum total dose of 4 mg IN***.	**I**
I	*Consider General - Pain Control protocol.*	**I**

Bites and Envenomation – Land

Injury

Snake Bites		
EMT	Clean the wound with soap and water or antiseptic. **DO NOT** apply ice, tourniquet, suction, or lance the wound. Immobilize or splint the wound and keep it lower than the heart if possible. Monitor closely for hypotension. Take photo of the reptile if possible. Do not bring reptile to the ED.	**EMT**
A	If hypotensive, administer up to ***0.9% Normal Saline IV/IO 20 ml/kg fluid bolus*** and reassess.	**A**
I	If nausea/vomiting, administer ***Ondansetron (Zofran)4mg IV/IM***	**I**
MC	For non-native reptiles or serious envenomation the patient may need to be transported to a hospital where the appropriate anti-venom is available.	**MC**
I	Consider *General – Pain Control Protocol.*	**I**
Human/Animal/Rodent Bites		
EMR	Anyone bitten by a raccoon, skunk, fox, coyote, bat or other mammal, whose rabies immunization cannot be determined and which cannot be quarantined, needs immediate medical attention. Animal Control should be contacted for wild animal or significant pet bites. Anyone bitten by a human/animal/rodent should have an up to date tetanus immunization.	**EMR**
EMT	Control minor bleeding and clean the wound with soap and water or antiseptic. Dress with dry sterile dressing. If wounding is severe, consider *General - Trauma protocol*. Anyone with greater than superficial wounds to the face, hands or other small appendages, those who might be immuno-compromised or whose wounds would appear to require stitches, should be seen by a physician.	**EMT**

PEARLS

- Human bites have higher infection rates than animal bites due to normal mouth bacteria.
- Cat bites may progress to infection rapidly due to specific bacteria in their mouths. Consider risk of rabies.
- Carnivore bites (such as dogs) have potential for progression to infection and risk of Rabies exposure.
- Venomous snakes in this area are generally of the pit viper family: rattlesnake, copperhead, cottonmouth water moccasin. Coral snake bites are rare. The amount of envenomation is variable.
- Life-threatening snake bites are unusual, if not rare. Only if the patient shows clear signs of envenomation in the field (fang marks, pain/edema beyond bite site, weakness, diaphoresis, nausea/vomiting, paresthesia, shock) are there serious risks to life or limb. The prehospital goal is to transport the patient promptly and calmly to the nearest appropriate medical facility and obtain a history including type of snake, if possible.

Injury

- Black widow spider bites tend to be minimally painful at first, but over a few hours patients develop severe muscular pain and abdominal rigidity.
- Brown recluse spider bites are minimally painful, but progress to tissue necrosis over the course of a few days.

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Bites and Envenomation – Marine

Injury

CRITERIA

Known or suspected bites/stings by venomous or non-venomous marine animal based on physical findings. All bite/sting patients should be transported to the hospital.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Remove all rings, bracelets, or constricting items on the injured extremity. Mark inflammation boundaries and time, if known.	**EMR**
	If allergic reaction with urticaria, itching, stomach cramps, or anaphylaxis with respiratory distress or hypotension, go to *Medical – Allergic Reaction/Anaphylaxis Protocol.*	
	Marine Envenomation	
EMT	Monitor closely for signs of hypotension. If additional signs of allergic reaction are present, go to *Medical – Allergic Reaction/Anaphylaxis Protocol.*	**EMT**
A	If hypotensive, administer up to ***0.9% Normal Saline IV/IO 20 ml/kg fluid bolus*** and reassess.	**A**
I	If nausea/vomiting, administer ***Ondansetron (Zofran)4mg IV/IM***	**I**
I	For envenomation with severe signs and symptoms (seizures or muscle spasms) administer ***Lorazepam (Ativan) 2 mg IV/IM/IO*** and repeat dose in five minutes if activity continues up to ***a maximum total dose of 4 mg***. or ***Midazolam (Versed) 1.0 mg IV/IM/IO*** followed by ***1 mg every 2 minutes*** until seizure activity stops up to a ***maximum total dose of 5 mg***. or ***Midazolam (Versed) 2 mg IN*** repeated as necessary up to a ***maximum total dose of 4 mg IN***.	**I**
EMT	Jellyfish/Anemone/Man-O-War: • Lift away and scrape tentacles with credit card type object. Do not brush or rub. • Wash with clean seawater. **DO NOT** use fresh water or ice. The most effective method to deactivate the toxin and relieve pain is with 30 minutes of applied heat or hot water as hot as tolerable. Vinegar is effective on jellyfish stings but not on those of the Man-O-War. • **DO NOT** delay transport to apply heat if transport is considered urgent.	**EMT**

Bites and Envenomation – Marine

Injury

EMT	If Stingray/Urchin/Starfish/Lionfish: • Impaled barbs should be left in place for transport. If large barb in thorax or abdomen, stabilize object and refer to *Trauma* protocol. • Control any bleeding. • The most effective method to deactivate the toxin and relieve pain is with 30 minutes of applied heat or hot water as hot as tolerable. • **DO NOT** delay transport to apply heat if transport is considered urgent.	**EMT**
	Consider *General – Pain Control protocol.*	

Crush Syndrome

Injury

CRITERIA

Consider crush syndrome if the patient has a trapped extremity or torso with compression and compromise of vascular supply that has lasted more than 60 minutes

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	EMR
A	Prior to extrication administer ***20 mL/kg 0.9% Normal Saline IV/IO up to 1000mL Bolus*** For prolonged extrication continue with ***0.9% Normal Saline 10 mL/kg/hour IV/IO***	A
[I]	To the above IV/IO fluid, add ***Sodium Bicarbonate 1 mEq/kg up to 50 mEq*** to ***0.9% Normal Saline fluid*** bolus to **first liter only**	[I]
[I]	For patient having any of the following ECG changes: • Peaked T waves • Wide QRS complex • Short QT interval • Absent P waves Administer in a second IV/IO line: • ***Calcium Chloride 1 g slow IV/IO over 10-15 minutes*** followed by ***40 ml 0.9% Normal Saline flush*** • ***Sodium Bicarbonate 1 mEq/kg*** and repeat in 10 minutes if no change and medications are available. • ***Continuous Albuterol Sulfate (Proventil) (3 mL 0.083% Solution) via nebulizer or BVM***	[I]
MC	**Contact medical control for persistent ECG abnormalities**	MC
EMT	Remove patient from entrapment and begin transport per *Administrative Policy – Trauma Field Triage.*	EMT
A	Continue to administer ***0.9% Normal Saline 5 mL/kg/hour IV***	A
	See *General – Pain Control protocol.*	

PEARLS

- Initiate protocol treatment prior to removal of compression mechanism
- Consider any ECG change to be a sign of instability: any ECG change warrants immediate treatment with calcium chloride.
- Prioritize life over limb
- Albuterol in this case is only for ECG changes and for this reason is an I/P skill only for this indication

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Diving Emergencies

Injury

CRITERIA

- Victims of near-drowning accidents
- History of diving or breathing compressed air
- Symptoms might include:
  - CNS changes
  - Numbness
  - Pain in extremities
  - Joint pain
  - Blurred vision
  - Blood from nose and mouth
  - Seizures

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Use backboard to remove the patient from the water, consider spinal immobilization	**EMR**
EMR	Remove wet clothing. Keep patient warm and dry	**EMR**

PEARLS

- Any near-drowning or water-related injury patient should be transported to a medical facility for follow-up care regardless of current presentation
- Initiate aggressive attempts at resuscitation for the victim of cold-water submersion (less than 70 degrees F)
- Consider HEMS
- Contact Medical Control to consider direct transport to a medical facility with a DAN-certified recompression chamber:
  - Divers Alert Network: *1-919 -684-9111 for emergencies*
  - Sentara Leigh Hyperbaric Medicine: *1-757-261-4325*
- Be alert for vomiting: prepare to suction

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Drowning/Near Drowning

Injury

CRITERIA

- Victims of near-drowning accidents
- History of diving or breathing compressed air
- Symptoms might include:
  - CNS changes
  - Numbness
  - Pain in extremities
  - Joint pain
  - Blurred vision
  - Blood from nose and mouth
  - Seizures

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Use backboard to remove the patient from the water; consider spinal immobilization	**EMR**
EMR	Remove wet clothing. Keep patient warm and dry	**EMR**

PEARLS

- Any near-drowning or water-related injury patient should be transported to a medical facility for follow-up care regardless of current presentation.
- Initiate aggressive attempts at resuscitation for the victim of cold-water submersion (less than 70 degrees F)
- Consider HEMS .
- Contact Medical Control to consider direct transport to a medical facility with a DAN-certified recompression chamber:
  - Divers Alert Network: *1-919 -684-9111 for emergencies.*
  - Sentara Leigh Hyperbaric Medicine: *1-757-261-4325.*
- Be alert for vomiting: prepare to suction.

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Burns – Thermal

Injury

CRITERIA

A patient who has been exposed to radiation, or is experiencing chemical, electrical, environmental or thermal burns.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*	**EMR**
EMR	Safely remove patient from source of burn and treat accordingly	**EMR**
EMT	Apply high-flow oxygen by non-rebreather or BVM. Consider early advanced airway if any signs or symptoms of airway insult develop: • Singed facial or nasal hairs • Hoarse voice or stridor • Carbonaceous sputum • Burns on face • Difficulty breathing	**EMT**
EMT	Completely expose burned area. Remove all jewelry and constricting items	**EMT**
EMT	Estimate depth of burns and body surface area involved	**EMT**
EMT	Consider direct transport to Level 1 Trauma Center in the following cases: • Partial-thickness burn of greater than 10% BSA • Electrical burns, including lightning injury • Full-thickness burns • Circumferential burns • Chemical burns • Inhalation injuries • Burns to the face, eyes, ears, hands, feet, genitalia, perineum or skin overlying major joints	**EMT**
EMT	Apply clean, dry dressings/sheets to burns. Prevent loss of body heat, keep patient warm	**EMT**
A	Consider IV/IO access on non-burned extremity if possible: • **Adult critical burns**: ***0.9% Normal Saline 20 mL/kg IV/IO*** **up to 1000 mL bolus**, reassess need for further fluid administration	**A**
	See *General - Pain Control protocol*	
	See *Administrative Policy - Trauma Field Triage*	

PEARLS

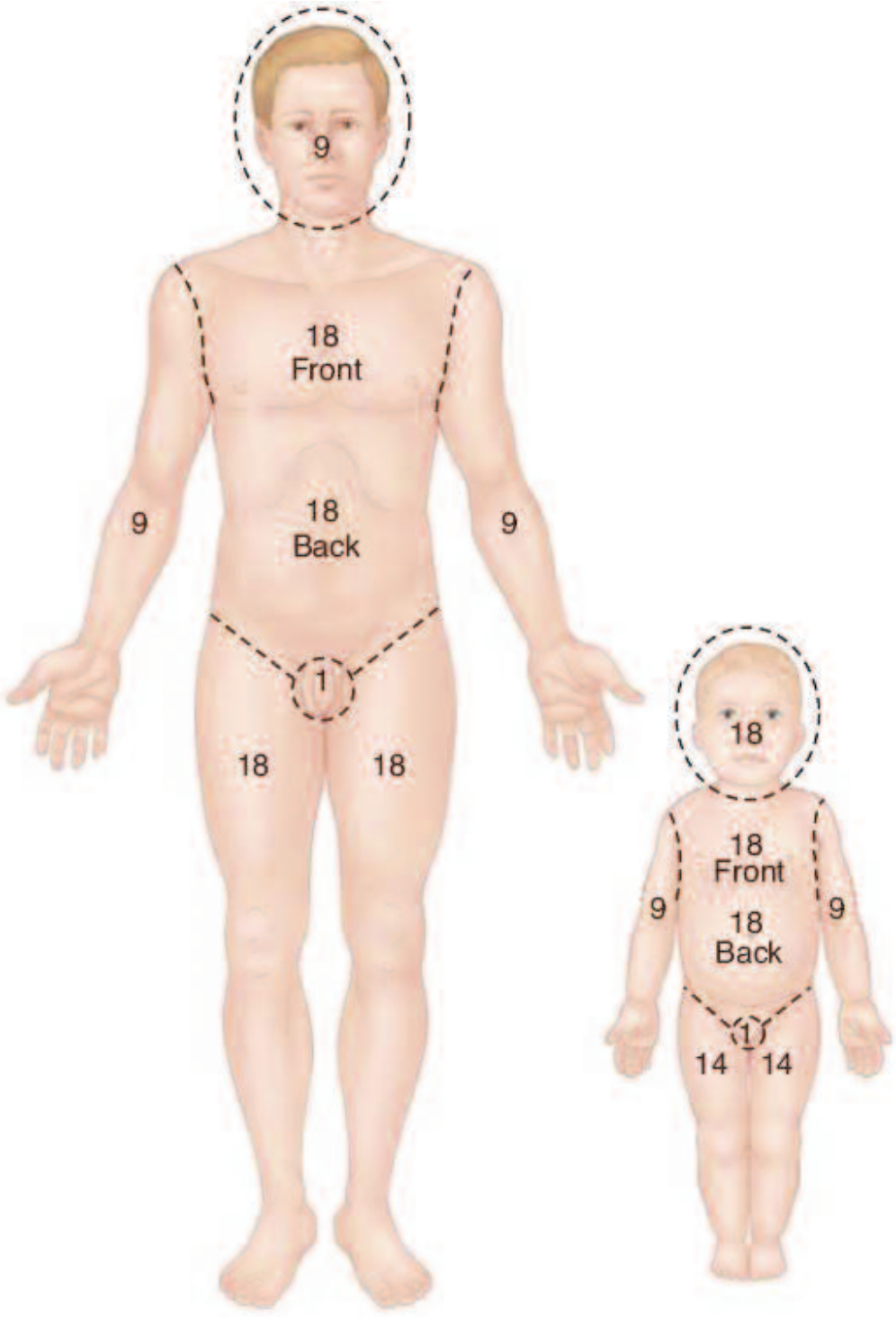
DO NOT delay transport for non-lifesaving interventions (e.g. IV)

Cooling water or saline is necessary only if the burned skin or debris is hot to the touch

Burns – Thermal

Injury

Rule of Nines Reference Chart



Electrical Injuries

Injury

CRITERIA

Patients with signs or symptoms of electrical contact injury or who might have been struck by lightning.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Ensure scene safety and that patient is not energized/stop burning process. Do not become a second victim.	**EMR**
	If patient is in cardiac arrest, see the appropriate *Cardiac Arrest* protocol.	
A	**Suspected hypovolemia: 20 mL/kg 0.9% Normal Saline up to 1000 mL bolus**, continuously reassessing need for further fluid administration.	**A**

PEARLS

- High voltage and lightning injuries may have internal injuries from blast effect.
- Electrical injuries are often associated with falls and seizures.
- Note entrance and exit wounds for electrical and lightning injuries**,** look for the appearance of feathering with lightning injuries.
- Consider transportation for any patient who has received an electrical injury.
- Suspect internal injuries from blast effect in high-voltage and lightning injuries.
- Consider transport to a Level I Trauma Center for any electrical burn.
- Minimizing scene time is essential.

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Allergic Reaction/Anaphylaxis

Medical

CRITERIA

An observed or suspected allergic reaction to foods, venom, environmental agents, chemicals or medications manifested as but not limited to:

- Acute allergic reaction with urticaria, itching, tightness in chest or throat
- Acute allergic reaction with anxiety, respiratory distress
- Anaphylaxis with upper-airway compromise, respiratory insufficiency, altered mental status, tightness in chest or throat and/or hypotension

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol*	**EMR**
EMT	Remove stinger if present. Do not squeeze stinger; scrape it away with a flat surface	**EMT**
	Acute Allergic Reaction	
[A]	Administer ***Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO, may repeat in 10 minutes***	**[A]**
[A]	**Wheezing present:** Administer ***unit dose nebulized Albuterol Sulfate (Proventil) (3 mL of 0.083% solution), may repeat***	**[A]**
[I]	Administer ***Methylprednisolone Succinate (Solu-Medrol) 125 mg slow IV***	**[I]**
	Anaphylaxis	
EMT	Administer ***Epinephrine auto-injector*** from Yellow Epi Box (if available)or use the patient's own ***Epinephrine auto-injector*** or	**EMT**
A	Administer ***Epinephrine 1:1,000 0.3mg (0.3 mL) IM***	**A**
A	If the patient is hypotensive, administer a ***20 mL/kg fluid bolus 0.9% Normal Saline up to 1000 mL,*** then reassess	**A**
I	**When a patient is hemodynamically unstable, in profound shock or in case of impending cardiopulmonary arrest, move immediately to:** ***Epinephrine1:10,000 0.1mg IV/IO (1mL),maximum dose of 0.3mg***	**I**
[A]	Administer ***Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO, may repeat in 10 minutes***	**[A]**
[A]	**Wheezing present:** Administer ***unit dose nebulized Albuterol Sulfate (Proventil) (3 mL of 0.083% solution), may repeat***	**[A]**
I	Administer ***Methylprednisolone Succinate (Solu-Medrol) 125 mg slow IV***	**I**

PEARLS

- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe: 1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***. ***Maximum dose of 0.3mg***

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Altered Mental Status

Medical

CRITERIA

Any alteration in level of consciousness.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol*.	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	Suspected Narcotic Overdose	
EMT	Administer ***Naloxone (Narcan) 2 mg nebulized*** (mix 2 mL Naloxone and 3 mL inhalation saline in nebulizer chamber). Titrate to effect.	**EMT**
A	Administer ***Naloxone (Narcan) 2mg IV/IO, IN or IM*** titrated to effect. Repeat dose in 5 minutes if no response.	**A**
	Hypoglycemia	
EMT	If consciousness is altered, blood glucose level is less than 60 mg/dL and patient can protect airway, administer ***Oral Glucose 15 g PO***. or	**EMT**
A	Administer ***Dextrose 50% 25g (D_{50}) IV/IO***.	**A**
A	If unable to gain IV access, administer ***Glucagon 1 mg IN or IM***.	**A**
EMT	Repeat blood glucose level. Administer ***Oral Glucose 15 g PO*** if necessary.	**EMT**
A	Administer second dose ***Dextrose 50% 25g (D_{50}) IV/IO*** if necessary.	**A**
	Hyperglycemia	
A	If blood glucose level is greater than 250 mg/dL, administer fluid bolus ***0.9% Normal Saline 20 mL/kg IV/IO*** up to 1000 mL.	**A**

PEARLS

Suspected Narcotic Overdose: Patient exhibits one or more of the following signs:

- Pinpoint pupils
- Bradypnea (respiration less than 8)
- Recent history of drug abuse
- Evidence on scene of drug abuse

Altered Mental Status

Medical

AEIOU TIPS Mnemonic for Abbreviated Differential Diagnosis of Altered Mental Status:

Letter	Description
A	Alcohol
E	Endocrine, Encephalopathy, Electrolytes
I	Insulin (hypoglycemia)
O	Oxygen (hypoxia), Opiates (drugs of abuse)
U	Uremia
T	Toxins, Trauma, Temperature
I	Infection
P	Psychiatric, Porphyria
S	Stroke, Shock, Subarachnoid Hemorrhage, Space-Occupying CNS Lesion

SMASHED 2 Mnemonic for Differential Diagnosis of Altered Mental Status

Letter	Title	Description
S	Substrates	glucose (high/low), thiamine deficiency
	Sepsis	
M	Meningitis	all CNS infections, AIDS dementia, encephalitis, brain abscess or toxoplasmosis
	Mental illness	acute psychosis, medication noncompliance, mania, depression, malingering, rage, suicide intent (via police)
A	Alcohol	Intoxication, withdrawal
	Accident	head trauma, CVA, cerebral contusion, subdural or epidural hematoma
S	Seizing	or postictal
	Stimulants, hallucinogens, anticholinergics	Cocaine, amphetamines, caffeine, PCP, LSD, ketamine, psilocybin, antihistamines, atropine, scopolamine, jimson weed
H	Hyper	hypertension, hyperthyroidism, hypercarbia, hyperthermia
	Hypo	hypotension, hypothyroidism, hypoxia, hypothermia
E	Electrolytes	hyper/hyponatremia, hypercalcemia
	Encephalopathy	hepatic, HIV, uremic, hypertensive, lead, Reye's syndrome, CNS tumor
D	Drugs	Intoxication or withdrawal
	Don't forget other drugs	carbon monoxide, lithium, steroids, salicylates, designer/street drugs, theophylline, MDMA, antipsychotics, toxins not on routine drug screen, others

Bradycardia

Medical

CRITERIA

Heart rate less than 60 beats per minute documented by ECG recording **and signs or symptoms of decreased perfusion**, such as:

- Chest pain
- Dyspnea
- Decreased level of consciousness
- CHF
- Hypotension

The patient should be evaluated as a whole and not just by the presence of one of the above symptoms

PROTOCOL

Stable Bradycardia		
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Monitor cardiac status and obtain 12-Lead ECG, consider right-sided ECG, 15-Lead ECG	**EMT**
Unstable Bradycardia		
I	If time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***	**I**
I	Consider ***Atropine Sulfate 0.5 mg IV/IO*** every 3 - 5 minutes until signs and symptoms resolve, up to a ***maximum dose of 3 mg***	**I**
I	Activate external pacer; set at 60 BPM, titrate amperage to capture	**I**
[I]	If no response to previous treatments, consider: • **Suspected hypovolemia** – ***20 mL/kg 0.9% Normal Saline, up to 1000 mL bolus*****,** continuously reassessing need for further fluid administration • **Refractory hypotension** –***Dopamine (Intropin) 2-20 mcg/kg/min infusion*** (**400 mg in *0.9% Normal Saline 250 mL***) titrated to effect • **Impending cardiac arrest** –***Epinephrine infusion 2-10 mcg/min*** (**1 mg of 1:1,000 in *0.9% Normal Saline 250 mL***) titrated to effect	**[I]**

PEARLS

- **DO NOT** delay pacing an unstable patient to obtain IV/IO access
- If capture observed on monitor, use right arm to check for corresponding pulse and blood pressure
- For larger patients (greater than 220lbs) consider anterior-posterior defibrillation pad placement
- Use Atropine cautiously in the presence of acute coronary ischemia or Myocardial Infarction (MI)
- **DO NOT** place combo pads or electrodes directly on top of an Automated Internal Cardiac Defibrillator (AICD), implanted pacemaker or medication patch.

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Chest Pain – Cardiac Suspected

Medical

CRITERIA

- Description of symptoms sounds suspiciously cardiac
- Watch for atypical presentation of signs and symptoms in all patients and especially in women, diabetics, geriatrics, cocaine users
- Short ECG to Balloon time is a primary goal in treatment of chest pain

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Obtain patient history for: • Active internal bleeding • Prolonged CPR • Recent surgery • Prior CVA • Severe hypertension • Pregnancy • Cocaine usage within 24 hours	**EMR**
EMT	Administer ***chewable Aspirin 324 mg PO*** **Give aspirin even if patient is on daily aspirin regimen**	**EMT**
EMT	Obtain a 12-lead EKG within 5 minutes. Transmit and/or report findings to Medical Control immediately.	**EMT**
EMT	Consider oxygen administration if oxygen saturation <90%	**EMT**
EMT	If patient has their own prescribed nitroglycerin, assist the patient with one Nitroglycerin 0.4mg SL. **OR** Administer one ***Nitroglycerin 0.4mg SL*** from the PEMS Regional Drug Box. If BP is stable (greater than 100 mm/Hg) and no pain relief results, repeat NTG every 5 minutes up to a total of three doses.	**EMT**
I	***Morphine Sulfate 2.5-5.0 mg IM or IV/IO*** titrated to pain relief ***over 1 minute; repeat 2 mg every 5 minutes;*** **(*maximum dose 10 mg*)** as long as patient systolic blood pressure is greater than 90 mm/Hg. or ***Fentanyl (Sublimaze) 25mcg IN, IM, or IV/IO over 2 minutes as*** initial dose; may repeat ***25 – 50 mcg every 5 minutes*** titrated to pain relief, ***up to maximum dose of 200 mcg*** as long as systolic blood pressure is greater than 90 mmHg and patient remains conscious.	**I**
MC	If the maximum dose has been reached and the pain persists, contact Medical Control. Medication administration must not delay patient transport.	**MC**

Chest Pain – Cardiac Suspected

Medical

PEARLS

- Monitor cardiac status. Record 12-Lead ECG prior to Nitroglycerin administration (BLS with OMD approval)

    - Limit IV attempts in anticipation of subsequent anticoagulation therapy
    - If 12-Lead ECG criteria of 1 mm ST elevation in 2 or more contiguous leads OR 12-Lead ECG interpretation with an "ACUTE MI" statement OR Left Bundle Branch Block NOT KNOWN to be present in the past, immediately transport (< 15 minute scene time) to PCI center. See Administrative Policies – STEMI Field Triage. Consider right-sided 12-Lead or 15-Lead ECG.
    - Do not administer Nitroglycerin (Nitrostat) if the patient has taken any Nitrate based, sexually enhancing, or pulmonary hypertention medication such as Sildenafil (Viagra), Sildenafil (Revatio), Vardenafil HCL (Levitra) or a similar drug within the last 24 hours, or Tadalafil (Cialis) within 48 hours.

Hypertension

Medical

CRITERIA

- Patient with systolic blood pressure greater than 240 mmHg and/or diastolic greater than 120 mmHg.
- Patient with chronic essential hypertension and sudden, unexplained, significant increase in blood pressure

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Check blood glucose level.	**EMT**
	If suspected stroke, see *Medical – Stroke/TIA protocol.*	
	If hypertension with chest pain: see *Medical - Chest Pain - Cardiac Suspected protocol.*	
	If respiratory distress, see *Medical – Respiratory Distress/Asthma/COPD/Croup/Reactive protocol.*	

PEARLS

- Under most circumstances, attempting to treat hypertension directly in the prehospital setting is unwise. In particular, rapid lowering of BP can critically decrease end-organ perfusion.
- Patients with extremely high blood pressure often experience nosebleed. Watch for signs of bleeding and be prepared to manage.

