

## FORWARD

The following Spokane County EMS Protocol Manual describes the methods in which the Spokane Fire Department EMS System will continue providing the highest quality clinical care available. Our cross-trained Fire/EMT/Paramedics are a critical part of the overall quality improvement efforts in Spokane County, and we have incorporated the collective evidence-based guidelines to produce this document. While it is impossible to address every feasible variation of disease or injury, these Protocols provide a sound foundation for treating the vast majority of patient we encounter. Certainly, our education, experience and clinical judgment will assist us as we provide the highest quality care available. Additionally, on-line medical control is available for those patient presentations that do not fall within the scope of this document.

In sum, these protocols exemplify the proven practices that are the foundation of our pre-hospital care program. The protocols coupled with your education, skills and experience will allow us to provide pre-hospital care that is clinically superior and life-saving.

Finally, the manner in which we carry ourselves is often as important as the care we provide. For many of the less critical situations, the human interaction has more of a healing effect than any medication or procedure.

**“Be kind, for everyone you meet is  
fighting a harder battle”– Plato**

Our system operates in a very unique practice of medicine where firefighters work in partnership with other EMS and medical professionals without sacrificing patient care—and I am very proud of that fact. We are an organization committed to learning and improving—not one for practicing blame or settling for average. As a provider in the system, you are ultimately the “Spokane Fire Department” in the patient’s perspective and with that comes incredible responsibility and opportunity.

Thank you for continuing to provide clinically extraordinary and compassionate care while protecting the City of Spokane’s citizens and visitors.



Brian Schaeffer, EMT-P  
Fire Chief

## COUNTY INTRODUCTION

To fully understand these protocols, you must understand the philosophy of Spokane County's delivery of EMS. The protocol book should not be viewed as the rule book, but rather as guidelines for your daily practice. No amount of rules can supplant good judgment and good thinking skills.

“ Substituting rules for judgment starts a self-defeating cycle, since judgment can only be developed by using it. ”

In order to develop good judgment, you must be allowed to use it. This privilege comes with responsibility for your actions. It is important that you develop a strong understanding of the reasons behind each protocol. With this understanding you will be able to think your way through each call, not just follow a set of rules.

From *In Search of Excellence*

We have developed a system where EMS Responders are expected to use their judgment. However, the EMS Responder is not an independent practitioner, but rather an extension of the physician into the prehospital phase of care. Therefore, physician involvement is of paramount importance.

In the same way, no EMS Responder training course can prepare you for every situation you will encounter, no protocol book can cover all possible situations that you may face. In cases where you are unsure of the care that is indicated, direct physician involvement in the case is recommended. The dedicated EMS ground line is a powerful tool, only if it is used.

Good field care is the direct result of proper education, medical control, and medical judgment. Each portion of this triad must be attended to, if a system is to function well. Experience alone will not keep you up to date. Continuing medical education is the only tool that will keep you abreast of the ever changing understanding of the delivery of EMS.

This book does not tell you how to run a prehospital medical scene; it only acts as a set of guidelines. You have the responsibility to see that each and every patient you encounter receives high quality medical care through knowledge and understanding.

All patient care protocols contained within this EMS manual should be followed to the extent of the individual EMS Provider's training and scope of practice.

(Borrowed from the City & County of Denver Department of Health & Hospital EMS/Paramedic Division).

## UPDATES

### SEPTEMBER 2023

- **09-15-2023:** Updated **Allergic Reaction and Anaphylaxis**
- **09-15-2023:** Updated **Acute Behavioral Disorder: The Agitated Uncontrolled patient**
- **09-15-2023:** Updated **Fentanyl**
- **09-15-2023:** Updated **Norepinephrine/Levophed**
- **09-15-2023:** Updated **Pediatric Seizures**
- **09-15-2023:** Updated **Pulmonary Edema**
- **09-15-2023:** Updated **Traumatic Brain Injury (formally Head Trauma)**
- **09-15-2023:** Updated **Unstable Wide-Complex Tachycardia (HR>150)**
- **09-15-2023:** Reviewed [Unstable Narrow-complex Tachycardia](#)

### MARCH 2023

- **03-14-2023:** Updated **Acute Epistaxis** protocol
- **03-14-2023:** Updated **Aystole/PEA** protocol
- **03-14-2023:** Updated **Continuous Positive Airway Pressure (CPAP)** protocol
- **03-14-2023:** Updated **Epinephrine (Adrenalin)-Adult** protocol
- **03-14-2023:** Updated **Epinephrine (Adrenaline)-Pediatric** protocol
- **03-14-2023:** Updated **Chest Discomfort Suspected Acute Coronary Syndrome** protocol
- **03-14-2023:** Updated **Ventricular Assist Device** protocol
- **03-14-2023:** Updated **Spinal Immobilization** protocol
- **03-14-2023:** Updated **Stable Narrow-Complex Tachycardia (HR>150)** protocol
- **03-14-2023:** Updated **Stable Wide-Complex Tachycardia (HR>150)** protocol
- **03-14-2023:** Updated **Ventricular Fibrillation/Pulseless Ventricular Tachycardia** protocol
- **03-14-2023:** Removed **LVAD - Heartmate** protocol
- **03-14-2023:** Removed **LVAD - Heartware** protocol

- **03-14-2023:** Removed **LVAD - VentrAssist** protocol
- **03-14-2023:** Removed **Thoratec Ventricular Assist Device** protocol

#### NOVEMBER 2022

- **11-15-2022:** Updated **Midazolam** protocol
- **11-15-2022:** Updated **Adult Seizure** protocol
- **11-15-2022:** Updated **Pediatric Seizure** protocol
- **11-15-2022:** Updated **Determination of General Patient Transport** protocol
- **11-15-2022:** Updated **Infectious Disease Precautions** protocol

#### JULY 2022

- **07-21-2022:** Removed the **Dopamine** protocol
- **07-21-2022:** Added the **Acetaminophen** protocol
- **07-21-2022:** Added the **Additional Approved Skills and Procedures for Spokane County EMS Providers** protocol
- **07-21-2022:** Added the **Ibuprofen** protocol
- **07-21-2022:** Added the **Rocuronium** protocol
- **07-21-2022:** Added **Sexual Assault Resources**
- **07-21-2022:** Updated the **Atropine** protocol
- **07-21-2022:** Updated the **Bradycardia** protocol
- **07-21-2022:** Updated the **Post Cardiac Arrest Care** protocol
- **07-21-2022:** Updated the **Post Resuscitation** protocol
- **07-21-2022:** Updated the **Sexual Assault** protocol
- **07-21-2022:** Updated the **Ventricular Fibrillation/Pulseless Ventricular Tachycardia** protocol
- 

#### DECEMBER 2021

- **12-27-2021:** Updated the **Albuterol** protocol
- **12-27-2021:** Updated the **Bradycardia** protocol

- **12-27-2021:** Updated the **Intraosseous Infusion - Adult** protocol
- **12-27-2021:** Updated the **Intraosseous Infusion in Children** protocol
- **12-27-2021:** Updated the **Needle Thoracostomy** protocol
- **12-27-2021:** Added the **Oral Glucose Gel** protocol
- **12-27-2021:** Updated the **Optimal Sequence Intubation** protocol
- **12-27-2021:** Updated the **Recommended Indications for Spinal Motion Restrictions in Children** protocol
- **12-27-2021:** Updated the **Use of External Pace Makers** protocol

#### **NOVEMBER 2021**

- **12-01-2021:** Updated the **General Guidelines for All Patients** protocol
- **12-01-2021:** Updated the **Intraosseous Infusion - Adult** protocol
- **12-01-2021:** Updated the **Medical Control** protocol
- **12-01-2021:** Updated the **Medications and Allergies** protocol
- **12-01-2021:** Updated the **Non-Transport of Patients** protocol
- **12-01-2021:** Updated the **On-Scene Medical Authority and Assistance** protocol
- **12-01-2021:** Updated the **Restraints for Aggressive Patients** protocol
- **12-01-2021:** Updated the **Suspected Ebola Virus Disease** protocol

#### **MAY 2021**

- **05-18-2021:** Added the **Vagal Maneuvers** protocol
- **05-18-2021:** Added the **Norepinephrine (Levophed)** protocol
- **05-18-2021:** Updated the **Determination of General Patient Transport Destination** protocol
- **05-18-2021:** Updated the **Field Resuscitation** protocol
- **05-18-2021:** Updated the **Endotracheal Intubation** protocol
- **05-18-2021:** Updated the **Infectious Disease Precautions** protocol
- **05-18-2021:** Updated the **Optimal Sequence Intubation** protocol
- **05-18-2021:** Updated the **Pit Crew** protocol
- **05-18-2021:** Updated the **Pre/Post Cardiac Arrest Checklist** protocol

- **05-18-2021:** Updated the **Severe Sepsis** protocol
- **05-18-2021:** Updated the **Surgical Cricothyrotomy** protocol

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# **SECTION 1: COUNTY OPERATING PROCEDURES**

## ABANDONED BABIES NEWBORN SAFETY ACT



If a parent wishing to leave a newborn at a fire station approaches any fire department employee, the employee will immediately bring the newborn, with parent if possible, inside the fire station.



### PROCEDURE:

1. Assure the parent that there is no need to provide any identifying information in order to leave the newborn at this location, and that the fire department personnel want to ensure the health and safety of both the parent and the newborn. Also, advise the parent that the law provides protection from criminal liability for leaving the child at the location.
2. Notify fire department EMS personnel if the person who has accepted the transferred newborn is not EMS certified. EMS personnel will notify appropriate authorities. If on duty crew are not available, call 911.
3. Accept the newborn from the parent. Assess the need for emergency intervention. Assign incident number. The incident number should be the medical incident record number (electronic or written) that is generated by the EMS provider. Write a “receipt” with the number, date, the parent’s name (if volunteered), the provider name, and hospital destination, and give it to the parent.
4. Assign the appropriate triage category for medical care. This category is determined by the highest level of prehospital care provider available and depends on infant’s and parent’s needs.
5. Provide the parent information packet immediately, in case the parent leaves the facility prior to interview (**See Parent Information Packet**).
6. Interview the parent immediately to obtain as much prenatal/birth/medical history as possible, regardless of the triage category assigned. Use the **Medical and Social History Form** to guide the interview. If the parent is unwilling to provide information at this time, encourage completion and return to the fire station of the medical/social history form included in the Parent Information Packet.

7. Encourage the parent to complete the “**Parental Message to the Newborn**” found in the Parent Information Packet.
8. Notify your Chief/EMS Officer/Administrator.
9. Offer treatment to the parent as indicated in the following Care of the Parent section.
10. Inform online medical control of newborn and mother (if mother is the parent leaving the infant), consistent with assigned triage category. This should be done via telephone (cellular or landline) whenever possible, in the interest of maintaining the parent’s anonymity.
11. Report incident to **Child Protective Services (CPS)** at **(509) 363-3333** (press 9 after recording starts) as soon as possible.
12. Transfer newborn by ambulance (or staff vehicle if the infant does not need medical attention en route and the vehicle is equipped with an infant seat) to the nearest Hospital Emergency Department for observation/treatment or while awaiting CPS.

#### **CARE OF THE PARENT:**

1. If the parent leaving the newborn is, or appears to be, the newborn’s mother, offer/encourage a medical screening examination and any indicated treatment to ensure postpartum stability. Protect the mother’s anonymity during the examination and treatment (i.e., patient is entered into the system as “Jane Doe”).
2. Give the parent a copy of the Parent Information Packet. Encourage the parent to complete and return the packet, including any medical/social history information not obtained during the interview.

#### **FOLLOW UP:**

Requests for information about the infant’s medical condition and status should be referred to the hospital or CPS.

## BLOOD DRAWS

Indications for blood draws will be limited to:

1. Medical cases requiring laboratory documentation (see **blood tube information**).
  - ✓ Suspected hypoglycemia (prior to IV glucose)
  - ✓ Suspected drug overdose
  - ✓ Unconscious patient, unknown cause
  - ✓ Trauma patients
  - ✓ Hypotensive patient, unknown cause
  - ✓ Suspected MI
  - ✓ Suspected Stroke
  - ✓ Unstable Medical Condition
2. Method of transporting field blood samples
  - I. The blood tubes should be placed in a sealable plastic bag bearing bio-hazard logo and then taped to the patient's IV bag.
  - II. The specimen bag should then be labeled with the patient's name, date, time of draw, and the initials and agency of the drawer.
3. Legal blood alcohol specimens. Use aseptic technique (povidone-iodine and **NO** alcohol swabs).



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Blood may be drawn at the request of law enforcement as provided in RCW 46.20.308. Document law enforcement request on "Direction to Take Blood Test"

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**SEE NEXT PAGE FOR EXAMPLE FORM**

### **DIRECTIONS TO TAKE BLOOD TEST**

The undersigned states that \_\_\_\_\_ is either:

- ☐ Unconscious
- ☐ Has had a Search Warrant issued for blood to be drawn
- ☐ Is under arrest/in custody for the crime of vehicular homicide as provided in RCW 46.61.520 or vehicular assault as provided in RCW 46.61.522.
- ☐ Is under arrest/in custody for the crime of driving while under the influence of intoxicating liquor or drugs as provided in RCW 46.61.502 and/or RCW 46.20.308.

The undersigned directs Spokane County EMS to administer a blood test without the consent of the individual so unconscious or so arrested.

OFFICER \_\_\_\_\_ DATE \_\_\_\_\_

## CANCELLATION/SLOW DOWN



It is recognized that it is in the best interest of patient care and public safety to slow or cancel units responding in the emergency mode to calls when it is determined that the patient does not require an additional emergency response. However, all patients having an altered mental status, complaining of breathing problems or chest pain must have a paramedic assessment and transport to the hospital.



1. Rescue Only: First responding agencies (fire or police) may slow ALS or BLS ambulances when a patient does not require Advanced Life Support. They may cancel ALS or BLS ambulances when there is no patient or no transport required (Department policy to apply).
2. ALS ambulances or fire/rescues staffed at the paramedic level may slow or cancel other responders once the patient has been evaluated at the scene and the determination is made that no other units are required or no other units are required in the emergency mode.
3. Additional reasons for cancellation:
  - ✓ No patient found
  - ✓ Cancelled by dispatch
  - ✓ No emergency health care needed



## DETERMINATION OF GENERAL PATIENT TRANSPORT DESTINATION

For patients not meeting Trauma (Step 1-4), Stroke (FAST+), or ACS (Immediate, High Risk, or Provider EMS personnel suspicion) criteria, patient destination shall be determined according to the following criteria:

**Washington State Prehospital Trauma Triage Destination Procedure, Washington State Cardiac Triage Destination Guideline, and Washington State Stroke Triage Destination Guideline.** Patient requests and MD to MD referrals must be respected. However, if the Senior Medical Officer judges that a critical patient requires transport to an alternative hospital for stabilization, it is the Senior Medical Officer's responsibility to explain this to the patient or physician. If a conscious patient or physician who, in the judgment of the Senior Medical Officer, is capable of making a rational decision and persists in requesting transport to a different facility, the patient and/or physician request should be followed (see Patient Treatment Rights). Attempt to obtain a signature on a medical release form.

1. Trauma patients:
  - A. Patients meeting major trauma triage criteria (Step 1 and 2) as defined by Washington State Prehospital Trauma Triage Destination Procedure will be transported to a Level II trauma service.
  - B. Patients meeting Step 3 and 4 criteria shall be transported to the closest appropriate designated trauma service.
2. Stroke patients:
  - ✓ Follow the State of Washington Prehospital Stroke Triage Destination Procedure
3. ACS patients:
  - ✓ Follow the State of Washington Prehospital Cardiac Triage Destination Procedure

4. Behavioral Health Patients:

Patients experiencing behavioral health emergencies, voluntary or involuntary, shall be transported to the closest local emergency department (or behavioral health unit, if appropriate).

The transport destination decision will be made by the transporting agency personnel.

5. General patients:

A. Patient request

- ✓ Providence Health Care Hospitals (PSHMC and PHFH): Transport to the most appropriate Providence hospital.

- MultiCare Health Systems Hospitals (DH and VH): Consider
- ✓ transport to the hospital of choice and apply criteria to determine appropriateness of transport to the Deaconess Free-Standing Emergency Department.

Criteria Precluding Transport to the Free-Standing Emergency Department:

- Vascular emergencies (pulseless extremity, suspected aortic dissection or aneurysm)
- OB patient > 20 weeks gestation
- Open fractures
- Severe GI bleeding
- Temperature > 100 (< 3 months of age)

Provided the patient does not have any of the exclusionary criteria, and if it appears appropriate to the Senior Medical Officer, offer transport to the Free-Standing Emergency Department as a patient choice option.

- B. Regarding closest appropriate level hospital, the downtown hospitals are considered equivalent distances from any point in the county. If none of the above criteria apply, the on-scene Senior Medical Officer may use their judgment for the most appropriate hospital destination. However, if unable to manage airway, consider rendezvous with ALS or intermediate stop at nearest facility capable of definitive airway management.

C. MD to MD arrangement

## DISPATCH OF MEDICAL PERSONNEL

### PURPOSE:

- ✓ To provide appropriate timely care to all emergency medical and trauma patients as identified in WAC 246-976-390
- ✓ To ensure properly licensed and recognized emergency ambulance service designated by Fire Districts, County, or Municipalities are dispatched to all calls that fall within established 911 dispatch policies and guidelines

### STANDARD:

- ✓ Licensed ambulance and/or aid services shall be dispatched to emergency medical incidents per EMD protocol
- ✓ Verified aid and/or verified ambulance services shall be dispatched to all known and unknown injury incidents per EMD protocol.
- ✓ All licensed and verified ambulance and aid services shall operate 24 hours a day, seven days a week
- ✓ All communications/dispatch centers charged with the responsibility of receiving calls for emergency medical services shall use an Emergency Medical Dispatch system approved by the Spokane County EMS & Trauma Care Council
- ✓ Emergency calls placed by citizens directly to communications/dispatch centers and not through the 911 system shall be triaged according to an EMD system approved by the Spokane County EMS & Trauma Care Council and forwarded to the appropriate first response agency with jurisdiction.
- ✓ Successful transfer of an emergency call to the 911 system that was initially placed directly to an ambulance service fulfills that ambulance service's obligation to ensure that the purpose of the ambulance/response policy is met.
- ✓ Ambulance services shall not respond to an emergency call independently of the 911 system without a request to do so by the Combined Communication Center provided that the communication system is intact.

**PROCEDURE:**

1. The dispatcher shall determine appropriate response category of call using EMD guidelines approved by the Spokane County EMS & Trauma Care Council.
2. Following Spokane County's PCP's, the nearest verified agency with jurisdictional authority shall be dispatched according to the above standards.

## DOCUMENTATION



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An EMS incident report (MIR) must be appropriately documented and filed for any call for EMS assistance within Spokane County, regardless of patient transport. This will apply to both basic and advanced life support units and includes public assist calls.

Cooperative charting is essential when more than one agency is documenting the same call. Sharing of pertinent information will help to ensure accuracy and adequacy of the prehospital care record and will help to avoid unnecessary duplication.

Any written hand-off patient documentation from a non-transporting care provider of the patient shall be transported with the patient. The document shall not be edited, altered, or appended to by the transporting agency. Each care provider will document their own patient interaction.



## EMERGENCY SERVICES SUPERVISORY ORGANIZATION (ESSO)

**DEFINITION:** An Emergency Services Supervisory Organization (ESSO) is an organization that is not required to be licensed under the Revised Code of Washington (RCW) 18.73, but may be recognized by the Department of Health (DOH) as a participant in the EMS and Trauma Care System. ESSOs provide response for rescue and/or care of patients in accordance with approved regional and state plans, regional patient care procedures, and Spokane County patient care protocols, and County Operating Procedures, but do not respond with an EMS vehicle.

Examples of these types of services, which may request an ESSO license through the DOH, are:

- ✓ Law Enforcement
- ✓ Park/forest service personnel
- ✓ Rescue agencies (includes ski patrol, dive rescue, and mountain rescue)
- ✓ Corporations or large private businesses which employ many employees over a large area and are likely to need to perform emergency medical or trauma services on employees or visitors
- ✓ Government agencies, including the military
- ✓ Emergency medical training organizations, only for use by instructors who are otherwise unable to be recertified

### **STATE REQUIREMENTS (SEE WAC 246-976):**

- ✓ Ensure EMS personnel employed by or associated with the service who have patient contact, are currently Washington State certified.
- ✓ Maintain a record of certification for all EMS personnel, which includes the level of certification and the expiration date of their certification.
- ✓ Follow all state and local laws, rules, protocols, County Operating Procedures, and patient care procedures to ensure standards for the health, safety and welfare of the citizens of this State.
- ✓ Follow medical control and protocols established by the county Medical Program Director (MPD).

## EMERGENCY TRANSPORTS AND ALS RENDEZVOUS

### GENERAL TRAUMA

- ✓ Injuries resulting in unstable vital signs, altered level of consciousness, or severe anatomic injuries
- ✓ Injuries associated with severe mechanisms or comorbid factors which increase the likelihood of immediate complications or deterioration which would require immediate hospitalization or ALS intervention

### GENERAL MEDICAL

- ✓ Medical emergencies resulting in unstable vital signs or altered level of consciousness
- ✓ Medical emergencies associated with the potential for significant complications requiring immediate hospitalization or ALS intervention

### SPECIFIC INJURY CONDITIONS REQUIRING EMERGENCY TRANSPORT AND/OR ALS RENDEZVOUS

1. Vital signs and level of consciousness:
  - A. Shock: Systolic Blood Pressure < 90
  - B. Respiratory Distress: Respiratory Rate < 10 or > 29
  - C. Altered Mentation: Glasgow Coma Score < 13
2. Anatomy of Injury:
  - A. Penetrating injury of head, neck, torso, or groin
  - B. Combination of burns > 20% of total body surface or involving face, airway, hands, feet, and genitalia
  - C. Amputation above wrist or ankle
  - D. Spinal cord injury
  - E. Flail chest
  - F. Two or more obvious proximal long bone fractures
3. Consider emergency transport and/or ALS rendezvous if the following conditions apply:

- A. Biomechanics of injury
  - a. Death of same car occupant
  - b. Ejection of patient from enclosed vehicle
  - c. Falls > 20 feet
  - d. Pedestrian hit at > 20 mph or thrown 15 feet
  - e. Rollover
  - f. Motorcycle, ATV, or bicycle accident
  - g. Extrication time > 20 minutes
  - h. Significant intrusion
- B. Comorbid factors
  - a. Extremes of age ( < 12 years old or > 60 years old)
  - b. Hostile environment (extremes of heat or cold)
  - c. Medical illness (such as **COPD**, CHF, renal failure, etc.)
  - d. Presence of intoxicants
  - e. Second/third trimester pregnancy
  - f. Emergency care provider judgment of injury severity
- C. Emergency care provider judgment of injury severity

#### **SPECIFIC MEDICAL CONDITIONS REQUIRING EMERGENCY TRANSPORT AND/OR ALS RENDEZVOUS**

- |  |                        |
|--|------------------------|
| ✓ Cardiopulmonary arrest   | ✓ CVA                  |
| ✓ Acute myocardial infarction                                      | ✓ G.I. bleeding        |
| ✓ Respiratory distress   | ✓ <b>Anaphylaxis</b>   |
| ✓ Altered level of consciousness ( <b>Glasgow Coma Scale</b> < 13) | ✓ Near drowning        |
| ✓ <b>Seizures</b>  | ✓ Imminent birth       |
|  | ✓ <b>Severe sepsis</b> |



## EMERGENCY TRANSPORT OF THE PHYSICALLY DISABLED AND THEIR SERVICE ANIMALS

A patient's service animal should receive special considerations, provided that these measures will not adversely affect the provision of care to the patient.

1. If the animal is handled by the EMS provider, he will use extreme gentleness.
2. Ambulance transport of the service animal with his owner should be provided unless it jeopardizes patient care or the safety of EMS personnel. If so, the transport of the service animal will be requested of family, friends, or other civil services.

## EMS COMMUNICATION TO RECEIVING HOSPITAL

### EMS COMMUNICATION TO HOSPITALS FOR ALERTS/PRE-NOTIFICATION

**Purpose:** To use clear and consistent terminology to communicate the facts required to allow for optimal hospital response to established Time Critical Emergencies. Phone call by land line or cell phone to the receiving hospital prior to transport is recommended. However, transport should not be delayed for patients with:

- ✓ Major Trauma
- ✓ Acute Coronary Syndromes (ACS)
- ✓ Acute Stroke
- ✓ Sepsis
- ✓ Vascular emergencies

Please provide your:

- ✓ Unit identification
- ✓ Category of emergency
  - Trauma
  - ACS
  - Stroke
  - Sepsis
  - Vascular emergency
  - Hazmat code

### TRAUMA

- ✓ Code Red: Trauma Alert (patients meeting Step 1 or Step 2 criteria)
- ✓ Code Yellow: Trauma Alert (patients meeting Step 3 or Step 4 criteria)
- ✓ **Washington State Trauma Triage Destination Procedures**

In report called to the receiving hospital, include:

- ✓ Age
- ✓ Gender
- ✓ Mechanism of injury
- ✓ Obvious anatomic injuries

- ✓ Vital signs (to include lowest systolic BP)
- ✓ GCS
- ✓ Whether patient takes blood thinners

### **ACUTE CORONARY SYNDROME (ACS)**

Code Red: ACS Alert followed by:

- ✓ ACS STEMI
- ✓ ACS Post Arrest (ROSC)

Code Yellow: ACS ALERT

- ✓ ACS High Risk

(The EMT or Paramedic may upgrade to Code Red based upon their judgement.)

If possible, place call to hospital by land line or cell phone and provide the following information:

- ✓ Patient name
- ✓ DOB
- ✓ Code Status (POLST)
- ✓ Cardiologist
- ✓ ST abnormalities
- ✓ And if CPA-ROSC, include initial rhythm and duration of CPR

### **STROKE**

- ✓ Code Red: Stroke Alert  
Last known well < 6 hours OR < 2 hours since the patient awoke with a stroke (Wake Up Stroke)
- ✓ Code Yellow: Stroke Alert
- ✓ Last known well > 6 hours

In report called to the receiving hospital, include:

- ✓ Age
- ✓ Gender
- ✓ Symptoms\*
- ✓ Vital signs
- ✓ F.A.S.T.
- ✓ Stroke Severity Score
- ✓ Blood Glucose<sup>†</sup>

### **SEPSIS**

- ✓ Code Red: Sepsis Alert

In report called to the receiving hospital, include:

- ✓ Age
- ✓ Gender
- ✓ Vital signs including temperature
- ✓ History of fever or infection

### **VASCULAR**

- ✓ Code Red: Vascular Alert

In report called to the receiving hospital, include:

- ✓ Age
- ✓ Gender
- ✓ Vital signs
- ✓ Focal anatomy affected
- ✓ Time of onset

### **HAZMAT CODE:**

- ✓ Code Red
- ✓ Code Yellow
- ✓ Code Green

In report called to the receiving hospital, include:

- ✓ Age and sex of patient
- ✓ Chief complaint or reason for transport
- ✓ Very brief pertinent medical history (one sentence if possible)
- ✓ Vital signs and level of consciousness
- ✓ Pertinent treatment rendered and results, if any
- ✓ Request for additional information or treatment
- ✓ Estimated time of arrival

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\*If patient's symptoms completely resolve (TIA), notify the hospital ASAP.

†Consider early notification of hospital ASAP and provide patient I.D.

## EMS PERSONNEL ENDANGERMENT



The first goal of protecting responding EMS personnel from criminal assault relates to the importance of respecting law enforcements responsibility for assuring scene security prior to responding to a patient in a known hazardous situation. Our desire to render emergency medical care must be tempered by our recognition of the limitations of our role as well as our responsibility to our fellow EMS responders.

However, unanticipated physical threats may develop in the course of treatment and transport of emergency patients. In their most extreme form, they may represent an immediate life threat to EMS responders. Should this occur at the scene or during transport, immediate notification of the appropriate law enforcement jurisdiction should occur. In order to help ensure a means by which EMS personnel could request law enforcement assistance in a covert fashion, a Code 99 category communication patch may be used as follows:



1. EMS personnel should contact their dispatch center and/or receiving facility to notify them of a Code 99 situation and/or transport.
2. In anticipation of the arrival of a Code 99 transport at our receiving facilities, our hospitals should consider responding with in-house security and should alert the local jurisdictional law enforcement agency.

## EMS SCENE MANAGEMENT AND INTER-AGENCY RELATIONS

### OBJECTIVE:

Provide consistent, countywide, guidelines that promote positive inter-agency relationships on the scene of EMS emergencies, with patient care being the focus of the Patient Care Team.

### GENERAL GUIDELINES:

- ✓ Safety of response personnel is the highest priority.
- ✓ Following that, patient care and customer relations will be given the next highest priority.
- ✓ For scene safety and security, personnel shall secure clearance from the Incident Commander prior to entering the scene.
- ✓ On-scene Medical Authority will be in accordance with Spokane County Patient Care Protocols.
- ✓ First personnel on-scene will bring adequate equipment to the patient area to provide complete patient care.
- ✓ The stretcher will be brought to the patient area by transport personnel unless otherwise directed.

### COMMUNICATIONS:

- ✓ Responding apparatus/units will monitor the appropriate radio frequencies assigned to the incident by CCC.
- ✓ All agencies will provide timely communications with CCC when arriving on-scene and at other times during the incident.
- ✓ Units will contact the IC on arrival for assignment.
- ✓ Updates to incoming units should be unit to unit and not through CCC.
- ✓ Incoming units will be briefed as soon as practical by IC or designated personnel.

### INCIDENT COMMANDER:

- ✓ Fire Department will establish Incident Command on all emergencies.
- ✓ If other agency is on-scene, IC will get a briefing as soon as practical□

- ✓ The IC will remain in charge of the overall scene, regardless of who is in charge of patient care.
- ✓ Requests for additional resources will be made by the IC. Requests from field units will be made to the IC.
- ✓ IC will be responsible for staging (placement) of all apparatus & vehicles.
- ✓ Incident Command will be conducted in accordance with the Spokane County Incident Command Plan.

#### **MVA AND HAZARDOUS AREA:**

- ✓ Once command is established, anyone without proper PPE in the Hot Zone will be replaced or removed as soon as possible. Motor Vehicle Accidents are hazardous areas.
- ✓ No one will enter the Hot Zone from that time forward without proper PPE until the IC determines that the scene is safe.
- ✓ Incoming apparatus/units will stage out when responding to larger incidents, hazardous materials incidents or major motor vehicle accidents.

#### **TRANSFER OF PATIENT CARE**

- ✓ The person in charge of patient care will remain in charge until a report has been provided detailing the condition of the patient, treatment provided and any other pertinent information.
- ✓ Transfer of patient care will be formally completed and will not be assumed.
- ✓ Where there is no agreement in transfer of patient care between paramedics, no transfer of patient care will occur. Both paramedics will complete patient care reports for submission to the QI Committee at a later date.

#### **TRANSPORT:**

- ✓ No attempt will be made to dissuade patients from being transported. In the event the patient openly refuses transport, a medical release will be obtained by on-scene medical authority.
- ✓ When the FD paramedic is in charge of patient care he/she will remain in charge when accompanying the patient to the hospital.



- ✓ Transport destination will be in accordance with Spokane County Protocols.
- ✓ Patient transport agency will be determined by the incident commander or their designee representing the jurisdictional EMS agency.
- ✓ In circumstances of mass casualty, the Patient Transportation Group Supervisor shall determine the most appropriate vehicle and staffing for emergency transport.
- ✓ Moving the patient is the transporting agency's responsibility; FD assistance may be requested.
- ✓ The use of BLS personnel to assist with patient care during transport will be agreed upon by the on-scene medical authority.
- ✓ All written documentation available will be provided to transport personnel.
- ✓ If FD personnel accompany the patient during transport, transporting agency personnel will assist with attending patient during transport.
- ✓ The decision to allow passengers to ride in the transporting apparatus (vehicle) will rest solely with the transporting agency.

#### **CONFLICT RESOLUTION:**

It is recognized that differences of opinion will occasionally occur. Differences of opinion shall not delay therapy or negatively impact the outcome of patient care. If a particular therapy is recognized as potentially harmful, the patient care team will consult medical control to ensure appropriate therapy. The on-scene medical authority will be responsible for making the final determination when such conflict arises. Personnel are encouraged to resolve differences of opinion at their level, whenever possible. In all cases, both parties will exercise professionalism and respect. Any action that is considered to be unprofessional or disrespectful will not be tolerated by any agency.

- ✓ Conflict shall never be exhibited in front of a patient, the patient's family, hospital staff, or the general public. When a difference of opinion arises, the personnel from the respective agencies should professionally discuss the incident in private. It is expected that this occur as soon as possible so that differences can be resolved to the satisfaction of all parties.

- ✓ If no resolution to an issue can be achieved, the involved parties should contact their respective agencies and follow the chain of command. In most cases, this will be the individual's immediate supervisor.
- ✓ The Supervisors will then contact each other and discuss the differences in an attempt to remedy any conflict. If no resolution can be achieved at this point, the administration of each agency will be contacted for final resolution. Under no circumstances shall an employee contact another agency's administration.
- ✓ Final resolution, when administration is involved, will be achieved collaboratively. The resolution will be clearly communicated to the involved parties and will be binding upon all parties.

## EXPECTATIONS OF THE EMS AGENCY, EMS AGENCY SUPERVISOR, AND EMS AGENCY SUPERVISING PHYSICIAN

All licensed EMS agencies are required, by state, to have Physician Medical oversight. This may be accomplished by the Medical Program Director (MPD) or an MPD delegated EMS Agency Supervising Physician. All ALS or BLS licensed agencies that are providing advanced skills are required, by statute, to have a physician supervisor. Licensed BLS agencies may, at their discretion, have an MPD delegate Physician Supervisor. The following is a list of expectations of the agency and the described positions:

- ✓ A current listing of the EMS Agency Supervisor and the physician advisor, if required, shall be provided at all times to the Spokane County EMS/MPD's office by the licensed EMS agency. The Physician Supervisor must be formally delegated as such by the county MPD.
- ✓ The EMS Agency Supervisor shall be the point of contact for questions/concerns regarding EMS provided by the represented agency.
- ✓ Ensure all care providers are listed on their agency's roster that is maintained by Washington State DOH.

### EMS AGENCY SUPERVISOR:

1. The EMS Agency Supervisor shall be signatory on all EMR/EMT initial certification applications. By signing, they are verifying that the applicant is knowledgeable of the Spokane County Operating policies and procedures applicable to the agency they are serving. This signature shall act as a recommendation to the Spokane County Medical Program Director to approve the applicant.
2. The EMS Agency Supervisor shall be signatory to all EMR/EMT recertification applications. By signing, they are verifying that the applicant is knowledgeable of the Spokane County Operating Procedures, protocols, and practices applicable to the agency they are serving, county specific protocols, and have completed the continuing education and proficiency in procedural skills as required by the provider's level of certification. This signature shall act as a

recommendation to the Spokane County Medical Program Director to approve the applicant.

3. The EMS Agency Supervisor shall be signatory on all EMR/EMT personal status change applications to be added to an agency's rosters when coming new into Spokane County from another Washington county or another State. By signing, they are verifying that the applicant is aware of the Spokane County Operating policies and procedures applicable to the agency they are serving, Spokane County/Washington State protocols, and proficient in procedural skills within the scope of the practice of the EMS provider's level of certification prior to the individual providing patient care. This signature shall act as a recommendation to the Spokane County Medical Program Director to approve the applicant.
4. Shall assure all care providers are listed on their agency's roster with the Washington State Department of Health.
5. Shall provide a list to the Spokane County EMS Office/MPD of ALS certified providers that are required to perform at a BLS Level while providing care for their Agency.
6. Provide all requested documentation to the Spokane County EMS/MPD's office to facilitate the Q.I./Q.A. process.
7. Ensure all agency personnel are informed/educated on procedure/protocol changes in the time frame as provided by the EMS Council.
8. Shall be required to report any acts or perceived acts of gross neglect to provide care, abuse of a patient or actions/convictions that would preclude a care provider to maintain a certification in the State of Washington to the Spokane County EMS office/MPD and the Washington State Department of Health immediately.

**MPD DELEGATED SUPERVISING PHYSICIAN:**

1. The Supervising Physician, after collaboration with the EMS Agency Supervisor, shall be signatory on all EMT-IV/AEMT/Paramedic initial certification applications. By signing, they are verifying that the applicant is aware of the Spokane County Operating Procedures, Spokane County Protocols and practices applicable to the agency they are serving. The

Supervising Physician is verifying the candidate's knowledge and skills competency with their signature. This signature shall act as a recommendation to the Spokane County Medical Program Director to approve the applicant.

2. The Supervising Physician, after collaboration with the EMS Agency Supervisor, shall be signatory on all EMT-IV/AEMT/Paramedic recertification applications. By signing, they are verifying that the applicant is aware of the Spokane County Operating Procedures, protocols, practices applicable to the agency they are serving, county specific protocols, and have completed the continuing education and proficiency in procedural skills as required by provider's level of certification. The Supervising Physician verifies the candidate's knowledge and skills competency with their signature. This signature shall act as a recommendation to the Spokane County Medical Program Director to approve the applicant.
3. The Supervising Physician, after collaboration with the EMS Agency Supervisor shall be signatory on all EMT-IV/AEMT/Paramedic personnel status change applications to be added to an agency's rosters when coming new into Spokane County from another Washington county or another State. By signing, they are verifying that the applicant is aware of the Spokane County Operating Procedures, protocols, practices applicable to the agency they are serving, Spokane County/Washington State protocols, and proficient in procedural skills within the scope of the practice of the EMS provider's level of certification prior to the individual providing patient care. The Supervising Physician is verifying the candidate's knowledge and skills competency with their signature. This signature shall act as a recommendation to the Spokane County Medical Program Director to approve the applicant.

## FIELD RESUSCITATION

### WITHHOLDING OF CPR

1. CPR must be initiated on all cardiac arrest victims, unless a condition exists which warrants the withholding of CPR
  - A. CPR and ALS intervention may be withheld on **Adult** or **Pediatric** victims who present with any of the following:
    - a. Injuries obviously incompatible with life such as decapitation or hemicorporectomy
    - b. Total incineration
    - c. Decomposition
    - d. Dependent lividity
    - e. Rigor mortis without vital signs
    - f. Apnea in conjunction with separation from the body of either the brain, liver, or heart
    - g. Mass casualty incidents where triage principles preclude CPR from being initiated on every victim
    - h. Documentation of Do Not Resuscitate Orders
  - B. CPR may be withheld on adult victims of unwitnessed medical cardiac arrest or witnessed/unwitnessed trauma arrest who present with **all** of the following:
    - ✓ No CPR in progress
    - ✓ No vital signs
    - ✓ Using 2 or more leads on a properly functioning monitor, document electrical asystole on patients who have had CPR or who have a non-capturing pacemaker
    - ✓ EMS personnel will document lack of **Ventricular Fibrillation** by attaching defibrillator and recording "No Shock Indicated"
    - ✓ No evidence of **hypothermia**, drug ingestion or poisoning
2. Notify appropriate law enforcement agency as soon as possible.

3. Complete a prehospital care record, documenting clinical conditions which warranted not initiating CPR and law enforcement agency notification.

### DISCONTINUING CPR

1. A Supervising Physician should consider discontinuing CPR in the prehospital setting and pronounce a patient dead at the scene, provided certain conditions are met, including, but not limited to, the following:
  - A. Brady-Asystole unresponsive to resuscitation with complete and appropriate Spokane County ALS protocol:
    - ✓ Ensuring high quality CPR has been performed and trending waveform ETCO<sub>2</sub> has been measured and recorded
    - ✓ **Asystole** will be documented for 30 seconds in 2 leads with documented evidence that the monitor is functioning properly (i.e., artifact due to manual compression or precordial thump)
    - ✓ Blood pressure, pulse, and respiration are absent
  - B. Ventricular Fibrillation which, after ALS resuscitation, is now Asystole or Agonal rhythm.
  - C. No evidence of Hypothermia, drug ingestion, or poisoning as cause of arrest.
  - D. CPR may be discontinued in trauma patients with EMS witnessed cardio pulmonary arrest and 15 minutes of unsuccessful resuscitation and CPR.
  - E. Victims of penetrating trauma found apneic and pulseless should be rapidly assessed for other signs of life such as pupillary reflexes, spontaneous movement, or organized EKG activity. If any of these signs are present, the patient should have resuscitation performed and be transported to the nearest trauma center if transport time is < 15 minutes.
2. Notify Supervising Physician before discontinuing CPR. If unable to contact Supervising Physician because of geographic isolation, the

emergency care provider will contact the physician as soon as possible and document the reason for delay of communication.

3. If, after a brief discussion with the family on the futility of continued resuscitative efforts, supported by consultation with medical control, the family still insists upon continued resuscitation and transport, it should be done.
4. Complete a prehospital record documenting the physician who was consulted and discontinued resuscitation.
5. Obtain an EKG strip with documented evidence of asystole and attach to run report.
6. Notify appropriate law enforcement agency.
7. Notify appropriate support facility for family as needed.
8. Once death has been determined, the body should not be moved unless required by scene safety concerns. If, in the judgment of the EMS provider, scene safety or other concerns require movement of the body, the County Medical Examiner (509-477-2296) or coroner, in the county of occurrence of deaths, should be contacted with the request to move the body prior to doing so.
  - A. If a patient is treated at the scene but has been moved into an ambulance for purposes of optimal resuscitation, scene safety, or environmental factors, but the patient dies before transport, contact the on-call medical examiner to determine whether or not the deceased may be moved from the scene.
  - B. If a patient dies while being transported to the hospital, including instances when it's necessary to pull the ambulance over so as to provide effective and provider-safe resuscitation, continue on to the intended receiving hospital.
  - C. If a newborn baby dies during labor and the mother is to be transported to the hospital, it is desirable to allow the baby to stay with the mother during the transport.
9. When appropriate, remain with family as long as necessary, until other support has arrived. If you are called for another emergency response, emergency care for the living must always assume priority.



## GENERAL GUIDELINES FOR ALL PATIENTS

**PRIMARY ASSESSMENT:** Done initially on every patient and repeated every few minutes as indicated.

- ✓ Check responsiveness
- ✓ Airway: Is it patent? Identify and correct any obstruction
- ✓ Breathing: Rate and quality. Identify and correct any compromising factors
- ✓ Circulation: Pulse, rate, quality, and location.
- ✓ Control external bleeding
- ✓ Check for shock, if present, treat

**SECONDARY ASSESSMENT:** Complete as indicated by patient condition

1. Level of consciousness (**see Glasgow Coma Scale**).
2. Reassure patient. Inform patient about exam and treatment.
3. Obtain a brief history of illness or injury from patient, family, or bystanders. Check for medical identification.
4. Perform a head to toe assessment. Record vital signs, to include pulse, blood pressure, respirations, skin color, pupils, etc.

**FIELD TREATMENT:**

1. Triage problems according to severity (**see Mass Casualty Incident protocols**).
2. Provide treatment, using appropriate protocols.
3. Transport:
  - A. Use of lights and sirens should be limited to the emergency transportation of critical patients.

- B. Destination determined by:
- a. Patients meeting major trauma triage criteria, as defined by **State of Washington Prehospital Trauma Triage Destination Procedures**, will be transported to the highest, most-appropriate trauma center.
  - b. MD to MD arrangement\*
  - c. Patient request\*
  - d. Senior Medical Officer judgment
- C. If the intended receiving hospital ER is on divert (Red), the patient destination should rely upon the same factors as they relate to the available receiving facilities.<sup>†</sup>

#### **COMMUNICATIONS:**

1. **H.E.A.R. Radio during transport:** All users of the H.E.A.R. system are urged to transmit essential communications and keep air times as short as possible. The following format for communications should be used. If Medical Control feels additional communications are necessary, they may contact the transporting unit via the H.E.A.R. system.
2. **Emergency Prehospital H.E.A.R. Report Format:**
  - ✓ Unit identification
  - ✓ Category of emergency:
    - A. Code Red - Critical
    - B. Code Yellow - Urgent
    - C. Code Green - Stable
    - D. Code 99 - EMS Personnel Endangerment
    - E. Hazmat Code
      - a. Code Red
      - b. Code Yellow
      - c. Code Green
  - ✓ Age and sex of patient
  - ✓ Chief complaint or reason for transport
  - ✓ Very brief pertinent medical history (one sentence, if possible)

- ✓ Vital signs and level of consciousness
- ✓ Pertinent treatment rendered and results, if any
- ✓ Request for additional information or treatment
- ✓ Estimated time of arrival



The H.E.A.R. report should be provided as soon as practical, once transport has begun. All reports should be given in this order and should be a maximum of 30 seconds. The H.E.A.R. report is not meant to be a full patient record and should relay only pertinent patient care information. Patient identification information is inappropriate to be given on the H.E.A.R. frequency. Advise Medical Control or receiving emergency department of changes in patient's condition en route, and request direction for further treatment.



3. **Verbal report to emergency department:** The verbal report to emergency department physician and/or triage nurse should contain more detail than the radio report. The emergency care provider now has the time to present thorough details of the scene, complete assessment of the patient, and complete report on patient care and result of efforts.
  - ✓ Name, age, sex, and patient's physician
  - ✓ Chief complaint of injuries
  - ✓ If trauma, describe the trauma scene/mechanism of injury
  - ✓ Pertinent medical history
  - ✓ Vital signs and level of consciousness
  - ✓ Condition changes or trends in vital signs or level of consciousness during transport
  - ✓ Explain patient treatments and results
4. **Written Report:** Complete an EMS Medical Incident Report (MIR) on all patient encounters. The **C.H.A.R.T.E.D.** method ([see figure 1.1](#)) has been adopted as the standard for report writing in Spokane County. The MIR is a LEGAL record and may be called upon as evidence in any court of law. An MIR should be formatted on a

triplicate copy paper document. Each individual using this format should clearly identify their name and agency in association with the information that they have contributed to the effort. The color coded copies should be used in the following manner:

<b>White Copy:</b>	First responding EMS agency
<b>Yellow Copy:</b>	Transporting EMS agency
<b>Pink Copy:</b>	Receiving hospital

**SEE NEXT PAGE FOR C.H.A.R.T.E.D TABLE**

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\*Patient requests and physician to physician referrals must, in general, be respected. However, if in the judgment of the Senior Medical Officer a critical patient requires transport to a nearer hospital for stabilization, it is the Senior Medical Officer's responsibility to explain this to the patient or physician. If a conscious patient or physician who, in the judgment of the Senior Medical Officer, is capable of making a rational decision persists in requesting transport to a different facility, the patient and/or physician request should be followed (see **Patient Treatment Rights**). Attempt to obtain a signature on a medical release form.

† In spite of ER divert (Red status) Sacred Heart Medical Center will receive pediatric and adult major trauma patients. In spite of ER divert (Red status) Deaconess Medical Center, Holy Family Hospital, and Sacred Heart Medical Center will still receive Level I STEMI patients.

Fig. 1.1: C.H.A.R.T.E.D Method

<b>C</b>	<b>Chief Complaint:</b> The major problem with the patient. May include significant associated symptoms
<b>Hx</b>	<b>History:</b> Will include subjective information which the patient, family, bystanders, or other witnesses tell you.
<b>S</b>	<b>Symptoms:</b> What you are told associated with the problem at hand. Should include pertinent negatives.
<b>A</b>	<b>Allergies:</b> Known drug allergies.
<b>M</b>	<b>Medications:</b> Medications the patient has or should have taken. Bring medication bottles to hospital.
<b>P</b>	<b>Past Medical History:</b> Pertinent or possibly pertinent problem of the past. Name of patient's physician. History of smoking, if known.
<b>L</b>	<b>Last Food/Beverage:</b> Anything the patient ate or drank prior to the incident
<b>E</b>	<b>Events Prior:</b> What the patient was doing prior to the incident.
<b>D</b>	<b>Description of PT:</b> Age, gender, race, size, etc.
<b>Ax</b>	<b>Assessment:</b> Physical findings of primary and secondary survey, as well as vital signs.
<b>R</b>	<b>Rendered Treatment:</b> What you did for the patient and any change as a result of treatment.
<b>Tx</b>	<b>Transport/Transfer:</b> Who, where, and how the PT was transported, patient care transferred to, and any changes while transporting
<b>Ex</b>	<b>Evaluation:</b> Was the <i>Trauma Triage Tool</i> used for destination decision?
<b>Dx</b>	<b>Destination:</b> Name of destination hospital and reason(s) selected: <ul style="list-style-type: none"> <li>A. Highest designated facility within 30 minutes (Step 1 or Step 2)</li> <li>B. Nearest designated facility within 30 minutes (Step 3)</li> <li>C. Per documented online Medical Control</li> <li>D. Patient/family request</li> <li>E. Physician request</li> <li>F. Other (must be documented)</li> </ul>

## HAZARDOUS MATERIALS RESPONSE



This protocol is to be used in all incidents involving hazardous materials where there is an actual or potential exposure to any hazardous substance.



1. Call for help - Contact local fire jurisdiction. Notify and/or respond Spokane Fire Department Hazardous Materials Team.
2. Contact Washington State Poison Center's special direct line (**1-800-709-0911**) and/or the Agency for Toxic Substances and Disease Registry (**1-888-422-8737**) or for emergency (**1-404-498-0120**) for initial guidance in assessing the hazard and providing for EMS personnel safety and patient care.
3. Establish a SAFE staging area uphill, upwind if possible. Notify all incoming response agencies of proper route for a SAFE scene approach to the staging area. Helicopters, when indicated, should be landed far enough away from the scene to avoid spread of contamination from prop wash.



Refer to the D.O.T. Emergency Response Guidebook, or Hazmat Team for general precautions and isolation/evacuation guidelines. As a general rule of thumb, isolate the hazard area, 100 feet for a minor incident and 500 feet for a major incident. If explosives are involved, evacuate area for a 1/2 mile. Remember: The evacuation zone downwind or downhill will be much greater.



4. Protect yourself and others from any significant exposure. Do not attempt rescue without proper protective gear. Minimize continued exposure of any personnel and secondary contamination of rescue personnel by ensuring that proper decontamination has been completed prior to treatment or transport to a medical facility. Prevent unnecessary contamination of transport vehicles or equipment.
5. Obtain accurate information on health effects of the product(s) involved. Attempt to identify product(s) involved by placard, ID#, shipping papers, personnel on-scene, etc.

6. Provide your certification level of prehospital care. In general, it is not recommended to begin any medical treatment without first referring to proper guidelines (interventions as automatic as providing oxygen may be dangerous if not compatible with the agent involved).
7. HEAR radio patch to the receiving hospital should be titled Hazmat Code Red, Yellow, or Green to allow the hospital to initiate appropriate decontamination and treatment preparations.

## HELICOPTER TRIAGE GUIDELINES



The goals of the helicopter transport are to:

- ✓ Decrease transport time to definitive care
- ✓ Provide on-scene and en route critical care capabilities where such care is otherwise unavailable.
- ✓ Provide integrated support in multiple casualty incidents.

Spokane County's current helicopter emergency transport service is **Northwest MedStar**. The helicopter service is responsible for judging if weather conditions and local terrain are suitable for helicopter transport and notifying the appropriate EMS agency. Selection of a safe landing zone should be accomplished with regard to the **Helicopter Safety Reference** section.



### DISPATCH PROCEDURE:

Dispatch of the helicopter is done through the local fire service dispatch. The dispatched helicopter should communicate on the radio frequency of the dispatching agency, unless otherwise specified by dispatching agency. Non-EMS agencies in Spokane County requesting dispatch of the helicopter will notify the fire service dispatcher covering the area where the incident is located, who will in turn notify EMS field providers.

### INDICATIONS

1. Helicopter transport should be requested when transport time to the appropriate facility may be reduced by more than 15 minutes and meets one or more of the following criteria:
  - A. Vital signs and level of consciousness
    - ✓ Shock: Systolic Blood Pressure < 90
    - ✓ Respiratory Distress: Respiratory Rate < 10 or > 29
    - ✓ Altered Mentation: **Glasgow Coma Score** <13
  - B. Anatomy of Injury
    - ✓ Penetrating injury of head, neck, torso, or groin



- ✓ Combination of burns > 20% of total body surface or involving face, airway, hands, feet, or genitalia
  - ✓ Amputation above wrist, ankle
  - ✓ Spinal cord injury
  - ✓ Flail chest
  - ✓ Two or more obvious proximal long bone fractures
2. Consider air transport if the following conditions or risk factors apply. The potential for severe injuries is more likely as multiple risk factors apply.
- A. Biomechanics of injury
- ✓ Death of same car occupant
  - ✓ Ejection of patient from enclosed vehicle
  - ✓ Falls > 20 feet
  - ✓ Pedestrian hit at > 20 mph or thrown 15 feet
  - ✓ Rollover
  - ✓ Motorcycle, ATV, or bicycle accident
  - ✓ Extrication time > 20 minutes
  - ✓ Significant intrusion
- B. Comorbid factors
- ✓ Extremes of age (< 12 or > 60 years old)
  - ✓ Hostile environment (extremes of heat or cold)
  - ✓ Medical illness (such as **COPD**, CHF, renal failure, etc.)
  - ✓ Presence of intoxicants
  - ✓ Second/third trimester pregnancy
- C. Unstable medical problems
- ✓ Airway problems with concern for possible obstruction
  - ✓ Breathing problems with respiratory distress and SaO<sub>2</sub> < 90%
  - ✓ Circulatory problems, including:
    - Chest pain, with possible acute MI
    - Unstable cardiac dysrhythmias

- Internal bleeding with unstable vital signs
- ✓ Acute Stroke
- ✓ Altered level of consciousness
- ✓ Significant environmental incidents with unstable patient, including:
  - **Drowning**
  - **Hypothermia**
  - CO poisoning
- ✓ Imminent birth

#### **ADDITIONAL INDICATORS**

- ✓ Emergency care provider's judgment of injury or illness severity.
- ✓ Multiple casualty incidents that exceed ground transport capabilities.
- ✓ Difficult or unusual terrains where helicopter abilities may be of benefit.
- ✓ Unusual or hazardous road conditions.

**PATIENT DESTINATION:** Patient destination will be determined by the following, in descending order of priority:

1. General:
  - A. Patient or family request
  - B. Prior MD to MD or MD to hospital arrangements
  - C. MedStar rotation
2. For major trauma patients, the trauma triage procedure should be followed.

**AUTHORITY:** The First Responder, EMT, paramedic, or flight nurse arriving on-scene will be in charge. During transport, the flight nurse will be in charge of patient care.

## HOSPITAL EMERGENCY RESPONSE TEAM (H.E.R.T)

1. This team is a potential resource for individual patient as well as MCI events. The team may be utilized to assist in the provision of surgical as well as nonsurgical care that exceeds the capability of EMS responders.
2. That we will look to our hospitals, primarily our Level II Trauma Center (PSHMC) and our Disaster Medical Coordination Center (DH), as well as our other hospitals to indicate a willingness to respond, if requested.
3. Response team composition will be recommended to include an emergency physician, a critical care nurse, and any combination of physicians, nurses, mid-level providers, respiratory therapists and other hospital based personnel as deemed by the response team leader appropriate to support the response.
4. The team will be requested through a call made from the Incident commander at the scene to the Combined Communications center (CCC) who in turn will contact the emergency department charge nurse at the identified response hospital. The CCC communications personnel will also provide the hospital contact person with the contact information for the field incident commander or his designee.
5. The emergency charge nurse in consultation with the on-duty emergency physician will determine the most appropriate team composition and initiate the recruitment of the hospital response.
6. Either Northwest MedStar or AMR will be contacted, depending upon which service can provide the most timely response and which vehicle will have adequate carrying capacity, by the Emergency Department nurse to provide for rendezvous at the hospital with the response team members and provide transport by air or ground to the scene.

## INFECTIOUS DISEASE PRECAUTIONS



Precautions to prevent transmission of infectious diseases are especially important in the emergency care setting, where the risk of blood exposure is increased and the infection status of patients is usually unknown. Universal respiratory, blood and body fluid precautions should be used for **all** patients, to prevent skin and mucous membrane exposure.



1. EMS responders shall don medical gloves, eye protection consider an isolation mask (surgical mask) prior to initiating any patient contact.
2. Fit tested NIOSH approved masks shall be worn when treating patients suspected of having a respiratory illness or when performing procedures involving a potential exposure to aerosolized particles.
3. All patients suspected of having a respiratory illness and/or being transported to a healthcare facility should have a face mask applied provided it does not impair oxygenation or ventilation.
4. EMS responders shall abide by the healthcare facilities requirements for wearing a mask.
5. Wash hands and other skin surfaces immediately, if contaminated with blood or other bodily fluids.
6. Use respiratory adjuncts and resuscitation bags when necessary to oxygenate and/or ventilate patients and avoid mouth to mouth resuscitation.
7. Sharp instruments, needles and scalpels should be handled carefully during procedures, cleaning and disposal. Needles should not be recapped, bent broken by hand, or removed from disposable syringes.
8. All disposable materials used in patient care should be disposed of in containers intended for biohazard waste.

## INTER-FACILITY TRANSPORT

### GENERAL PRINCIPLES

In general, health care facilities, other than hospitals, should access 911 to ensure the most immediate EMS response. A more sophisticated medical facility that maintains a staff fully trained and equipped to provide ACLS may elect to contact an ambulance transport provider directly, if the patient is currently stable and any potentially unstable events are fully treatable by the services provided at their facility. An arrangement such as this requires that there be a letter of agreement between the jurisdictional fire agency and the facility which acknowledges this arrangement.

Interfacility transport will occur at BLS, ILS, ALS, and Critical Care levels within the following special categories:

- ✓ Transfer between facilities for admission for services not available at initial facility.
- ✓ Transfer and return of patient to facility for diagnostic evaluations at second facility.
- ✓ Transfer from hospital to extended care facility.
- ✓ Transfer of patient between facilities at patient and/or physician request.
- ✓ Transfer of a psychiatric patient to a psychiatric facility.

As a general rule, it is the responsibility of the transferring facility to ensure that the medical necessities for safe patient transfer are met. Medical instructions of the attending physician and registered nurses will be followed unless specifically contrary to EMS protocols. If treatment is recommended that is contrary to protocol or beyond the scope of training of the EMS personnel, medical control at the receiving facility should be contacted for advice. The physician, if attending the patient during transfer, will direct all care regardless of standing orders. A registered nurse, if attending the patient, will direct the care of the patient from the standing orders given by the physician at transfer or by contact with the receiving hospital physician. The registered nurse may choose to defer emergency care in some situations to

the EMT or paramedic as long as it's within the EMS provider's scope of practice.

The responsibility for transfer to another facility resides with the transferring facility. Patients will not be transferred to another facility without first being stabilized. Stabilization includes adequate evaluation and initiation of treatment to ensure that transfer of a patient will not, within reasonable medical probability, result in the following: material deterioration of the condition, loss and/or serious impairment of bodily functions, parts, organs, or death. Furthermore, the benefits of transfer to the next facility outweigh the risks of transfer to that facility. Evaluation and treatment of patients prior to transfer are to include the following:

- ✓ Establish and ensure adequate airway and ventilation.
- ✓ Cardiac monitoring and emergency defibrillation, when indicated.
- ✓ Establish control of hemorrhage.
- ✓ Stabilize and splint the spine or fractures, when indicated.
- ✓ Establish and maintain adequate access routes for fluid administration.
- ✓ Administer adequate fluid and/or blood replacement.
- ✓ Determine that the patient's vital signs (blood pressure, pulse, respiration, and urinary output, if indicated) are sufficient to sustain adequate perfusion. Initiate important therapeutic regimens that can be started in a timely fashion and safely continued during transport.