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Hypotension/Shock (Non-Trauma)

Medical

CRITERIA

- Blood pressure less than 80 mm/Hg systolic with signs and symptoms such as:
  - Chest pain
  - Dyspnea
  - Rales/Crackles
  - Pulmonary Edema/Congestive Heart Failure- use caution with fluid administration
- Trauma ruled out

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Place patient in position of comfort, perform focused history including: • Active internal bleeding • Prolonged CPR • Recent surgery • Prior CVA • Pregnancy	**EMR**
A	If no signs of pulmonary edema, ***0.9% Normal Saline 20 mL/kg fluid bolus (up to1000 mL)***, then reassess.	**A**
[I]	Administer ***Dopamine (Intropin) 2-10 mcg/kg/min infusion***; titrate to desired effect (mix 400 mg in ***0.9% Normal Saline 250 mL***).	**[I]**

Refer to chart on next page.

Hypotension/Shock (Non-Trauma)

Medical

DOPAMINE DRIP CHART

Weight lbs.	88	110	132	154	176	198	220	242	264	286	308	330	352
Weight kgs	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**
mcg/kg	gtts/minute based on 60 drop set												
2	3	4	4	5	6	7	7	8	9	10	10	11	12
3	4	6	7	8	9	10	11	12	13	15	16	17	18
4	6	7	9	10	12	13	15	16	18	19	21	22	24
5	7	9	11	13	15	17	19	21	22	24	26	28	30
6	9	11	13	16	18	20	22	25	27	29	31	34	36
7	10	13	16	18	21	24	26	29	31	34	37	39	42
8	12	15	18	21	24	27	30	33	36	39	42	45	48
9	13	17	20	24	27	30	34	37	40	44	47	51	54
10	15	19	22	26	30	34	37	41	45	49	52	56	60
11	16	21	25	29	33	37	41	45	49	54	58	62	66
12	18	22	27	31	36	40	45	49	54	58	63	67	72
13	19	24	29	34	39	44	49	54	58	63	68	73	78
14	21	26	31	37	42	47	52	58	63	68	73	79	84
15	22	28	34	39	45	51	56	62	67	73	79	84	90
16	24	30	36	42	48	54	60	66	72	78	84	90	96
17	25	32	38	45	51	57	64	70	76	83	89	96	102
18	27	34	40	47	54	61	67	74	81	88	94	101	108
19	28	36	43	50	57	64	71	78	85	93	100	107	114
20	30	37	45	52	60	67	75	82	90	97	105	112	120

*gtts/min rounded to whole drop

Nausea/Vomiting

Medical

CRITERIA

- Patients that present with nausea and/or vomiting

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Place patient in position of comfort.	**EMR**
A	Consider fluid bolus ***0.9% Normal Saline 20 mL/kg fluid bolus***, if systolic BP less than 90 mmHg or patient has orthostatic hypotension.	**A**
I	Administer ***Ondansetron (Zofran) 4 mg IM or IV over 2 minutes***. If vomiting continues repeat ***4 mg*** in 10 minutes.	**I**

PEARLS

- Orthostatic Hypotension: A positive finding is identified by a 20 mmHg decrease in systolic blood pressure and a 30 beat per minute increase in the heart rate of a patient one minute after the transition from supine to sitting or standing.

Consider suctioning as needed, maintaining airway

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Overdose/Poisoning/Toxic Ingestion

Medical

CRITERIA

- Signs and symptoms of excited delirium (ExDS) have a median age of 36 years old but occur in all populations from pediatric to geriatric.
- Use of an electronic control device (ECD) such as the Tazer, Oleoresin Capsicum (OC)/Pepper spray, or other less-lethal law enforcement methods to gain control of the patient may have been employed by law enforcement.
- Prior history of psychosis or mental illness.
- Stimulant drug use, including cocaine, methamphetamines (Meth), synthetic drugs and PCP demonstrates a well-established association with ExDS and is usually associated with cases of ExDS death.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Contact Law Enforcement early, scene safety is paramount	**EMR**
EMR	Obtain patient history for: • Evidence of excited delirium prior to application of ECD, OC spray, or other less-lethal law enforcement methods that may have been used to gain control of the patient. • Known or suspected stimulant drug use including but not limited to: cocaine, methamphetamines, synthetic drugs or PCP. • Known failure to comply with prescribed medications for mental illness. • Cardiac history. Obtain further assessment for: • Altered level of consciousness. • Evidence of hyperthermia by either touch (hot to touch away from direct sunlight) or tympanic/temporal temperature more than 38.8°C/102°F. • Abnormal complaints including: shortness of breath, chest pain, nausea, or headache. • Diaphoresis unexplained by environment. • Suspected cervical spine or other significant musculoskeletal injury (Immobilize appropriately as soon as it is safe to do so).	**EMR**
EMR	Initial Care: • If ECD (Tazer) utilized, prior to patient contact, ensure that the ECD cartridge is not attached to the device. *See Procedures - Tazer Barb Removal.* • Patient should be in supine or lateral recumbent position. **DO NOT** place patient in prone position. • Administer high flow oxygen regardless of pulse oximetry reading. • Obtain blood glucose level.	**EMR**
	*See Administrative Policies - Patient Restraint.*	
	*See General – Behavioral/Patient Restraint protocol.*	

Overdose/Poisoning/Toxic Ingestion

Medical

	*See Medical – Altered Mental Status Protocol.*	
[I]	If chemical restraint is required, administer ***Lorazepam (Ativan) 1mg IV/IM*** • ***If patient still requires chemical restraint, administer Midazolam (Versed) 5mg IN/IM or 2.5mg IV***, then restrain patient. • If continued chemical restraint is required, consider ***Haloperidol (Haldol) 5mg IM***	**[I]**
A	If patient shows signs of dystonic reaction after Haldol administration, consider ***Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO***	**A**
MC	Contact Medical Control if patient remains combative	**MC**
I	If temperature is more than 38.8°C/102°F or patient is hot to the touch, administer ***Sodium Bicarbonate 50 mEq*** by mixing in one (1) liter of ***0.9% Normal Saline*** and infuse wide open. In addition, cool hyperthermic patient by use of cool water, Apply ice packs to the axillae, neck and groin , or by removing layers of clothing. Cold fluid may be painful in the conscious patient. If cooled solution is not available, do not withhold administration of normal saline.	**I**
I	Obtain a 12-Lead ECG, right-sided ECG and 15-lead ECG; pulse oximetry; end-tidal CO2 devices; monitor cardiac and respiratory status throughout transport.	**I**

PEARLS

- Consider encephalitis or other Central Nervous System (CNS) infections.
- Consider sepsis.
- Excited Delirium is a condition in which a patient is in a psychotic state and extremely agitated. Mentally, the patient is unable to focus and process any rational thought or focus his attention to any one thing. Physically the organs within the patient are functioning at such an excited rate that they begin to shut down. These two factors occurring at the same time cause the patient to act erratically. They become a danger to themselves and to the public. This is typically where law enforcement comes into contact with the patient. Possible causes of excited delirium may include, but are not limited to:
  - Overdose on stimulant (typically cocaine) or hallucinogenic drugs. NOTE: This is the cause in the majority of cases where an ECD is needed.
  - Drug withdrawal.
  - Psychiatric patient off medication.
  - Illness/sepsis.
  - Low blood sugar.
  - Psychosis/mental illness.
  - Head trauma.

PEARLS (cont.)

- Symptoms of excited delirium include:
  - Bizarre and aggressive behavior.
  - Dilated pupils.
  - High body temperature.
  - Incoherent speech.
  - Inconsistent breathing patterns.
  - Fear and panic.
  - Profuse sweating.
  - Shivering.
  - Nakedness

- High body temperature is a key finding in predicting a high risk of sudden death. Another key symptom to impending death while experiencing excited delirium is "instant tranquility." This is when the person has been very violent and suddenly becomes quiet and docile.

TABLE 1
Potential Prehospital ExDS Features and Frequencies

FEATURE	FREQUENCY % (95% CI)
Pain Tolerance	100 (83-100)
Tachypnea	100 (83-100)
Sweating	95 (75-100)
Agitation	95 (75-100)
Tactile Hyperthermia	95 (75-100)
Police Noncompliance	90 (68-99)
Lack of Tiring	90 (68-90)
Unusual Strength	90 (68-90)
Inappropriately Clothed	70 (45-88)
Mirror/Glass Attraction	10

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Respiratory Distress/Asthma/COPD/ Croup/Reactive Airway

Medical

CRITERIA

Any patient who exhibits the signs or symptoms of respiratory distress such as: abnormal respiratory rate, abnormal respiratory effort, abnormal breath sounds, cyanosis, or use of accessory muscles.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Allow the patient to assume a position of comfort.	**EMR**
	If suspected Foreign Body Airway Obstruction, *see Airway – Obstruction/Foreign Body* protocol.	
EMT	Obtain and record $EtCO_2$ and pulse oximetry.	**EMT**
	Asthma/COPD	
[EMT]	Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)/Atrovent (Ipratropium Bromide) (2.5 mL 0.02% Solution)*** nebulized. Mix ***unit dose*** of each medication in a nebulizer.	**[EMT]**
[EMT]	**If signs and symptoms continue or worsen**: administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)***, ***unit dose .***	**[EMT]**
I	Administer ***Solu-Medrol (Methylprednisolone Succinate) 125 mg slow IV.***	**I**
[EMT]	Consider CPAP; use caution.	**[EMT]**
	Status Asthmaticus	
[EMT]	Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)/Atrovent (Ipratropium Bromide) (2.5 mL 0.02% solution) nebulized***. Mix unit dose of each medication in a nebulizer.	**[EMT]**
[EMT]	**If signs and symptoms continue or worsen**: administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% solution)***, ***unit dose .***	**[EMT]**
I	Administer ***Solu-Medrol (Methylprednisolone Succinate) 125 mg slow IV.***	**I**
[EMT]	Consider CPAP.	**[EMT]**
I	Administer ***Epinephrine 1:1,000 0.3 mg IM (0.3 mL).***	**I**
[I]	Consider ***Epinephrine 1:10,000 0.1 mg IV/IO (1mL)*** only if the above dose of ***Epinephrine*** is not administered.	**[I]**
[I]	Administer ***Magnesium Sulfate 2 g IV/IO.*** If premixed, give ***2 g IV/IO*** over 20 minutes. If not premixed, mix ***2 g in 100 mL 0.9% Normal Saline IV*** over 20 minutes.	**[I]**
	Stridor	
EMT	Administer ***3 cc Inhalation Saline*** (not to be confused with ***Normal Saline***) or ***Sterile Water*** in a nebulizer every 5 minutes.	**EMT**
I	If no improvement, administer ***3 cc of Epinephrine 1:1,000*** in nebulizer **Use caution with Epinephrine if**: over the age of 40, blood pressure greater than 150 mmHg systolic, history of cardiac disease, tachydysrhythmia.	**I**
I	Administer ***Solu-Medrol (Methylprednisolone Succinate) 125 mg slow IV.***	**I**

Respiratory Distress/Asthma/COPD/ Croup/Reactive Airway

Medical

	Pulmonary Edema	
EMT	Consider CPAP.	**EMT**
I	Administer ***Nitrostat (Nitroglycerin) 0.4 mg SL*** every 5 minutes if BP greater than 100 mmHg systolic; may repeat up to maximum dose of three.	**I**
[I]	Administer ***Lasix (Furosemide) 40 mg IV/IO.***	**[I]**
EMT	Obtain 12-Lead ECG, Right-sided ECG, or 15-Lead ECG.	**EMT**
[I]	Consider ***Morphine Sulfate 2 mg IV/IO*** if BP greater than 100 mmHg systolic.	**[I]**
	Hyperventilation Syndrome	
EMT	Coach patient to control breathing and utilize techniques to calm the patient.	**EMT**

PEARLS

- Consider past and present medical history and physical exam.
- Symptoms of Status asthmaticus include:
  - Respiratory rate greater than 30 per minute.
  - Retraction of the neck muscles on inhalation.
  - Restlessness, fainting, agitation.
  - Silent chest.
- Treat all patients with respiratory distress as priority patients.
- Consider cardiac wheezing
- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe***: ***1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline;*** this creates the same as an ***Epinephrine 1:10,000 preloaded syringe.***
- Use caution when using CPAP for asthma patients.

Seizure

Medical

CRITERIA

Patient who is observed or suspected to have experienced a full body seizure

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Provide spinal immobilization as indicated by traumatic injury.	**EMR**
EMR	Remove objects or furniture to protect patient from striking objects in the immediate area, but **DO NOT** restrain.	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	**If patient is hypoglycemic (glucose level less than 60 mg/dL),** *see Medical – Altered Mental Status Protocol*	
	**If patient is suspected narcotic overdose,** *seeMedical – Overdose/ Poisoning/Toxic Ingestion protocol*.	
	**If the patient is pregnant,** *see OB/GYN – Eclampsia protocol.*	
I	If actively seizing, administer: ***Lorazepam (Ativan) 2 mg IV/IM/IO;*** repeat dose in 5 minutes if seizure activity continues ***up to a total dose of 4 mg*** or ***Midazolam (Versed) 2 mg IN*** followed by ***1 mg every 2 minutes*** until seizure activity stops ***up to a total dose of 5 mg*** **(**may be administered if no IV access has been obtained or is delayed).	**I**

PEARLS

Immediate transport is indicated in the following instances:

- The patient has inadequate airway, breathing, or circulation.
- The seizure is the result of an overdose, drowning, pregnancy, or trauma.
- The patient cannot be aroused following seizure or does not show progressive improvement.

DO NOT place objects in patient's mouth or attempt to pry jaws open; **DO NOT** place fingers in patient's mouth.

- Obtain vital signs frequently when administering anticonvulsants.
- Look for Vagus Nerve Stimulator implant on patient's chest wall.
- When selecting a medication for treatment of the seizure, the provider may select the medication option of their choice based on delivery route available and assessment findings.
- IN medication may be given and then an IV may be considered for potential subsequent seizure activity; ensure maximum doses of medication are not exceeded regardless of the methods of delivery used.

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Sepsis

Medical

CRITERIA

18 years and older and not pregnant.
At least TWO systemic inflammatory response syndrome (SIRS) criteria:

- Temperature greater than 38º C (100.4ºF) or less than 36ºC (96.8ºF)
- Pulse greater than 90 beats/min
- Respiratory rate greater than 20 breaths/min or mechanically ventilated
- Suspected or documented infection
- Hypoperfusion as manifested by one of the following:
    - Systolic blood pressure less than 90 mm Hg
    - Mean arterial pressure less than 65 mm Hg
    - Lactate level greater than 4 mmol/L (if available) or $EtCO_2 \leq 25$ mmHg

PROTOCOL

EMR	Follow *General-Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Reassess patient regularly and record vital signs, breath sounds, pulse oximetry, glucose, and capnography.	**EMT**
A	Establish two large-bore lines IV/IO. Administer a fluid bolus ***0.9% Normal Saline 20 mL/kg IV/IO***. Reassess blood pressure and breath sounds after each bolus.	**A**
MC	If patient remains hypotensive, contact medical control for additional fluid boluses or vasopressors.	**MC**
EMT	Consider early notification of receiving facility for potential septic patients.	**EMT**

PEARLS

Septic patients are at risk for developing flash pulmonary edema and acute respiratory distress. Monitor closely for fluid overload.

Sepsis is a component of a larger syndrome. The goal is to identify a septic patient as early as possible in the progression:

SIRS → Sepsis → Severe Sepsis → Septic Shock

The goal of an effective sepsis protocol is not only initial management of the septic patient, but activation of appropriate downstream resources and definitive care.

Early notification in the septic patient is tied to lower mortality and improved outcomes.

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Stroke/TIA

Medical

CRITERIA

- Patient with altered mental status, abnormal speech, or altered mobility.
- Patient with history of Stroke/ CVA (Cerebrovascular Accident)

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Assess stroke probability using RACE stroke scale.	**EMR**
EMR	Record time the patient was last seen normal and family contact information	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	If patient is hypoglycemic (blood glucose level less than 60mg/dL), go to *Altered Mental Status* protocol.	
EMT	If symptoms are <6 hours old and the patient has a RACE scale of 5 or greater, transport to a Comprehensive Stroke Center if it does not extend the total transport time by more than 15 minutes. Transport all other stroke patients to a Primary Stroke Center.	**EMT**
MC	If symptoms are between 6 – 12 hours, consult online Medical Control for destination determination and mode of transport.	**MC**

PEARLS

Stroke management warrants expeditious transport.
IV access: Only utilize the right antecubital site if 18g can be established.
 See also: Stroke Field Triage Administrative Policy.

Medical

Rapid Arterial oCclusion Evaluation

The RACE Stroke Evalution Tool is a reliable predictor of *possible* Large Vessel Occlusions (LVO) that may benefit from direct transport to a Comprehensive Stroke Center.

Evaluation Items	Possible Race Scores	RACE Subscores	DIRECTIONS
Facial Palsy • None Present • Mild Facial Droop • Moderate to Severe Facial Droop	Facial Palsy Scores (0-2) 0 1 2		*Examine patient for facial symmetry. Ask patient to smile.*
Arm Motor Function • Normal-Mild Weakness • Moderate -Weakness/Arm Drift • Severe- Extreme weakness or paralysis	Arm Motor Function (0-2) 0 1 2		*Examine patient for motor function of arms, have patient hold arms out, palm up for 10 seconds and observe.*
Leg Motor Function • Normal-Mild Weakness • Moderate - Weakness/Disability/Leg Drift • Severe- Extreme weakness or Paralysis	Leg Motor Function (0-2) 0 1 2		*Examine motor function of legs by asking them to lift and hold legs up off the bed for 5 seconds and observe.*
Head/Gaze Deviation • Absent • Present	Head/Gaze Deviation (0-1) 0 1		*Examine head and eye movements and observe for deviation to one side.*
Aphasia w/Right Side Hemiparesis* (see directions) • Performs both tasks correctly • Performs **one (1)** task correctly • Performs **neither** task correctly	Aphasia w/Right Hemiparesis (0-2) 0 1 2		*Ask patient to perform the following tasks:* *1. "Close your eyes."* *2. "Make a fist."*
Agnosia w/Left Side Hemiparesis**(see directions) • Patient recognizes his/her arm and the impairment • Patient **does not** recognize the impairment • Patient **does not** recognize arm **or** impairment	Agnosia w/Left Hemiparesis (0-2) 0 1 2		*Show patient their paretic (affected arm) and ask:* *1. "Do you know whose arm this is?"* *2. "Can you lift both arms and clap hands."* *Evaluate whether patient recognizes arm and/or impairment*
Time patient last seen normal:			
Patient family contact information:			
			Add up Subscores to obtain a total RACE Score.

If time from stroke onset is **<6 hours *and*** the total RACE score is ***5 or greater***, consider transport to a **Comprehensive Stroke Center** unless it will delay total transport time by **more than 15 minutes**. If stroke **onset is 6–12 hours** with a positive RACE score, contact Medical Control to obtain transport destination, bearing in mind that some strokes can be successfully treated even after 12 hours. RACE scores of ***4 or less*** should be transported to the closest Primary Stroke Center.

Supraventricular Tachycardia (including Atrial Fibrillation)

Medical

CRITERIA

- Heart rate greater than 150 beats per minute
- Narrow QRS complex
- A patient with chest pain, shortness of breath, altered mental status, pulmonary edema, or signs and symptoms of shock may be considered unstable. The patient should be evaluated as a whole and not just by the presence of one of the above symptoms. **If a stable patient becomes unstable during the course of treatment, move immediately to the unstable Narrow-Complex Tachycardia protocol (below)**

PROTOCOL

	Stable Narrow Complex Tachycardia	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider 12-Lead ECG, right-sided ECG and 15-lead ECG.	**EMT**
I	Vagal maneuvers.	**I**
I	**Suspected PSVT:** Administer ***Adenosine (Adenocard) 6 mg rapid IV***, followed by a rapid ***0.9% Normal Saline 20 mL flush***. Consider antecubital IV and elevate the arm.	**I**
I	If no conversion within 2 minutes, administer ***Adenosine (Adenocard) 12mg rapid IV*** followed by a rapid ***0.9% Normal Saline 20 mL flush***. Elevate the arm.	**I**
MC	If no conversion within 2 minutes ***and patient remains stable.***	**MC**
	Unstable Narrow Complex	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
I	For mild sedation, if time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***.	**I**
I	Synchronized cardioversion according to the manufacturer's recommendation.	**I**

PEARLS

- **If patient is successfully cardioverted but Narrow-Complex Tachycardia recurs, repeat cardioversion at last successful joule setting. If biphasic technology available, cardiovert per manufacturer's recommendation**
- Identify and treat potentially reversible causes:
  - Hypoxia
  - Hyperkalemia or hypokalemia
  - Hypothermia
  - Hypovolemia
  - Hydrogen ion (acidosis)
  - Tablets (drug overdose)
  - Tension pneumothorax
  - Tamponade (cardiac)
  - Thrombosis (cardiac, pulmonary)
  - Toxins
  - Trauma

Supraventricular Tachycardia (including Atrial Fibrillation)

Medical

- **Consider American Heart Association recommendations for synchronized cardioversion recommendations based on manufacturer's guidelines**

Synchronized Cardioversion Initial Recommended Doses	
Narrow regular complex	***50-100J***
Narrow irregular complex	***120 J biphasic or 200 J monophasic***
Wide regular complex	***100J***
Wide irregular complex	***Defibrillation dose (NOT synchronized)***

- **DO NOT** place combo pads or electrodes directly on top of an Automated Internal Cardiac Defibrillator (AICD), implanted pacemaker or medication patch.

Ventricular Tachycardia with Pulse

Medical

CRITERIA

- Patient with sustained VT with a pulse
- A patient with chest pain, shortness of breath, altered mental status, pulmonary edema, or signs and symptoms of shock should be considered unstable. Evaluate the patient as a whole and not just by the presence of ventricular tachycardia and a pulse. **If a stable patient becomes unstable during the course of treatment, move immediately to the unstable VT protocol (below)**.

PROTOCOL

	Stable Wide Complex Tachycardia with a Pulse	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Obtain 12-lead ECG, right-sided ECG or 15-lead ECG.	**EMT**
I	**If monomorphic,** administer ***Adenosine (Adenocard) 6 mg rapid IV***, followed by a rapid ***0.9% Normal Saline 20 mL flush.***	**I**
I	If no conversion within 2 minutes, administer ***Adenosine (Adenocard) 12 mg rapid IV*** followed by a rapid ***0.9% Normal Saline 20 mL flush.***	**I**
I	If no conversion, administer ***Amiodarone (Cordarone) 150 mg IV*** diluted in ***0.9% Normal Saline 100 mL over 10 minutes*** (15 mg per minute).	**I**
MC	If no conversion within 2 minutes ***and patient remains stable.***	**MC**
	Unstable Wide Complex Tachycardia with a Pulse	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Obtain 12-lead ECG, right-sided ECG or 15-lead ECG.	**EMT**
I	For mild sedation, if time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***.	**I**
I	Wide regular: synchronized cardioversion ***100 joules;*** provide subsequent escalating **synchronized** cardioversion doses as needed and based on your monitor/defibrillator manufacturer recommendations (joule settings vary by specific device), until the maximum cardioversion amounts have been attempted **BEFORE** proceeding to the medication drip. Wide irregular: **DO NOT** use synchronized cardioversion, defibrillate per manufacturer guidelines.	**I**
I	If VT does not convert after reaching maximum synchronized cardioversion doses, administer ***Amiodarone (Cordarone) 150 mg IV/IO*** diluted in ***0.9% Saline 100 mL over 10 minutes*** (15 mg per minute). If VT is regular and monomorphic, consider ***Adenosine 6mg rapid IV/IO push followed by a rapid 0.9% Normal Saline 20 mL flush.***	**I**
I	Synchronized cardioversion at highest energy setting. If cardioversion is still unsuccessful, monitor patient status	**I**
I	If VT initially responds to cardioversion but recurs, administer ***Amiodarone (Cordarone) 150 mg*** diluted in ***0.9% Normal Saline 100 mL over 10 minutes.*** Perform synchronized cardioversion again at the previously successful energy level and escalate joule dosage if necessary.	**I**

Ventricular Tachycardia with Pulse

Medical

PEARLS

- **DO NOT** delay immediate cardioversion for acquisition of the ECG and/or administration of medications in the unstable patient.
- During synchronized cardioversion, select the energy dose recommended for the specific cardiac rhythm.
- Anterior/Posterior pad placement for synchronized cardioversion may be beneficial, as it maximizes the current flow through the atria.
- If additional doses of synchronized cardioversion are necessary, escalate joules dosage based your cardiac monitor/defibrillator manufacturer's guidelines; these will differ from brand to brand.
- Reset the **"sync" mode** after each synchronized cardioversion attempt if more attempts at synchronized cardioversion are needed; most devices default back to an unsynchronized mode.

Synchronized Cardioversion Initial Recommended Doses	
Narrow regular complex	***50-100J***
Narrow irregular complex	***120 J biphasic or 200 J monophasic***
Wide regular complex	***100J***
Wide irregular complex	***Defibrillation dose (NOT synchronized)***

Childbirth/Labor/Delivery

OB/GYN

UNCOMPLICATED DELIVERY

CRITERIA

Patients for whom delivery is imminent and transport ***might*** be interrupted to assist in delivery.