For requests for transports not meeting the above criteria, the following may apply:

- ✓ The transporting personnel may request compliance with the above criteria.
- ✓ If the transporting personnel do not think the plan for transfer can be safely accomplished, contact the receiving physician for concurrence or consultation.

It is also the transferring facility's responsibility to establish the need for BLS, ILS, ALS, or Critical Care transport. If a BLS/ILS transport is requested and it is the judgment of the BLS/ILS crew that the patient needs to be transported by an ALS or Critical Care team, it is mandated that dispatch be contacted and an ALS or Critical Care crew be dispatched.

Similarly, if an ALS transport is requested and it is the judgment of the ALS crew that the patient needs to be transported by a Critical Care team, it is mandated that dispatch be contacted and a Critical Care team dispatched. Under no circumstances should an EMS crew transport a patient if, in their judgment, the patient requires a higher level of care than that crew can provide (Mass-casualty incidents are an exception).

Specific conditions requiring the presence of a critical care RN, during transport, provided the RN is available within an acceptable time interval:

- ✓ Cardiogenic shock
- ✓ Post cardiac arrest (acute)
- ✓ Unstable arrhythmias
- ✓ Complicated IV infusions (more than 2 pumps or 3 IV lines)
- ✓ Severe or worsening ischemic chest pain
- ✓ Complicated patients who have a fibrinolytic infusion may require a critical care RN according to physician's discretion
- ✓ Unsuccessful fibrinolytic infusion

A Paramedic level ALS crew may transfer stable patients on IV infusions and/or drugs not typically used for prehospital care, provided the following conditions are met:

- ✓ That the drugs being used do not have direct hemodynamic effects
- ✓ That the rate of administration is controlled by a mechanical pump and was established prior to transfer
- ✓ That the Paramedic in charge during the transfer has had specific MPD approved training relevant to the effects and potential side effects of the IV infusions and/or drugs involved

If during a patient transport, an emergency condition develops that was not anticipated prior to transport, prehospital patient care procedures and protocols will immediately apply. Medical Control should be contacted for concurrence of any orders as appropriate. The receiving facility should be contacted ASAP to inform them of changes in the patient's condition.

## LEVEL OF CERTIFICATION OF EMS PERSONNEL TO ATTEND THE PATIENT DURING TRANSPORT

1. In general, the highest level certified EMS provider should attend the patient during transport.
2. State law requires that at least one individual certified at the EMT level must be attending the patient in the back of an ambulance.
3. The EMS provider with the highest level of certification may allow an EMT to attend the patient during transport, provided that, in the highest level provider's judgment, the patient's illness or injury is stable and that any anticipated treatment would not be better rendered by a higher level of certified individual.



## MASS CASUALTY, TREATMENT, AND TRANSPORT

The following material represents a broad guideline for the common practice of our EMS providers when dealing with a mass casualty event. A much more comprehensive overview of the important role and responsibilities of EMS responders in a mass casualty event is found within our **Field Operations Guide (FOG)**.

Included in this County Operating Procedure section are the following:

1. General Principles of Triage, Treatment, and Transport
2. References
  - A. START
  - B. JumpSTART
  - C. Combined START/JumpSTART
  - D. Triage tags

### RECOMMENDATIONS

1. Triage:
  - ✓ Initial triage should be rapid with an emphasis on identifying severe but survivable injuries.
  - ✓ A single system should be used throughout our EMS system. START and Jump/START are simple and effective tools for initial triage.
  - ✓ A triage tag or identifier should be applied at the time of initial EMS contact.
  - ✓ Secondary triage should be applied at the scene (treatment area) with a focus on identifying patients whose outcome will depend primarily on time critical hospital based interventions (surgery/critical care).

2. Treatment:

A. A few immediate lifesaving treatments should be done as soon as possible at the time of initial EMS contact.

- I. Open the airway.
- II. Stop severe external bleeding.
- III. Treat open (sucking) chest wounds.

B. Secondary treatment

- I. Spinal immobilization (prior to moving the patient).
- II. Definitive airway placement and oxygen administration.
- III. Needle decompression of tension pneumothorax.

3. Transport:

A. All RED (critical) patients should be the priority for earliest transport to receiving hospitals with an emphasis on those that need immediate surgical interventions.

B. EMS staffed transport vehicles should be loaded to full capacity with all RED patients and provided ALS level EMS during transport, if possible.

C. When ambulance capacity is exceeded, alternative transport vehicles (buses, etc.) should be considered to move the less severely injured EMS personnel should be assigned to the vehicles.\*

## **SEE FOLLOWING PAGES FOR ALGORITHM AND FIGURES**

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\*The number and level of certification of EMS providers assigned to transport vehicles will depend upon the need for immediate triage and treatment of victims who initial remain at the scene.

Fig 1.2 START and JumpSTART

START		JumpSTART	
Move the walking wounded	Minor	Move the walking wounded	Minor
No respirations after head tilt	Deceased	No respirations No peripheral pulse	Deceased
Respirations Over 30/min	Immediate	Respirations above 45/min less than 15/min	Immediate
Perfusion No radial pulse Cap refill +2/sec	Immediate	No respirations with peripheral pulse, give 5 ventilations via barrier. Respirations resume.	Immediate
Mental status Unable to follow simple commands	Immediate	Perfusion No peripheral pulse Cap refill +2/sec	Immediate
Stable RPM	Delayed	Mental status AVPU AV PU	Delayed Immediate

Fig 1.3 Combined START/JumpSTART Triage Algorithm

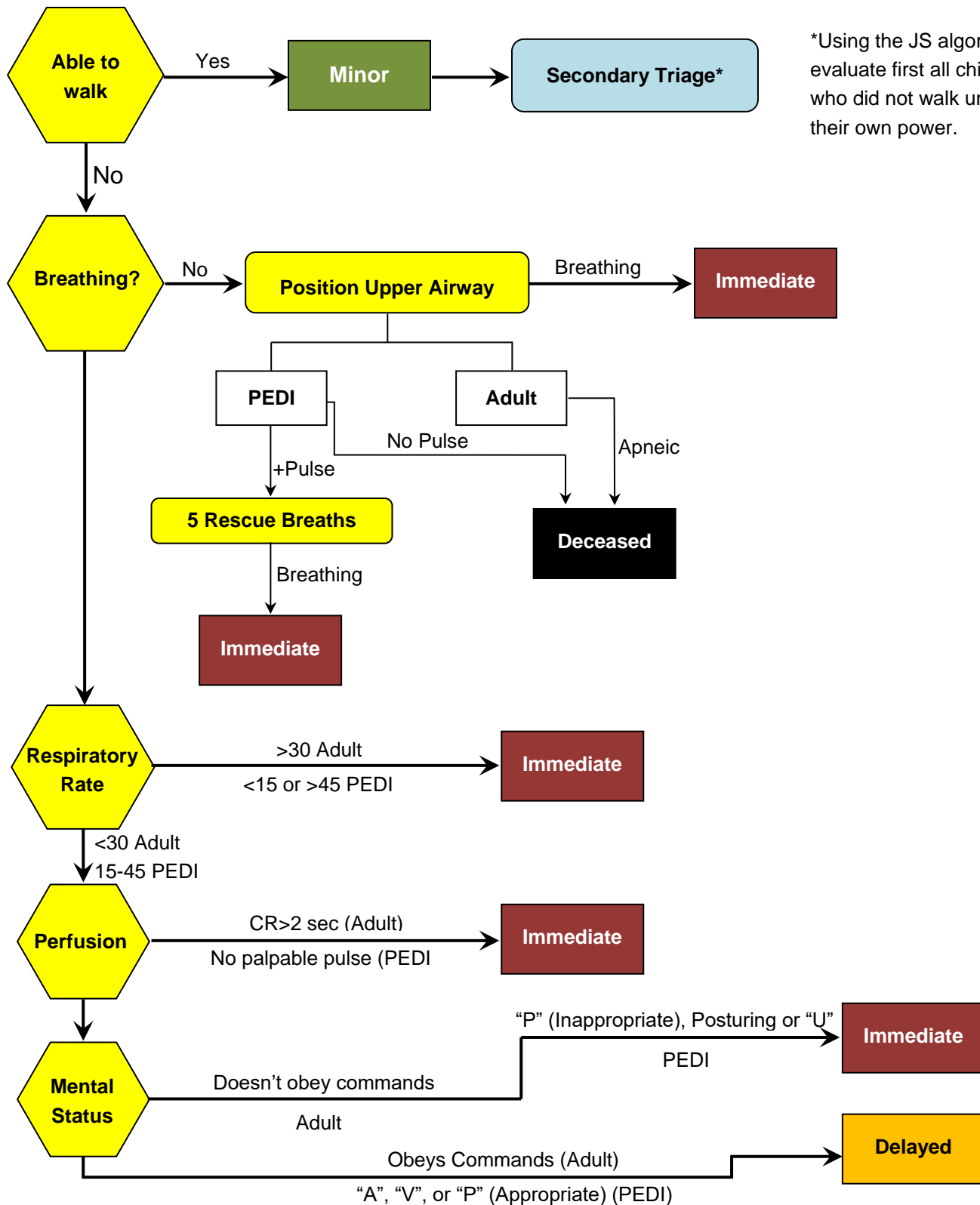


Fig 1.4 Wrist Band

**CONTAMINATED**

**Wristband**

**Personal Property Receipt/ Evidence Tag**

Destination: \_\_\_\_\_ Via: \_\_\_\_\_

**All Risk® TRIAGE TAG**

S ☐ L ☐ U ☐ D ☐ G ☐ E ☐ M

AUTO INJECTOR TYPE: \_\_\_\_\_

Yes No Primary Decon  
Yes No Secondary Decon

Solution: \_\_\_\_\_

Blunt Trauma  
Burn  
C-Spine  
Cardiac  
Crushing  
Fracture  
Laceration  
Penetrating Injury

Age: \_\_\_\_\_ Sex: ☐ Male ☐ Female

**VITAL SIGNS**

Time	B/P	Pulse	Respiration

Time	Drug Solution	Dose

**Triage Status Matrix:**

	MORGUE	MORGUE
<b>IMMEDIATE</b>	<b>IMMEDIATE</b>	<b>IMMEDIATE</b>
<b>DELAYED</b>	<b>DELAYED</b>	<b>DELAYED</b>
<b>MINOR</b>	<b>MINOR</b>	<b>MINOR</b>

**Comments/Information**

Patient's Name: \_\_\_\_\_

**RESPIRATIONS R** ☐ Yes ☐ No **PERFUSION P** ☐ + 2 Sec. ☐ - 2 Sec. **MENTAL STATUS M** ☐ Can Do ☐ Can't Do

Move the Walking Wounded **MINOR**

No Respirations After Head Tilt **MORGUE**

☐ Respirations - Over 30 **IMMEDIATE**

☐ Perfusion - Capillary Refill Over 2 Seconds **IMMEDIATE**

☐ Mental Status - Unable to Follow Simple Commands **IMMEDIATE**

Otherwise **DELAYED**

**ENDORSED BY**

**PERSONAL INFORMATION**

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ ST: \_\_\_\_\_ ZIP: \_\_\_\_\_ PHONE: \_\_\_\_\_ COMMENTS: \_\_\_\_\_ RELIGIOUS PREF: \_\_\_\_\_

**Triage Status Matrix:**

	MORGUE	IMMEDIATE	DELAYED	MINOR
<b>IMMEDIATE</b>	<b>IMMEDIATE</b>	<b>IMMEDIATE</b>	<b>IMMEDIATE</b>	<b>IMMEDIATE</b>
<b>DELAYED</b>	<b>DELAYED</b>	<b>DELAYED</b>	<b>DELAYED</b>	<b>DELAYED</b>
<b>MINOR</b>	<b>MINOR</b>	<b>MINOR</b>	<b>MINOR</b>	<b>MINOR</b>

## MEDICAL CONTROL



Prehospital Medical Direction for certified EMS providers may be given by physicians designated by the County EMS Medical Program Director as MPD Delegates/Supervising Physicians (MPDD). MPDDs may provide medical direction via the Hospital Emergency Administrative Radio (H.E.A.R.) system and telephone communication systems.

Radio contact will be made between the EMS unit and the receiving hospital prior to arrival of the EMS unit at the hospital using the standard reporting format outlined under **General Guidelines for All Patients**.

Consultation with the receiving physician is available via the H.E.A.R. system or direct telephone line. Direct contact with the receiving physician should be used when the need for medical advice arises. In the medical report, document the name of the physician and any orders/advice given.

On occasions when communications are not technically possible or a Supervising Physician is not available, EMS personnel must rely on these policies, protocols, and their own judgment until communication can be established.



## MEDICAL PROFESSIONALS AT THE SCENE

Medical professionals at the scene of an emergency may provide assistance to paramedics and should be treated with professional courtesy. Medical professionals who offer their assistance should identify themselves. Physicians should provide proof of their identity, if they wish to assume or retain responsibility for the care given the patient after the arrival of the EMS unit (**See Relationship between Advanced Life Support Team and Private Physician**).

In addition to physicians, EMS personnel may encounter other health care professionals at the scene, such as physician's assistants, nurse practitioners, and nurses. In general, the following statements should guide the EMS personnel's interaction with other health care providers at the scene of an emergency:

- ✓ EMS personnel who arrive first on the scene and initiate care must continue treatment of the patient until the patient can be placed under the supervision of personnel with equal or greater competence.
- ✓ EMS personnel should not perform any procedure for which they do not possess training, certification, and fall within the guidelines of MPD protocols, even if they are requested to do so by another provider.
- ✓ When there is lack of clarity as to whether a procedure is appropriate, EMS personnel should always be instructed to contact medical control.
- ✓ When EMS personnel encounter physicians or other health care providers who insist on taking charge of patient care, they should contact medical control for instructions before releasing the patient.
- ✓ Well trained health care providers should be encouraged to assist when and where appropriate.

## INTERFACILITY TRANSFER OF HOSPICE PATIENTS

Patients discussed in this policy: Patients (either themselves or via their surrogates) who have requested hospice care and are being transferred to one of the hospice houses.

Issue: Medical care in transit as well as questions of change of destination based on clinical appearance.

### Background:

- ✓ Patients who have accepted hospice care at the hospice houses have undergone extensive counseling and informed consent discussion regarding their medical care and disposition.
- ✓ These patients have chosen DNR status as the hospice houses do not offer resuscitation services.
- ✓ These patients have chosen a palliative approach to their end of life care and wish to receive this care in one of the hospice houses.

Since these patients have undergone a significant informed consent process that reflects the above, it is **contraindicated** to divert the patient back to an acute care hospital if their medical status deteriorates in route.

Resources for Hospice of Spokane:

Director of Hospice House care and admissions:	Alicia Reid RN	509-994-6224
Medical Director	Robert Bray MD	509-413-3707
Hospice of Spokane	Administrator on call	509-456-0438



## MEDICATIONS AND ALLERGIES

All medications in these protocols are to be administered only after ascertaining that the patient is **NOT** allergic to them. In critical situations when the patient has an altered level of consciousness, emergency care providers should question family, friends, and look for medical alert identification and/or other documentation.

## NON-TRANSPORT OF PATIENTS

The decision to seek emergency medical services usually resides with the patient, family, or, in certain instances, with legal custodians. Similarly, the decision to transport or not to transport should reside with the patient, family, or legal custodian. Major trauma patients are an exception and shall be transferred according to **trauma triage procedures**. In general, the only reasons for non-transport are:

- ✓ Signed refusal for transport completed by competent patient, family, or custodian demonstrating appropriate decision-making capacity
- ✓ No patient
- ✓ The emergency care provider may be of the judgment that the patient need not be transported by ambulance, but unless the patient and/or custodian agree with this judgment, transport will be done
- ✓ If the patient has a well-established history of frequent EMS requests unsubstantiated by medical need and the on-scene medical evaluation does not identify a significant acute medical problem, the EMS provider may contact medical control to consider denying ambulance transport to the patient

## ON-SCENE MEDICAL AUTHORITY AND ASSISTANCE

Patient care at an incident is subject to the following ascending order of authority:

1. Emergency Medical Responder (first arriving, on duty)
2. Emergency Medical Technician (first arriving, on duty)
3. Paramedic or Flight Nurse (first arriving, on duty)
4. Physician with acceptance of 'Thank You For Your Offer Of Assistance' card
5. EMS Supervising Physician

### RELATIONSHIP BETWEEN EMS TEAM AND PRIVATE PHYSICIAN

When the patient's private physician is in attendance and has identified himself upon the arrival of the EMS team, the EMS team will comply with the private physician's instructions for the patient. The receiving hospital will be contacted for reporting an estimated time of arrival. If orders are given that are inconsistent with established protocols, clearance must be obtained through the Supervising Physician. The Physician at the scene may:

- ✓ Request to talk directly to the Supervising Physician to offer advice and assistance
- ✓ Offer assistance to the EMS team with another pair of eyes, hands, or suggestions, leaving the EMS team under Medical Control
- ✓ Take total responsibility for the patient with the concurrence of the Supervising Physician

If, during transport, the patient's condition should warrant treatment other than that requested by the private physician, the Supervising Physician will be contacted using the H.E.A.R. system for information and concurrence with any treatment, except in cases of cardiopulmonary arrest.

The above "Physician at Scene" will also apply to cases where a physician may happen upon the scene of a medical emergency and interacts with the EMS team. Show physician at scene the "Thank You for Your Offer of Assistance" card.

## ON-SCENE PATIENT MASK USE

From this time forward, it is recommended that all patients we respond to be asked by our communications specialists to apply a face mask (or face covering) prior to EMS personnel arrival, provided:

- ✓ The patient has access to a mask
- ✓ That the application of the mask will not worsen respiratory distress; if the patient does not have access to a mask, a mask will be provided by the first EMS responder to make initial patient contact

In addition, should there be other persons with the patient, they, too, will be asked to wear a mask, if available, and should be requested by responding EMS personnel to maintain a social distance of 6 feet between themselves and the responders.

## PANDEMIC TRIAGE GUIDE (COVID-19)

In most young healthy patients COVID-19 will present with fever and a cough. The course, although uncomfortable, will be benign and therefore not require EMS transport and hospitalization. Patients with mild symptoms may be treated at home with hydration, antipyretics and rest and only be transported to the hospital should their symptoms worsen.

The patients at greatest risk are older and those with co-morbid conditions. During the pandemic period, patients with fever, cough and/or shortness of breath should be assessed according to two variables:

1. **Vital signs:** Regardless of age, if any of the following are present the patient should be transported to the hospital.
  - ✓ Respirations > 30/min
  - ✓ Pulse Ox. < 90 %
  - ✓ Systolic BP < 90 mmHg
  - ✓ Pulse > 125/min.
  - ✓ Altered mental status
2. **High-risk profile:** Patients with a history of fever, cough and/or shortness of breath who meet either of the following criteria should be strongly encouraged to be transported to the hospital.
  - ✓ Age > 60 years
  - ✓ Comorbid conditions: (CV disease, diabetes, chronic respiratory illness, hypertension, current cancer)

If the patient chooses to stay at home, provide home health care instructions and ensure contact ability with the patient's health care provider.

## PATIENT TREATMENT RIGHTS



Spokane County EMS guidelines and protocols are intended for use with a conscious and consenting patient, or an unconscious (implied consent) patient. Patients refusing EMS care or transport represent a significant medical legal risk for EMS agencies and their personnel. Adherence to medical release principles will minimize liability and maximize patient care.



**MEDICAL RELEASE PRINCIPLES:** The founding principle for medical release is informed consent by the patient. The patient cannot be held to have refused treatment or care unless and until (1) the patient has been fully informed of their condition, (2) the patient understands the information provided on their condition and the potential consequences of refusing the treatment or care, and (3) a medical release form has been read to, understood, and signed by the patient.

### MINIMUM MEDICAL INCIDENT REPORT DOCUMENTATION

- ✓ Patient history\*
- ✓ Vital signs\*
- ✓ Physical examination appropriate for the complaint\*
- ✓ Mental status documented as "alert and oriented" and no significant impairment of mental status by drugs, alcohol, other organic causes, or mental illness
- ✓ Informed consent: Risk of refusing care or transport explained to and understood by patient
- ✓ Spokane County Emergency Medical and Trauma Care  
Cancel/Refusal form signed by the patient and attached to the Medical Incident Report

If a conscious patient who is irrational (or impaired by alcohol or drugs) or may harm themselves, refuses treatment, the emergency care provider should contact law enforcement.

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\*If these criteria cannot be met, document refusal by patient

## RELATIONSHIP BETWEEN EMS TEAM AND PRIVATE PHYSICIAN

When the patient's private physician is in attendance and has identified himself upon the arrival of the EMS team, the EMS team will comply with the private physician's instructions for the patient. The receiving hospital will be contacted for reporting an estimated time of arrival. If orders are given, which are inconsistent with established protocols, clearance must be obtained through the Supervising Physician.

The Physician at the scene may:

- ✓ Request to talk directly to the Supervising Physician to offer advice and assistance
- ✓ Offer assistance to the EMS team with another pair of eyes, hands, or suggestions, leaving the EMS team under Medical Control
- ✓ Take total responsibility for the patient with the concurrence of the Supervising Physician.



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If, during transport, the patient's condition should warrant treatment other than that requested by the private physician, the Supervising Physician will be contacted, using the H.E.A.R. system, for information and concurrence with any treatment, except in cases of cardiopulmonary arrest.

The above "Physician at Scene" will also apply to cases where a physician may happen upon the scene of a medical emergency and interacts with the EMS team. Show physician at scene the **Thank You for Your Offer of Assistance** card.



## RESTRAINTS FOR AGGRESSIVE OR VIOLENT PATIENTS



The use of physical restraints for patients who pose a threat to themselves or others is indicated as a last resort. Physical restraint should be preceded by an attempt at verbal control and only the least restrictive means of control necessary should be employed. If restraints are used, care must be taken to protect the patient from possible injury. When patient care and the provider's safety requires the use of restraints, special precautions must be taken to reduce the risk of respiratory compromise. In addition, the combative behaviors requiring restraints may be associated with a syndrome of excited delirium posing an additional risk to the patient's health.



1. Request assistance from law enforcement.
2. Restraint equipment applied by EMS personnel must be either padded leather restraints or soft restraints (i.e. posey, Velcro, or seat belt type). Both methods must allow for quick release.
3. The application of any of the following forms of restraint should not be used by EMS personnel:
  - A. Hard plastic ties or any restraint device requiring a key to remove.
  - B. "Sandwiching" patients between backboards, scoop-stretchers, or flat, as a restraint.
  - C. Restraining a patient's hands and feet behind the patient (i.e. leg restraints)
  - D. Other methods or materials applied in a manner that could cause respiratory, vascular, or neurological compromise.
4. Restraint equipment applied by law enforcement (i.e. handcuffs, plastic ties, or leg restraints) must provide sufficient slack in the restraint device to allow the patient to straighten the abdomen and chest and to take full tidal volume breaths. Restraint devices applied by law enforcement require the officer's continued presence to ensure patient and scene safety. The officer should, if possible, accompany the patient in the ambulance, or follow by driving in tandem with the ambulance on a predetermined route. A method to alert the officer of



any problems that may occur during transport should be discussed prior to leaving the scene.

5. Patients should not be transported in the prone position (on their stomach) unless necessary to provide emergency medical stabilization. EMS personnel must ensure that the patient position does not compromise the patient's respiratory/circulatory systems or does not preclude any necessary medical intervention to protect the patient's airway should vomiting occur.
6. If providers are at risk of contamination by salivary and respiratory secretions from a combative patient, a protective device such as a "spit hood" may be applied to the patient to help reduce the chance of disease transmission in this manner.
7. Perform **blood glucose test**. If blood glucose is < 60, obtain blood sample and administer up to 25G D10 (10% in 250 mL NS) IV/IO push/drip.
8. Sedation may be used to help control excited delirium or severe agitation. Administer Ketamine 4mg/kg IM. Maintenance dose: 1mg/kg IV/IO over 60 seconds. Alternative: Midazolam may be given as an initial dose 2.5 mg up to 5mg IM or 2.5 mg IV repeated q3-5 minutes up to max dose 10mg. Midazolam may also be used to treat emergence phenomenon post ketamine at 2.5 IV/IM q3-5 minutes up to 10 mg.
9. Chemical restraints: paralytic agents are not an acceptable alternative for prehospital patient restraint unless they are required to allow treatment of a severe medical or traumatic condition and Medical Control should be contacted when considering their use.
10. Optimal Sequence Intubation (OSI) and chemical paralysis should be used as a last resort to allow for patient/provider safety and emergency patient care based upon the severity of illness and/or injury.
11. Restrained extremities should be evaluated for pulse quality, capillary refill, color, nerve, and motor function every 15 minutes. It is recognized that the evaluation of nerve and motor status requires patient cooperation, and thus may be difficult or impossible to monitor.

12. The medical incident report shall document the following:

- ✓ The reason the restraints were needed
- ✓ The agency that applied the restraints
- ✓ The periodic extremity evaluation
- ✓ The periodic evaluation of the patient's respiratory status

## SCHEDULE II MEDICATIONS

1. Each agency ordering their own controlled medications must be registered with the DEA.
  - ✓ Registration is through the Medical Program Director (MPD) or the agency MPD delegate supervising physician
  - ✓ Using a Power of Attorney form, the MPD or agency supervising physician may delegate one or more individuals per agency the responsibility for purchase and storage of controlled medications
2. Schedule II medications such as **Fentanyl** and **Morphine**:
  - ✓ Must be ordered using a DEA form 222
  - ✓ All schedule II medications may be logged on one sheet, but must be separate from the schedule III and IV medications log sheet.
3. Schedule III and IV medications (**Diazepam**, **Lorazepam**, and **Midazolam**):
  - ✓ Do not require the use of the DEA form 222
  - ✓ May not be ordered using a prescription form
  - ✓ Once credentials have been established (DEA registration number, name, address) agencies can work with the agency's pharmaceutical supplier, using an invoice method to order schedule III and IV medications. *Note: The pharmacy must be presented with a properly filled out DEA form 222 in order to fill a request for Schedule II medications. Bi-annual Audit.*
4. Disposal of Waste and Out-Dated Controlled Substances
  - ✓ Vials, ampoules and injections intended for single patient use that have been opened or partially used may be wasted. Use and wasting controlled medications must be documented on the patient care report and the controlled substance log.
  - ✓ Outdated or unusable schedule II-IV medications must be disposed of by transferring them to a registrant who is authorized to receive such materials. These registrants are referred to as Reverse Distributors. Schedule II controlled substances should be

transferred via the DEA form 222. Schedule III and IV compounds may be transferred via invoice. The MPD or supervising physician should maintain copies of the records documenting the transfer and disposal of controlled substances for two years. This requirement does not include the medications that were wasted after a single patient use. Agent or agency records must be kept for two years. Patient care records and agency controlled medication logs document proof of use or disposal.

- ✓ DEA registered *Reverse Distributors* are listed in the **Department MPD Controlled substance guidelines**, found in the Reference Documents section.

## SUSPECTED EBOLA VIRUS DISEASE

### INTENT

To provide EMS personnel with information and guidance for treating patients suspected of having Ebola Virus Disease (EVD). In all cases, responder safety and closely following infection control procedures is critical.

### BACKGROUND

Ebola threats raise the possibility of patients with Ebola traveling from the affected country to the United States.

The likelihood of contracting EVD is extremely low unless a person has direct, unprotected contact with the body fluids of a person who is sick with EVD. EVD is not transmitted by air, food or water. Early recognition is critical to controlling the spread of EVD.

Signs and symptoms of Ebola include:

- ✓ Sudden or recurring fever
- ✓ Chills, and muscle aches;
- ✓ Diarrhea, nausea, vomiting, and abdominal pain occurring after about five (5) days.
- ✓ Other symptoms such as chest pain, shortness of breath, headache, or confusion may also develop.
- ✓ Advanced and severe symptoms may include jaundice (yellow skin), severe weight loss, mental confusion, bleeding inside and outside the body, shock, and multi-organ failure.

### ACTIONS

For patients that are in the general illness category **and** there is not preliminary suspicion of EVD (via the ccc), general infection control guidelines must be followed to prevent inadvertent contact with a potential EVD patient. These include:

- ✓ Have one (1) responder enter the residence. Initially, additional responders should remain outside of the residence or location.

- ✓ The responder who makes initial contact should remain six (6) feet or further from the patient. Initiate a rapid scene size up and verbal patient assessment.
- ✓ Ask the patient, family or care provider if the patient has travelled outside of the U.S. within the last thirty (30) days or been in close contact with someone who has travelled outside of the U.S. in the last 30 days.
- ✓ If the patient answers No to the travel question, additional responders may enter and care of the patient should begin immediately. Usual patient care procedures should be followed. It is important that the responders follow strict infection control and utilize all appropriate Personal Protective Equipment (PPE) in accordance with your agency's policies. This will minimize responder exposure to other infectious diseases that we typically encounter during the Influenza Season.
- ✓ It is important that the responders follow strict infection control and utilize all appropriate PPE in accordance with your agency's policies. This will minimize responder exposure to other infectious diseases that we typically encounter during the influenza season.
- ✓ If the patient answers yes to the question above, determine what country. If the answer is any of the affected countries in West Africa (Guinea, Liberia, AND SIERRA Leone) immediately step outside and implement the protocols found below.

The CCC has a process in place to screen certain calls that may suggest the presence of EVD. If the Communications Specialist has a high index of suspicion for presence of EVD, they will advise the EMS responders. When notified, EMS personnel will:

Limit the number of people with patient contact to only essential care providers. The responder who makes initial contact should remain six (6) feet or further from the patient and contacts. Initiate a rapid scene size up and verbal patient assessment.

1. Prior to entering the residence, put on gloves, protective eyewear, fluid resistant or impermeable gown, hood and N95 respiratory mask. Check with other responders to confirm that PPE is intact and put on appropriately.

2. Providers are encouraged to consider double gloving if there is obvious blood or other bodily fluids present.
3. Avoid direct, unprotected contact with patient bodily fluids including urine, saliva, feces, vomit, sweat and semen.
4. Obtain a thorough history from the patient, including if the patient has:
  - i. Recently lived in, or traveled to, a country where an Ebola outbreak is occurring;
  - ii. Recently travelled through major airports in the U.S. If possible, specify the airport; Current key airports include: JFK in New York, Washington D.C.-Dulles, Newark-New Jersey, Chicago-O'Hare, and Atlanta International.
  - iii. Had recent contact with someone who is sick with EVD or had contact with the bodily fluids of someone who is sick with EVD.
5. Obtain baseline vital signs including temperature. Document findings.
6. Treat any acute symptoms (e.g., breathing problems, hypotension, etc.) in accordance with the appropriate Spokane County Patient Care Protocol.
7. Avoid elective, invasive procedures such as endotracheal intubation. If endotracheal intubation is required, great care must be taken to avoid risk of exposure to infectious materials (sputum, secretions, etc.) EMS providers performing intubation must have all PPE in place prior to initiating the procedure.
8. Avoid elective or unnecessary IV access. If IV access is warranted, make sure to exercise caution to avoid needle stick or splashing of blood. At all times, double gloves, mask, gown and protective eye wear must be worn while placing the IV. Immediately dispose of all needles and sharps in puncture-proof, sealed containers. Make every effort to avoid IV insertion unless absolutely needed for stabilization.
9. Transport only in an ambulance designated by AMR. AMR has configured a specific ambulance for transport of these patients. Request AMR's designated transport unit if you have a high degree of suspicion that the patient has EVD.

10. Prior to transport, contact the destination Emergency Department and advise them of the pending arrival of a potential infectious disease patient.
11. Continue supportive care as needed until arrival at the hospital.
12. As soon as patient care is transferred to the Emergency Department, immediately begin decontamination of all responders, equipment, and the transport vehicle. After exiting the patient's room:
  - i. Remove PPE carefully without contaminating eyes, mucous membranes or clothing with potentially infectious materials; Request that the hospital provide a trained person that will observe all PPE removal to identify potential contamination/exposure while removing PPE.
  - ii. Discard disposable PPE in containers specified by the hospital;
  - iii. Thorough hand washing should be performed immediately after removal of PPE; and
  - iv. Thoroughly decontaminate non-disposable equipment (e.g., Thermometer, Blood Pressure Cuff, Heart Monitor and Leads, Glucometer, etc.) prior to re-using. Under no circumstances should non-disposable equipment be used to treat subsequent patients without first being decontaminated.
13. Ambulances and personnel should not respond to subsequent calls without having been thoroughly decontaminated.
14. In detail, document the patient contact as soon as possible following decontamination procedures.



## THANK YOU FOR YOUR OFFER OF ASSISTANCE

Please be advised that this EMS team is operating under the authority of Washington State Law and protocols that were developed and approved by me as Medical Program Director. The EMS team performs their functions at the scene under the guidance of EMS Medical Control. If you, as a physician at the scene, decide you must intervene in the patient's care, then you are responsible for any and all care given, and must accompany the patient to the hospital in the ambulance and sign the Medical Incident Report.

James M. Nania, MD, FACEP  
Medical Program Director  
Spokane County, Washington

**WASHINGTON STATE PREHOSPITAL TRAUMA TRIAGE  
DESTINATION PROCEDURE**

**SEE NEXT PAGE**

# 2023 Washington State



## Purpose

The National Guideline for Field Triage of Injured Patients was developed by a multidisciplinary panel led by the American College of Surgeons Committee on Trauma. The guideline has been adopted by the Department of Health (DOH) based on the recommendation of the State Emergency Medical Services (EMS) and Trauma Steering Committee in association with the Prehospital and Hospital Technical Advisory Committees.

The guideline represents the current best practice for the triage of trauma patients and allows EMS providers to quickly and accurately determine if the casualty is a major or moderate trauma patient. It also aids in decision making to determine the most appropriate transfer facility location.

The triage procedure is described below in Figure 1. It consolidates triage criteria into two main categories based on risk of serious injury: **High-Risk Criteria (red box)** includes Injury Patterns, Mental Status, and Vital Signs. **Moderate-Risk Criteria (yellow box)** includes Mechanism of Injury and EMS Judgment. Each risk category is aligned with recommendations for a destination trauma service. Figure 1. is intended to be read from top to bottom, left to right.

Any certified EMS provider can identify a major trauma patient and alert receiving hospitals. Hospitals will activate their trauma team based on their internal policies and procedures. EMS providers should follow regional Patient Care Procedures (PCPs) and County Operating Procedures (COPs) for engaging other system partners such as air ambulance and advanced level ground ambulance services to coordinate the most appropriate and expedient transport modality for a trauma patient.

## Red Criteria / High Risk for Serious Injury

### Assess Injury Patterns, Mental Status & Vital Signs

Assessment of injury patterns, mental status, and vital signs meeting red criteria should require alerting and rapidly transporting to the closest level I or II trauma service within 30 minutes transport time. If the transport time is greater than 30 minutes, transfer should be to the nearest most appropriate trauma service. If unable to maintain a patent airway, consider rendezvous with an Advanced Life Support (ALS) unit or transporting to the nearest facility capable of definitive airway management. The presence of specific injury patterns with normal vital signs, lack of pain, or normal levels of consciousness; requires calling medical control and alerting the receiving hospital. Pediatric patients meeting the red criteria should be preferentially triaged to designated pediatric trauma service.

## Yellow Criteria / Moderate Risk for Serious Injury

### Assess Mechanism of Injury and EMS Judgement

An assessment of the mechanism of injury meeting yellow criteria should require alerting and rapidly transporting to the closest appropriate trauma service within 30 minutes (air or ground). The destination

trauma service need not be the highest-level trauma service. Risk factors coupled with "provider judgment" are reasons for the provider to contact Medical Control and discuss appropriate destinations for these patients. In some cases, the decision may be to transport to the nearest trauma service or a resource hospital. Patients with combined burns and trauma should be preferentially transported to a trauma center with burn care capability. Pediatric patients should be preferentially transported to a designated pediatric trauma service.

PCPs and local COPs provide additional details about the appropriate hospital destination. They are intended to further define how the system operates. The Prehospital Trauma Triage Destination Procedure and PCPs work in "hand in glove" fashion to address trauma patient care needs.

## References

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- National Guideline for the Field Triage of Injured Patients: Recommendations of the National Expert Panel on Field Triage, 2021. *Journal of Trauma and Acute Care Surgery*. DOI: 10.1097/TA.0000000000003627

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Figure 1: Trauma Triage Criteria and Categories

## Red Criteria: High Risk for Serious Injury

Injury Patterns	Mental Status & Vital Signs
<ul style="list-style-type: none"> <li>• Penetrating injuries to head, neck, torso, and proximal extremities</li> <li>• Skull deformity, suspected skull fracture</li> <li>• Suspected spinal injury with new motor or sensory loss</li> <li>• Chest wall instability, deformity, or suspected flail chest</li> <li>• Suspected pelvic fracture</li> <li>• Suspected fracture of two or more proximal long bones</li> <li>• Crushed, degloved, mangled, or pulseless extremity</li> <li>• Amputation proximal to wrist or ankle</li> <li>• Active bleeding requiring a tourniquet or wound packing with continuous pressure</li> </ul>	<p><b>All Patients</b></p> <ul style="list-style-type: none"> <li>• Unable to follow commands (motor GCS &lt; 6)</li> <li>• RR &lt; 10 or &gt; 29 breaths/min</li> <li>• Respiratory distress or need for respiratory support</li> <li>• Room-air pulse oximetry &lt; 90%</li> </ul> <p><b>Age 0–9 years</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 70mm Hg + (2 x age in years)</li> </ul> <p><b>Age 10–64 years</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 90 mmHg or</li> <li>• HR &gt; SBP</li> </ul> <p><b>Age ≥ 65 years</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 110 mmHg or</li> <li>• HR &gt; SBP</li> </ul>

**Patients meeting any RED criteria should be transported to the closest level I or II trauma service within 30 minutes transport time (air or ground). Transport times greater than 30 minutes, take to the closest most appropriate trauma service.**

## Yellow Criteria: Moderate Risk for Serious Injury

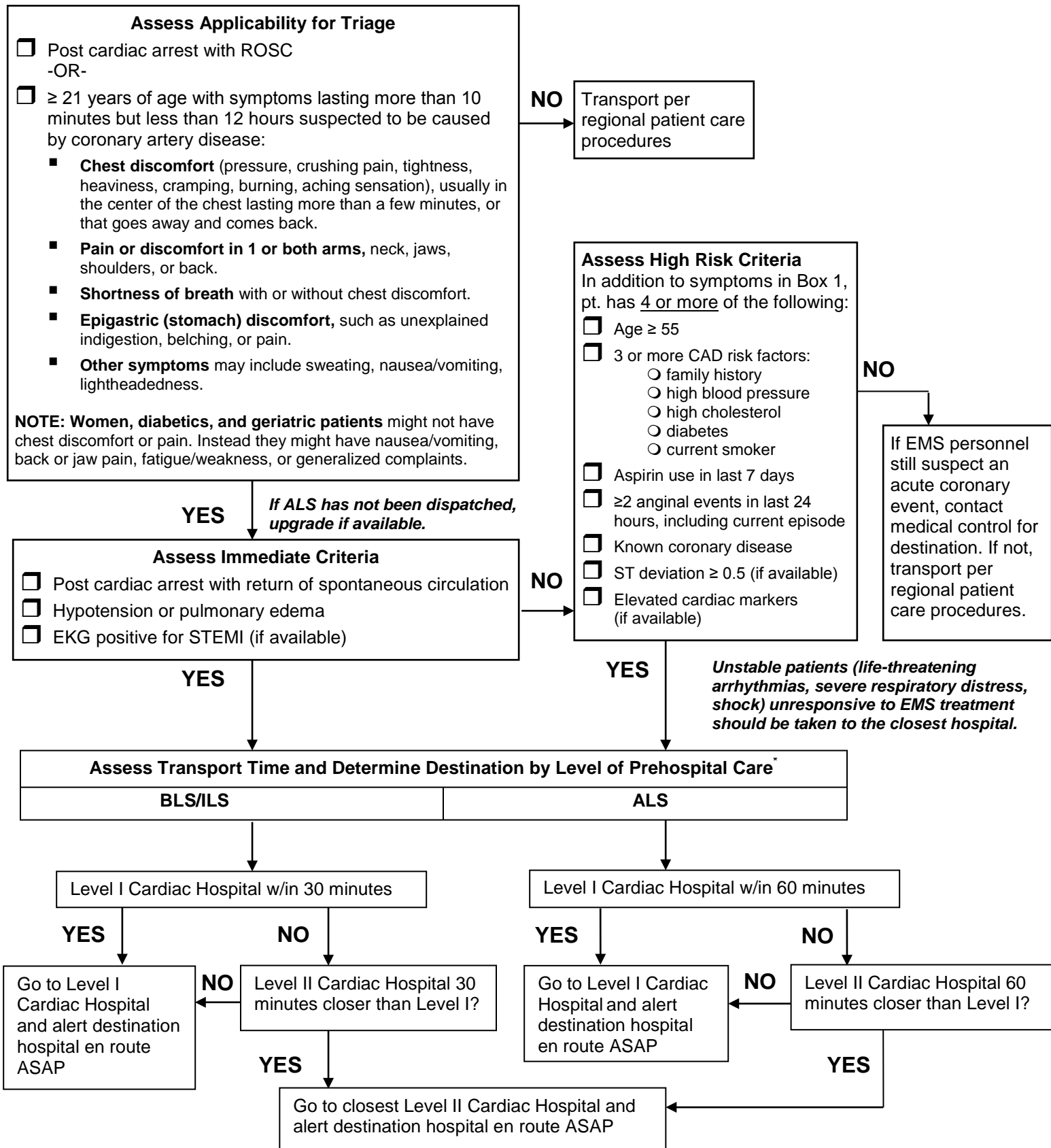
Mechanism of Injury	EMS Judgement
<ul style="list-style-type: none"> <li>• High-risk auto crash <ul style="list-style-type: none"> <li>- Partial or complete ejection</li> <li>- Significant intrusion (including roof) <ul style="list-style-type: none"> <li>▪ &gt;12 inches occupant site OR</li> <li>▪ &gt;18 inches any site OR</li> <li>▪ Need for extrication for entrapped patient</li> </ul> </li> <li>- Death in passenger compartment</li> <li>- Child (age 0-9 years) unrestrained or in unsecured child safety seat</li> <li>- Vehicle telemetry data consistent with severe injury</li> </ul> </li> <li>• Rider separated from transport vehicle with significant impact (e.g., Motorcycle, ATV, horse, etc.)</li> <li>• Pedestrian/bicycle rider thrown, run over, or with significant impact</li> <li>• Fall from height &gt; 10 feet (all ages)</li> </ul>	<p><b>Consider risk factors, including:</b></p> <ul style="list-style-type: none"> <li>• Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact</li> <li>• Anticoagulant use</li> <li>• Suspicion of child abuse</li> <li>• Special, high-resource healthcare needs</li> <li>• Pregnancy &gt; 20 weeks</li> <li>• Burns in conjunction with trauma</li> <li>• Children should be triaged preferentially to pediatric capable centers</li> </ul> <p><b>If concerned, take to a trauma service</b></p>

**Patients meeting YELLOW criteria, WHO DO NOT MEET THE RED CRITERIA, should be transported to a designated trauma service, it need not be the highest level.**

**WASHINGTON STATE PREHOSPITAL CARDIAC TRIAGE  
DESTINATION PROCEDURE**

**SEE NEXT PAGE  
AND  
LEVELS OF TRAUMA, CARDIAC, AND STROKE**

# State of Washington Prehospital Cardiac Triage Destination Procedure



\* Slight modifications to the transport times may be made in county operating procedures. See page 2.

Consider ALS and air transport for all transports greater than 30 minutes.

If there are two or more Level I facilities to choose from within the transport timeframe, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in determining destination.

This also applies if there are two or more Level II facilities to choose from.



# State of Washington

## Prehospital Cardiac Triage Destination Procedure

### Why triage cardiac patients?

The faster a patient having a heart attack or who's been resuscitated gets treatment, the less likely he or she will die or be permanently disabled. Patients with unstable angina and non-ST elevation acute coronary syndromes (UA/NSTE) are included in the triage procedure because they often need immediate specialized cardiac care. This triage procedure is intended to be part of a coordinated regional system of care that includes dispatch, EMS, and both Level I and Level II Cardiac Hospitals.

### How do I use the Cardiac Triage Destination Procedure?

- A. Assess applicability for triage** – If a patient is post cardiac arrest with ROSC, or is over 21 and has any of the symptoms listed, the triage tool is applicable to the patient. Go to the "Assess Immediate Criteria" box. **NOTE:** Women, diabetics, and geriatric patients often have symptoms other than chest pain/discomfort so review all symptoms with the patient.
- B. Assess immediate criteria** – If the patient meets any one of these criteria, he or she is very likely experiencing a heart attack or other heart emergency needing immediate specialized cardiac care. Go to "Assess Transport Time and Determine Destination" box. If the patient does not meet immediate criteria, or you can't do an ECG, go to the "Assess High Risk Criteria" box.
- C. Assess high risk criteria** – If, in addition to meeting criteria in box 1, the patient meets four or more of these high risk criteria, he or she is considered high risk for a heart attack or other heart emergency needing immediate specialized cardiac care. These criteria are based on the TIMI risk assessment for unstable angina/non-STEMI. If the patient does not meet the high risk criteria in this box, but you believe the patient is having an acute coronary event based on presentation and history, consult with medical control to determine appropriate destination. High risk criteria definitions:
- ☐ 3 or more CAD (coronary artery disease) risk factors:
    - Age  $\geq 55$ : epidemiological data for WA show that incidence of heart attack increases at this age
    - Family history: father or brother with heart disease before 55, or mother or sister before 65
    - High blood pressure:  $\geq 140/90$ , or patient/family report, or patient on blood pressure medication
    - High cholesterol: patient/family report or patient on cholesterol medication
    - Diabetes: patient/family report
    - Current smoker: patient/family report.
  - ☐ Aspirin use in last 7 days: any aspirin use in last 7 days.
  - ☐  $\geq 2$  anginal events in last 24 hours: 2 or more episodes of symptoms described in box 1 of the triage tool, including the current event.
  - ☐ Known coronary disease: history of angina, heart attack, cardiac arrest, congestive heart failure, balloon angioplasty, stent, or bypass surgery.
  - ☐ ST deviation  $\geq 0.5$  mm (if available): ST depression  $\geq 0.5$  mm is significant; transient ST elevation  $\geq 0.5$  mm for  $< 20$  minutes is treated as ST-segment depression and is high risk; ST elevation  $> 1$  mm for more than 20 minutes places these patients in the STEMI treatment category.
  - ☐ Elevated cardiac markers (if available): CK-MB or Troponin I in the "high probability" range of the device used. Only definitely positive results should be used in triage decisions.
- D. Determine destination** – The general guideline is to take a patient meeting the triage criteria directly to a Level I Cardiac Hospital within reasonable transport times. For BLS, this is generally within 30 minutes transport time, and for ALS, generally 60 minutes transport time. See below for further guidance. Regional patient care procedures and county operating procedures may provide additional guidance.
- E. Inform the hospital en route so staff can activate the cath lab and call in staff if necessary.**

### What if a Level I Cardiac Hospital is just a little farther down the road than a Level II?

You can make slight changes to the 30/60 minute timeframe. The benefits of opening an artery faster at a Level I can outweigh the extra transport time. To determine whether to transport beyond the 30 or 60 minutes, figure the difference in transport time between the Level I Cardiac Hospital and the Level II Cardiac Hospital. For BLS, if the difference is more than 30 minutes, go to the Level II Cardiac Hospital. For ALS, if the difference is more than 60 minutes, go to the level II Cardiac Hospital.

BLS examples:    A) minutes to Level I minus minutes to Level II = 29: go to Level I  
                          B) Minutes to Level I minus minutes to Level II = 35: go to Level II

ALS examples:    A) minutes to Level I minus minutes to Level II = 45: go to Level I  
                          B) Minutes to Level I minus minutes to Level II = 68: go to Level II

**NOTE:** We recommend ALS use a fibrinolytic checklist to determine if a patient is ineligible for fibrinolysis. If ineligible, transport to closest Level I hospital even if it's greater than 60 minutes or rendezvous with air transport.

### What if there are two or more Level I or II facilities to choose from?

If there are two or more of the same level facilities to choose from within the transport times, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in destination decision.

## **WASHINGTON STATE PREHOSPITAL STROKE DESTINATION PROCEDURE**

1. Level I (Providence Sacred Heart Medical Center and MultiCare Deaconess Hospital) and Level II (Providence Holy Family Hospital) categorized Stroke Centers within Spokane County are considered equivalent primary destination for stroke patients as directed by time and distance considerations in the Washington State Prehospital Stroke Triage and Destination Procedure.
2. All stroke patients, regardless of the time interval measured by EMS providers from when the patient was last seen normal to the time of their assessment will be transported according to the State determined directions.

**SEE NEXT PAGE**

## State of Washington

### Prehospital Stroke Triage Destination Procedure

#### STEP 1: Assess Likelihood of Stroke

- Numbness or weakness of the face, arm, or leg, especially on one side of the body
- Confusion, trouble speaking, or understanding
- Trouble seeing in one or both eyes
- Trouble walking, dizziness, loss of balance, or coordination
- Severe headache with no known cause

***If any of above, proceed to STEP 2, if none, transport per regional PCP/county operating procedures***

#### STEP 2: Perform F.A.S.T. Assessment *(positive if any of Face/Arms/Speech abnormal)*

- **Face:** Unilateral facial droop
- **Arms:** Unilateral arm drift or weakness
- **Speech:** Abnormal or slurred
- **Time:** Best estimate of Time Last Known Well = \_\_\_\_\_

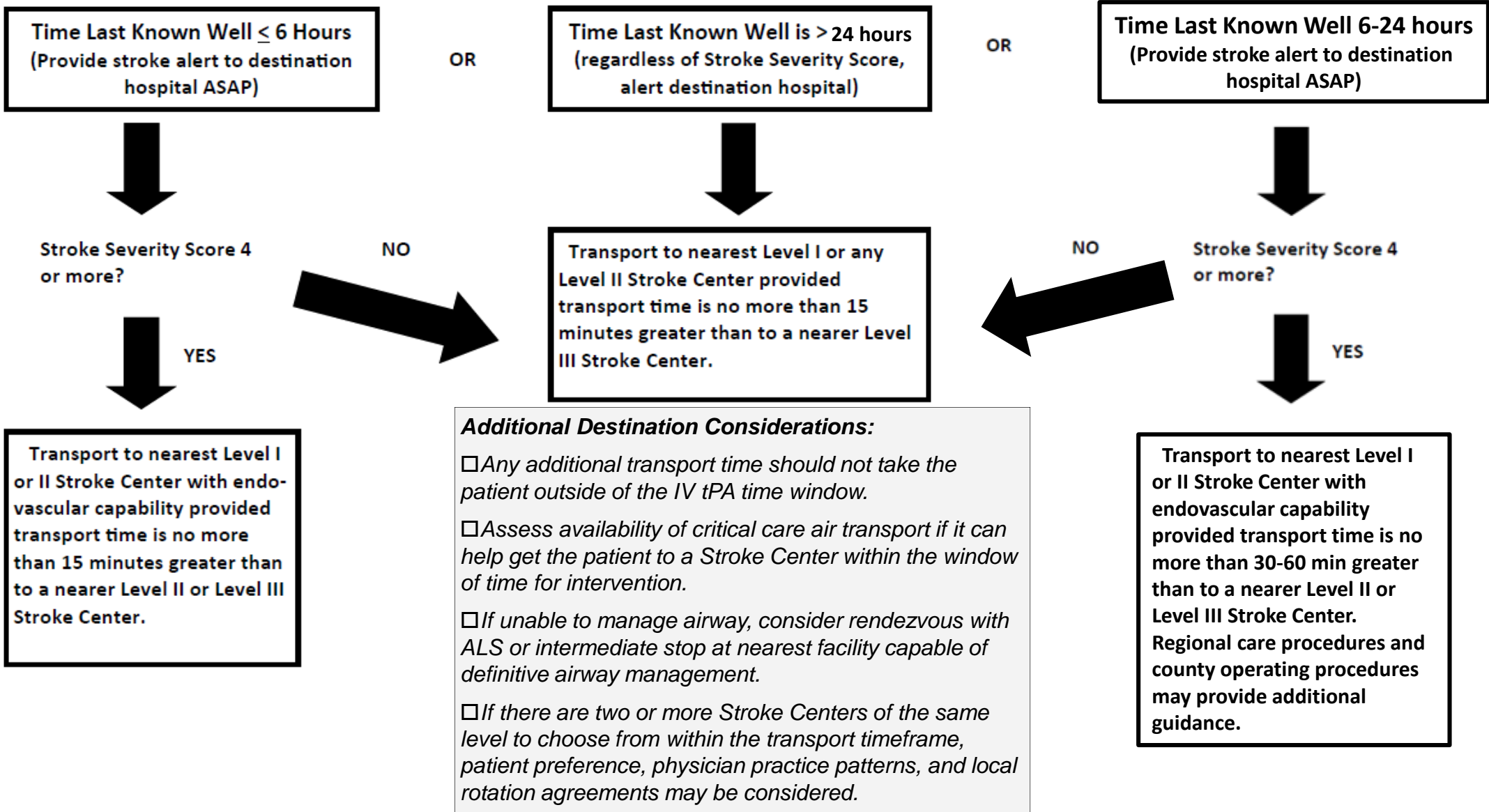
***If FAST negative, transport per regional/county operating procedures***

#### STEP 3: If F.A.S.T. Positive - Calculate Stroke Severity Score (LAMS)

<b>Facial Droop:</b>	Absent	0	Present	1	
<b>Arm Drift:</b>	Absent	0	Drifts	1	Falls Rapidly 2
<b>Grip Strength:</b>	Normal	0	Weak	1	No Grip 2
<b>Total Stroke Severity Score =</b>			<b>(max. 5 points)</b>		

#### STEP 4: Determine Destination: Time Last Known Well + Stroke Severity Score - *See Back Page*

STEP 4: Determine Destination: Time Last Known Well + Stroke Severity Score



The purpose of the Prehospital Stroke Triage and Destination Procedure is to identify stroke patients in the field and take them to the most appropriate hospital, which might not be the nearest hospital. Stroke treatment is time-critical – the sooner patients are treated, the better their chances of survival and recovering function.

For strokes caused by a blocked blood vessel in the brain (ischemic, the majority of strokes), clot-busting medication (tPA) must be administered within 4.5 hours from the time the patient was last known well, a treatment that can be given at WA DOH Level 1, 2 or 3 stroke centers (for a list of categorized hospitals, please click [here](#)).

If a patient presents to EMS with a severe stroke, they are more likely to have blockage of a large vessel and can benefit from mechanical clot retrieval (thrombectomy). Thrombectomy must begin by 24 hours since last known well, and is a more complex intervention, only available in Level I and a small number of Level II stroke centers.

There are 3 key elements to determine the appropriate destination hospital:

**FAST stroke screen** to identify a patient with a high probability of stroke.

**Stroke Severity Score** to determine if a patient meets criteria for “severe” stroke.

**Time since Last Known Well (LKW)** which helps determine eligibility for tPA and thrombectomy.

**STEPS to determine destination:**

**Do a FAST Stroke Screen Assessment:** (Facial droop, Arm drift, Speech changes, Time since LKW) is a simple way to tell if someone might be having a stroke. If FAST is negative, stroke is less likely, and standard destination procedures apply. If FAST is positive (face or arms or speech is abnormal), it’s likely the patient is having a stroke and the EMS provider moves on to assessing stroke severity.

**Assess severity:** The stroke severity assessment scores the FAST stroke screen. Patients get points for deficits:

**Facial droop** gets 1 point if present, 0 points if absent;

**Arm drift** (have patient hold arms up in air) gets 2 points if an arm falls rapidly, 1 point if slowly drifts down and 0 points if the arms stay steady;

**Grip strength** gets 2 points if no real effort can be made, 1 point if grip is clearly there but weak, and 0 points if grips seem of full strength.

**Add up the points:** A score  $\geq 4$  is interpreted as “severe.”

**Determine time since LKW:** It is important to use the LKW time as opposed to when symptoms were first noticed. If a patient woke up in the morning with symptoms and was well when they went to bed, time LKW is the time they went to bed. If stroke symptoms occur when the patient is awake, LKW could be the same time the symptoms started if the patient or a bystander noticed the onset. LKW time could also be prior to symptoms starting if a patient delays reporting symptoms or, for example, someone discovers a patient with symptoms but saw them well 2 hours prior.

**Determine Destination:**

**Time since LKW  $\leq$  6 hours and “Severe” (score  $\geq 4$ ):** This group benefits from preferential transport to a thrombectomy stroke center. The patient should be taken directly to the nearest thrombectomy stroke center provided it is no more than 15 extra minutes travel compared to the nearest stroke center.

**Time since LKW is > 24 hours (regardless of severity score):** These patients should be taken to nearest Level I or II stroke center provided it is no more than 15 minutes greater than to a nearer Level III stroke center.

**Time since LKW 6-24 hours but NOT “Severe”:** These patients should be taken directly to the nearest Level I or Level II stroke center provided it is no more than 15 extra minutes travel compared to a nearer Level 3 stroke center.

**Time since LKW 6-24 hours AND “Severe”:** Transport to nearest Level I or II Stroke Center with endovascular capability provided transport time is no more than 30-60 min greater than to a nearer Level II or Level III Stroke Center. Regional care procedures and county operating procedures may provide additional guidance.

**Notification:** Immediately notify the destination hospital of incoming stroke. If the patient is within 6 hours LKW, call a stroke alert according to county operating procedures or locally determined protocol.

**Document:** key medical history, medication list and next of kin phone contacts; time on scene; FAST assessment and results (or reason why not); blood glucose level; LKW time (including unknown); and whether the hospital was notified from the field and if it was a stroke alert.

# **SECTION 2: PROCEDURE PROTOCOLS**

## AED DEFIBRILLATION PROTOCOL



AED Technicians in Spokane County are authorized to deliver an unlimited number of countershocks, as long as the unit continues to charge.

All defibrillation technicians should strive to meet the following goals:

- ✓ CPR is interrupted for a minimum amount of time
- ✓ V-fib is shocked repeatedly and as fast as possible
- ✓ Overall patient care and safety are never neglected



### GENERAL ORDERS:

1. Immediately verify cardiopulmonary arrest by the absence of consciousness, respirations, and pulse.
2. Start high-performance CPR. Once patches have been applied, analyze rhythm and follow prompts.

### OPERATIONAL PROCEDURE<sup>†</sup> (CPR IS BEING PERFORMED):

1. Turn unit power on.
2. Attach defibrillator pads (use pediatric pads, if available) for patients < 12 years of age.
3. Begin performing verbal report.
4. Clear the patient, press the analyze button.
5. If a shockable rhythm is present, the defibrillator will charge (ensure there is no physical contact with the patient).
6. Deliver the first shock.
7. Resume CPR immediately.
8. CLEAR THE PATIENT, press the analyze button.
9. If a shockable rhythm is present, the defibrillator will charge. Ensure there is no physical contact with the patient.
10. Deliver the second shock.



11. Resume CPR immediately.
12. Clear the patient, press the analyze button.
13. If a shockable rhythm is present, the defibrillator will charge. Ensure there is no physical contact with the patient.
14. Deliver the third shock.
15. Resume CPR immediately.
16. Check for pulse, if none present, repeat steps 4 through 14 at 360 J (for biphasic unit, follow manufacturer's recommendations). Continue until the defibrillator no longer charges or ALS arrives.

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**\*Age and Weight Guidelines:** AEDs may be applied to children down to 1 year of age who remain in cardio pulmonary arrest after 1 minute of CPR. The smaller children's pads, if available should be used in this age group

**†Safety:** All defibrillation technicians should have a heightened awareness of safety, always remembering to ensure that all personnel are clear of the patient and the environment is safe prior to analyzing and/or delivery of countershocks.

## BAG VALVE MASK VENTILATION

1. Recognize the need and quickly begin airway management.
2. Apply SpO<sub>2</sub> monitor.
3. Select a BVM with a reservoir and use an oxygen flow rate of 15–25 L/min. Use in-line ETCO<sub>2</sub>, if available, and PEEP valve.
4. Choose a proper-sized mask (covers nares and mouth without gaps).
5. If the patient has no gag reflex, place an OPA. If the patient has a gag reflex, place an NPA.
6. Suction the airway if necessary and evaluate for possible foreign body.
7. Hold the mask firmly in position to establish a good seal by using the E-C technique if one rescuer or the T-E (Thenar Eminence) technique if two rescuers.
8. Use the head-tilt/chin-lift technique to open the airway. Apply restricted spinal motion techniques if trauma is suspected (such as squeezing your knees together alongside the patients' head).
9. Squeeze the bag against your thigh at a rate of 1 breath every 6 seconds. Compress the bag to achieve observed chest rise and allow for complete exhalation (approximately 1 second inhalation and 4 seconds exhalation). Avoid hyperventilation.
10. If two rescuers are available, have one dedicated to apply the seal and maintain proper positioning and the other to squeeze the bag.
11. Titrate ventilation to achieve SpO<sub>2</sub> of 94–99% and ETCO<sub>2</sub> of 35–45 mmHg.

### **Common challenges to effective BVM technique include:**

- ✓ Poor mask fit/seal
- ✓ Improper patient positioning
- ✓ Excessive ventilation

## BLOOD SPECIMEN INFORMATION



Filling blood tubes in their correct order is essential. If you do not follow the proper sequence, the various anticoagulants may cause cross contamination resulting in erroneous test results.



1. Specimen tubes should be filled within 1 minute and mixed gently.
2. Specimen tubes should be fully filled in the following order (See table 2.1):

**Table 2.1: Order of blood tubes**

COLOR OF TOP	ADDITIVES
1. Red	None
2. Blue	Citrate
3. Green	Heparin
4. Yellow/Marble	Clot activator
5. Purple	EDTA

3. Indications for blood draws will be limited to:
  - ✓ Medical cases requiring laboratory documentation
  - ✓ Suspected hypoglycemia (prior to IV glucose)
  - ✓ Suspected drug overdose
  - ✓ Unconscious patient, unknown cause
  - ✓ Trauma patients
  - ✓ Hypotensive patient, unknown cause
  - ✓ Suspected MI
  - ✓ Suspected stroke
  - ✓ Unstable medical condition

4. Use the following method of transporting field blood samples:
  - I. Label the blood tubes specimen bag with the patient's name, date, time of draw, and the initials and agency of drawer.
  - II. Place the blood tubes specimen in a sealable plastic bag bearing a bio-hazard logo and tape it to the patient's IV bag.
5. Legal blood alcohol specimens. Use aseptic technique (povidone-iodine and **no** alcohol swabs).



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Blood may be drawn at the request of law enforcement as provided in RCW 46.20.308. Document law enforcement request on "Direction to Take Blood Test"

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**SEE NEXT PAGE FOR EXAMPLE FORM**

### **DIRECTIONS TO TAKE BLOOD TEST**

The undersigned states that \_\_\_\_\_ is either:

- ☐ Unconscious
- ☐ Has had a Search Warrant issued for blood to be drawn
- ☐ Is under arrest/in custody for the crime of vehicular homicide as provided in RCW 46.61.520 or vehicular assault as provided in RCW 46.61.522.
- ☐ Is under arrest/in custody for the crime of driving while under the influence of intoxicating liquor or drugs as provided in RCW 46.61.502 and/or RCW 46.20.308.

The undersigned directs Spokane County EMS to administer a blood test without the consent of the individual so unconscious or so arrested.

OFFICER \_\_\_\_\_ DATE \_\_\_\_\_

## CAPNOMETRY/CAPNOGRAPHY



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When available, the use of quantitative CO<sub>2</sub> measurement should be used under the following indications:

- ✓ Intubated patients
- ✓ Severe respiratory distress
- ✓ Hypotensive patients
- ✓ Significant altered mental status (GCS < 10)
- ✓ Severe head injury
- ✓ Suspected sepsis
- ✓ Analgesic
- ✓ As an adjunct to further substantiate the futility of prolonged resuscitative efforts in CPA, a PCO<sub>2</sub> < 10 after 20 minutes of resuscitative efforts predicts non-survivability



## CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

**INDICATIONS:** Severe respiratory distress or hypoxia in the setting of any of the following conditions:

- ✓ **COPD**
- ✓ **Pulmonary edema**
- ✓ **Asthma**
- ✓ Pneumonia\
- ✓ Pre-oxygenation
- ✓ Suspected carbon monoxide (CO) poisoning

**CONTRAINDICATIONS:**

- |  |  |
|--|--|
| ✓ Respiratory arrest or agonal breathing | ✓ Vomiting                                   |
| ✓ Unconsciousness                        | ✓ Chest trauma                               |
| ✓ Hypovolemic shock                      | ✓ Suspected pneumothorax                     |
| ✓ Acute MI with hypotension              | ✓ Facial trauma with significant deformities |

**RISKS:**

- ✓ Gastric distension (potential for vomiting and aspiration)
- ✓ Hypotension
- ✓ Pneumothorax
- ✓ Corneal drying

**PROCEDURE:**

1. Apply CPAP mask and ensure snug fit without air leak.
2. Apply an adjustable PEEP valve at 5 cm H<sub>2</sub>O. If patient's condition does not improve, may increase to 7.5 cm H<sub>2</sub>O .
3. Discontinue CPAP and consider BVM ventilation or intubation if:
  - ✓ Mental status declines significantly
  - ✓ Significant drop in blood pressure (to a systolic BP <90 mmHg)
  - ✓ Worsening hypoxia or severe respiratory fatigue

## ENDOTRACHEAL INTUBATION\*

### ASSESSMENT:

- ✓ Airway status
- ✓ Ventilation
- ✓ Oxygenation
- ✓ Level of consciousness

### INDICATIONS:

- ✓ Ensure airway patency
- ✓ Facilitate pulmonary hygiene
- ✓ Prevent aspiration
- ✓ Adequately ventilate and oxygenate

### PROCEDURE:

1. Preoxygenate with positive pressure ventilation while preparing for definitive airway management.
2. If gastric distention is present, use of an **Orogastric tube** may be indicated, post intubation.
3. Take spinal precautions, if trauma suspected.
4. If the nasal tracheal route is used in a breathing patient, consider pretreatment with a topical nasal vasoconstrictor.
5. Consider **Optimal Sequence Intubation**, if muscle tone impedes necessary endotracheal intubation<sup>†</sup>.
6. The number of attempts at endotracheal intubation should be a total of 2 for a single provider or 3, if 2 EMS providers attempt intubation. Then focus on placement of a rescue airway device or quality BVM technique to provide oxygenation and ventilation.
7. Consider analgesia and sedation post intubation.



8. Determine proper airway placement and ventilation by using the following appropriate techniques:
  - ✓ Auscultation of bilaterally equal breath sounds and noting the absence of gurgling on auscultation over the epigastrium
  - ✓ Wave form capnography
  - ✓ Observation of passing the tube through the vocal cords
  - ✓ Palpation of cuff inflation in the suprasternal notch
  - ✓ Observation of symmetric upper chest wall movement with ventilation
  - ✓ Observation of fogging of the endotracheal tube during expiration
  - ✓ Feeling or hearing air expelled from the tube during expiration
  - ✓ Feeling the compliance of manual ventilations
  - ✓ Observation of improvement in patient's color and vital signs \*
  - ✓ Documentation of end-tidal CO<sub>2</sub> via a qualitative or quantitative measuring device
9. Apply PEEP valve to all intubated patients, unless one of the following conditions is present:
  - ✓ Asthma
  - ✓ Hypotension from hypovolemia
  - ✓ Suspected pneumothorax
  - ✓ Cardio pulmonary arrest
10. Apply a cervical collar in conjunction with other immobilization techniques, as needed for endotracheal tube stabilization.
11. Document items substantiating proper airway placement as well as the method/device used to stabilize the endotracheal tube.
12. The EMS provider should reassess endotracheal tube position subsequent to each significant movement of the patient.‡

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\*Cuffed endotracheal tubes are recommended for all ages.

†Devices such as lighted endotracheal stylets, CO<sub>2</sub> detectors, and pulse oximeters may help confirm clinical observation.

‡The preferred format for this documentation should be 5 STC (5 Step Tube Check) based upon the following: observation, auscultation, vapor in the tube, CO<sub>2</sub> detection, and SAO<sub>2</sub> response.

## ESTIMATING TRACHEAL TUBE SIZE AND DEPTH OF INSERTION



Cuffed Endotracheal tubes are recommended for patients of all ages who require endotracheal intubation provided that attention is paid to ET tube size, position, and cuff inflation pressure. **Keep cuff inflation pressure <20 cm H2O or use minimally occlusive volume (MOV).**



Color Coded Resuscitation Tapes or Pediatric References are recommended to be used routinely.

### CUFFED

**Size** (mm internal diameter) for children > 1 year of age =

$$\left( \frac{\text{Age in years}}{4} \right) + 3$$

### UNCUFFED

**Size** (mm internal diameter) for children > 1 year of age =

$$\left( \frac{\text{Age in years}}{4} \right) + 4$$

**Depth** of Insertion (cm) for children > 2 years of age =

$$\left( \frac{\text{Age in years}}{2} \right) + 12$$

**OR**

**Depth** of insertion (cm) for children = tube internal diameter x3

## **FAILED RESUSCITATION: CONSIDERATIONS FOR FAMILY SUPPORT**

1. If the resuscitation is underway and the outlook is poor, prepare the family by telling them so.
2. At the moment of calling the code, let the family know with no uncertainty that death has occurred.
3. If appropriate, tell the family the following:
  - ✓ You did all you could and were successful in doing the procedures that could have helped, but the efforts were to no avail
  - ✓ This death was not preventable and that in this case, even were the patient to be in an intensive care unit when it happened, the result would have been the same
4. To the best of your ability, offer words of condolence.
5. Offer to contact family, friends, or clergy to provide immediate support.
6. Answer any questions the family might have and advise of the continued procedure.
7. Allow family members to view the resuscitation process as long as they do not impede with resuscitation efforts. Allow family members to view the body, if desired.
8. Remain with the family to show your respect and concern, as long as other emergency responsibilities do not call you away.

## HELMET REMOVAL FROM INJURED PATIENTS\*

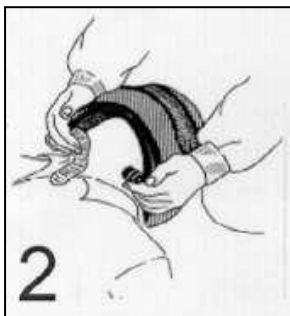


The varying sizes, shapes, and configurations of motorcycle and sports helmets necessitate some understanding of their proper removal. The rescuer who removes a helmet improperly may unintentionally aggravate cervical spine injuries.

The Committee on Trauma has concluded that physicians who treat the injured should be aware of helmet removal techniques. A gradual increase in the use of helmets is anticipated, because many organizations are urging voluntary wearing of helmets, and some states are reinstating laws requiring the wearing of helmets.



One rescuer maintains inline immobilization by placing their hands on each side of the helmet with the fingers on the victim's mandible. This position prevents slippage if the strap is loose.



A second rescuer cuts or loosens the strap at the D-rings.

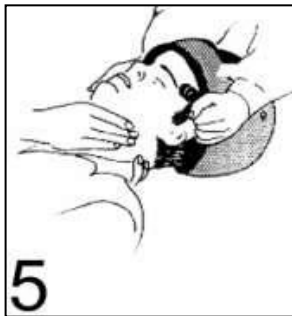


The second rescuer places one hand on the mandible at an angle, the thumb on one side, the long and index fingers on the other. With their other hand, they apply pressure from the occipital region. This maneuver transfers the inline immobilization responsibility to the second



The rescuer at the top removes the helmet. Three Factors should be kept in mind:

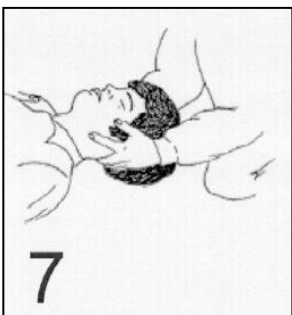
- ✓ If the helmet is egg shaped, it must be expanded laterally to clear the ears
- ✓ If the helmet provides full facial coverage, glasses must be removed first
- ✓ If the helmet provides full facial coverage, the nose may impede removal. To clear nose, the helmet must be tilted backward and raised over it.



Throughout the removal process, the second rescuer maintains inline immobilization from below to prevent unnecessary neck motion.



After the helmet has been removed, the rescuer at the top places their hands on either side of the victim's head with their palms over the patient's ears.



Maintain inline immobilization from above until a backboard is in place and a cervical immobilization device (collar) is applied.

**SUMMARY:** The helmet must be maneuvered over the nose and ears while the head and neck are held rigid.

- ✓ Inline immobilization is first applied from above.
- ✓ Inline immobilization is applied from below by a second rescuer with pressure on the jaw and occiput.
- ✓ The helmet is removed.
- ✓ Inline immobilization is reestablished from above.

**SPECIAL CONSIDERATIONS REGARDING FOOTBALL HELMETS:**

**When to remove the helmet:**

- ✓ The Inter-Association Task Force recommends that neither the football helmet nor the shoulder pads be removed before transportation.
- ✓ The Inter-Association Task Force recommends that only the face mask be removed, unless the rescuer is unable to access the airway by any other means or if the helmet does not adequately secure the head.
- ✓ By removing only the face mask and not the entire helmet, the spine will remain in a neutral position.

**Guidelines for removal:** The helmet should be removed on the field only under any of the following circumstances:

- ✓ If after a reasonable period of time, the face mask cannot be removed to gain access to the airway.
- ✓ If the design of the helmet and chin strap is such that even after removal of the face mask, the airway cannot be controlled or ventilation provided.
- ✓ If the helmet and chin straps do not hold the head securely, such that immobilization of the helmet does not also immobilize the head.
- ✓ If the helmet prevents immobilization for transport in an appropriate position.

**How to remove the helmet:**

- ✓ The Inter-Association Task Force recommends that the helmet be removed in a controlled environment after radiographs have been obtained and only by qualified medical personnel with training in equipment removal.

- ✓ Helmet removal should never be attempted without thorough communication among all involved parties.
- ✓ One person should stabilize the head, neck, and helmet while another person cuts the chinstrap.
- ✓ Accessible internal helmet padding (cheek pads) should be removed, and air padding should be deflated before removal of the helmet, while a second assistant manually stabilizes the chin and back of the neck, in a cephalad direction, making sure to maintain the athlete's position.
- ✓ The pads are removed through the insertion of a tongue depressor or a similar stiff, flat-bladed object between the snaps and helmet shell to pry the cheek pads away from their snap attachment.
- ✓ The helmet should slide off the occiput with slight forward motion of the helmet.
- ✓ In the event that the helmet does not move, slight traction can be applied to the helmet which can then be gently maneuvered anteriorly and posteriorly, although the head/neck unit must not be allowed to be moved.
- ✓ The helmet should not be spread apart by the ear holes as this maneuver only serves to tighten the helmet on the forehead and occiput region.

**When to remove the shoulder pads:** Possible situations in which removal of shoulder pads would be necessary before transport to an emergency facility may include, but are not limited to, the following:

- ✓ The helmet is removed
- ✓ Multiple injuries require full access to shoulder area
- ✓ Ill-fitting shoulder pads caused the inability to maintain spinal immobilization

Studies have shown excess movement in the cervical spine when helmet or shoulder pads are removed alone, thus helmet and shoulder pads must be removed simultaneously to avoid cervical hyperextension and maintain in-line neutral stabilization.

Concerns regarding the removal of equipment include:

- ✓ The ability to maintain neutral spinal alignment
- ✓ The ability to secure rigid fixation of the athlete to the board
- ✓ A guarantee of access to the airway and to the chest for resuscitation efforts



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The Inter-Association Task Force recommends that neither the football helmet nor the shoulder pads be removed before transportations. Furthermore, the simultaneous removal of the helmet and shoulder pads is best done in a controlled atmosphere.

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**How to remove the shoulder pads:** The Inter-Association Task Force recommends that the shoulder pads be removed only in conjunction with the athlete's helmet and only when it is warranted. It is favorable to follow the following steps:

1. Cut the jersey and all other shirts from the neck to the waist and from the midline to the end of each arm sleeve.
2. Cut all of the straps used to secure the shoulder pads to the torso.
3. Cut all of the straps used to secure the shoulder pads to the arms.
4. Cut lace and straps over the sternum. A consistent manufactured characteristic of shoulder pads is the mechanism to attach the two halves of the shoulder pad unit on the anterior aspect. This lace or strap system allows for quick and efficient access to the anterior portion of the chest.
5. Cut and/or remove all accessories, e.g., neck rolls or collars, so they can be removed simultaneously with the shoulder pads. Release the shoulder pads allowing for full access to chest, face, neck, and arms. The posterior portion of the shoulder pads helps to maintain spinal alignment when the helmet and shoulder pads are in place.
6. A primary responder maintains cervical stabilization in a cephalad direction by placing his or her forearms on the athlete's chest while holding the maxilla and occiput.
7. With responders at each side of the athlete, their hands are placed directly against the skin in the thoracic region of the back.



8. Place additional support at strategic locations down the body as deemed appropriate, taking into consideration the size of the patient.
9. While the patient is lifted, the individual who was in charge of the head/shoulder stabilization should remove the helmet and immediately remove the shoulder pads by spreading apart the front panels and pulling them around the head.
10. Remove all shirts, jerseys, neck rolls, extenders, etc.
11. Lower the patient.



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It is highly recommended that these procedures be practiced with all necessary rescue and medical personnel using the equipment commonly worn by the athletes.

Poorly maintained or modified equipment may hamper the safe removal process, which may lead to an increase in the severity of the initial injury, so be sure all equipment is properly maintained.



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\*As recommended by the American College of Surgeons Committee on Trauma, April 1997 and modified by recommendations from the Inter-Association Task Force of the National Association of Athletic Trainers.

## I-GEL AIRWAYS

### ASSESSMENT

- ✓ Airway status
- ✓ Ventilation
- ✓ Oxygenation
- ✓ Level of consciousness

### INDICATIONS

- ✓ Ensure airway patency
- ✓ Facilitate pulmonary hygiene
- ✓ Prevent aspiration
- ✓ Actively ventilate and oxygenate
- ✓ **Endotracheal intubation** cannot be performed
- ✓ Three unsuccessful attempts at endotracheal intubation. The number of attempts at endotracheal intubation should be a total of 2 for a single provider or 3, if 2 EMS providers attempt intubation

### CONTRAINDICATIONS

- ✓ Responsive patients with an intact gag reflex
- ✓ Patients with a burned airway
- ✓ Patients with known esophageal disease
- ✓ Patients who have ingested caustic substances
- ✓ Patients with foreign body airway obstruction
- ✓ Presence of tracheostomy/stoma

### INSERTION PROCEDURE

1. Choose the correct size i-gel airway (see table 2.3: i-gel airway sizes):

i-gel size	Patient size	Patient weight guidance (lbs)
1	Neonate	4-11 lb
1.5	Infant	11-26
2	Small pediatric	22-55
2.5	Large pediatric	55-77
3	Small adult	66-132
4	Medium adult	110-198
5	Large adult	198+

2. Apply water-based lubricant to the anterior, posterior and lateral edges of the device gel cuff.
3. Hold the i-gel at the integrated bite block with dominant hand. With non-dominant hand, open mouth and apply chin lift, unless contraindicated by C-spine precaution or patient position.
4. Position the device so the gel cuff outlet faces the patients chin. Advance tip into the mouth of the patient in a direction towards the mid line of the hard palate.
5. Without exerting excessive force, advance the device downwards and backwards along the hard palate until a definitive resistance is felt.
6. Begin ventilation with 100% oxygen, while bagging patient to assess ventilation.
7. Confirm proper placement by auscultation, chest movement, oxygen saturation, and verification of CO2 when available.
8. Secure the i-gel with tape from “maxilla to maxilla” or with the included manufacturer’s securing device.
9. All patients with an inserted i-gel device should have their head and neck immobilized including the use of a cervical collar.
10. Document proper airway placement as well as the method/device used to stabilize the i-gel device.
11. Reassess the position of the i-gel device after each significant movement of the patient.

12. Paramedics: Consider placement of an OG tube in the gastric port for i-gel, sizes 1.5–5. Utilize the maximal NG size indicated below:

- ✓ Size 1.5 – 10 French
- ✓ Sizes 2-4 – 12 French
- ✓ Size 5 – 14 French

**ADDITIONAL NOTES**

- ✓ Placement of the device should never delay CPR or other necessary patient care
- ✓ These are single use devices. They should not be reused or recycled.
- ✓ The device is only for use by EMT or above, endorsed personnel
- ✓ Before releasing the patient to another level of care (i.e. paramedic, physician), the person who inserted the device must ensure that the receiving provider is knowledgeable about the proper use and function of the device
- ✓ The i-gel Airway is a short-term device. It may be left in place for a maximum of 2 hours, unless otherwise instructed by the receiving physician.

## INTRAOSSIOUS INFUSION – ADULTS

**INDICATIONS:** To establish intraosseous access for the critical unstable adult (CPA, severe hypotension [shock], respiratory failure, and coma) when peripheral or necessary IVs cannot be established after 2 attempts. In CPA, if IV access is not readily available, immediate IO access may be preferred. IO access at the humeral site is preferred for CPA and when volume is required.

**DO NOT** delay transport of critical adult patients due to prolonged attempts of this technique. All medications and IV solutions that are usually administered intravenously may be administered through the intraosseous route.

### PRECAUTIONS:

- ✓ **Hypoglycemia**-intraosseous access should only be used under the following circumstances:
  - Severe hypoglycemia (< 35 mg/dl)
  - Moderate hypoglycemia (< 60 mg/dl) unresponsive 10 minutes after the administration of glucagon
  - All hypoglycemic patients who have IO established must be transported to the hospital
- ✓ When using intraosseous devices, the possibility of air embolism may exist
- ✓ In general, intraosseous devices are not recommended for use for more than 48 hours
- ✓ Needle insertion must be directed away from the joint space and epiphyseal plate

### CONTRAINDICATIONS (SOME INTRAOSSIOUS DEVICES ARE NOT APPROVED FOR PEDIATRIC USE):

- ✓ Fracture of the intended bone
- ✓ Some types of previous extensive orthopedic procedures (e.g., knee replacement)
- ✓ Any infection over the insertion site
- ✓ Inability to locate anatomic landmarks

- ✓ Excessive tissue over the insertion site
- ✓ Previous I/O in the same bone within 48 hours

**PROCEDURE:**

1. Locate appropriate site (proximal humerus [preferred], proximal tibia, distal tibia).
2. Position patient in the supine position.
3. Cleanse skin with povidone-iodine solution.
4. Follow the device-specific manufacturer's instructions for placement of the device.
5. Aspirate to confirm placement and obtain blood samples.
6. Connect primed extension tubing.
7. If the patient is responsive to painful stimuli, slowly administer 20-40 mg of 2% **lidocaine (Xylocaine®)** (preservative free) into the port.
8. Perform a pressure flush by administering 10-20 ml of 0.9 NS via syringe.
9. To maintain optimal flow, apply pressure (up to 300 mmHg) to the infusion bag.
10. Secure tubing and catheter.

**TROUBLESHOOTING IN THE EVENT OF OBSTRUCTION OR FAILURE:**

1. Reassess insertion site landmarks.
2. Flush needle cannula.
3. If unsuccessful, consider alternative insertion site, i.e. the contra lateral proximal tibia.

## INTRAOSSUEOUS INFUSION IN CHILDREN



**INDICATIONS:** To obtain emergency intraosseous access for the critically unstable (CPA, severe hypotension [shock], respiratory failure, and coma) infant or child when peripheral or additional IV's cannot be established within 90 seconds. **DO NOT** perform technique if unable to locate and palpate landmarks. **DO NOT** delay transport of critical pediatric patients by prolonged attempts of this technique.

### COMPLICATIONS:

- ✓ Incorrect placement with SQ infiltration
- ✓ Osteomyelitis
- ✓ SQ infection
- ✓ Leakage from original puncture site, if same base repeatedly punctured
- ✓ Fat/bone embolism

### EQUIPMENT:

- ✓ Appropriate size needle
- ✓ Povidone-iodine solution for skin prep
- ✓ Gauze 2 x 2's
- ✓ Tape
- ✓ T-piece adapter
- ✓ 3-way stopcock
- ✓ 10 cc syringe
- ✓ IV fluid

### PROCEDURE:

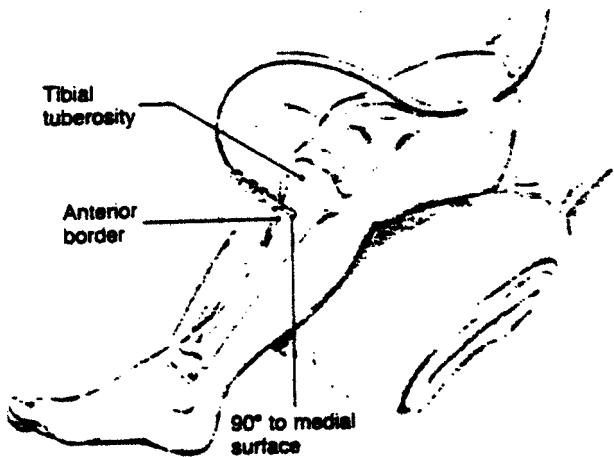
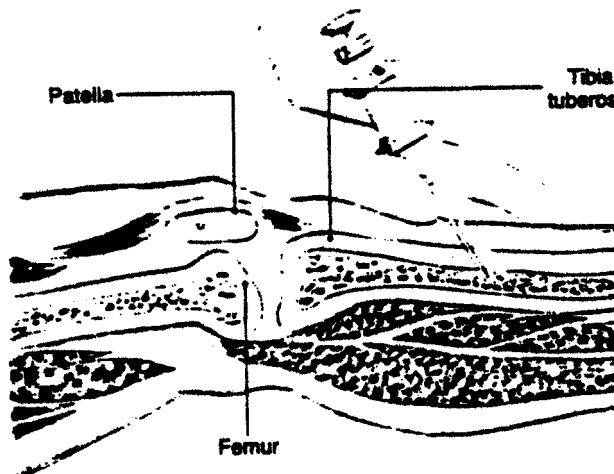
1. Restrain child/limb, if necessary.
2. Position child in the supine position.
3. Cleanse skin with povidone-iodine solution.

4. Using aseptic technique, direct needle perpendicular or slightly inferior into bone marrow, avoiding epiphyseal plate.
5. Needle is in correct position when all of the following conditions are present:
  - ✓ Decrease in resistance after through the bone cortex
  - ✓ Needle is firmly in position and stands upright without support
  - ✓ Syringe aspiration yields bone marrow
  - ✓ Free flow of fluids with no significant SQ filtration
6. Connect T-piece adapter and stopcock to needle.
7. Attach stopcock to appropriate IV infusion.
8. Stabilize needle with commercial stabilizer or, if not available, on both sides of the needle with a 2x2 gauze. Secure with tape, minimizing direct tension on needle.
9. To maintain optimal flow, apply pressure (up to 300 mmHg) to the infusion bag.



## CORRECT INTRAOSSEOUS NEEDLE PLACEMENT

Fig 2.1: Correct intraosseous needle placement



## IV FLUIDS

Lactated ringers (LR) is the preferred fluid for volume expansion in most situations, including major trauma, blood loss for any reason, burns, and sepsis.

However, 0.9% normal saline should be used in the following situations, if available:

- ✓ Acute stroke of any type
- ✓ Acute traumatic brain or spinal cord injury
- ✓ Severe metabolic or respiratory alkalosis

## NEEDLE CRICOTHYROTOMY

**INDICATIONS:** Life-threatening upper airway obstructions where other non-invasive or invasive measures have failed to establish an airway and ventilation in an unresponsive patient. **For patients > 2 years of age.**

**PROCEDURE:**

1. Place patient in the supine position, taking spinal precautions.
2. Identify the cricothyroid membrane in the mid line between the thyroid and cricoid cartilages.
3. Prepare area with Betadine swab.
4. Assemble a #12 or #14 gauge, 5 cm, over-the-needle catheter to a 6-12 ml syringe or other permitted FDA approved airway devices.
5. Puncture the skin midline and directly over the cricothyroid membrane (i.e. midsagittal).
6. Direct the needle at a 45 degree angle caudally (60 degree for the Quick Trach).
7. Carefully insert the needle through the lower half of the cricothyroid membrane, aspirating as the needle is advanced.
8. Aspiration of air signifies entry into the tracheal lumen.
9. Withdraw stylet while gently advancing catheter downward into position, being careful not to perforate the posterior wall of the trachea.
10. Attach the catheter hub to an appropriate ventilating device connected with tubing to an oxygen source. The O<sub>2</sub> flow-meter should be set at 15 LPM (50 PSI). *NOTE: Adequate SpO<sub>2</sub> can be maintained for 30-45 minutes.*
11. Intermittent ventilation can be achieved by placing the thumb over the side port of the tubing, using the 1 second on and 4 seconds off rhythm.

12. Observe lung inflations and auscultate the chest for adequate ventilation.
13. Secure the apparatus to the patient's neck.

**COMPLICATIONS:**

- ✓ Asphyxia
- ✓ Aspiration
- ✓ Cellulitis
- ✓ Esophageal perforation
- ✓ Hematoma
- ✓ Posterior tracheal wall perforation
- ✓ Subcutaneous and/or mediastinal emphysema
- ✓ Thyroid perforation
- ✓ Inadequate ventilations leading to hypoxia & death

## NEEDLE THORACOSTOMY

**INDICATIONS:** Suspected tension pneumothorax associated with hypoxia and or hypotension and tachycardia. This procedure should be reserved for patients in critical condition and have, in addition to abnormal vital signs, some of the following findings.

- ✓ Tachypnea
- ✓ Cyanosis
- ✓ Hyperexpansion
- ✓ Jugular venous distention
- ✓ Tracheal deviation
- ✓ Subcutaneous emphysema
- ✓ Diminished breath sounds  
(usually unilateral)

**ADDITIONAL CONSIDERATIONS:**

1. Suspect this condition in patients with chest trauma and/or any patient undergoing positive pressure ventilation with pre-existing lung disease (e.g. COPD)
2. Tension pneumothorax may often develop sometime after the initiation of positive pressure ventilation. Close observation and reassessment of the patient during transport is important.

**PRECAUTIONS/COMPLICATIONS:** May cause a pneumothorax or major vascular or cardiac injury.

**PROCEDURE (observe strict aseptic precautions):**

1. Identify 2<sup>nd</sup> intercostal space in the mid-clavicular line on affected sides. As an alternative site, use the 4–5 intercostal space at the anterior axillary line.
2. Prepare area with topical antimicrobial.
3. Use a 10–14 gauge #3–3.5" long catheter.
4. Make a small incision through the skin using the beveled edge of the catheter needle to avoid skin plugs and ease the passage of the catheter.
5. Introduce the catheter in a vertical fashion just above the superior border of the lower rib.

6. Advance the angiocath just enough to pierce the pleura and then slide the plastic catheter over the needle all the way into the pleura space (advance it to the hub).
7. Completely remove the needle. Leaving the catheter in place, assess for the expression of air and secure the catheter with dressings to ensure the vertical position is maintained.
8. If only a partially positive response is achieved with the first insertion and if hypotension or hypoxia persists, consider repeating the procedure at the 4–5 intercostal anterior axillary line.
9. A flutter valve shall be employed in a spontaneous breathing patient.
10. Confirm that the receiving hospital is notified that this procedure has been done (include in radio patch) so as to allow them time to prepare for a formal tube thoracostomy.

## OPTIMAL SEQUENCE INTUBATION (OSI)

### ASSESSMENT

- ✓ Airway status
- ✓ Ventilation
- ✓ Oxygenation
- ✓ Level of consciousness

### INDICATIONS

- ✓ Airway protection for patient with decreased LOC ( $GCS \leq 8$ ), facial trauma, airway burns, excessive secretions or other airway compromise
- ✓ Inability to oxygenate patient adequately by less invasive means
- ✓ Inability to ventilate patient adequately by less invasive means

### PROCEDURE

1. Prepare all necessary equipment for endotracheal intubation as well as supraglottic rescue airway.\*
2. Take spinal precautions if trauma is suspected.
3. Preoxygenate the patient:
  - ✓ Position patient with head elevated at 20 degrees or reverse Trendelenberg with ear-to-sternal notch airway alignment.
  - ✓ Place nasal cannula in the nares and if two oxygen sources are available give 4L/min. If only one O2 source available, wait to attach oxygen when available.
  - ✓ Place patient on O2 with a NRB at maximal flow (up to 25L/min.) or as high as possible for regulator.
  - ✓ If patient has adequate spontaneous ventilations, allow tidal volume respirations for 3 minutes or ask the patient to perform 8 vital capacity breaths.
  - ✓ If SpO2 remains  $< 93\%$  consider CPAP or BVM with PEEP valve at 5-15 mmHg to achieve SpO2  $> 98\%$ .
  - ✓ If patient requires NIPPV (noninvasive positive pressure ventilation), prepare a BVM with face mask and PEEP for apneic period.

4. Initiate pharmacological treatment unless the patient is in cardiopulmonary arrest (sedation and paralysis not necessary in CPA) according to the following sequence:
  - ✓ Patients should be sedated with one of the following:
    - Etomidate at 0.3 mg/kg IV/IO over 30–60 seconds<sup>†</sup>
    - Midazolam at 1–2 mg q3 minutes IV/IM (6 mg max dose)
    - Ketamine at 2 mg/kg IV/IO slow push over 60 seconds
  - ✓ Administer lidocaine at 1 mg/kg IV/IO up to a maximum of 100 mg to patients with a head injury
  - ✓ Administer succinylcholine at 1.5 mg/kg IV/IO
  - ✓ If a second dose is required to achieve paralysis (if patient HR<60, administer atropine 0.5 mg prior to second dose), use either vecuronium or rocuronium.
  - ✓ A second dose of succinylcholine at 1.5 mg/kg IV/IO may be given if required to achieve paralysis (if patient HR< 60, administer atropine 0.5 mg prior to second dose)
5. Apneic Oxygenate the patient:
  - ✓ Push Sedative and Paralytic
  - ✓ Detach face mask from regulator and attach nasal cannula reducing flow rate to 15L/min
  - ✓ Remove face mask from the patient
  - ✓ Perform Jaw Thrust and consider NP airways to maintain pharyngeal patency
  - ✓ If the patient required NIPPV (CPAP or BVM with PEEP) during the preoxygenation period, utilize the BVM with 2-handed seal to provide 4-6, slow, low volume, low pressure ventilations
6. The number of attempts at endotracheal intubation should be no more than a total of 2 for a single provider or 3 if two EMS providers attempt intubation. If unsuccessful, move rapidly to the placement of a rescue airway or quality BVM technique to provide adequate oxygenation and ventilation. Should these techniques be ineffective consider **Needle** or **Surgical** Cricothyrotomy.

## POST INTUBATION

1. Determine proper airway placement and ventilation by using the following appropriate techniques:



- ✓ Observation of the tube passing through the cords
  - ✓ Observation of symmetric expansion of the chest with ventilation
  - ✓ Observation of fogging of the tube during exhalation
  - ✓ Auscultation of bilaterally equal breath sounds and the absence of gurgling on auscultation over the epigastrium
  - ✓ Assessment of ETCO<sub>2</sub> with capnometry or capnography
  - ✓ Consider use of esophageal detector device in CPA patients
  - ✓ Assessment of SpO<sub>2</sub>
  - ✓ Improvement in the patient's color and vital signs
2. Secure the endotracheal tube with a commercial tube holder device.
  3. Apply PEEP valve to all intubated patients unless one of the following conditions is present:
    - ✓ Asthma
    - ✓ Hypotension from hypovolemia
    - ✓ Suspected pneumothorax
    - ✓ Cardiopulmonary Arrest
  4. Immobilize the head and neck of all intubated patients. Apply a cervical collar in conjunction with other techniques as needed.
  5. Administer fentanyl for analgesia at 0.5–1 mcg/kg q30 minutes. Administer midazolam at 0.02–0.05 mg/kg q 30 minutes. **Or if ketamine was used for induction**, administer ketamine at 0.5–1 mg/kg q30 minutes.
  6. Consider administration of vecuronium to a patient in whom a return to their pre-OSI level of consciousness may threaten airway dislodgement, including those in whom a rescue airway was placed.
  7. Document items substantiating proper airway placement as well as the method/device used to stabilize the endotracheal tube.
  8. Reassess the endotracheal tube position subsequent to each significant movement of the patient and record waveform ETCO<sub>2</sub>, including upon transfer of the patient to the hospital.

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\*Cuffed endotracheal tubes are recommended for all ages.

† Consider use of an alternative sedative if sepsis is suspected and the patient is not hypotensive.

## OROGASTRIC TUBE INSERTION

### INDICATIONS:

Gastric decompression in the SGA/ETT-intubated patient when the degree of distension appears to compromise oxygenation and ventilation.

### CONTRAINDICATIONS:

- ✓ Esophageal varices, including recent banding
- ✓ Alkaline ingestion
- ✓ Esophageal rupture

### TECHNIQUE:

1. If i-gel airway is present, consider placement of an OG tube through the gastric port for i-gel sizes 1.5–5 using the sizes indicated below:
  - ✓ 1.5–10 French
  - ✓ 2–4–12 French
  - ✓ 5–14 French
2. If ETT is present, consider placement of an OG tube using the sizes indicated below:

✓ 1–2.5 kg: 5	✓ 13–15 kg: 10
✓ 2.5–4.0 kg: 5–8	✓ 16–18 kg: 10–12
✓ 6.0–8.0 kg: 8	✓ 19–23 kg: 12–14
✓ 10–12 kg: 10	✓ 24–30 kg: 14–18
3. Lubricate the tube.
4. Measure the estimated depth of insertion by assessing the length from the OG port (i-gel) or the lip (ETT) to the left costal margin and mark the tube.
5. Gently introduce the tube and withdraw carefully if unable to pass.

6. Confirm tube placement by insufflating 20cc air while auscultating over the epigastrium.
7. Place the OG tube to continuous low suction volume.

#### **COMPLICATIONS**

- ✓ Tracheal positioning
- ✓ Coiling in esophagus

## OXYGEN ADMINISTRATION

Table 2.4: Oxygen Administration

Device	Liters Per Minute	Percent	Indications for Use
Nasal Cannula	2-6 LPM	25-40%	<ul style="list-style-type: none"> <li>✓ Usually well tolerated</li> <li>✓ Flow rate higher than 6 LPM is drying to the mucous membranes and uncomfortable for the patient</li> <li>✓ Cannot accurately control O<sub>2</sub> concentration</li> </ul>
Non-rebreathing Mask	8-15 LPM	80-95%	<ul style="list-style-type: none"> <li>✓ Preferred in the field because of the high O<sub>2</sub> concentration that can be delivered</li> <li>✓ Multiple injuries</li> <li>✓ Shock</li> <li>✓ Poorly tolerated by patients who complain of feelings of suffocation</li> </ul>
<b>Bag Valve Mask*</b> with Oxygen Reservoir	15 LPM	90%	<ul style="list-style-type: none"> <li>✓ Severe respiratory insufficiency</li> <li>✓ Cardiac arrest</li> </ul>

\*A 5 cm PEEP valve should be applied to all intubated patients unless one of the following conditions is present: asthma, hypotension from hypovolemia, suspected pneumothorax, or cardio pulmonary arrest..

## RECOMMENDED INDICATIONS FOR SPINAL PRECAUTIONS IN CHILDREN

**PURPOSE:** To provide guidelines based upon mechanisms of injury and clinical symptoms that indicate a potential for spinal injury.

**GENERAL PRINCIPALS:** Any pediatric patient that presents with a high-energy mechanism of injury or any clinical signs suggestive of spinal cord injury should be placed in a hard cervical collar and spinal motion restriction for transport.

### RECOMMENDED HIGH-ENERGY MECHANISM GUIDELINES:

- ✓ High speed motor collision
- ✓ Motor vehicle collision
- ✓ Ejected from motor vehicle
- ✓ Pedestrian/bicyclist struck by a motor vehicle
- ✓ Crash involving a motorized recreation vehicle
- ✓ Diving injury
- ✓ Fall from a height > 5 feet or more than 5 stairs
- ✓ Any other high-energy mechanism with rapid acceleration and deceleration

### RECOMMENDED CLINICAL GUIDELINES ASSOCIATED WITH EVEN MINOR MECHANISM OF INJURY:

- ✓ Altered level of consciousness or are too young to describe their symptoms
- ✓ Cervical pain, tenderness, or deformity
- ✓ Neurological deficit
- ✓ Any other painful or distracting injury
- ✓ Numbness or weakness in any extremity
- ✓ Any other clinical suspicion of cervical spine injury

**PRECAUTION:** A normal child 'up and running around' at the scene who was subjected to a mechanism with a potential of causing spinal injury should

receive appropriate spinal motion restriction, provided that the technique does not result in marked combativeness.

**SUMMARY:** The indications for spinal motion restriction rely on a heightened level of suspicion for injury. Cervical spine clearance requires careful clinical and radiological evaluation because missed injuries can lead to catastrophic neurological consequences. The burden of clearance is up to the hospital physicians.

## SPECIAL CONSIDERATIONS IN THE TREATMENT OF PATIENT RECENTLY IMMUNIZED AGAINST SMALLPOX



Small pox immunization is accomplished by inoculating the skin with a live strain of a similar virus called vaccinia. In general, it is a safe and effective means of preventing smallpox. However, this technique and the use of a live vaccine produces an active wound which contact with can transmit vaccinia. For most people, exposure to vaccinia would only be a potential minor problem, but, for patients who are immunosuppressed, have chronic skin conditions, or are pregnant, exposure to vaccinia can result in serious consequences. Therefore, simple precautions should be taken in treating patients who have been recently immunized against smallpox and still have the small healing wound associated with that process.



1. Follow universal precautions.
2. Leave already present bandages in place.
3. Avoid direct contact with the wound.
4. If re-bandaging of an immunization site is required, tape two layers of dry gauze over the wound.
5. Should contact with an open immunization site occur, immediately cleanse the area with warm water and soap or with an alcohol hand rub.
6. Keep clothing that comes in contact with a vaccination site separate from other items and launder in hot water with detergent and/or bleach.
7. Direct exposure to a wound should be reported in accordance with existing guidelines regarding exposure to infectious diseases.



## SPINAL IMMOBILIZATION

### SPINAL MOTION RESTRICTION - LONG SPINE BOARD

Designation of Condition: Spinal Motion Restriction (SMR) is indicated for trauma patients when there is a suspicion of spinal injury based on mechanism of injury or patient complaining of pain in the area of the spinal cord.

#### ALL EMS PROVIDERS:

- ✓ EMS First Responders should consider SMR based on training.
- ✓ When in doubt, limit patient movement and provide in-line stabilization until arrival of higher trained personnel.
- ✓ All providers must document the initial assessment, the movement of the patient, and the condition of the patient at the transfer of care to another provider.
  - Documentation of a detailed physical exam including distal sensory and motor function

#### BLS AND ABOVE PROVIDERS:

- ✓ Patients with a significant mechanism of injury, or who have an altered level of consciousness, or who are complaining of mid-line C-Spine and/or vertebral column pain.
- ✓ Patients who have a significant distracting injury and may not be able to fully perceive and appreciate their pain along the vertebral column.
- ✓ Patients displaying symptoms of neurological deficits after a traumatic incident.
- ✓ Victims of penetrating trauma if:
  - There is evidence of neurological deficit at or below the level of injury
  - There is a suspicion of spinal injury based on the location of the wound

**FIELD TREATMENT:**

- ✓ For critical patients (blunt or penetrating) that require rapid ground transport, consider the application of *partial immobilization* (place patient onto the long spine board; hand stabilize the head and c-spine; place long spine board and patient onto the gurney; secure the long spine board and patient to gurney with gurney straps) to facilitate rapid loading and transport of the patient. Full SMR may be completed en-route if time permits.
- ✓ While backboards have historically been used to attempt spinal immobilization, SMR may also be achieved by use of scoop stretcher, vacuum splint, ambulance cot, or other similar device to which a patient is safely secured. Consider padding (commercial or otherwise) if it does not interfere with SMR.
- ✓ Rigid Cervical Collars - properly sized collars shall be used in conjunction with SMR whenever practical
- ✓ Critical trauma patients shall be extricated using rapid extrication standards - PHTLS
- ✓ With a fully cooperative and stable patient, extricate the patient onto a long board using manual support in conjunction with a C-Collar. Patients who are unconscious should be extricated rapidly using appropriate equipment and personnel for the situation.

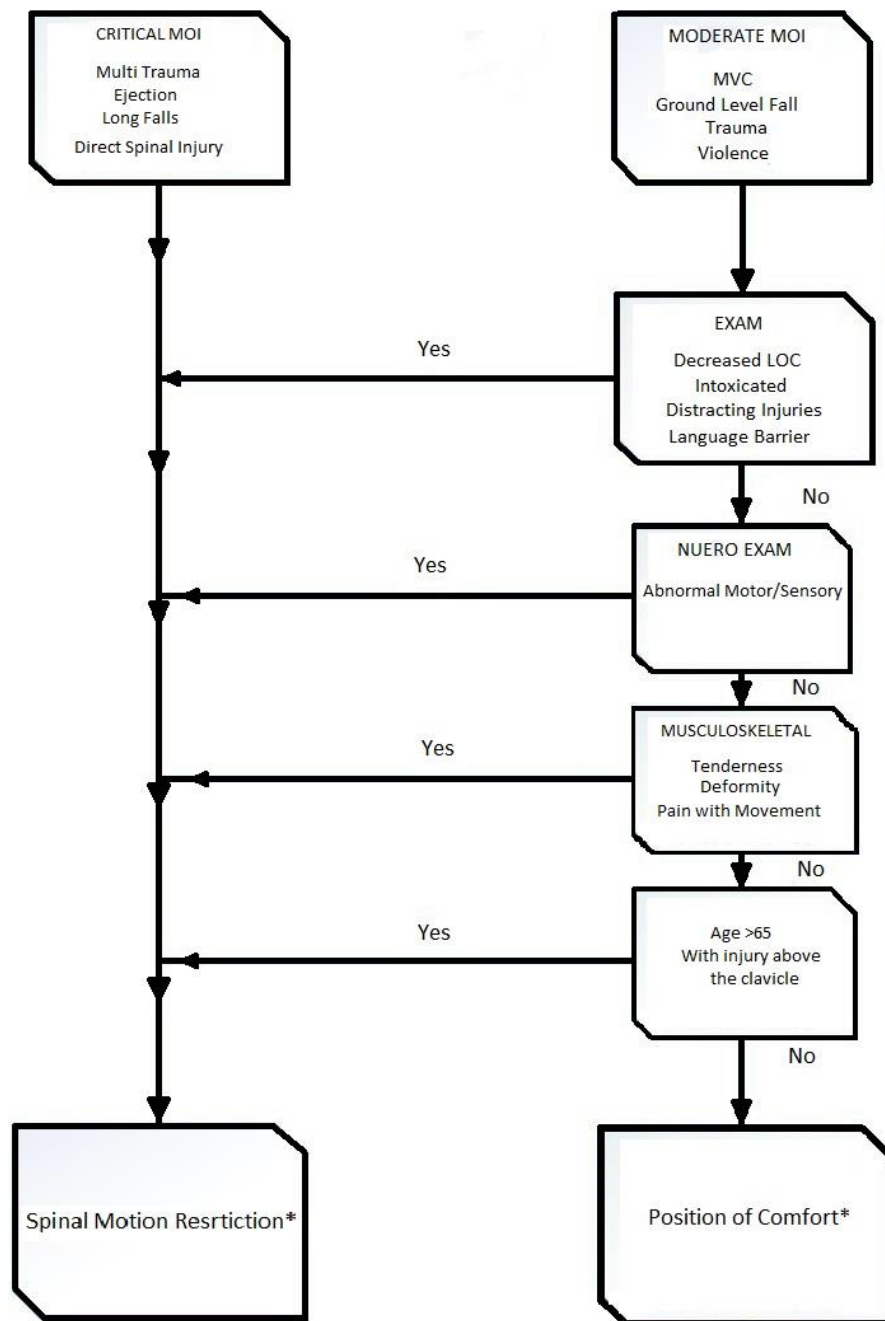
**SMR May not be required if:**

- ✓ The patient is conscious, alert, oriented, able to perceive pain, neurologically intact, and in progressive order is determined:
  - Not to be suffering from a significant distracting injury
  - Not to be intoxicated or under the influence of mind altering drugs/medications
  - To have no evidence of closed head injury
  - To have no vertebral column pain or discomfort by self-evaluation
  - To have no tenderness of vertebral column on palpation
  - Have no pain or discomfort of vertebral column with active movement (45 degrees rotation left, right, and flexion)

- ✓ The patient has penetrating trauma to the head, neck, or torso and no evidence of spinal injury
- ✓ Spinal precautions can be maintained by application of a rigid cervical collar and securing the patient firmly to the EMS stretcher, and may be most appropriate for:
  - Patients who are ambulatory at the scene
  - Patients who must be transported for a protracted time, particularly prior to inter-facility transfer
  - Patients for whom the use of a backboard is not otherwise indicated
- ✓ Whether or not a backboard is used, attention to spinal precautions among at-risk patients is paramount. These include:
  - Application of a cervical collar
  - Adequate security to a stretcher
  - Minimal movement/transfers
  - Maintenance of inline stabilization during any necessary movement/transfers

Remember that SMR is not a benign procedure. You are assuming total control of a patient's airway if you immobilize a patient. Decubitus ulcers may result within 20 minutes in spinal cord injured patients and unconscious patients.

**SEE NEXT PAGE**

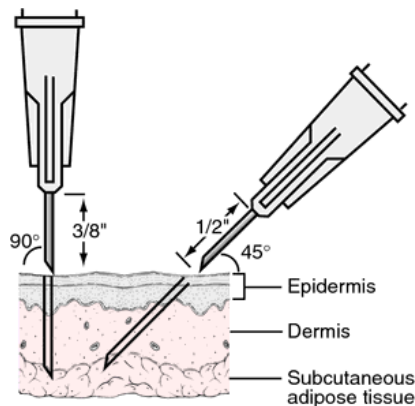


\*Patients with chronic spinal deformities (i.e., kyphosis, scoliosis, ankylosing spondylitis) should be immobilized in their position of comfort with extra padding as needed to prevent hyperextension of the spine. In addition, if the application of a standard cervical collar causes excessive traction/extension of the cervical spine, other means should be utilized to provide appropriate spinal motion restriction.

## SQ AND IM INJECTIONS

1. Prepare the equipment.
2. Confirm the medication.
3. Draw up the medication.
4. Prepare the injection site:
  - A. SQ Injections (see fig. 2.2):
    - I. Insert needle at a 45 degree angle.
    - II. Needle should enter the subcutaneous tissue. Aspirate to ensure that a blood vessel has not been entered.
  - B. IM Injections (see fig. 2.2):
    - I. Insert needle at a 90 degree angle.
    - II. Needle should enter muscle tissue. Aspirate to ensure that a blood vessel has not been entered.

**Fig 2.2: SQ/IM Injections**



5. Inject medication.
6. Remove the needle and cover the puncture site.
7. Monitor the patient.

## STIMULUS PROCEDURE

### INDICATIONS

Recommended approach to apply stimuli to a patient who initially presents unresponsive but, has a pulse and is breathing.

### PROCEDURE

1. Verbal stimulus: In a clear non-threatening voice, begin by introducing yourself (e.g., “hello, I am John Smith. I am an EMT. I am here to help you. What is wrong?”).
2. Tactile stimulus: If there is no response to verbal stimuli, gently shake the patient’s shoulder and repeat a verbal request to respond.
3. Pressure stimulus: If there is no response to verbal and tactile stimuli, apply gradually increasing pressure to the proximal nail bed with a pen or pencil for 10 seconds. If no response, repeat on opposite side.
4. Observe and record the response to the stimulus according to the categories of the **Glasgow Coma Scale Score** test.

## SURGICAL CRICOTHYROTOMY

### INDICATIONS

Unable to protect the airway or manage oxygenation and ventilation with other airway procedures. The preferred procedure for infants and children age 10 and under is needle cricothyrotomy.

### PROCEDURE

1. In the adult patient, identify landmarks (remove front panel of C-collar, if present, while maintaining C-spine stabilization).
2. Cleanse the area with chlorhexidine or betadyne.
3. Make a generous (up to 2-inch) superficial midline vertical incision through the skin, over the expected position of the cricothyroid membrane.
4. Blunt dissect and expose the cricothyroid membrane.
5. Using a scalpel, incise the cricothyroid membrane transversely, long enough to allow for introduction of an endotracheal tube.
6. Introduce the Trach hook and rotate the handle toward the head of the patient, applying gentle traction. Ask your assistant to hold it and maintain vertical cephalad traction.
7. Place a bougie into the incision.
8. Advance an endotracheal tube or tracheostomy tube over the bougie into the trachea to the depth indicated by the black mark on the tube. (Make sure all the air is withdrawn from the cuff prior to placement to avoid a ballooning of the cuff as it is passed into the trachea.)
9. Confirm placement.
10. Have your assistant pass the handle of the Trach hook to you and remove gently.
11. Appropriately secure the tube.
12. Reapply cervical collar, if c-spine precaution is necessary.

## TOURNIQUET

**INDICATIONS:** A tourniquet should be used to control potentially fatal hemorrhagic wounds only after other means of stopping blood loss have failed.

**PRECAUTIONS:**

- ✓ Use BSI.
- ✓ A tourniquet applied incorrectly can increase blood loss and lead to death.
- ✓ Applying a tourniquet can cause nerve and tissue damage whether applied correctly or not. Proper patient selection is imperative.
- ✓ Damage is unlikely if the tourniquet is removed within an hour. Low risk to tissue is acceptable over death secondary to hypovolemic shock.
- ✓ A commercially made tourniquet is the only acceptable tourniquet to be used; improvised tourniquets are not as effective and may cause more harms.

**TECHNIQUE:**

1. Attempt to control hemorrhage using direct pressure, elevation, and indirect pressure over pressure points prior to considering the application of a tourniquet.
2. If unable to control hemorrhage, apply a tourniquet, using the procedure below. Taking into consideration the previously listed precautions.
  - I. Tourniquet application is a standing order.
  - II. Apply tourniquet proximal to the wound and not across any joints.
  - III. Tighten tourniquet until bleeding stops.
    - ✓ Applying tourniquet loosely will only increase blood loss by inhibiting venous return.
    - ✓ Cut away any clothing so that the tourniquet is clearly visible. The tourniquet should NEVER be covered by clothing or bandages.
  - IV. The time and date of application should be written on the patient's



skin next to the tourniquet with a permanent marker.

3. Keep tourniquet on throughout hospital transport. A correctly applied tourniquet should only be removed by the receiving hospital.

## USE OF EXTERNAL PACE MAKERS

**INDICATIONS:** Symptomatic bradycardia not responding to **atropine**.

**PROCEDURE:**

1. Perform CPR, as indicated.
2. Obtain rhythm and baseline vitals.
3. Administer oxygen as needed to maintain 94% or greater SpO<sub>2</sub>.
4. Administer atropine per appropriate arrhythmia protocol.
5. Attach pacing electrodes.
  - I. Select *demand operation*, if stand-alone pacemaker.
  - II. Adjust EKG gain to sense intrinsic QRS complexes.
  - III. Adult pacing rate 80-100 Pediatric pacing rate 100-110
  - IV. Set current (start low and increase until capture).
6. Activate pacer.
  - I. At capture, increase current to 2 ma above capture threshold.
  - II. EKG capture: change in QRS, wide QRS.
  - III. Mechanical capture: pulse, rise in BP, increase in LOC, improved color, temperature, etc.
7. Document with rhythm strips.
8. If patient is conscious, assess patient comfort. Consider administering 1-2 mg of **midazolam (Versed®)** IV/IO q 3 minutes, up to a maximum dose of 6 mg.
9. If patient is unconscious, assess BP and pulse.
10. If no improvement with pacer initiate drug therapy per **Bradycardia** protocol.
11. If no response to pacer or ACLS drugs, consider hyperkalemia.

**DOCUMENTATION:**

- ✓ Date, time, baseline rhythm, pacing rhythm strips

- ✓ Current required to capture
- ✓ Pacing rate and mode selected
- ✓ Patient response to pacing: electrical/mechanical
- ✓ Medications used
- ✓ Date and time pacing terminated

## VAGAL MANEUVERS

**INDICATIONS:** The termination of a narrow complex regular tachycardia (HR > 150 bpm) in a stable patient.

**GENERAL PATIENT PREPARATION:**

1. Identify and treat the underlying cause.
2. Attach cardiac monitor and prepare to capture cardioversion.
3. Place the patient supine and/or in Trendelenburg position.
4. Provide supplemental oxygen if needed to maintain SpO<sub>2</sub> of 94%–99%.
5. Establish IV access and, if volume depletion suspected and there are no contraindications, administer 250–500 ml fluid challenge.

**TECHNIQUES:\***

1. Have the patient take a deep breath and bear down as if attempting to force a bowel movement with mouth and nose closed.
2. Have the patient take a deep breath and force an exhale through the barrel of a 10 mL syringe.
3. Apply an ice-cold wet towel thoroughly to the face.

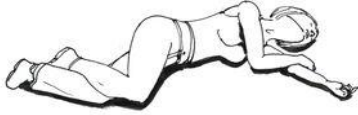
\* A combination of these techniques, such as bearing down or exhaling through a syringe may be more effective and may also enhance the effectiveness of adenosine if repeated administration of that medication is indicated.

# **SECTION 3: CARDIAC PROTOCOLS**

## ACUTE STROKE

1. Lay patient flat, unless signs of airway compromise are present, in which case the lateral recumbent (recovery) position should be used.

**Fig 3.1: Left lateral recumbent position**



2. Administer nasal cannula **oxygen** to maintain an O<sub>2</sub> saturation > 92%.
3. Apply cardiac monitor.
4. Establish IV, preferably with 16 or 18 ga and luer lock at hub. Use normal saline (establishment of IV should not delay transport).
5. Obtain blood specimen by performing a **blood draw**.
6. Do not administer anything by mouth.
7. Perform **blood glucose test**. If blood glucose is < 60 mg/dl, administer **D10** (10% in 250 mls NS up to 25 grams) IV/IO.
8. Protect paralyzed extremities.
9. Give the patient reassurance.
10. Perform prehospital stroke scale screen-FAST exam<sup>†</sup> and Stroke Severity Score (any deficits make the exam positive for a stroke).

**Table 3.1 FAST Exam:**

<b>F</b>	<b>Face:</b> Ask the person to smile. Does one side of the face droop?
<b>A</b>	<b>Arms:</b> Ask the person to raise both arms. Does one arm drift downward?
<b>S</b>	<b>Speech:</b> Ask the person to repeat a simple sentence (e.g. "It's sunny today."). Are the words slurred? Can the person repeat the sentence correctly?
<b>T</b>	<b>Time:</b> Last seen normal.