PROTOCOL

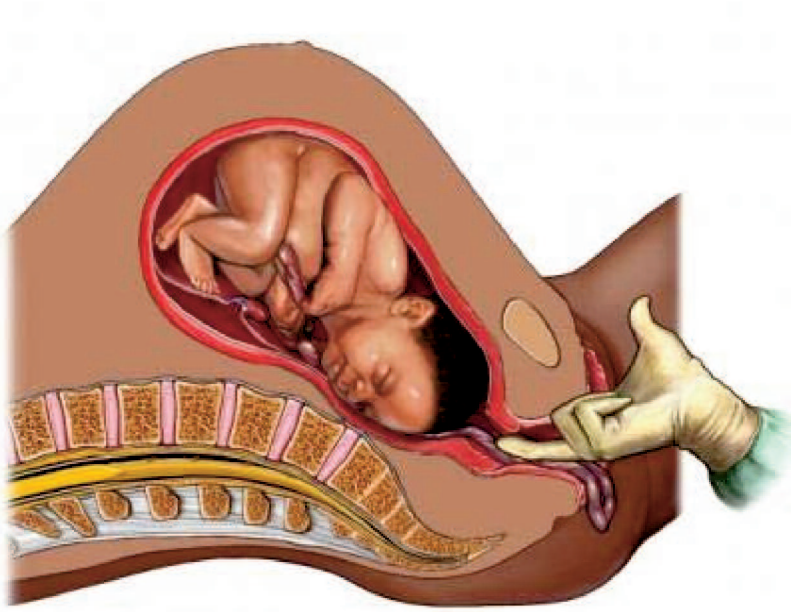
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Remove all clothing below the waist. Visualize perineum.	**EMR**
EMR	If the patient experiences the urge to push or have a bowel movement, prepare to deliver.	**EMR**
EMR	Assist with delivery.	**EMR**
EMR	When the delivery is complete: • Position the mother in shock position. • Dry the newborn vigorously. • Place newborn on mother's chest for skin-to-skin contact while cord is still attached. • Watch for the cord to stop pulsating or to lose its color. This should take approximately 3 – 5 minutes. • After cord has stopped pulsating and has become white, place first clamp 6 inches from the newborn and the second clamp 8 inches from the newborn. Cut between the clamps. The cord on the newborn should be 6 – 8 inches long. • Keep newborn on mother's chest with skin to skin contact to maintain body temperature. • Apply newborn identification band (marked with infant's initials and sex) to ankle or wrist of infant and a second band to mother's wrist. If initials are not known, use "Last Name, Baby Girl/Boy."	**EMR**
P	**Routine suctioning is no longer recommended: ONLY** perform tracheal suctioning with thick meconium present or when the airway is obstructed. Monitor heart rate. Consider blow-by oxygen while suctioning.	**P**
EMT	Obtain APGAR score at one and five minutes following birth.	**EMT**
EMT	Monitor newborns for heart rate, respirations, and oxygen saturation. Place pulse oximetry probe on right wrist or right palm.	**EMT**
EMR	Apply direct pressure to any visible sites of perineal bleeding.	**EMR**
EMR	Assist with the delivery of the placenta and begin fundal massage; preserve placenta for transfer to receiving facility. DO NOT delay transport for placenta to deliver.	**EMR**
	Cord Prolapse	
EMT	Keep cord moist with saline soaked gauze.	**EMT**
EMT	Attempt to relieve pressure on cord and maintain a pulse by gently lifting the presenting part off of the cord.	**EMT**
EMT	Transport immediately.	**EMT**

Childbirth/Labor/Delivery

OB/GYN

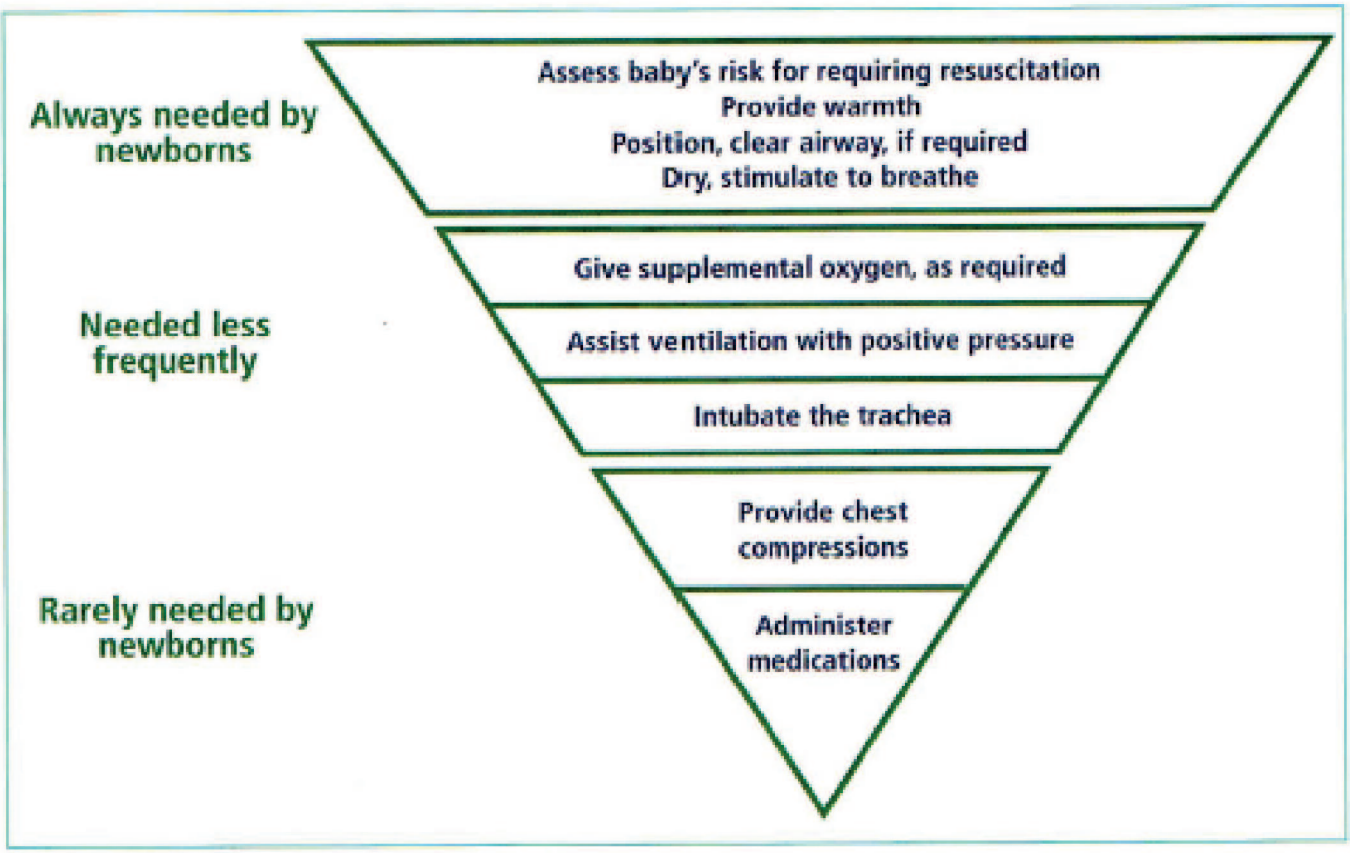
PEARLS

- Rupture of membranes prior to 37 weeks gestation is considered premature. Place a pillow under the mother's hips to help prevent delivery. These patients are at increased risk for prolapsed cord.
- If at any time during delivery mother's BP decreases to less than 90 mmHg systolic, place her in left lateral recumbent position and recheck BP.
- If complications arise, transport immediately and contact Medical Control. The patient might be diverted to a specialized obstetrical facility.
- If delivery is not imminent, transport patient in left lateral recumbent position to avoid supine hypotensive syndrome.
- A newborn in distress is a critical patient: consider calling for an additional unit to transport the mother and/or additional resources.
- If able to feel the umbilical cord, palpate the cord for a pulse and count the fetal heart rate.
- It is normal for a newborn to have an oxygen saturation of 60-70% in the first minute of life; the oxygen saturation at five minutes is 80-85%; at ten minutes oxygen saturation is 85-95%.
- If more than one unit is required to transport the mother and infant safely and there are no complications, efforts should be made to ensure the mother and infant leave the scene and arrive at the hospital at the same time.



Relieving Cord Pressure

OB/GYN



APGAR Scale

	0	1	2
Appearance	Blue, Pale	Pink Body, Peripheral Cyanosis	Pink all over
Pulse	Absent	Less than 100	Greater than 100
Grimace	No Response	Grimace	Cries Vigorously
Activity	Limp	Some Flexion	Active Flexion
Respiratory	Absent	Slow, Irregular	Cries Actively

Endotracheal Tube Size Guidelines

Gestation	Tube Size
Less than 28 weeks	2.5
29 - 34 weeks	3.0
35 – 38 weeks	3.5
Greater than 39 weeks	4.0

Childbirth/Labor/Delivery

OB/GYN

PRETERM LABOR

CRITERIA

Regular and rhythmic contractions of the uterus between the 20th and 36th week of gestation.

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Support life threatening problems associated with airway, breathing and circulation.	**EMR**
EMR	Administer oxygen as needed per patient assessment.	**EMR**
EMR	Monitor frequency, intensity and duration of contractions.	**EMR**
EMR	Place patient in left lateral recumbent position and transport immediately.	**EMR**
A	Establish IV access and ***administer 20 mL/kg 0.9% Normal Saline bolus up to a total of 1,000 mL***; continuously reassess need for further fluid administration.	**A**
EMR	Prepare for delivery.	**EMR**

PEARLS

Any premature infant that is born at a gestational age of 25 weeks or greater should be resuscitated.

BREECH DELIVERY

CRITERIA

Patients for whom delivery is imminent and breech presentation is present.

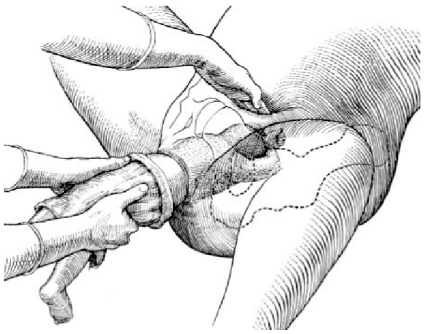
EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Remove all clothing below the waist. Visualize perineum.	**EMR**
EMR	If possible, allow the infant to deliver until the buttocks appear.	**EMR**
EMT	When providing traction, grasp the baby so that your thumbs are over the baby's hips. Avoid pulling on the legs or applying pressure to the soft lower back.	**EMT**
EMT	Rotate the torso so that the baby is face down in the birth canal.	**EMT**
EMT	If possible, extract 4 – 6 inches of umbilical cord to allow slack.	**EMT**
EMT	Apply gentle downward traction until the hairline is visible.	**EMT**
EMT	Place one hand under the baby's trunk so that the body rests on the palm, and the index and middle fingers of that same hand enter the vaginal opening to support the mouth and chin and create an airway for the infant.	**EMT**
EMT	Place the other hand on the infant's back and shoulders with the middle and index finger of that hand resting on the infant's shoulders, supporting the posterior neck.	**EMT**
EMT	A towel can be wrapped around the infant's lower body to provide a better grip if needed.	**EMT**
EMT	Have your partner apply suprapubic pressure to keep the fetal head flexed, expedite delivery, and reduce the risk of spinal injury.	**EMT**

OB/GYN

EMT	Continue light downward traction until the shoulder blades or armpits appear.	**EMT**
EMT	If resistance is felt, arms may need to be freed prior to continuing. Apply gentle outward traction on the baby while rotating the baby clockwise and then counterclockwise a few degrees to free the arms.	**EMT**
EMT	If the arms are trapped in the birth canal, you may need to reach up into the vaginal canal alongside the baby and sweep them one at a time across the chest and out of the vagina.	**EMT**
EMT	After the shoulders have delivered, rotate the baby so the back is anterior.	**EMT**
EMT	Place one hand under the trunk so that the infant's body rests on the palm and the index and middle fingers of the same hand are resting on the infant's shoulders, supporting the posterior neck.	**EMT**
EMT	Slowly bring the body upward while a second person applies suprapubic pressure to facilitate delivery of the head.	**EMT**
EMT	Slowly allow the chin, face and brow to be delivered. Try to facilitate a slow, controlled delivery of the head.	**EMT**
EMT	Perform post-birth procedures and obtain APGAR score at 1 and 5 minutes following birth.	**EMT**
EMT	If unable to deliver the head, place gloved index and middle fingers in the vagina with the palm toward the infant's face to maintain airway and push the infant up to relieve pressure on the cord.	**EMT**
EMR	Transport immediately.	**EMR**

PEARLS

- A newborn in distress is a critical patient: consider calling for an additional unit to transport the mother and/or additional resources.
- Do not apply pressure to the fundus.
- If able to feel the umbilical cord, palpate the cord for a pulse and count the fetal heart rate.
- It is normal for a newborn to have an oxygen saturation of 60 – 70% in the first minute of life. Oxygen saturation at five minutes is 80 – 85% and at ten minutes is at 85 – 95%.
- Consider safe transport options.



OB/GYN

SHOULDER DYSTOCIA

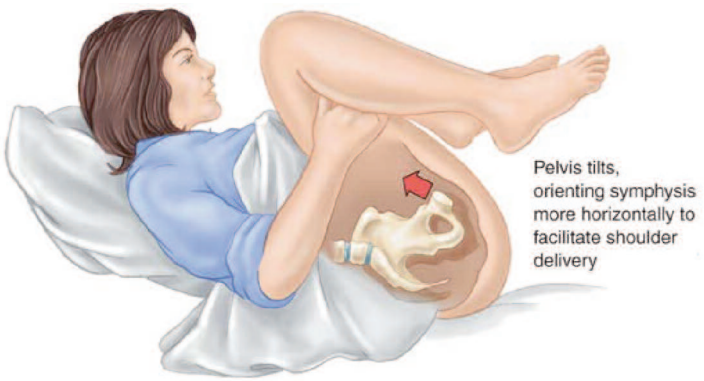
CRITERIA

Impaction of the fetal shoulders within the maternal pelvis.

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Remove all clothing below the waist. Visualize perineum.	**EMR**
EMT	Assess for presence of nuchal cord. If present, remove by slipping over the neck or by cutting and clamping.	**EMT**
EMT	Keep patient's knees pushed back to her chest/abdomen.	**EMT**
EMT	Do not apply excessive downward traction on the head. Initially apply gentle downward traction on the chest and back to try to free the shoulder. If this has no effect, do not exert increasing pressure.	**EMT**
EMT	• Place mother in McRobert's position with knees pulled back to her chest and apply gentle downward traction on the baby again. • If this fails, have an assistant apply downward, suprapubic pressure to drive the fetal shoulder downward and clear the pubic bone. Apply coordinated, gentle downward traction on the baby. Ensure that no pressure is applied to the top of the abdomen. • If pressure straight down is not effective, have an assistant apply it in a more lateral direction and rotate the baby in a corkscrew maneuver which will push the shoulder into a better position.	**EMT**
EMT	If newborn still does not progress, push the head back into the vaginal opening and keep gentle pressure applied. Transport immediately to the closest appropriate facility.	**EMT**

PEARLS

Do not apply pressure to the top of the abdomen.



McRobert's Position

Eclampsia

OB/GYN

CRITERIA

- **Pre-eclampsia** is characterized by any gravid female who presents with:
  - Facial and/or peripheral edema and blood pressure greater than 140/90 mmHg
  - Headache
  - Abdominal pain
  - Visual disturbance
- **Eclampsia** is characterized by ***seizures***

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	EMR
	Pre-Eclampsia	
[I]	Administer ***Magnesium Sulfate 4 g IV/IO.*** If premixed, give ***4 g IV/IO*** over 20 minutes. If not premixed, mix ***4 g in 100mL 0.9% Normal Saline IV*** over 20 minutes.	**[I]**
	Eclampsia	
I	Administer ***Magnesium Sulfate 4 g IV/IO. If premixed, give 4 g IV/IO*** given at a rate of 1g per minute or until seizure stops***. If not premixed, mix 4 g in 100mL 0.9% Normal Saline IV/IO*** given at a rate of 1g per minute or until seizure stops.	**I**
I	If seizure activity continues administer • ***Lorazepam (Ativan) 2 mg IV/IM*** and repeat dose in 5 minutes if seizure activity continues up to a **maximum total dose of 4 mg** ***or*** • ***Midazolam (Versed) 2 mg IN*** followed by 1 mg every 2 min until seizure activity stops up to a **maximum total dose of 5 mg**	**I**
EMT	Maintain a calm, darkened, quiet environment for the patient and transport in the left lateral recumbent position with head elevated	**EMT**

PEARLS

- Eclampsia can occur up to 8 weeks post-partum
- For the patient who presents with pre-eclampsia and deteriorates to eclampsia, <u>*total*</u> dose is ***4 g Magnesium Sulfate***
- Provide early notification to the hospital

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Pregnancy Related Emergencies

OB/GYN

UTERINE RUPTURE

CRITERIA

Uterine Rupture - Severe vaginal bleeding in the second half of pregnancy.

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Support life threatening problems associated with airway, breathing and circulation.	**EMR**
EMR	Administer oxygen as needed per patient assessment.	**EMR**
EMR	Place patient in left lateral recumbent position and transport immediately.	**EMR**
A	Establish IV access and ***administer 20 mL/kg 0.9% Normal Saline bolus up to 1,000 mL***; continuously reassessing need for further fluid administration.	**A**

PEARLS

Should be suspected in the pregnant trauma patient who has lost the palpable uterine contour, has easily palpated fetal parts, and who has severe abdominal pain.

ABRUPTIO PLACENTA

CRITERIA

Premature separation of the placenta from the uterine wall after the 20th week of gestation and prior to birth.

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMR	Support life threatening problems associated with airway, breathing and circulation.	**EMR**
EMR	Administer oxygen as needed per patient assessment.	**EMR**
EMR	If patient exhibits signs of shock, *see Medical – Hypotension/Shock (Non-trauma).*	**EMR**
EMR	Place patient in left lateral recumbent position and transport immediately.	**EMR**
A	Establish IV access and ***administer 20 mL/kg 0.9% Normal Saline bolus up to a total of 1,000 mL***; continuously reassess need for further fluid administration.	**A**

PEARLS

Patients younger than 20 and greater than 35 years of age are at greater risk for placental abruption.

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Pediatric Table of Contents

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Allergic Reaction/Anaphylaxis

Medical (Pediatric)

CRITERIA

- An observed or suspected allergic reaction to foods, venom, chemicals, environmental agents, or medications manifested as:
  - Acute allergic reaction with urticaria and itching
  - Anaphylaxis with upper-airway compromise, respiratory insufficiency, and/or hypotension

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMT	Remove stinger if present. Do not squeeze stinger; scrape it away with a flat surface.	**EMT**
	Acute Allergic Reaction	
I	Administer ***Diphenhydramine (Benadryl) 1mg/kg IM or slow IV/IO up to 25 mg.***	**I**
[A]	Wheezing present: administer ***unit dose Albuterol Sulfate (Proventil) (3 mL of 0.083% solution) nebulized.***	**[A]**
[I]	Administer ***Methylprednisolone Succinate (Solu-Medrol) 2 mg/kg slow IV/IO*** up to **125mg.**	**[I]**
	Anaphylaxis	
EMT	Administer the ***Epinephrine auto-injector*** from Yellow Epi Auto-injector box or use the patient's own ***Epinephrine auto-injector***	**EMT**
I	or Administer ***Epinephrine 1:1,000 0.01mg/kg IM up to a maximum of 0.3 mg.***	**I**
A	If the patient is hypotensive**,** administer a ***20 mL/kg fluid bolus 0.9% Normal Saline***, then reassess.	**A**
I	**When a patient is hemodynamically unstable, in profound shock, or in case of impending cardiopulmonary arrest, move immediately to:** ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg) up to a maximum of 0.3 mg.***	**I**
[A]	Administer ***Diphenhydramine (Benadryl) 1 mg/kg IM or slow IV/IO up to 25 mg.***	**[A]**
[A]	Wheezing present: administer ***nebulized unit dose Albuterol Sulfate (Proventil) (3 mL of 0.083% solution).***	**[A]**
[I]	Administer ***Methylprednisolone Succinate (Solu-Medrol) 2 mg/kg slow IV/IO up to*** **125mg.**	**[I]**

PEARLS

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe***: ***1mg (1mL) of Epinephrine 1:1,000*** with ***9 mL 0.9% Normal Saline***: this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***. ***Maximum dose of 0.3mg***

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Altered Mental Status

Medical (Pediatric)

CRITERIA

Any alteration in level of consciousness

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.*	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	Suspected Narcotic Overdose	
EMT	Administer ***Naloxone (Narcan) 2mg (2 mL) Naloxone with 3 mL inhalation saline in a nebulizer chamber.*** Titrate to effect.	**EMT**
[A]	Administer ***Naloxone (Narcan) 0.1 mg/kg IV/IO, IN* or *IM.***	**[A]**
	Hypoglycemia	
EMT	If consciousness is altered, blood sugar level less than 60 mg/dL in infants and children **and** patient can protect airway, administer ***oral glucose.***	**EMT**
A	**Glucometer reading less than 40 mg/dL**: **Newborn/Neonate:** administer ***D_{10} 5 mL/kg IV/IO push (dilute D_{50} with Normal Saline 1:4 to create D_{10}).***	**A**
A	**Glucometer reading less than 60 mg/dL**: **Patient less than 2 years old**: administer ***D_{25} 2 mL/kg IV/IO push,*** **Patient over 2 years old:** administer ***D_{50} 1 mL/kg IV/IO push.***	**A**
A	Consider ***Glucagon 0.1 mg/kg IN/IM up to a maximum dose of 1 mg*** *if no IV/IO access* ***OR*** *if unable to administer oral glucose.*	**A**
	Hyperglycemia	
A	If Blood Glucose Level greater than 250 mg/dL administer ***0.9% Normal Saline 20 mL/kg fluid bolus.***	**A**
	Suspected Hypovolemia	
[A]	***0.9% Normal Saline 20 mL/kg fluid bolus***, continuously reassessing need for further fluid administration.	**[A]**

PEARLS

- ***Dilute D_{50} with Normal Saline 1:4 to create D_{10}, dilute D_{50} with Normal Saline 1:1 to create D_{25}***
- Glucometer reading of less than 60 mg/dL is indicative of hypoglycemia
- Signs and symptoms of shock are indicative of hypovolemia

Suspected Narcotic Overdose:

Patient exhibits one or more of the following signs:

- Pinpoint pupils
- Bradypnea (respiration less than 12)
- Recent history of drug abuse by parent/caretaker
- Evidence on scene of drug abuse

Altered Mental Status

Medical (Pediatric)

Common causes of altered level of consciousness include but are not limited to:

- **A**. Alcohol
- **E**. Epilepsy (see *Seizure*)
- **I**. Infection
- **O**. Overdose (*see Overdose & Poisons*)
- **U**. Uremia (kidney impairment)
- **T**. Trauma (see *Trauma*)
- **I**. Insulin (hypoglycemia) or increased cranial pressure
- **P**. Psychiatric (*see Behavioral Emergencies*)
- **S**. Shock, stroke (see corresponding protocol)

Asystole

Cardiac Arrest (Pediatric)

CRITERIA

- Patient unresponsive, without pulse or respiration, and with asystole or PEA evident on ECG (check 2 leads)
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g., Decapitation) are excluded
- Determine DNR status

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Follow American Heart Association guidelines for CPR.	**EMR**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**
[A]	**Suspected hypovolemia:** ***0.9% Normal Saline 20 mL/kg fluid bolus***, continuously reassessing need for further fluid administration.	**[A]**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**

PEARLS

The American Heart Association guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the non-shockable cardiac arrest protocol:

- Do not compromise CPR to obtain an advanced airway. Consider Blind Insertion Airway Device (BIAD)
- Once advanced airway is obtained, perform asynchronous CPR.
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity
- Consider reversible causes:
  - Hypoxia
  - Hyperkalemia or hypokalemia
  - Preexisting acidosis
  - Drug overdose
  - Hypothermia
  - Tension Pneumothorax

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS**.**

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****:** ***1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe.***

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Bradycardia

Medical (Pediatric)

CRITERIA

Patient with sustained ventricular rate less than 60 BPM, and one or more of the following signs or symptoms:

- Hypotension
- Signs of shock
- Altered mental status
- Pulmonary Edema
- Chest pain
- Dyspnea

PROTOCOL

	Stable Bradycardia	
EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	***Infant or child less than 8 years***: heart rate less than 60 with signs/symptoms of poor perfusion, perform chest compressions.	**EMR**
I	Monitor cardiac status and place external pacer if available.	**I**
	Unstable Bradycardia	
[I]	Consider pacing.	**[I]**
[A]	If no response to previous treatments, consider: • **Suspected hypovolemia –*0.9% Normal Saline 20 mL/kg fluid bolus*,** continuously reassessing need for further fluid administration.	**[A]**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**
[I]	Administer ***Atropine Sulfate 0.02 mg/kg IV/IO*** **to a maximum of *0.5 mg single dose*** which may be repeated once in 5 minutes • **Minimum** dose ***0.1 mg*** • Child (1-12 years of age)**maximum** total ***1 mg*** • Adolescent (greater than 12 years of age) **maximum** total ***3 mg***	**[I]**
MC	Contact Medical Control if bradycardia is refractory to all other treatments.	**MC**

PEARLS

- If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe***: ***1 mg (1 mL) of Epinephrine 1:1,000 with 0.9% Normal Saline 9 mL***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***.
- *Atropine Sulfate* is contraindicated in neonates and infants.
- In pediatrics who are still breastfeeding, consider the mother's medical history. Consider the possibility of toxic exposure or accidental overdose (e.g. medications *see Overdose and Poisons protocol*).