If FAST exam is positive, calculate Stroke Severity Score:

<b>Facial droop:</b>	Absent = 0	Present = 1	
<b>Arm drift:</b>	Absent = 0	Drifts = 1	Falls rapidly = 2
<b>Grip strength:</b>	Normal = 0	Weak = 1	No grip = 2

**Total Stroke Severity Score = (maximum of 5 points)**

11. Obtain the following information

- ✓ Family contact number
- ✓ Medical history
- ✓ Medications (specifically, document if the patient takes Coumadin)

12. Encourage a family member to accompany the patient to the hospital, if possible.

13. Limit scene time to  $\leq$  15 minutes.

14. Follow **prehospital stroke triage procedure** to determine destination (consider air transport if ground transport time exceeds 30 minutes).

15. If the patient has signs or symptoms of an acute stroke onset within the last 24 hours, contact the receiving hospital as soon as possible to request a **stroke alert**<sup>†</sup> (use land line if more readily available than the HEAR system). Do not wait until the routine patch.

16. Reassess the patient's neurologic exam and document any changes.

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\*Avoid administration of anti-hypertension medications, dextrose in non-hypoglycemic patients, and excessive IV fluids unless fluids required to support blood pressure.

<sup>†</sup> Use this phrase: "Based upon the time last seen normal and clinical exam findings, we recommend a stroke alert".

## ASYSTOLE/PEA

1. Start High Performance CPR.
2. Establish advanced airway (**endotracheal intubation** or advanced supraglottic airway).
3. Monitor and document SpO2 and CO2 with appropriate pulse oximetry and
4. Establish IV/IO access.
5. Administer 1 mg of **epinephrine** IV/IO q 3-5 minutes until Return of Spontaneous Circulation (ROSC) or termination of resuscitation.
6. Search for and treat possible causes (5 H's and 5 T's)
7. Rhythm diagnoses should be documented in two leads.

The 5 H's	The 5 T's
Hypovolemia	Tension pneumothorax
Hypoxia	Tamponade, cardiac
Hydrogen ion – acidosis	Toxins
Hypo-/hyperkalemia	Thrombosis, pulmonary
<b>Hypothermia</b>	Thrombosis, coronary



## BRADYCARDIA

1. Establish IV/IO access.
2. Monitor EKG. Apply 12-Lead EKG, if available.
3. Administer **O<sub>2</sub>**.
4. If serious signs or symptoms\* occur, administer 1.0 mg of **atropine** IV/IO. Repeat q 3-5 minutes, not exceeding 0.04 mg/kg or 3 mg.
5. If atropine is ineffective, consider transcutaneous pacing and/or an epinephrine continuous infusion of 0.1-0.5 mcg/kg/min.
6. If pacing is ineffective, consider hyperkalemia (calcium, Albuterol, and sodium bicarb).

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\*Bradycardia causing any one of the following: Hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort, acute heart failure (CHF).

## CHEST DISCOMFORT SUSPECTED ACUTE CORONARY SYNDROME (ACS)

1. Establish IV/IO access.
2. Apply cardiac monitor. Obtain 12-Lead EKG, if available and repeat EKG q 15 minutes.
3. Administer **O2** if SpO2 is less than 94%.
4. Administer 160-325 mg of **aspirin** PO (2-4 chewable baby aspirin).
5. Administer 0.4 mg of **nitroglycerin** SL if BP > 100.
6. Repeat step 5 q 5 minutes x2 if BP > 100 and discomfort persists.
7. If severe pain persists after nitro administration, consider administering **fentanyl** at 0.5-1 mcg/kg q 10 minutes IV/IO/IM, up to a total dose of 3 mcg/kg as long as BP >100.
8. If systolic BP < 90, assess volume status. If lungs clear and/or 12 lead EKG indicates inferior wall AMI, consider trial infusion of 0.9 NS. If rales present and/or 12 lead EKG indicates anterior wall AMI, consider **norepinephrine** infusion.
9. If the patient has an AMI on the prehospital 12 lead, report to the receiving hospital with the following information as soon as possible (use land line if more readily available than the HEAR system). Do not wait until routine patch.
  - ✓ State that you have a Cardiac Level 1 transport
  - ✓ Patient name, if contact is through a secure cell or ground line
  - ✓ Age and gender
  - ✓ Findings on prehospital 12 lead EKG. Clearly communicate if EKG, by your interpretation and the computer program, shows AMI. Report the presence of any of the following potential mimickers:
    - ➔ LVH
    - ➔ BBB
    - ➔ Pacemaker
    - ➔ Pericarditis

- ➔ Early repolarization
  - ✓ Name of cardiologist or, if none, primary care physician
  - ✓ Clinical presentation, brief and to the point
  - ✓ Vital signs
  - ✓ Prehospital treatment
- 10. Update the hospital and alert them, pending arrival, using the HEAR system. The following terminology should be used to describe the category of the ACS patient:
  - A. Cardia-STEMI
  - B. Cardiac-High Risk
  - C. Cardiac Post Arrest

## GENERAL ASSESSMENT OF PATIENTS WITH SIGNIFICANT CARDIAC ARRHYTHMIAS

### CARDIO PULMONARY RESUSCITATION: HIGH QUALITY CPR

- ✓ Push hard (2 in) and fast (greater than equal to 100 bpm), allow complete chest recoil
- ✓ Minimize interruptions in compressions
- ✓ Avoid excessive ventilation
- ✓ Rotate compressors q 2 minutes
- ✓ If quantitative waveform **capnography** < 10 mmHg, attempt to improve CPR quality

### REVERSIBLE CAUSES IN CARDIAC ARREST OR ARRHYTHMIA

- |                           |                         |
|---------------------------|-------------------------|
| ✓ Hypovolemia             | ✓ Tension pneumothorax  |
| ✓ Hypoxia                 | ✓ Tamponade, cardiac    |
| ✓ Hydrogen Ion (acidosis) | ✓ Toxins                |
| ✓ <b>Hypothermia</b>      | ✓ Thrombosis, pulmonary |
| ✓ Hypo/hyperkalemia       | ✓ Thrombosis, coronary  |
| ✓ <b>Hypoglycemia</b>     |                         |

### INDICATIONS OF PATIENT INSTABILITY

- ✓ Hypotension
- ✓ Acutely altered mental status
- ✓ Signs of shock
- ✓ Ischemic chest discomfort
- ✓ Acute Heart Failure (CHF)

## VENTRICULAR ASSIST DEVICE(S)

Patient has a continuous flow Left Ventricular Assist Device: LVAD.

Device-specific EMS field guides can be found using the QR code below or at <https://www.mylvad.com/medical-professionals/resource-library/ems-field-guides>



1. **Contact 24 hour mechanical heart specialist: (509) 481-7996.** If no answer, contact the Advanced Heart Disease and Transplantation office at Sacred Heart Medical Center at (509) 474-2041. If transport to emergency department is needed, patient must come to Sacred Heart Medical Center and should travel with their emergency backup bag. No other hospital in Spokane County is capable of inpatient LVAD services.

### 2. Emergency Scenarios

Scenario	Response
LVAD Failure	<b>VAD has stopped pumping:</b> A VAD “hum” is not heard when auscultating of the device with stethoscope indicating the device has stopped. An alarm on the controller attached to percutaneous line from the abdomen (the driveline) may be present. Ensure driveline and charged batteries are connected to controller. Call (509) 481-7996 and prepare to change controller.
LVAD Working – Blood Flows Low- ECG Abnormal	A patient with an LVAD is dependent on right ventricular function. With arrhythmia, decreased function of right ventricle will affect VAD flows. The LVAD may be able to maintain flow high enough to keep patient from going into shock. <b>If patient is symptomatic, initiate appropriate therapy to correct arrhythmia and optimize heart function.</b>
LVAD Working – Blood Flows Low-ECG Normal	Suspected hypovolemia (possibly due to low fluid intake or bleeding) or right ventricle dysfunction. <b>If patient is symptomatic, initiate appropriate therapy to stabilize patient including volume replacement.</b>

3. **Vital Signs:** Blood pressure is best measured by Doppler due to continuous flow of LVAD. Clinical signs and symptoms of hypotension should be considered. A normal blood pressure for a LVAD patient is 70-90 mm Hg by Doppler

## POST RESUSCITATION

### History

- ✓ Respiratory arrest
- ✓ Cardiac arrest

### Signs/Symptoms

- ✓ Return of pulse

### Differential

- ✓ Continue to address specific differentials associated with the original dysrhythmia

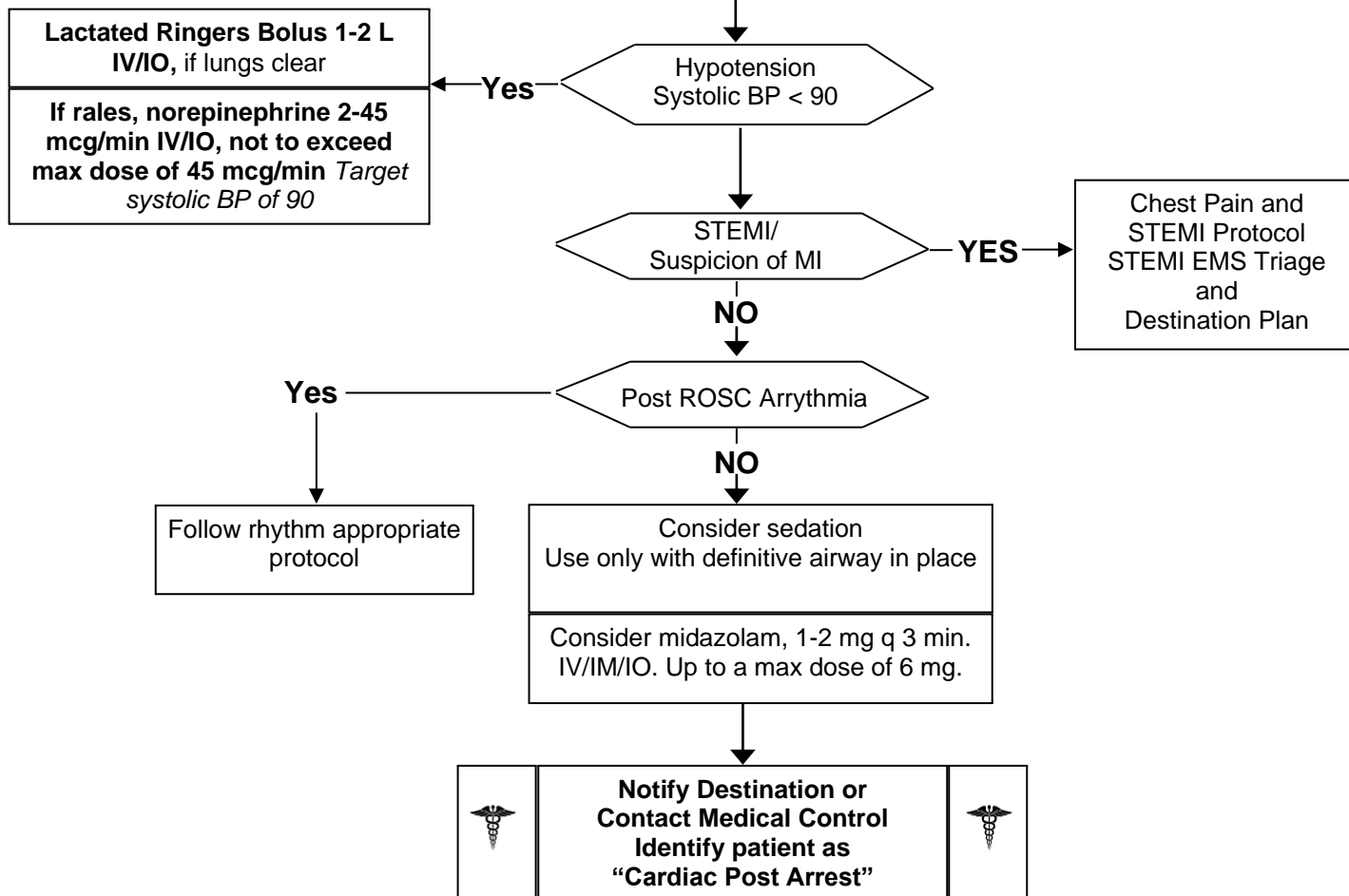
### Complete Post ROSC Checklist

#### Repeat Primary Assessment

#### Optimize Ventilation and Oxygenation

- ✓ Maintain SpO2 = 94-96%
- ✓ Advanced airway, if indicated
- ✓ Resp Rate 8-10/minute
- ✓ **DO NOT** hyperventilate
- ✓ ETCO2 monitoring
- ✓ Consider second IV line
- ✓ Consider Mechanical CPR device

Monitor vital signs/12 - Lead



## POST CARDIAC ARREST CARE

1. Establish IV/IO access.
2. Optimize ventilation and **oxygen**.
  - ✓ Maintain target oxygen saturation at 94-96%
  - ✓ Consider Advanced airway and waveform **capnography**
  - ✓ Do not hyperventilate; start at 10-12 bpm and titrate PETCO<sub>2</sub> to 35-40 mmHg
3. If systolic BP < 90, assess volume status. If lungs clear, consider trial infusion of 0.9 NS. If crackles present, consider **norepinephrine** infusion at 2-45 mcg/minute.\*
4. Consider administering **sodium bicarbonate (NaHCO<sub>3</sub>)** at 1 meq/kg IV/IO for prolonged resuscitation with effective ventilation or Return of Spontaneous Circulation (ROSC) after long arrest interval.
5. Search for and treat reversible causes (**5Hs, 5 Ts**).

✓ <b>Hypovolemia</b>	✓ <b>Tension pneumothorax</b>
✓ <b>Hypoxia</b>	✓ <b>Tamponade, cardiac</b>
✓ <b>Hydrogen Ion (acidosis)</b>	✓ <b>Toxins</b>
✓ <b>Hypothermia</b>	✓ <b>Thrombosis pulmonary</b>
✓ <b>Hypo/hyper kalemia</b>	✓ <b>Thrombosis coronary</b>
6. During Post ROSC, if available and not already done, apply a mechanical CPR device prior to transport.
7. Report to the receiving hospital with the following information as soon as possible (use land line if more readily available than the HEAR system). Do not wait until routine patch.
  - ✓ State that you have a cardiac arrest - ROSC
  - ✓ Patient name, if contact through a secure cell or ground line
  - ✓ Age and gender

- ✓ Findings on prehospital 12 lead EKG. Clearly communicate if EKG, by your interpretation and the computer program, shows AMI. Report the presence of any of the following potential mimickers
    - ➔ LVH
    - ➔ BBB
    - ➔ Pacemaker
    - ➔ Pericarditis
    - ➔ Early repolarization
  - ✓ Name of cardiologist or, if none, primary care physician
  - ✓ Clinical presentation, brief and to the point
  - ✓ Vital signs
  - ✓ Prehospital treatment
8. Update the hospital and alert them, pending arrival, using the HEAR system. The following terminology should be used to describe the category of the ACS patient:
- A. Cardia-STEMI
  - B. Cardiac-High Risk
  - C. Cardiac Post Arrest

---

\*If norepinephrine is unavailable, epinephrine may be substituted at a continuous infusion of 2-10 mcg/min IV/IO.



## PULMONARY EDEMA

1. Sit patient up, if possible.
2. Apply cardiac monitor.
3. Establish IV/IO access.
4. Administer high flow **O<sub>2</sub>**.
5. If respiratory distress is present, consider **CPAP**.
6. If respiratory distress increases and/or the patient's LOC decreases, consider **endotracheal intubation** and PEEP valve.
7. If BP > 100 systolic, administer 0.4 mg of **nitroglycerin** SL and consider repeating x2, provided systolic BP remains > 100.
8. If BP < 90 mmHg and any symptoms or signs of shock are present, administer **norepinephrine** at 2-30 mcg/minute IV/IO. Not to exceed 30 mcg/min.

## STABLE NARROW-COMPLEX TACHYCARDIA (HR>150)

1. Establish IV/IO access.
  2. Administer **O<sub>2</sub>**.
  3. Attempt to establish a specific diagnosis through a 12 lead EKG and patient history.
  4. If rhythm appears regular:
    - I. Consider **Vagal maneuvers**.
  5. If dysrhythmia persists:
    - I. Place the patient in mild reverse Trendelenburg position.
    - II. Administer 6 mg of **adenosine (Adenocard®)** via rapid IV bolus, followed by 20 ml NS. Elevate the extremity. Use antecubital IV, if possible, to administer.
    - III. A second dose of 12 mg may be given after 1–2 minutes if dysrhythmia persists.
  6. Consider the administration of diltiazem for rate control if one of the following is present:
    - I. Rhythm appears irregular and atrial fibrillation with a rapid ventricular response is suspected.
    - II. Atrial flutter (which may be regular) with a rapid ventricular response is suspected.
  7. Administer 15-20 mg (0.25 mg/kg) of **diltiazem** IV over 2 minutes. May give another IV dose in 15 minutes at 20-25 mg (0.35 mg/kg over 2 min).
  8. A maintenance infusion should be established for longer transports at 5-15 mg/hr titrated to physiologically appropriate heart rate.
-

## STABLE WIDE-COMPLEX TACHYCARDIA (HR>150)

1. Establish IV/IO access.
2. Administer **O<sub>2</sub>**.
3. Apply cardiac monitor
4. Attempt to establish a specific diagnosis through a 12 lead EKG and clinical information.
5. If the rhythm appears to be a regular and monomorphic wide-complex tachycardia, consider vagal maneuvers.
6. If vagal maneuvers unsuccessful, consider 6 mg of **adenosine (Adenocard®)** rapid IV bolus followed by a 20 ml NS flush. If tachycardia persists, administer a second dose of 12 mg of Adenocard® rapid IV bolus followed by a 20 ml NS flush. Adenosine nor **Diltiazem** should be used for irregular stable wide-complex tachycardia.
7. If tachycardia persists, consult with medical control for possible administration of 150 mg of **Amiodarone** over 10 minutes. Max dose of 2.2 gm IV over 24 hours. Lidocaine may be substituted if the patient is hypersensitive to Amiodarone or a drug overdose is suspected.
8. If patient becomes unstable, tachycardia causing one or more of the following: hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort or CHF, consider sedation and synchronized cardioversion beginning at 100j for wide regular complex tachycardia. Use defibrillation dose (**NOT** synchronized) for wide irregular complex tachycardia.

## UNSTABLE NARROW-COMPLEX TACHYCARDIA

1. Establish IV/IO access.
2. Administer **O<sub>2</sub>**.
3. Confirm rapid heart rate as cause of signs and symptoms. Related signs and symptoms occur at many rates, seldom < 150 bpm.
4. Prepare for immediate cardioversion.
5. Consider sedation by administration of **etomidate** at 0.1 mg/kg IV/IO.
6. Perform synchronized cardioversion at 100 j, 200 j, 300 j, 360 j, monophasic dose (or manufacturer recommended biphasic dose).
7. Transport patient.

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\*Use antecubital IV, if possible, to administer adenosine.

## UNSTABLE WIDE-COMPLEX TACHYCARDIA (HR>150)

1. Establish IV/IO access.
2. Administer **O<sub>2</sub>**.
3. Consider sedation.
4. Perform synchronized cardioversion at manufacturer recommended dose.
5. Consider administering 150 mg of **amiodarone** IV/IO over 10 minutes, as needed. The maximum IV/IO dose in 24 hours is 2.2 gm. Lidocaine may be substituted if the patient is hypersensitive to amiodarone.
6. If Unstable Wide-Complex tachycardia persists, causing: hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort, or acute heart failure (CHF), then perform synchronized cardioversion at manufacturers recommended dose.
7. Transport patient.

## VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

1. Consider precordial thump, if witnessed VF/Pulseless VT while being monitored.
2. Immediately initiate High Performance CPR while the defibrillator is being attached.
3. Apply Quick Look patches and immediately shock all shockable rhythms as follows: Manual biphasic: Manufacturer recommended joule setting. If unknown, use maximum available setting
4. Perform CPR for 2 minutes.
5. Establish IV/IO access, administer lactated ringers at TKO rate.
6. Apply one shock.
7. Perform CPR for 2 minutes.
8. Establish advanced airway (ETT or advanced supraglottic airway) without interruption of chest compressions.
9. Administer 1 mg of **epinephrine** IVP/IO and q 3-5 minutes to a maximum of 3 doses.
10. Perform CPR for 2 minutes.
11. Apply one shock.
12. Perform CPR for 2 minutes.
13. During CPR, consider **amiodarone** at 300 mg IVP/IO or Lidocaine at 1-1.5 mg/kg IV/IO.
14. Apply one shock.
15. Perform CPR for 2 minutes.
16. During CPR, consider administering 150 mg of amiodarone IVP/IO.
17. Apply one shock.
18. Perform CPR for 2 minutes.

19. Consider administering 1-2 gm of **magnesium sulfate** IV/IO for Torsades de Pointes and refractory VF/Pulseless VT.
20. Apply one shock.
21. After three shocks have been delivered using standard pad placement continue 30:2 CPR or asynchronous CPR if an airway is established, consider moving the pads to anterior/posterior (Vector Change) positions for the 4th and subsequent shocks.
22. Contact Medical Control for further guidance.
23. Continue cycles of CPR and defibrillation with appropriate interval administration of epinephrine until ROSC or termination.

# **SECTION 4: MEDICAL PROTOCOLS**



## ACUTE EPISTAXIS (Non-Trauma)

1. Maintain airway and oxygenation.
2. Administer 2-3 sprays of a vasoconstrictor into each bleeding nostril.
3. Apply pressure by pinching the nostrils together for up to 15 minutes or use a nasal clamp utilizing the manufactures recommended time frame to help control bleeding.
4. If significant blood loss apparent and/or signs of shock, administer IV of NS at a rate that will maintain adequate blood pressure.

## ALLERGIC REACTIONS AND ANAPHYLAXIS

**SEVERE (ANAPHYLAXIS):** Red and itchy skin; hives; severe swelling of face, lips, tongue, or pharynx; possible severe SOB; stridor/wheezing; BP < 70

1. Administer high flow **02**. Consider ET intubation.
2. Scrape stinger out, if present. Stabilize involved extremity and apply a cold compress.
3. Apply venous tourniquet above injection or sting site, if on an extremity.
4. Apply cardiac monitor.
5. Administer IV of lactated ringers, and infuse rapidly if BP < 90.
6. Slowly administer **epinephrine** at 1:10 000, 0.01 mg/kg IV/IO up to a maximum dose of 0.3 mg. Repeat q 5 minutes, as needed.
  - 6a. If unable to establish IV, administer **epinephrine** at 1:1 000, 0.01 mg/kg IM up to 0.3 mg. Repeat q 5 minutes, as needed.
7. Administer 50 mg of **diphenhydramine**, IV/IO.
8. If severe SOB and wheezing, consider administering **albuterol** treatment with small volume nebulizer.

**MODERATE:** Red and itchy skin; hives; swelling of face, lips, tongue, or pharynx; mild to moderate SOB; stridor/wheezing; BP > 70

1. Follow steps 1-4 for mild anaphylaxis
2. Administer **epinephrine** at 1:1 000, 0.01 mg/kg IM, up to a maximum dose of 0.3 mg. Repeat q 5 minutes, as needed.
3. Administer 25-50mg of **diphenhydramine**, IV/IO.

**Mild:** Red and itchy skin; hives; if sting present, localized swelling at sting site; and vital signs within normal limits.

1. Administer **02**.

2. If present, scrape stinger out. Stabilize involved extremity and apply a cold compress.
3. Apply cardiac monitor and establish IV/IO.
4. Administer 25-50 mg of **diphenhydramine**, IV/IO.

## ADULT SEIZURES

1. Protect patient and patient's airway from harm.
2. Establish IV/IO access.
3. Administer high flow **O<sub>2</sub>**.
4. Perform **blood glucose test**. If blood glucose < 60, obtain blood sample and administer 50 ml of **10% dextrose**, IV/IO.
5. If blood glucose < 60 and unable to establish IV, administer 1 mg of **glucagon**, IM or SQ.
6. If seizure activity persists for more than 2 minutes or patient has recurrent seizures, administer 5 mg of **midazolam**; IV/IM/IO/IN q 5 minutes up to a maximum dose of 10 mg.
7. Consult Medical Control if seizures persist.
8. May be administered intranasal via mucosal atomization device (MAD) at a dose of 5 mg.

If midazolam is not available, lorazepam may be substituted at appropriate dosages.

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## COMA OF UNKNOWN ORIGIN

1. Administer high flow **O<sub>2</sub>**. Assist ventilation, as needed. Consider ET intubation.
2. Take spinal precautions.
3. Apply cardiac monitor.
4. Establish IV/IO access.
5. Perform **blood glucose test**. If blood glucose < 60, obtain blood sample and administer 50 ml of **50% dextrose**, IV/IO.
6. Perform secondary assessment, look for signs of trauma.
7. Administer 0.4 mg of **naloxone (Narcan®)**, MAD\*/IV/IM/IO.
8. If no response to initial dose, administer 1.6 mg of Narcan®.<sup>†</sup>

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\*Narcan may be administered intranasally via Mucosal Atomization Device (MAD) at a dose of 2 mg for adults and .1 mg/kg up to a total of 2 mg for children.

†Up to 10 mg may be required for Darvon, Talwin, Stadol, Nubain, Suboxone, and Fentanyl (synthetic narcotics).

## EMERGENCY DISCONNECT OF HOME HEMODIALYSIS

1. Turn blood pump off (push power button or turn knob above blood pump counter-clockwise).
2. Close all clamps on patient's bloodlines, needles, or catheters. In general, this will involve 4 clamps, whether the patient is using a fistula or has an indwelling central venous catheter.
3. Leave needles in (if needle has dislodged, apply direct pressure over bleeding site using gauze). Do not apply tourniquet to site unless it is absolutely necessary.
4. Disconnect patient bloodline from patient needle or catheter site.
5. Additional precautions:
  - ✓ Avoid IV access in the patient's fistula or graft arm, if possible
  - ✓ Avoid taking blood pressure in patient's fistula or graft arm, if possible

## ACUTE BEHAVIORAL DISORDER: THE AGITATED UNCONTROLLED PATIENT



This protocol deals with one of the most challenging clinical situations you may face among your EMS responses. This protocol identifies goals of evaluation and treatment, but it may only be implemented in an environment with a reasonable degree of safety for the EMS providers. Furthermore, the ability to achieve specific aspects of this protocol will be dependent on the severity of the patient's condition and their willingness to allow medical care.



1. Administer high flow **O<sub>2</sub>** or most effective means of administering O<sub>2</sub>.
2. Apply cardiac monitor and oximeter.
3. Administer large bore IV of lactated ringers at 500 mL/hr unless symptoms of CHF exist.
4. For moderate agitation, administer 5 mg of **midazolam**, IV/IO/IM/IN q3-5 minutes, up to a maximum dose of 10 mg. If given intranasal utilize Mucosal Atomization Device (MAD) at a dose of 5 mg.
5. For severe agitation, ketamine 4mg/kg IM (max dose 400mg). A maintenance dose can be given at 1mg/kg IV/IO slow push over 60 seconds.
6. Perform **blood glucose test**. If blood glucose < 60, obtain blood sample and administer 50 ml of **10% dextrose**, IV/IO.
7. If patient body temperature exceeds 102° F, move patient to cooler environment, and remove clothing. Cool aggressively with wet sheets, cool packs, and/or evaporative airflow. Avoid ice packs and cold water immersion. Lower body temperature to 102° F (39°C).
8. Restrain the patient only as necessary to safely allow for the patient's assessment and necessary care.
9. When restraints are necessary please follow all the precautions identified in the **Restraints for Aggressive or Violent Patients** policy, paying particular attention to providing for an adequate airway and ventilation.
10. Apply a protective face mask or hood to the patient, if necessary, to reduce the potential transmission of disease via saliva.

## HYPOGLYCEMIA

As suggested by lethargy or coma in a known diabetic.

1. Establish IV/IO access
2. Apply cardiac monitor
3. Administer **O<sub>2</sub>**.
4. Perform **blood glucose test**. If blood glucose is < 60 mg/dl and patient is conscious and responsive, consider oral glucose intervention.
5. If blood glucose is < 60 mg/dl and patient is unconscious or unable to protect their airway, obtain blood sample and administer **10% dextrose** (10% in 250 mls NS) IV/IO.
6. If blood glucose is < 60 mg/dl and unable to establish IV, administer 1 mg of **glucagon**, IM or SQ.
7. If unable to establish IV and patient's blood glucose is < 35 mg/dl or the patient fails to respond 10 minutes after glucagon administration, consider initiating IO access for administration of glucose.
8. If the patient is wearing an insulin pump, turn the device off or remove the subcutaneous needle using *Sharps Precautions*.
9. If the patient has a Continuous Glucose Monitor, the prehospital provider can use the information to track trends, but a blood confirmation is still required to confirm blood glucose levels.
10. If the patient wishes to refuse transportation to a hospital and you have administered any medications, including oral glucose, you can contact medical control prior to leaving the patient or completing the refusal of care, particularly if you know or suspect the patient may be on oral glycemic medications, or for any other worrisome concerns. Patient should be instructed to eat protein/carb meal if they are refusing transport because simple sugars are quickly metabolized.
11. Perform secondary assessment, look for signs of trauma. If no response to above measures, follow **Coma of Unknown Origin protocol**.



## MENTAL HEALTH EMERGENCIES

### BASIC TENANTS FOR EMS PERSONNEL

1. Consider possible medical causes of mental health symptoms:
  - ✓ Head injury
  - ✓ Severe infection
  - ✓ Drugs
  - ✓ **Hypothermia**
  - ✓ Poisoning
  - ✓ Hypoxia
  - ✓ **Hypoglycemia**
2. Prevent health threatening circumstances.
3. Timing is critical. Working efficiently reduces the progression of a disorder and will free you sooner for other emergencies.
4. Stay within the limits of your competence.
5. Seek consultation and aid from other professionals. The more information you can gather, the better the quality of treatment that can be delivered.
6. Gain and maintain control of emergency circumstances until control has been taken over by other professionals.
7. Contact **Community Mental Health** at **(509) 838-4651** if patient refuses transport and is an apparent danger to self or others.
8. If restraint required, recruit support from law enforcement (see **Restraints for Aggressive Patients** policy).

## POISONING/OVERDOSE

1. If patient is comatose or in respiratory distress, administer high flow **O<sub>2</sub>** and 0.4 mg of **naloxone (Narcan®)**, MAD\*/IV/IM/IO. If the initial dose is unsuccessful, administer 1.6 mg 2 minutes later.<sup>†‡</sup>
2. If no immediate response, consider ET intubation.
3. Apply cardiac monitor.
4. Establish IV/IO access.
5. Perform assessment of specific overdose:
  - ✓ Product and route
  - ✓ Time of incident
  - ✓ Amount taken
  - ✓ History of medications
6. Consider contacting Poison Information Center at 1-800-222-1222
7. Contact receiving physician with assessment information and Poison Information Center recommendations to receive orders.

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\*Narcan may be administered via MAD at 2 mg for adults or 0.1 mg/kg for pediatrics, up to a max dose of 2 mg.

<sup>†</sup>Use higher doses in known Darvon (Propoxyphene), Stadol, Nubain, Suboxone, and Fentanyl overdose, up to 10 mg.

<sup>‡</sup>If administered via the ET tube, administer double the intravenous dose.

## RENAL FAILURE AND DIALYSIS PATIENTS

1. Establish IV/IO access.\*
2. Apply cardiac monitor.
3. Administer **O<sub>2</sub>**.
4. Measure the blood pressure in the dialysis patient, use arm without the fistula.
5. If hypotension is present and lungs are clear, administer 500 ml of NS IV. Repeat once, if necessary.
6. If the patient has symptomatic **bradycardia**, administer 0.5 mg of **atropine**, IV/IO.
7. If patient has hypotension and bradycardia associated with EKG evidence of hyperkalemia<sup>†</sup>, the following treatment is indicated:
  - I. Slowly administer 20 ml of 10% **calcium gluconate** IV for 1-2 minutes.<sup>‡</sup>
  - II. Slowly administer 1 mEq/kg of **sodium bicarbonate** IV.
  - III. Administer 5 mg of **albuterol (Ventolin®)** in 6 ml NS, using small volume nebulizer via SVN.
8. Using the HEAR system, alert the hospital to the potential need for emergency dialysis.

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\*The fistula may be accessed if unable to obtain a peripheral IV and the patient is unstable.

†EKG findings associated with hyperkalemia include tall peaked T waves, a prolonged QRS complex, and sometimes the disappearance of P and/or T waves. Complete heart block or asystole may occur.

‡If calcium gluconate is not available, calcium chloride may be substituted at a lower volume, 5-10 ml of a 10% solution (0.5-1 gm) administered slowly over 1-2 minutes.

## SEVERE SEPSIS

### DETECTION (All three criteria are required)

1. Suspected or known infection
2. Two or more of the following:
  - ✓ Temperature  $>38^{\circ}\text{C}$  ( $100.4^{\circ}\text{F}$ ) or  $<36^{\circ}\text{C}$  ( $96.8^{\circ}\text{F}$ )
  - ✓ Tachycardia with  $\text{HR}>90$  bpm
  - ✓ Tachypnea with  $\text{RR}>20$  (or  $\text{EtCO}_2<32$ )
3. Evidence of Hypoperfusion as manifested by one of the following:
  - ✓ Systolic BP  $< 90$  mmHg
  - ✓ Mean Arterial Pressure (MAP) $< 65$  mmHg
  - ✓ Altered mental status
  - ✓  $\text{EtCO}_2<25$

### DETECTION

1. Administer oxygen to maintain  $\text{O}_2$  saturation above 96%.
2. Initiate  $\text{ETCO}_2$  monitoring if available.
3. Establish two large bore IVs. (Consider IO access if necessary)
4. Administer 10 cc/kg IV bolus of LR in 500 cc Increments for normotensive patients and 20 cc/kg IV for hypotensive patients ( $\text{SBP}<90$  or  $\text{MAP}<65$ )
5. Reassess BP and breath sounds after each bolus.
6. If SBP remains  $< 90$  mmHg or  $\text{MAP} < 65$  mmHg after 2000 cc of LR, initiate a **norepinephrine** infusion at 2–45 mcg/min or 0.05–2 mcg/kg/min. Not to exceed 45 mcg/min.

### SEPSIS ALERT

Notify the receiving hospital of an incoming “Severe Sepsis” patient.

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\*If **endotracheal intubation** and RSI are required, consider using an alternative to **etomidate** to sedate the patient.

## TOXIC SMOKE INHALATION

1. Ensure your own safety before entering a potentially dangerous environment.
2. Remove the patient from exposure.
3. Administer high flow **O<sub>2</sub>**.
4. Establish IV/IO access.
5. Administer IV/IO fluids, as necessary to maintain systolic BP of 90 mmHg.
6. Apply cardiac monitor.
7. Perform assessment of upper airway. To help determine the need for early **endotracheal intubation** look for stridor, severe facial burns, and soot in the airway.
8. If wheezing is present, administer **albuterol (Ventolin®)** and **ipratropium bromide (Atrovent®)** via SVN. May repeat Ventolin® if wheezing persists.
9. Repeat treatments with Ventolin® only, using small volume nebulizer. May be continued if symptoms persist
10. Assess clinical severity of suspected carbon monoxide, cyanide or combined exposure.
11. Consider administration of **hydroxocobalamin**, if the situation involves a confined space with combustion of possible cyanide gas producing substrates (see table 4.1), including :
  - ✓ Wool
  - ✓ Synthetic fibers
  - ✓ Plastics
  - ✓ Various building materials
  - ✓ Dumpster fire
  - ✓ Vehicle fire.

Note: A typical internal combustion engine exhaust does not produce cyanide gas.

Table 4.1:

SITUATIONS	SYMPTOMS	SIGNS
✓ Confined space	✓ Headache	✓ Altered mental status
✓ Burning synthetics	✓ Confusion	✓ Seizures or coma
✓ Burning wool	✓ Dyspnea	✓ Dilated pupils
✓ Dumpster fires	✓ Chest tightness	✓ Hyperventilation (early)
✓ Vehicle fires	✓ Nausea	✓ Hypoventilation (late)
		✓ Hypertension (early)
		✓ Hypotension (late)
		✓ Vomiting

12. If patient is in Cardiopulmonary arrest (CPA), administer hydroxocobalamin.
13. Prior to hydroxocobalamin, measure carbon monoxide level, if equipment is available, and obtain blood sample for subsequent cyanide assay.
14. If possible, document the nature of the inhaled smoke, the duration of the exposure, whether or not the patient was in an enclosed environment, and whether the patient sustained a loss of consciousness.
15. In adult cases of definite isolated CO poisoning contact medical control for consideration of transport to the nearest hospital based hyperbaric facility.

## TREATMENT OF PATIENTS EXPOSED TO NERVE AGENTS GB, VX, AND ORGANOPHOSPHOROUS PESTICIDES

1. **The Hazardous Materials Response** policy should be applied to all responses involving these agents.
2. The following treatment should be considered only when the patient manifests typical symptoms of exposure to these agents and the scene is suggestive of exposure.
3. Mass Casualty Incident: Early recognition that field patient treatment needs will exceed immediately available supplies should prompt an immediate call to the CCC to initiate the release of Chempacks.
4. Symptoms: **Table 4.2**

<b>D</b>	Defecation	<b>M</b>	Muscle weakness and paralysis
<b>U</b>	Urination	<b>T</b>	Tachycardia
<b>M</b>	Miosis	<b>W</b>	Weakness
<b>B</b>	Bronchorrhea	<b>TH</b>	Hypertension
<b>E</b>	Excitation	<b>F</b>	Fasciculations
<b>L</b>	Lacrimation		
<b>S</b>	Salivation or seizures		

### TREATMENT USING THE **MARK 1 KIT**:

1. Mild to moderate symptoms:
  - I. Establish a patent airway and adequate ventilation.
  - II. Administer 1 MARK 1 dose of **atropine** followed by one dose of **pralidoxime chloride** (2-PAM)\*
  - III. Supplement by administering **O<sub>2</sub>**.
  - IV. If symptoms persist after 5-10 minutes, repeat injections.
  - V. If symptoms persist in additional 10 minutes, repeat injections a third time.

2. Severe symptoms (respiratory compromise, seizure, or coma):
  - I. Administer auto injector kit, atropine and 2-PAM x3 in rapid succession.
  - II. If symptoms persist after third set of injections then **DO NOT** administer any more antidotes.
  - III. Slowly administer 1-2 mg of **lorazepam (Ativan®)** IV/IO/IM. May be repeated in 3-5 minutes, up to a total dose of 4 mg<sup>†</sup>

**TREATMENT USING PEDS ATROPEN FOR ADULTS OR CHILDREN:**

1. Atropine
  - A. Infant (0-3 years, < 13 kg): 0.05-0.1 mg/kg IM/IV or 0.2-1 mg Peds Atropen or MDV<sup>‡</sup>
  - B. Child (3-10 years, 13-35 kg): 1-4 mg IM/IV Peds Atropen, MDV or MARK1<sup>‡</sup>
  - C. Adolescent to adult: 2-6 mg IM/ IV MDV or MARK1
  - D. Elderly/frail: 1-4 mg IM/IV Peds Atropen, MDV or MARK 1<sup>‡</sup>
2. Pralidoxime (2-PAM)
  - A. Infant (0-3 years, < 13 kg): 25-50 MG/KG IM/IV or 150-600 mg MDV<sup>‡</sup>
  - B. Child (3-10 years, 13-35 kg): Administer 25-50 mg/kg IM/IV (or 300-1200 mg MDV or in MARK 1<sup>‡</sup>
  - C. Adolescent to adult (> 10 years, >35 kg):
    - a. Mild to moderate symptoms: Administer 1-3 doses IM sequentially from the MARK 1 Kit (or 600-1800 mg IM/IV from MDV)
    - b. Severe symptoms: Administer 3 doses IM from the MARK 1 Kits (or 1800 mg IM/IV from MDV)
  - D. Elderly/frail: 10-25 mg/kg IM/IV MDV or 2 PAM in MARK 1<sup>‡</sup>



## **TREATMENT OF SEIZURES WITH CHEMPACK SUPPLIED VALIUM**

- A. Infant (0-3 years, < 13 kg): 0.2-0.5 mg/kg IM/IV or (1.25 mg-5 mg) MDV
- B. Child (3-10 years, 13-35 kg): 0.2-0.5 mg/kg IM/IV or (2.5 mg-10 mg) MDV or autoinjector
- C. Adolescent to adult: 5-10 mg IM/IV MDV or autoinjector
- D. Elderly/frail: 1.25-10 mg IM/IV MDV or autoinjector

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\*Warning: Morphine, theophylline, aminophylline, or succinylcholine should be used with caution for patients treated with 2-PAM.

†If patient's needs exceed immediately available supplies of lorazepam, diazepam may be substituted, 10 mg IM or autoinjector.

‡If MDV not available, IV route not established and/or precise dosing impossible, consider administration of MARK1.

## VASCULAR EMERGENCIES

This protocol is intended to address vascular emergencies of two general types that may result from trauma or occur spontaneously, and to preferentially transport them to our hospitals with vascular surgical/endovascular capability.

1. Aortic syndromes:
  - A. Aortic dissections (tearing posterior chest pain and nondiagnostic EKG)
  - B. Aortic aneurysm rupture (abdominal/back pain with hypotension and a pulsatile abdominal mass)
2. Peripheral vascular disruptions or occlusions:
  - A. Proximal extremity trauma with absent/diminished peripheral pulses
  - B. Spontaneous embolism or thrombosis: 6 Ps (pain, pallor, pulselessness, parathesias, paresis, poikilothermia)

## TREATMENT

1. Establish IV/IO access and administer IV fluids if needed to maintain systolic BP > 90 mmHg.
2. Apply cardiac monitor and obtain 12-Lead EKG.
3. Administer **O<sub>2</sub>**. Maintain SpO<sub>2</sub> saturation between 94–98%.
4. If severe pain is present, consider administering fentanyl at 0.5–1 mcg/kg q 10 minutes up to a total dose of 3 mcg/kg as long as systolic BP > 100 mmHg.
5. Transport the patient to DHMHS or PSHMC according to the patient's preference and report to the receiving hospital as soon as possible that you suspect a vascular emergency. Do not wait until routine patch.

# **SECTION 5: PEDIATRIC AND OB/GYN PROTOCOLS**

## GENERAL OB/GYN CONSIDERATIONS

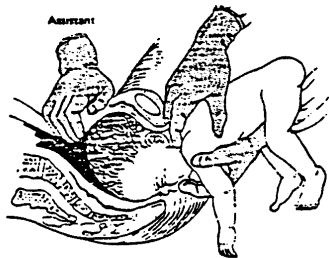
- ✓ Most deliveries proceed without complications.
- ✓ Most routine and uncomplicated pregnancies in labor may be transported with a minimum of ALS intervention.
- ✓ Transport most pregnant females in position of comfort.
- ✓ If possible, transport unconscious or traumatized third-trimester pregnant females in left lateral decubitus while protecting spine.
- ✓ Treat hypotension in the pregnant female aggressively.

## COMPLICATIONS OF DELIVERY

### BREECH DELIVERY:

1. Administer high flow **O<sub>2</sub>**.
2. If breech obvious, transport patient ASAP.
3. Place mother in the supine or Trendelenburg position.
4. If delivery occurs during transport:
  - I. Allow mother to push. Gently extract baby. Do not pull.
  - II. Support delivered body and extremities on your hand and arm.
  - III. If head not delivered, place gloved hand in vagina to form a "V" around baby's mouth and nose, should it begin to breathe.
  - IV. Perform the Mauriceau maneuver to deliver the head (see Figure 5.1):
    - ✓ Fingers of left hand inserted into infant's mouth or over mandible
    - ✓ Fingers of right hand curved over infant's shoulders
    - ✓ Assistant exerts suprapubic pressure on head

**Fig. 5.1: Mauriceau**



### PROLAPSED CORD:

1. Administer high flow **O<sub>2</sub>**.
2. Place mother in knee-chest position or extreme Trendelenburg.
3. Insert gloved hand into vagina, and gently lift head/body off of the cord.
4. Observe cord for pulsations, and continue until relieved by hospital staff.

**CORD WRAPPED AROUND NECK:**

1. Gently attempt to loosen cord.
2. With 2 fingers behind the baby's neck, try to slip the cord forward over the baby's upper (anterior) shoulder and head. If unsuccessful, attempt to slip under lower shoulder and over head.
3. If unsuccessful, clamp cord with 2 clamps, cut between clamps and carefully unwrap cord from around the neck.
4. Assist delivery.

**PLACENTA PREVIA/ABRUPTIC PLACENTA:**

1. Administer high flow O<sub>2</sub>.
2. Apply cardiac monitor.
3. Administer IV of NS. If hypovolemic, perform trial of volume infusion and apply Military Anti-Shock Trousers (MAST), legs only, as needed.
4. Contact receiving hospital via the HEAR system en route.

**POSTPARTUM HEMORRHAGE:**

**Early:** Usually due to uterine atony or tears of the cervix

**Late (7-10 days):** Retained placental parts

1. Administer high flow O<sub>2</sub>.
2. Apply cardiac monitor.
3. Administer large bore IV of NS.
4. If hypovolemic:
  - I. Perform trial of volume infusion.
  - II. Apply MAST (legs only) as needed.
  - III. Perform external uterine massage (elevate and firm pressure).

## EMERGENCY DELIVERY

1. Administer high flow **O<sub>2</sub>**.
2. Place the mother in the supine position.
3. Administer large bore IV of 0.9 NS (time permitting).
4. Apply gentle counter pressure to baby's head as it delivers.
5. Suction the baby's mouth and nose with bulb syringe as soon as the head delivers.
6. Assist delivery of the shoulders and rest of the body.
7. After delivery, clamp cord, using 2 clamps 6 inches from baby's body. Cut cord between clamps.
8. Dry baby off and keep baby warm.
9. Clear the baby's airway.
10. Let placenta deliver normally. Do not pull on cord.
11. Place delivered placenta in plastic bag for transport.
12. Massage uterus firmly.
13. Examine perineum for tears. Apply direct pressure with gauze to any bleeding tears. Do not pack vagina.
14. Estimate blood loss. Treat for hypovolemia, as needed.

## MEDICATIONS FOR NEONATAL RESUSCITATION

### EPINEPHRINE

<b>CONCENTRATION:</b>	1:10 000	<b>INFANT WEIGHT</b>	<b>TOTAL DOSE (ML)</b>
<b>PREPARATION:</b>	1 ml		
<b>DOSAGE/ROUTE:</b>	IV/ET/IO 0.1-0.3 ml/kg	1 kg	0.1-0.3 ml
<b>RATE/PRECAUTIONS:</b>	Administer rapidly	2 kg	0.2-0.6 ml
		3 kg	0.3-0.9 ml
		4 kg	0.4-1.2 ml

### VOLUME EXPANSION

<b>CONCENTRATION:</b>	Normal saline	<b>INFANT WEIGHT</b>	<b>TOTAL DOSE (ML)</b>
<b>PREPARATION:</b>	40 ml		
<b>DOSAGE/ROUTE:</b>	IV or IO 20 ml/kg	1 kg	10 ml
<b>RATE/PRECAUTIONS:</b>	Administer over 5-10 minutes	2 kg	20 ml
		3 kg	30 ml
		4 kg	40 ml

### SODIUM BICARBONATE (NAHCO<sub>3</sub>)

<b>CONCENTRATION:</b>	0.5 mEq/ml	<b>INFANT WEIGHT</b>	<b>TOTAL DOSE (ML)</b>
<b>PREPARATION:</b>	20 ml or two 10 ml prefilled syringes		
<b>DOSAGE/ROUTE:</b>	IV or IO 2 mEq/kg	1 kg	2 mEq 4 ml
<b>RATE/PRECAUTIONS:</b>	Administer slowly over at least 2 minutes, only if infant being effectively ventilated.	2 kg	4 mEq 8 ml
		3 kg	6 mEq 12 ml
		4 kg	8 mEq 16 ml



## NALOXONE (NARCAN®)

<b>CONCENTRATION:</b>	0.4 mg/ml	<b>INFANT WEIGHT</b>	<b>TOTAL DOSE (ML)</b>
<b>PREPARATION:</b>	1 ml	1 kg	0.25 ml
<b>DOSAGE/ROUTE:</b>	IV/ET/IO/IN 0.25 ml/kg	2 kg	0.5 ml
<b>RATE/PRECAUTIONS:</b>	Administer rapidly	3 kg	0.75 ml
		4 kg	1 ml

## DOPAMINE

<b>CONCENTRATION:</b>	$[6 \times \text{Weight (kg)} \times \text{Desired dose (mcg/kg/min)}]$	<b>INFANT WEIGHT</b>	<b>TOTAL DOSE (ML)</b>
	Desired fluid (ml/hr)	1 kg	5-20 mcg/min
	=	2 kg	10-40 mcg/min
	Mg of dopamine per 100 ml solution	3 kg	15-60 mcg/min
		4 kg	20-80 mcg/min
<b>DOSAGE/ROUTE:</b>	IV or IO drip Begin at 5 mcg/kg/min. May increase to 20 mcg/kg/min if necessary.		

## NEONATAL RESUSCITATION

### INITIAL MEASURES:

1. Position baby with neck slightly extended (sniffing position) and head lower than body. Suction mouth and then nose.
2. Clamp umbilical cord at least 4-6 inches from umbilicus.
3. Quickly dry amniotic fluid from head and body. Remove wet linen from contact with baby. Keep baby's body covered.

### EVALUATE RESPIRATIONS, HR, AND COLOR

1. Spontaneous breathing, HR > 100 & Pink – keep infant warm, and observe.
2. Spontaneous breathing, HR > 100 & Cyanotic – provide blended O<sub>2</sub>. (30-40%).
3. Spontaneous breathing, HR < 100 and/or the infant has apnea or gasping respirations – initiate positive pressure ventilation (PPV) with 21% oxygen (room air) or blended oxygen and apply pulse oximeter to right hand/wrist.
4. If apneic; slap foot, flick or rub back, and reevaluate respirations. If apnea persists, ventilate with bag valve mask.
5. **APGAR score** patient.

### BAG VALVE VENTILATION:

1. Position infant with head slightly extended, slight Trendelenburg.
2. Check seal by giving 2-3 ventilations at appropriate pressure, and observe for chest movement.
3. If chest rise is good and easy, ventilate for 30 seconds at 40-60/min with room air. Recheck HR.
4. If no chest rise and/or HR does not increase with Mask PPV, ventilation should be optimized by implementing the following 6 steps:
  - I. Adjust the mask to insure a good seal.

- II. Reposition the airway by adjusting the position of the head.
- III. Suction the secretions in the mouth and nose.
- IV. Open the mouth slightly and move jaw forward.
- V. Increase the PIP enough to move the chest.
- VI. Consider endotracheal intubation.

#### **REEVALUATE HEART RATE:**

1. HR < 60, continue ventilations at 30/min. and initiate chest compressions (3:1 ratio of compressions to ventilations; 90 compressions to 30 breaths per minute)
2. HR continues to be < 60/min. administer epinephrine IV: 0.01– 0.03 mg/kg (1:10,000). Or, less optimally through ETT, at a higher dose: 0.05 – 0.10 mg/kg (1:10,000) followed by IV dosing, if necessary, as soon as access is established.
3. HR 60 – 100 and increasing, continue ventilations with blended oxygen to maintain target level SaO<sub>2</sub>
4. HR > 100 and spontaneous respiration present, discontinue PPV and decrease/discontinue oxygen once an adequate SaO<sub>2</sub> is maintained at target levels:

<b>Time after Birth</b>	<b>SaO<sub>2</sub></b>
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-90%

## **ENDOTRACHEAL INTUBATION:**

### **Indications**

- ✓ Very premature infants
- ✓ For suctioning of nonvigorous infants born through meconium stained amniotic fluid.
- ✓ When bag and mask ventilation is necessary for more than 2 – 3 min.
- ✓ PPV via face mask does not increase HR or chest compressions are needed

### **Procedure**

1. Visualize the epiglottis and trachea. Insert ETT.
2. Confirm tube placement by direct observations, auscultation, and ETCO<sub>2</sub> if available.
3. If ETT correctly placed, note cm. mark at lip and secure tube.

## **FLUID THERAPY**

Volume expansion is recommended when blood loss is suspected (e.g. pale skin, poor perfusion, weak pulse) and when infants HR continues to be low despite effective resuscitation, give trial volume infusion of 10 ml/kg NS.

## **WITHHOLDING RESUSCITATION**

Withholding resuscitation and offering comfort care is appropriate (with parental consent) in certain infants:

- ✓ Very premature infants < 23 weeks or weighing < 400 g.
- ✓ Infants with anencephaly

## **TERMINATION OF RESUSCITATION**

Termination of resuscitation may be considered after 10 minutes of attempted resuscitation without ROSC and through consultation with on-line Medical Control.

## **POST RESUSCITATION MANAGEMENT**

1. Assess blood sugar, and if < 40 administer 1 ml/kg of D50 diluted 1:1 with NS.
2. Check temperature and initiate passive rewarming measures.

## PRE-ECLAMPSIA

**MILD PRE-ECLAMPSIA:** Moderate hypertension, edema, weight gain.

### **MODERATE TO SEVERE PRE-ECLAMPSIA:**

Any one of the following:

- ✓ Hypertension >160  
systolic or  
>110 diastolic
- ✓ Epigastric pain
- ✓ Headache
- ✓ Dyspnea
- ✓ Cerebral Disturbances
- ✓ Cyanosis
- ✓ Visual disturbances

### **ECLAMPSIA (TOXEMIA):**

Any one of the above or:

- ✓ Seizure
  - ✓ Postictal
1. Administer high flow **O<sub>2</sub>**.
  2. Establish IV/IO access.
  3. Apply cardiac monitor.
  4. If patient seizing, administer 1-2 mg of **midazolam (Versed®)** IV/IM/IO\*  
q 3 minutes, up to a maximum dose of 6 mg.†
  5. Administer 4 gm of **magnesium sulfate** diluted with 20 ml of NS IV/IO  
or 4 gm IM not diluted.

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\*May be administered intranasally via mucosal atomization device (MAD) at a dose of 5 mg.

†If Versed® is not available, lorazepam may be substituted at appropriate dosages.

## SEXUAL ASSAULT

1. Coordinate with other responding units and local dispatch to provide a responder of both sexes whenever possible. Especially, the same sex as the patient. Patient advocates should be introduced to the process as early as possible.
2. Assess injuries. Ask the patient if anything is hurt or injured. Allow the patient to do their own head-to-toe assessment. Help the patient by asking them to pat themselves down in areas not easily visible such as behind the head and pelvis.
3. Upgrade to Advanced Life Support (ALS) if any life-threatening injuries are found or suspected.
  - I. If strangulation is reported by the patient or suspected in any way, upgrade to ALS. Strangulation injuries can present with no signs or symptoms. Swelling can be rapid and life- threatening.
  - II. If penetration with a foreign object is reported or suspected, upgrade to ALS. Severe bleeding from internal injuries can be life-threatening. Unless serious bleeding is present, examination of the vagina or anus in the field is contraindicated.
4. All injuries reported should be recorded thoroughly in the Patient Care Report. Always ask the patient for permission before treating injuries. Encourage the patient to be examined at the hospital for unseen injuries and the possible need and benefits of prophylactic medications.
5. Maintain evidence.
  - I. Most victims report a feeling that they need to shower. Advise the patient to not clean up in any way. If possible, discourage them from eating or drinking. The patient's mouth may be swabbed in an exam.
  - II. If the patient has changed clothing or has removed an article that was worn during the assault, collect it in a paper bag and transport the bag with the patient.

6. Give patient emotional support and reassurance. Do not press inquiries. Emotional Support tips:
  - I. Ensure the patient understands that they are in control.  
Examples: "When you are ready we can..." "Are you comfortable with "
  - II. Simple tasks and questions can bring the patient back to the present. Examples: "Are you cold? Do you want to hold a hot pack?" "Would you like a pillow or blanket?"
  - III. No surprises. Be familiar with local procedures so you can tell the patient what will happen next. Examples "We are going to go to the hospital now. We will meet with a nurse there."
  - IV. Know and verbalize: Patients, ages 13+, can be seen by a provider anonymously. Adults (18+) do not have to talk to the police if they don't want to. They will be able to accept or decline procedures at the hospital.
  - V. Patients greater than 13 and less than 18 can refuse medical care or transfer by ambulance, but cannot refuse reporting to Law Enforcement (LE). Incident statements can be recorded at any time by law enforcement. Be your patient's advocate.  
Spontaneous details voluntarily given should be documented word for word in quotations. If not transporting to a hospital, it is mandatory to report to Adult Protective Services (APS)\* or Child Protective Services (CPS)†
  - VI. Patients should be allowed to keep their belongings, including their phone. If an item is providing comfort, it should remain with the patient.
  - VII. Leave the option open for silence. Examples: "Would you like us to be quiet now?"



7. Leave Resources. Patients will often change their mind in the course of action after responders have left the scene. Resources should always be left with the patient. (See local protocols for guidance.)
8. Remember: Actions and statements may appear inconsistent or inappropriate. Based on the neurobiology of trauma this can be a coping mechanism for the patient. This should be expected and considered normal behavior.

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\*Adult Protective Services: (800)459-0421; (509)568-3717

†Child Protective Services: (509)363-3333

## SPONTANEOUS ABORTION

1. Obtain date of last menstrual period.
2. If hypotensive:
  - I. Administer high flow **O<sub>2</sub>**.
  - II. Apply cardiac monitor.
  - III. Administer large bore IV of NS.
3. Apply loose perineal pad. Collect any tissue passed and bring to hospital.

## GENERAL PEDIATRIC CONSIDERATIONS



- ✓ Most pediatric **medical** emergencies are respiratory.
- ✓ Most pediatric respiratory emergencies can be managed with **O<sub>2</sub>**, suction, proper patient positioning, and occasionally with positive pressure ventilation with bag and mask.
- ✓ Pediatric medical and traumatic emergencies may also involve shock.\*  
Check heart rate, LOC, capillary refill, and BP (if obtainable), if not, check for pulse at wrist or groin).
- ✓ Medications and fluids can be administered by intraosseous infusion (IO) when an IV cannot be established (**see Intraosseous Infusions in Children**). In general, attempts at IV cannulation should be limited to 90 seconds or 2 attempts.
- ✓ Use color coded resuscitation tape, if available, for critically ill or injured pediatric patients (less than 34 kg or 75 lbs) requiring medications or procedures.
- ✓ For general purposes: Infants are defined as less than one year of age and children are defined as from age one to twelve or until they have reached adult size.

## CHILD ABUSE



1. The following is a list of findings suspicious of child abuse:
  - ✓ Explanations of mechanisms of injury conflicting with actual injury
  - ✓ Cigarette burns; belt marks; multiple bruises of varied age
  - ✓ History of repeated injuries
  - ✓ Blame placed upon others
  - ✓ Procrastination by caretaker in seeking aid
  - ✓ Sexual abuse may be present without signs of apparent physical abuse
2. Treat injuries according to appropriate trauma protocol.
3. Carefully document caretaker's description of events.
4. Observe carefully and note the:
  - ✓ Environment
  - ✓ Reaction of all adults
  - ✓ Patient's clothing, stains, conditions (bring clothing in with patient)
5. Give the child support and reassurance. Be non-judgmental and supportive to family concerns.
6. Encourage caretaker to allow transport of child to hospital for medical evaluation and/or treatment. If they do not agree, contact **Law Enforcement** or **Child Protective Services** at **(509) 363-3333**.

## PEDIATRIC AIRWAY OBSTRUCTION



### INFANT (LESS THAN 1 YEAR OF AGE):

1. Confirm severe airway obstruction. Check for the sudden onset of severe breathing difficulty, ineffective or silent cough, and/or a weak or silent cry.
2. Perform up to 5 back slaps and up to 5 chest thrusts.
3. Repeat step 2 until effective or victim becomes unresponsive.
4. If victim is unresponsive with no breathing or no normal breathing (i.e. agonal gasps), begin performing CPR (no pulse check).
5. Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. If unable to ventilate patient, attempt to remove obstruction with laryngoscope and McGill forceps.

### CHILD (1 YEAR TO ADOLESCENT (PUBERTY)):

1. Ask "Are you choking?"
2. Perform abdominal thrusts/Heimlich maneuver.
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.
4. If victim is unresponsive with no breathing or no normal breathing (i.e. agonal gasps), begin performing CPR (no pulse check).
5. Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. If unable to ventilate patient, attempt to remove obstruction with laryngoscope and McGill forceps.
7. If obstruction persists, consider **needle cricothyrotomy** (for patients **> 2 years of age**).

## PEDIATRIC ALLERGIC REACTIONS AND ANAPHYLAXIS



**MILD ALLERGY:** Red and itchy skin; hives; if sting present, localized swelling at sting site; and vital signs within normal limits.

1. Administer **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
2. If present, scrape stinger out. Stabilize involved extremity and apply ice.
3. Apply venous **tourniquet** above injection or sting site, if on an extremity.
4. Apply cardiac monitor.
5. Establish IV/IO access.
6. Administer **diphenhydramine (Benadryl®)** at 1 mg/kg IV/IO/IM, up to a maximum dose of 50 mg.

**MODERATE ALLERGY:** Red and itchy skin; hives; swelling of face, lips, tongue, or pharynx; mild to moderate SOB; wheezing; BP > 80.

1. Follow steps 1-4 for mild allergy.
2. Administer **epinephrine** at 1:1 000, 0.01 mg/kg IM,<sup>†</sup> up to a maximum dose of 0.3 mg. Repeat q 5 minutes, as needed.
3. Administer Benadryl® at 1 mg/kg IV/IO/IM, up to a maximum dose of 50 mg.

**ANAPHYLAXIS:** Red and itchy skin; hives; severe swelling of face, lips, tongue, or pharynx; possible severe SOB; BP < 70.

1. Follow steps 1-4 for mild allergy.
2. Establish IV/IO access.
3. Administer NS fluid challenge at 20 ml/kg as rapidly as possible. Repeat once to achieve minimum BP for age and clinical improvement (capillary refill < 2 seconds, stronger pulses, warmer extremities, improving LOC). Contact receiving physician to consider additional fluid administration.

4. Slowly administer epinephrine at 1:10 000, 0.01 mg/kg IV/IO,\* up to a maximum dose of 0.3 mg. Repeat q 5 minutes, as needed.
5. Administer Benadryl® at 1 mg/kg IV/IO up to a maximum dose of 50 mg.
6. If unable to establish IV/IO, administer epinephrine at 1:1 000, .01 mg/kg IM up to 0.3 mg. Repeat q 5 minutes, as needed.
7. If severe SOB and wheezing, administer **albuterol (Ventolin®)** at 2.5 mg in 3 ml NS (3 ml premix) via small volume nebulizer.

## PEDIATRIC ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY



1. Perform CPR for 2 minutes.
2. Administer **O<sub>2</sub>** with **Bag Valve Mask** and consider establishing advanced airway (ETT or advanced supraglottic airway).
3. Apply monitor/defibrillator.
4. Establish IV/IO access.
5. Administer **epinephrine** at 1:10 000, 0.01 mg/kg IV/IO or 1:1 000, 0.1 mg/kg ET diluted in 3 ml NS. Repeat q 3-5 minutes.
6. Perform rhythm assessment.
7. Perform CPR for 2 minutes.
8. Identify and treat possible causes:
  - ✓ **Hypovolemia**
  - ✓ **Tension pneumothorax**
  - ✓ **Hypoxia**
  - ✓ **Tamponade, cardiac**
  - ✓ **Hydrogen Ion (acidosis)**
  - ✓ **Toxins**
  - ✓ **Hypoglycemia**
  - ✓ **Thrombosis pulmonary**
  - ✓ **Hypo/hyper kalemia**
9. Continue CPR, rhythm assessment, and epinephrine sequence until ROSC or termination.
10. Transport patient ASAP.



## PEDIATRIC BRADYCARDIA



1. Maintain patent airway and assist breathing as necessary, administer **O<sub>2</sub>**.
2. Apply cardiac monitor. Perform rhythm assessment, and monitor blood pressure and oximetry.
3. Establish IV/IO access.
4. Apply 12 Lead EKG.

### IF CARDIOPULMONARY COMPROMISE EXISTS\*:

1. Administer O<sub>2</sub> at 100%, perform advanced airway management.
2. Perform CPR, if despite oxygenation and ventilation the patient's HR < 60/minute with poor perfusion.
3. Administer fluid bolus at 20 ml/kg IV/IO. May repeat up to 60 ml/kg for signs of shock.
4. Administer **epinephrine** at 1:10 000, 0.01 mg/kg IV/IO or 1:1 000, 0.1 mg/kg ET diluted in 3 ml NS q 3-5 minutes.
5. If increased vagal tone or primary AV block, consider **atropine** at 0.02 mg/kg IV/IO (minimum dose of 0.1mg, maximum single dose of 0.5 mg). This drug may be administered via ETT at twice the IV/IO dose.
6. Consider transcutaneous pacing.
7. Identify and treat possible causes:

✓ Hypovolemia	✓ Hypothermia
✓ Hypoxia	✓ Tension pneumothorax
✓ Hydrogen Ion (acidosis)	✓ Tamponade, cardiac
✓ <b>Hypoglycemia</b>	✓ Toxins
✓ Hypo/hyperkalemia	✓ Thrombosis pulmonary
8. Transport patient ASAP.

\*May include significant respiratory difficulty or one or more of the following signs of shock: altered LOC, capillary refill > 2 seconds, rapid pulse, diminished distal pulses, cool extremities, and hypotension.

## PEDIATRIC COMA/ALTERED LEVEL OF CONSCIOUSNESS



1. Establish and secure patient's airway. Consider obstructed airway and/or inadequate ventilation as a cause of ALOC.
2. Take spinal precautions.
3. Administer **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
4. Assist ventilation, as needed, at age appropriate respiratory rate. Consider orotracheal intubation, if unable to maintain airway.
5. Consider causes of coma, AEIOU-TIPS. (See Table 5.1)

**Table 5.1 AEIOU – Tips**

<b>A</b>	Alcohol, Acidosis	<b>T</b>	Trauma
<b>E</b>	Epilepsy	<b>I</b>	Insulin
<b>I</b>	Infection	<b>P</b>	Psychosis
<b>O</b>	Overdose/Poisoning	<b>S</b>	Stroke
<b>U</b>	Uremia		

6. Transport patient ASAP.
7. Establish IV/IO Access.
8. Administer NS at TKO rate.
9. If signs of shock present, administer 20 ml/kg NS fluid challenge as rapidly as possible. Repeat once to achieve minimum BP for age and clinical improvement (capillary refill < 2 seconds, stronger pulses, warmer extremities, improving LOC).
10. Perform a **blood glucose test**. If capillary blood glucose level is < 60, obtain blood sample and administer **50% dextrose** at 1 ml/kg IV/IO push. If patient < 1 year, dilute 1:1 with NS.

11. If blood glucose level is  $< 60$  and you are unable to establish IV/IO access, administer **glucagon** at 0.05 mg/kg IM, up to a maximum dose of 1 mg.
12. Administer **naloxone (Narcan®)** at 0.1 mg/kg MAD/IV/IO/IM,\* up to a maximum dose of 2 mg.

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\*This drug may be administered via the endotracheal tube, if an IV cannot be established. The ET dose is double the IV dose.

## PEDIATRIC FEVER



If oral or rectal temperature is greater than 38° C (100° F):

1. Remove clothing from patient.
2. If no problem other than fever identifiable, no therapy is required at the scene. If child appears toxic, do not delay transport.
3. For fever associated with seizure:
  - I. Administer high flow **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
  - II. If patient is in status epilepticus, treat according to **Pediatric Seizures** protocol.

## PEDIATRIC HYPOGLYCEMIA



As suggested by lethargy or coma in a known diabetic.

1. Administer **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
2. Apply Cardiac monitor.
3. Establish IV/IO access.
4. Perform **blood glucose test**. If capillary blood glucose level is < 60 mg/dl, obtain blood sample and administer **50% dextrose** at 1 ml/kg IVP/IO. If patient < 1 year, dilute 1:1 with NS.
5. If blood glucose level is < 60 mg/dl and you are unable to establish IV access, administer **glucagon** at 0.05 mg/kg IM/SQ, up to a maximum dose of 1 mg.
6. If the patient's blood glucose level is < 35 mg/dl and the patient fails to respond for 10 minutes after glucagon administration, consider establishing IO access for 50% dextrose administration.
7. Perform secondary assessment; look for signs of trauma.
8. If no response to above measures, follow **Pediatric Coma** protocol.

## PEDIATRIC POST RESUSCITATION CARE



1. Optimize ventilation and administer **O<sub>2</sub>**.
2. Maintain SpO<sub>2</sub> saturation at  $\geq$  to 94%. Wean patient, if saturation is 100%.
3. Establish IV/IO access, if not already done.
4. Consider establishing advanced airway (ETT or supraglottic advanced airway) and waveform **capnography**.
5. Assess for and treat persistent shock\*. Administer fluid bolus at 20 ml/kg IV/IO. May repeat up to 60 ml/kg as required.
6. Consider need for **dopamine** at 2-20 mcg/kg/minute for fluid refractory shock.†
7. Search for and treat reversible causes.

✓ Hypovolemia	✓ Tamponade, cardiac
✓ Hypoxia	✓ Toxins
✓ Hydrogen Ion (acidosis)	✓ Thrombosis pulmonary
✓ <b>Hypoglycemia</b>	✓ Thrombosis Coronary
✓ Hypo/hyperkalemia	✓ Trauma
✓ Tension pneumothorax	
8. Transport patient ASAP.

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\*May include significant respiratory difficulty or one or more of the following signs of shock: altered LOC, capillary refill > 2 seconds, rapid pulse, diminished distal pulses, cool extremities, and hypotension.

## PEDIATRIC PULSELESS VENTRICULAR TACHYCARDIA OR VFIB



1. Begin high quality CPR. Apply Quick Look patches and immediately shock all shockable rhythms. Continue high quality CPR, restarting 2-minute timer. Administer **O<sub>2</sub>** with **Bag Valve Mask** and consider establishing advanced airway (ETT or advanced supraglottic airway).
2. Apply one shock at 2 j/kg.
3. Perform CPR for 2 minutes. Establish IV/IO access.
4. Administer NS at TKO rate.
5. Apply one shock at 4 j/kg.
6. Perform CPR for 2 minutes.
7. Administer **epinephrine** at 1:10 000, 0.01 mg/kg IV/IO or ET at 1:1 000 solution, 0.1 mg/kg diluted in 3 ml of NS. Repeat epinephrine q 3-5 min.
8. Apply one shock at 4 j/kg.
9. Perform CPR for 2 minutes. Search for and treat reversible causes. During CPR, administer **amiodarone** at 5 mg/kg IV/IO, may repeat 2 times q 3-5 minutes.
10. Apply one shock at 4 j/kg.
11. Perform CPR.
12. Transport ASAP continuing, CPR, defibrillation, and medication sequence.

## PEDIATRIC RESPIRATORY ARREST



1. Establish and secure patient's airway.\*
2. Apply **bag valve mask** and ventilate with 100% **O<sub>2</sub>**,
3. Perform orotracheal intubation.
4. Assist ventilation, as needed, using adequate volume/pressure to make chest rise and breath sounds audible.
5. Monitor pulse oximetry, if available. Administer titrate **O<sub>2</sub>** and ventilate to maintain **O<sub>2</sub>** stats at  $\geq 90\%$ .
6. Establish IV/IO Access.
7. Administer NS at TKO rate.
8. Perform **blood glucose test**. If capillary blood glucose level is  $< 60$ , obtain blood sample and administer **10% dextrose** at 1 mL/kg IV/IO push. If patient  $< 1$  year, dilute 1:1 with NS.
9. Administer **naloxone** at 0.1 mg/kg IV/IO/IM, up to a maximum dose of 2 mg.

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\*If airway positioning alone returns spontaneous respirations, oxygenate at high flow rate, and assist ventilations, as necessary. If spontaneous respirations do not return, ventilate with bag valve mask, and perform endotracheal intubation in a controlled manner. If airway is obstructed, follow **Airway Obstruction** protocol.



## PEDIATRIC RESPIRATORY DISTRESS WITH STRIDOR



Stridor is a harsh inspiratory sound indicating upper airway obstruction.

**MILD OR MODERATE DISTRESS:** Tachypneic, slight accessory muscle use, minimal retractions, and pink.

1. Observe respirations and perform auscultation on lungs.
2. Allow patient to assume position of maximum comfort, with parent, if necessary.
3. Administer **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
4. Monitor pulse oximetry, if available. Administer titrate O<sub>2</sub> and ventilate to maintain O<sub>2</sub> stats at  $\geq 90\%$  .
5. Transport patient ASAP.

**SEVERE DISTRESS:** Tachypneic, accessory muscle use, and retractions.

1. Follow steps 1-4 for moderate distress.
2. Administer a single dose of **racemic epinephrine** via small volume nebulizer.
  - A. PT > 2YR: 0.5 ml (2.25%) in 3 ml NS.
  - B. PT < 2 YR: 0.25 ml (2.25%) in 3 ml NS.

## PEDIATRIC RESPIRATORY DISTRESS WITH WHEEZING



**MILD DISTRESS:** Alert, pink, comfortable, able to speak easily.

1. Observe respirations and perform auscultation on lungs.
2. Administer **O<sub>2</sub>** at 8-15 LPM by mask or blow-by.
3. Transport patient ASAP.

**MODERATE DISTRESS:** Tachypneic, slight accessory muscle use, and minimal retractions.

1. Observe respirations and perform auscultation on lungs.
2. Allow patient to assume position of comfort, with parent if necessary.
3. Administer O<sub>2</sub> at 8-15 LPM by mask or blow-by.
4. Monitor pulse oximetry, if available. Administer titrate O<sub>2</sub> and ventilate to maintain SPO<sub>2</sub> at ≥ 90% .
5. Apply cardiac monitor.
6. Administer **albuterol (Ventolin®)** at 2.5 mg in 3 ml NS (3 ml premix) via SVN.
7. Consider administration of **ipratropium bromide (Atrovent®)**.\*
8. Transport patient ASAP.

**SEVERE DISTRESS:** Tachypneic, accessory muscle use, retractions, difficulty speaking, cyanosis.

1. Follow steps 1-7 for moderate distress.
2. Repeat Ventolin® administration q 15 minutes until improvement.
3. Establish IV/IO access. Consider administration of NS at TKO rate.

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\*If ipratropium bromide is also supplied in a premix unit dose with Albuterol (Combivent, Duoneb).

## PEDIATRIC SEIZURES



1. Establish and secure patient's airway.
2. Apply **bag valve mask** and ventilate with 100% **O<sub>2</sub>**. Consider orotracheal intubation. Observe for airway obstruction.
3. Protect patient to prevent further injury.
4. Establish IV/IO access.
5. Administer Lactated Ringers (LR) at TKO rate.
6. Perform a **blood glucose test**. If capillary blood glucose level is < 60, obtain blood sample and administer **10% dextrose** at 5 mL/kg IVP/IO. If patient < 1 year, dilute 1:1 with LR. Max dose of 250 ml.
7. If patient is actively seizing and has a glucose level above 60 mg/dl, administer **midazolam** IM/IN at 0.2 mg/kg q 5 minutes to a maximum dose of 10 mg or IV/IO at 0.1 mg/kg q 5 minutes to a maximum dose of 4mg. Contact Medical Control for repeat dose exceeding maximum dose. If midazolam is unavailable administer **lorazepam** at 0.1 mg/kg IV/IM/IO q 3 minutes until seizures are under control or up to a maximum dose of 4 mg.
8. SpO<sub>2</sub> and EtCO<sub>2</sub> should be monitored.

## PEDIATRIC SHOCK\*



1. Establish and secure patient's airway. Orotracheal intubation may be appropriate and necessary.
2. Administer **O<sub>2</sub>** at 8-15 LPM by mask or ET tube. Assist ventilation, as needed, Monitor pulse oximetry, if possible.
3. Apply cardiac monitor.
4. Transport patient ASAP.
5. Establish IV/IO access.
6. Administer NS fluid challenge at 20 ml/kg as rapidly as possible.  
Repeat once to achieve minimum BP for age and clinical improvement (capillary refill < 2 seconds, stronger pulses, warmer extremities, improving LOC). If signs of shock persist contact receiving physician to consider additional fluid administration.

---

\*Shock is defined by a combination of the following: altered LOC, capillary refill > 2 seconds, rapid pulse, diminished distal pulses, cool extremities, and hypotension.

## PEDIATRIC TRAUMA



1. Establish and secure a patent airway while maintaining in-line axial support.
2. Administer high flow **O<sub>2</sub>**. Assist ventilation, as needed.
3. Take spinal precautions.
4. Transport patient ASAP.
5. Establish IV/IO access.
6. If signs of shock present\*, administer NS fluid challenge at 20 ml/kg as rapidly as possible. Repeat once to achieve minimum BP for age and clinical improvement (capillary refill < 2 seconds, stronger pulses, warmer extremities, improving LOC). If signs of shock persist, contact receiving physician to consider additional fluid administration.
7. If signs of head injury are present† follow this procedure:
  - I. Elevate head 15°, if patient has no signs of shock. Observe spinal precautions.
  - II. Consider intubation using **succinylcholine (Anectine®)**, if necessary, to provide optimal ventilation.
  - III. Hyperventilate via ET tube at one and a half times the normal respiratory rate for age.

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\*Shock is defined by a combination of the following: altered LOC, capillary refill > 2 seconds, rapid pulse, diminished distal pulses, cool extremities, and hypotension.

†Signs of increased intracranial pressure include: dilated pupils, focal neurological signs, decreased LOC, posturing, and/or GCS level < 8.

## STABLE NARROW-COMPLEX PEDIATRIC TACHYCARDIA\*



1. Maintain patent airway. Assist breathing as necessary, administer **O<sub>2</sub>**.
2. Apply monitor. Perform rhythm assessment, apply 12 lead EKG, and monitor blood pressure and oximetry.
3. Establish IV/IO access.
4. Consider Vagal Maneuvers.<sup>†</sup>
5. Administer **adenosine (Adenocard®)** at 0.1 mg/kg. Repeat PRN one time at 0.2 mg/kg.
6. If patient becomes unstable, perform cardioversion at 0.5-1 j/kg. If not effective, increase to 2 j/kg. Sedate prior to cardioversion, if needed, with **etomidate** at 0.1 mg/kg, **DO NOT** delay cardioversion.
7. Identify and treat possible causes.

✓ <b>Hypovolemia</b>	✓ <b>Tension pneumothorax</b>
✓ <b>Hypoxemia</b>	✓ <b>Tamponade</b>
✓ <b>Hyperthermia</b>	✓ <b>Toxins/Poisons/Drugs</b>
✓ <b>Hypo/hyperkalemia &amp; Metabolic disorders</b>	✓ <b>Thromboembolism</b>
	✓ <b>Pain</b>
8. Transport patient ASAP.

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\*Infants rate usually > 220/minute; children rate usually > 180/minute

<sup>†</sup>Applying ice or cold water to the face may be particularly effective in infants and children.

## STABLE WIDE-COMPLEX PEDIATRIC TACHYCARDIA\*



1. Maintain patent airway. Assist breathing as necessary, administer **O<sub>2</sub>**.
2. Apply monitor. Perform rhythm assessment, apply 12 lead EKG, and monitor blood pressure and oximetry.
3. Establish IV/IO access.
4. If rhythm is absolutely regular and QRS is monomorphic, contact Medical Control to consider administering **adenosine (Adenocard®)** at 0.1 mg/kg up to a maximum dose of 6 mg. May repeat in 2 minutes at 0.2 mg/kg up to a maximum dose of 12 mg.
5. Administer **amiodarone** at 5 mg/kg over 20-60 minutes. May repeat up to 15 mg/kg. Maximum single dose of 300 mg.<sup>†</sup>
6. If patient becomes unstable, perform cardioversion at 0.5-1 j/kg. If not effective, increase to 2 j/kg. Sedate prior to cardioversion, if needed, with **etomidate** at 0.1 mg/kg. **DO NOT** delay cardioversion.
7. Identify and treat the following possible causes:

✓ Hypovolemia	✓ Pain
✓ Hypoxemia	✓ Tamponade
✓ Hyperthermia	✓ Tension pneumothorax
✓ Hypo/hyperkalemia & Metabolic disorders	✓ Thromboembolism
	✓ Toxins/Poisons/Drugs
8. Transport patient ASAP.

\*QRS duration wide for age > 0.09 seconds

<sup>†</sup>Lidocaine at 1 mg/kg 1 time may be substituted if the patient is hypersensitive to amiodarone.

## SUDDEN INFANT DEATH SYNDROME



Sudden Infant Death Syndrome is sudden death, without apparent cause, during sleep. It affects infants usually less than six months of age. It may be difficult to differentiate from suspected child abuse.



1. Perform CPR, unless obvious signs of death.
2. Apply cardiac monitor. Treat arrhythmias appropriately.
3. Support parents and avoid questions or comments that suggest blame.
4. Observe and carefully note:
  - ✓ Location and position of child
  - ✓ Objects immediately surrounding child
  - ✓ Behavior of all adults present
  - ✓ Explanations provided
  - ✓ Vomitus or foreign body in mouth, if present
5. Report all observations to Medical Control, County Coroner, or Law Enforcement.



## UNSTABLE NARROW-COMPLEX PEDIATRIC TACHYCARDIA\*



1. Maintain patent airway. Assist breathing as necessary, administer **O<sub>2</sub>**.
2. Apply monitor. Perform rhythm assessment, apply 12 lead EKG, and monitor blood pressure and oximetry.
3. Establish IV/IO access. **DO NOT** delay therapy awaiting 12 lead EKG and/or IV/IO access.
4. Consider vagal maneuvers.<sup>†</sup>
5. Perform cardioversion at 0.5-1 j/kg. May increase to 2 j/kg if ineffective. Sedate prior to cardioversion with **etomidate** at 0.1 mg/kg, if needed, **DO NOT** delay cardioversion.
6. Identify and treat the following possible causes:

✓ Hypovolemia	✓ Tension pneumothorax
✓ Hypoxemia	✓ Tamponade
✓ Hyperthermia	✓ Toxins/Poisons/Drugs
✓ Hypo/hyperkalemia & Metabolic disorders	✓ Thromboembolism
	✓ Pain
7. Transport patient ASAP.

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\*Infants usually > 220/min; children usually > 180/min

†Application of ice or cold water to the face may be particularly effective in infants and children.

## UNSTABLE WIDE-COMPLEX PEDIATRIC TACHYCARDIA\*



1. Maintain patent airway. Assist breathing as necessary, administer **O<sub>2</sub>**.
2. Apply monitor. Perform rhythm assessment, apply 12 lead EKG, and monitor blood pressure and oximetry.
3. Establish IV/IO access. **DO NOT** delay therapy awaiting 12 lead EKG and/or IV/IO access.
4. Perform cardioversion at 0.5-1 j/kg. May increase to 2 j/kg if ineffective. Sedate prior to cardioversion with **etomidate** at 0.1 mg/kg, if needed, **DO NOT** delay cardioversion.
5. Administer **amiodarone** at 5 mg/kg IV/IO over 20-60 minutes.<sup>†</sup> May repeat at 5 mg/kg up to a maximum dose of 15 mg/kg. Maximum single dose of 300 mg.
6. Transport patient ASAP.

---

\*QRS duration wide for age > 0.09 seconds

<sup>†</sup>Lidocaine at 1 mg/kg one time may be substituted if the patient is hypersensitive to amiodarone.

# **SECTION 6: TRAUMA PROTOCOLS**

## ABDOMINAL TRAUMA

1. Allow patient to assume position of comfort, unless spinal injury is suspected.
2. Administer high flow **O<sub>2</sub>**.
3. Apply cardiac monitor.
4. Establish a large bore IV of NS at TKO rate, unless shock is present.
5. If shock is present, establish a second large bore IV and titrate to maintain a target BP of 90 systolic.
6. Treatment for specific abdominal injuries (maintain high degree of suspicion for critical injury in an otherwise stable appearing patient):
  - A. Evisceration:
    - I. **DO NOT** replace.
    - II. Cover with saline-moistened dressing and, if available, cover dressing with plastic wrap.
  - B. Impaled Objects:
    - I. Stabilize in place and avoid any unnecessary movement of the patient or object.
    - II. **DO NOT** remove.
  - C. Blunt Trauma
    - I. Consider MAST for injury stabilization and/or hypotension.
    - II. Maintain a target BP of 90 systolic if patient is hypotensive.

## ANIMAL BITES

1. Assess scene safety paying special attention to the potential presence of aggressive animals.
2. Contact appropriate animal control agencies to ensure capture, appropriate caging, restraint, or euthanasia of offending animal.
3. If significant injuries are present, administer **O<sub>2</sub>**, apply cardiac monitor, and establish IV/IO access.
4. Perform copious irrigation with sterile saline and/or tap water and apply sterile dressings.
5. Remove constricting jewelry from a bitten extremity.
6. If fractures are suspected, splint the extremity.
7. If severe pain is present consider administering **fentanyl** at 0.5-1 mcg/kg IV/IO/IM, up to a total dose of 3 mcg/kg as long as BP > 100.
8. Animal bites shall be promptly reported to SCRAPS. In the rare case that a patient refuses transport, the EMS providers shall contact **SCRAPS (509-477-2532)** to ensure the bite has been reported. In addition, for transported patients, the EMS provider shall request that the hospital personnel report the bite to SCRAPS and document this request.\*

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\*Does not apply to commissioned service animals.

## BURNS

1. Remove patient from hazard.
  - A. Remove patient from physical contact with burning agent(s) by removing contaminated/burned clothing, jewelry, and dry chemicals.
    - I. Dry chemicals should be brushed off the surface
    - II. Burned area should be flushed with large amounts of low pressure water for 15-30 minutes.
    - III. **DO NOT** delay transport while flushing chemical burns.
2. Administer high flow **O<sub>2</sub>**.
3. Assess for other possible non-burn trauma.
4. If stridor or facial burns are present, consider early ET intubation.
5. Determine depth and size of burn.
6. If > 15% burn or facial burn is present, establish a large bore IV of NS at appropriate rate ([see Classification of Burns](#)).
7. Cover burned area with dry, sterile sheets.
8. Maintain normothermia. To help hypothermia, cover with dry sterile burn sheets and wrap with a blanket.
9. If necessary, consider the administration of intravenous **fentanyl** at 0.5-1 mcg/kg IV/IO/IM, up to a total dose of 3 mcg/kg for pain.

## CHEMICAL BURNS TO THE EYE

1. Flush eye(s) with large amounts of low pressure water or saline for 15 minutes ASAP.
2. Locate and transport chemical or container.

## CHEST TRAUMA

1. Take spinal precautions.
2. Administer high flow **O<sub>2</sub>**.
3. Assist ventilation if respiratory rate < 10 or > 30.
4. Apply cardiac monitor.
5. Establish a large bore IV of NS at TKO, unless shock is present.
6. If shock is present, run fluids wide open and titrate to maintain a systolic BP of 90.
7. Treatment for specific chest injuries:
  - A. Open Chest Wound:
    - I. Apply occlusive dressing.
  - B. Tension Pneumothorax
    - I. Perform **needle thoracostomy**.\*

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\*If there is uncertainty regarding the diagnosis, contact medical control for advice regarding needle thoracostomy.



## CRUSH INJURY SYNDROME



Prolonged compression of extensive areas of the body and/or limb(s) for 1 hour or more may result in crush injury syndrome, requiring unique prehospital treatment.



1. Take spinal precautions, if indicated.
2. Administer high flow **O<sub>2</sub>**.\*
3. Apply cardiac monitor.
4. Establish 2 large bore IV/IO of NS, if possible.
5. If shock is present, run fluids wide open and titrate to maintain a systolic BP of 90.
6. In general, IV fluids and medical therapy should be initiated prior to the release of compression. However, the release of compression to the chest should not be delayed for the establishment of IV and the initiation of medical treatment.
7. Initiate the following treatment prior to the release of compression:
  - I. Administer 1000cc IV/IO bolus of NS. Continue to administer NS at 500 ml/hr, even if the patient is normotensive, unless the patient becomes markedly hypertensive and/or develops **pulmonary edema**.
  - II. Administer sodium bicarbonate (NaHCO<sub>3</sub>) at 1 meq/kg IVP/IO and/or 10% calcium gluconate 20 ml IV/IO slowly over 1-2 minutes.
  - III. Administer 5 mg of **albuterol (Ventolin®)** in 6 ml NS using small volume nebulizer.
8. If the patient has hypotension and **bradycardia** associated with EKG evidence of hyperkalemia<sup>†</sup>, initiate the following treatment:
  - I. Administer 10% calcium gluconate 20 ml IV/IO slowly over 1-2 minutes.<sup>‡</sup>

- II. Administer 5mg of Ventolin® in 6 ml NS using small volume nebulizer.
- III. Administer NaHCO<sub>3</sub> at 1 mEq/kg IVP/IO.

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\*If OSI is indicated, avoid the administration of **succinylcholine**. If paralysis is necessary to manage the airway, Medical Control shall be contacted to consider the use of **vecuronium bromide (Norcuron®)**.

†EKG findings associated with hyperkalemia include tall peaked T waves, a prolonged QRS complex, and sometimes the disappearance of P and/or T waves. Complete heart block or asystole may occur.

‡If calcium gluconate is not available, calcium chloride may be substituted at a lower volume. Slowly administer 5-10 ml of a 10% solution (0.5-1 gm) over 1-2 minutes..

## EXTERNAL HEMORRHAGE CONTROL

1. Apply direct pressure/pressure dressing to injury.
2. If hemorrhage is not controlled and the wound is amenable to use of a tourniquet (i.e. extremity injury), apply a tourniquet.
3. If hemorrhage is not controlled and wound is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic dressing, if available, with direct pressure. \*†

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\*Only apply topical hemostatic agents in a gauze format that supports wound packing.

†In the event of a mass casualty situation or a situation where there is minimal time to devote to the patient in the interest of responder safety (active shooter, etc.), topical hemostatic dressings (if available) with direct pressure may be the first option.

## TRAUMATIC BRAIN INJURY

1. Keep head of bed elevated to approximately 30 degrees while maintaining spinal precautions.
2. Administer high flow O2. Apply cardiac monitor, SpO2 and EtCO2.
3. Perform a blood glucose test. If blood glucose is < 60, obtain blood sample and administer IV 10% dextrose.
4. Establish a large bore IV of LR at a TKO rate.
5. If patient is unable to protect their airway perform optimal sequence intubation (OSI).
6. Following endotracheal intubation: If the end tidal is greater than 45 mmHg, gradually increase ventilations to maintain eucapnea (end tidal 35 - 45 mmHg). If the end tidal following intubation is < 35 mmHg maintain ventilations to keep end tidal at that target (for example, if end tidal is 20 mmHg keep ventilations to maintain an end tidal of 20 mmHg).
7. If hypotension is present, run fluids wide open and titrate to maintain a systolic BP of 90. If the head injury is an isolated injury, give fluids to maintain a systolic BP of 110.
8. Obtain GCS and record any changes during reassessment.

## INJURIES TO THE EAR

1. Take spinal precautions.
2. Use direct pressure to control bleeding from external ear.
3. **DO NOT** pack or probe the ear canal.
4. Watch for fluid drainage from the ear.
5. Check for battle signs, indicating basal skull fracture.

## INJURIES TO THE NOSE

1. Take spinal precautions.
2. Establish a patent airway.
3. Control anterior bleed with direct pressure.

## PENETRATING AND BLUNT INJURIES TO THE EYE

1. Check vision in each eye separately.
2. Assess for leakage of intraocular fluid.
3. Protect injured eye with metal eye pad or inverted paper cup.
4. Avoid applying a pressure dressing.
5. Cover uninjured eye to prevent lid and eye movement.
6. Stabilize impaled objects. **DO NOT** remove.

## PENETRATING OR BLUNT INJURIES OF NECK

### BLUNT INJURY:

1. Administer high flow **O<sub>2</sub>**.
2. Take spinal precautions.
3. Establish a large bore IV of NS at TKO rate, unless shock is present.
4. If shock is present, run fluids wide open and titrate to maintain a systolic BP of 90.
5. If stridor is present, consider ET intubation or **needle cricothyrotomy**.

### PENETRATING INJURY:

1. Administer high flow **O<sub>2</sub>**.
2. Take spinal precautions that will still allow for appropriate treatment of the wound.
3. Establish a large bore IV of NS at TKO rate, unless shock is present.
4. If shock is present, run fluids wide open and titrate to maintain a systolic BP of 90.
5. If stridor is present, consider ET intubation or needle cricothyrotomy.
6. Apply an occlusive dressing.
7. Control the blood loss by using a dressing and gloved fingers to apply direct pressure to the source of bleeding.
8. Transport patient with head down, if possible.



## PENETRATING TRAUMA FROM TASER® WEAPONS

1. Unlike other forms of penetrating foreign bodies, Taser® barbed darts, because of their short length (1/4 in.), may be safely removed by EMS personnel when requested by law enforcement.
2. The darts should only be removed in the field if they do not involve the eye, face, neck, breast, and/or groin. Patients with retained darts in these areas should be transported to a hospital to have them removed by a physician.
3. The individual must be in police custody and EMS personnel must be convinced that the patient is adequately restrained.
4. Wear gloves.
5. Ensure that wires are disconnected from the gun or the wires have been cut.
6. Push on the body part containing the dart (straight #8 fish hook) and simultaneously pull the dart straight out.
7. Apply alcohol or iodine to the puncture area and dress as needed.
8. Treat the dart as a contaminated sharp. The darts should be placed in a biohazard *sharps* container and turned over to law enforcement.
9. If EMS provider's safety is guaranteed, all patients must be thoroughly assessed to determine if other medical problems or injuries are present.
10. If the individual does not have any other presenting injuries/illness, they may be left in the custody/care of law enforcement.
11. If transported to the hospital, follow the [Restraints for Aggressive or Violent Patients](#) policy.

## PELVIC FRACTURE STABILIZATION PROCEDURE

### INDICATIONS

Suspected Pelvic Fracture accompanied by hemodynamic instability and/or severe pain.

### ASSESSMENT

1. Abrasions, contusions or bleeding around the rectal, vaginal, urethral areas or hematuria
2. Limb length discrepancy, or deformity
3. Hematomas above the inguinal ligament, scrotum, and thigh
4. Scrotal pain or swelling
5. Presence of a symphysis gap on gentle palpation
6. Pelvic ring mobility with gentle compression of the anterior superior iliac crests (limit compressions to a single attempt)

### PROCEDURE

Apply the pelvic stabilizer device according to the manufacturer's recommendations.\*

### PRECAUTIONS

1. Care should be taken to stabilize, but not over-reduce the injury, especially with lateral compression injuries.
2. Reduction can be assessed by evaluating the patient's legs, greater trochanters and patellae, which should be in an anatomically neutral position.
3. In males make certain the genitalia are elevated up out of the groin area and not entrapped by the device.

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\*Stabilization may be facilitated by binding the patient's legs together.

## SOFT TISSUE AVULSIONS OR AMPUTATIONS

### ATTACHED TISSUE:

1. If grossly contaminated, rinse with normal saline.
2. Return to normal position.
3. Secure with saline-moistened dressing.
4. Control bleeding with direct pressure.

### UNATTACHED TISSUE:

1. If grossly contaminated, rinse with normal saline.
2. Wrap in saline-moistened gauze.
3. Place unattached tissue inside waterproof container, i.e. glove or plastic bag.
4. Keep the unattached tissue cool, but, do not place tissue in direct contact with ice or cold pack.
5. Transport the unattached tissue with the patient, if possible.

## SPINAL TRAUMA

1. Take spinal precautions.
2. Maintain patent airway, while observing spinal precautions.
3. Maintain neutral position when inserting airway adjuncts.
4. Administer high flow O<sub>2</sub>.
5. Perform motor response and sensory status assessment.
6. Immobilize the C spine in a neutral position, unless there is mechanical resistance or new neurologic symptoms associated with this in-line positioning.
7. If resistance or new neurologic symptoms develop during positioning and the airway is adequate, immobilize the cervical spine in the position encountered.
8. Perform frequent airway, vital signs, and neurologic status assessments.
9. Consider neurogenic shock.
10. Establish large bore IV of NS at TKO rate, unless shock is present.
11. If shock is present, run fluids wide open and titrate to maintain a systolic BP of 90.

# **SECTION 7: ENVIRONMENTAL PROTOCOLS**

## DROWNING

1. Administer **O<sub>2</sub>** to 100% oxygenation. Assist ventilation, as necessary.  
Consider **CPAP**. Also consider **endotracheal intubation**, if necessary.
2. Take spinal precautions.
3. Apply cardiac monitor and establish IV/IO access.
4. Monitor pulse oximetry, if available.
5. Hyperventilate patient once airway control is established and consider PEEP valve (Adult: 30/min; Pediatric: 35-50/min).
6. Obtain core temperature with low read thermometer.
7. All submersion patients who may have experienced near-drowning should be transported to a hospital for evaluation.
8. In cases of cold-water drowning, do not abandon resuscitative efforts until all ALS measures have been tried and patient's core temperature has been normalized. In extended underwater time (> 1 hour) contact Medical Control for concurrence with not initiating resuscitation.

## FROSTBITE

1. Gentle assessment (cellular ice crystal damage may result from rough handling).
2. Protect patient from further exposure.
3. Remove frozen, wet, or restrictive clothing from patient.
4. Permit only gradual warming by room temperature out of hospital, provided you can ensure refreezing will not occur.
5. Protect damaged areas with loose, dry sterile dressings (be prepared to splint).
6. Elevate affected extremities. Do not allow patient to use affected areas.
7. Establish IV/IO access.
8. Administer NS at TKO rate.
9. For severe pain, administer **fentanyl** at 0.5-1 mcg/kg IV/IO/IM. May repeat in 10 minutes, up to a total dose of 3 mcg/kg.
10. Follow all ALS procedures and appropriate protocols.

## HEAT CRAMPS/ HEAT EXHAUSTION

1. Obtain vital signs and perform secondary survey, as indicated.
2. Obtain core temperature with thermometer.
3. Apply cardiac monitor.
4. Move patient to cooler environment, and remove their excess clothing.
5. Apply cool packs to forehead, neck, axilla, groin, and extremities.  
Consider evaporative airflow.
6. Administer oral fluids (water, sports drinks diluted with 2 parts water for every 1 part sport drink).
7. Establish IV/IO access.
8. Administer NS, if unable to take oral fluids or hypotensive. Administer trial of volume infusion.



## HEAT STROKE

1. Obtain vital signs and perform secondary survey, as indicated.
2. Obtain core temperature with wide range thermometer. Repeat q 5 minutes.
3. Apply cardiac monitor.
4. Move patient to cooler environment, and remove clothing. Cool aggressively with wet sheets, cool packs, and/or evaporative airflow. Lower body temperature to 102° F (39°C).
5. Administer high flow **O<sub>2</sub>**. Establish ET intubation, if necessary.
6. Establish IV/IO access.
7. Administer trial of volume infusion, unless **pulmonary edema** develops.
8. Treat **seizures**, **arrhythmias**, or unconsciousness per appropriate protocol.

## HYPOTHERMIA



Hypothermia is a state of low body temperature. When the core temperature of the body drops below 95°F (35°C), an individual is considered to be hypothermic.

**Mild Hypothermia** = A core temperature  $\geq$  90°F (32°C).

**Severe Hypothermia** = A core temperature  $<$  90°F (32°C).

Hypothermia can be attributed to inadequate thermogenesis, excessive cold stress, or a combination of both. Cardiac arrhythmias, including ventricular fibrillation, become more probable as the body's core temperature falls. The severely hypothermic patient requires assessment of pulse and respirations for at least 30 seconds every 1 to 2 minutes.



1. Remove wet garments.
2. Protect against heat loss and wind chill by using blankets, insulating materials, and moisture barriers. Remember to cover the head.
3. Maintain horizontal position. Do not elevate the extremities.  
Hypothermic patients should be handled gently at all times, because tactile stimulation may precipitate arrhythmias and/or cause tissue damage.
4. Obtain and monitor core temperature.
5. Monitor cardiac rhythm.
6. Allow a low HR, RR and BP associated with lowered metabolic rate.
7. Intubate, if unresponsive, in arrest, severe dysrhythmias, or BP  $<$  70.
8. Ventilate to keep EtCO<sub>2</sub> near 40. **DO NOT** hyperventilate. Normal respiratory rate may be hyperventilation for hypothermic patient.
9. Administer O<sub>2</sub> to 100% oxygenation, warmed if possible.
10. Start re-warming measures:
  - ✓ Heat packs to neck, armpits, and groin.
11. Turn the transport vehicle's heat to high.

12. Establish 2 large-bore IVs and infuse 500cc bolus of warmed NS (42° to 44° C). Repeat 500cc boluses until a BP  $\geq$  80 is achieved. Consider IO placement, if unable to establish IVs.
13. Monitor for CHF due to sluggish myocardial contractility.
14. Re-warm by 1°C (2°F) per hour.
15. Unconscious Patient:
  - I. Perform **blood glucose test**. If blood glucose is < 60, obtain blood sample. Administer 50 ml of **50% dextrose**, IV/IO.
  - II. Administer 2 mg of **naloxone (Narcan®)**, IV/IO.\*
16. Pulseless Patient
  - A. Core temperature < 30C (86F):
    - I. Perform CPR.
    - II. Withhold IV medications until temperature is > 30°C (86°F).
    - III. Limit to 1 shock for VF/ VT.
    - IV. Transport patient to hospital.
  - B. Core temperature > 30°C (86°F):
    - I. Perform CPR.
    - II. Administer IV medications as indicated, but at increased intervals between doses.
    - III. Repeat defibrillation for VF/ VT as core temperature rises.
17. If patient arrests, re-warming to 35°C (95°F) is essential before resuscitative efforts may be terminated. If patient is hypothermic and in arrest for an unknown or prolonged period of time prior to arrival consider contacting medical control for advice on how to proceed.
18. When deciding your destination, consider availability of cardiac bypass for re-warming in patients with PEA. Contact medical control for advice if uncertain.

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\*Narcan® may be given via IM, IO or Mucosal Atomization Device (MAD) if regular IV access cannot be established.

# **SECTION 8: RESPIRATORY PROTOCOLS**

## AIRWAY OBSTRUCTION: ADULT

1. Ask, "Are you choking?"
2. Perform abdominal thrusts/Heimlich maneuver. Perform chest thrusts for pregnant or obese victims.
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.
4. Lower victim to floor. If victim is unresponsive with no breathing or no normal breathing (i.e., agonal gasps), begin CPR (no pulse check).
5. Before you begin breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. Reattempt ventilations.
7. If unable to ventilate patient, attempt to remove obstruction(s) using laryngoscope and McGill forceps.
8. If obstruction persists, consider percutaneous **needle cricothyrotomy**.

## ASTHMA

1. Allow patient to assume position of comfort.
2. Administer high flow **O<sub>2</sub>**.<sup>\*</sup>
3. Establish IV/IO access.
4. Apply cardiac monitor.
5. Consider administration of unit dose **albuterol (Ventolin®)** and **ipratropium bromide (Atrovent®)** treatment, using small volume nebulizer.
6. Repeat administration of Ventolin® treatment only, using small volume nebulizer. May be continued if symptoms persist.
7. Consider administering **epinephrine** at 1:1 000, 0.01 mg/kg IM,<sup>†</sup> maximum initial adult dosage of 0.3 mg.
8. Consider **CPAP**, if patient's condition is appropriate. Consider **endotracheal intubation**, if patient is in obvious respiratory failure.
9. If patient's respiratory effort is or becomes inadequate, consider ET intubation.

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<sup>\*</sup>If patient has a history of emphysema/COPD, consider lower rate of O<sub>2</sub> administration.

<sup>†</sup>If patient's age is > 40 and/or has known coronary artery disease, use with caution.

## CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

1. Allow patient to assume position of comfort.
2. Administer low flow **O<sub>2</sub>**. Increase flow, as needed.
3. Apply cardiac monitor and establish IV/IO access.
4. Consider administration of unit dose **albuterol (Ventolin<sup>®</sup>)** and **ipratropium bromide (Atrovent<sup>®</sup>)** treatment using small volume nebulizer.
5. Repeat administration of Ventolin<sup>®</sup> treatment only, using small volume nebulizer. If symptoms persist, repeated treatments of Ventolin<sup>®</sup> may be given continuously.
6. If severe respiratory distress is present, consider **CPAP**.
7. If patient has a decline in their level of consciousness and/or inadequate respiratory effort, consider **endotracheal intubation**.

## Tracheostomy/Stoma Emergency Airway Management

**INTRODUCTION:** Patients with a tracheostomy tube in place or open stoma may fall into one of two categories.

1. **Tracheostomy** patients have intact airway anatomy between the tracheostomy and their mouth/nose.
2. Total **laryngectomy** patients rely entirely on their open stoma for their airway. Airway emergencies for both patient types most commonly result from obstruction.

**PROCEDURE:** Maintain proper PPE/BSI precautions. If patient is in need of ventilator assistance due to respiratory failure/arrest or airway obstruction:

### For patients with tracheostomy tube in place:

1. Attempt to ventilate with **bag-valve mask** through tracheostomy tube if bag-valve will connect.
2. If unable to ventilate through tracheostomy tube, attempt to ventilate with bag-valve-mask sealed over mouth and nose while occluding tracheostomy tube.
3. If airway obstruction is encountered, suction down tracheostomy with appropriate size suction catheter:
  - I. Advance catheter gently until resistance is felt.
  - II. Withdraw about 2 cm then apply continuous suction while withdrawing.
  - III. Suction procedure should not exceed 10 seconds.
4. Reattempt ventilation through tracheostomy tube.
5. If obstruction persists, remove tracheostomy tube.
6. **BLS:** Attempt to ventilate through stoma using bag-valve and pediatric mask.
7. **ALS:** Insert appropriate size cuffed endotracheal tube into stoma.
8. Inflate cuff and reattempt ventilation through ET Tube.



9. Confirm proper placement:

- ✓ Check for chest rise
- ✓ Auscultate over epigastrium
- ✓ Auscultate chest for bilateral breath sounds
- ✓ Observe for fogging/misting in ET Tube
- ✓ End Tidal CO<sub>2</sub>

**Laryngectomy/open stoma patients or those with a tube that cannot be connected to bag-valve mask:**

1. Remove stoma cover, if present.
2. Remove inner tube, if present.
3. Suction through open stoma with appropriate size catheter, if obstruction suspected.
  - I. Advance catheter gently until resistance is felt.
  - II. Withdraw about 2 cm then apply continuous suction while withdrawing.
  - III. Suction procedure should not exceed 10 seconds.
4. **BLS:** Attempt to ventilate through stoma with bag-valve- and pediatric mask.
5. **ALS:** Insert appropriate size cuffed ET Tube and inflate cuff.
6. Confirm proper placement:
  - ✓ Check for chest rise
  - ✓ Auscultate over epigastrium
  - ✓ Auscultate chest for bilateral breath sounds
  - ✓ Observe for fogging/misting in ET Tube
  - ✓ End Tidal CO<sub>2</sub>
7. Suction down ET Tube with appropriate sized catheter, if necessary.
8. Continue ventilations through ET Tube. Monitor capnography and oximetry.

# **SECTION 9: SPECIAL SITUATION PROTOCOLS**

## CARDIAC ARREST DUE TO PHYSICAL TRAUMA

Cardiac arrest due to major blunt or penetrating trauma is managed differently than the routine cardiac arrest that is not accompanied by hypovolemia, tension pneumothorax, or cardiac tamponade. Initial management is the same, the ABC's of resuscitation, with maintenance of the airway (using the jaw-thrust without head-tilt because of the high frequency of concomitant neck injuries), rescue breathing, and support of circulation (chest compressions). Patients who exhibit respiratory distress and who require respiratory support are preferably intubated orotracheally, if it can be accomplished without excessive movement of the cervical spine. If **endotracheal intubation** cannot be performed rapidly and safely, a rescue airway may provide an alternative method of airway management.

Tension pneumothorax should be suspected in any major trauma patient, in particular those with obvious blunt or penetrating trauma to the chest. If there are clinical findings that support the presence of a tension pneumothorax (diminished breath sounds, usually on one side; JVD; asymmetric chest expansion; subcutaneous emphysema; tracheal deviation), perform a **needle thoracostomy**.

At least 2 large bore IV lines should be inserted, preferably in different extremities. Intravenous LR/NS should be infused rapidly as needed to maintain arterial pressure and perfusion, on the assumption that hypotension is due to hypovolemia unless there is evidence to the contrary in a severely injured accident victim.

Extensive, time-consuming care of trauma victims in the field is usually not warranted. However, there is evidence that the initiation of basic and advanced life support by paramedics for trauma cardiac arrest victims may improve rate of survival. The final decision whether to “load and go” or to begin definitive care prior to transport must be based on the unique characteristics of each incident.

## FATAL AND NON-FATAL DROWNING

**DEFINITION:** Drowning is defined as death due to submersion (and usually suffocation) in water or other fluids. Near drowning is the term used when recovery, at least temporarily, occurs following submersion injury. Ten to 15 percent of drownings occur without aspiration of water or gastric contents. Some near drowning victims have recurrence of respiratory symptoms 3-4 hours or less after initial episode.

**PATHOPHYSIOLOGY:** The major physiological consequences of near drowning are hypoxia, acidosis, and **pulmonary edema**.

- Hypoxia results from the lack of air exchange from the damage caused by the inhalation of fluid. Often there is a combined respiratory metabolic acidosis.
- Pulmonary edema occurs in up to 75% of near drowning cases. Aspiration of hypertonic seawater (approximately 3% sodium chloride) is associated with a shift of intravascular fluid into the alveoli. Fresh water aspiration causes pulmonary edema by injuring the alveolar capillary membrane and removing surfactant(s), allowing protein rich plasma to enter the alveolar space.

Drowning may be associated with other injuries, i.e. spinal cord damage (diving), air embolism (scuba diving) or **hypothermia**; and it may occur as a complication of alcohol or other drug ingestion, **hypoglycemia**, or **seizures**.

**SCENE ASSESSMENT:** If rescue needed, notify Spokane County Sheriff's Office immediately to activate the Dive Rescue Team. **DO NOT** enter the water to attempt to rescue a drowning victim unless you are qualified in water rescue. Think of your own safety first - we don't need more victims.

**INITIAL TREATMENT:** Once the victim has been reached, effective respiratory support should be the primary goal. An open airway and BVM ventilation should be started as soon as these techniques can be performed safely. Attempts to drain water from the breathing passages by any means other than postural drainage or suction are not necessary or advisable and may increase the risk of vomiting and aspiration. Any foreign body should be removed using appropriate procedures.

As soon as the victim is in a stable position, the carotid pulse should be checked. The pulse may be hard to detect because of vasoconstriction or depression of the cardiac output of the victim. If no pulse, begin chest compressions.

**ALS MEASURES:** The initial goal of ALS is to secure and enhance the airway through **endotracheal intubation** and suction. Take spinal precautions throughout the rescue attempt, if necessary. The highest concentration of **O<sub>2</sub>** should be delivered. Establish a large bore IV of LR/NS with appropriate infusion rates. Monitor the cardiac rhythm and treat **arrhythmias** appropriately. Obtain core temperature during transport as the patient may be hypothermic. Use of **sodium bicarbonate (NaHCO<sub>3</sub>)** is not recommended. Treat for hypothermia.

All victims of near drowning, no matter how mild the episode appears to have been, should be taken to the hospital (not the doctor's office) for evaluation and observation. Patients who go on to develop delayed symptoms (secondary drowning) usually display signs of respiratory distress within the first 4 hours. These patients should be admitted to the hospital for further observation and treatment.

## ELECTROCUTION

**PATHOPHYSIOLOGY:** The danger of cardiac arrest is related principally to the magnitude and duration of the electrical current. The voltage of the electrical source and the electrical resistance of the body tissues through which the electricity passes are only important in that they determine the magnitude of the current flow. Alternating current at 60 Hertz (the frequency used by power companies) is generally more dangerous to humans than direct current at any given voltage because it is more likely to induce **ventricular fibrillation**.

When a low current intensity (1 milliamperes, or mA) is applied from the body surface, there is little danger of harm and the electrical current is usually felt as a tingling sensation in the area of contact. Progressively higher currents cause increasingly unpleasant and painful sensations. At approximately 10 mA, tetanic muscular contractions may occur, which may make it difficult or impossible for a hand grasping an object with an electrical current to let go. The current at which it is not possible to release an energized object varies considerably from person to person within the range of 30 mA. At 40-50 mA the tetanic contractions may involve all muscles, including the diaphragm and the intercostals, causing respiratory arrest until the current flow stops. With contact of short duration at this current level normal respiration usually resumes immediately after the current flow ceases. Longer contact can cause prolonged apnea with resultant hypoxemia, tissue hypoxia, secondary cardiac arrest, and death.

Higher currents (100 mA to several amperes), even of brief duration, can directly induce ventricular fibrillation. Brief duration shocks at or just above 10 mA may result in a current flow of sufficient strength that the heart holds its contraction in systole until release of the current. This is thought to protect against or reverse ventricular fibrillation in some circumstances. Defibrillators used in resuscitation deliver current in this range.

Higher current flow (several tens of amperes) may cause prolonged respiratory arrest. Massive currents of several hundred amperes can induce both respiratory and cardiac **arrhythmia**, including ventricular fibrillation. The victim of such a massive electrical shock rarely remains conscious. Electrical power linemen receiving such injuries have been reported to climb

down the utility pole before collapsing in cardiac arrest, presumably due to a ventricular arrhythmia.

The passage of electrical current through body tissue generates heat and may produce injuries similar to that of a **burn** or **crush injury**. Current often flows along nerves and blood vessels where there is disruption of the vascular endothelium and thrombosis. The resulting thermal injury may be of sufficient severity to require debridement, escharotomy, fasciotomy, or amputation.

Secondary injuries, caused when the victim is thrown by contact with an electrical source, may include cervical spine or other bony fractures, closed **head injury**, and peripheral nerve damage. Myoglobinuria may occur due to muscular injury.

**LIGHTNING:** Acts as a massive DC countershock, depolarizing the entire myocardium at once, following which the heart's normal rhythm may resume. In one published series, death occurred in 45% (30 of 66) victims struck by lightning. The patients who died were those who suffered an immediate **cardiac arrest**. Respiratory arrest often lasts longer than **asystole** and the victim may die from hypoxia if CPR is not started promptly. Patients who do not arrest immediately have an excellent chance of recovery.

**MANAGEMENT OF THE VICTIM OF SEVERE ELECTRIC SHOCK:** The rescuer must be certain that the current is off before attempting to touch the victim or move the victim from the electrical source. If possible, the current should be switched off at its source. Rescuers should not touch a victim who is still in contact with an active current source. If unconscious, the victim should be assessed for the presence of adequate breathing and circulation. Rescue breathing and chest compressions should be started when indicated, taking care to protect the cervical spine from further motion or injury if there is any likelihood that the victim was thrown or suffered a fall. In such a case the chin-lift or jaw-thrust, without head-tilt, should be used to open the airway. A cervical collar or its equivalent should be used if available. Any obvious orthopedic injury should be immobilized.

When a power lineman on a utility pole is electrocuted, rescue breathing can often be initiated by rescuers on the pole, with chest compressions, if needed, as soon as the victim can be lowered to the ground. Even with no loss of consciousness, a victim of high-voltage electrical shock should receive cardiac monitoring and transport to the hospital due to the danger of delayed cardiac arrest from a life-threatening arrhythmia.

Since virtually all victims of lightning injury who do not go into immediate arrest survive, when multiple victims are simultaneously struck by lightning, individuals who appear clinically dead immediately following the strike should be treated before other victims showing signs of life. Most patients who are successfully resuscitated from cardiac arrest due to lightning or other high voltage electrical shock injury will have return of spontaneous respirations within 30 minutes. Complete recovery has been reported after resuscitation of up to several hours in some patients. The victim of cardiac arrest due to electrical shock may warrant prolonged aggressive efforts in certain circumstances. The decision to terminate resuscitation should be made by a physician well versed in the treatment of electrical injuries based on all the factors unique to the specific incident.

When significant crush or burn injury is suspected, IV fluids (NS) should be administered at a rate sufficient to maintain the urine output at 50-100 ml/hr, to minimize the likelihood of renal shutdown due to myoglobinuria and/or dehydration from third space fluid loss.



## EMS RESPONSE TO METH LAB RELATED INJURIES

- ✓ **The Hazardous Materials Response** policy should be applied to all responses involving meth labs and patients exposed to hazardous materials in that environment, unless otherwise indicated by reference material regarding the exposure. The Hazmat team should be involved early to provide expert guidance regarding provider precautions and patient treatment.
- ✓ Protect yourself and others from any significant exposure.
- ✓ In particular, avoid exposure to noxious gases and smoke without proper protective gear.
- ✓ Patients contaminated with chemical substances involved in the manufacturing of methamphetamine should undergo basic decontamination prior to transport.
- ✓ Patients suffering from respiratory symptoms should receive appropriate respiratory support.
- ✓ All potentially contaminated clothing should be removed.
- ✓ Patients with eye or skin exposure should have any apparent dry chemicals brushed off the skin surface. Exposed areas should be flushed with large amounts of low pressure water for 15 minutes.
- ✓ HEAR Radio patch to the hospital should use a Hazmat prefix with the appropriate code, i.e. red, yellow, or green, identifying the severity of the patient's injuries. In addition, the hospital should be notified that the patient has undergone basic decontamination.

## HYPOTHERMIA

**DEFINITION:** **Hypothermia** is defined as a core body temperature below 35° C (95° F). Because many standard medical thermometers do not read below 34.4° C (94° F), clinical hypothermia can be easily overlooked. Most clinically significant episodes of hypothermia result from a fall in core body temperature due to injury, immersion in cold water, or prolonged exposure to a cold environment. The very young and the very old are the most susceptible to hypothermia. Infants lose the same amount of heat per unit of body surface area as adults but cannot produce as much heat as adults. Infants also have a larger body surface area relative to total body mass than adults. Older individuals have a lower metabolic rate than the young, making it difficult for them to maintain a normal body temperature when subjected to an ambient temperature below 18° C (64.4° F).

Alcohol ingestion increases the risk of hypothermia by causing cutaneous vasodilation, impairment of the shivering mechanism, hypothalamic dysfunction, and a lack of awareness of the environment. Other medical conditions commonly associated with the development of hypothermia include drug ingestion (especially barbiturates or phenothiazines), diabetes (especially in the presence of **hypoglycemia**), hypothyroidism, hypopituitarism, hypoadrenalism, anorexia nervosa, **head injury**, and **sepsis**. Immersion in cold water, as in near drowning, can cool the body temperature much more rapidly than exposure to cold air because the thermal conductivity of water is 32 times greater than that of air. Hypothermia can occur in previously healthy individuals (such as cross-country skiers or hikers) who become injured and are exposed to the cold for prolonged periods of time.