Pediatric Age Guidelines Chart	
Newborn	Up to 24 hours following birth
Neonates	Up to 28 days following birth
Depending upon the protocol, specific age guidelines may vary including but not limited to: Burns, Altered Level of Consciousness and Trauma	

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Burns – Thermal

Injury

CRITERIA

Any child 13 or younger exhibiting signs or symptoms of a thermal burn

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*	**EMR**
EMR	Safely remove patient from source of burn and treat accordingly	**EMR**
EMR	Consider high-flow oxygen by non-rebreather or BVM for extensive burns.	**EMR**
EMT	Apply high-flow oxygen by non-rebreather or BVM. Consider early advanced airway if any signs or symptoms of airway insult develop: • Singed facial or nasal hairs • Hoarse voice or stridor • Carbonaceous sputum • Burns on face • Difficulty breathing	**EMT**
EMT	Completely expose burned area. Remove all jewelry and constricting items	**EMT**
EMT	Estimate depth of burns and body surface area involved	**EMT**
EMT	Consider direct transport to Level 1 Trauma Center in the following cases: • Partial-thickness burn of greater than 10% BSA • Electrical burns, including lightning injury • Full-thickness burns • Circumferential burns • Chemical burns • Inhalation injuries • Burns to the face, eyes, ears, hands, feet, genitalia, perineum or skin overlying major joints	**EMT**
EMT	Apply clean, dry dressings/sheets to burns. Prevent loss of body heat, keep patient warm.	**EMT**
A	Establish IV/IO access on non-burned extremity if possible: • ***0.9% Normal Saline 20 mL/kg IV/IO* bolus**, continuously reassessing need for further fluid administration for hypovolemia.	**A**
	See *General - Pain Control protocol*	
	See *Administrative Policy - Trauma Field Triage*	

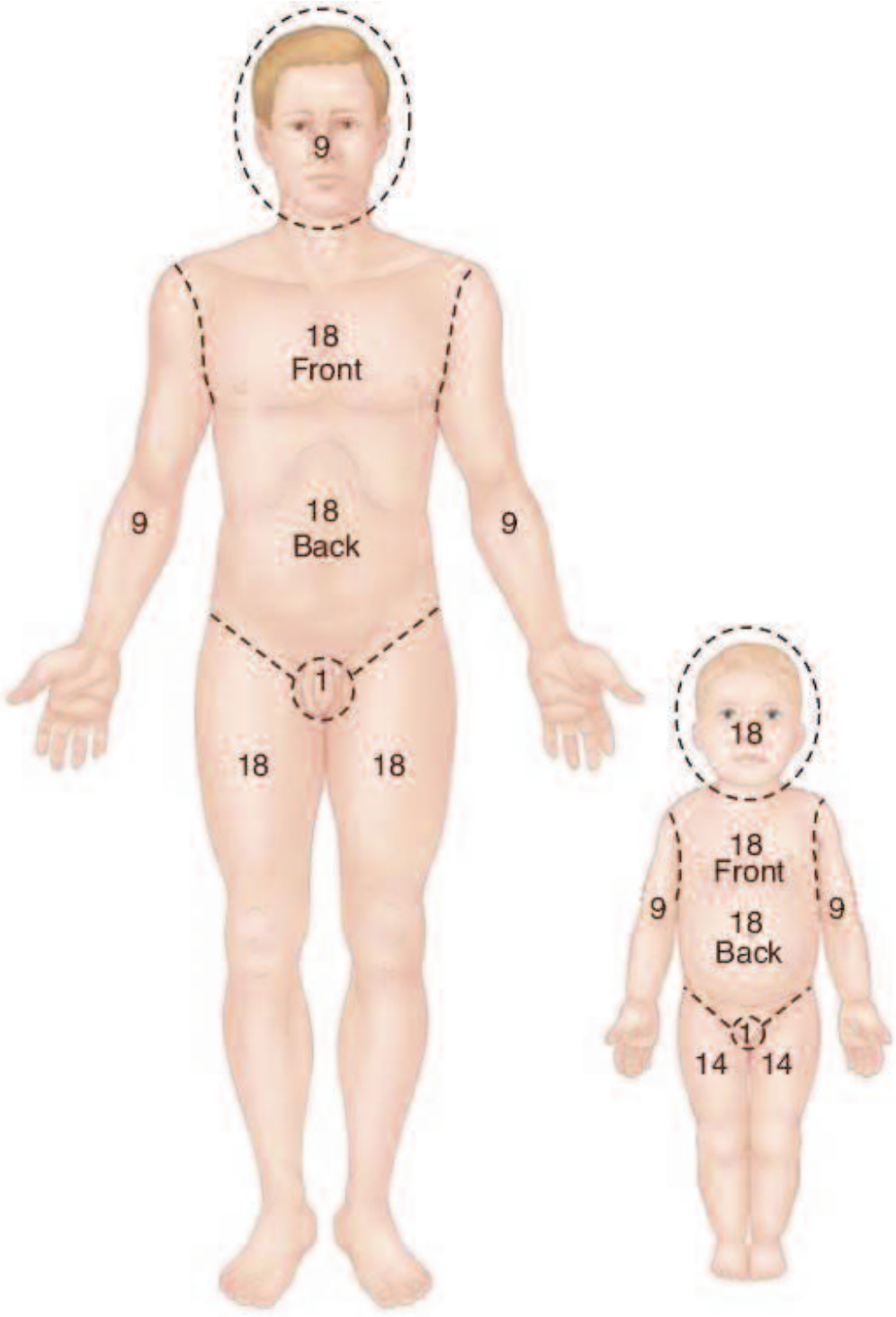
PEARLS

DO NOT delay transport for non-lifesaving interventions (e.g. IV)

Cooling water or saline is necessary only if the burned skin or debris is hot to the touch.

Injury

Rule of Nines Reference Chart



Diving Emergencies

Injury (Pediatric)

CRITERIA

- Victims of near-drowning accidents
- History of diving or breathing compressed air
- Symptoms might include:
  - CNS changes
  - Numbness
  - Pain in extremities
  - Joint pain
  - Blurred vision
  - Blood from nose and mouth
  - Seizures

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Use backboard to remove the patient from the water, consider spinal immobilization.	**EMR**
EMR	Remove wet clothing. Keep patient warm and dry.	**EMR**
EMR	Be alert for vomiting: prepare to suction.	**EMR**

PEARLS

- Any near-drowning or water-related injury patient should be transported to a medical facility for follow-up care regardless of current presentation
- Initiate aggressive attempts at resuscitation for the victim of cold-water submersion (less than 70 degrees F)
- Consider HEMS
- Contact Medical Control to consider direct transport to a medical facility with a DAN-certified recompression chamber:
  - Divers Alert Network: *1-919 -684-9111*
  - Sentara Leigh Hyperbaric Medicine: *1-757-261-4325*

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Drowning/Near Drowning

Injury (Pediatric)

CRITERIA

- Victims of near-drowning accidents
- History of diving or breathing compressed air
- Symptoms might include:
  - CNS changes
  - Numbness
  - Pain in extremities
  - Joint pain
  - Blurred vision
  - Blood from nose and mouth
  - Seizures

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Use backboard to remove the patient from the water, consider spinal immobilization	**EMR**
EMR	Remove wet clothing. Keep patient warm and dry	**EMR**
EMR	Be alert for vomiting: prepare to suction	**EMR**

PEARLS

- Any near-drowning or water-related injury patient should be transported to a medical facility for follow-up care regardless of current presentation
- Initiate aggressive attempts at resuscitation for the victim of cold-water submersion (less than 70 degrees F)
- Consider HEMS
- Contact Medical Control to consider direct transport to a medical facility with a DAN-certified recompression chamber:
  - Divers Alert Network: *1-919 -684-9111*
  - Sentara Leigh Hyperbaric Medicine: *1-757-261-4325*

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Electrical Injuries

Injury (Pediatric)

CRITERIA

- Any child less than 15 years of age exhibiting signs or symptoms of electrical contact injury or who may have been struck by lightning

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.*	**EMR**
EMR	Ensure scene safety and that patient is not energized, do not become a second victim. Stop burning process	**EMR**
EMR	With multiple patients, cardiac arrest patients should be treated first	**EMR**
	If patient is in cardiac arrest, *See pediatric Cardiac Arrest – V-Fib/V-Tach or Cardiac Arrest – Asystole Protocols.*	
[A]	**Suspected hypovolemia: *20 mL/kg fluid bolus 0.9% Normal Saline***, continuously reassessing need for further fluid administration	**[A]**

PEARLS

- High voltage and lightning injuries may have internal injuries from blast effect
- Electrical injuries are often associated with falls and seizures
- Note entrance and exit wounds for electrical and lightning injuries**,** look for the appearance of feathering with lightning injuries
- Any patient who has received an electrical injury consider transportation
- Consider transport to a Level I Trauma Center for any electrical burn
- Minimizing scene time is essential

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Overdose/Poisoning/Toxic Ingestions

Medical (Pediatric)

CRITERIA

- Suspect poisoning in any patient exposed to solid, liquid, gas, aerosolized or powdered toxins

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.* Scene safety is paramount.	**EMR**
EMR	Determine the nature of the exposure.	**EMR**
	If suspected CBRNE, *See CBRNE Protocols.*	
EMR	Remove the patient from further contact.	**EMR**
	Ingested Poisons	
EMR	Obtain a history of the incident including type and amount of substance, prior treatment, and time of ingestion.	**EMR**
EMT	***If the patient has ingested acid, base, or petroleum product***, provide high-flow oxygen by non-rebreather mask and transport immediately.	**EMT**
EMT	***If the patient has taken Syrup of Ipecac***, provide support and transport. Be prepared to suction airway (save gastric contents for possible analysis).	**EMT**
EMR	Contact Poison Control 1-800-222-1222 or 804-828-9123.	**EMR**
EMT	Attempt to bring in pill bottles or pill containers. **HAZARDOUS MATERIALS SHOULD NOT** be transported.	**EMT**
	Inhaled/Absorbed/Injected Poisons	
EMR	Contact Poison Control 1-800-222-1222 or 804-828-9123.	**EMR**

PEARLS

Have a high index of suspicion for chemical suicides.

Generic/ Name Brand	Toxin	Notes
Atropine	Organophosphate/Carbamate insecticide poisoning and other cholinesterase inhibitors (eg, warfare agents); bradycardia induced by a variety of toxins	May require large amounts in severe cholinesterase inhibitor poisoning. Also stocked in the Strategic National Stockpile but will need supplies for first 48 hours. Coordinate with local Homeland Security office.
Calcium Chloride injection	Calcium channel blocker poisoning; verapamil O/D; Magnesium Sulfate O/D; hypocalcemia induced by various agents	Can cause tissue necrosis if extravasation occurs – use large vein for infusion.
Glucagon	Beta blocker/ Calcium channel blocker poisoning	Anticipate nausea and vomiting.
Naloxone/ Narcan®	Opioid overdose	Use small initial dose to avoid abrupt awakening/ delirium.

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Pain Control

General (Pediatric)

CRITERIA

Consider the totality of circumstances utilizing patient assessment, pain assessment tools, overall impression, and nature of the call from causes such as, but not limited to:

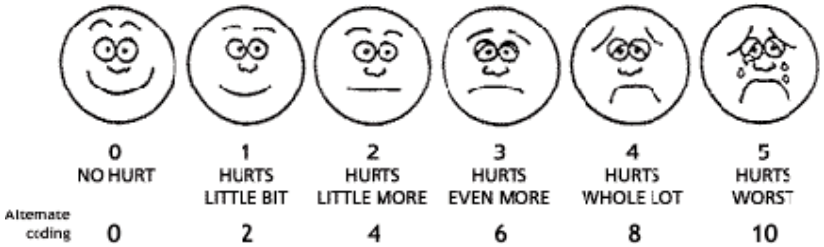
- Sickle-Cell crisis
- Isolated extremity injuries
- Cancer

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Assess/measure baseline pain level using scale below.	**EMR**
EMR	Assess for systolic blood pressure within normal limits.	**EMR**
I	For pediatric patients greater than one year of age and less than 40 kg administer ***Zofran (Ondansetron) 0.15 mg/kg slow IV/IO up to a maximum dose of 4 mg*** as necessary for nausea/vomiting. For pediatric patients greater than one year of age and greater than 40 kg administer ***Zofran (Ondansetron) 4 mg slow IV/IO*** as necessary for nausea/vomiting.	**I**
[I]	***Morphine Sulfate 0.1mg/kg IV/IO/IM*** up to **maximum dose of 5 mg.**	**[I]**

PEARLS

- Consider ***Narcan (Naloxone) 0.1 mg/kg IV/IO, IN or IM*** to a **maximum dose of 2 mg** if respiratory depression occurs.



Wong-Baker Faces Scale

General (Pediatric)

FLACC SCALE (FACE, LEGS, ACTIVITY, CRY, CONSOLABILITY)			
FACE	**0** No particular expression or smile	**1** Occasional grimace or frown, withdrawn, disinterested	**2** Frequent to constant frown, clenched jaw, quivering chin
LEGS	**0** Normal position Or relaxed	**1** Uneasy, Restless, Tense	**2** Kicking, Or Legs drawn up
ACTIVITY	**0** Lying quietly Normal position Moves easily	**1** Squirming Shifting back/forth Tense	**2** Arched Rigid Or Jerking
CRY	**0** No Cry (Awake or Asleep)	**1** Moans or Whimpers Occasional Complaint	**2** Crying Steadily Screams or Sobs Frequent Complaints
CONSOLABILITY	**0** Content Relaxed	**1** Reassured by occasional touching, hugging, or 'talking to.' Distractible	**2** Difficult to console or comfort.

The **FLACC** is a behavior pain assessment scale for use in non-verbal patients unable to provide reports of pain.

Instructions:
1. Rate patient in each of the five measurement categories.
2. Add together.
3. Document total pain score.

Pulseless Electrical Activity

Cardiac Arrest (Pediatric)

CRITERIA

- Patient unresponsive, without pulse or respiration, and with asystole or PEA evident on ECG (check 2 leads)
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g., Decapitation) are excluded
- Determine DNR status

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Follow American Heart Association guidelines for CPR.	**EMR**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**
[A]	**Suspected hypovolemia:** ***0.9% Normal Saline 20 mL/kg fluid bolus***, continuously reassessing need for further fluid administration.	**[A]**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**

PEARLS

The American Heart Association guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the non-shockable cardiac arrest protocol:

- Do not compromise CPR to obtain an advanced airway. Consider Blind Insertion Airway Device (BIAD)
- Once advanced airway is obtained, perform asynchronous CPR.
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity
- Consider reversible causes:
  - Hypoxia
  - Hyperkalemia or hypokalemia
  - Preexisting acidosis
  - Drug overdose
  - Hypothermia
  - Tension Pneumothorax

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS**.**

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****:** ***1 mg (1 mL) of Epinephrine 1:1,000 with 9 mL 0.9% Normal Saline***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe.***

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Respiratory Distress/Asthma/COPD/ Croup/Reactive Airway

Medical (Pediatric)

CRITERIA

- Any child who exhibits the signs or symptoms of respiratory distress such as: abnormal respiratory rate, abnormal respiratory effort, abnormal breath sounds, cyanosis, or use of accessory muscles, including but not limited to:
  - Asthma
  - Bronchiolitis
  - Bronchospasm
  - Croup
  - Epiglottitis
  - Foreign Body Airway Obstruction (FBAO)
  - Pneumothorax
  - Pneumonia

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Allow the patient to assume a position of comfort.	**EMR**
EMT	Obtain and record $EtCO_2$ and pulse oximetry.	**EMT**
	Suspected Foreign Body Airway Obstruction	
EMR	Perform the appropriate BLS foreign body airway obstruction maneuvers.	**EMR**
P	**Unresponsive:** Perform laryngoscopy to remove object.	**P**
	Asthma/Bronchospasm over 2 years of age	
A	**Mild or intermittent:** Administer unit dose nebulized ***Albuterol Sulfate (Proventil) (3 mL of 0.083% solution)/Ipratropium Bromide (Atrovent) (3mL of 0.02% solution).***	**A**
A	**Severe or persistent:** Administer unit dose nebulized ***Albuterol Sulfate (Proventil)(3 mL of 0.083% solution)/Ipratropium Bromide (Atrovent) (3mL of 0.02% solution).*** Repeat unit dose nebulized ***Albuterol Sulfate (Proventil)(3 mL of 0.083% solution), as necessary.***	**A**
I	Consider ***Epinephrine:*** ***Greater than 30 kg: 1:1,000 0.3 mg IM*** ***Less than 30 kg: 1: 1,000 0.01 mg/kg IM***	**I**
[I]	Administer ***Methylprednisolone (Solu-Medrol) 2 mg/kg IV up to 125 mg.***	**[I]**
	Anaphylaxis: *See Medical – Allergic Reaction/Anaphylaxis (Pediatric) Protocol.*	

Respiratory Distress/Asthma/COPD/ Croup/Reactive Airway

Medical (Pediatric)

Status Asthmaticus		
EMT	Follow Asthma protocol (section 1 above).	**EMT**
I	Administer ***Epinephrine:*** ***Greater than 30 kg: 1:1,000 0.3 mg IM*** ***Less than 30 kg: 1:1,000 0.01 mg/kg IM***	**I**
Epiglottitis		
EMT	Do not aggravate the child, do not attempt to visualize the airway – supportive care only.	**EMT**
Bronchiolitis/Croup/Stridor		
EMT	Consider nebulized ***3 mL 0.9%Normal Saline (for inhalation)*** for cold mist therapy; may be repeated as needed during transport.	**EMT**
[A]	In moderate to severe cases, administer ***Epinephrine 1:1000 3 mL*** nebulized followed with nebulized ***0.9% Normal Saline (for inhalation).***	**[A]**
Tension Pneumothorax		
[I]	Needle decompression.	**[I]**
Hyperventilation Syndrome		
EMT	Coach patient to control breathing.	**EMT**

PEARLS

- Consider past and present medical history and physical exam
- Symptoms of Status Asthmaticus include:
  - Respiratory rate greater than 30 per minute
  - Retraction of the neck muscles on inhalation
  - Restlessness, fainting, agitation
  - Silent chest
- Treat all patients with acute respiratory distress as priority patients
- Use caution when using CPAP for asthma patients

Seizure

Medical (Pediatric)

CRITERIA

- Any child observed in an active seizure

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.*	**EMR**
EMT	Obtain blood glucose level.	**EMT**
	If suspected narcotic overdose, see *Medical – Altered Mental Status (Pediatric) Protocol.*	
	If patient is hypoglycemic (glucose level less than 40 mg/dL in newborns & neonates, 60 mg/dL in older pediatrics), see *Medical – Altered Mental Status (Pediatric) Protocol.*	
[I]	If actively seizing, administer: ***Lorazepam (Ativan) 0.1 mg/kg IV, IM*** **up to 1 mg;** repeat dose in 5 minutes if seizure activity continues **up to a total dose of 2 mg** or ***Midazolam (Versed) 0.1 mg/kg IN*** to a **maximum single dose of 2 mg** followed by up to 1 mg every 2 minutes until seizure activity stops **up to a total dose of 5 mg.**	**[I]**

PEARLS

- Immediate transport is indicated in the following instances:
  - The patient has inadequate airway, breathing, or circulation
- **DO NOT** place objects in patient's mouth or attempt to pry jaws open; **DO NOT** place fingers in patient's mouth
- *Lorazepam/Ativan* has a longer duration of seizure control, but *Midazolam/Versed* is faster acting
- When selecting a medication for treatment of the seizure, the provider may select the medication option of their choice based on delivery route available and assessment findings
- IN medication may be given and then an IV may be considered for potential subsequent seizure activity; ensure maximum doses of medication are not exceeded regardless of the method(s) of delivery used

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Supraventricular Tachycardia (including Atrial Fibrillation)

Medical (Pediatric)

CRITERIA

- Ventricular tachycardia (wide QRS complex of greater than 0.09 seconds) is uncommon in children; causes include structural heart defects

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMT	Obtain 12-Lead ECG, Right-sided ECG, or 15-Lead ECG.	**EMT**
EMT	Consider vagal maneuvers if they will not delay further treatment.	**EMT**
I	Administer ***Adenosine (Adenocard) 0.1 mg/kg IV/IO*** to a maximum dose of ***6mg followed immediately by a 0.9% Normal Saline 10 mL flush; elevate the extremity.*** *If no conversion after 2 minutes:* ***Adenosine (Adenocard) 0.2 mg/kg IV/IO*** to a maximum dose of ***12 mg followed immediately by a 0.9% Normal Saline 10 mL flush; elevate the extremity.***	**I**
I	If time allows prior to cardioversion, consider mild sedation: administer ***Lorazepam (Ativan) 0.05 mg/kg IV/IO/IM to a maximum of 1 mg*** ***or*** ***Midazolam (Versed) 0.1 mg/kg IN/IV/IO to a maximum of 2 mg (if using IN do not exceed 1mL per nare).***	**I**
I	***Synchronized cardioversion - 1 J/kg.***	**I**
I	If no conversion, ***synchronized cardioversion - 2 J/kg subsequent dose .***	**I**

PEARLS

If patient is successfully cardioverted but Narrow-Complex Tachycardia recurs, repeat cardioversion at last successful joule setting; if biphasic technology is available, cardiovert per manufacturer's instructions

- **Identify and treat potentially reversible causes:**
  - Hypoxia
  - Hypothermia
  - Hydrogen ion (acidosis)
  - Tension Pneumothorax
  - Thrombosis (cardiac, pulmonary)
  - Trauma
  - Hyperkalemia or hypokalemia
  - Hypovolemia
  - Tablets (drug overdose)
  - Tamponade (cardiac)
  - Toxins
- Evaluate for sinus tachycardia prior to treating an unstable rhythm.

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Trauma

General (Pediatric)

CRITERIA

- Occurs when the body is exposed to more energy than its tissues and organs can tolerate

IMMOBILIZATION RULE-OUT CRITERIA

- Patient is reliable:
  - No altered mental status
  - No evidence of impairment
- Patient has no spinal/shoulder pain or tenderness to palpation and range of motion
- No other distracting injuries
- No transient or current neurological signs or symptoms of numbness, tingling or weakness

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol*.	**EMR**
EMR	Consider spinal immobilization.	**EMR**
EMT	If airway cannot be secured, LOAD AND GO to closest hospital.	**EMT**
I	**Respiratory insufficiency:** Intubate [I only if patient is over 12 years old].	**I**
P	**Obstructed airway:** Consider advanced surgical airway.	**P**
[I]	**Tension pneumothorax:** Needle decompression of affected side.	**[I]**
I	**Traumatic cardiac arrest:** Bilateral needle chest decompression.	**I**
EMT	***If shock or potential for shock is present***: Keep patient warm Control bleeding Retrieve amputated part: • Wrap amputated part in **dry** sterile dressing • Place part in a **dry**, sealed plastic bag • Place plastic bag with the part in an ice water-filled container • Mark container with date, patient name, and name of part	**EMT**
	If the patient meets the trauma triage criteria according to the *Trauma Field Triage* in the policy section, transport immediately (less than 10 minute scene time) to a Level I or Level II Trauma Center.	
A	**Suspected hypovolemia:** ***20 mL/kg 0.9% Normal Saline*** up to 1000 mL bolus, continuously reassessing need for further fluid administration.	**A**
EMT	Manage minor injuries and reassess.	**EMT**

PEARLS

- **DO NOT** delay transport to establish IV lines or wait on ALS
- Any pediatric patient who is cool and tachycardic is in shock until proven otherwise
- Consider IV/IO
- Isolated spinal injuries: handle with utmost care. Rapid transport is NOT indicated

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V-Fib/Pulseless V-Tach

Cardiac Arrest (Pediatric)

CRITERIA

- Patient unresponsive, without pulse, and a shockable rhythm evident on ECG
- Patients with rigor mortis, lividity, decomposition or injuries inconsistent with survival (e.g., decapitation or obvious mortal injury) are excluded
- Determine DNR status

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact Protocol.*	**EMR**
	If ***"NO SHOCK ADVISED"*** refer to *Cardiac Arrest – Asystole Protocol.*	
EMR	If ***"SHOCK ADVISED"***, defibrillate once, resume CPR. Analyze after 5 cycles.	**EMR**
I	If VF or VT present, defibrillate once at ***2 J/kg.*** (AED usage allowed per manufacturers recommendation only.) Resume CPR immediately.	**I**
EMR	Follow American Heart Association guidelines for CPR.	**EMR**
I	Administer ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO.***	**I**
I	After CPR, defibrillate at ***4 J/kg***. Resume CPR immediately.	**I**
I	Administer antidysrhythmic: ***With vascular access***: administer ***Amiodarone HCL* (Cordarone) *5 mg/kg bolus*** (diluted in ***0.9% Normal Saline 10 mL)*** to a maximum single dose of ***300 mg IV/ IO*** ***If Amiodarone unavailable*:** administer ***Lidocaine (*Xylocaine*) 1 mg/kg IV/IO*** Subsequent antidysrhythmic therapy must be consistent with the first antidysrhythmic delivered. i.e.: **DO NOT** give Lidocaine if Amiodarone has already been administered.	**I**
I	After CPR, defibrillate at ***4 J/kg***. Resume CPR immediately.	**I**
I	Repeat ***Epinephrine 1:10,000 0.01 mg/kg (0.1 mL/kg) IV/IO***, CPR and defibrillation.	**I**
[I]	Repeat antidysrhythmic, CPR and defibrillation.	**[I]**
EMR	Consider spinal immobilization.	**EMR**

PEARLS

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe***: ***1 mg (1 mL) of Epinephrine 1:1,000 with 0.9% Normal Saline 9 mL***. This creates the same as an ***Epinephrine 1:10,000 preloaded syringe***.

The American Heart Association guidelines emphasize the importance of effective uninterrupted CPR during cardiac arrest. The following points are applicable in the shockable cardiac arrest protocol:

- Unwitnessed arrest: Provide CPR prior to first defibrillation
- Witnessed arrest: Proceed quickly to first defibrillation
- Do not compromise CPR to obtain an advanced airway. Consider Blind Insertion Airway Device

V-Fib/Pulseless V-Tach

Cardiac Arrest (Pediatric)

- Once advanced airway is obtained, perform asynchronous CPR
- Ensure full chest recoil during CPR
- Obtain IV/IO access at earliest opportunity
- Consider reversible causes:
  - Hypoxia
  - Hyperkalemia or hypokalemia
  - Preexisting acidosis
  - Drug overdose
  - Hypothermia
  - Tension Pneumothorax
- Following IV/IO access:
- Medication should be given without the interruption of CPR
- Each medication delivery is separated by a defibrillation and CPR
- Medication cycle is Epinephrine, Antidysrhythmic, Epinephrine, Antidysrhythmic, Epinephrine, etc.