**CLINICAL FEATURES:** The most important clinical effort of a lowered core body temperature is a gradual and progressive decline in basal metabolic rate and oxygen consumption. Mild hypothermia (above 30° C (86° F)) results in shivering, loss of fine motor coordination, and lethargy. Below 30° C (86° F) the pupils are usually dilated and there is hyporeflexia. Reflex vasoconstriction helps to preserve the core temperature, but makes detection of the pulse and blood pressure difficult. The hypothermic patient may appear clinically dead, but may still be viable with proper diagnosis and aggressive management. Fully successful clinical recovery has occurred in a patient with

an initial core temperature as low as 17° C (62.6° F). The only way to establish the potential viability of the hypothermic patient is to attempt resuscitation and active rewarming.

Hemodynamically, mild hypothermia causes a rise in pulse rate, blood pressure, peripheral vascular resistance, central venous pressure, and cardiac output. Moderate to severe hypothermia, below 30° C (86° F), causes bradycardia, arrhythmia's (atrial fibrillation is common, but virtually any atrial, junctional, or ventricular arrhythmia can occur), hypotension, and a fall in cardiac output. The risk of **ventricular fibrillation** or **asystole**, the usual final event leading to death, increases as the temperature drops below 28° C (82.4° F).

Oxygenation and acid-base balance are altered by hypothermia. Mild hypothermia initially causes hyperventilation. As the core temperature decreases, there is respiratory depression with anoxia and carbon dioxide retention. A combined respiratory and metabolic acidosis may occur due to hypoventilation, carbon dioxide retention, reduced hepatic metabolism of organic acid due to decreased perfusion of the liver, poor peripheral perfusion, and increased lactic acid production from poor perfusion of skeletal muscle and shivering.

**GENERAL PRINCIPLES OF TREATMENT:** Early recognition of hypothermia is essential. Health care providers in the field and in the emergency department must maintain a high index of suspicion in any patient with an altered level of consciousness who has been subjected to even a modestly cool environment. A thermometer capable of registering a temperature of 30° C (86° F) or less is essential.

Because the cold heart is irritable and susceptible to serious arrhythmia, care should be taken to move the patient gently during transportation or during transfer of the patient from a litter to a hospital bed. The patient should be monitored continuously, and equipment for resuscitation (including a defibrillator) should be immediately available. The hypothermic heart is usually unresponsive to cardioactive drugs, pacemaker stimulation, and defibrillation. Nonessential interventions should generally be avoided until the

core temperature is increased above 30° C (86° F). However, indicated and necessary procedures should not be withheld. For example, **endotracheal intubation** of the severely hypothermic patient may be needed to protect the airway, to correct hypoxemia and hypercarbia, and to deliver warm humidified oxygen. There is little evidence that intubation is likely to precipitate ventricular fibrillation in this setting as long as the patient is adequately ventilated (usually with a **bag valve mask** device) and the respiratory acidosis corrected by hyperventilation prior to attempting intubation.

The effect of most drugs is diminished during hypothermia. Metabolism of drugs is usually reduced, causing accumulation in the body and potential toxicity during rewarming, if repeated doses have been administered. Nonessential drugs should generally be avoided until the temperature is corrected to above 30° C (86° F). Indicated and necessary drugs should not be withheld, although they may need to be administered in reduced doses, at less frequent intervals, or both. Hypoglycemia should be treated with glucose. Hyperglycemia during hypothermia will often correct spontaneously with rewarming. Volume depletion should be corrected.

**FIELD MANAGEMENT:** Once hypothermia is suspected, every effort should be made to minimize further heat loss, to begin the rewarming process, and to cautiously transport the patient. If possible, wet garments should be removed and replaced with dry (preferably warm) garments. Blankets and/or an insulated sleeping bag may be used to retain body heat. A normothermic rescuer may be alongside the victim underneath the covers to assist in rewarming. If available, airway rewarming with warmed humidified **oxygen** should be used because it can improve the patient's heat balance.

**HYPOTHERMIA-INDUCED CARDIAC ARREST:** Treatment of a patient in cardiac arrest due to hypothermia is different from the treatment of a normothermic patient in cardiac arrest. The most common cardiac rhythms in hypothermia induced arrest are ventricular fibrillation and asystole. However, the fibrillating hypothermic heart is often resistant to defibrillation until the core temperature is raised and the temperature at which the heart will respond to defibrillation varies. In general, defibrillation should be attempted as soon as possible. If unsuccessful, CPR should be continued and aggressive attempts should be made to rapidly rewarm the patient's core temperature. Periodically the core

temperature increases when using a combination of techniques with repeated attempts at defibrillation. The patient should be intubated as soon as possible and should be ventilated with warmed humidified oxygen.

**HOW LONG SHOULD ATTEMPTS AT RESUSCITATION BE CONTINUED?** In general, children or young adults who develop cardiac arrest due to a sudden severe drop in core temperature (as in cold water immersion) should be treated aggressively, since survival without neurological impairment may be possible. A common problem is how to manage the unwitnessed cardiac arrest victim who is found in a cool or cold environment. The victim could have arrested due to hypothermia or the cold body temperature could be due to death. The clinical maxim that patients who appear dead after prolonged exposure to cold temperature should not be considered dead until they have been restored to near normal core temperature and remain unresponsive to resuscitation cannot be applied literally in all cases. Instead, the decision to terminate resuscitation must be individualized by the physician in charge based on the unique circumstances of each incident.

## MENTAL HEALTH EMERGENCIES

**PATIENT CONTACT AND COOPERATION:** Problem behaviors that prevent contact with the patient may be present. If problem behaviors exist that the emergency care provider (responder) is not prepared to deal with, they should call for assistance. For example, if someone is threatening people with a weapon, the responder should summon the police for aid. Once contact has been made with the patient, the evaluation can proceed.

**ELICITING COOPERATION:** Active listening is the main tool employed in dealing with a problem behavior patient. It can often elicit cooperation from a resistant or violent patient. Properly used, it makes the patient feel understood and instills confidence in the responder. Active listening involves the skills of paraphrasing, perception checking, behavior describing, and feeling reflection.

A problem behavior patient can become uncooperative and even violent at any time. The following list, extracted from articles in *Hospital Physician* (1971), offers some tips a responder can use in dealing with violent patients:

- ✓ If you are afraid of the violent patient, do not pretend you are not. Your act won't fool the patient. It is better to let the patient know that, despite fear, you are in control of yourself and able to control the patient.
- ✓ Violent patients want limits and will respond when you make clear that you will restrain them and control their violent ways.
- ✓ When talking to a violent patient, stand facing them with your arms crossed. In this nonthreatening position, you can easily deflect blows above or below the belt. Some psychiatrists always talk to violent patients while sitting down. This position can have a calming effect on the patient.
- ✓ Do not try to deal with a violent patient alone in a small room. Both patient and responder need space between them. The patient may have a fear of being touched, and the responder needs room to maneuver, if attacked.
- ✓ Do not sit or stand in the way of the door while interviewing a violent patient. The patient will be less likely to attack if they feel they have a clear exit.

- ✓ Ask the violent patient if he/she owns a firearm and if so, whether it is a pistol, rifle or shotgun. Many psychiatrists feel that the pistol owner or collector is a higher risk than the rifle or shotgun owner.
- ✓ Be especially wary of the self-referred violent patient whose trademark is "If you do not hospitalize me", they are the worst risk in respect to violence. Also be wary of the pseudo-violent patient who presents as extremely tight and rigid and fears losing control. Once sedated, they may scream and carry on, but their body is very relaxed. When they are under control of the medication, they feel free to vent their feelings.

**APPROACHING THE PATIENT:** Approach the patient in a calm and decisive manner. Make it clear you are there to help and are in control of the situation. Zuni and Barr (1971) compiled the following list of don'ts in handling a psychiatric emergency:

- Ø **Don't** threaten the patient.
- Ø **Don't** openly disagree with the statements of acutely disturbed individuals, listen instead.
- Ø **Don't** make promises which cannot be kept.
- Ø **Don't** joke, laugh or discuss other patients or allow other bystanders to do so in front of the patient.
- Ø **Don't** assume that the patient is consciously manipulating without hard evidence.
- Ø **Don't** take away the patient's pride. Sometimes they may have regained control of themselves, but, both unconsciously and consciously, feel the need to continue the disturbed behavior. This may be because they are surrounded by people who saw them in an agitated state.
  
- Ø **Don't** assume that the manifestations of the acute emotional disturbance are either in part or fully psychopathic in origin until medical illness has been reasonably ruled out. Many medical disorders



can mimic emotional disturbance, such as encephalitis, meningoencephalitis, meningitis, cranial nerve paralysis, postictal state, acute cerebellar symptoms, post-concussive syndrome, Guillain-Barre syndrome, and neuropathies.

When a patient is anxious or violent, they are responding to fantasies they have about themselves in relation to the environment. The more in touch they are with reality the less anxious or violent they will become. A responder can facilitate contact with reality by carefully explaining their procedures and by giving the patient a set of expectations. For example, an injured person showing symptoms of shock may be very anxious and distressed by their circumstances. They may have seen their injury and have the fantasy they are dying. This fantasy would be further confirmed by their experiencing increased perspiration, nausea, weakness, and changes in breathing. A responder can put the patient more in touch with reality by making reassuring statements and explaining the procedures that will follow. This tends to dispel the fantasy that they are dying and reduce the severity of anxiety and shock symptoms as the procedures are carried out. The patient will have replaced their fantasy with a concrete set of expectations. In the same way, a violent patient will often reduce aggressiveness when confronted by a responder who will take charge, set limits and explain procedures.

If a patient is so agitated or violent that all techniques for eliciting cooperation fail, they must be restrained to begin intervention procedures and to prevent injury to themselves, or others.

**EVALUATION:** The responder's goal in a problem behavior evaluation is to gather information that will be useful to the physician or mental health professional in making a diagnosis. The responder's evaluation will be the basis for deciding which facility the patient is to be transported to. Active listening is the key to attaining a useful evaluation.

Occasionally a visit to an emergency scene by a responder will abate a crisis without hospitalization, but the factors underlying the problem will linger, requiring further attention. The responder should be prepared to provide the patient with a referral to where help can be found on an outpatient basis. This



may be the name of the community mental health center, mental health professional, psychiatrist, psychologist, or social worker.

Occasionally, a patient will not voluntarily be helped from a problem behavior that needs in-patient attention. In this event, the patient will have to be involuntarily committed. In the state of Washington, involuntary commitments must be completed by mental health professionals associated with county mental health facilities.

Only through practice and experience can a responder learn to be effective with problem behavior patients.

**COMMUNICATING WITH OTHER PROFESSIONALS:** Responders will usually communicate with a physician and the department will determine if a mental health professional needs to be involved. If the problem seems to be chiefly psychiatric, it is helpful, to the intake therapist, to have friends and relatives appear at the emergency department after the patient. During a crisis, many important behavior patterns can be identified by the therapist with the patient and significant others in their life. This can be of great benefit to the patient. If the physician determines that the patient needs to be sent to a mental health evaluation and treatment facility, it may be necessary for the responder to stand by and render assistance to the mental health professional. This is usually necessary when the patient is not cooperating.

The responder should be ready to prepare the patient for transfer to the appropriate facility.

As other professionals are contacted, it should be noted that they are interested in information specific to their profession. Communication with another professional is enhanced if the responder is prepared to provide the appropriate information. Below are lists showing information of specific interest to professionals whom responders communicate with regularly:

A. Child Protection Worker

- ✓ Identification: names and approximate ages of abused child, parents, guardians and other children
- ✓ Extent of abuse:

- ➔ Observed or reported by another (sometimes interfamily squabbles can lead to false complaints about child abuse)
- ➔ Subjective observation - fear, hollowness of eyes, scars, bruises, etc.
- ✓ Address or directions to child's residence
- ✓ Prior history: Has it happened before?
- ✓ Other observations: Impressions of parents and other family members, evidence of alcohol abuse, etc.

#### B. Law Enforcement

- ✓ Location at scene
- ✓ Identification of problem person. if available
- ✓ Description of problem person (a physical description quickly enables law enforcement to identify potentially dangerous people when arriving at the scene)
- ✓ Description of problem behavior:
  - ➔ A threat to self, others, or property?
  - ➔ Description of weapons involved
  - ➔ Indications of drug or alcohol abuse
- ✓ Any history of problem person (former mental patient, convict, etc.)

#### C. Physicians and Mental Health Professionals

- ✓ Identification of patient
- ✓ Age, sex, race, marital status, number of children
- ✓ Chief complaint of patient
- ✓ Acute medical problem, vital signs (especially for physicians)
- ✓ Description of problem behavior, dominating traits, secondary traits
- ✓ Evidence of precipitating circumstances
- ✓ Previous psychiatric care (briefly describe)
- ✓ Evidence of alcohol or drug abuse
- ✓ Present medication
- ✓ If currently in treatment, the name of family physician
- ✓ Brief medical history

**LEGAL CONSIDERATIONS:** Laws pertaining to emergency medical and/or problem behavior involve child abuse, alcohol, involuntary treatment, confidentiality, Good Samaritan Acts, and liability. These laws vary from state to state. The laws discussed here apply in the state of Washington. The Revised Code of Washington (RCW) 26.44 states if a child or mentally retarded person is physically or sexually abused, abandoned, or isolated from parent because of a crisis; a report of the facts must be made at the local Department of Social Services Child Protection Office or to local law enforcement. Such reports are usually not made directly by responders. This, however, needs to be decided by the individual emergency team. The law requires that after an oral report of the facts is made, a written report needs to follow.

An immediate verbal report shall be made by telephone or otherwise to the proper law enforcement agency or the Department of Social Services and upon request, shall be followed by a report in writing. Such reports shall contain the following information if known:

- ✓ Name, address and age of the child
- ✓ Name and address of the child's parents, stepparents, guardians, or other persons having custody of the child
- ✓ Nature and extent of the child's injury or injuries
- ✓ Nature and extent of the neglected child
- ✓ Nature and extent of the sexual abuse
- ✓ Any evidence of previous injuries, including their nature and extent
- ✓ Any other information which may be helpful in establishing the cause of the child's death, injury or injuries and the identity of the perpetrator or perpetrators (RCW 26.44.040)

Alcohol abuse is frequently a factor in behavior problems. In 1972, the Uniform Alcoholism Act was signed into Washington State Law (RCW 7096A). This law no longer allows treating an intoxicated person as a criminal, except in cases where a criminal act is committed in conjunction with intoxication. Police now treat an intoxicated person as someone who may need help. For example, a police officer who comes in contact with an

intoxicated person tries to aid the individual by getting them home. Police officers discourage any activity that may endanger the intoxicated person or others. The officer may determine that the person is incapacitated by alcohol. Incapacitation means the person is incapable of making a rational decision with respect to their need for alcoholism treatment or constitutes a danger to themselves, others, or property. If incapacitated, a person can be involuntarily detained in protective custody for eight hours. The person must then be examined by an alcoholism professional affiliated with community alcohol centers to confirm incapacitation. If so, the law provides that the person can involuntarily be committed to a treatment facility for at least 48 hours. Presently, few facilities exist in Washington State that can manage patients committed for alcohol incapacitation. Therefore, an alcoholism professional usually refers the person to outpatient services and they are released. Sometimes a person can be convinced to voluntarily commit themselves to an in-patient program.

If a patient, as a result of a mental disorder, presents a likelihood of serious harm to themselves or others, or is gravely disabled, a mental health professional can authorize commitment of that patient to an evaluation and treatment facility for a 72 hour evaluation. Also, a peace officer can take a person into custody and place an individual in an evaluation and treatment facility if they, as the result of a mental disorder, present an imminent likelihood of serious harm to themselves or others (RCW 71.05.150).

Juveniles, 13 years of age or younger, can be involuntarily committed with parental consent. Juveniles between the ages of 13 and 17 can be involuntarily committed only through a petition by the person's parent(s), conservator, guardian, or juvenile court. "The petition shall set forth the reasons why commitment is necessary and what alternative courses of treatment have been explored." Juveniles between the ages of 14 and 17 must give their consent for voluntary treatment and also have the consent of their parents (RCW 72.23.070). In a problem behavior emergency, the responder's consulting physician can determine if involuntary treatment is necessary and the appropriate officials can be notified.

Presently, no law exists in Washington State requiring medical personnel to report gunshot wounds or suspicious injuries. It is common practice, however,

for medical personnel to inform law enforcement officials of such injuries. Each responding team should develop a policy for these circumstances.

Patients are sensitive to facts about their personal life being known by others. Each patient has a human right to have their personal life facts disclosed only to those persons who have a professional need to know. Most helping professions have ethics regarding patient confidence. In addition, laws have been passed protecting the confidence in patient relationships with physicians and mental health professionals (RCW 5.60.060, 18.83.110). Presently, no laws in Washington protect the confidence in patient-responder relationships.

The Good Samaritan Act protects any person who, while acting in good faith and not for compensation, renders emergency care or transportation for emergency medical treatment (RCW 4.24.300). The law protects from liability if the patient files suit against them. Some responders are not compensated and would be covered by this law.

EMS personnel are protected from liability, while rendering emergency lifesaving service under the responsible supervision and control of a licensed physician, to a person who is in immediate danger of loss of life (In act of attempting suicide)(RCW 18.71.210).

Physicians or hospitals licensed in Washington State are not liable for failure to obtain consent in rendering emergency medical surgical, hospital or health services (18.71.220). Perhaps responders employed by the hospital are protected by this law. Malpractice claims involving a problem behavior patient might likely result from breeches of confidence and the use of physical restraints.

## PREGNANCY AND CARDIAC ARREST



The dramatic alterations in maternal cardiovascular physiology induced by pregnancy make cardiopulmonary resuscitation of expectant mothers unique. During pregnancy, maternal blood volume and cardiac output increase by up to 150% more than nonpregnant levels. Uterine blood flow increases between 20-30% during the last trimester of pregnancy to accommodate the needs of the fetus. In order to permit this marked, but essential increase in flow, the utero-placental vascular bed must be maximally dilated. In addition, when the mother is supine, the gravid uterus may compress the iliac vessels, the inferior vena cava, and the abdominal aorta, resulting in hypotension and as much as a 25 times reduction in cardiac output.



**MANAGEMENT OF CARDIAC ARREST DURING PREGNANCY:** When cardiac arrest occurs in a pregnant woman before the 24<sup>th</sup> week of gestation (the putative onset of fetal viability), the rescuer's primary concern should be directed towards saving the mother, whose chances of survival are far better than those of the fetus. Conventional therapy and procedures applicable to any arrest situation should be used as indicated and appropriate.

Beyond the 24<sup>th</sup> week of gestation, the rescuer must consider the life of the potentially viable fetus as well as that of the mother. Precipitating events for cardiac arrest include arrhythmia, congestive heart failure, myocardial infarction, or intracranial hemorrhage in a toxemic patient. Spontaneous bleeding, including intrahepatic bleeding, may occur, resulting in hypovolemia.

Most of the standard resuscitation procedures can and should be applied without modification. For example, if **ventricular fibrillation** is present, it should be treated with defibrillation according to the ventricular fibrillation algorithm. Closed-chest compressions and support of ventilation may be done conventionally. To obviate the effects of the gravid uterus on venous return, a wedge, such as a pillow or other similar device, should be placed under the right abdominal flank and hip to gently push the uterus to the left side of the abdomen.

**AHA RECOMMENDATIONS:**

- ✓ Do not delay defibrillation
- ✓ Give typical ACLS drugs and dosages
- ✓ Ventilate with 100% oxygen
- ✓ Monitor waveform capnography and CPR quality
- ✓ Provide post cardiac arrest care as appropriate

**MATERNAL MODIFICATIONS:**

- ✓ Start IV above the diaphragm
- ✓ Assess for hypovolemia and give fluid bolus when required
- ✓ Anticipate difficult airway; experienced provider preferred for advanced airway placement

**COMPLICATIONS FROM CPR:** Maternal complications that can occur when CPR is performed during pregnancy include laceration of the liver, uterine rupture, hemothorax, and hemopericardium.

## RIGHT VENTRICULAR INFARCTION

**PATHOPHYSIOLOGY:** Isolated right ventricular infarction (RVI) is extremely rare and it is usually seen as a complication of another infarction. RVI's seldom exist alone and are almost always seen accompanying an inferior infarct. The coronary artery involved is usually an occluded right coronary artery (RCA). Approximately 30-50 percent of inferior wall myocardial infarctions involve the right ventricle. The right ventricle is not designed to provide systemic circulation. Its purpose is to pump blood through the lungs and pulmonary circuit. Thus, the pressures it is required to produce are less, and it has a thinner wall than the left ventricle. Its functional abilities are dependent upon preload or the volume of venous return to the heart. Any reduction in venous return will result in diminished pumping pressure by the right ventricle, diminished pulmonary circulation, diminished left ventricular filling, diminished cardiac output, diminished systemic blood pressure and, if not corrected, possible dysrhythmias, shock, and death.

**DIAGNOSIS:** Cardinal signs of RVI are unexplained hypotension, distended jugular veins with Kussmaul's sign (increased jugular vein pressure on inspiration) and clear lung sounds. RVI can be diagnosed by the presence of ST-segment elevation in the right precordial lead V<sub>4</sub> (rV<sub>4</sub>), in the setting of an inferior wall myocardial infarction. A 12-lead tracing that shows ST segment elevation in any of the inferior leads (II, III, or a VF) or relative ST segment depression in V<sub>2</sub> or V<sub>3</sub>, compared with the lead V<sub>1</sub>, should immediately trigger the acquisition of a right-sided 12-lead. To obtain a field tracing of a right-sided 12-lead, reposition lead V<sub>4</sub> to V<sub>4</sub>R by placing in the fifth intercostals space, midclavicular line, on the right side of the chest. ST segment elevation in V<sub>4</sub>R is considered diagnostic for RVI. The T wave in V<sub>4</sub>R usually has a convex or "domed" shape when injury is present. RVI is usually present if ST segment elevation in lead III is greater than ST segment elevation found in lead II in the setting of an inferior wall myocardial infarction.



# **SECTION 10: BLS/ILS AND SUPPLEMENTAL PROTOCOLS**

## ASPIRIN

### INDICATIONS FOR USE IN AN ACUTE CORONARY EVENT:

Patient exhibits any of the following signs or symptoms:

- ✓ Uncomfortable pressure, fullness, squeezing, or pain in the center of the chest that lasts more than a few minutes or goes away and comes back
- ✓ Pain that spreads to the shoulders, neck or arms
- ✓ Chest discomfort with lightheadedness, fainting, sweating, nausea, or shortness of breath
- ✓ Patient exhibits any 2 of the following signs or symptoms, and you think it is of cardiac origin:
- ✓ Atypical chest pain, stomach or abdominal pain. This may include discomfort that can be localized to a point that is “sharp” in nature, that is reproducible by palpation, or that is in the “wrong” location (such as the upper abdomen).
- ✓ Unexplained nausea (without vomiting) or lightheadedness (not vertigo)
- ✓ Without chest pain
- ✓ Shortness of breath and difficulty breathing, without chest pain
- ✓ Unexplained anxiety, weakness, or fatigue.
- ✓ Palpitations, cold sweat, or paleness.

### CONTRAINDICATIONS FOR USE:

- ✓ Patient is allergic to **aspirin** or ibuprofen (Motrin®, Advil®)\*.
- ✓ If they have just taken aspirin for this event, do not administer aspirin.

### PROCEDURE:

1. ALS/ILS upgrade and evaluation required unless ALS/ILS is unavailable.
2. Ensure the patient is alert and responsive.
3. If the patient has their own nitroglycerin and meets the criteria for administration, do not delay in administering nitroglycerin.

4. Administer 325mg<sup>†</sup> of aspirin.
5. Record your actions, including the dosage and the time of administration.

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\*Also, any non-steroidal anti-inflammatory drug (NSAIDS)

†Four baby aspirin or 1 adult aspirin

## **BLS AIRWAY OBSTRUCTION: ADULT**

### **ADULT (PUBERTY AND OLDER):**

1. Ask, "Are you choking?"
2. Perform abdominal thrusts/Heimlich maneuver or chest thrusts for pregnant or obese victims.
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.
4. Lower victim to floor, if victim is unresponsive with no breathing or no normal breathing (i.e., agonal gasps), begin CPR (no pulse check).
5. Before you begin breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. Continue CPR until ALS arrives or during ALS rendezvous.

## **BLS AIRWAY OBSTRUCTION: PEDIATRIC**

### **INFANT (LESS THAN 1 YEAR OF AGE):**

1. Confirm severe airway obstruction. Check for the sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry.
2. Give up to 5 back slaps and up to 5 chest thrusts.
3. Repeat step 2 until effective or victim becomes unresponsive.
4. If victim is unresponsive with no breathing or no normal breathing (i.e., agonal gasps), begin CPR (no pulse check).
5. Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. Continue CPR until ALS arrives or throughout ALS rendezvous

### **CHILD (1 YEAR TO ADOLESCENT (PUBERTY)):**

1. Ask "Are you choking?"
2. Give abdominal thrusts/Heimlich maneuver.
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.
4. If victim is unresponsive with no breathing or no normal breathing (i.e., agonal gasps), begin CPR (no pulse check).
5. Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
6. Continue CPR until ALS arrives or throughout ALS rendezvous.

## EMT GLUCOSE TESTING

### POLICY:

1. Blood Glucose Testing is a procedure approved by the Medical Program Director for use by the certified EMTB. It is to be used in agencies that wish to adopt it as part of their program.
2. The Medical Program Director or designee is responsible for managing skill retention, reviewing, monitoring, and making recommendations regarding the system's program.

**PREREQUISITES:** The student will be an EMT basic or above

### COURSE DESCRIPTION:

- ✓ The course is designed to be a minimum of 1 hour in length and combining lecture with hands-on practice
- ✓ The instructor can be anyone competent in using the glucose machine that each department has. This most likely would be their paramedic partner
- ✓ Module I:
  - Lecture with equipment display 1/2 hour
- ✓ Module II:
  - Lab with hands-on practice in the field

### EQUIPMENT:

- |  |                    |
|--|--------------------|
| ✓ Policies for infection control, quality control, and guidelines for use of blood glucose monitoring supplies | ✓ Lancets          |
| ✓ Blood glucose strips and/or monitor (same as will be used in the field)                                      | ✓ 2 x 2s           |
|  | ✓ Alcohol swabs    |
|  | ✓ Gloves           |
|  | ✓ Sharps container |
|  | ✓ Check off sheet  |

### COURSE COMPETENCIES:

Upon successful completion of this course, the student shall be able to:

- ✓ Describe the purpose of blood glucose monitoring
- ✓ Describe and demonstrate methods necessary to prevent cross contamination through the use of equipment by adherence to universal blood and body fluid precautions
- ✓ Demonstrate the correct technique for individual strip and/or instrumentation operation to include
  - Specimen collection and infection control
  - Instrumentation calibration
  - Test performance
  - Individual instrumentation display codes and troubleshooting procedures
  - Documentation of results and proper follow-up of abnormal test results in a timely fashion
- ✓ Demonstrate proper quality control testing, and documentation of results, and corrective actions
- ✓ Discuss preventative maintenance of strips and/or instrumentation to include documentation and follow-up
- ✓ List and describe the indications for blood glucose testing as stated in the protocols
- ✓ Describe the contraindications for blood glucose testing

#### **COURSE CONTENT MODULE I, LECTURE:**

##### **1. Description**

- ✓ Blood glucose testing is an invasive diagnostic aid to assist in the management of ALS patients with specific signs and symptoms. Patient care, treatment, and outcome may be improved with its use
- ✓ Blood glucose testing may be performed only with the approval of the county Medical Program Director
- ✓ Normal supportive therapy, airway management, and peripheral IV access should not be affected by blood glucose testing

##### **2. Indications:** As outlined in the NW Region Protocols

3. **Contraindications:** Use of strips or instrumentation that has failed QC testing and with no corrective action taken.
4. **Special considerations:**
  - A. Infection control:
    - ✓ Adherence to Universal Blood and Body Fluid Precautions during use
    - ✓ Disposal of lancets, disposable equipment, and contaminated strips in proper containers at point of use
    - ✓ Proper disinfection procedure for instrumentation
  - B. Storage and handling:
    - ✓ According to manufacturer's recommendations
    - ✓ Do not use after expiration date
  - C. Complications:
    - ✓ Following proper technique, infection, and quality control procedures avoids any complications
5. **Regulatory issues:**
  - ✓ Quality control and preventative maintenance
  - ✓ External proficiency testing
  - ✓ Competency checks
6. **Procedure for Blood Glucose Testing**
  - I. Identify the need for blood glucose testing (protocols).
  - II. Assemble and prepare the proper equipment.
  - III. Prepare patient for the procedure.
  - IV. Obtain the specimen.
  - V. Perform the test according to the manufacturer's instructions.
  - VI. Document and report the results.
  - VII. These guidelines are not intended to alter current protocols, but to enhance them. The use of this diagnostic aid could improve patient outcome.

**Quality Control Procedure:** Quality control testing will be performed weekly with a high and low quality control solution.



**COURSE CONTENT MODULE II, LAB:**

1. After completing Module I, Module II may be done in the field with the EMT's partner as their preceptor. No one, however, can perform any glucose testing without first completing Module I.
2. In the situation of a live patient, the EMT will be guided by their preceptor/partner through the process, if time permits.
  - ✓ Patient care is not to be compromised for the sake of an EMT learning a new procedure. The educational situation will be delayed until a more appropriate time becomes available.
3. After the EMT has been observed doing three blood glucose tests by their preceptor/partner, they are to be checked off on the check off sheet. This will give them the ability to perform the skill proficiently.
4. All EMTs will be observed from time to time doing a blood glucose test for quality improvement review.

**SEE NEXT PAGE FOR CHECK OFF SHEET**

## BLOOD GLUCOSE MONITORING BY EMTB CHECK OFF SHEET

Student's Name \_\_\_\_\_

-

Date: \_\_\_\_\_ Evaluator: \_\_\_\_\_

CRITERIA	Pts possible	Pts attained
Assess patient and correctly identifies the need for blood glucose test. (Identifies protocols)	2	
Prepares the patient for test	1	
Assembles materials and prepares environment	1	
Calibrates instrument	1	
Obtains blood sample	1	
Correctly performs procedure according to manufacturer instructions	1	
Reports value, correct treatment suggestion	1	

Total \_\_\_\_\_

**Critical Criteria:**

Failure to meet any of the critical criteria constitutes automatic failure. The student will discuss with the Medical Program Director prior to retesting.

\_\_\_\_\_ Fails to properly perform Blood glucose testing

\_\_\_\_\_ Performs any technique resulting in potential harm to the patient

Eight points required for passing

I attest to the accuracy and validity of the above information. I certify that the named student has met the applicable conditions put forth by Spokane County for utilization of Blood Glucose Testing.

\_\_\_\_\_  
EMS Officer or designee

\_\_\_\_\_  
Date

## EMT NALOXONE ADMINISTRATION FOR SUSPECTED OPIATE OVERDOSEAGE

### WASHINGTON STATE DEPARTMENT OF HEALTH PROTOCOL

#### Indications

- ✓ Respiratory compromise
- ✓ Abnormal breathing
- ✓ RR <6
- ✓ ALOC
- ✓ Pinpoint pupils

#### Contraindications

None when used in a life-threatening emergency

#### Intervention/ Treatment Protocol

##### Scene-Size-Up

- ✓ Personnel Safety
- ✓ Drug paraphernalia (needles, cooking material, pill bottles etc.)

##### Intervention Procedure:

1. Obtain history as possible.
2. Rapid physical assessment:
  - ✓ ALOC
  - ✓ Respiratory rate, abnormal breathing
  - ✓ Pulse rate, BP if possible
  - ✓ Pupillary size, look for pinpoint pupils
  - ✓ Evidence of drug use (needle tracks, syringes, pills, powder)
3. If pulseless, CPR as per ACLS guidelines (delay supraglottic airway).
4. Apnea with pulse, oral airway (not supraglottic airway) ventilate with 100% O<sub>2</sub>.

5. Administer **Naloxone** (Narcan®):
  - i. Open kit and or load 2 mg ( 2 ml) Naloxone in syringe
  - ii. Attach atomizer to syringe
  - iii. Place atomizer into nostril
  - iv. Briskly compress syringe to administer 1 ml of atomized spray
  - v. Remove atomizer and repeat above in the other nostril
6. Reevaluate LOC, respirations, pulse continuously. Perform rescue breathing and CPR as needed. Naloxone IN will take 3-5 minutes to take effect. Spontaneous breathing is the goal.
7. If no improvement in 3-5 minutes, the 2 mg dose may be repeated.
8. Be prepared to manage patient agitation and combativeness.

## MARK 1 KIT (ATROPINE AND 2-PAM)

<b>THERAPEUTIC EFFECTS</b>	Blocks the effects of poisoning from organophosphorus pesticides and nerve agents.
<b>INDICATIONS</b>	Clear and severe symptoms of poisoning from organophosphorus or nerve agents.
<b>CONTRAINDICATIONS</b>	None
<b>PRECAUTIONS/SIDE EFFECTS</b>	Adverse reactions may occur, including blurred vision, headache, nausea, hypertension, dizziness, drowsiness, tachycardia, and hyperventilation.
<b>ADULT DOSAGE/ROUTE</b>	<ol style="list-style-type: none"> <li>1. Mild to moderate symptoms: Administer 1-2 doses IM, sequentially from the MARK 1 Kits.</li> <li>2. Severe symptoms: Administer 3 doses IM from the MARK 1 Kits</li> </ol>

## TREATMENT OF PATIENTS EXPOSED TO NERVE AGENTS GB, VX, AND ORGANOPHOSPHOROUS PESTICIDES

1. The **Hazardous Materials Response** policy should be applied to all responses involving these agents.
2. The following treatment should be considered only when the patient manifests typical symptoms of exposure to these agents and the scene is suggestive of exposure.
3. Mass Casualty Incident – Early recognition that field patient treatment needs will exceed immediately available supplies should prompt an immediate call to the CCC to initiate the release of Chempacks.
4. Symptoms:

**Table 10.1 DUMBELS MTWThF**

<b>D</b>	Defecation	<b>M</b>	Muscle weakness and paralysis
<b>U</b>	Urination	<b>T</b>	Tachycardia
<b>M</b>	Miosis	<b>W</b>	Weakness
<b>B</b>	Bronchorrhea	<b>Th</b>	Hypertension
<b>E</b>	Excitation	<b>F</b>	Fasciculations
<b>L</b>	Lacrimation		
<b>S</b>	Salivation or seizures		

**TREATMENT:** The medication you will be administering is packaged in a MARK 1 Kit.

1. Mild to moderate symptoms:
  - I. Establish a patent airway and adequate ventilation.
  - II. Administer 1 MARK 1 dose of **atropine** followed by 1 dose of **pralidoxime chloride** (2-PAM).\*
  - III. Supplement by administering **O<sub>2</sub>**.
  - IV. If symptoms persist after 5-10 minutes, repeat injections.
  - V. If symptoms persist after an additional 10 minutes, repeat injections a third time.

2. Severe symptoms (respiratory compromise, seizure, or coma):
  - I. Administer 3 auto injector kits, atropine and 2-PAM in rapid succession
  - II. If symptoms persist after third set of injections then DO NOT administer any more antidotes.
  - III. Administer 1-2 mg of **lorazepam (Ativan®)** slowly, IV/IM. May be repeated in 3-5 minutes, up to a total dose of 4 mg.<sup>†</sup>

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<sup>\*</sup>Warning: Morphine, theophylline, aminophylline, or succinylcholine should be used with caution for patients treated with 2-PAM.

<sup>†</sup>If patient's needs exceed immediately available supplies of lorazepam, diazepam, 10 mg IM may be given by autoinjector.

# SECTION 11: DRUG PROTOCOLS



## INTRODUCTION

This section of our Spokane County EMS manual lists all the drugs that are intended to be used for appropriate indications within our EMS system. Recent recurring shortages of some of these medications have required the substitution of alternative drugs with similar effects.

Within Washington State, the Medical Program Directors have identified a list of 'approved' substitute medications that may be used when the preferred drug is not available. This list appears following our regular protocol drugs.

The use of an approved substitute drug may be done **ONLY** if the following conditions are met:

1. All regular means of obtaining supplies of protocol drugs have been exhausted.
2. Early notification of an impending shortage of a protocol drug to the Medical Program Director by the EMS Officer and /or the EMS service Physician Advisor has occurred.
3. The most appropriate available substitute will be selected by the Medical Program Director in consultation with EMS service Physician Advisors and/or EMS Officers such as time and circumstance will allow.
4. Prior to the use of an alternative drug by an EMS provider they will have received training in the proper the use of the drug by their own agency or another EMS agency with a comparable scope of practice, by certified EMS instructors and/or an MPD delegated EMS physician.
5. All cases of use of the alternative medication will be reviewed within the EMS agency's Quality Improvement process for an appropriate period of time and reports made available to the MPD or agency Physician Advisor.
6. Once the preferred drug has become available, the EMS agency will reintroduce it as soon as is practical and notify their Physician Advisor as well as the Medical Program Director of their intent to reinstitute the use of the preferred drug.

## 10% DEXTROSE

<b>THERAPEUTIC EFFECTS</b>	Dextrose is a simple sugar which the body can rapidly metabolize while in a hypoglycemic state.
<b>INDICATIONS</b>	<b>Hypoglycemia</b> as suggested by lethargy or coma in a known diabetic with a documented blood sugar of < 60 mg/dl.
<b>CONTRAINDICATIONS</b>	None.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Draw sample blood and determine glucose level before administration. Ensure good venous access.
<b>ADULT DOSAGE/ROUTE</b>	<ol style="list-style-type: none"> <li>1. D10 (10% in 250 mls NS) up to 25 grams IV/IO push/drip. Repeat x1 in 5 minutes if necessary.</li> <li>2. If possible, follow with 15 grams protein after patient is CAO x 4 and able to swallow (i.e., 4 tbsp peanut butter)</li> </ol>
<b>PEDIATRIC DOSAGE/ROUTE</b>	<ol style="list-style-type: none"> <li>1. D10 (10% in 250 mls NS) 5 ml/kg. Max dose 250 ml</li> <li>2. If possible, follow with 15 grams protein after patient is CAO x 4 and able to swallow (ie 4 tbsp peanut butter)</li> </ol>
<b>SPECIAL CONSIDERATIONS</b>	If the patient regains normal responsiveness prior to infusion of the complete dose of dextrose, stop the infusion and record amount infused.


## 50% DEXTROSE

<b>THERAPEUTIC EFFECTS</b>	Dextrose is a simple sugar which the body can rapidly metabolize while in hypoglycemic states.
<b>INDICATIONS</b>	<b>Hypoglycemia</b> as suggested by lethargy or coma in a known diabetic with a documented blood sugar of < 60 mg/dl.
<b>CONTRAINDICATIONS</b>	None.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Draw sample blood and determine glucose level before administration. Ensure good venous access.
<b>ADULT DOSAGE/ROUTE</b>	50 ml of 50% dextrose (25 gm), IV/IO. May be repeated.
<b>PEDIATRIC DOSAGE/ROUTE</b>	1 ml/kg, IV/IO.
<b>INFANT DOSAGE/ROUTE</b>	1 ml/kg diluted 1:1 with NS, IV/IO.

## ACETAMINOPHEN

<b>THERAPEUTIC EFFECTS</b>	Relief of pain and fever.
<b>INDICATIONS</b>	Only if transporting Mild to moderate pain or a fever > 102°F
<b>CONTRAINDICATIONS</b>	Hypersensitivity to acetaminophen, severe hepatic impairment, or severe active hepatic disease.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Avoid oral administration in patients with a likelihood of immediate surgery, skin rash, nephrotoxicity, anemia, and with IV admin also nausea, vomiting, constipation, pruritus, and abdominal pain.
<b>ADULT DOSAGE/ROUTE</b>	Oral: 650 mg (two regular strength tablets) PO every 4 to 6 hours (maximum amount is 3,250 mg/24 hours)  IV: 650 mg every 4 hours (for adults and children weighing > 50 kg).
<b>PEDIATRIC DOSAGE/ROUTE</b>	15 mg/kg every 4 hours as needed (for children < 50 kg). Not exceed 5 doses in 24 hours.  Oral liquid: 160 mg/mL Oral chewable tablet: 80 mg/tablet Oral junior tablet: 160 mg/tablet IV 15 mg/kg

## ACETYLSALICYLIC ACID (ASPIRIN)

<b>THERAPEUTIC EFFECTS</b>	An antipyretic, anti-inflammatory analgesic with properties reducing platelet aggregation that may reduce the size of a blood clot within a coronary artery causing an AMI.
<b>INDICATIONS</b>	For the treatment of patients with suspected AMI.
<b>CONTRAINDICATIONS</b>	Hypersensitivity to aspirin or nonsteroidal anti-inflammatory analgesics.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Hypersensitivity to aspirin or nonsteroidal anti-inflammatory analgesics.
<b>ADULT DOSAGE/ROUTE</b>	160-325 mg chewable tablet orally.
<b>PEDIATRIC DOSAGE/ROUTE</b>	

## ACTIVATED CHARCOAL (ACTIDOSE/SORBITAL)

<b>THERAPEUTIC EFFECTS</b>	A specially prepared charcoal with a surface that will absorb and bind toxins.
<b>INDICATIONS</b>	In poisoning where emesis is contraindicated and administration has been recommended by Poison Control and/or the receiving physician.
<b>CONTRAINDICATIONS</b>	An airway that cannot be controlled.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Administer only after emesis or in cases where emesis is contraindicated
<b>ADULT DOSAGE/ROUTE</b>	50 gm premix solution given orally.
<b>PEDIATRIC DOSAGE/ROUTE</b>	1 gm/kg premix solution given orally. Maximum dose of 50 gm.

## ADENOSINE (ADENOCARD®)

<b>THERAPEUTIC EFFECTS</b>	Slows conduction through the AV node and can interrupt reentry pathways through the AV node.
<b>INDICATIONS</b>	Conversion to sinus rhythm of Paroxysmal Supra Ventricular Tachycardia (PSVT). This includes the initial diagnosis and treatment of stable, undifferentiated, regular, monomorphic wide complex tachycardia and excludes known Wolf Parkinson White syndrome.
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Second or third degree AV block</li> <li>✓ Sick sinus syndrome</li> <li>✓ Hypersensitivity to adenosine.</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	May exacerbate <b>asthma</b> . Should only be used during pregnancy if clearly needed. May cause hypotension, facial flushing, dyspnea, light headedness, or nausea. Reduce initial dose to 3 mg in patients receiving Persantine (dipyridamole), Carbamazepine, Aggrenox, and heart transplant patients.
<b>ADULT DOSAGE/ROUTE</b>	6 mg, rapid IV bolus. Follow with a rapid 20cc fluid bolus. Second dose of 12 mg rapid IV bolus may be given after 2 minutes, if needed. Follow with a rapid 20cc NS bolus. A large (antecubital) vein may be more appropriate for administration.
<b>PEDIATRIC DOSAGE/ROUTE</b>	0.1 mg/kg, rapid IV bolus. Maximum dose of 6 mg. Follow immediately with 5–10 ml NS flush. Second rapid IV bolus 0.2 mg/kg may be given after 2 minutes. Maximum dose 12 mg. Follow immediately with 5–10 ml NS flush. A large (antecubital) vein may be more appropriate for administration. All pediatric administration of this medication requires receiving physician's permission.

## ALBUTEROL (VENTOLIN®)

<b>THERAPEUTIC EFFECTS</b>	A synthetic sympathomimetic which causes bronchodilatation with less cardiac effect than <b>epinephrine</b> . The duration of effect is about 4 hours. The use of a spacer chamber with the metered dose inhaler (MDI) significantly increases the effectiveness of drug delivery.	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Adult <b>asthma</b> and pediatric respiratory wheezes</li> <li>2. Bronchospasm in emphysema</li> <li>3. Chronic bronchitis</li> <li>4. Wheezing associated with toxic smoke inhalation</li> <li>5. Renal failure with hypotension and <b>bradycardia</b> associated with EKG evidence of hyperkalemia</li> <li>6. <b>Crush injury</b> syndrome prior to the release of compression or if the patient has hypotension and bradycardia associated with EKG evidence of hyperkalemia</li> </ol>	
<b>CONTRAINDICATIONS</b>	Hypersensitivity to Albuterol	
<b>PRECAUTIONS/SIDE EFFECTS</b>	Patient may experience palpitations, anxiety, nausea, and dizziness. Vital signs must be monitored; use caution with cardiac or hypertensive patients.	
<b>ADULT DOSAGE/ROUTE</b>	<b>Indications 1-4</b>  2.5 mg in 3 ml NS with small volume nebulizer attached to <b>O<sub>2</sub></b> at 6 liters to vaporize solution. May repeat. MDI: 2 inhalations every 4–6 hours	<b>Indications 5-6</b>  5 mg in 6 ml NS with small volume nebulizer attached to O <sub>2</sub> at 6 liters to vaporize solution. May repeat if symptoms persist. MDI: 2 inhalations every 4–6 hours
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indications 1,4,5,6:</b> 2.5 mg in 3 ml NS (3 ml premix) with small volume nebulizer attached to O <sub>2</sub> at 6 liters to vaporize solution. May repeat if symptoms persist. MDI: 2 inhalations every 4–6 hours.	



## AMIODARONE

<b>THERAPEUTIC EFFECTS</b>	Prolongs myocardial cell action potential duration, refractory period and noncompetitively inhibits alpha and beta adrenergic stimulation.		
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Recurrent ventricular fibrillation or recurrent pulseless ventricular tachycardia</li> <li>2. Recurrent hemodynamically unstable ventricular tachycardia</li> <li>3. Stable ventricular tachycardia in consultation with online medical control</li> </ol>		
<b>CONTRAINDICATIONS</b>	Hypersensitivity to Amiodarone or any of its components.*		
<b>PRECAUTIONS/SIDE EFFECTS</b>	May prolong QT interval. Use with caution if renal failure is present. May produce vasodilation and hypotension. May also have a negative inotropic effect.		
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  300 mg diluted in 20 ml of NS, IVP/IO. Consider repeating 1 time after 3-5 minutes at 150 mg in 10 ml of NS IVP/IO.	<b>Indication 2</b>  150 mg diluted in 10 ml of NS, IV over 10 minutes and may repeat q 10 minutes, as needed <sup>†</sup>	<b>Indication 3</b>  150 mg diluted in 10 ml of NS, IV over 10 minutes <sup>‡</sup>
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 1</b>  5 mg/kg diluted with 4 ml of NS for q 50 mg of amiodarone, IVP/IO. Max single dose of 300 mg. Consider repeating 5 mg/kg IVP/IO q 3-5 minutes to a total dose of 15 mg/kg IV ( <b>2.2 gm in adolescents</b> ) in 24 hours.	<b>Indication 2,3</b>  5 mg/kg diluted with 4 ml of NS for every 50 mg of amiodarone, IV/IO over 20-60 minutes. Maximum single dose of 300 mg. May repeat up to a maximum of 15 mg/kg ( <b>2.2 gm in adolescents</b> ) in 24 hours.	

\*Lidocaine may be substituted for Amiodarone under these circumstances.

<sup>†</sup>The maximum dose of amiodarone IV is 2.2 gm over 24 hours

<sup>‡</sup>To only be used with online medical control consultation

## ATROPINE

<b>THERAPEUTIC EFFECTS</b>	Blocks the parasympathetic nervous system and its inhibiting effects on heart rate. It does not increase the strength of cardiac contraction.	
<b>INDICATIONS</b>	1. <b>Bradycardia</b> with hypotension or escape beats 2. Nerve agent or organophosphate poisoning	
<b>CONTRAINDICATIONS</b>	None in the emergency setting	
<b>PRECAUTIONS/SIDE EFFECTS</b>		
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  IV/IO 1 mg q 3-5 minutes, up to a total of 0.04 mg/kg or 3 mg	<b>Indication 2</b>  MDV or Mark 1 Kit(s) should be used to administer from 1-3 doses of atropine*†
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 1</b>  IV/IO 0.02 mg/kg, repeated once if needed.	<b>Indication 2</b>  <b>Infant:</b> 0.05-.1 mg/kg IM/IV/IO (or 0.2 mg-1mg), Peds Atropen or MDV <b>Child:</b> 1-4 mg IM/IV/IO, Peds Atropen, MDV, or Mark 1

\*Elderly/frail, 1-4 mg IM/IV/IO Peds Atropen, MDV, or Mark 1

†If MDV not available, IV route not established and/or precise dosing not possible, consider administration of Mark 1

## CALCIUM GLUCONATE

<b>THERAPEUTIC EFFECTS</b>	Essential for the transmission of nerve impulses that initiate the contraction of cardiac muscle. Calcium gluconate is a specific antagonist of the adverse effects of potassium. Onset of action is 1-3 minutes, duration is 30-50 minutes.
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Renal patient with suspected hyperkalemia associated with <b>bradycardia</b> and hypotension or an unstable cardiac arrhythmia</li> <li>2. Calcium channel blocker overdose associated with bradycardia and hypotension or unstable arrhythmia</li> <li>3. <b>Crush injury syndrome</b> prior to release of compression or if, at any time, the patient has hypotension and bradycardia associated with EKG evidence of hyperkalemia</li> </ol>
<b>CONTRAINDICATIONS</b>	Calcium gluconate should not be used during resuscitation efforts unless hyperkalemia, hypocalcemia, or calcium channel blocker toxicity is suspected.
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Use with extreme caution in patients known to take digoxin, as life threatening arrhythmias can result.</p> <p>Use a large secure vein; SQ infiltration can cause tissue necrosis. Flush the line before and after use, as calcium gluconate is incompatible with Sodium Bicarbonate.</p>
<b>ADULT DOSAGE/ROUTE</b>	20 ml of 10% calcium gluconate IV/IO administered slowly over 1-2 minutes.

## DIAZEPAM (VALIUM®)

<b>THERAPEUTIC EFFECTS</b>	CNS depressant that induces amnesia and reduces the incidence and recurrence of seizures.
<b>INDICATIONS</b>	Major motor seizures secondary to nerve agent exposure or organophosphate poisoning.*
<b>CONTRAINDICATIONS</b>	<p>Hypersensitivity to Diazepam.</p> <p><b>Relative Contraindications:</b></p> <ul style="list-style-type: none"> <li>✓ Respiratory depression</li> <li>✓ Hypotension</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	Due to a short half-life of the drug, seizure activity may recur. Watch for respiratory depression.
<b>ADULT DOSAGE/ROUTE</b>	5-10 mg IM/IV, MDV, or MARK 1.
<b>PEDIATRIC DOSAGE/ROUTE</b>	<p><b>Infant (0-3 years or &lt; 13 kg):</b> 0.2-0.5 mg/kg IM/IV (1.25-5 mg MDV)</p> <p><b>Child (3-10 years or 13-25 kg):</b> 0.2-0.5 mg/kg IM/IV (2.5-10 mg MDV or MARK 1)</p>
<b>ELDERLY/FRAIL</b>	1.25-10 mg IM/IV, MDV, or MARK 1.

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\*Contact AMR Dispatch for Mark 1 kits (509-323-8888).

## DILTIAZEM

<b>THERAPEUTIC EFFECTS</b>	A drug of the Calcium channel blocker class, it is a potent vasodilator and depresses A-V node conduction. It is used in the treatment of hypertension, angina pectoris, and some types of arrhythmia.	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Maintenance of therapy, initiated at the transferring hospital for angina, hypertension, paroxysmal supraventricular tachycardia (re-entrant supraventricular tachycardia) or atrial fibrillation/atrial flutter (PSVT).</li> <li>2. May be used to control ventricular rate in new onset or recurrent acute onset atrial fibrillation and atrial flutter.</li> </ol>	
<b>CONTRAINDICATIONS</b>	Hypotension, SA node or AV nodal conduction disturbances, Congestive Heart Failure, Wolff-Parkinson-White syndrome (WPW).	
<b>PRECAUTIONS/SIDE EFFECTS</b>	Use with caution in patients on Beta-Blockers. Do not use if patient is on Quinidine	
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  5-15 mg/hr, titrated to physiologically appropriate heart rate (can dilute in D5W or NS).	<b>Indication 2</b>  Acute Rate Control: 15-20 mg (0.25 mg/kg) IV over 2 minutes. May administer a second dose of 20 mg IV in 15 minutes.

## DIPHENHYDRAMINE (BENADRYL®)

<b>THERAPEUTIC EFFECTS</b>	Inhibits the release of histamine, thereby reducing bronchoconstriction and vasodilation.		
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. <b>Anaphylaxis</b></li> <li>2. Mild or moderate allergic reaction</li> <li>3. Urticaria</li> </ol>		
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Lower respiratory distress</li> <li>✓ Hypersensitivity to Benadryl®</li> </ul>		
<b>PRECAUTIONS/SIDE EFFECTS</b>	May induce hypotension, headache, palpitations, tachycardia, sedation, drowsiness and disturbed coordination.		
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  50 mg IV/IO. May be given IM, if no access.	<b>Indication 2</b>  25-50 mg IV/IM.	<b>Indication 3</b>  25-50 mg IV/IM.
<b>PEDIATRIC DOSAGE/ROUTE</b>	1 mg/kg IV/IO/IM. Maximum dose of 50 mg.		

## EPINEPHRINE (ADRENALIN)-ADULT

<b>THERAPEUTIC EFFECTS</b>	A potent alpha and beta stimulant which is diluted 1 mg in 1 ml (1:1 000) or 1 mg in 10 ml (1:10 000) of saline. It increases vasoconstriction through its alpha properties and electrical activity of the heart through its beta properties.			
<b>INDICATIONS</b>	1. <b>Ventricular Fibrillation</b> /Pulseless Ventricular Tachycardia 1. <b>Asystole/PEA</b> 2. <b>Asthma</b> 3. <b>Anaphylaxis</b> ✓ Moderate (a) ✓ Severe (b) 4. <b>Bradycardia</b> or non-traumatic hypotension			
<b>CONTRAINDICATIONS</b>	None in the patient who needs aggressive resuscitation.			
<b>PRECAUTIONS/SIDE EFFECTS</b>	Should be protected from light and should not be infused with alkaline solutions such as sodium bicarbonate since they will deactivate epinephrine. The drug's actions are of short duration.			
<b>ADULT DOSAGE/ROUTE</b>	<b>Indications 1,2</b>  1 mg 1 mg/10ml IV/IO q 3–5 minutes or up to a max of 3 doses if in a shockable rhythm.	<b>Indications 3,4a</b>  0.01 mg/kg 1 mg/ml up to 1 mg/ml IM.	<b>Indication 4b</b>  0.01 mg/kg 1 mg/10ml IV/IO, slowly, up to 0.3 mg q 5 min. as needed.  0.01 mg/kg 1 mg/ml IM up to 0.3 mg q 5 minutes as needed.	<b>Indication 5</b>  A continuous infusion of 2–10 mcg/min.  0.1–0.5 mcg/kg/min

## EPINEPHRINE (ADRENALIN)-PEDIATRIC

<b>THERAPEUTIC EFFECTS</b>	A potent alpha and beta stimulant which is diluted 1 mg in 1 ml (1:1 000) or 1 mg in 10 ml (1:10 000) of saline. It increases vasoconstriction through its alpha properties and electrical activity of the heart through its beta properties.			
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. <b>Bradycardia</b> or non-traumatic hypotension</li> <li>2. <b>Ventricular Fibrillation</b>/Pulseless Ventricular Tachycardia</li> <li>3. <b>Asystole/PEA</b></li> <li>4. <b>Anaphylaxis</b> <ul style="list-style-type: none"> <li>✓ Moderate (a)</li> <li>✓ Severe (b)</li> </ul> </li> </ol>			
<b>CONTRAINDICATIONS</b>	None in the patient who needs aggressive resuscitation.			
<b>PRECAUTIONS/SIDE EFFECTS</b>	Should be protected from light and should not be infused with alkaline solutions such as sodium bicarbonate since they will deactivate epinephrine. The drug's actions are of short duration.			
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 1</b>  A continuous infusion of 0.1 to 1 mcg/kg/min	<b>Indications 2,3</b>  0.01 mg/kg 1:10 000 IV/IO. Max dose 1 mg q 3-5 min up to a max of 3 doses if in a shockable rhythm.	<b>Indication 4a</b>  0.01 mg/kg 1:1 000 IM. Up to 0.3 mg q 5 minutes, as required.	<b>Indication 4b</b>  0.01 mg/kg 1:10 000 IV/IO. Up to 0.3 mg q 5 minutes, as required.



## ETOMIDATE

<b>THERAPEUTIC EFFECTS</b>	<p>A short-acting sedative-hypnotic agent which appears to have gamma-aminobutyric acid (GABA-like effects). Reduces subcortical inhibition at the onset of hypnosis while inducing neocortical sleep. Minimal cardiovascular and respiratory depressant. No analgesic action.</p> <p><b>Duration</b> depends on dose, but usually 3-5 minutes with an average dose of 0.1 mg/kg (may be prolonged by a sedative premedication or a repeat dose).</p>	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. To induce sedation prior to endotracheal intubation particularly to patients at risk for hypotension</li> <li>2. Sedation for emergent cardio version</li> </ol>	
<b>CONTRAINDICATIONS</b>	Sensitivity to etomidate.	
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>May depress respirations. Nausea, vomiting, and myoclonus may occur. Etomidate may cause adrenal suppression when used on patients with septic shock; other sedative agents should be considered in this situation.</p>	
<b>ADULT DOSAGE/ROUTE</b>	<p><b>Indication 1</b></p> <p>0.3 mg/kg IV/IO over a period of 30-60 seconds.</p>	<p><b>Indication 2</b></p> <p>0.1 mg/kg IV/IO over a period of 30-60 seconds.</p>
<b>PEDIATRIC DOSAGE/ROUTE</b>	<p><b>Indication 1</b></p> <p>0.3 mg/kg IV/IO over a period of 30-60 seconds.</p>	<p><b>Indication 2</b></p> <p>0.1 mg/kg IV/IO over a period of 30-60 seconds.</p>

## FENTANYL

<b>THERAPEUTIC EFFECTS</b>	A potent analgesic.
<b>INDICATIONS</b>	Severe pain, including: cardiac chest pain, <b>burns</b> , extremities, chest and abdominal injuries, and abdominal pain.
<b>CONTRAINDICATIONS</b>	Should not be given in patients with: <ul style="list-style-type: none"> <li>✓ Altered mental status</li> <li>✓ Hypersensitivity to fentanyl</li> <li>✓ Hypotension</li> <li>✓ Volume depletion</li> <li>✓ Respiratory depression</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	May cause respiratory depression. <b>Naloxone</b> should be readily available to counteract the effects of fentanyl. The receiving physician should be informed directly of the prehospital administration of fentanyl at the time of hospital arrival. As with all narcotic analgesics, fentanyl can cause respiratory depression and it should be administered slowly and titrated to achieve analgesia. Lower dose ranges should be used with elderly and frail patients. Do not use if systolic BP < 100 mmHg or SpO2 < 90%. Rapid injection may cause respiratory arrest or chest rigidity-give over 30-60 seconds.
<b>ADULT DOSAGE/ROUTE</b>	0.5-1 mcg/kg. Most common adult dosage is 25-50 mcg IV/IO/IM. Dose may be repeated in 10 minutes and should be titrated to relieve pain up to a total dose of 3 mcg/kg. 1.5 mcg/kg IN initial dose with a repeat dose of 0.5 mcg/kg
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Use of fentanyl in the pediatric population is reserved for children over the age of two.</b> 0.5 mcg/kg IV/IO/IM with a max dose of 100 mcg.  1.5 mcg/kg IN initial dose. May repeat in 10 minutes with a dose of 0.5 mcg/kg IN

## GLUCAGON

<b>THERAPEUTIC EFFECTS</b>	Converts liver glycogen to glucose. Also produces relaxation of smooth muscle of stomach, duodenum, small bowel and colon. Increases cAMP in the myocardium possibly increasing heart rate and contractile force.	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. <b>Hypoglycemia</b>, when unable to give PO or IV dextrose</li> <li>2. Possibly helpful in B Blocker and Calcium Channel Blocker overdose refractory to standard treatment.</li> </ol>	
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Pheochromocytoma (vascular tumor of adrenal gland)</li> <li>✓ Hypersensitivity to Glucagon</li> </ul>	
<b>PRECAUTIONS/SIDE EFFECTS</b>	Nausea and vomiting.	
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  1 mg IM/SQ if blood glucose < 60 mg/dl.	<b>Indication 2</b>  3-10 mg IV/IO bolus (0.05-0.15 mg/kg) followed by 3-5 mg/hr (0.05-0.1
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 1</b>  .05 mg/kg up to 1 mg IM/SQ.	<b>Indication 2</b>  30-150 mcg/kg IV/IO bolus followed by 70 mcg/kg/hr.