Ensure high quality CPR and effective compressions for key to survival

ALS care should be obtained as rapidly as possible, but do not delay transport waiting for ALS

ALS providers arriving on scene shall not interrupt defibrillation in progress

Ventricular Tachycardia with Pulse

Medical (Pediatric)

CRITERIA

- Ventricular tachycardia (wide QRS complex of greater than 0.09 seconds) is uncommon in children; causes include structural heart defects

PROTOCOL

I	If it will not delay cardioversion, administer ***Adenosine (Adenocard) 0.1 mg/kg IV/IO*** to a maximum dose of ***6 mg followed immediately by a 0.9% Normal Saline 10 mL flush; elevate the extremity.*** *If no conversion after 2 minutes:* ***Adenosine (Adenocard) 0.2 mg/kg IV/IO*** to a maximum dose of ***12 mg followed immediately by a 0.9% Normal Saline 10 mL flush; elevate the extremity.***	**I**
I	If time allows prior to cardioversion, consider mild sedation: administer ***Lorazepam (Ativan) 0.05 mg/kg IV/IO/IM to a maximum of 1 mg*** ***or*** ***Midazolam (Versed) 0.1 mg/kg IN/IV/IO to a maximum of 2mg (if using IN do not exceed 1mL per nare).***	**I**
I	***Synchronized cardioversion - 1 J/kg initial dose.***	**I**
I	If no conversion, ***synchronized cardioversion - 2 J/kg subsequent dose.***	**I**
[I]	If no conversion: administer ***Amiodarone HCL (Cordarone) 5 mg/kg IV/IO in 0.9% Normal Saline 10 mL*** over 20 minutes.	**[I]**

PEARLS

- **Identify and treat potentially reversible causes:**
  - Hypoxia
  - Hypothermia
  - Hydrogen ion (acidosis)
  - Tension Pneumothorax
  - Thrombosis (cardiac, pulmonary)
  - Trauma
  - Hyperkalemia or hypokalemia
  - Hypovolemia
  - Tablets (drug overdose)
  - Tamponade (cardiac)
  - Toxins
- Evaluate for sinus tachycardia prior to treating an unstable rhythm.

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CBRNE Table of Contents

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Airway/Inhalation Irritants

Exposure

CRITERIA

- Signs and symptoms indicating exposure to choking agents (see Signs and Symptoms of Exposure in PEARLS)

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider gross decontamination	**EMT**
EMT	Ensure adequate airway and oxygenation	**EMT**
A	Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% solution) nebulized*** if wheezing is present	**A**
I	Administer ***Solu-Medrol (Methylprednisolone Succinate) 125 mg slow IV push***	**I**
[A]	Administer continuous ***Albuterol Sulfate (Proventil)(3 mL 0.083% solution) nebulized*** if wheezing is present	**[A]**

PEARLS

- Atrovent/Ipratropium Bromide and Lasix/Furosemide are inappropriate for patients exposed to choking agents.
- **DO NOT** use CPAP.
- The decision to enter a contaminated area to rescue and/or provide patient care rests with the incident commander and organizational policy.
- Victims that have been decontaminated and/or confirmed "clean" are safe for treatment and transportation to a health care facility.

Examples of Common Choking Agents (including but not limited to Toxic Industrial Chemicals)

- Chlorine
- Ammonia
- Phosgene
- Fuming Sulfuric Acid
- Hydrogen Sulfide
- Hydrochloric Acid
- Hydrofluoric Acid

Signs and Symptoms (general)

- Difficulty Breathing
- Throat "burning"
- Wheezing
- Laryngospasm
- Non-cardiogenic Pulmonary Edema

Airway/Inhalation Irritants

Exposure

Concept of Treatment Protocol

- Reduce the Dose
  - Rescue from Environment
  - Decontamination (if contaminated)
- Airway/Ventilation
  - Per Protocol
    - Atrovent and Lasix administration are inappropriate in this protocol.
- Administer Antidote(s)
  - Antidotes Available
  - Nebulized ***8.4% Sodium Bicarbonate 2mL and 2mL Normal Saline*** may be ordered for confirmed chlorine exposures.
- Support Cardiovascular System
  - Maintain perfusion (mentation/peripheral pulses) without over hydration

Resource

Poison Control Center - 1 (800) 222-1222 or (804) 828- 9123

Biological/Infectious

Exposure

CRITERIA

- Signs and symptoms indicating exposure to a biological agent (see Signs and Symptoms of Exposure in PEARLS)

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider gross decontamination	**EMT**
EMT	Ensure adequate airway and oxygenation	**EMT**

PEARLS

- Responders should wear a minimum of N-95 respirators when responding to non-specific flu-like symptoms to reduce the chance of infection. Surgical masks may be placed on infected patients (under a Non-Rebreather oxygen mask, if necessary).
- Contact Local Health Department to determine if antibiotic prophylaxis is required for first responders and/or families.

Signs and Symptoms of Exposure

- **Anthrax -** A nonspecific prodrome (i.e., fever, dyspnea, cough, and chest discomfort) follows inhalation of infectious spores. Approximately 2 to 4 days after initial symptoms, sometimes after abrief period of improvement, respiratory failure and hemodynamic collapse ensue.

- **Plague** - Clinical features of pneumonic plague include fever, cough with purulent sputum, hemoptysis, and chest pain.

- **Botulism -** Clinical features include symmetric cranial neuropathies (i.e., drooping eyelids, weakened jaw clench, and difficulty swallowing or speaking), blurred vision or diplopia, symmetric descending weakness in a proximal to distal pattern, and respiratory dysfunction from respiratory muscle paralysis or upper airway obstruction **without sensory deficits**. Inhalational botulism would have a similar clinical presentation as foodborne botulism; however, the gastrointestinal symptoms that accompany foodborne botulism may be absent.

- **Smallpox (variola) -** The acute clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza, beginning with a 2 to 4 day nonspecific prodrome of fever and myalgias before rash onset. Several clinical features can help clinicians differentiate varicella (chickenpox) from smallpox. The rash of varicella is most prominent on the trunk and develops in successive groups of lesions over several days, resulting in lesions in various stages of development and resolution. In comparison, the vesicular/pustular rash of smallpox is typically most prominent on the face and extremities and lesions develop at the same time.

Exposure

- **Hemorrhagic fever -** (such as would be caused by Ebola or Marburg viruses). After an incubation period of usually 5 to 10 days (range: 2 to 19 days), illness is characterized by abrupt onset of fever, myalgia, and headache. Other signs and symptoms include nausea and vomiting, abdominal pain, diarrhea, chest pain, cough, and pharyngitis. A maculopapular rash, prominent on the trunk, develops in most patients approximately 5 days after onset of illness. Bleeding manifestations, such as petechiae, ecchymoses, and hemorrhages, occur as the disease progresses.

- **Ricin** – Symptoms are specific to individual route of exposure. Severe exposure may lead to multi-organ failure and death within 3 days.

Blistering Agents

Exposure

CRITERIA

- Signs and symptoms indicating exposure to blister agents (see Signs and Symptoms of Exposure in PEARLS)

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider gross decontamination.	**EMT**
EMT	Ensure adequate airway and oxygenation.	**EMT**
	If chemical burns greater than 10% Body Surface Area, see *Burns-Thermal and Pain Control protocols* and *Trauma Field Triage Administrative Policy*.	

PEARLS

- Blister Agents pose a significant risk of exposure to responders. They are difficult to remove during decontamination and do not provide immediate signs of contamination.

Signs and Symptoms of Blister Agents

- Skin penetration is rapid. Mustard causes both localized cellular and systemic damage. A large liquid or vapor exposure causes immune system failure and pulmonary damage. Sepsis and pulmonary damage are major causes of death.

- Blister agents are powerful irritant and vesicant, producing corrosion and necrosis of the skin, eyes, and respiratory tract. While the chemical reaction with biological tissue occurs rapidly, **symptoms are typically delayed by several hours**. Systemic poisoning occurs more easily in warm climates than in temperate ones.

- **DERMAL** - Dermal mustard exposure signs and symptoms occur within 2 to 24 hours of exposure. Itching and erythema occur 2 to 3 hours after dermal exposure to the gas or liquid; erythema spreads over the next 24 hours and yellowish blisters appear and can become ulcerated, which heal in 4 to 6 weeks after a transitory melanoderma. Thinner skin (neck, axillae, and groin) is more susceptible than thicker skin (soles and palms).

- **INHALATION** - Cough, hemoptysis, dyspnea, and possibly pulmonary edema may occur up to 24 hours after inhalation of the gas. **DO NOT** treat as conventional pulmonary edema. **DO NOT** use CPAP or Furosemide/Lasix. Ulceration of airway mucosa may occur. Mild pulmonary exposure produces rhinorrhea, sneezing, epistaxis, hoarseness, and cough within 12 to 24 hours of exposure. Severe exposure produces additional symptoms of productive cough and shortness of breath (mild to severe) 2 to 4 hours after exposure.

Blistering Agents

Exposure

Variations of Blister Agents

- Mustard (Sulfur and Nitrogen)
- Lewisite (causes immediate pain on skin contact)
- Dimethyl Sulfate

Concept of Treatment Protocol

Blister Agent injuries are chemical burns (including inhalation injuries) and should be managed as such.

- Chelating agents (i.e. British Anti Lewisite- BAL) have been used to reduce the effects of exposure. However, no chelating agents are carried out-of-hospital in Hampton Roads
- Sodium thiosulfate (found in regional Haz-Mat Drug boxes) has been used to prevent systemic injury

Nerve Agents

Exposure

CRITERIA

- Signs and symptoms indicating exposure to a nerve agent (see Signs and Symptoms of Exposure in PEARLS)
- Common nerve agents are: Organophosphates (i.e. Azinphos-methyl, Malathion, Methyl parathion, etc.), Carbamates (Aldicarb, Sevin, Bendiocarb, etc.) and anticholinergics

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
	If there is no exposure to a nerve agent with constricted pupils **and** loss of muscle tone, go to appropriate protocol.	
EMT	Administer one ***DuoDote***.	**EMT**
EMT	Consider gross decontamination.	**EMT**
EMT	Ensure adequate airway and oxygenation.	**EMT**
EMT	If weakness, secretions and respiratory distress persist, repeat ***DuoDote.***	**EMT**
I	If symptoms persist administer ***Atropine2-4 mg IV/IO every 2-5 minutes*** until secretions are dried and/or the patient's breathing improves.	**I**
I	For vomiting, administer ***Ondansetron (Zofran) 4mg IV/IO.***	**I**
I	If actively seizing administer ***Diazepam (Valium) 10 mg IV/IO/IM and repeat every ten minutes as long as seizures persist.***	**I**

PEARLS

- Victims whose skin or clothing is contaminated with liquid nerve agent can contaminate rescuers by direct contact or through off-gassing vapor.
- Victims who have ingested nerve agents may off-gas dangerous levels of vapor, even after skin decontamination. All health care professionals should wear respiratory protection that protects against nerve agents, including Self-Contained Breathing Apparatus (SCBA) and chemical protective clothing to avoid contact with emesis.

Signs/Symptoms of Acute Nerve Agent Exposure

- **VAPOR** - Initial effects following a mild vapor exposure include miosis, rhinorrhea, and dyspnea. Victims may have one of these effects or all three. A large concentration of vapor will cause sudden loss of consciousness and seizures followed by apnea and flaccid paralysis. The severe casualties will have miosis, copious secretions from the nose and mouth, and, unless they are paralyzed, will have fasciculations. "SLUDGE" (salivation, lacrimation, urination, defecation, gastrointestinal distress, emesis) will occur. Effects begin within seconds to minutes.

Nerve Agents

Exposure

- **DERMAL -** A very small drop on the skin may cause sweating and twitching at the site, while a small drop on skin may cause nausea, vomiting and diarrhea. A larger drop on the skin may cause loss of consciousness, seizures, apnea, and flaccid paralysis. Effects begin within 30 minutes (large amount) to 18 hours (small amount).

Variations of Nerve Agents

- Military grade (i.e. Sarin, Somen, Tabun, VX, etc.)
- Industrial pesticides
  - Organophosphates (i.e. Azinphos-methyl, Malathion, Methyl parathion, etc.)
  - Carbamates (Aldicarb, Sevin, Bendiocarb, etc.)

Concept of Treatment Protocol

- To provide the most treatment for the largest number of victims, the concept of treatment "waves" is presented.
- This will allow for treatment teams to:
  - Maximize the distribution of the limited supplies of antidotes
  - Limit their exposure time in potentially harmful atmospheres
- Victims that are non-ambulatory should be placed in the "recovery" position to allow for draining of oral secretions and maintenance of the airway.

Nerve Agents

Exposure (Pediatric)

CRITERIA

- Signs and symptoms indicating exposure to a nerve agent (see Signs and Symptoms of Exposure in PEARLS)

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Consider gross decontamination	**EMT**
EMT	Ensure adequate airway and oxygenation *See Airway protocol.*	**EMT**
	(1 – 13 kg)	
I	Administer ***Atropine 0.02 mg/kg IV/IO or 0.5 mg IM every 2-5 minutes*** until secretions are dried and/or the patient's breathing improves	**I**
I	Administer ***Diazepam (Valium) 0.2 mg/kg IV/IO/IM to a maximum dose of 5mg***	**I**
	(13 – 25 kg)	
I	Administer ***Atropine 0.02 mg/kg IV/IO or 1 mg IM every 2-5 minutes*** until secretions are dried and/or the patient's breathing improves	**I**
I	Administer ***Diazepam (Valium) 0.2 mg/kg IV/IO/IM to a maximum dose of 5mg***	**I**
	(26 – 55 kg)	
EMT	Administer one ***DuoDote*** if available	**EMT**
I	Administer ***Atropine 0.02 mg/kg IV/IO or 1 mg IM every 2-5 minutes*** until secretions are dried and/or the patient's breathing improves	**I**
I	Administer ***Diazepam (Valium) 0.2 mg/kg IV/IO/IM to a maximum dose of 10 mg***	**I**

PEARLS

- Victims whose skin or clothing is contaminated with liquid nerve agent can contaminate rescuers by direct contact or through off-gassing vapor.
- Victims who have ingested nerve agents may off-gas dangerous levels of vapor, even after skin decontamination. All health care professionals should wear respiratory protection that protects against nerve agents, including Self-Contained Breathing Apparatus (SCBA) and chemical protective clothing to avoid contact with emesis.

Signs/Symptoms of Acute Nerve Agent Exposure

- **VAPOR** - Initial effects following a mild vapor exposure include miosis, rhinorrhea, and dyspnea. Victims may have one of these effects or all three. A large concentration of vapor will cause sudden loss of consciousness and seizures followed by apnea and flaccid paralysis. The severe casualties will have miosis, copious secretions from the nose and mouth, and, unless they are paralyzed, will have fasciculations. "SLUDGE" (salivation, lacrimation, urination, defecation, gastrointestinal distress, emesis) will occur. Effects begin within seconds to minutes.
- **DERMAL** - A very small drop on the skin may cause sweating and twitching at the site, while a small drop on skin may cause nausea, vomiting and diarrhea. A larger drop on the skin may cause loss of consciousness, seizures, apnea, and flaccid paralysis. Effects begin within 30 minutes (large amount) to 18 hours (small amount).

Exposure (Pediatric)

Variations of Nerve Agents

- Military grade (i.e. Sarin, Somen, Tabun, VX, etc.)
- Industrial pesticides
  - Organophosphates (i.e. Azinphos-methyl, Malathion, Methyl parathion, etc.)
  - Carbamates (Aldicarb, Sevin, Bendiocarb, etc.)

Pediatric Variations in Signs and Symptoms

- Little experience with nerve agents is available to distinguish clinical effects in children from those in adults, although two cases of anticholinesterase pesticide poisonings in children suggest a disproportionate degree of depressed level of consciousness and muscle weakness. Thus, children may manifest primarily central and/or neuromuscular effects after nerve agent exposure.

Pediatric Treatment Concept

- DuoDote provides the same medications, atropine 2.1 mg (0.7 mL) and pralidoxime 600 mg (2 mL), but as a single Autoinjector with the need for only one intramuscular injection. While not approved for pediatric use, they should be used as initial treatment in circumstances for children with severe, life-threatening nerve agent toxicity for whom IV treatment is not possible or available or for whom more precise IM (mg/kg) dosing would be logistically impossible (especially pre-hospital).

Radiologic Agent

Exposure

CRITERIA

- Signs and symptoms indicating exposure to radiation

PROTOCOL

EMR	Follow *General – Universal Patient Care/Initial Patient Contact protocol.*	**EMR**
EMT	Ensure adequate airway and oxygenation.	**EMT**
EMT	If there is life threatening illness or injury treat patient without regard for contamination.*	**EMT**
EMT	If there is no life threatening illness or injury, determine if patient is contaminated.	**EMT**
EMT	Consider gross decontamination as clean as possible and implement appropriate protocol.	**EMT**

***Treatment of seriously injured or ill radiologically contaminated patients takes priority over all other activities, including decontamination. Do not delay advanced life support to assess contamination status.**

PEARLS

- Responders should wear a minimum of N-95 respirators when responding to non-specific explosions to reduce the chance of internal contamination.
- Contaminated patients from a Radiation Dispersal Devices (RDD) present a low risk of exposure to health care providers.

General Information

- Patients with open wounds should have the wound dressed and bandaged without cleaning.
- The most likely isotopes used for Radiological Dispersal Devices will emit Gamma radiation, in addition to Alpha and Beta. Therefore, most available detectors (GammaRAE, Ludlum Ratemeter, etc.) will identify contamination. However, the dispersal of a source reduces the level of radioactivity and therefore, detection above background may be difficult.
- When monitoring for patient contamination (external), the use of portal monitors (found at several hospital emergency departments and available through the Hampton Roads Metropolitan Medical Strike Team) and/or the use of hand-held ratemeters with a "pancake" probe is suggested. When using hand-held ratemeters, a quick "triage" of contamination should focus on the head (hair) and feet (shoes), with a more extensive survey on those found to be contaminated.
- Once radiological contamination has been identified, the following resources may be of assistance:

Radiation Emergency Assistance Center/Training Site (REACT/TS)

- Weekday phone: (865) 576-3131
- Weekend/Night phone: (865) 576-1005

Armed Forces Radiobiology Research Institute, Medical Radiobiology Team

- Phone: (301) 295-0530

Exposure

Other Antidotes are available in the region and are co-located with the Strategic National Stockpile Chempacks.

Pharmacology Table of Contents

Pharmacology Table of Contents

Adenosine/Adenocard

CLASS: Antidysrhythmic

ACTIONS: Decreases conduction through the A-V node

INDICATIONS:
Cardiac Dysrhythmia Narrow Complex Tachycardia
Cardiac Dysrhythmia Wide Complex Tachycardia
Pediatric Unstable Tachycardia

CONTRAINDICATIONS:
Second or third-degree A-V block (except in patients with a functioning pacemaker).
Sick sinus syndrome (except in patients with a functioning pacemaker).
Known hypersensitivity
Poisoning and drug induced tachycardia

Will not correct atrial fibrillation, atrial flutter or ventricular tachycardia but is used as a diagnostic maneuver.

PRECAUTIONS:
The effects of Adenocard are antagonized by methylxanthines such as caffeine and theophylline, so larger doses of Adenocard may be required to be effective.

Reduce initial dose to 3mg in patients receiving Carbamazepine/Tegretol or Dipyridamole/Persantine, in heart transplant patients or if given by central venous access.

SIDE EFFECTS:
The half-life of Adenocard is less than ten seconds; thus adverse effects are generally self-limiting, but include facial flushing, chest discomfort and a marked slowing of the heart rate.

ADULT DOSAGE:
Use a vessel such as the Antecubital or External Jugular if possible

Stable Narrow Complex Tachycardia:

Suspected PSVT: Administer ***Adenosine (Adenocard) 6 mg rapid IV***, followed by a rapid ***20 mL 0.9% Normal Saline flush***. Consider antecubital IV if possible and elevate the arm

If no conversion within 2 minutes, administer ***Adenosine (Adenocard) 12 mg rapid IV*** followed by a rapid ***20 mL 0.9% Normal Saline flush***. Elevate the arm.

Stable Wide Complex Tachycardia with Pulse:

If monomorphic, Administer ***Adenosine (Adenocard) 6 mg rapid IV***, followed by a rapid ***20 mL 0.9% Normal Saline flush***

Unstable Wide Complex Tachycardia with Pulse:

If VT is regular and monomorphic, consider ***Adenosine 6 mg rapid IV/IO push followed by a rapid 20 mL 0.9% Normal Saline flush***

Adenosine/Adenocard

PEDIATRIC DOSAGE: Use a vessel such as the Antecubital or External Jugular if possible

Unstable Narrow Complex Tachycardia:

Administer ***Adenosine (Adenocard) 0.1 mg/kg IV/IO*** to a maximum dose of ***6 mg followed immediately by a 10 mL 0.9% Normal Saline flush and elevate the extremity***

If no conversion after 2 minutes:
Adenosine (Adenocard) 0.2 mg/kg IV/IO to a maximum dose of ***12 mg followed immediately by a 10 mL 0.9% Normal Saline flush and elevate the extremity***

Unstable Wide Complex Tachycardia with Pulse:

If it will not delay cardioversion, administer ***Adenosine (Adenocard) 0.1 mg/kg IV/IO*** to a maximum dose of ***6mg followed immediately by a 10 mL 0.9% Normal Saline flush and elevate the extremity***

If no conversion after 2 minutes:
Adenosine (Adenocard) 0.2 mg/kg IV/IO to a maximum dose of ***12 mg followed immediately by a 10 mL 0.9% Normal Saline flush and elevate the extremity***

Albuterol Sulfate/Proventil

CLASS: Beta2-adrenergic bronchodilator

ACTIONS: Relaxes smooth muscles of bronchi, uterus, and vascular supply to skeletal muscle
Bronchodilator
Minimal or no alpha-adrenergic effect
Decreases serum potassium
Some peripheral vasodilatation

INDICATIONS: Acute Allergic Reaction
Crush injury
Pediatric Acute Allergic Reaction
Pediatric Respiratory Distress
Respiratory Distress

CONTRAINDICATIONS: Any known hypersensitivity to the drug.

PRECAUTIONS: Patient with cardiovascular disorders (coronary insufficiency, dysrhythmias, hypertension, etc.)
Convulsive disorders and diabetes

Other sympathomimetic agents or epinephrine should only be used with caution in combination with Albuterol. Should such drugs be used, the patient should be closely monitored for cardiovascular side effects.

Paradoxical bronchospasm that can be life threatening can occur. Be prepared to institute alternative therapy. Monitor blood pressure. Monitor for dysthymias

Patient may wish to refuse transport after administration of this drug, consider therapy en route to the hospital

SIDE EFFECTS: Tremor, nervousness, headache, dizziness, hypertension, hypotension, arrhythmias, tachycardia, angina, nausea, and/or vomiting.

ADULT DOSAGE: Administer ***unit dose nebulized Albuterol Sulfate (Proventil) (3 mL of 0.083% solution*) (*may repeat for):***

- **Acute Allergic Reaction with wheezing present**
- **Anaphylaxis**

Albuterol Sulfate/Proventil

Administer ***continuous Albuterol Sulfate (Proventil) (3 mL 0.083% Solution) via nebulizer or BVM*** for:

- **Crush Syndrome with patient having any of the following ECG changes:**
  - Peaked T waves
  - Wide QRS complex
  - Short QT interval
  - Absent P waves

Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)/Atrovent (Ipratropium Bromide) (2.5 mL 0.02% Solution) nebulized***. (Mix unit dose of each medication in a nebulizer) for:

- **Respiratory Distress Asthma/COPD**
- **Respiratory Distress Status Asthmaticus**

PEDIATRIC DOSAGE:

Administer ***unit dose nebulized Albuterol Sulfate (Proventil) (3 mL of 0.083% solution) (may repeat for):***

- **Acute Allergic Reaction with wheezing present**
- **Anaphylaxis**

Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)/Atrovent (Ipratropium Bromide) (2.5 mL 0.02% Solution) nebulized,*** (Mix unit dose of each medication in a nebulizer) for:

- **Respiratory Distress Asthma or Bronchospasm over 2 years of age (Mild or intermittent)**

Repeat unit dose nebulized ***Albuterol Sulfate (Proventil) (3 mL of 0.083% solution),*** as necessary if symptoms are severe or persistent.

Amiodarone-Cordarone

CLASS: Broad spectrum antidysrhythmic

ACTIONS: Sodium and potassium channel blocker
Prolongs cardiac action potential and repolarization time

INDICATIONS: Cardiac Arrest Shockable
Cardiac Dysrhythmia Wide Complex Tachycardia
Pediatric Cardiac Arrest Shockable
Pediatric Unstable Tachycardia

CONTRAINDICATIONS: Known hypersensitivity to the drug.

PRECAUTIONS: Caution in use with patients taking:

- Beta-blockers
- Calcium channel blockers
- Anticoagulants

SIDE EFFECTS: Hypotension
Bradycardia
Nausea and vomiting
Flushing

ADULT DOSAGE:

Cardiac Arrest Shockable:

300 mg IV/IO push (diluted in ***20 mL 0.9% Normal Saline***)
Subsequent dose of ***150 mg*** (diluted in ***10 mL 0.9% Normal Saline***)
If Patient converts, add ***150 mg in 100 mL 0.9% Normal Saline over 10 minutes***

Cardiac Dysrhythmia Wide Complex Tachycardia:

Administer ***150 mg IV/IO*** diluted in ***100 mL 0.9% Normal Saline over 10 minutes (15 mg per minute)***

PEDIATRIC DOSAGE:

Cardiac Arrest Shockable:

With vascular access: Administer ***5 mg/kg bolus*** (diluted in ***20 mL 0.9% Normal Saline***) to a ***maximum single dose of 300 mg IV/IO***, repeat if necessary one time

Unstable Tachycardia:

Administer ***5 mg/kg IV/IO*** in ***20 mL 0.9% Normal Saline***, ***over 20 minutes***

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Aspirin

CLASS:	Nonsteroidal anti-inflammatory drug
ACTIONS:	Inhibits the action of platelets
INDICATIONS:	Acute Coronary Syndromes
CONTRAINDICATIONS:	Patients who have an allergy to aspirin should not receive aspirin.
PRECAUTIONS:	Aspirin should be avoided by patients with active ulcer disease or poor renal function. Watch for anaphylaxis in asthmatic patients.
SIDE EFFECTS:	The most common side effects are gastrointestinal upset.
ADULT DOSAGE:	**Acute Coronary Syndromes:** Administer ***chewable Aspirin 324 mg PO*** Give aspirin even if patient is on daily aspirin regimen, blood thinners or anti platelet aggregates
PEDIATRIC DOSAGE:	Not indicated

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Atropine Sulfate

CLASS: Parasympathetic blocker

ACTIONS:
Blocks acetylcholine receptors
Accelerates atrial pacemakers
Increases electrical conduction through the heart
Inhibits secretion

INDICATIONS: Adult Cardiac Dysrhythmia Bradycardia

CONTRAINDICATIONS: None when used in emergency situations.

PRECAUTIONS:
Dose of 3.0 mg should not be exceeded except in cases of organophosphate poisonings.
May cause tachycardia
Use with caution in acute MI due to increased myocardial oxygen demand
May cause hypertension
2nd Degree Mobitz Type II or 3rd degree heart block with wide QRS complex
Avoid in hypothermic bradycardia

SIDE EFFECTS:
Palpitations/Tachycardia
Headache
Blurred Vision
Dry mouth

ADULT DOSAGE:

Bradycardia:

Atropine Sulfate 0.5 mg IV/IO every 5 minutes until signs and symptoms resolve up to a ***maximum dose of 3 mg***

Organophosphate poisoning (CBRNE/Nerve Agent):

If symptoms persist, administer ***Atropine 2-4 mg IV/IO every 2-5 minutes*** until secretions are dried and/or the patient's breathing improves

PEDIATRIC DOSAGE:

Bradycardia:

Administer ***Atropine Sulfate 0.02 mg/kg IV/IO*** **to a maximum of** ***0.5 mg single dose*** which may be repeated once in 5 minutes
Minimum dose ***0.1 mg***

Child (1-12 years of age) **maximum** total ***1 mg***
Adolescent (greater than 12 years of age) **maximum** total ***3 mg***

Organophosphate poisoning (CBRNE/Nerve Agent):

Weight based. See CBRNE Protocols.

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Calcium Chloride

CLASS:	Electrolyte
ACTIONS:	Helps in the management of magnesium sulfate or calcium channel blocker (Verapamil) overdose Relieves specific muscle spasms
INDICATIONS:	Adult Cardiac Arrest Non-Shockable Adult Cardiac Arrest Shockable Crush Injuries
CONTRAINDICATIONS:	Digitalis toxicity May cause Ventricular Fibrillation in patients receiving digitalis
PRECAUTIONS:	Sudden death may occur when given too rapidly Causes tissue irritation and necrosis if infiltration at the IV site
SIDE EFFECTS:	May slow heart rate Hypotension Vasodilation Dysrhythmias Syncope
ADULT DOSAGE:	**Cardiac Arrest Shockable:** **Renal Dialysis patients only** administer ***Calcium Chloride 1 g IV/IO push*** followed by ***0.9 % Normal Saline 40 mL flush*** **Cardiac Arrest Non-Shockable:** **Renal Dialysis patients only** administer ***Calcium Chloride 1 g IV/IO push*** followed by ***0.9 % Normal Saline 40 mL flush*** **Crush Injuries with ECG Changes:** ***Calcium Chloride 1 g slow IV/IO over 10-15 minutes*** followed by ***0.9 % Normal Saline 40 mL flush***
PEDIATRIC DOSAGE:	Not indicated

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Dextrose 10%

CLASS: Carbohydrate

ACTIONS: Elevates blood glucose level rapidly

INDICATIONS: Adult altered level of consciousness
Obstetrical emergencies
Pediatric altered level of consciousness
Post-Delivery and neonatal resuscitation

CONTRAINDICATIONS: None in the emergency setting.

PRECAUTIONS: Tissue necrosis in the case of infiltration

SIDE EFFECTS: Local venous irritation

ADULT DOSAGE:

Altered Level of Consciousness/Hypoglycemia:

Administer ***Dextrose 10% 25g /250ml IV/IO 125ml bolus, reassess, if needed, give remaining 125ml bolus.***

PEDIATRIC DOSAGE:

Altered Level of Consciousness/Hypoglycemia:

Glucometer reading less than 40 mg/dL:
Newborn/Neonate: administer ***D_{10} 5 mL/kg IV/IO bolus.***
Patient less than 2 years old: administer ***D_{10} 5mL/kg bolus.***
Patient over 2 years old: administer ***D_{10} 5mL/kg bolus.***

Obstetrical Emergencies:

Newborns/Neonates with glucometer reading less than 40 mg/dL:
Dextrose 10% (25g /250ml) 5 mL/kg IV/IO bolus, reassess, if needed, give 5ml/kg IV/IO bolus.

Post-Delivery and Neonatal Resuscitation:

Newborns/Neonates with glucometer reading less than 40 mg/dL:
Dextrose 10% (D_{10}) 5 mL/kg IV/IO bolus.

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Dextrose 50%

CLASS:	Carbohydrate
ACTIONS:	Elevates blood glucose level rapidly
INDICATIONS:	Adult Altered Level of Consciousness Obstetrical Emergencies Pediatric Altered Level of Consciousness Post-Delivery and Neonatal Resuscitation
CONTRAINDICATIONS:	None in the emergency setting.
PRECAUTIONS:	Tissue necrosis in the case of infiltration
SIDE EFFECTS:	Local venous irritation
ADULT DOSAGE:	**Altered Level of Consciousness/Hypoglycemia:** Administer ***Dextrose 50% 25g (D_{50}) IV/IO*** Administer second dose Dextrose ***50% 25g (D_{50}) IV/IO*** if necessary **Obstetrical Emergencies:** Newborns/Neonates with glucometer reading less than 40 mg/dL: ***Dextrose 10% (D_{10}) 5 mL/kg IV/IO***
PEDIATRIC DOSAGE:	**Altered Level of Consciousness/Hypoglycemia:** Glucometer reading less than 40 mg/dL: **Newborn/Neonate:** administer ***D_{10} 5 mL/kg IV/IO push (dilute D_{50} with Normal Saline 1:4 to create D_{10})*** **Patient less than 2 years old**: administer ***D_{25} 2 mL/kg IV/IO push,*** **Patient over 2 years old:** administer ***D_{50} 1 mL/kg IV/IO push*** **Post-Delivery and Neonatal Resuscitation:** Newborns/Neonates with glucometer reading less than 40 mg/dL: ***Dextrose 10% (D_{10}) 5 mL/kg IV/IO*** ***Dilute D_{50} with Normal Saline 1:4 to create D_{10}*** ***Dilute D_{50} with Normal Saline 1:1 to create D_{25}***

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Diazepam/Valium

CLASS:	Benzodiazepine
ACTIONS:	Anticonvulsant Skeletal muscle relaxant Sedative
INDICATIONS:	Currently only indicated in PEMS Chemical Biological Radiological Nuclear Exposure Protocols
CONTRAINDICATIONS:	Patients with known hypersensitivity to the drug Pregnancy
PRECAUTIONS:	Can cause local venous irritation
SIDE EFFECTS:	Drowsiness Hypotension Respiratory depression
ADULT DOSAGE:	Chemical Biological Radiological Nuclear Exposure Protocols Only
PEDIATRIC DOSAGE:	Chemical Biological Radiological Nuclear Exposure Protocols Only

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Diphenhydramine/Benadryl

CLASS: Antihistamine

ACTIONS:
Blocks histamine receptors
Has some sedative effects

INDICATIONS:
Adult Acute Allergic Reaction
Behavioral Emergencies
Pediatric Acute Allergic Reaction

CONTRAINDICATIONS:
Asthma
Nursing mothers
Glaucoma

PRECAUTIONS: Hypotension

SIDE EFFECTS:
Sedation
Dries bronchial secretions
Blurred vision
Headache
Palpitations

ADULT DOSAGE:

Adult Acute Allergic Reaction:

Diphenhydramine (Benadryl) 25 mg IM slow IV/IO, may repeat in 10 minutes

Adult Acute Allergic Reaction/Anaphylaxis:

Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO may repeat in 10 minutes

Behavioral Emergencies:

If patient shows signs of dystonic reaction after ***Haldol*** administration,
consider ***Diphenhydramine (Benadryl) 25 mg IM or slow IV/IO***

PEDIATRIC DOSAGE:

Pediatric Acute Allergic Reaction:

Administer ***Diphenhydramine (Benadryl) 1 mg/kg IM or slow IV/IO up to 25 mg***

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Dopamine/Intropin

CLASS:
Sympathomimetic
Catecholamine

ACTIONS:
Positive inotrope (force of contractions)
Selectively dilates blood vessels of kidney, mesentery, brain and heart

INDICATIONS:
Adult Cardiac Arrest Shockable
Adult Cardiac Dysrhythmia Bradycardia
Non-Cardiogenic Non-Trauma Shock

PRECAUTIONS:
Should not be administered in the presence of severe tachydysrythmias.
Correct hypovolemia with volume replacement before considering dopamine use
Should not be administered in the presence of ventricular fibrillation or ventricular irritability
Use with caution in cardiogenic shock with accompanying congestive heart failure

SIDE EFFECTS:
Ventricular tachydysrhythmias
Hypertension

ADULT DOSAGE:

Adult Cardiac Arrest Shockable:

For Return Of Spontaneous Circulation (ROSC) consider ***Dopamine 2-10 mcg/kg/min IV/IO, titrated*** to Mean Arterial Pressure of 90-100 mmHg

Adult Cardiac Arrest Non-Shockable:

For Return of Spontaneous Circulation (ROSC) consider ***Dopamine 2-20 mcg/kg/min IV/IO.***

Adult Cardiac Dysrhythmia Bradycardia/Unstable:

Refractory hypotension –***Dopamine (Intropin) 2-10 mcg/kg/min infusion (400 mg in 250 mL Normal Saline)*** titrated to effect

Non-Cardiogenic Non-Trauma Shock:

Consider ***Dopamine,*** contact Medical Control

Dopamine/Intropin

Dopamine Drip Chart

Weight lbs. Weight kgs	88 **40**	110 **50**	132 **60**	154 **70**	176 **80**	198 **90**	220 **100**	242 **110**	264 **120**	286 **130**	308 **140**	330 **150**	352 **160**
mcg/kg	gtts/minute based on 60 drop set												
2	3	4	4	5	6	7	7	8	9	10	10	11	12
3	4	6	7	8	9	10	11	12	13	15	16	17	18
4	6	7	9	10	12	13	15	16	18	19	21	22	24
5	7	9	11	13	15	17	19	21	22	24	26	28	30
6	9	11	13	16	18	20	22	25	27	29	31	34	36
7	10	13	16	18	21	24	26	29	31	34	37	39	42
8	12	15	18	21	24	27	30	33	36	39	42	45	48
9	13	17	20	24	27	30	34	37	40	44	47	51	54
10	15	19	22	26	30	34	37	41	45	49	52	56	60
11	16	21	25	29	33	37	41	45	49	54	58	62	66
12	18	22	27	31	36	40	45	49	54	58	63	67	72
13	19	24	29	34	39	44	49	54	58	63	68	73	78
14	21	26	31	37	42	47	52	58	63	68	73	79	84
15	22	28	34	39	45	51	56	62	67	73	79	84	90
16	24	30	36	42	48	54	60	66	72	78	84	90	96
17	25	32	38	45	51	57	64	70	76	83	89	96	102
18	27	34	40	47	54	61	67	74	81	88	94	101	108
19	28	36	43	50	57	64	71	78	85	93	100	107	114
20	30	37	45	52	60	67	75	82	90	97	105	112	120

*gtts/Min rounded to whole drop

Epinephrine 1:1,000 Multidose Vial

CLASS: Sympathomimetic or Catecholamine

ACTIONS:
Positive inotrope (force of contraction)
Positive chronotrope (heart rate)
Causes bronchodilation

INDICATIONS:
Acute Allergic Reaction
Adult Cardiac Dysrhythmia Bradycardia
Cardiac Arrest Shockable
Cardiac Arrest Non-Shockable
Respiratory Distress
Obstetrical Emergencies
Post Delivery and Neonatal Resuscitation
Post Resuscitative Care

CONTRAINDICATIONS: None when used in the emergency setting

PRECAUTIONS:
Should be protected from light
Blood pressure, pulse, and ECG must be constantly monitored
Use caution with the elderly and those with pre-existing cardiovascular disease

SIDE EFFECTS:
Tachydysrhythmias
Anxiety

ADULT DOSAGE:

Acute Allergic Reaction/Anaphylaxis:

Administer ***Epinephrine 1:1,000 0.3 mg IM (0.3mL)***

Cardiac Dysrhythmia Bradycardia/Unstable Bradycardia:

Impending cardiac arrest –***Epinephrine infusion 2-10 mcg/min*** (***1 mg of 1:1,000*** **in** ***250 mL 0.9% Normal Saline***) titrated to effect

Cardiac Arrest Shockable:

For Return Of Spontaneous Circulation (ROSC) consider ***Epinephrine IV Infusion 0.1 mcg/kg/min IV/IO*** (***1 mg of 1:1,000*** **in** ***250 mL 0.9% Normal Saline***)

Cardiac Arrest Non-Shockable:

For Return Of Spontaneous Circulation (ROSC) consider ***Epinephrine IV Infusion 0.1 mcg/kg/min IV/IO*** (***1 mg of 1:1,000*** **in** ***0.9% Normal Saline 250 mL***); titrate to Mean Arterial Pressure of 90-100 mmHg

Respiratory Distress/Status Asthmaticus:

Administer ***Epinephrine 1:1,000 0.3mg IM (0.3 mL)***

Respiratory Distress/Stridor:

If no improvement after administration of Inhalation Saline, administer ***3cc of Epinephrine 1:1,000*** in nebulizer

Epinephrine 1:1,000 Multidose Vial

Obstetrical Emergencies:

Newborn Respiratory Distress - If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****: *1mg (1mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***: this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

Post Resuscitation Care:

For Return Of Spontaneous Circulation (ROSC) consider ***Epinephrine IV Infusion 0.1 mcg/kg/min IV/IO*** (***1 mg of 1:1,000*** **in** ***250 mL 0.9% Normal Saline***)

PEDIATRIC DOSAGE:

Acute Allergic Reaction/Anaphylaxis:

Administer ***Epinephrine 1:1,000 0.01 mg/kg IM up to a maximum of 0.3 mg***

Cardiac Arrest Shockable and Non-Shockable:

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****: *1mg (1mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

Respiratory Distress/Asthma Bronchospasm over 2 years of age:

Consider ***Epinephrine: Greater than 30 kg: 1:1,000 0.3 mg IM Less than 30 kg: 1:1,000 0.01 mg/kg IM***

Respiratory Distress/Status Asthmaticus:

Administer ***Epinephrine:***
Greater than 30 kg: 1:1,000 0.3 mg IM
Less than 30 kg: 1:1,000 0.01 mg/kg IM

Post Delivery and Neonatal Resuscitation:

If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****: *1mg (1mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

Epinephrine 1:1,000

CLASS: Sympathomimetic or Catecholamine

ACTIONS:
Positive inotrope (force of contraction)
Positive chronotrope (heart rate)
Causes bronchodilation

INDICATIONS:
Acute Allergic Reaction
Adult Cardiac Dysrhythmia Bradycardia
Cardiac Arrest Shockable
Adult Respiratory Distress
Pediatric Cardiac Arrest Non- Shockable
Pediatric Respiratory Distress
Obstetrical Emergencies
Post Delivery and Neonatal Resuscitation
Post Resuscitative Care

CONTRAINDICATIONS: None when used in the emergency setting

PRECAUTIONS:
Should be protected from light
Blood pressure, pulse, and ECG must be constantly monitored
Use caution with the elderly and those with pre-existing cardiovascular disease

SIDE EFFECTS:
Tachydysrhythmias
Anxiety

ADULT DOSAGE:

Acute Allergic Reaction/Anaphylaxis:
Administer ***Epinephrine 1:1,000 0.3 mg IM***

Cardiac Dysrhythmia Bradycardia/Unstable Bradycardia:
Impending cardiac arrest –*Epinephrine infusion 2-10 mcg/min* (***1 mg of 1:1,000*** **in** ***250 mL 0.9% Normal Saline***) titrated to effect

Cardiac Arrest Shockable:
For Return Of Spontaneous Circulation (ROSC) consider ***Epinephrine IV Infusion 0.1 mcg/kg/min IV/IO*** (***1 mg of 1:1,000*** **in** ***250 mL 0.9% Normal Saline***)

Cardiac Arrest Non-Shockable:
For Return Of Spontaneous Circulation (ROSC) consider ***Epinephrine IV Infusion 0.1 mcg/kg/min IV/IO*** (***1 mg of 1:1,000 in 0.9% Normal Saline 250 mL***); titrate to Mean Arterial Pressure of 90-100 mmHg

Respiratory Distress/Status Asthmaticus:
Administer ***Epinephrine 1:1,000 0.3mg IM (0.3 mL)***

Epinephrine 1:1,000

Respiratory Distress/Stridor:
If no improvement after administration of Inhalation Saline, administer ***3mL of Epinephrine 1:1,000*** in nebulizer

Obstetrical Emergencies:
Newborn Respiratory Distress - If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****: *1 mg (1 mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

PEDIATRIC DOSAGE:

Acute Allergic Reaction/Anaphylaxis:
Administer ***Epinephrine 1:1,000 0.01 mg/kg IM up to a maximum of 0.3 mg***

Cardiac Arrest Shockable and Non-Shockable:
If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe*****: *1mg (1mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

Respiratory Distress/Asthma Bronchospasm over 2 years of age:
Consider ***Epinephrine:***

- ***Greater than 30 kg: 1:1,000 0.3 mg IM***
- ***Less than 30 kg: 1:1,000 0.01 mg/kg IM***

Respiratory Distress/Status Asthmaticus:
Administer ***Epinephrine:***

- ***Greater than 30 kg: 1:1,000 0.3 mg IM***
- ***Less than 30 kg: 1:1,000 0.01 mg/kg IM***

Post Delivery and Neonatal Resuscitation:
If there is no improvement with initial measures taken for a Newborn in respiratory distress, and heart rate is less than 60 beats per minute, consider ***Epinephrine 1:10,000 0.1mg/kg (0.1 mL/kg) IV/IO***

Epinephrine 1:10,000 preloaded syringe, combine in a ***10 mL syringe*****: *1 mg (1 mL) of Epinephrine 1:1,000* with *9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***

Epinephrine 1:10,000

CLASS:	Sympathomimetic or Catecholamine
ACTIONS:	Positive inotrope (force of contraction) Positive chronotrope (heart rate) Causes bronchodilation
INDICATIONS:	Adult Acute Allergic Reaction Adult Cardiac Arrest Shockable Adult Cardiac Arrest Non-Shockable Adult Respiratory Distress Pediatric Acute Allergic Reaction Pediatric Cardiac Arrest Shockable Pediatric Cardiac Arrest Non-Shockable Pediatric Cardiac Dysrhythmia Bradycardia Pediatric Respiratory Distress Obstetrical Emergencies Post Delivery and Neonatal Resuscitation
CONTRAINDICATIONS:	None when used in the emergency setting
PRECAUTIONS:	Should be protected from light Blood pressure, pulse and ECG must be constantly monitored Use caution with the elderly and those with pre-existing cardiovascular disease
SIDE EFFECTS:	Tachydysrhythmias Anxiety
NOTE:	If there is no ***Epinephrine 1:10,000 preloaded syringe***, combine in a ***10 mL syringe***: ***1 mg (1 mL) of Epinephrine 1:1,000*** **with** ***9 mL 0.9% Normal Saline***; this creates the same as an ***Epinephrine 1:10,000 preloaded syringe***.
ADULT DOSAGE:	**Acute Allergic Reaction:** When a patient is hemodynamically unstable, in profound shock, or in case of impending cardiopulmonary arrest, move immediately to**:** ***Epinephrine 1:10,000 0.1mg IV/IO (1mL), maximum dose of 0.3mg*** **Cardiac Arrest Shockable:** Administer ***1:10,000 Epinephrine 1 mg IV/IO,*** repeat every 3 minutes **Cardiac Arrest Non-Shockable:** Administer ***1:10,000 Epinephrine 1 mg IV/IO,*** repeat every 3 minutes **Respiratory Distress/Status Asthmaticus:** Consider ***Epinephrine 1:10,000 0.1mg IV/IO (1mL)*** only if the prior dose of ***Epinephrine*** is not administered **Obstetrical Emergencies/Birth of Neonate:** If heart rate is less than 60 beats per minute, consider ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg)***

Epinephrine 1:10,000

Post Delivery and Neonatal Resuscitation:

If no improvement with above measures and heart rate is less than 60 beats per minute, consider ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg)***

PEDIATRIC DOSAGE:

Acute Allergic Reaction/Anaphylaxis:

When a patient is hemodynamically unstable, in profound shock, or in case of impending cardiopulmonary arrest, move immediately to: ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg), maximum dose of 0.3mg***

Cardiac Arrest Shockable:

Administer ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1mL/kg)***

Cardiac Arrest Non-Shockable:

Administer ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1mL/kg)***

Cardiac Dysrhythmia Bradycardia:

Impending cardiac arrest – administer *Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg)*

Post Delivery and Neonatal Resuscitation:

If no improvement with above measures and heart rate is less than 60 beats per minute, consider ***Epinephrine 1:10,000 0.01 mg/kg IV/IO (0.1 mL/kg)***

Epi Auto-Injector

CLASS:	Sympathomimetic Catecholamine
ACTIONS:	Positive inotrope (force of contraction) Positive chronotrope (heart rate) Causes bronchodilation
INDICATIONS:	Adult Acute Allergic Reaction Pediatric Acute Allergic Reaction
CONTRAINDICATIONS:	None when used in the emergency setting
PRECAUTIONS:	Should be protected from light Blood pressure, pulse and ECG must be constantly monitored Use caution with the elderly and those with pre-existing cardiovascular disease
SIDE EFFECTS:	Tachydysrhythmias Anxiety
Notes: [EMT]	Only EMTs who have completed training through a PEMS local protocol course are authorized to administer yellow Epi Auto-Injector medication box stocked Epi Auto-Injector. (Hold against thigh firmly and press until injector activates. Hold in place for a minimum of 10 seconds.)
ADULT DOSAGE:	**Acute Allergic Reaction/Anaphylaxis:** ***Epinephrine auto-injector*** from yellow Epi Auto-Injector box (if available) or use the patient's own ***epinephrine auto-injector***
PEDIATRIC DOSAGE:	**Acute Allergic Reaction/Anaphylaxis:** ***Epinephrine auto-injector*** from yellow Epi Auto-Injector box or use the patient's own ***epinephrine auto-injector***

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Furosemide-Lasix

CLASS: Potent diuretic

ACTIONS: Inhibits reabsorption of sodium chloride
Promotes prompt diuresis
Venodilation (decreases preload)

INDICATIONS: Adult Respiratory Distress Pulmonary Edema

CONTRAINDICATIONS: Pregnancy
Dehydration

PRECAUTIONS: Should be protected from light
Dehydration

SIDE EFFECTS: Few in emergency usage

ADULT DOSAGE: Administer ***Lasix (Furosemide) 40 mg IV/IO***

PEDIATRIC DOSE: Not currently indicated for pediatric use in protocols

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Glucagon

CLASS:	Hormone
ACTIONS:	Breaks down stored glycogen to glucose Inhibits the synthesis of glycogen into glucose increasing the circulating blood glucose
INDICATIONS:	Adult Altered Level of Consciousness Adult Overdose and Poisons Pediatric Altered Level of Consciousness Pediatric Overdose and Poisons
CONTRAINDICATIONS:	Known hypersensitivity to the drug
PRECAUTIONS:	Caution in use with patients who may have decreased glycogen stores: • Alcoholism • Malnutrition • Renal disease
SIDE EFFECTS:	Nausea/vomiting
ADULT DOSAGE:	**Altered Level of Consciousness:** If unable to gain IV access, administer ***Glucagon 1 mg IN or IM*** **Overdose and Poisons:** Antidote for some overdoses
PEDIATRIC DOSAGE:	**Altered Level of Consciousness:** Consider ***Glucagon 0.1 mg/kg IN or IM up to a maximum dose of 1 mg*** if no IV/IO access ***OR*** if unable to administer oral glucose **Overdose and Poisons:** Antidote for some overdoses

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Haloperidol/Haldol

CLASS:	Antipsychotic
ACTIONS:	Dopamine antagonist
INDICATIONS:	Behavioral Emergencies
CONTRAINDICATIONS:	Parkinson's disease Alzheimer's disease Seizure disorders Coma CNS depression
PRECAUTIONS:	Elderly Cardiac history Patients receiving Lithium treatments and/or other antipsychotic medications Patients receiving anti-dysrhythmic medications Impaired liver function May impair temperature regulation
SIDE EFFECTS:	Seizures Extrapyramidal syndrome Facial flushing Anxiety Bradycardia Drowsiness Hypotension
ADULT DOSAGE:	**Behavioral Emergencies/Combative Patient:** If continued chemical restraint is required, consider ***Haloperidol (Haldol) 5 mg IM***

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Ipratropium Bromide/Atrovent

CLASS: Anticholinergic

ACTIONS:
Parasympatholytic which blocks acetylcholine receptors
Inhibits parasympathetic stimulation
Causes bronchodilation
Dries respiratory secretions

INDICATIONS:
Adult Respiratory Distress
Pediatric Respiratory Distress

CONTRAINDICATIONS: Patients with a known hypersensitivity to the drug

PRECAUTIONS:
Glaucoma
Caution when used in the elderly and those with cardiovascular disease or hypertension