\*Current paramedic drug supplies are insufficient for the higher adult doses, but the administration of available supplies may be a beneficial adjunct to standard treatment in cases of severe B Blocker or Calcium Channel Blocker overdose.

## HEPARIN

<b>THERAPEUTIC EFFECTS</b>	A rapid anti-coagulant which acts as a catalyst to accelerate the rate at which antithrombin III neutralizes thrombin and activated coagulation factor X(X <sub>a</sub> ).
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Unstable angina and/or myocardial infarction</li> <li>2. Pulmonary embolism</li> <li>3. Deep vein thrombosis</li> </ol>
<b>CONTRAINDICATIONS</b>	Hemorrhage
<b>PRECAUTIONS/SIDE EFFECTS</b>	Allergic reactions to heparin rarely occur. Heparin should be used with extreme caution whenever there is an increased risk of hemorrhage. Some of the risk factors include GI lesions, recent surgery, blood dyscrasias, menstruation, uncontrolled hypertension, and indwelling catheters.
<b>ADULT DOSAGE/ROUTE</b>	Although dosage is variable, typically an initial loading dose of 5000 units is given by IV injection followed by a continuous infusion from 500 to 2300 units per hour.

## HYDROXOCOBALAMIN

<b>THERAPEUTIC EFFECTS</b>	The action hydroxocobalamin in the treatment of cyanide poisoning is based on its ability to bind cyanide ions. Each hydroxocobalamin molecule can bind one cyanide ion by substituting it for the hydroxo ligand linked to the trivalent cobalt ion, to form cyanocobalamin, which is then secreted in the urine.
<b>INDICATIONS</b>	For the treatment of known or suspected cyanide poisoning including patients in CPA secondary to smoke inhalation.
<b>CONTRAINDICATIONS</b>	Known hypersensitivity to hydroxocobalamin or cyanocobalamin.
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Potential nausea, vomiting, diarrhea, abdominal pain, eye swelling, irritation, or redness, red colored urine, red colored skin and mucus membrane, and acne like rash.</p> <p>Hydroxocobalamin is physically <b>incompatible</b> with <b>dopamine</b> and <b>fentanyl</b> and the concurrent administration through the same IV line can result in particle formation.</p>
<b>ADULT DOSAGE/ROUTE</b>	5 g (Two 2.5 vials) administered IV over 15 minutes. May be repeated once based upon the clinical severity of the poisoning with the rate of infusion ranging from 15 minutes to 2 hours, based on the patient's condition. Each vial should be reconstituted with 100 ml of NS and rocked or rotated for 30 seconds to mix solution and then infused over 7.5 minutes.

**PEDIATRIC DOSAGE/ROUTE**

1. 70 mg/kg IV/IO over 15 minutes; may repeat x1
2. Hydroxocobalamin is supplied as 5 gm in 200 mL glass vial\*
  - I. Add 200 mL 0.9% NS (D5W or LR are ok); use transfer spike
  - II. Swirl, rock, or invert vial.
3. Final concentration: 25 mg/mL; infuse in dedicated line.

<b>Weight (kg/lbs)</b>	<b>Dose (mg)</b>	<b>Dose (mL)</b>	<b>Infusion method</b>
2 kg/4.4 lbs	140 mg	5.6 mL	Syringe pump
3 kg/6.6 lbs	210 mg	8.4 mL	Syringe pump
4 kg/8.8 lbs	280 mg	11 mL	Syringe pump
5 kg/11 lbs	350 mg	14 mL	Syringe pump
10 kg/22 lbs	700 mg	28 mL	Syringe pump
15 kg/33 lbs	1050 mg	42 mL	Syringe pump
20 kg/44 lbs	1400 mg	56 mL	Syringe pump
25 kg/55 lbs	1750 mg	70 mL	Syringe pump
30 kg/66 lbs	2100 mg	84 mL	Syringe pump
35 kg/77 lbs	2450 mg	98 mL	Syringe pump
40 kg/88 lbs	2800 mg	112 mL	Syringe pump
45 kb/99 lbs	3150 mg	126 mL	Syringe pump
50 kg/110 lbs	3500 mg	140 mL	Syringe pump

\*Older Cyanokits (may be expired) supplied as: 2.5 gm in 100 mL vial; add 100 mL of NS (or D5W or LR); use transfer spike; final conc. Also 25 mg/mL; may need 2 vials for dose.

## IBUPROFEN

<b>THERAPEUTIC EFFECTS</b>	Nonsteroidal anti-inflammatory drug.
<b>INDICATIONS</b>	Only if transporting Mild to moderate pain or fever > 102°F
<b>CONTRAINDICATIONS</b>	Hypersensitivity to ibuprofen, aspirin or other nonsteroidal anti-inflammatories, active or GI bleeding, kidney disease, pregnancy
<b>PRECAUTIONS/SIDE EFFECTS</b>	Oral dosing should be avoided in patients likely to have immediate surgery, nausea, vomiting, headache, diarrhea, constipation, dizziness
<b>ADULT DOSAGE/ROUTE</b>	400 mg PO (two 200 mg tablets) every 6 hours (maximum 1200 mg/day)
<b>PEDIATRIC DOSAGE/ROUTE (CHILDREN &gt; 6 MONTHS)</b>	10 mg/kg (maximum dose 40 mg/kg/day) Infant drops: 50 mg/1.25 mL Pediatric suspension: 100 mg/5 mL

## IPRATROPIUM BROMIDE (ATROVENT®)

<b>THERAPEUTIC EFFECTS</b>	An anticholinergic (parasympatholytic) agent that inhibits vagally-mediated reflexes by antagonizing the action of acetylcholine, resulting in bronchodilatation. In combination with <b>albuterol (Ventolin®)</b> , the median duration is 5 to 7 hours.
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Bronchial <b>asthma</b></li> <li>2. Bronchospasm in emphysema</li> <li>3. Chronic bronchitis</li> <li>4. Wheezing associated with toxic smoke inhalation</li> <li>5. Pediatric respiratory distress with wheezing</li> </ol>
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Hypersensitivity to ipratropium bromide</li> <li>✓ Hypersensitivity to <b>atropine</b> or its derivatives</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	Should be used with caution in patients with narrow angle glaucoma and prostatic hypertrophy or bladder neck obstruction. Only use with pregnant patients if necessary. Providers should ensure that the patient's eyes are protected from contact with this solution.
<b>ADULT DOSAGE/ROUTE</b>	500 mcg (1 unit dose vial) added to 1 unit dose vial of Ventolin® in small volume nebulizer attached to <b>O<sub>2</sub></b> at 6 liters to vaporize solution.* <b>DO NOT</b> repeat.
<b>PEDIATRIC DOSAGE/ROUTE</b>	500 mcg (1 unit dose vial) added to 1 unit dose vial of Ventolin® in small volume nebulizer attached to O <sub>2</sub> at 6 liters to vaporize solution.* <b>DO NOT</b> repeat.

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\*Ipratropium bromide is also supplied in a premix unit dose with albuterol.



## KETAMINE (KETALAR™)

<b>THERAPEUTIC EFFECTS</b>	Dissociative Sedation Agent & Anesthetic
<b>INDICATIONS</b>	<p>Sedation Agent Used for:</p> <ol style="list-style-type: none"> <li>1. Excited Delirium or severe agitation interfering with necessary patient assessment and/or treatment</li> <li>2. OSI: To induce sedation prior to endotracheal intubation</li> <li>3. As adjunct for pain control if hypotension is anticipated</li> </ol>
<b>CONTRAINDICATIONS</b>	<p>Contraindications include:</p> <ol style="list-style-type: none"> <li>1. Hypersensitivity to Ketamine/Ketalar</li> <li>2. Patients in whom a significant elevation of blood pressure would constitute a serious hazard</li> <li>3. Acute ocular/globe injuries or glaucoma</li> </ol>
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Patients receiving Ketamine may:</p> <ol style="list-style-type: none"> <li>1. Develop hypertension and/or tachycardia</li> <li>2. Develop hypersalivation</li> <li>3. Develop laryngospasm</li> <li>4. Experience emergence phenomenon presenting as anxiety, agitation, or apparent hallucinations</li> <li>5. Develop nausea/vomiting</li> </ol>
<b>ADULT DOSAGE/ROUTE</b>	<ol style="list-style-type: none"> <li>1. Indication 1: Initial dose- 4 mg/kg IM (max dose 400mg); Maintenance dose: 1 mg/kg IV/IO slow push over 60 seconds</li> <li>2. Indication 2: 2 mg/kg IV/IO slow push over 60 seconds</li> <li>3. Indication 3: 0.2 mg/kg IV/IO slow push over 60 seconds</li> </ol>

<b>PEDIATRIC DOSAGE/ROUTE  (FOR CHILDREN 5 YEARS AND  OLDER)</b>	<ol style="list-style-type: none"> <li>1. Indication 1: Initial dose- 4 mg/kg IM (max dose 400mg); Maintenance dose: 0.5-1 mg/kg IV/IO slow push over 60 seconds</li> <li>2. Indication 2: 1 mg/kg IV/IO slow push over 60 seconds</li> <li>3. Indication 3: 0.2 mg/kg IV/IO slow push over 60 seconds</li> </ol>
<b>SPECIAL CONSIDERATIONS</b>	<ol style="list-style-type: none"> <li>1. Excited delirium is a medical emergency. Expedite rapid and safe transport.</li> <li>2. Experience emergence phenomenon presenting as anxiety, agitation or apparent hallucinations</li> <li>3. All IV/IO dosing should be administered slowly over 60 seconds. Rapid administration will cause respiratory depression.</li> <li>4. Oral suctioning is effective in managing hypersalivation.</li> <li>5. Be prepared for OSI to manage laryngospasm should the patient's airway become compromised.</li> <li>6. Full vital signs including EtCo2, cardiac monitor, and SpO2 required Q5 min following administration of Ketamine.</li> <li>7. Initial temperature in any suspected excited delirium should be obtained.</li> <li>8. Initiate active cooling procedures with elevated temperature.</li> </ol>

## LIDOCAINE (XYLOCAINE®)

THERAPEUTIC EFFECTS	An agent which increases the fibrillation threshold thereby reducing ectopy and the development of <b>ventricular fibrillation</b> as well as reduces the increase in cranial pressure associated with <b>endotracheal intubation</b> . It is also a local anesthetic which may reduce the pain of intraosseous infusion.
INDICATIONS	<ol style="list-style-type: none"> <li>1. To be used for RSI prior to the use of <b>succinylcholine</b> in <b>head injury patients</b>.</li> <li>2. Alternative to amiodarone in cardiac arrest from VF/VT.</li> <li>3. Alternative to amiodarone in the following conditions:               <ol style="list-style-type: none"> <li>A. Recurrent hemodynamically unstable ventricular tachycardia</li> <li>B. Stable ventricular tachycardia in consultation with medical control</li> </ol> </li> <li>4. Pain relief for conscious patients who are responsive to pain stimuli during intraosseous infusion of fluid bolus or flush.</li> </ol>
CONTRAINDICATIONS	<ul style="list-style-type: none"> <li>✓ Hypersensitivity to lidocaine</li> <li>✓ 2nd degree Mobitz II heart block</li> <li>✓ 3rd degree heart block</li> <li>✓ <b>Bradycardia</b> (even when associated with wide-complex ventricular escape beats)</li> </ul>
PRECAUTIONS/SIDE EFFECTS	High plasma concentration may cause myocardial and circulatory depression, possible CNS symptoms (e.g. <b>seizures</b> ). Reduce infusion dose if severe CHF or low cardiac output is compromising hepatic and renal blood flow.

Table continues on next page:

ADULT DOSAGE ROUTE	Indication 1	Indication 2	Indications 3a,3b	Indication 4
PEDIATRIC DOSAGE ROUTE	Indication 1	Indication 2	Indications 3a,3b	Indication 4
	1 mg/kg IV/IO	1-1.5 mg/kg IV/IO. For refractory may give additional 0.5-0.75 mg/kg IV/IO, repeat in 5-10 min., max 3 doses or total of 3 mg/kg)	0.5-0.75 mg/kg IV/IO, up to 1-1.5 mg/kg may be used. Repeat q 5-10 min., max total dose of 3 mg/kg	20-40 mg of 2% Lidocaine (preservative free) into EZ IO port prior to the initial bolus or flush
	1 mg/kg IV/IO.	1 mg/kg IV/IO (max dose 100 mg)	1 mg/kg IV/IO, once.	0.25-0.5 mg/kg of 2% Lidocaine (preservative free) into EZ IO port prior to the initial bolus or flush

## LORAZEPAM (ATIVAN®)

<b>THERAPEUTIC EFFECTS</b>	Anticonvulsant
<b>INDICATIONS</b>	Major motor seizures when midazolam is not available.
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Hypersensitivity to lorazepam</li> <li>✓ Acute narrow angle glaucoma</li> <li>✓ Hypotension</li> <li>✓ Respiratory failure</li> </ul> <p><b>Relative Contraindications:</b></p> <ul style="list-style-type: none"> <li>✓ Respiratory distress</li> <li>✓ Decreased LOC</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	<ul style="list-style-type: none"> <li>✓ Respiratory depression</li> <li>✓ Hypotension</li> <li>✓ Sedation</li> <li>✓ Nausea</li> <li>✓ Vomiting</li> </ul>
<b>ADULT DOSAGE/ROUTE</b>	Dilute 1:1 with an equal volume of NS and administer IV/IM* or 1-2 mg IO slowly and may repeat q 3-5 minutes, up to a maximum dose of 4 mg.
<b>PEDIATRIC DOSAGE/ROUTE</b>	Dilute 1:1 with an equal volume of NS and administer IV/IM*, PR, or 0.1 mg/kg IO q 3 minutes, up to a maximum dose of 2 mg.

\*IM lorazepam should not be diluted

## MAGNESIUM SULFATE

<b>THERAPEUTIC EFFECTS</b>	Blocks neuromuscular transmission and decreases the amount of acetylcholine liberated at the end plate of the motor nerve impulse.		
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Control of seizures in severe toxemia of pregnancy</li> <li>2. May be effective in treatment of V-fib or pulseless V-Tach if hypomagnesemic state or Torsades de Pointes is suspected.</li> <li>3. Asthma exacerbation not responding to the first line treatments following contact from Medical Control.</li> </ol>		
<b>CONTRAINDICATIONS</b>	Should not be given to mothers with toxemia of pregnancy during the 2 hours immediately preceding delivery.		
<b>PRECAUTIONS/SIDE EFFECTS</b>	Because magnesium is removed from the body solely by the kidneys, this drug should be used with caution in patients with renal impairment. Clinical indications of a safe dosage regimen include the presence of the patellar reflex and absence of respiratory depression.		
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  4 gm of 50% solution diluted with 20 mL normal saline IV/IO. 4 gm of 50% solution, IM	<b>Indication 2</b>  1-2 gm of 50% solution diluted in 10 ml normal saline, IV/IO	<b>Indication 3</b>  1-2 gm of 50% solution diluted in 10 ml normal saline, IV/IO over 10 to 20 minutes
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 2</b>  25-50 mg/kg of 50% solution diluted with 5-10 ml normal saline IV/IO over 10-20 minutes. Maximum dose is 2 gm.		

## MIDAZOLAM

<b>THERAPEUTIC EFFECTS</b>	Sedation
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. <b>Adult</b> or <b>pediatric seizures</b></li> <li>2. To facilitate external pacing</li> <li>3. Sedation following intubation</li> <li>4. Premedication prior to cardioversion or <b>endotracheal intubation</b> if <b>etomidate</b> is not available</li> <li>5. To treat Emergence Phenomenon</li> <li>6. Excited delirium or severe agitation interfering with necessary patient assessment and/or treatment</li> </ol>
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Hypersensitivity to midazolam</li> <li>✓ Acute narrow angle glaucoma</li> <li>✓ Shock</li> </ul>
<b>PRECAUTIONS/SIDE EFFECTS</b>	May depress respirations or produce over-sedation. Due to a short half-life of the drug, re-administration may be necessary.
<b>ADULT DOSAGE/ROUTE</b>	<p>Indications 1,2,3,4,5,6</p> <p>5 mg q 5 minutes IV/IM/IO/IN. Up to a max dose of 10 mg. Contact Medical Control for repeating dose exceeding 10 mg.</p>
<b>PEDIATRIC DOSAGE/ROUTE</b>	<p>IV/IM/IO/IN 0.2 mg/kg q 5 min to a maximum dose of 10 mg. Contact Medical Control for repeat dose exceeding 10 mg.</p>

## MORPHINE (MSO<sub>4</sub>)

<b>THERAPEUTIC EFFECTS</b>	A potent analgesic which also causes some vasodilation. Reduces myocardial oxygen demand.	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. For the treatment of severe pain (for patients with prolonged transport time, &gt; 30 minutes).*</li> <li>2. For the treatment of severe pain when fentanyl is not available.</li> </ol>	
<b>CONTRAINDICATIONS</b>	Should not be administered to patients with: <ul style="list-style-type: none"> <li>✓ Head or abdominal pain</li> <li>✓ Hypersensitivity to morphine</li> <li>✓ Hypotension</li> <li>✓ Volume depletion</li> </ul>	
<b>PRECAUTIONS/SIDE EFFECTS</b>	May cause respiratory depression. <b>Naloxone (Narcan®)</b> should be readily available to counteract the effects of morphine. The receiving physician should be informed directly of the prehospital administration of morphine at the time of hospital arrival.	
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  2-6 mg IV push. Repeat with 2 mg q 5 minutes, as needed. 5-15 mg may be given IM based on the patient's weight.	<b>Indication 2</b>  2-6 mg IV push. Repeat with 2 mg q 5 minutes, as needed. 5-15 mg may be given IM based on the patient's weight.
<b>PEDIATRIC DOSAGE/ROUTE</b>	<b>Indication 1</b>  1 mg q 5 minutes IVP, as needed. Dose not to exceed 0.1 mg/kg. Appropriate dose may be given IM based on patient's weight.	

\*Morphine may be substituted for Fentanyl in the event of a Fentanyl drug shortage.



## NALOXONE (NARCAN®)

<b>THERAPEUTIC EFFECTS</b>	Blocks the effects of both narcotics and synthetic narcotics. It may be helpful in coma due to alcohol ingestion.																
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Suspected opiate narcotic and/or synthetic narcotic overdose including the following agents:               <table> <tr> <td>Codeine</td><td>Suboxone/Buprenorphine HCL</td></tr> <tr> <td>Dilaudid/Hydromorphone HCL</td><td>Darvon/Propoxyphine</td></tr> <tr> <td>Dextromethorphan</td><td>Dolophine/Methadone</td></tr> <tr> <td>Heroin</td><td>Sublimaze/Fentanyl</td></tr> <tr> <td>Nubain/Nalbuphine HCL</td><td>Morphine</td></tr> <tr> <td>Talwin/Pentazocine</td><td>Stadol/Butorphanoltartrate</td></tr> <tr> <td>Vicodin/Hydrocodone</td><td>Ultram/Tramadol HCL</td></tr> <tr> <td>Veterinary narcotics</td><td></td></tr> </table> </li> <li>2. Known narcotic overdose with respiratory depression</li> <li>3. Coma of unknown origin</li> </ol>	Codeine	Suboxone/Buprenorphine HCL	Dilaudid/Hydromorphone HCL	Darvon/Propoxyphine	Dextromethorphan	Dolophine/Methadone	Heroin	Sublimaze/Fentanyl	Nubain/Nalbuphine HCL	Morphine	Talwin/Pentazocine	Stadol/Butorphanoltartrate	Vicodin/Hydrocodone	Ultram/Tramadol HCL	Veterinary narcotics	
Codeine	Suboxone/Buprenorphine HCL																
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Talwin/Pentazocine	Stadol/Butorphanoltartrate																
Vicodin/Hydrocodone	Ultram/Tramadol HCL																
Veterinary narcotics																	
<b>CONTRAINDICATIONS</b>	Hypersensitivity to naloxone																
<b>PRECAUTIONS/SIDE EFFECTS</b>	Naloxone should be administered cautiously to patients who are known or suspected to be physically dependent on narcotics. Rapid administration may cause nausea. Abrupt and complete reversal by naloxone can cause withdrawal-type effects. This includes newborn infants of mothers with known or suspected narcotic dependence. Naloxone crosses the placenta and may precipitate withdrawal in the fetus as well as in the mother. Acute and abrupt withdrawal increases the likelihood of <b>pulmonary edema</b> , ventricular arrhythmias and severe agitation. Naloxone has a shorter half-life than most narcotics; the patient may return to the overdose state.																
<b>ADULT DOSAGE/ROUTE</b>	0.4 mg IV/IO/IM.* If the initial dose is unsuccessful, administer a dose of 1.6 mg 2 minutes later. Up to 10 mg may be required for Darvon, Talwin, Stadol, Nubain, Suboxone, and fentanyl overdoses.																
<b>PEDIATRIC DOSAGE/ROUTE</b>	0.1 mg/kg IV/IO/IM,* up to a max dose of 2 mg.																

\*Naloxone may be given intranasally via MAD at a dose of 2 mg for adults and 0.1 mg/kg up to a total of 2 mg for children.

## NITROGLYCERIN

<b>THERAPEUTIC EFFECTS</b>	A rapid acting smooth muscle relaxant which reduces cardiac workload and, to a lesser degree, dilates the coronary arteries.	
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Chest pain or symptoms suggestive of angina and/or myocardial infarction</li> <li>2. Acute <b>pulmonary edema</b></li> <li>3. To prevent angina and/or to improve myocardial perfusion in patients with probable or proven coronary disease</li> </ol>	
<b>CONTRAINDICATIONS</b>	<ul style="list-style-type: none"> <li>✓ Hypotension</li> <li>✓ Suspected increased intracranial pressure</li> <li>✓ Administration of sildenafil citrate (Viagra®, Revatio), or vardenafil (Levitra®) within 24 hours. Administration of tadalafil (Cialis®) within 48 hours</li> </ul>	
<b>PRECAUTIONS/SIDE EFFECTS</b>	May induce headache, which is sometimes severe. Patients may develop tolerance. Nitroglycerin is also light sensitive and will lose potency when exposed to air.	
<b>ADULT DOSAGE/ROUTE</b>	<b>Indications 1,2</b>  1 tablet (0.4 mg) SL. If BP > 100, administer q 5 minutes. Up to 3 tablets, as long as BP remains > 100.	<b>Indication 3</b>  IV initiated at 5 mcg/min. increase by 5 increments of mcg/min. q 3-5 minutes until some response is obtained. If no response seen at 20 mcg/min. increments of 10 and later 20 mcg/min. can be used, as long as BP remains > 100.

## NOREPINEPHRINE

<b>THERAPEUTIC EFFECTS</b>	An Alpha 1, 2 & Beta adrenergic neurotransmitter and catecholamine that causes an increase in blood pressure by increasing cardiac output and peripheral vasoconstriction.
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Cardiogenic shock</li> <li>2. Hypotension not caused by acute blood loss or volume depletion</li> </ol>
<b>CONTRAINDICATIONS</b>	Hypotension due to hypovolemia prior to aggressive fluid resuscitation.
<b>PRECAUTIONS/SIDE EFFECTS</b>	<ul style="list-style-type: none"> <li>✓ Blood pressure should be constantly monitored. Administer as a piggyback to ensure dilution of agent and use a large vessel if possible.</li> <li>✓ Co-administration of sodium bicarbonate may reduce efficacy.</li> <li>✓ Arrhythmias including bradycardia, hypertension, shortness of breath and confusion may occur.</li> </ul>
<b>DOSAGE (ADULTS AND CHILDREN 5 YEARS AND OLDER)</b>	Mix 4 mg In 250 ml LR/NS (16 mcg/mL) to administer as an infusion. 2 – 30 mcg/min. OR 0.05 – 1 mcg/kg/min. Not to exceed 30 mcg/min.
<b>PEDIATRIC DOSAGE/ROUTE</b>	0.05 – 1 mcg/kg/min. Not to exceed 30 mcg/min.

### NOREPINEPHRINE (LEVOPHED) DRIP RATES

For the following chart, add 4 mg norepinephrine to 250 mL LR or NS. Use 60 gtts/mL IV set.

Desired Dose (mcg/min)	4 mcg/min	8 mcg/min	12 mcg/min	16 mcg/min	20 mcg/min	24 mcg/min	28 mcg/min	30 mcg/min
Drip Rate (drops/min)	15 gtts/min	30 gtts/min	45 gtts/min	60 gtts/min	75 gtts/min	90 gtts/min	105 gtts/min	113 gtts/min

### NOREPINEPHRINE INFUSION PREPARATION

1. Draw 4 mL off and discard from a 250 mL bag of LR or NS.
2. Add 4 mg (1mg/mL) norepinephrine (Levophed) resulting in 250 mL of a 16 µg/mL solution of norepinephrine.
3. Connect and prime a 60 gtts/mL IV set for medication administration.
4. Using a high contrast sticker, label IV bag with medication name, amount added, date/time added, resulting concentration, and provider initials.

## ONDANSETRON (ZOFRAN®)

<b>THERAPEUTIC EFFECTS</b>	Reduces nausea and vomiting. Ondansetron is a selective 5-HT <sub>3</sub> receptor antagonist. The mechanism of action has not been fully characterized.
<b>INDICATIONS</b>	Nausea and vomiting
<b>CONTRAINDICATIONS</b>	Hypersensitivity to ondansetron
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Rare cases of the following have been reported:</p> <ul style="list-style-type: none"> <li>✓ Angina</li> <li>✓ Constipation</li> <li>✓ Rash</li> <li>✓ Extrapyrimaldal reactions</li> </ul> <p>Oral administration should not be substituted for IV hydration when the patient's history, symptoms, and clinical findings indicate the need for IV fluids.</p>
<b>ADULT DOSAGE/ROUTE</b>	Administer 4 mg IV/IM undiluted. May repeat once after 15 minutes.* The rate of IV administration should <b>NOT</b> be less than 30 seconds and preferably over 2-5 minutes. Available in 2 ml single dose vials at a concentration of 2 mg/ml.
<b>PEDIATRIC DOSAGE/ROUTE</b>	Administer 4 mg undiluted IV/IM, for children <b>weighing &gt; 40 kg</b> . May repeat once after 15 minutes. 0.1 mg/kg IV for pediatric patients <b>weighing &lt; 40 kg</b> . The rate of IV administration should not be less than 30 seconds and preferably over 2-5 minutes.

\*May be given orally with an oral dissolving tablet (ODT) placed under the tongue at a dose of 4-8 mg for adults and children >40 lbs at a dose of 4 mg.

## ORAL GLUCOSE GEL

<b>THERAPEUTIC EFFECTS</b>	Elevates blood sugar.
<b>INDICATIONS</b>	To treat patients with symptomatic hypoglycemia and a blood sugar < 60 mg% and able to take oral solutions or food.
<b>CONTRAINDICATIONS</b>	Active major motor seizure, hyperglycemia.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Additional IV/IO administration of dextrose or IV/IO/IM glucagon may be necessary to treat hypoglycemia with an altered mental status.
<b>ADULT DOSAGE/ROUTE</b>	15 gm P.O. Recheck blood glucose in 15 minutes. If blood glucose level has not improved, repeat.
<b>PEDIATRIC DOSAGE/ROUTE</b>	0.5–1.0 gm/kg P.O. Recheck blood glucose in 15 minutes. If blood glucose level has not improved, repeat.

## OXYGEN (O<sub>2</sub>)

<b>THERAPEUTIC EFFECTS</b>	Oxygen added to the inspired air increases the amount of oxygen in the blood, and thereby increases the amount delivered to the tissue. Tissue hypoxia causes cell damage and death. Breathing, in most people, is regulated by small changes in the acid-base balance and CO <sub>2</sub> levels. It takes relatively large decreases in oxygen concentration to stimulate respiration.
<b>INDICATIONS</b>	Presence of hypoxia as evidenced by respiratory distress or altered mentation. Any situation in which oxygen demands have increased.
<b>CONTRAINDICATIONS</b>	None in the prehospital setting.
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>If the patient is not breathing adequately on their own, the treatment of choice is ventilation with oxygen, not just supplemental oxygen. In a small percentage of patients with chronic lung disease, administration of oxygen will decrease respiratory drive. Oxygen will dramatically accelerate combustion; ensure that no open flames or sources of ignition are present. Do not withhold oxygen because of this possibility and be prepared to assist ventilation if needed. May result in retrolental fibroplasias if given in high concentrations to premature infants (maintain 30-40% oxygen saturation).</p> <p>Hyperventilation and hyperoxygenation may be detrimental to a broad spectrum of patients. The use of SpO<sub>2</sub> and ETCO<sub>2</sub>, if available, is strongly encouraged.</p>

Table continues on next page:

<b>ADULT/PEDIATRIC DOSAGE ROUTE</b>	<b>Nasal Cannula</b>	2-6 liters a minute
	<b>Small Volume Nebulizer</b>	6-10 liters a minute
	<b>Simple Face Mask</b>	8-10 liters a minute
	<b>Blow By</b>	12-15 liters a minute
	<b>Non-Rebreather Mask</b>	12-15 liters a minute
	<b>Bag Valve Mask w/Reservoir</b>	12-25 liters a minute
	<b>CPAP</b>	Follow device manufacturer's recommendations
<p><b><i>Note on Administration:</i></b></p> <ul style="list-style-type: none"> <li>✓ Titrate the flow rate to maintain a target oxygen saturation range of 94-98%</li> <li>✓ For intubated patients, monitor end-tidal <b>capnography</b>, if available, to verify normal ranges between 35-45 mmHg</li> <li>✓ Adequate oxygenation is measured with SpO2 while adequate ventilation is measured with ETCO<sub>2</sub></li> <li>✓ Avoid Hyper ventilation and hyperoxygenation</li> </ul> <p>A 5 cm PEEP valve should be applied to all intubated patients, unless one of the following conditions is present:</p> <ul style="list-style-type: none"> <li>A. <b>Asthma</b></li> <li>B. Hypotension</li> <li>C. Suspected pneumothorax</li> <li>D. Cardio pulmonary arrest</li> <li>E. <b>Chest trauma</b> with the exception of flail chest</li> </ul>		



## OXYMETAZOLINE HYDROCHLORIDE

<b>THERAPEUTIC EFFECTS</b>	A long acting topical vasoconstrictor that reduces mucosal edema and may help slow intranasal bleeding.
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. As an adjunct to direct pressure to help control epistaxis</li> <li>2. To facilitate placement of a nasotracheal tube and reduce the likelihood of bleeding associated with this technique</li> </ol>
<b>CONTRAINDICATIONS</b>	Hypersensitivity to oxymetazoline hydrochloride
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Unlikely to be a benefit in bleeding associated with severe nasal trauma. Normal pupillary reflex may be affected if this preparation gets in the eyes. Possible adverse side effects in patients with the following:</p> <ul style="list-style-type: none"> <li>✓ Heart disease</li> <li>✓ Hypertension</li> <li>✓ Thyroid disease</li> <li>✓ Diabetes</li> <li>✓ Prostatic hypertrophy</li> <li>✓ Pregnancy</li> <li>✓ Nursing mothers</li> </ul>
<b>ADULT DOSAGE/ROUTE</b>	2 or 3 sprays in each bleeding nostril.

## PRALIDOXIME CHLORIDE (2-PAM)

<b>THERAPEUTIC EFFECTS</b>	Oximes attach to the nerve agent that is inhibiting the cholinesterase and break the agent-enzyme bond to restore normal activity to the enzyme.
<b>INDICATIONS</b>	Symptoms of nerve agent exposure or organophosphorus pesticides. 2-PAM Chloride is most effective if administered immediately after exposure, less effective if administered 6 hours after exposure.*
<b>CONTRAINDICATIONS</b>	None
<b>PRECAUTIONS/SIDE EFFECTS</b>	<p>Use the following medications with caution for patients being treated with 2-PAM:</p> <ul style="list-style-type: none"> <li>✓ Morphine</li> <li>✓ Theophylline</li> <li>✓ Aminophylline</li> <li>✓ <b>Succinylcholine</b></li> </ul> <p>Avoid reserpine or phenothiazine type tranquilizers including Phenergan®. Adverse reactions may include the following symptoms:</p> <ul style="list-style-type: none"> <li>✓ Blurred vision</li> <li>✓ Dizziness</li> <li>✓ Headache</li> <li>✓ Drowsiness</li> <li>✓ Nausea</li> <li>✓ Tachycardia</li> <li>✓ Hypertension</li> <li>✓ Hyperventilation</li> </ul>

Table continues on next page:

ADULT DOSAGE/ROUTE	Mild to Moderate Symptoms	Severe Symptoms
PEDIATRIC DOSAGE/ROUTE	<b>Infant (0-3 years, &lt; 13 kg)</b>  Administer 25-50 mg/kg IM/IV (or 150-600 mg MDV).	<b>Child</b>  Administer 25-50 mg/kg IM/IV (or 300-1200 mg MDV or in Mark 1).
ELDERLY/FRAIL DOSAGE/ROUTE	Administer 10-25 mg/kg IM/IV MDV or MARK1	

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\*Contact AMR Dispatch for Mark 1 kits (509-323-8888).

## RACEMIC EPINEPHRINE-PEDIATRIC

THERAPEUTIC EFFECTS	A potent alpha and beta stimulant containing equal amounts of the D- and L- isomers of <b>epinephrine</b> . When administered via inhalation, it reduces upper airway edema associated with stridor in pediatric patients with viral croup.					
INDICATIONS	Severe pediatric respiratory distress with stridor.					
CONTRAINDICATIONS	Not indicated for use in adult patients.					
PRECAUTIONS/SIDE EFFECTS	Should not be used instead of assisted ventilation in patients with obvious respiratory failure. Tachycardia likely to result. The effects are temporary and a resurgence of symptoms may occur from minutes to hours after treatment.					
PEDIATRIC DOSAGE/ROUTE	<div>Administered via small volume nebulizer:</div> <table><tr><th>PT &gt; 2 YR</th><th>PT &lt; 2 YR</th></tr><tr><td>0.5 ml (2.25%) diluted in 3 ml NS.</td><td>0.25 ml (2.25%) diluted in 3 ml NS.</td></tr></table>		PT > 2 YR	PT < 2 YR	0.5 ml (2.25%) diluted in 3 ml NS.	0.25 ml (2.25%) diluted in 3 ml NS.
PT > 2 YR	PT < 2 YR					
0.5 ml (2.25%) diluted in 3 ml NS.	0.25 ml (2.25%) diluted in 3 ml NS.					

## ROCURONIUM

<b>THERAPEUTIC EFFECTS</b>	A non-depolarizing neuromuscular blocking agent with rapid onset and intermediate duration (38-90 min). Paralyzes all skeletal muscle, including respiratory muscles and gag reflex. This agent DOES NOT produce analgesia or sedation. All patients receiving longer acting paralytics require analgesia and sedation.
<b>INDICATIONS</b>	<p>To maintain paralysis of intubated patients when renewed muscular activity following the administration of the initial paralytic endangers patient care and transport time to the hospital is &gt; 15 minutes</p> <p>To facilitate Optimal Sequence Intubation (OSI) when succinylcholine is contraindicated.</p>
<b>CONTRAINDICATIONS</b>	Hypersensitivity. Short prehospital transport times and/or lack of definitive airway stabilization via endotracheal intubation.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Administration of rocuronium after the administration of lidocaine, magnesium, or succinylcholine may prolong the duration of paralysis. In all cases of the use of rocuronium anticipate longer paralysis and ensure appropriate analgesia and sedation.
<b>ADULT DOSAGE/ROUTE</b>	<p>Maintenance bolus dosing: 0.1 to 0.2 mg/kg IV. Analgesia and sedation must also be given.</p> <p>Optimal sequence intubation: 1.2 mg/kg IV.</p>
<b>PEDIATRIC DOSAGE/ROUTE</b>	Same as adult dosing.

## SODIUM BICARBONATE (NAHCO<sub>3</sub>)

<b>THERAPEUTIC EFFECTS</b>	Provides bicarbonate to assist the buffer system in reducing the effects of acidosis.		
<b>INDICATIONS</b>	<ol style="list-style-type: none"> <li>1. Cyclic anti-depressant overdose with QRS duration &gt; 100 msec.</li> <li>2. Post-resuscitation hypotension</li> <li>3. Pulseless electrical activity with hydrogen ion acidosis</li> <li>4. <b>Crush injury</b></li> </ol>		
<b>CONTRAINDICATIONS</b>	None when used in severe hypoxia or late cardiac arrest.		
<b>PRECAUTIONS/SIDE EFFECTS</b>	May cause alkalosis if administered too aggressively. It may also deactivate vasopressors and may precipitate when administered with calcium chloride.		
<b>ADULT DOSAGE/ROUTE</b>	<b>Indication 1</b>  1 mEq/kg IV/IO bolus and may repeat q 10 minutes x3 for persistent QRS > 100 msec.	<b>Indications 2,3</b>  1 mEq/kg IV/IO.	<b>Indication 4</b>  1 mEq/kg IV/IO. In the case of hyperkalemia, to be followed by sodium bicarbonate, 1 mEq/kg added 1000cc NS wide open.
<b>PEDIATRIC DOSAGE/ROUTE</b>	Same as adult.		

## SUCCINYLCHOLINE (ANECTINE®)

<b>THERAPEUTIC EFFECTS</b>	A biphasic skeletal muscle relaxant with rapid onset and short duration of action; it paralyzes all skeletal muscles including respiratory muscles and eliminates gag reflex. This agent does not produce sedation and a sedative such as <b>etomidate</b> or <b>midazolam (Versed®)</b> should also be used for patient comfort.
<b>INDICATIONS</b>	Inadequate oxygenation or unprotected airway where intubation is indicated, but difficult due to gag reflex, clenched teeth, seizure, or other complications.
<b>CONTRAINDICATIONS</b>	Contraindications are always relative to the life threat of the patient. Succinylcholine should only be used if an airway cannot be established by other methods. Alternative means of establishing an airway should be used for patients with severe cellular damage, including <b>crush injuries</b> , <b>burns</b> more than 8 hours old, atrophy due to neurogenic damage, and patients with known renal failure and EKG evidence of hyperkalemia. These patients may develop cardiac dysrhythmias or arrest after administration. Medical control should be contacted for consideration of <b>vecuronium bromide (Norcuron®)</b> when a paralytic is necessary for airway management.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Patients requiring a second dose may experience increased intracranial pressure. The use of succinylcholine should also be avoided in patients with potential penetrating eye injuries.
<b>PRELIMINARY DRUG THERAPY</b>	<p>To sedate the conscious patient, administer etomidate or Versed.</p> <p>To protect a patient with suspected head injury, administer <b>lidocaine (Xylocaine®)</b>.</p>
<b>ADULT DOSAGE/ROUTE</b>	1.5 mg/kg IV/IO. One repeat dose may be administered, if necessary. 3 mg/kg IM up to a total dose of 150 mg.
<b>PEDIATRIC DOSAGE/ROUTE</b>	Same as with adult.

## VECURONIUM BROMIDE (NORCURON)

<b>THERAPEUTIC EFFECTS</b>	A non-depolarizing neuromuscular blocking agent with rapid onset and intermediate duration of action. Paralyzes all skeletal muscles including respiratory muscles and gag reflex. This agent <b>DOES NOT</b> produce sedation and a sedative such as <b>midazolam (Versed®)</b> should also be used for patient comfort.
<b>INDICATIONS</b>	To maintain paralysis of intubated patients when renewed muscular activity, following the administration of <b>succinylcholine</b> , endangers patient care and transport time to the hospital is > 15 minutes.
<b>CONTRAINDICATIONS</b>	Short prehospital transport times and/or lack of definitive airway stabilization via endotracheal intubation. In general, not to be used for RSI unless there are no alternative means of facilitating endotracheal intubation.
<b>PRECAUTIONS/SIDE EFFECTS</b>	Administration of succinylcholine or <b>lidocaine (Xylocaine®)</b> prior to vecuronium bromide appears to increase and prolong the duration of neuromuscular blockade. When magnesium sulfate has been administered for the management of toxemia of pregnancy, neuromuscular blockade induced by vecuronium bromide may be prolonged. Vecuronium bromide should be administered with caution in patients with hepatic dysfunction and patients with neuromuscular diseases.
<b>ADULT DOSAGE/ROUTE</b>	0.1 mg/kg* IV. One repeat dose may be given, if unusually prolonged prehospital time requires reparation.
<b>PEDIATRIC DOSAGE/ROUTE</b>	Same as adult

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\*Safety and efficacy of vecuronium bromide in children younger than 7 weeks of age have not been established.



# APPENDICES



# **APPENDIX A: COMMONLY PRESCRIBED DRUGS**

## COMMONLY PRESCRIBED DRUGS

BRAND NAME	GENERIC NAME	USE
Accupril®	Quinapril	✓ Hypertension ✓ Vasodilator
Aciphex®	Rabeprazole	✓ Acid pump Inhibitor ✓ Antiulcer agent
Actiq®	Fentanyl	✓ Analgesic
Actonel®	Risedronate	✓ Osteoporosis
Actos®	Pioglitazone	✓ Diabetes
Adderall®	Dextroamphetamine amphetamine	✓ CNS Stimulant ✓ ADHD
Advair®	Fluticasone salmeterol	✓ Asthma ✓ Bronchodilator
Aldactone®	Spironolactone	✓ Hypertension ✓ Diuretic
Alphagan P®	Brimonidine	✓ Antiglaucoma agent
Altace®	Ramipril	✓ Hypertension ✓ Vasodilator
Amaryl®	Glimepiride	✓ Diabetes
Ambien®	Zolpidem	✓ Sedative ✓ Sleep disorders
Antivert®	Meclizine	✓ Antiemetic ✓ Antivertigo
Aricept®	Donepezil	✓ Dementia
Atacand®	Candesartan	✓ Hypertension

Ativan®	Lorazepam	✓ Amnesic ✓ Antianxiety ✓ Anticonvulsant ✓ Muscle relaxant
Atrovent®	Ipratropium bromide	✓ Asthma ✓ Bronchodilator
Augmentin®	Amoxicillin clavulanate	✓ Systemic Antibacterial
Avalide®	Irbesartan hydrochlorothiazide	✓ Hypertension ✓ Diuretic
Avandia®	Rosiglitazone	✓ Diabetes
Avapro®	Irbesartan	✓ Hypertension
Avelox®	Moxifloxacin	✓ Systemic Antibacterial
Azmacort®	Triamcinolone	✓ Asthma ✓ Anti-inflammatory
Bactrim®	Sulamethoxazole trimethoprim	✓ Systemic Antibacterial ✓ Antiprotozal
Bactroban®	Mupirocin	✓ Topical Antibacterial
Bextra®	Valdecoxib	✓ Nonsteroidal anti-inflammatory ✓ Antirheumatic
Biaxin®	Clarithromycin	✓ Systemic Antibacterial
Blocadren®	Clarithromycin	✓ Systemic Antibacterial

Calan®	Verapamil	✓ Angina ✓ Antiarrhythmic ✓ Hypertension
Cardizem®	Diltiazem	✓ Hypertension ✓ Angina ✓ Antiarrhythmic
Catapres®	Clonidine	✓ Hypertension
Cefzil®	Cefprozil	✓ Systemic Antibacterial
Celebrex®	Celecoxib	✓ Analgesic, NSAID
Celexa®	Citalopram	✓ Depression
Cialis®	Tadalafil	✓ Analgesic ✓ NSAID
Ciloxan®	Ciprofloxacin	✓ Ophthalmic ✓ Antibacterial
Cipro®	Ciprofloxacin	✓ Ophthalmic Antibacterial
Clarinet®	Desloratadine	✓ Antihistamine
Concerta®	Methylphenidate	✓ CNS Stimulant
Coreg®	Carvedilol	✓ Hypertension ✓ Heart Failure
Cotrim®	Sulfamethoxazole trimethoprim	✓ Systemic Antibacterial ✓ Antiprotozoal
Coumadin®	Warfarin	✓ Anticoagulant
Covera HS®	Verapamil	✓ Angina ✓ Antiarrhythmic ✓ Hypertension ✓ Vascular headache ✓ Hypertrophic ✓ Cardiomyopathy

Cozzar®	Losartan	✓ Hypertension
Cyclessa®	Ethinyl Estradiol/Desogestrel	✓ Contraceptive
DarvocetN 100®	Propoxyphene acetaminophen	✓ Analgesic
Deltasone®	Prednisone	✓ Steroidal Anti-inflammatory ✓ Chemotherapy ✓ Immunosuppressant
Depakote®	Divalproex	✓ Mania ✓ Convulsions ✓ Migraine headache ✓ Prophylaxis
Desogen®	Ethinyl estradiol/Desogestrel	✓ Contraceptive
Desyrel®	Trazodone	✓ Depression ✓ Antineuralgic
Detrol®	Tolterodine	✓ Bladder antispasmodic
DiaBeta®	Glyburide	✓ Diabetes
Diflucan®	Fluconazole	✓ Systemic antifungal
Dilacor®	Diltiazem	✓ Angina ✓ Hypertension ✓ Antiarrhythmic
Dilantin®	Phenytoin	✓ Convulsions ✓ Antiarrhythmic
Diovan®	Valsartan	✓ Hypertension
Diovan HCT®	Valsartan hydrochlorothiazide	✓ Hypertension
Ditropan®	Oxybutynin	✓ Urinary tract antispasmodic
Duraclon®	Clonidine	✓ Hypertension

		✓ Sleep disorders
Duragesic®	Fentanyl	✓ Analgesic
Dyazide®	Triamterene hydrochlorothiazide	✓ Hypertension ✓ Hypokalemia ✓ Diuretic
Effexor®	Venlafaxine	✓ Depression ✓ Anxiety
Elavil®	Amitriptyline	✓ Depression
Elidel®	Primecrolimus	✓ Eczema ✓ Dermatitis
Endocet®	Oxycodone acetaminophen	✓ Analgesic
Enjuvia®	Conjugated estrogen	✓ Hormone therapy ✓ Osteoporosis
Esidrix®	Hydrochlorothiazide	✓ Hypertension ✓ Diuretic
Eurostep Fe®	Ethinyl estradiol norethindrone	✓ Acne ✓ Endometriosis ✓ Contraceptive
Evista®	Raloxifene	✓ Osteoporosis
Femhrt®	Ethinyl estradiol norethindrone	✓ Acne ✓ Endometriosis ✓ Contraceptive
Flexeril®	Cyclobenzaprine	✓ Muscle Relaxant
Flomax®	Tamsulosin	✓ Prostate issues
Flonase®	Fluticasone	✓ Steroidal nasal anti- inflammatory ✓ Sinusitis



Flovent®	Fluticasone	✓ Steroidal nasal anti-inflammatory ✓ Sinusitis
Fosamax®	Alendronate	✓ Osteoporosis
Glucophage®	Metformin	✓ Diabetes
Glucotrol®	Glipizide	✓ Diabetes
Glucovance®	Glyburide metformin	✓ Diabetes
Glynase®	Glyburide	✓ Diabetes
Humalog®	Insulin lispro	✓ Diabetes
Humulin 70/30®	NPH regular insulin	✓ Diabetes
Humulin N®	NPH Isophane insulin	✓ Diabetes
Hytrin®	Terazosin	✓ Hypertension ✓ Prostate
Hyzaar®	Losartan hydrochlorthiazide	✓ Hypertension
Imdur®	Isosorbide mononitrate	✓ Angina
Imitrex®	Sumatriptan	✓ Migraines
Inderal®	Propranolol	✓ MI prophylactic ✓ Angina ✓ Arrhythmias ✓ Hypertension ✓ Tremors ✓ Hypertrophic Cardiomyopathy ✓ Pheochromocytoma ✓ Vascular Headache
Ismo®	Isosorbide mononitrate	✓ Angina

Isoptin®	Verapamil	<ul style="list-style-type: none"> <li>✓ Angina</li> <li>✓ Arrhythmias</li> <li>✓ Hypertension</li> <li>✓ Hypertrophic</li> <li>✓ Cardiomyopathy</li> <li>✓ Vascular headache</li> </ul>
Kariva®	Ethinyl estradiol desogestrel	<ul style="list-style-type: none"> <li>✓ Contraceptive</li> <li>✓ Endometriosis</li> </ul>
Keflex®	Cephalexin	✓ Systemic antibacterial
Klonopin®	Clonazepam	✓ Convulsions
KlorCon®	Potassium chloride	✓ Hypokalemia
Lanoxicaps®	Digoxin	✓ Arrhythmias
Lanoxin®	Digoxin	✓ Arrhythmias
Lantus®	Insulin glargine	✓ Diabetes
Lasix®	Furosemide	<ul style="list-style-type: none"> <li>✓ Hypercalcemia</li> <li>✓ Hypertension</li> <li>✓ Renal disease</li> <li>✓ Diuretic</li> </ul>
Lescol®	Fluvastatin	✓ High cholesterol
Levaquin®	Levofloxacin	✓ Systemic antibacterial
Levitra®	Vardenafil	✓ Impotence
Levlen®	Ethinyl estradiol levonorgestrel	✓ Contraceptive
Levothroid®	Levothyroxine	✓ Thyroid
Lexapro®	Escitalopram	<ul style="list-style-type: none"> <li>✓ Depression</li> <li>✓ Anxiety</li> </ul>
Lipitor®	Atorvastatin	✓ High cholesterol
Lo/Ovral®	Ethinyl estradiol norgestrel	✓ Contraceptive

Loestrin Fe®	Ethinyl estradiol norethindrone	✓ Acne ✓ Contraceptive ✓ Endometriosis
Lopid®	Gemfibrozil	✓ High cholesterol
Lopressor®	Metoprolol	✓ Antiadrenergic ✓ Angina ✓ Anxiety ✓ Arrhythmias ✓ Hypertension ✓ Tremors ✓ MI ✓ Vascular headache ✓ Pheochromocytoma ✓ Hypertrophic ✓ Cardiomyopathy
Lortab®	Hydrocodone acetaminophen	✓ Analgesic
Lotension®	Benazepril	✓ Hypertension
Lotrel®	Amlodipine benazepril	✓ Hypertension
Lotrisone®	Clotrimazole betamethasone	✓ Antifungal corticosteroid
Low Ogestrel®	Ethinyl estradiol norgestrel	✓ Contraceptive
Macrobid®	Nitrofurantoin	✓ Systemic antibacterial
Macrochantin®	Nitrofurantoin	✓ Systemic antibacterial
Maxide®	Triamterene hydrochlorothiazide	✓ Hypertension ✓ Hypokalemia ✓ Diuretic

Medrol®	Methylprednisolone	✓ Immunosuppressant ✓ Anti-inflammatory ✓ Corticosteroid
Metadata®	Methylphenidate	✓ ADHD ✓ CNS stimulant
Miacalcin®	Calcitonin salmon	✓ Osteoporosis
Micronase®	Glyburide	✓ Diabetes
Minitran®	Nitroglycerin	✓ Angina ✓ CHF
Miralax®	Polyethylene glycol	✓ Laxative
Mircette®	Ethinyl estradiol desogestrel	✓ Contraceptive
Mobic®	Meloxicam	✓ NSAID Anti-inflammatory
Monopril®	Fosinopril	✓ Hypertension
Naprosyn®	Naproxen	✓ Antiinflammatory ✓ Analgesic
Nasacort AQ®	Triamcinolone	✓ Nasal anti-inflammatory
Nasonex®	Mometasone furoate	✓ Nasal anti-inflammatory
Neurontin®	Gabapentin	✓ Anticonvulsant
Nexium®	Esomeprazole	✓ Heartburn ✓ Reflux
Nitrolingual®	Nitroglycerin	✓ Angina ✓ CHF
Nitrostat®	Nitroglycerin	✓ Angina ✓ CHF
Nordette®	Ethinyl estradiol levonorgestrel	✓ Contraceptive ✓ Endometriosis

Norvasc®	Amlodipine	✓ Hypertension
Omnicef®	Cefdinir	✓ Systemic antibacterial
OrthoCept®	Ethinyl estradiol norelgestromin	✓ Contraceptive
Ortho Tricyclen®	Ethinyl estradiol norgestimate	✓ Contraceptive ✓ Acne ✓ Endometriosis
Ortho Tricyclen Lo®	Ethinyl estradiol norgestimate	✓ Contraceptive ✓ Acne ✓ Endometriosis
Ovcon®	Ethinyl estradiol norethindrone	✓ Contraceptive ✓ Acne ✓ Endometriosis
Ovral®	Ethinyl estradiol norgestral	✓ Contraceptive ✓ Endometriosis
Oxycontin®	Oxycodone	✓ Analgesic
Pantanol®	Olopatadine	✓ Ophthalmic ointment ✓ Allergies
Paxil®	Paroxetine	✓ Depression ✓ Anxiety ✓ OCD ✓ PTSD
Percocet®	Oxycodone acetaminophen	✓ Analgesic
Phenaphen w/Codeine®	Acetaminophen Codeine	✓ Analgesic
Phenergan®	Promethazine	✓ Antiemetic ✓ Sedative

Plavix®	Clopidogrel	✓ Antithrombotic ✓ Blood thinner
Plendil®	Felodipine	✓ Angina ✓ Hypertension
Pravachol®	Pravastatin	✓ High cholesterol
Premarin®	Conjugated Estrogen	✓ Hormone replacement
Premphase®	Conjugated Estrogen medroxyprogesterone	✓ Osteoporosis ✓ Hormone replacement
Prempro®	Conjugated Estrogen medroxyprogesterone	✓ Osteoporosis ✓ Hormone replacement
Prevacid®	Lansoprazole	✓ Acid reflux ✓ Ulcers
Prilosec®	Omeprazole	✓ Acid reflux ✓ Ulcers
Prinivil®	Lisinopril	✓ Hypertension
Procardia®	Nifedipine	✓ Angina ✓ Hypertension
Prometh w/Codeine®	Promethazine Codeine	✓ Cough suppressant
Propecia®	Finasteride	✓ Hair growth (balding)
Proscar®	Finasteride	✓ Hair growth (balding)
Protonix®	Pantoprazole	✓ Acid reflux ✓ Ulcer
Proventil®	Albuterol	✓ Bronchodilator
Prozac®	Fluoxetine	✓ Depression ✓ OCD ✓ Bulimia
Pulmicort®	Budesonide	✓ Asthma
Remeron®	Mirtazapine	✓ Depression

Restoril®	Temazepam	✓ Sedative
Risperdal®	Risperidone	✓ Antipsychotic
Ritalin®	Methylphenidate	✓ ADHD ✓ CNS stimulant
Saraphem®	Fluoxetine	✓ Depression ✓ OCD ✓ Bulimia
Seasonale®	Ethinyl estradiol levonorgestrel	✓ Contraceptive ✓ Endometriosis
Septra DS®	Sulfamethoxazole trimethoprim	✓ Antibacterial ✓ Antiprotozoal
Seroquel®	Quetiapine	✓ Antipsychotic ✓ Sleep disorders
Singulair®	Montelukast	✓ Asthma
Skelaxin®	Metaxalone	✓ Muscle relaxant
Soma®	Carisoprodol	✓ Muscle relaxant
Strattera®	Atomoxetine	✓ ADHD
Sublimaze®	Fentanyl	✓ Analgesic
Synthroid®	Levothyroxine	✓ Thyroid hormone
Tenormin®	Atenolol	✓ Hypertension
Timoptic®	Timolol	✓ Glaucoma
Tobradex®	Tobramycin Dexamethasone	✓ Ophthalmic steroidal anti-inflammatory
Topamax®	Topiramate	✓ Anticonvulsant ✓ Migraines

Toprol®	Metoprolol	<ul style="list-style-type: none"> <li>✓ Angina</li> <li>✓ Arrhythmias</li> <li>✓ Hypertension</li> <li>✓ Hypertrophic</li> <li>✓ Cardiomyopathy</li> <li>✓ MI</li> <li>✓ Pheochromocytoma</li> </ul>
Tricor®	Fenofibrate	✓ High cholesterol
TriLeven®	Ethinyl estradiol levonorgestrel	<ul style="list-style-type: none"> <li>✓ Contraceptive</li> <li>✓ Endometriosis</li> </ul>
Trimox®	Amoxicillin	✓ Systemic antibacterial
Triphasil®	Ethinyl estradiol levonorgestrel	<ul style="list-style-type: none"> <li>✓ Contraceptive</li> <li>✓ Endometriosis</li> </ul>
Trivora 28®	Ethinyl estradiol levonorgestrel	<ul style="list-style-type: none"> <li>✓ Contraceptive</li> <li>✓ Endometriosis</li> </ul>
Tussionex®	Hydrocodone Chloropheniramine	✓ Cough suppressant
Tylox®	Oxycodone Acetaminophen	✓ Analgesic
Ultracet®	Tramadol Acetaminophen	✓ Analgesic
Ultram®	Tramadol	✓ Analgesic
Valium®	Diazepam	<ul style="list-style-type: none"> <li>✓ Anticonvulsant</li> <li>✓ Anxiety</li> <li>✓ Skeletal muscle relaxant</li> </ul>
Valtrex®	Valacyclovir	✓ Systemic antiviral
Vasotec®	Enalapril	✓ Hypertension
Veetids®	Penicillin V	✓ Systemic antibacterial
Ventolin®	Albuterol	✓ Bronchodilator



Verelan®	Verapamil	✓ Angina ✓ Arrhythmias ✓ Hypertension ✓ Hypertrophic ✓ Cardiomyopathy ✓ Vascular headaches
Viagra®	Sildenafil	✓ Impotence
Vibramycin®	Doxycycline	✓ Systemic antibacterial ✓ Antiprotozal
Vicodin®	Hydrocodone acetaminophen	✓ Analgesic
Vigamox®	Moxifloxacin	✓ Ophthalmic antibacterial
Wellbutrin®	Bupropion	✓ Depression ✓ Smoking cessation
Xalatan®	Latanoprost	✓ Glaucoma
Xanax®	Alprazolam	✓ Anxiety
Yasmin®	Ethinyl estradiol drospirenone	✓ Contraceptive
Zantac®	Ranitidine	✓ Acid reflux ✓ Ulcer
Zestril®	Lisinopril	✓ Hypertension
Zetia®	Ezetimibe	✓ High cholesterol
Zithromax®	Azithromycin	✓ Systemic antibacterial
Zocor®	Simvastatin	✓ High cholesterol
Zoloft®	Sertraline	✓ Anxiety ✓ Depression ✓ OCD ✓ PTSD

Zyban®	Bupropion	✓ Depression ✓ Smoking cessation
Zyloprim®	Allopurinol	✓ Gout
Zyprexa®	Olanzapine	✓ Antipsychotic
Zyrtec®	Cetirizine	✓ Antihistamine
Zyrtec D®	Cetirizine pseudoephedrine	✓ Antihistamine ✓ Decongestant

# **APPENDIX B: MEDICAL ABBREVIATIONS**

## APPROVED ABBREVIATIONS SPOKANE COUNTY EMS & TRAUMA CARE COUNCIL

### A

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ā	Before
A-fib, A.F.	Atrial fibrillation
ABC	Airway/breathing/circulation
abd	Abdomen, abdominal
AC	Anticubital
ALS	Advanced life support
A.M.	Morning
AMA	Against medical advice
Amp	Ampule
A&O x 1,2,3,or 4	Alert and oriented to person, place, time, and circumstance
Approx	Approximately
ASA	Aspirin
ASAP	As soon as possible
AV	Atrioventricular
AVPU	Alert/responds to verbal stimulus/responds to painful stimulus un/responsive

### B

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BBB	Bundle branch block
b.i.d.	Twice daily
Bicarb	Sodium bicarbonate
Bigem	Bigeminy
BLS	Basic life support
BP	Blood pressure

BPM	Beats per minute
Brady	Bradycardia
BCLS	Basic cardiac life support
BM	Bowel movement
BS	Breath sounds
BVM	Bag valve mask
BSI	Body substance isolation

## C

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<u>c</u>	With
cc	Cubic centimeter
CA	Cancer
CABG	Coronary artery bypass graft surgery
cap	Capsule
CaCl <sub>2</sub>	Calcium chloride
CAD	Coronary artery disease
C/C	Chief complaint
CCU	Cardiac care unit
CHB	Complete heart block
CHF	Congestive heart failure
cm	Centimeter
CMS	Circulation motion sensation
CNS	Central nervous system
c/o	complains of
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide

cont	Continuous
COPD	Chronic obstructive pulmonary disease
CPR	Cardiopulmonary resuscitation
CSF	Cerebrospinal fluid
CSM	Circulation sensation movement
C-spine	Cervical spin
CV	Cardiovascular
CVA	Cerebral vascular accident

## D

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D&C	Dilatation and curettage
D.C.	Discontinue
defib	Defibrillation
disch	Discharge
DKA	Diabetic ketoacidosis
DNR	Do not resuscitate
DOA	Dead on arrival
DOE	Dyspnea on exertion
DOT	Department of transportation
Dr.	Doctor
drsg	Dressing
DT's	Delirium tremens
DVT	Deep vein thrombosis
D5W	5% Dextrose in water
Dx	Diagnosis

## E

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EBL	Estimated blood loss
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EKG	Electrocardiogram
EDC	Estimated date of confinement
EEG	Electrocardiogram
EENT	Eyes, ears, nose, and throat
e.g.	For example
EMD	electromechanical dissociation
EMS	Emergency medical service
EMT	Emergency medical technician
EMT-D	Emergency medical technician - defibrillation
EMT-IV	Emergency medical technician - intravenous technician
EMT-I	Emergency medical technician - intermediate
EMT-P	Emergency medical technician - Paramedic
E-mycin	Erythromycin
ENT	Ear, nose, and throat
EOM	Extra ocular movements
Epi	Epinephrine
E.R. or E.D.	Emergency room/emergency department
ET	Endotracheal
ETA	Estimated time of arrival
Etc.	Etcetera
ETOH	Alcohol/ethanol
Exp.	Expiratory

**F**

Fr	French
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Fx	Fracture
FD	Fire Department

## **G**

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GB	Gallbladder
GCS	Glasgow coma scale
GI	Gastrointestinal
gtt	Drops
GU	Genitourinary

## **H**

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hr	Hour
H <sub>2</sub> O	Water
HCTZ	Hydrochlorothiazide
Hg	Mercury
HTN	Hypertension
Hx	Historical exam
HPI	History of present illness/injury
HR	Heart rate
Hs	Bedtime

## **I**

---

ICU	Intensive care unit
i.e.	That is
IM	Intramuscular
incont	Incontinent
invol	Involuntary
IO	Intraosseous



irreg	Irregular
IV	Intravenous
IVP	IV Push
IVPB	IV Piggyback

## J

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j	Joule
JVD	Jugular venous distention

## K

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K	Potassium
KCl	Potassium chloride
Kg	Kilogram

## L

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L	Liter
Ⓛ	left
lac	Laceration
lat	Lateral
lb	Pound
lg	Large
liq	A liquid solution
LLL	Left lower lobe
LLQ	Left lower quadrant
LMP	Last menstrual period
LOC	Loss of consciousness
LPM	Liters per minute

LR	Lactated ringers
L-S Spine	Lumbar sacral spine
L Spine	Lumbar spine
LUL	Left upper lobe
LUQ	Left upper quadrant
LPN	Licensed practical nurse

## M

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MAE	Moves all extremities
MAO	Monoamine oxidase inhibitor
MCI	Multi-casualty incident
MD	Medical doctor
mec	Meconium
med	Medication or medicated
meg	Microgram
mEq	Milliequivalent
mg	Milligram
MIR	Medical incident report
ml	Milliliter
mm	Millimeter
mod	Moderate
MOI	Mechanism of injury
MPD	Medical program director
MSC	Motor and sensory check
MVA	Motor vehicle accident

## N

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Na	Sodium
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N/A	Not applicable
NaCl	Sodium chloride
NaHCO <sub>3</sub>	Sodium bicarbonate
NAD	No acute distress
N.C.	Nasal cannula
neg	Negative
neuro	neurologic
NKA	No known allergy
nl	Normal
ncc	At night
NPA	Nasal pharyngeal airway
NPO	Nothing by mouth
NS	Normal Saline
NSR	Normal sinus rhythm
N/V	Nausea/vomiting

## O

O <sub>2</sub>	Oxygen
OB	Obstetrical
OD	Overdose
OK	Okay
OPA	Oral pharyngeal airway
OR	Operating room
oz	Ounce

## P

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$\overline{p}$	After
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PAC	Premature atrial contraction
Palp	Palpation
PAT	Paroxysmal atrial tachycardia
PCN	Penicillin
PD	Police Department
PASG	Pneumatic anti-shock garment
PE	Physical exam
PEA	Pulseless electrical activity
PERL	Pupils equal, reactive to light
PID	Pelvic inflammatory disease
PJC	Premature junctional contraction
PM	Afternoon
PMD	Private medical doctor
PO	By mouth
post	Posterior
P-R	P-R interval
Primary	Primary assessment
PRN	Whenever necessary
PT	Patient
PTA	Prior to arrival
P/U	Pickup
PUD	Peptic ulcer disease
PVC	Premature ventricular contraction
PE	Physical exam
POC	Position of comfort

## Q

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q	Every
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q.d.	Every day
q.h.	Every hour
q2h	Every two hours
q.i.d.	Four times a day

## R

(R)	Right
resp	Respirations
RR	Respiratory Rate
rec'd	Received
reg	Regular
RLL	Right lower lobe
RLQ	Right lower quadrant
RN	Registered nurse
R/O	Rule out
RPM	Respirations per minute
RSR	Regular sinus rhythm
RUL	Right upper lobe
RUQ	Right upper quadrant
Rx	Prescription

## S

<u>s</u>	Without
SB	Sinus bradycardia
SQ	Subcutaneous
sec	Second

SIDS	Sudden infant death syndrome
sl	Sublingual
sm	Small
S.O.	Sherriff's Office
SOB	Shortness of breath
soln	Solution
S/P	Status post
S/S	Signs and symptoms
ST	Sinus tachycardia
stat	Immediately
STD	Sexually transmitted disease
SVT	Suraventricular tachycardia
Sx	Symptoms

## T

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tab	Tablet
tach	Tachycardia
TCA	Tri-cyclic antidepressant
TIA	Transient ischemic attack
t.i.d.	Three times a day
TKO	To keep open
T-L spine	Thoracolumbar spine
TMJ	Temporo-mandibular joint
TPN	Total parenteral nutrition
trans	Transport
T-Spine	Thoracic spine
tx	Treatment
TVI	Total volume infused

## U

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U	Unit
URI	Upper respiratory infection
UTI	Urinary tract infection
UNK	Unkown

## V

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vent	Ventricular
V-fib or VF	Ventricular fibrillation
via	By way of
vs	Versus
VS	Vital signs
VT	Ventricular tachycardia

## W

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WD/WN	Well developed, well nourished
WNL	Within normal limits
WPW	Wolf Parkinson white syndrome
WSP	Washington State Patrol

## Y

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y or yrs	Years
Y/O	Years old

## Symbols

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@	At
♀	Female

♂	Male
%	Percent
<	Less than
>	More than
β	Beta
#	Number
1°	First degree
2°	Second degree
3°	Third degree



# **APPENDIX C: REFERENCE DOCUMENTS**

## ADDITIONAL APPROVED SKILLS AND PROCEDURES FOR SPOKANE COUNTY EMS PROVIDERS

**W- Washington Initial Training** indicates the skill is not listed in the interpretive guidelines of the National EMS Scope of Practice Model. However, Washington State Department of Health approves the skill to be in Washington State scope of practice and training for the skill is mandatory for inclusion in approved initial training and continuing education. (Not in national scope, required in all initial and continuing education).