SIDE EFFECTS:
Cough
Dry mouth
Anxiety
Nausea/vomiting
Palpitations
Dizziness
Headache
Tachycardia
Hypertension

ADULT DOSAGE:

Respiratory Distress Asthma/COPD:

Administer ***Albuterol Sulfate (Proventil) 3 mL 0.083% solution/Ipratropium Bromide (Atrovent) 2.5 mL 0.02% solution nebulized***. Mix unit dose of each medication in a nebulizer

Status Asthmaticus:

Administer ***Albuterol Sulfate (Proventil) (3 mL 0.083% Solution)/ Ipratropium Bromide (Atrovent) (2.5 mL 0.02% Solution) nebulized***. Mix unit dose of each medication in a nebulizer

PEDIATRIC DOSAGE:

Asthma/Bronchospasm Over Age 2 Mild or Intermittent:

Administer unit dose nebulized ***Albuterol Sulfate (Proventil) (3 mL of 0.083% solution) /Ipratropium Bromide (Atrovent) (3 mL of 0.02% solution)***

Asthma/Bronchospasm Severe or persistent:

Administer unit dose nebulized ***Albuterol Sulfate (Proventil) (3 mL of 0.083% solution) /Ipratropium Bromide (Atrovent) (3 mL of 0.02% solution)***

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Lidocaine-Xylocaine

CLASS: Antidysrhythmic

ACTIONS:
Suppresses ventricular ectopic activity
Increases ventricular fibrillation threshold
Reduces velocity of electrical impulse through conduction system

INDICATIONS:
Adult Cardiac Arrest Shockable
Intraosseous Access
Pediatric Cardiac Arrest Shockable

CONTRAINDICATIONS:
High-degree heart blocks
PVCs in conjunction with bradycardia
Wolff-Parkinson-White Syndrome
Löwn-Ganong-Levine Syndrome
Stokes-Adams Syndrome
Thrombocytopenia

PRECAUTIONS:
Monitor for CNS toxicity:

- Slurred speech
- Decreased LOC
- Muscle twitch
- Seizure

Patients greater than 70 years of age (half-dose)
Liver disease (half-dose)
Congestive heart failure (half-dose)
Shock

SIDE EFFECTS:
Anxiety
Seizure
Nausea
Widening of QRS

ADULT DOSAGE:

Adult Cardiac Arrest Shockable:

If Amiodarone is not available, administer ***Lidocaine 1 mg/kg IV/IO***

Instraosseous Access:

Lidocaine 1 mg/kg IO not to exceed 40 mg titrated to pain relief. **NOTE: This dosing is not considered an antidysrythmic**

PEDIATRIC DOSAGE:

Cardiac Arrest Shockable:

Administer ***Lidocaine (*Xylocaine*) 1 mg/kg IV/IO***

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Lorazepam-Ativan

CLASS: Sedative

ACTIONS: CNS Depressant

INDICATIONS:
Adult Behavioral Emergencies
Adult Seizure
Pediatric Seizure
Pediatric Unstable Tachycardia
Pre-eclampsia/eclampsia

CONTRAINDICATIONS:
Hypersensitivity to benzodiazepines
Narrow-angle glaucoma
Respiratory insufficiency
Hepatic failure

PRECAUTIONS: Should be diluted with ***Normal Saline*** prior to slow administration not to exceed 2 mg/min

SIDE EFFECTS:
Amnesia
Drowsiness
Hypotension
Respiratory depression

ADULT DOSAGE:

Behavioral Emergencies/Combative Patients:

If chemical restraint is required, administer ***Lorazepam (Ativan) 1 mg IV/IM***

Seizure:

If actively seizing, administer ***Lorazepam (Ativan) 2 mg IV/IM and repeat dose in 5 minutes if seizure activity continues, up to a maximum total dose of 4 mg***

Eclampsia:

If seizure activity continues, administer ***Lorazepam (Ativan) 2 mg IV/IM and repeat dose in 5 minutes if seizure activity continues, up to a maximum total dose of 4 mg***

PEDIATRIC DOSAGE:

Pediatric Seizure:

If actively seizing, administer ***Lorazepam (Ativan) 0.1 mg/kg IV, IM*** up to **1 mg.** Repeat dose in 5 minutes if seizure activity continues up to a **maximum total dose of 2 mg**

Pediatric Unstable Narrow Tachycardia:

If time allows prior to cardioversion, consider mild sedation; administer ***Lorazepam (Ativan) 0.05 mg/kg IV/IO/IM to a maximum of 1 mg***

Pediatric Unstable Wide Complex Tachycardia with Pulse:

If time allows prior to cardioversion consider mild sedation; administer ***Lorazepam (Ativan) 0.05 mg/kg IV/IO/IM to a maximum of 1 mg***

Magnesium Sulfate

CLASS:
Anticonvulsant
Electrolyte
Antidysrhythmic

ACTIONS:
Stabilizes muscle cell membranes by interaction with the sodium/potassium pump
CNS depressant
Relaxation of smooth muscle

INDICATIONS:
Adult Cardiac Arrest Shockable
Adult Respiratory Distress
Adult Pre-eclampsia/eclampsia

CONTRAINDICATIONS:
High degree heart block
Renal insufficiency
Renal failure

PRECAUTIONS:
Monitor ECG and respiratory status closely
Monitor deep tendon reflexes or for clonus in the eclamptic patient: loss of these may indicate over administration

SIDE EFFECTS:
Bradycardia
CNS depression
Flushing of the skin
Heart block
Hypotension
Respiratory depression

ADULT DOSAGE:

Cardiac Arrest Shockable:

Consider ***Magnesium Sulfate, 2 g IV/IO mixed in 10 mL 0.9% Normal Saline over 5 minutes***

Respiratory Distress/Status Asthmaticus:

Administer ***Magnesium Sulfate 2 g IV/IO.*** If premixed, give ***2 g IV/IO*** over 20 minutes. If not premixed, mix ***2 g in 100mL 0.9% Normal Saline IV*** over 20 minutes

Pre-Eclampsia:

Administer ***Magnesium Sulfate 4 g IV/IO.*** If premixed, give ***4 g IV/IO*** over 20 minutes. If not premixed, mix ***4 g in 100mL 0.9% Normal Saline IV*** over 20 minutes.

Eclampsia:

Administer ***Magnesium Sulfate 4 g IV/IO. If premixed, give 4 g IV/IO*** given at a rate of 1 g per minute or until seizure stops***. If not premixed, mix 4 g in 100mL 0.9% Normal Saline IV/IO*** given at a rate of 1 g per minute or until seizure stops.

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Methylprednisolone Succinate/Solu-Medrol

CLASS:	Synthetic steroid
ACTIONS:	Beta-adrenergic agonist Suppresses inflammation Relaxes vascular smooth muscle
INDICATIONS:	Adult Acute Allergic Reaction Adult Respiratory Distress Pediatric Acute Allergic Reaction Pediatric Respiratory Distress
CONTRAINDICATIONS:	Patients with a known hypersensitivity to glucocorticoids
PRECAUTIONS:	Pregnant women Hypertension Congestive heart failure Diverticulitis Recent myocardial infarction Renal insufficiency
SIDE EFFECTS:	Nausea/vomiting if administered rapidly Headache Hypertension Sodium and water retention
ADULT DOSAGE:	**Acute Allergic Reaction and Anaphylaxis:** Administer ***Methylprednisolone Succinate (Solu-Medrol) 125 mg slow IV***
	Respiratory Distress Asthma/COPD: Administer ***Solu-Medrol*** **(*Methylprednisolone Succinate*)** ***125 mg slow IV***
	Respiratory Distress Status Asthmaticus: Administer ***Solu-Medrol*** **(*Methylprednisolone Succinate*)** ***125 mg slow IV***
	Respiratory Distress Stridor: Administer ***Solu-Medrol*** **(*Methylprednisolone Succinate*)** ***125 mg slow IV***

Methylprednisolone Succinate/Solu-Medrol

PEDIATRIC DOSAGE:

Acute Allergic Reaction and Anaphylaxis:

Administer ***Methylprednisolone Succinate (Solu-Medrol) 2 mg/kg slow IV/IO*** up to **125 mg**

Respiratory Distress/Asthma/Bronchospasm over 2 years of age:

Administer ***Methylprednisolone (Solu-Medrol) 2 mg/kg IV up to 125 mg***

Midazolam HCL/Versed

CLASS: Water-soluble benzodiazepine

ACTIONS: Central nervous system (CNS) depressant

INDICATIONS:
Adult Airway Management
Adult Cardiac Dysrhythmia Bradycardia
Adult Cardiac Dysrhythmia Narrow Complex Tachycardia
Adult Cardiac Dysrhythmia Wide Complex Tachycardia
Adult Seizure
Behavioral Emergencies
Pediatric Seizure

CONTRAINDICATIONS:
Patients with a known hypersensitivity to cherries or cherry products
Hypersensitivity to Midazolam

PRECAUTIONS:
COPD patients are unusually sensitive to the respiratory depressant effect
Use extreme caution when administering to the elderly or debilitated patients
Adverse reactions may increase when used with:

- Barbiturates
- Alcohol
- CNS depressants
- Cimetidine (Tagamet)
- Ranitidine (Zantac)
- Diltiazem (Cardizem)
- Echinacea

All patients receiving Versed must also receive continuous monitoring for:

- Early signs of hypoventilation
- Airway obstruction
- Apnea

SIDE EFFECTS:
Respiratory depression and respiratory arrest
Agitation
Hiccups
Headache
Involuntary movements including:

- Tonic/clonic movements
- Muscle tremor

ADULT DOSAGE:

Airway Management/Post-Advanced Airway:

Midazolam (Versed) 2 mg IN or Slow IV/IO, may repeat as needed - 5 minutes after initial dose up to maximum dose of 5 mg (including any doses administered during intubation)

Midazolam HCL/Versed

Cardiac Dysrhythmia Bradycardia/Unstable Bradycardia:

If time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***

Cardiac Dysrhythmia Narrow Complex Tachycardia Unstable Narrow Tachycardia:

For mild sedation, if time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***

Adult Cardiac Dysrhythmia Wide Complex Tachycardia Unstable with a Pulse:

For mild sedation, if time and patient condition permits, administer ***Midazolam (Versed) 2 mg IN/IM/IV/IO***

Seizure:

Midazolam (Versed) 2 mg IN followed by 1 mg every 2 min until seizure activity stops ***up to a total dose of 5 mg***

Behavioral Emergencies Combative Patients:

If patient still requires chemical restraint, administer ***Midazolam (Versed) 5mg IN/IM or 2.5mg IV/IO***, then restrain patient

PEDIATRIC DOSAGE:

Seizure:

Midazolam (Versed) 0.1mg/kg IN to a maximum single dose of 2 mg followed by ***up to 1 mg every 2 min*** until seizure activity stops up ***to a total dose of 5 mg***

Morphine Sulfate

CLASS:	Narcotic analgesic CNS depressant
ACTIONS:	Causes peripheral vasodilation CNS depressant Decreases pain perception and anxiety Reduces respiratory effort
INDICATIONS:	Acute Coronary Syndromes Adult Pain Management Pediatric Pain Management
CONTRAINDICATIONS:	Systolic BP less than 90 mm/Hg Head injury Asthma Patients with history of hypersensitivity to the drug
PRECAUTIONS:	Respiratory depression (Naloxone-Narcan should be available) Hypotension Nausea/vomiting Bradycardia Seizure disorder Severe renal insufficiency Delirium Tremens Abdominal pain of unknown etiology
SIDE EFFECTS:	Dizziness Altered level of consciousness Respiratory depression Hypotension Flushing at IV site
ADULT DOSAGE:	**Acute Coronary Syndromes:** ***Morphine Sulfate 2.5-5 mg IV/IO/IM titrated to effect over 1 minute***, ***repeat 2 mg every 5 minutes***, titrated to pain relief **(*maximum dose 10 mg*)** as long as patient's systolic blood pressure is greater than 90 mm/Hg **Pain Management:** ***Morphine Sulfate 2.5-5 mg IV/IO/IM titrated to effect over 1 minute, repeat 2 mg every 5 minutes,*** titrated to pain relief ***(maximum dose 10 mg)*** as long as patient's systolic blood pressure is greater than 90 mm/Hg
PEDIATRIC DOSAGE:	**Pain Management:** ***Morphine Sulfate 0.1 mg/kg IV/IO/IM*** up to **maximum dose of 5 mg**

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Naloxone/Narcan

CLASS: Opiate antagonist

ACTIONS:
Reverses opiate effects
Reverses narcotic effects

INDICATIONS:
Adult Altered Level of Consciousness
Pediatric Altered Level of Consciousness

CONTRAINDICATIONS: Patients with known hypersensitivity to the drug

PRECAUTIONS:
Should be administered with caution to patients dependent on narcotics as it may cause withdrawal effects
Congestive Heart Failure
Agitation
Seizures
Septic shock patients
Contact Medical Control before using Narcan in newborn

SIDE EFFECTS:
Cardiac Arrest
Hypertension
Dyspnea
Ventricular Tachycardia
Ventricular Fibrillation
Flash Pulmonary Edema

NOTE:
For narcotic overdoses including:

- Morphine
- Demerol- Meperidine
- Heroin
- Dilaudid-Hydromorphone
- Lomotil- Diphenoxylate Atropine
- Paregoric
- Percodan- Oxycodone Aspirin
- Methadone
- Oxycontin-Oxycodone HCL
- Vicodin- Hydrocodone APAP

For synthetic analgesic overdoses including:

- Fentanyl- Sublimaze
- Nubain- Nalbuphine HCL
- Talwin- Pentazocine
- Stadol- Butorphanol

For other medication overdoses, specifically:

- Immodium- Loperamide HCL

Naloxone/Narcan

ADULT DOSAGE:

Suspected Narcotic Overdose:

Administer ***Naloxone (Narcan) 2 mg IN/IV/IO/IM/NEB*** titrated to effect. Repeat dose in 5 minutes if no response.

PEDIATRIC DOSAGE:

Suspected Narcotic Overdose:

Administer ***Naloxone (Narcan) 0.1 mg/kg IN/IV/IO/IM/NEB***

To nebulize Naloxone, combine ***2mg (2 mL) Naloxone with 3mL inhalation saline in nebulizer chamber.*** Titrate to effect.

Nitroglycerin/Nitrostat

CLASS:
Antianginal
Vasodilator

ACTIONS:
Dilates coronary arteries
Systemic vasodilator

INDICATIONS:
Acute Coronary Syndromes
Adult Respiratory Distress

CONTRAINDICATIONS:
Patients with a sensitivity to corn and corn products
Children less than 12
Patients who take medications used for erectile dysfunction*
Hypotension
Hypersensitivity

PRECAUTIONS:
Syncope
Right-sided myocardial infarction
Drug must be protected from light
Expires quickly once bottle is open
Increased Intracranial Pressure

SIDE EFFECTS:
Headache
Dizziness
Hypotension
Flushing

***Do not administer Nitroglycerin (Nitrostat) if the patient has taken Viagra (Sildenafil), Revatio (Sildenafil) for pulmonary hypertension, Levitra (Vardenafil HCL) or a similar drug within the last 24 hours, or Cialis (Tadalafil) within the last 48 hours.**

ADULT DOSAGE:

Acute Coronary Syndromes:

Administer ***Nitrostat (Nitroglycerin) 0.4 mg SL*** if BP is equal to or greater than
100 mm/Hg.
If BP is stable (greater than 100 mm/Hg) and no pain relief results, repeat NTG every 5 minutes up to a total of three doses.

Respiratory Distress Pulmonary Edema:

Administer ***Nitrostat (Nitroglycerin) 0.4 mg SL*** - every 5 minutes if BP is greater than 100 mm/Hg systolic, may repeat up to a total of three doses.

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Ondansetron/Zofran

CLASS:	Antiemetic
ACTIONS:	Relieves nausea and vomiting
INDICATIONS:	Adult Nausea and Vomiting Adult Pain Management Pediatric Pain Management
CONTRAINDICATIONS:	Known hypersensitivity to the drug
PRECAUTIONS:	Congestive heart failure Bradydysrhythmias Prolonged QT Syndrome Hepatic impairment
SIDE EFFECTS:	Headache Constipation Diarrhea Atrial fibrillation Prolonged QT interval Drowsiness
ADULT DOSAGE:	**Nausea/Vomiting:** Administer ***Ondansetron (Zofran) 4 mg IM or IV over 2 min***. If vomiting continues, repeat ***4 mg*** in 10 minutes. **Pain Management:** Administer ***Zofran (Ondansetron) 4 mg IV/IO/IM***
PEDIATRIC DOSAGE:	**Pain Management:** For pediatric patients greater than one year of age and less than 40 kg, administer ***Zofran (Ondansetron) 0.15 mg/kg slow IV/IO up to a maximum dose of 4 mg.*** For pediatric patients greater than one year of age and greater than 40 kg, administer ***Zofran (Ondansetron) 4 mg slow IV/IO.***

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Sodium Bicarbonate

CLASS: Alkalinizing agent

ACTIONS: Combines with excessive acid to form a weak volatile acid
Increases pH

INDICATIONS: Crush Injuries
Adult Cardiac Arrest Shockable
Adult Cardiac Arrest Non-Shockable

CONTRAINDICATIONS: None when used in the emergency setting

PRECAUTIONS: Can deactivate catecholamines
Can precipitate with calcium

SIDE EFFECTS: Alkalosis

ADULT DOSAGE:

Adult Cardiac Arrest Non-Shockable:

Administer ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available.

Adult Cardiac Arrest Shockable:

For arrest in **renal dialysis patients only** administer ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available.

Crush Injuries:

If patient has any of the following ECG changes: Peaked T waves, Wide QRS complex, Short QT interval, Absent P waves, administer ***Sodium Bicarbonate 1 mEq/kg IV/IO*** and repeat in 10 minutes if no change and medications are available.

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Sublimaze/Fentanyl

CLASS:	Synthetic Opiate Analgesic
ACTIONS:	Binds to opioid receptors, producing analgesia and sedation: opioid agonist
INDICATIONS:	Adult Coronary Syndromes Adult Pain Management
CONTRAINDICATIONS:	Systolic BP less than 90 mm/Hg Hypersensitivity to drug
PRECAUTIONS:	Respiratory Depression Bradycardia COPD Elderly and Debilitated Patients MAO Inhibitor Therapy Head Injury
SIDE EFFECTS:	Hypotension Respiratory Depression Nausea and Vomiting Bradycardia Muscle Rigidity
ADULT DOSAGE:	**Acute Coronary Syndrome:** ***Fentanyl (Sublimaze) 25 mcg IN, IM or IV/IO over 2 minutes as*** initial dose; may repeat ***25 mcg*** every 5 minutes titrated to pain relief ***up to maximum dose of 200 mcg*** as long as patient systolic blood pressure is greater than 90 mmHg and patient remains conscious **Pain Management:** ***Fentanyl (Sublimaze) 25 mcg IN, IM or IV/IO over 2 minutes as*** initial dose; may repeat ***25-50 mcg*** every 5 minutes titrated to pain relief ***up to maximum dose of 200 mcg*** as long as patient systolic blood pressure is greater than 90 mmHg and patient remains conscious
PEDIATRIC DOSAGE:	Not currently indicated for pediatric use in protocols

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Procedures Table of Contents

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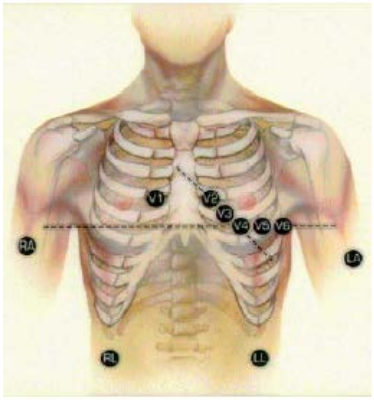
12-Lead ECG

CLINICAL INDICATIONS

- Suspected cardiac patient
- Suspected overdose
- Electrical injuries
- Syncope/Near-syncope
- CHF
- Nausea/Vomiting
- Chest pain
- Shortness of breath
- Abdominal pain
- Upper back pain (non-muscular)
- Weakness
- Toxic exposures
- Atypical presentations



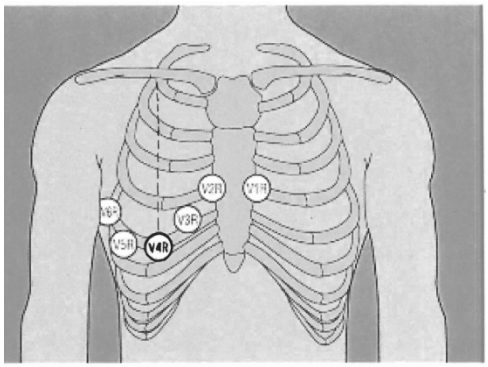
Standard

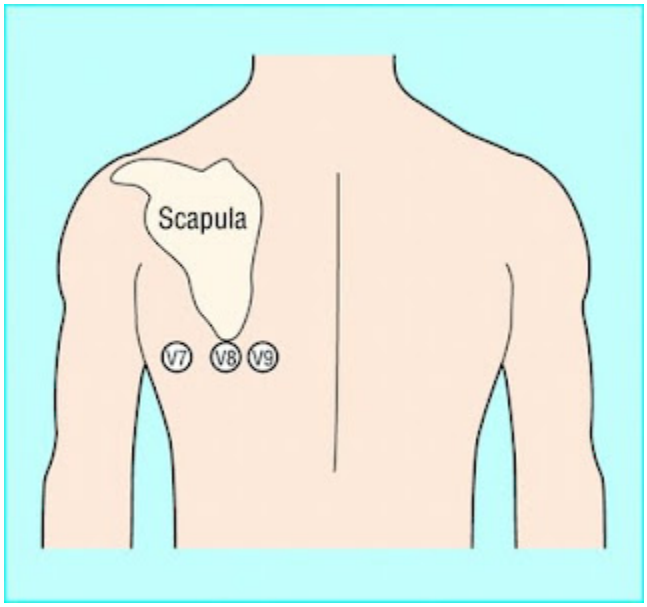
PROCEDURE

- Prepare 12-Lead ECG monitor and connect patient cable with electrodes
- Expose chest and prep as necessary. Modesty of the patient should be respected
- Apply chest leads and extremity leads using the following landmarks:
    - RA- Right arm
    - LA- Left arm
    - RL- Right leg
    - LL- Left leg
    - V1- 4thintercostal space at right sternal border
    - V2- 4th intercostal space at left sternal border
    - V3- Directly between V2 and V4
    - V4- 5th intercostal space at midclavicular line
    - V5- Level with V4 at left anterior axillary line
    - V6- Level with V5 at left midaxillary line
- Instruct patient to remain still
- Press the appropriate button to acquire the 12-Lead ECG within 5 minutes of patient contact
- A Right-sided 12-Lead ECG (V4R) & Posterior 12-Lead ECG (V8 & V9) together constitute a 15-Lead ECG:
    - V4R- (formerly V4)5th intercostal space at midclavicular line on the patient's right side
    - V8 - (formerly V5) 6th intercostal space left posterior at midscapular line
    - V9 - (formerly V6) 6th intercostal space left at paraspinous line
    - Label the second 12-Lead ECG to reflect the new leads: V4 as V4R, V5 as V8, and V6 as V9

12-Lead ECG

- Print data as per guidelines and attach a copy of the 12-Lead ECG to the Patient Care Report (PCR). Place the name and age of the patient on the paper copy of the 12-Lead ECG
- If capability exists, and acute MI (or other acute cardiac finding) is suspected, transmit ECG to receiving facility immediately after obtaining ECG. If HEMS is utilized, give a copy of the printed ECG to HEMS provider during patient transfer.
- Document the procedure, time, and results on the patient care report (PCR)





Capnography

INDICATIONS

- Altered mental status
- Cardiac arrest with return of spontaneous circulation (ROSC)
- Any serious trauma or medical condition
- Any use of Naloxone (Narcan)

CONTRAINDICATIONS

None

PROCEDURE

Follow manufacturer's instructions for placement and use of device.
Use on both adult and pediatric patients.
Endotracheal tube (ETT)/blind insertion airway device (BIAD)/bag valve mask (BVM):

- Turn on recording instrumentation.
- Place $ETCO_2$ sampling device in between ventilation device (BVM/ventilator) and the mask/endotracheal tube (ETT)/King Airway/Combitube/ Laryngeal Mask Airway (LMA)
- Attach sampling device to recording instrumentation and ventilate.
- The Capnometer shall remain in place with the airway and be monitored throughout prehospital care and transport.

Non-intubated spontaneously breathing patient:

- Turn on recording instrumentation.
- Place the sampling nasal cannula on the patient.
- Attach sampling device to recording instrumentation. Observe and record results.
- The capnometer shall remain in place with the airway and be monitored throughout prehospital care and transport.

Continuous positive airway pressure (CPAP)/ Bilevel positive airway pressure (BiPAP):

- Follow manufacturer's recommendations for placement of $ETCO_2$ in conjunction with use of CPAP/BIPAP.
- Place sampling nasal cannula on the patient.
- Place CPAP/ BiPAP mask on patient ensuring a good seal.
- Observe and record results.
- The capnometer shall remain in place with the airway and be monitored throughout prehospital care and transport.

PEARLS

- Normal range → $ETCO_2$ in adult and pediatric patients is 35-45 mm Hg.
- Cardiac arrest → Attempt to keep $ETCO_2$ above 10 mm Hg.
- Post-cardiac arrest → Attempt to keep $ETCO_2$ between 34-40 mm Hg.
- If $ETCO_2$ levels remain above 45 mm Hg despite ventilatory assistance, bronchodilators, CPAP or BIPAP, intubation may be needed.

- When $ETCO_2$ is not detected, three factors must be addressed:
  - Loss of airway/apnea → Esophageal ETT placement or migration
  - Circulatory collapse → Cardiac arrest, pulmonary embolism, hypoperfusion
  - Equipment failure → Disconnected BVM or ventilator, obstruction in $ETCO_2$ detector or sampling tube

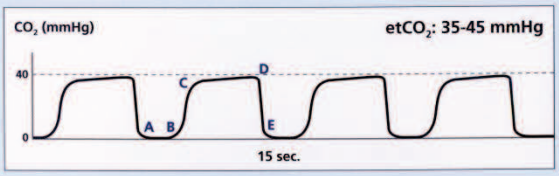
Normal and Abnormal $etCO_2$/Capnograph Waveforms

Normal Capnogram

The normal capnogram is a waveform which represents the varying CO_2 level throughout the breath cycle.

Waveform Characteristics:

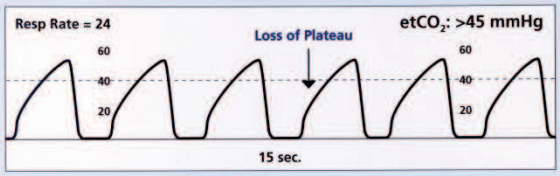
A-B: Baseline
B-C: Expiratory Upstroke
C-D: Expiratory Plateau
D: End-Tidal Concentration
D-E: Inspiration



Bronchospasm/Asthma

Other Possible Causes:

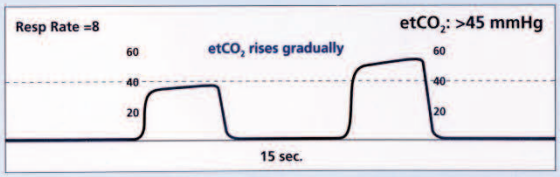
- Bronchospasm/COPD
- Obstruction in the expiratory limb of the breathing circuit
- Presence of a foreign body in the upper airway
- Partially kinked or occluded artificial airway



*Increasing $etCO_2$ (Hypoventilation)

Other Possible Causes:

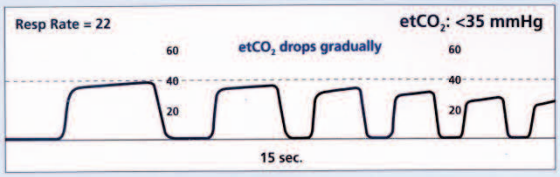
- Decrease in respiratory rate
- Decrease in tidal volume
- Increase in metabolic rate
- Rapid rise in body temperature (malignant hyperthermia)



*Decreasing $etCO_2$ (Hyperventilation)

Other Possible Causes:

- Increase in respiratory rate
- Increase in tidal volume
- Metabolic acidosis
- Fall in body temperature



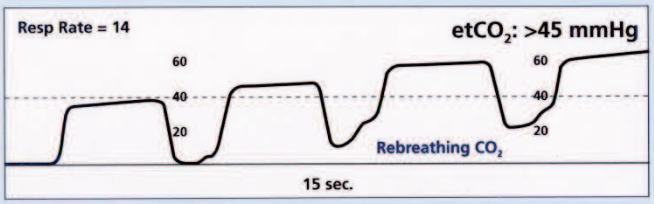
*Assumes adequate circulation and alveolar gas exchange

Capnography

Rebreathing CO_2

Other Possible Causes:

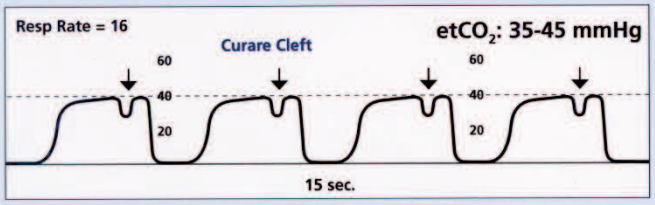
- Faulty expiratory valve
- Inadequate inspiratory flow
- Partial rebreathing
- Insufficient expiratory time



Curare Cleft

Other Possible Causes:

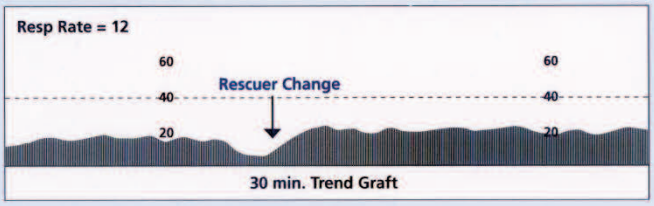
- Patient is mechanically ventilated
- Depth of cleft is proportional to degree of muscle relaxants



Cardiac Arrest

Other Possible Causes:

- Decreased or absent cardiac output
- Decreased or absent pulmonary blood flow
- Sudden decrease in CO_2 values



Return of Spontaneous Circulation

Other Possible Causes:

- Increase in cardiac output
- Increase in pulmonary blood flow
- Gradual increase in CO_2 production

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Central Venous Catheter Access

INDICATIONS

- Emergent venous access when patient's life is in imminent danger
- Patient has central venous access device (CVAD) present

DEVICES

CAUTION: These devices contain high concentrations of heparin. It must be discarded prior to use.

- Indwelling Catheter(s) - Venous access devices whose ports are Luer-locked or capped. The tip of the catheter is located in a large vein or superior vena cava. Available brands include Hickman, Broviac, Groshong, Hohn, PICC Line, and Midline.
- Implanted Ports - Single or double (oval) reservoir located under skin on chest or forearm. Access, by inserting a needle through skin into the rubber septum. The catheter tip is located in a large vein or superior vena cava. **Available brands include Port-a-Cath.**
- Aphoresis or Hemodialysis Accesses
  - Indwelling Catheters - Large bore, short length double catheters (may have third tail or lumen). "Arterial" and "venous" lumens are actually side-by-side in subclavian, internal jugular, or femoral vein. **Available brands include Quinton and Perma Cath.**

PROCEDURE: (I or P provider skill only)

- Identify if CVAD is accessible by standard prehospital equipment. (Implanted ports should be accessed by special, noncoring [Huber-type] needles)
- Identify shut-off, clamps, caps, heparin/saline lock, etc., and clamp line if disconnecting or opening
- Access the device after cleansing with betadine prep
- Unclamp and aspirate with a 10 cc syringe until 10 mL blood returns, but site may be functional without return. Discard aspirated fluid .Only use venous access devices that have a blood return unless the patient or family can verify that the device is functional despite the lack of blood return. **(Do not use if blood cannot be withdrawn)**
- Replace clamp
- Attach syringe with ***10 cc Normal Saline***, remove clamp, flush lumen or port **(Do not use excessive pressure)**
- Replace the clamp
- Establish the IV connection, make sure IV tubing is free of air
- Remove clamp and begin infusion
- Secure connections with Luer lock or tape
- All subsequent injections should be given with a 10 cc syringe or larger. (**Use caution to not damage the existing tubing.)**

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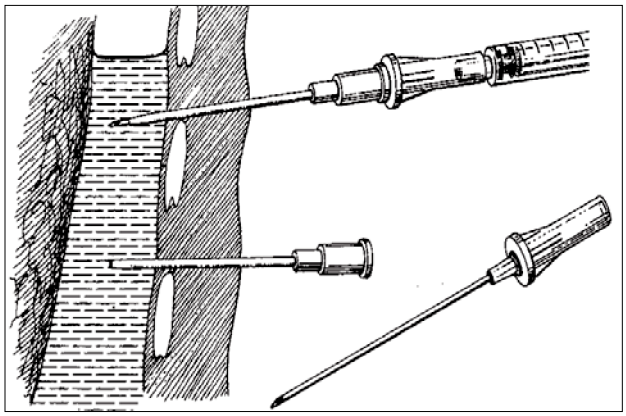
Chest Decompression with Needle

INDICATIONS:



Patients with hypotension (Systolic BP less than 90), clinical signs of shock, ***and at least*** one of the following signs:

- Jugular vein distention.
- Tracheal deviation away from the side of the injury (often a late sign).
- Absent or decreased breath sounds on the affected side.
- Hyper-resonance to percussion on the affected side.
- Increased resistance when ventilating a patient.
- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated require bilateral chest decompression.

PROCEDURE:

- Administer high flow oxygen
- Locate the second intercostal space in the mid-clavicular line on the same side as the pneumothorax. Cleanse the site. [Note: If unable to place anteriorly, lateral placement may be used at the fourth intercostal space, midaxillary line.] Insert the 12-14 guage x 2 ½ inch catheter with 10 cc syringe attached into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace
- Advance the catheter through the parietal pleura until a "pop" is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
- Remove the needle, leaving the plastic catheter in place
- Secure the catheter hub to the chest wall with dressings and tape
- Consider placing a finger cut from an exam glove over the catheter hub. Cut a small hole in the end of the finger to make a flutter valve. Secure the glove finger with tape or a rubber band. (Note – don't waste much time preparing the flutter valve; if necessary control the air flow through the catheter hub with your gloved thumb) or use a commercial flutter valve.
- Evaluate the response in the patient. Assess breath sounds, oxygen saturation, and general appearance of the patient
- Monitor capnography, pulse oximetry, and cardiac status, observe closely for signs of complication
- Document time and response on the patient care report (PCR)

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CPAP

CLINICAL INDICATIONS

The CPAP device should be considered for patients who present with inadequate ventilation. This could be as a result of pulmonary edema, pneumonia, COPD, asthma (use caution), near drowning, etc.
The CPAP device should be considered in patients with:

- Accessory muscle use/retractions
- O_2 saturation less than 94%
- Respiratory rate greater than 24 with signs and symptoms of respiratory distress
- Inability to speak full sentences
- Abdominal/paradoxic breathing
- Altered mentation
- Ability to breathe on their own

CONTRAINDICATIONS

- Inability to maintain drive to breathe
- Decreased level of consciousness
- Apnea
- Pnuemothorax
- Facial trauma/burns
- Penetrating neck and/or chest trauma
- Recent facial surgery
- Patient unable to tolerate mask
- Active vomiting
- Precaution--systolic BP less than 90 mm/Hg

PROCEDURE

- Ensure adequate oxygen supply to ventilation device
- Explain the procedure to the patient
- Consider placement of a nasopharyngeal airway
- Place the delivery mask over the mouth and nose;oxygen should be flowing at this point
- Secure the mask with provided straps starting with the lower straps until air leak is minimal
- Evaluate the response in the patient
- Monitor capnography, pulse oximetry, and cardiac status; consider IV/IO
- If patient condition does not improve, consider use of other airway devices (e.g. BVM)
- Observe closely for signs of complication; document time and response on patient care report (PCR)

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Cricothyrotomy - Needle

INDICATIONS:

Pediatric and adult medical cases:

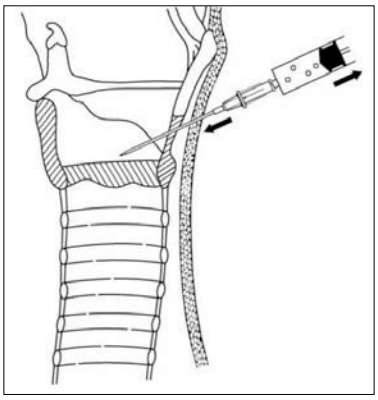
- Respiratory arrest or impending respiratory failure, especially in the setting of upper airway obstruction due to foreign body or infection and inability to ventilate by any means available.

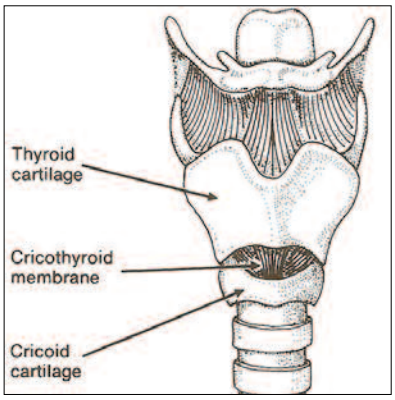
Trauma:

- Advanced airway is required due to respiratory arrest or inability to maintain airway due to face, neck, or chest trauma, or; impending respiratory failure, inability to ventilate due to obstruction of airway, distortion of area, or inability to extend neck in cases of suspected C-spine injury.

PROCEDURE: (Paramedic provider skill only)

- Palpate the cricothyroid membrane midline just below the thyroid cartilage and above the cricoid cartilage
- Cleanse the area
- Insert a 14-gauge catheter with a 10 cc syringe attached midline directed at a 45-degree angle towards the navel, while aspirating the syringe. When trachea is entered, air will be aspirated easily
- Attach the appropriate adapter and ventilate using high flow device
- Assess for adequacy of ventilation. Listen for breath sounds and observe for chest expansion
- Evaluate the response in the patient. Assess breath sounds, oxygen saturation, and general apprearance of the patient
- Monitor capnography, pulse oximetry, and cardiac status. Observe closely for signs of complications
- Document time and response on the patient care report (PCR)
- Consider transport to the closest hospital if difficulty is encountered
- Caution: Despite proper technique, ventilation may still be inadequate, especially of an adult. Patient will require advanced airway (cricothyrotomy with ET, endotracheal intubation, tracheostomy)
- Possible complications include bleeding, perforation of the esophagus or perforation through the trachea, local cellulitis or hematoma and subcutaneous or mediastinal emphysema





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Cricothyrotomy - Surgical

INDICATIONS:

Adult medical cases:

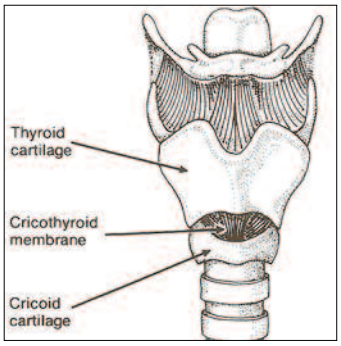
- Respiratory arrest or impending respiratory failure, especially in the setting of upper airway obstruction due to foreign body or infection, and; inability to ventilate by any means available.

Trauma:
Advanced airway is required due to:

- Respiratory arrest, or; inability to maintain airway due to face, neck, or chest trauma, or; impending respiratory faiure, and; inability to ventilate by mask or intubate trachea whether due to obstruction of airway, distortion of area, or inability to extend neck in cases of suspected spinal injury.

CONTRAINDICATIONS:

Patients under 12 years of age



PROCEDURE: (Paramedic provider skill only)

• Place patient in the supine position with the neck in a neutral position
• Palpate the cricothyroid membrane between the thyroid and cricoid membranes for orientation
• Cleanse the area
• Stabilize the thyroid cartilage with non-dominant hand
• Use cricothyrotomy kit according to manufacturer's directions or make a vertical incision until the membrane is exposed. Carry the incision in each direction until the total length is approximately 2 cm
• Make horizontal incision through the membrane approximately 1 cm. Insert the scalpel handle and rotate 90° to the incision; open the airway
• Insert a size 5 cuffed ET tube or tracheostomy tube into the airway, directing the tube into the trachea in a manner simililar to the insertion of a pediatric OPA: sideways and then rotating to avoid false passing the tube. ET tube should only be inserted until the bulb passes through the membrane
• Ensure you have not false passed the endotracheal tube outside of the trachea
• Inflate cuff and ventilate the patient
• Observe lung inflations and auscultate chest for adequate ventilation
• Secure tube to prevent inadvertent dislodging
• Evaluate the response in the patient. Assess breath sounds, oxygen saturation, general appearance of the patient, monitor capnography, pulse oximetry, and cardiac status
• Observe closely for signs of complication. Document time and response on patient care report (PCR)
• Consider transport to closest hospital if difficulty is encountered

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Endotracheal Intubation

CRITERIA

- Respiratory failure and/or arrest
- Acute or impending airway loss
- Consider in comatose patient

PROCEDURE

- Open airway and begin ventilations
- Inspect and prepare ET tube, laryngoscope and suction
- Initiate SPO2 monitoring
- Preoxygenate with 100% O2 for 30 seconds
- Intubate the patient:
  - **Oral: (I or P provider skill only)** Unconscious, absent gag reflex
  - **Nasal: (P Provider skill only)** Non-apneic patient with gag reflex present
  - **Pediatrics less than 12: P Provider skill only**
- Consider sedation for **post intubation when indicated:**
- ***Midazolam (Versed) 2 mg IN or Slow IV to maximum dose of 5 mg for adults or 0.2 mg/kg for pediatrics up to a maximum total dose of 5 mg.***
- Apply approved secondary confirmation device (capnography preferred)
- Begin ventilations
- Confirm tube placement by auscultation
- Secure ET tube using a commercial device
- Confirm quality of ventilations by observing chest rise and fall
- Monitor tube placement with capnography device
- Continue ventilations at appropriate rate
- Consider spinal immobilization

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External Cardiac Pacing

CLINICAL INDICATIONS:

Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:

- Chest pain
- Hypotension
- Pulmonary edema
- Altered Mental Status, disorientation, confusion, etc.

PROCEDURE:

- Attach standard four-lead monitor
- Apply defibrillation/pacing pads (per manufacturer's recommendation)
- For larger patients (greater than 220lbs) consider anterior-posterior pad placement
- Place device in pacing mode
- Adjust heart rate to 60 BPM for an adult and for a child contact Medical Control
- Note pacer spikes on 12-Lead ECG screen
- Slowly increase output from 0 mA until capture of electrical rhythm on the monitor, then increase the mA by 10%
- If unable to capture while at maximum current output, stop pacing immediately
- If capture observed on monitor, use right arm to check for corresponding pulse and blood pressure
- Consider the use of sedation or analgesia for patient if time and condition permits
- Document the dysrhythmia and the response to external pacing with 12-Lead ECG strips in the PCR

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Intranasal Medication Delivery

CLINICAL INDICATIONS

- Patients needing medication delivery where IV may be difficult or delayed
- Patients needing medication delivery where IO may not be suitable

PRECAUTIONS

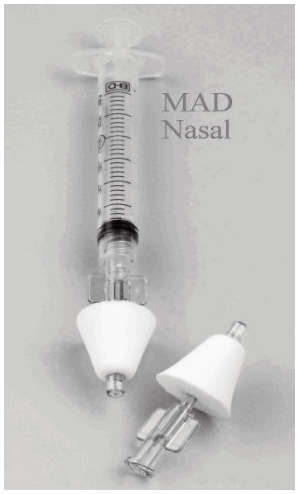
- **DO NOT** administer more than 1mL of medication/substance per nostril within a 10-15 minute period
- **DO NOT** exceed maximum doses of medication when utilizing Intranasal (IN) in combination with any other delivery method of the same medication such as IV/IO

CONTRAINDICATIONS

- **DO NOT** administer IN medications with any nasal trauma or bleeding from the nose

PROCEDURE

- Identify the need for IN medication delivery
- Prepare the delivery device and medication according to the manufacturer's recommendation
- Explain the procedure to the patient
- Use a method that fragments the medication into fine particles so maximal nasal mucosal surface is covered and minimal volume runs out the nose or into the throat
- Utilize both nostrils to double the surface area for absorption and halve the volume delivered per nostril
- Deliver medication in the nostril; **DO NOT** exceed more than 1mL per nostril in any 10-15 minute period; verify you are not exceeding maximum doses
- Document time of medication delivery, nostril(s) used to deliver medication, and response
- Drugs which can be given by intranasal route (IN): Glucagon, Midazolam (Versed), Naloxone (Narcan), Sublimaze (Fentanyl)



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Intraosseous Access

CRITERIA

- Cardiac Arrest (medical or traumatic)
- Profound hypovolemia with alteration of mental status
- Patient in extremis with immediate need for delivery of medications and or fluids

CONTRAINDICATIONS:

- Suspected narcotic overdose and/or hypoglycemia are **relative contraindications** for the use of intraosseous access.
- Fracture of the bone selected for IO infusion (consider alternate site)
- Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
- Previous significant orthopedic procedures, IO within 24 hours, prosthesis; (consider alternate site)
- Infection at the site selected for insertion (consider alternate site)
- Severe osteoporosis or other bone degenerative conditions
- Intraosseous access is not appropriate for prophylactic access

PROCEDURE

- Identify the need for IO access. Consider IV prior to IO
- Insert the IO device according to the manufacturer's recommendation
- Flush IO site with ***10 mL of 0.9% Normal Saline*** to ensure patency and clear IO pathway
- Initiate IO infusion. A pressure infuser may be necessary to maintain flow rates **ADULT ONLY. Pressure infuser is contraindicated in Pediatrics**
- ***Lidocaine 1 mg/kg IO not to exceed 40 mg*** titrated to pain effect. **NOTE: This dosing is not considered an antidysrythmic**
- Apply wrist band provided with IO device

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Nasogastric Tube Insertion

CLINICAL INDICATIONS:

- Gastric decompression in intubated patients

CONTRAINDICATIONS:

- Sinusitis
- Esophageal Varicies
- Recent nasal surgery
- Maxillofacial trauma

PROCEDURE:

- Estimate insertion length by superimposing the tube over the body from the nose to ear to xiphoid process
- Liberally lubricate the distal end of the tube and pass through the patient's nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding. The use of a tongue depressosr maybe helpful during insertion
- In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred
- Continue to advance the tube gently until the measured distance is reached
- Confirm placement by injecting 20cc of air with a Toomey Syringe and auscultate for the swish or bubbling of the air over the stomach
- Secure the tube
- Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe, set suction to the lowest setting that will effectively decompress the patient's stomach
- Document the procedure, time, and result on the patient care report (PCR)

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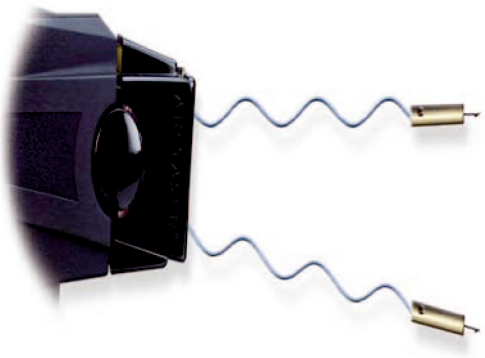
Tazer Barb Removal

INDICATIONS:

- Patients that have been tazed with the darts still remaining embedded in the skin

PROCEDURE:

- Ensure scene safety and that the patient is under control
- Remove cartridge from gun or cut wires before removing darts. If darts have penetrated the eye, face, neck, breasts (female), axilla or genitals leave in place and transport patient to ER
- Examine, palpate area to determine location and depth
- Use one hand to pull skin around barb taut
- Grasp barb/electrode shaft with hemostat, not the wires which break easily, with other hand
- Pull straight out with gentle, quick motion
- Dispose of barbs in appropriate sharps container, **darts are a sharps hazard** – treat as contaminated needle
- Apply bandage over wound sites. Transport patient if barbs cannot be safely removed by this method
- Evaluate for possible burns at the site
- Consider obtaining ECG



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Tourniquet Application

CLINICAL INDICATIONS:

LIFE THREATENING hemorrhage from an extremity which cannot be controlled by normal means, in tactical situations which prevent the use of standard bleeding control techniques or significant extremity bleeding with airway compromise to free up personnel to concentrate on airway issues.

PROCEDURE:

- Completely expose the injury
- Place the device at least five centimeters proximal of the injury, leaving undamaged tissue between the wound and the device whenever possible. Do not place over a joint or open fracture site and preferably over a single bone structure. The band will be around the affected injury.
- Follow manufacturer's instructions for applying device
- Twist the windlass rod only until the bright red bleeding stops. Lock the windlass rod in place with the clip.
- Record the date and time of tourniquet both in documentation and with "TK (Date/Time)" on the patient's forehead, skin beside the tourniquet or on tape attached to the tourniquet.
- Leave the tourniquet site exposed: tourniquets should never be covered. The distal pulse should be absent if you have properly tightend the tourniquet.
- Consider pain management
- Tourniquets removal only per medical control order
- Report placement of device on PCR and turn over reports.
- Do not use a tourniquet for neck or facial wounds.

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IF ORDERED TO REMOVE THE TOURNIQUET:

- While the tourniquet is still engaged, dress the wound with a pressure dressing.
- Place the patient in supine position and elevate the extremity.
- Release the tourniquet slowly. If the bleeding restarts and is not controlled by the pressure dressing, reengage the tourniquet and expedite transfer to the hospital.
- Even if bleeding does not restart, leave the tourniquet unengaged but in place. Monitor wound closely as the bleeding may restart when the blood pressure normalizes.

Use commercial devices whenever possible. An inappropriate improvised device can cause more damage than assistance.

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Ventricular Assist Device (VAD)

INDICATIONS

Patient with an implanted VAD presenting with bleeding, thrombosis, infection, dysrhythmias or any other device-caused issue.

DEVICES

- Ventricular Assist Devices (VAD) can be for left, right or bilateral assistance.
- VADs may be pulsatile (first generation) or nonpulsatile (mostly Left Ventricular Assist Device – LVAD).

PROCEDURE

- Always consider and assess for non-VAD injuries, issues and complications.
- Assessment considerations:
  - Bleeding
  - Anxiety
  - Cavitation
  - Hypertension
  - Right ventricular dysfunction
  - Thrombosis
  - Left ventricular collapse
  - Portability
  - Hypotension
  - Portability Device failure or malfunction
  - Infection
  - VAD overdrive
  - Dysrhythmias
  - Depression
  -
- First line therapy is volume replacement.
- **DO** initiate ACLS protocol if warranted. Cardioversion or defibrillation may restore needed flow to VAD.
- **DO NOT** perform CPR unless directed by a VAD Coordinator, physician or online medical control. CPR may or may not be indicated based on manufacturer's recommendations. A VAD patient in ventricular fibrillation (VF) may still be conscious and talking to you as the pump is still forcing blood to the brain.
- **DO NOT** use mechanical CPR devices.
- Pulse oximetry may be unreliable.
- **DO NOT** get distracted by the VAD for non-VAD issues.
- **DO NOT** disconnect both batteries at once.
- Your best resource in the event of a VAD issue is the VAD Coordinator or the patient's family/caregiver. Allow the caregiver to remain with the patient. Transport all VAD equipment, including spare batteries and controller, with the patient.
- VAD Coordinators:
  - Bon Secours – (804) 351-0553
  - Virginia Commonwealth University - (804) 828-4571
  - Sentara Heart Hospital - (757) 388-2831

Ventricular Assist Device (VAD)