**W\* - Washington Specialized Training Required** indicates the skill is approved for use by Department of Health certified EMS providers through specialized training as authorized by WAC 246-976-024. Certified EMS providers must have completed a department and MPD approved training course and demonstrated knowledge and skills competency to the level of satisfaction of the MPD. The MPD authorizes the skill through department approved MPD patient care protocols. (Not in national scope, MPD option to implement, and specialized training required).

**W\*\* - Washington State Endorsement on a Certification is Required** indicates the skill is approved for use by Department of Health certified EMS providers through specialized training as authorized by WAC 246-976-024. Certified EMS providers must have completed a department and MPD approved training course and demonstrated knowledge and skills competency to the level of satisfaction of the MPD. The MPD authorizes the skill through department approved MPD patient care protocols. The department requires a course application and approval for these skills and issues an endorsement to the provider's certification. The only authorized endorsements are EMT-IV and EMT-SGA. (Not in national scope, MPD option to implement, specialized training required, course application must be submitted and approved by the department, an endorsement added to the credential by department).

### AIRWAY/ VENTILATION/ OXYGENATION

#### EMT

- ✓ SGA W/W\*\*
- ✓ Capnography (End Tidal CO<sub>2</sub> waveform and/or numerical continuous monitoring) W\*
- ✓ Capnometry (End Tidal CO<sub>2</sub> colorimetric device) W\*
- ✓ Suctioning – tracheal bronchial suctioning of an already intubated patient W\*

- ✓ Suctioning of tracheostomy requiring modified technique W\*
- ✓ Ventilation – Positive Pressure Ventilation – Automatic Transport Ventilator (i.e. Auto Vent, CAREvent, Uni-Vent, Pneupac VRI) EMT & AEMT are limited to the initiation during resuscitative efforts of ventilators that only adjust rate and volume. W\*

## **PATIENT ASSESSMENT & DIAGNOSTIC PROCEDURES**

### **EMR**

Blood chemistry analysis – Glucometry (capillary puncture) W\*

## **SPLINTING, SPINAL MOTION RESTRICTION (SMR), PATIENT RESTRAINT, TRAUMA CARE**

### **EMR**

Traction Splint W\*

## **VASCULAR ACCESS, INFUSION, AND MONITORING OF LINES**

### **A/EMT/with IV endorsement/ EMTP**

- ✓ IO - Adult and Pediatric W\*\*
- ✓ Peripheral IV insertion and Infusion – Adult and Pediatric W\*\*
- ✓ Venipuncture to obtain venous blood sample W\*\*

## **TECHNIQUE OF MEDICATION ADMINISTRATION**

### **EMR**

- ✓ Buccal/Mucosal/Sublingual W\*
- ✓ Inhalation – Unit-dosed, premeasured – EMR, limited to assisting patients with own prescribed medications such as bronchodilator for chronic respiratory condition -per protocol. W\*
- ✓ Oral – per os (PO) – EMR (limited to aspirin and glucose)
- ✓ Intra-nasal: limited to unit dose of Naloxone

### **EMT**

- ✓ Oral – per os (PO) – EMT (limited to aspirin, glucose, assist with patients nitroglycerin, Ondansetron and OTC analgesics (ibuprofen and acetaminophen) for pain or fever. W\*

- ✓ Intraosseous Per Protocol W\*\*
- ✓ Intravenous Per Protocol W\*\*

## **AEMT**

Oral – per os (PO) AEMT (limited to aspirin, glucose, nitroglycerin, ondansetron, and OTC analgesics (ibuprofen and acetaminophen) for pain and fever. W\*

## **MEDICATIONS – GENERAL GUIDANCE**

### **EMR**

- ✓ Aspirin – Oral W\*
- ✓ Assisting a patient with his/her own prescribed medications (aerosolized/nebulized) W\*
- ✓ Bronchodilator/ Beta Agonist Metered Dose Inhaler W\*
- ✓ Glucose for hypoglycemia – Oral W\*
- ✓ Intra-nasal: limited to unit dose of Naloxone for suspected opiate overdose

### **EMT**

- ✓ Diphenhydramine EMT (limited to PO with specialized training) W\*
- ✓ Epinephrine for Anaphylaxis Intramuscular – Syringe and Needle W\*
- ✓ Naloxone for Suspected Opiate / Narcotic Overdose Intramuscular – Intra-nasal, IM or Syringe and Needle W\*
- ✓ Ondansetron (EMT limited to PO) W\*

### **AEMT**

Diphenhydramine (AEMT limited to PO) – OUR RESTRICTION EXCLUDING IV/IM W\*

## APGAR SCORING

Fig. A.1: APGAR Score Test

	Sign	0	1	2
<b>A</b>	Activity (Muscle Tone)	Limp	Some Flexion of Extremities	Active Motion
<b>P</b>	Pulse (Heart Rate)	Absent	< 100	> 100
<b>G</b>	Grimace (Reflex Irritability, Nasal Center)	No Response	Grimace	Coughs, Sneezes
<b>A</b>	Appearance (Skin Color)	Blue/Pale	Extremities Blue	Completely Pink
<b>R</b>	Respiratory Effort	Absent	Slow/Regular	Good Crying

## CERTIFICATION MADE EASY

Aside from background checks, the primary reason certifications are delayed is incomplete applications.

Let's see if we can speed up the process:

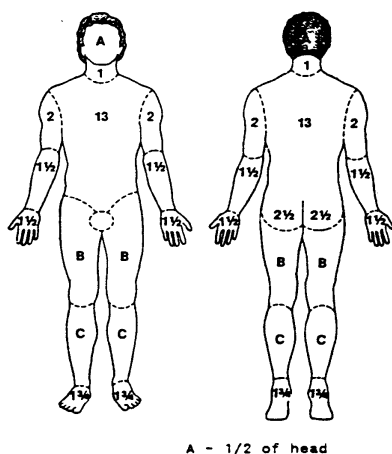
- ✓ Initial and upgrade certification applicants must provide a copy of a Department of Health course completion.
- ✓ Personal Data Questions go directly to DOH, not to our office
- ✓ Attach a current, legible photograph showing date of birth (DOB) i.e., driver's license photo, passport, or military ID to the application. The photograph must be clear and the information must be legible.
- ✓ ILS and ALS recertification require a physician letter with the application.
- ✓ Initial applications for ILS and PMs trained in Spokane County do not need a physician letter for their initial/upgrade application.
- ✓ ILS and PM certified in Washington State and adding Spokane County as an agency require a physician advisor letter

## CLASSIFICATION OF BURNS

**Table A.3: Classification of Burns**

DEGREE	DEPTH	CAUSE	APPEARANCE	SENSATION
First	Superficial	Sun or flash	Red in color, dry, no blisters, devitalization of superficial epidermis only w/dilation of dermal vessels	Painful, hyperesthetic
Second	Partial thickness	Flash or hot fluid	Mottled appearance, moist, blistered, painful, varying loss of depth of epidermis, hyperesthetic, viable subcutaneous tissue	Painful, hyperesthetic
Third	Full thickness	Flame	Dry, hard, loss of all appendages w/viable subcutaneous tissue	Little pain or anesthetic
Fourth	Underlying-structures	Flame or Electric	Charred, cracked, loss of tissue to muscle or bone	Anesthetic

**Fig. A.2**



**Table A.4**  
**AGE IN YEARS**

	0	1	5	10	15	Adult
A-1/2 of head	9.5	8.5	6.5	5.5	4.5	3.5
B-1/2 of 1 thigh	2.75	3.25	4	4.25	4.5	4.75
C-1/2 of --1 leg	2.5	2.5	2.75	3	3.5	3.5

## COMMUNITY RESOURCES

AGENCY	PHONE NUMBER	REASONS TO CALL
Adult Protective Services	(509) 323-9400	
Alcohol and Drug (24 hour)	1-800-562-1240	Resource for individuals seeking help
Child Protective Services	(509) 363-3333	Suspicion of child abuse
Communicable Disease Control	(509) 324-1442	Immunization Information, exposure to infectious disease
Community Mental Health	(509) 838-4651	Mentally ill patients not serious enough to hospitalize, but in need of professional counseling.
Crime Check (City or County)	(509) 456-2233	Follow-up of criminal cases. Report suspicions of criminal activity.
Domestic Violence Hotline (24 hour)	(509) 327-9534	
DSHS Crisis Hotline (Spokane county)	(509) 838-4428	Mental Health Crisis access
Frontier Behavioral Health	(509)838-4428	Access to mental health services
Help Center	211	Find Local Services
Poison Information Center	1-800-222-1222	Ingestion of substances
Rape Crisis Center	(509) 624-7273	Support for sexual assault victims
Sudden Infant Death Syndrome (SIDS)	(509) 456-0505	Support for parents of SIDS victims
Suicide Crisis Line	(509) 838-4428	



## CONDITIONS FOR WHICH FIELD ASSESSMENT OF TEMPERATURE MAY BE BENEFICIAL

- ✓ Major Trauma
- ✓ Return of Spontaneous Circulation post CPA
- ✓ **Pulmonary edema**
- ✓ Extreme agitation
- ✓ Reduced Level of Consciousness
- ✓ Drowning/near drowning
- ✓ Suspected hypo/hyperthermia states
- ✓ Infectious illness

## CONVERSION TABLES

**Table A.5: Temperature Equivalents**

Rectal		Oral		Forehead		Axillary
98°	=	97°	=	97°	=	96°
99°	=	98°	=	98°	=	97°
100°	=	99°	=	99°	=	98°

**Rule of Thumb:** Rectal temperature 1° higher than an oral or forehead temperature; 2° higher than an axillary temperature.

**Table A.6 Liquid Measurements**

1 tsp	=	5cc	=	1/6 oz
1 Tbsp	=	15cc	=	1/2 oz
2 Tbsp	=	30cc	=	1 oz
1 Cup	=	240cc	=	8 oz
1 Pint	=	500cc	=	16 oz
1 Quart	=	1000cc	=	32 oz

**Table A.7: Linear Measurements**

1 mm	=	0.04 in
1 cm	=	0.4 in
2.5 cm	=	1 in
1 m	=	39.37 in

**Table A.8: Weight Measurements**

1 oz	=	30 gm
1 kg	=	1000 gm
1 kg	=	2.2 lbs
1 lb	=	0.45 kg

**Table A.9: Temperature**

**Centigrade**      **Fahrenheit**  
 $(C^{\circ} \times 9/5) + 32 = F^{\circ}$      $(F^{\circ} - 32) \times 5/9 = C^{\circ}$

0°	=	32°
35°	=	96.8°
36.5°	=	97.7°
37°	=	98.6°
37.5°	=	99.5°
38°	=	100.4°
38.5°	=	101.3°
39°	=	102.2°
39.5°	=	103.1°
40°	=	104°
40.5°	=	104.9°
41°	=	105.8°
41.5°	=	106.7°
42°	=	107.6°

## DIABETIC COMA AND INSULIN SHOCK FACT SHEET

SIGNS AND SYMPTOMS	DIABETIC COMA (KETOACIDOSIS)	INSULIN SHOCK (LOW BLOOD SUGAR)
Appearance	Extremely ill	Very weak
Skin	Red and dry	Pale
Mouth	Dry	Drooling
Thirst	Intense	Absent
Hunger	Absent	Intense
Respiratory	Exaggerated air hunger	Normal to shallow
Breath	Acetone	Normal
BP	Low	Normal
Pulse	Rapid	Normal or may be rapid
Mental state	Restless, merging into unconsciousness	Apathy, irritability
Tremor	Absent	Frequent
Improvement	Gradual, 6-12 hours	Immediate, within minutes of carbohydrate administration

## DRUG REFERENCE SHEET

**SEE NEXT PAGE**

## EMERGENCY DEPARTMENTS IN SPOKANE COUNTY

HOSPITAL	PHONE NUMBER	DEDICATED EMS GROUND LINE
Deaconess Hospital	(509) 473-7100 *(509) 473-8350	
Fairchild Clinic	(509) 247-5661	C: 995-8648
Holy Family Hospital	(509) 482-2460 *(509) 482-3951	
Sacred Heart Hospital	(509) 474-3345 *(509) 474-3600	474-4840
Valley Hospital	(509) 473-5177 * (509) 828-9673	473-5495
Veterans Hospital	(509) 434-7000	434-7010
Deaconess North Emergency Center	(509) 473-3333	

**\*Call charge nurse to expedite a Trauma, Cardiac,  
or Stroke Alert**

## EMERGENCY LARYNGECTOMY MANAGEMENT

**SEE NEXT PAGE**

## **EMERGENCY SUPPORT FUNCTION #8 SPOKANE CITY/COUNTY D.E.M. HEALTH, MEDICAL, AND MORTUARY SERVICES**

### **1. LEAD AGENCIES:**

- ✓ Spokane Regional Health District (SRHD)
- ✓ Spokane County EMS and Trauma Care Council
- ✓ Spokane County Medical Examiner
- ✓ Frontier Behavioral Health

### **2. SUPPORT AGENCIES:**

- |                                  |                                  |
|----------------------------------|----------------------------------|
| ✓ Ambulance/Private              | ✓ Law Enforcement                |
| ✓ American Red Cross             | Agencies/Local/State             |
| ✓ Department of Social and       | ✓ Medical Centers/Hospitals      |
| Health Services                  | ✓ Medical/Dental Societies       |
| ✓ Educational Services Districts | ✓ Volunteer Organizations Active |
| ✓ Fire Departments/Districts     | in Disasters                     |
| ✓ Law Enforcement                |                                  |
| Agencies/Federal                 |                                  |

### **3. INTRODUCTION:**

- A. Purpose: To organize our prehospital and community health resources to reduce the mortality and morbidity resulting from major emergencies or disasters.
- B. Scope:
- I. Scene Security and citizen evacuation.
  - II. Emergency medical response to provide triage, treatment, and transport to the injured.
  - III. The coordination of hospital resources to provide in hospital patient care and additional prehospital support as needed.
  - IV. Community mental health and ministerial services.
  - V. Control and prevention of epidemics.

- VI. Vector prevention and control.
- VII. Provision of potable water and wastewater and solid waste disposal.
- VIII. Emergency medical and public health support to displaced or sheltered persons.
- IX. Victim identification and mortuary services.

#### **4. POLICIES:**

- A. EMS response treatment by Spokane County agencies will be provided according to Spokane County and Regional Patient Care Procedures and Protocols.
- B. All EMS agencies from outside Spokane County who are called upon to provide medical assistance within Spokane County should operate under their home county procedures and protocols.
- C. The Spokane Regional Health District (SRHD) will provide guidance to the county agencies and individuals on public health principals including infectious disease control, safe drinking water, food sanitation, personal hygiene, and proper disposal of human waste, garbage, infectious waste, isolation and/or quarantine.
- D. In the event of significant disaster requiring state or federal response ESF-8; Health, Medical, and Mortuary Services will coordinate assistance and resources.
- E. The Multi-Casualty Incident Plan, as approved by the Spokane County EMS and Trauma Care Council, will provide guidance when the number of casualties is beyond the capabilities of the initial responding resources.

#### **5. SITUATION:**

- A. Emergency/Disaster Conditions and Hazards
  - I. A significant natural disaster or technological event that overwhelms Spokane County and would necessitate both state and federal public health and medical care assistance. For example, casualty estimates for a major earthquake could range from a few to thousands, depending on the population density; quality of building construction; and the location, time, magnitude,



and duration of the earthquake. The sudden onset of such a large number of victims would stress our medical system necessitating time critical assistance from both the state and federal government. Such a natural disaster would also pose certain public health threats, including problems related to food, disease vectors, potable water, wastewater, solid waste, communicable disease transmission, and mental health effects.

- II. Hospitals, nursing homes, pharmacies, and other medical/health care facilities may be structurally damaged or destroyed. Those facilities that survive with little or no structural damage be rendered unusable or only partially usable because of damage to or reduction of utilities (power, water, sewer), because staff is unable to report to work due to personal injuries, and damage or disruption of communication and transportation systems. Medical and health care facilities that remain in operation and have the necessary utilities and staff will probably be overwhelmed by the walking wounded and seriously injured victims who are transported there in the immediate aftermath of the occurrence. In the face of massive increases in demand and the damage sustained, medical supplies (including pharmaceuticals) and equipment will likely be in short supply. Most health care facilities maintain stock to only meet their short term (24 to 36 hour) normal patient load needs. Disruptions in local communications and transportation systems could prevent timely resupply.
- III. Uninjured persons who require daily medications such as insulin, anti-hypersensitive drugs, and digitalis may have difficulty in obtaining these medications because damage or destruction of normal supply locations and general shortages within the disaster area.
- IV. Although other disasters such as fires and floods do not generate the casualty volume of a major earthquake, there will be noticeable emphasis on relocation, shelters, vector control, and returning water, wastewater, and solid waste facilities to operation.
- V. An emergency resulting from an explosion, toxic gas, or radiation

release could occur, that may not damage the local medical system. However, such an event could produce a large concentration of specialized injuries that would overwhelm the local jurisdictions medical system.

**B. Planning Assumptions:**

- I. A significant natural or technological disaster could overwhelm Spokane County's medical facilities and services requiring emergency coordination of casualties.
- II. The Spokane County Hospitals, clinics, nursing homes, pharmacies, and other medical and health care facilities may be severely structurally damaged, destroyed, or rendered unusable.
- III. A disaster could also pose certain public health threats, including problems related to food, vectors, water, wastewater, solid wastes, infectious disease transmission, and mental health effects.
- IV. Damage to chemical and industrial plants, sewer lines, and water distribution systems and secondary hazards such as fires could result in toxic environmental and public health hazards to the surviving population and response personnel. This would include exposure to hazardous chemicals, and contaminated water supplies, crops, livestock, and food products.
- V. The damage and destruction of a catastrophic natural disaster will produce urgent needs for mental health crisis counseling for disaster victims and response personnel.
- VI. Disruption of sanitation services and facilities, loss of power, and massing of people in shelters may increase the potential for disease and injury.

**6. CONCEPT OF OPERATIONS:**

**A. General**

- I. This ESF is the primary responsibility of the Medical Program Director, the Medical Examiner and the Public Health Officer. They shall coordinate with all agencies having medical responsibilities.

**B. Organization**

- I. The Incident Command System will be used.

## **7. RESPONSIBILITIES:**

### **A. Emergency Medical Services**

- I. The primary objective of Emergency Medical Services in a disaster is to provide prompt and adequate on-scene emergency medical care to the victims. In addition, EMS shall assist in the:
  - ✓ Identification and coordination of medical resources
  - ✓ Identification of potential sites and support staff for temporary emergency
  - ✓ Emergency care shelters and congregate care facilities
  - ✓ Coordination of medical transportation resources
- II. The Spokane County EMS Multi-Casualty plans will detail operational concepts and responsibilities to ensure the Emergency Medical Services existing in the area will be capable of providing mass casualty emergency medical services during an emergency/disaster.
- III. The provision of basic and advanced life support services shall be provided per the Spokane County EMS Patient Care Procedures and Protocols. Mutual aid between and among emergency medical service providers shall be used to make maximum efficient use of existing local, regional, or interregional assets, resources and services. Response requirements may exceed the capabilities of local Emergency Medical Services System and can be augmented by services and assets provided under mutual aid, if available.
- IV. A representative of the Medical Program Director's office and the jurisdictional fire agencies will jointly perform the EOC function of coordinating the EMS resources.
- V. Transport services will respond according to their established Ambulance Services Plan. (See Attachment #4)
- VI. Hospitals will respond according to their established emergency response plans. (See attachment #4)

**B. Spokane Regional Health District (SRHD)**

- I. SRHD provides coordinated health and sanitation services within the community, including:
  - ✓ Identification of health hazards
  - ✓ Identification and control of communicable diseases
  - ✓ Vector control
  - ✓ Examination of food and water supplies for contamination
  - ✓ Ensure compliance of emergency sanitation standards for disposal of garbage, sewage, and debris
  - ✓ Assist in the assessment of environmental contamination and public health risk from hazardous materials spills
  - ✓ Mental health services, including stress management services for emergency responders
  - ✓ Keep the County Government, Emergency Management, and the public informed regarding health conditions, warnings, and advisement
- II. A representative of the SRHD will perform the EOC function of coordinating the Public Health Resources.
- III. The Health Officer provides oversight of sewage treatment.
- IV. In coordinating public health services and establishing priorities, administrative details shall be accomplished by the Health Officer. Decisions involving medical and technical expertise within the agency's scope of practice shall be the responsibility of the Health Officer.
- V. Determination of critical priorities in the public health effort will be made in consultation with the Board of Health and state and federal service agencies.
- VI. SRHD will provide guidance and/or services related vaccinations/prophylaxis for disease prevention.

**C. Mortuary Services**

- I. The Medical Examiner has jurisdiction over bodies of deceased (RCW 68.08.010). Procedures may vary if an incident falls under the jurisdiction of the FAA, State, or the military.
- II. A representative of the Medical Examiner's Office will perform the

EOC function of coordinating the mortuary resources.

- III. Emergency Management will coordinate support to local mortuary services as needed. The funeral directors may assist in the processing of human remains at the discretion of the Medical Examiner.
- IV. If local resources for proper handling and disposition of the dead are exceeded, the State and/or Federal Government may provide supplemental assistance for identification, movement, storage, and disposition of the dead. The Medical Examiner may make a request for such assistance to Emergency Management or to the State Department of Health.

**D. Emergency Vital Statistics**

- I. Law enforcement agencies provide oversight for missing persons.
- II. The Medical Examiner identifies deceased persons in all of Spokane City/County.
- III. Deaths are registered at the SRHD's Vital Records Office.
- IV. The investigating entity is responsible for family and public notification of deceased persons.

**E. Mental Health**

- I. Frontier Behavioral Health will provide oversight for mental health services to the public and/or responders, in coordination with The American Red Cross.

**F. Ministerial**

- I. Spokane County Ministerial Group, Volunteer Organizations Active in Disasters, and The American Red Cross will work in conjunction with the Spiritual Response Team to address all ministerial duties.

**8. RESOURCES REQUIREMENTS:**

- A. See Comprehensive Emergency Management Plan

**9. REFERENCES:**

- A. Multi-Casualty Plan
- B. Hospital Emergency Response Plan

- C. Mental Health Disaster Intervention Plan
- D. Ambulance Services Plan
- E. Mortuary Services Plan

**10. TERMS AND DEFINITIONS:**

- A. See Comprehensive Emergency Management Plan

## EMERGENCY TRACHEOSTOMY MANAGEMENT

**SEE NEXT PAGE**

## FIELD OPERATIONS GUIDE (FOG)

[Click Here to View the latest FOG](#)



## HELICOPTER SAFETY REFERENCE

### LANDING ZONE (LZ) SELECTION:

Figure A.3: LZ Selection

<b>Size:</b> <ul style="list-style-type: none"> <li>✓ Daytime: 75'x 75' minimum</li> <li>✓ Nighttime: 100'x 100' minimum</li> </ul>	<b>LZ Surface:</b> <ul style="list-style-type: none"> <li>✓ Relatively smooth and flat (&lt; 7°)</li> <li>✓ Clear of obstacles, trees, and loose debris</li> </ul>
<b>Identify obstacles, Look for:</b> <ul style="list-style-type: none"> <li>✓ Poles</li> <li>✓ Wire</li> <li>✓ Obstacles that may interfere with landing</li> </ul>	<b>Mark the LZ:</b> <ul style="list-style-type: none"> <li>✓ Overhead emergency light bars</li> <li>✓ Flares, with caution</li> <li>✓ Portable strobe lights or beacons</li> <li>✓ Automobile headlights on dim, turned off when helicopter approaches LZ Mark and requested by pilot.</li> <li>✓ Mark obstacles and poles with overhead wires with spotlights</li> </ul>

**COMMUNICATIONS:** As ETA approaches, call Northwest MedStar on designated frequency and provide pilot with location of obstacles, direction and speed of wind and surface information.

### DIRECTING HELICOPTER TO THE SCENE:

- ✓ Advise pilot when you hear and/or see aircraft
- ✓ Give pilot scene direction relative to helicopter, e.g., "We are at your (meaning the helicopter's) three o'clock position" or "We are north of your position"
- ✓ Advise pilot when the aircraft is directly overhead
- ✓ Give brief patient update to medical crew

**SAFETY:**

**Figure A4: Helicopter Landing Do's and Don'ts**

Do's	DON'TS
<ul style="list-style-type: none"> <li>➔ <b>Wear</b> hearing protection.</li> <li>➔ <b>Keep</b> all personnel back 200 feet from an approaching or departing aircraft.</li> <li>➔ <b>Secure</b> loose clothing.</li> <li>➔ <b>Protect</b> yourself and the patient from rotor wash.</li> <li>➔ <b>Be aware</b> of the possibility of a significant wind chill factor.</li> <li>➔ <b>Assign</b> tail rotor guards to both sides at the 3 o'clock, 9 o'clock, and within eye contact of the pilot, to keep onlookers and other personnel away from tail rotor.</li> <li>➔ <b>Assist</b> Northwest MedStar crew with loading as directed.</li> </ul>	<ul style="list-style-type: none"> <li>⊘ <b>Do not</b> approach the aircraft unless directed by the MedStar crew .</li> <li>⊘ <b>Do not</b> approach from the rear of the aircraft, near the tail rotor. Maintain visual contact with pilot, at all times.</li> <li>⊘ <b>Never</b> approach the aircraft if the rotors are still moving.</li> <li>⊘ <b>Do not</b> approach from the uphill side of a sloped landing zone.</li> <li>⊘ <b>Do not</b> smoke or run within 200 feet of the aircraft.</li> <li>⊘ <b>Do not</b> bring any vehicle within 75 feet of the aircraft.</li> <li>⊘ <b>Do not</b> use any part of the aircraft as a handhold.</li> </ul>

## INTERPRETATION OF STEP 3 OF THE STATE OF WASHINGTON PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURE



Step 3 of the **State of Washington Prehospital Trauma Triage (Destination) Procedure** requires integration of the patient's clinical condition, with the potential for significant injury, based upon how the injury was caused, as well as additional factors that increase the likelihood of injury severity. This requires the EMS provider to apply judgment integrating the patient's clinical condition with the potential for significant injury, secondary to the mechanism, the environment, and other patient conditions which increase the likelihood of trauma.

For example, being in a bicycle accident by itself does not define significant trauma. A car rollover, historically, has been a major cause of injury, but, given improvements in vehicle safety, results in major trauma less often. A very cold day does not mandate transfer of a minor injury patient to a trauma center provided the patient has not suffered major environmental exposure. Extremes of age represents a statistical increased risk that an injury may be more serious, but, by themselves, do not define significant trauma.

EMS providers in the State of Washington strongly encourage the inclusion of "gut feeling of medic" in determining which patient qualifies as a Step 3 patient. Truly, for the purpose of the prehospital triage of Step 3 patients, the "gut feeling of the medic" which is slang for well-trained EMS provider judgment, is essential to the triage of all these patients.



## LEVELS OF TRAUMA, STROKE, AND CARDIAC HOSPITALS IN SPOKANE COUNTY

### TRAUMA FACILITIES:

Hospital	Trauma Lv 2	Trauma Lv 3	Ped Trauma LV 2
Providence Sacred Heart Medical Center	✓		✓
Providence Holy Family Hospital		✓	
MultiCare Deaconess Hospital		✓	
MultiCare Valley Hospital		✓	

### STROKE FACILITIES

Hospital	Stroke Lv 1	Stroke Lv 2	Stroke LV 3
Providence Sacred Heart Medical Center	✓		
Providence Holy Family Hospital		✓	
MultiCare Deaconess Hospital	✓		
MultiCare Valley Hospital			✓

### CARDIAC FACILITIES

Hospital	Cardiac Lv 1	Cardiac Lv 2
Providence Sacred Heart Medical Center	✓	
Providence Holy Family Hospital		✓
MultiCare Deaconess Hospital	✓	
MultiCare Valley Hospital		✓

## MANIKIN INTUBATION CREDIT REQUIREMENT FOR THE AIRWAY COMPONENT OF RECERTIFICATION

1. Documentation of a manikin intubation should be done on the DOH “TRAINING, CME, AND SKILLS MAINTENANCE DOCUMENTATION FORM”. The procedure must be observed, signed, and dated by the Physician Advisor of the EMS agency.
2. Each session must include an adult, pediatric, and SGA component.
3. Each session counts for a single intubation regarding numbers required for recertification.
4. Manikin intubation experiences are limited to no more than one session per week.

## OXYGEN ADMINISTRATION FOR SUSPECTED OR KNOWN COVID-19 PATIENTS

1. Nasal cannula < 6 LPM and with surgical face mask.
2. Nonrebreather mask (NRB), with surgical face mask over the NRB, for > 6 LPM up to 15 LPM.
3. Small volume nebulizer (SVN): Use metered dose inhaler (MDI) with a spacer, if available. If an SVN is used, consider attaching the nebulizer to a simple mask and placing a surgical face mask over the nebulizer mask. Complete SVN treatment or discontinue use prior to transfer into the hospital.
4. CPAP: Use when necessary, after alternatives exhausted (e.g., MDI, NRB, etc.). Upon arrival at hospital, discontinue and transfer to NRB at 15 LPM, with surgical face mask, for transfer into the facility.
5. Intubated and BVM patients: Meet hospital staff at the emergency department-receiving area (i.e., ambulance bay) for direct transfer to negative pressure room.
6. Consider encouraging hypoxic non-intubated conscious patients to reposition to a position of comfort.
7. Use appropriate PPE in all scenarios.

**Note:** Currently, during the COVID-19 pandemic, all patients with a respiratory complaint are considered suspected COVID-19 positive.

## MPD CONTROLLED SUBSTANCE MANAGEMENT GUIDELINES

**SEE NEXT PAGE**

## PANDEMIC INDEX OF SEVERITY FOR TRIAGE (PIST)

Figure A.5: Pandemic Index of Severity for Triage

Points	Indications
4	Fever > 100°F (without the use of antipyretics) or > 99°F (with the use of antipyretics)
6	Respirations > 30
13	Pulse oximetry < 90 %
13	Systolic BP < 90 with associated signs of hypotension
3	Pulse > 125
7	Altered mental status
3	Age (3 points if ≤ 25)
3	Pregnancy
2	Significant comorbid illness (stroke, CHF, asthma, diabetes, COPD, suppressed immune system, kidney disease and neuromuscular disorders)
<b>Total:</b>	

### ADMISSION TO HOSPITAL: SCORE > 12 OR

- ✓ Toxic appearance or rapid decompensation (especially important in patients < 25 and pregnant women).
- ✓ Patients whose level of disability or medical complexity (e.g., on dialysis, quadriplegia, dementia, etc.) would overwhelm the ability of assigned staff to provide basic care for other patients at Alternate Care Centers.

### ADMISSION TO ALTERNATE CARE CENTER: SCORE > 12 AND

- ✓ Needs closer monitoring and nursing care (for example; IV fluids, IV antibiotics, etc.)
- ✓ Unable to care for self



- ✓ No hospital beds available.

#### **DISCHARGE TO HOME:**

- ✓ Poor prognosis and unlikely to benefit from hospitalization
- ✓ Score < 12 and able to care for self or has caregiver and able to return if symptoms worsen.

#### **PERSONAL PROTECTIVE EQUIPMENT (PPE):**

- ✓ Respiratory masks
- ✓ Antiseptics
- ✓ Bleach for household surfaces

**ISOLATION:** Keep separated from other family members as much as possible, use hand washing, and dispose of tissues in plastic bags. Wear respiratory mask when outside the home. Patient should remain isolated from other persons for at least 24 hours after fever breaks. If healthcare providers should become infected, they should remain isolated from other persons for at least 7 days after the onset of symptoms. 911 EMS: the ability of EMS to deliver patients to a non-hospital will require changes in current state statutes, which may come about in the context of a declaration of emergency.

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\*There must be a local or state declaration of an emergency under the provisions of RCW 38.52. A local declaration must be made by the local executive and EMS providers are registered as emergency workers under state law (38.52) and under the direction of the Spokane Regional Health District Officer, a physician delegate to the Spokane County MPD.

## PARAMEDIC REQUIREMENTS FOR PRACTICING IN SPOKANE COUNTY

### CATEGORIES:

1. Paramedic new to our Spokane County EMS system
2. Paramedic having previously practiced in Spokane County and has been absent from our Spokane County EMS system for the past 3 years
3. Paramedic having previously practiced in Spokane County and has been absent from our EMS system more than 1 year, but < 3 years
4. Paramedic having previously practiced in Spokane County and has been absent from our system < 1 year
5. Paramedic has previously practiced in Spokane County and is now serving in an EMS administrative or non-practicing position
6. Paramedic new to Spokane County and is now serving in an EMS administrative or non-practicing position

**Table A.10: Spokane County EMS Integration Activities:**

<b>1,2</b>	Under paramedic supervision, ride for 24 hours as an observer or second paramedic with an ambulance company.
<b>1,2</b>	Under paramedic supervision, ride for 24 hours as an observer with a Fire Department paramedic response.
<b>1,2</b>	Under paramedic supervision, ride for 40 hours as a second paramedic with employing EMS agency and assuming all patient care responsibility.
<b>3</b>	Under paramedic supervision, ride for 24 hours as a second paramedic with employing EMS agency and assuming all patient care responsibility.
<b>6</b>	Under paramedic supervision, ride for 8 hours as an observer with a fire department response unit and 8 hours as an observer with an ambulance company paramedic response unit

**Table A.11: Documentation/Information to be submitted**

<b>1-6</b>	Letter from EMS Agency Physician Advisor evaluating knowledge of Spokane County EMS protocols, Patient Care Procedures, and proficiency with invasive procedures.
<b>1,2,3</b>	Evaluation (training checklist or letter) from ambulance company supervising paramedic.
<b>1,2,3</b>	Evaluation form (training checklist or letter) from Fire Department supervising paramedic.

## PEDIATRICS AT A GLANCE

**PEDIATRIC PATIENTS:** Individuals who have not reached their 12<sup>th</sup> birthday or appear to be under 40 kg (88 lbs).

### AVERAGES FOR AGE

Table A.12

	Pulse	B.P. Systolic	Respiration	Wt. kg	Wt. lb
Premature	140	50-60	>60	1-2	2.2-4.4
Newborn	110-150	60-90	30-60	3-4	6.6-8.8
1 year	100-140	75-100	25-40	10	22
2 Years	90-100	75-100	25-40	16	35
6 Years	80-100	85-100	22-30	20	44
10 Years	70-110	90-110	14-22	40	88
Adolescent	60-100	100-120	12-20	50-70	110-154

Table A.13

	E.T. Tube Sizes	E.T. Length
Premature	2.5	6+ wt.
Newborn	3	6+ wt.
6 Months	3.5	11
18 Months	4	11
3 Years	4.5	13
5 Years	5	14
6 Years	5.5	15
8 Years	6	17
12 Years	6.5	19
16 Years	7	20-24
Adult	8-9	22-24

Table A.14

<b>Pediatric Fluid:</b>	TKO fluid= NS
<b>Pediatric Fluid Challenge:</b>	20 ml/kg NS rapidly IV. May repeat initial dose x2
<b>Pediatric Cardioversion:</b>	0.5-1 joules/kg
<b>Pediatric Defibrillation:</b>	2 joules/kg, then 4 joules/kg

## PIT CREW



The Pit Crew concept of resuscitation is intended to organize EMS responder's efforts most likely arriving at different times and from different agencies to rapidly and effectively prioritize and provide critical elements associated with successful resuscitation. By learning the possible roles an EMS responder may be requested to provide, the responder should be able to rapidly integrate themselves into a resuscitation.

**If not already in place**, consider a mechanical CPR device prior to transport if ROSC is obtained.

What this Reference is **NOT**:

The Pit Crew concept is not intended to require that an EMS agency respond to every cardiac arrest with 5-6 EMS personnel.

Depending upon the design of the local EMS system and the resources available, a single individual may be the only responder initially available. However, if more resources are recruited to the scene, the understanding of these positions will help ensure their efficient integration into the resuscitation. Whether it is one, two, or more responders, the goal of this concept is to facilitate each responder's knowledge of what roles and priorities will increase the chances of a successful resuscitation.



## TEAM FOCUSED CPR PROTOCOL: A COORDINATED APPROACH TO CARDIAC ARREST

- ✓ Begin continuous CPR compressions
- ✓ Push Hard ( $\geq 2$  in.) Push Fast ( $> 100$ -120/min)
- ✓ Change compressors every 2 minutes
- ✓ (Limit changes/pulse checks  $\leq 5$  seconds)

### Position 1-Compressor

- ✓ Assess responsiveness
- ✓ Initiate chest compressions if needed
- ✓ Alternate compressor with position 2

### Position 2-AED/Monitor

- ✓ Applies AED or Manual Defibrillator
- ✓ Operates AED/Defibrillator as appropriate
- ✓ Applies 15 L O<sub>2</sub> via NRB
- ✓ Alternates chest compressions with position 1

### Position 3-Airway

- ✓ Assembles and applies equipment for airway and ventilations
  - OPA, BVM, KING, etc.
- ✓ Ventilate at 8-10 breaths

### Position 4-Team Lead

- ✓ May function as *team leader*
- ✓ Check off sheet
- ✓ Code timer

### ALS Integration

- ✓ One Paramedic
  - Communicates/interfaces with providers performing CPR
  - Establishes IV/IO
  - Administers medications as appropriate
- ✓ Two Paramedics
  - Sets up and operates manual defibrillator
  - Advanced airway, if necessary and resources allow



### Position 4:

- ✓ Timer
- ✓ Check-off sheet



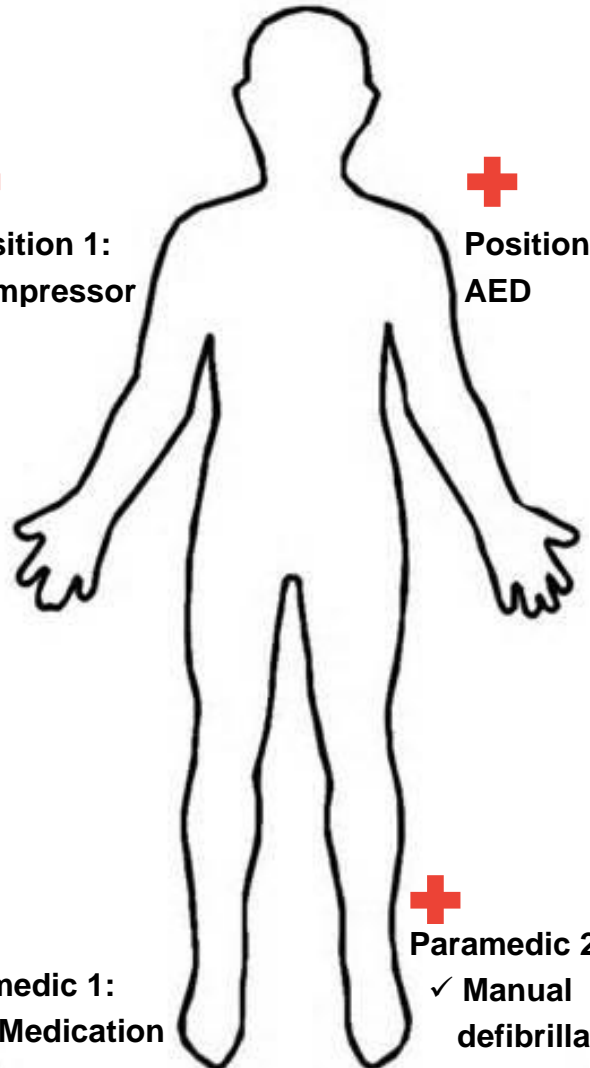
### Position 3: Ventilations



### Position 1: Compressor



### Position 2: AED



### Paramedic 1: IV/IO Medication



### Paramedic 2: Manual defibrillator ✓ Assist PM 1

## PRE/POST CARDIAC ARREST CHECKLIST

### Pre-ROSC Cardiac Arrest Checklist

- ☐ Immediately start compressions only CPR. Make room to work!
- ☐ Hook up Quick Look Patches (see second pearl). Perform "Quick Look" for shockable rhythm. Administer defibrillation if appropriate. Resume high quality CPR, restarting 2-minute timer. Place NRB or BVM as appropriate.
- ☐ O<sub>2</sub> cylinder, with oxygen, is attached to airway adjunct. If BVM is used, 1 modest breath every 8 seconds without interrupting compressions (see fifth pearl).
- ☐ Code Team Leader is verbally identified, in accordance with on-scene medical authority. In charge of code; follows checklist.
- ☐ The Code Team Leader can have a mechanical CPR device placed on the patient at the earliest interval, if available.
- ☐ Defibrillations occurring at 2-minute intervals for shockable rhythms. Team leader gives 15-second warning to change compressors and charge defibrillator.
- ☐ One provider is dedicated to operating the AED/Monitor and administering defibrillations as appropriate.
- ☐ One provider is assigned to initiate IV/IO access and administer medications as requested by Code Leader.
- ☐ Metronome confirmed continuous compressions are ongoing at **100-120** beats/minute, if available.
- ☐ ETCO<sub>2</sub> waveform is present and value is being monitored. Oxygen saturation is being monitored
- ☐ Underlying causes, including H's and T's (see Pearls), have been considered and treated early in arrest.
- ☐ Family is receiving care and is proximal to patient.
- ☐ Officer or delegate begins collecting patient information.

#### PEARLS:

- Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement, if available and difficult IV anticipated.
- If no CPR or ineffective CPR is being executed on arrival, begin high quality CPR. Perform "Quick Look." If high quality CPR is in process on arrival and a shockable rhythm is present, begin defibrillation without delay. Resume high quality CPR, restarting 2-minute timer.
- A mechanical CPR device can be applied at the most appropriate interval.
- **DO NOT** hyperventilate: Ventilate 8-10/minute. Do not interrupt compressions for ventilations.
- Do not interrupt compressions to place endotracheal tube. Consider Supra-Glottic Airway (SGA) first, to limit interruptions.
- Success is based on proper planning, execution, and a team based approach. Procedures require space and patient access.
- **H's and T's:**

✓ Hypovolemia	✓ Hypo/Hyperthermia	✓ Thrombosis (MI)
✓ Hypoxia	✓ Tablets/Toxins/Tricyclics	✓ Thromboembolism
✓ Hydrogen ions (acidosis)	✓ Tamponade	(Pulmonary Embolism)
✓ Hypo/Hyperkalemia	✓ Tension pneumothorax	✓ Trauma

#### **POST ROSC CARDIAC ARREST CHECKLIST**

- ☐ Finger on pulse; maintain for 10 minutes. DO NOT MOVE the patient during this time. Use femoral or brachial/radial artery.
- ☐ Obtain VS and 12 lead.
- ☐ If STEMI evident. Call cardiac post arrest with “STEMI” ALERT to hospital.
  - SHMC adult charge nurse **474-7145**
  - SHMC Pediatric charge nurse **474-3607**
  - Deaconess charge nurse **473-8350**
- ☐ If hypotensive, administer Normal Saline 1-2 L. If rales present, titrate Dopamine to maintain SBP  $\geq 90$ .
- ☐ Continuous visualization of cardiac monitor rhythm.
- ☐ Check O<sub>2</sub> supply and pulse Ox to titrate to SpO<sub>2</sub> 94-96%.
- ☐ Assess CO<sub>2</sub> (should be  $> 20$  with good waveform).
- ☐ Do not try to obtain a normal ETCO<sub>2</sub> by increasing respiratory rate.
- ☐ Assess for and treat arrhythmias.
- ☐ Evaluate for post resuscitation airway placement (e.g. ETT), if not already in place.
- ☐ If intubated or SGA, apply C-Collar before moving.
- ☐ When patient is moved, perform Continuous Pulse Check and continuous monitoring of cardiac rhythm (use femoral or brachial/radial artery).
- ☐ Mask is available for BVM in case advanced airway fails.
- ☐ Document patient medications on County MIR.
- ☐ Once in ambulance, confirm pulse, breath sounds, SpO<sub>2</sub>, ETCO<sub>2</sub>, and cardiac rhythm.



**PEARLS:**

- Recommended Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro
- Continue to search for potential cause of cardiac arrest during post resuscitation care.
- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.
- Initial end tidal CO<sub>2</sub> may be elevated immediately post resuscitation but will usually normalize. While goal is 35-45 mmHG, avoid hyperventilation.
- Transport to facility capable of managing the post arrest patient, including hypothermia therapy, cardiac catheterization and intensive care service: follow the Cardiac Arrest Destination Plan.
- Most patients immediately post resuscitation will require ventilator assistance.
- The condition of post resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post resuscitation management may require consultation with medical control.
- Common causes of post resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
- If the patient re-arrests after or during completion of the "Post ROSC Cardiac Arrest Checklist" it does not obligate the EMS responders to a specific additional time frame to remain on-scene rather, it should prompt a reassessment of the patient to ensure that we have done, and are continuing to do, everything that increases the chance of a successful resuscitation.
- If re-arrest occurs during ground ambulance transport the vehicle should be stopped, if safely possible, so as to allow for more effective CPR and provider/ patient safety. If the resuscitation fails and medical control concurs in the termination of resuscitation, all efforts should cease. The ambulance should continue (Code Green) to the receiving hospital for assistance with the deceased patient's remains and family notification.

## RECOMMENDED GUIDELINES FOR THE SCOPE OF AED TRAINING OF SITE SPECIFIC PERSONNEL

Although high quality specific training of appropriate personnel best ensures the successful use of an automated external defibrillator, the intention of Public Access Defibrillation (PAD) is simply to make it widely available. There have been numerous examples of untrained citizens successfully operating the device that reflect the simplicity and safety of its use. Specific responsibility for the training and operation of AEDs should be established wherever resources permit. However, widespread awareness level training that briefly identifies the indications for use of the device and its location should not be impeded by the desire for a more formal system of response.

### GENERAL TRAINING GUIDELINES:

1. All employees should receive awareness level training that describes the location of the AED(s), their purpose, how to initiate the delivery of the AED by trained personnel, and the importance of simultaneously contacting 911.
2. A specific employee category(s) should be trained in the operation of the AED and tasked with the delivery of the device to the patient. Personnel currently required to be certified in First Aid may well be an appropriate group to focus on for initial AED training. Whatever group is targeted for this training should be selected on factors including the following:
  - ✓ The employee category should demonstrate a willingness to undertake initial training as well as periodic refresher training regarding AED operations
  - ✓ The employee category should be onsite the greatest amount of time during hours when the need for an AED is most likely.
  - ✓ The employee category should be familiar with the physical plant and how most rapidly to access various locations.
  - ✓ The employee category should be accessible via cell phone, pager, or similar communication devices as well as have access for outgoing communications to ensure the timeliness of a 911 response.

## REVISED TRAUMA SCORE (R.T.S.)

**R.T.S.** = Respiratory Value + Systolic Blood Pressure Value + Glasgow Coma Scale

**Table A.15: Respiratory Score**

Respiratory Rate	Score
10-29	4
>29	3
6-9	2
1-5	1
0	0

**Table A.16: Systolic Blood Score**

Systolic Blood Pressure	Score
>89	4
76-89	3
50-75	2
1-49	1
0	0

## GLASGOW COMA SCALE

**Table A.17: Eye Opening Score**

Eye Opening	Score
Spontaneous	4
To voice	3
To pain	2
No response	1

**Table A.18: Motor Response Score**

Motor Response	Score
Obeys commands	6
Locates pain	5
Withdraws	4
Flexion to pain	3
Extension to pain	2
No response	1

**Table A.19: Verbal Response Score**

Verbal Response (under 2)	Score
Oriented	5
Confused	4
Inappropriate, persistent crying	3
Agitated, restless	2
No response	1

**Table A.20: Verbal Response Under 2 Score**

Verbal Response (Under 2)	Score
Oriented	5
Confused	4
Inappropriate	3
Incomprehensible	2
No response	1

## SEXUAL ASSAULT RESOURCES

**SEE NEXT PAGE**

## STOMA/TRACHEOSTOMY MANAGEMENT-ADULT & PEDIATRIC

**INTRODUCTION:** The majority of patients needing either a Laryngectomy stoma or tracheostomy tube as their primary airway require constant vigilance and effort in maintaining patency. Cardio-respiratory arrest most commonly results from an obstruction within the stoma or tracheostomy. Obstructions may be due to thick secretions/mucous plug, blood clot, foreign body, or kinking or dislodgement of the tube or stoma. Early recognition and prompt application of appropriate care are required to re-establish airway patency and provide adequate oxygenation/ventilation.

**WARNING SIGNS:** Early warning signs of obstruction include Tachypnea, tachycardia, and desaturation. Cyanosis, bradycardia and apnea are late signs, do not wait for them to develop before intervening.

**INDICATIONS:** Endotracheal suctioning is necessary to remove mucous, maintain a patent airway, and avoid blockages. Indications can include:

- ✓ Audible or visual signs of secretions in or around the stoma or tube
- ✓ Signs of respiratory distress
- ✓ Suspicion of blocked or partially blocked stoma or tube
- ✓ Weak or ineffective cough
- ✓ Increases in required ventilation pressures (in ventilated patients)
- ✓ Request by patient for suction

**COMPLICATIONS:** Complications resulting from prehospital treatment can include:

- |                      |   |
|----------------------|---|
| ✓ Airway obstruction | ✓ Subcutaneous and mediastinal emphysema  |
| ✓ Aspiration         |   |
| ✓ Blocked tube       | ✓ Respiratory and cardiovascular collapse |
| ✓ Bleeding           | ✓ Dislodged tube                          |
| ✓ Tracheal trauma    | ✓ Tracheo-esophageal fistula              |
| ✓ Pneumothorax       | ✓ Infection                               |

### CONSIDERATIONS:

- ✓ Tracheal suctioning should be carried out regularly for patients with a stoma/tracheostomy. The frequency will vary between patients and is based on individual assessment.
- ✓ Tracheal damage may be caused by suctioning. This can be minimized by using the correct appropriate sized suction catheter and only suctioning within the tracheostomy tube.

TRACHEOSTOMY TUBE SIZE (MM)	RECOMMENDED SUCTION CATHETER SIZE (Fr)
3 mm	6
3.5 mm	8
4 mm	8
4.5 mm	10
5 mm	10
6 mm	10-12
7 mm	14
7.5 mm	14-16
8 mm	14-16
9-10 mm	16

- ✓ The pressure setting for tracheal suctioning (suction machine pressure for small children 50-100 mmHg, for older children and adults, 100-200 mmHg) to avoid tracheal damage.

### PROCEDURE

1. Explain the procedure to the patient.
2. Maintain appropriate PPE throughout procedure
3. Slightly elevate the patient's head and shoulders.
4. Assemble needed equipment and power on suction device.

5. Instill only a small volume of sterile normal saline into the tracheostomy tube if needed for thick or dry secretions. Excessive use of saline is not recommended.
6. Only use saline if the mucous is very thick, hard to cough up, or difficult to suction. Use 1-2 ml for each instillation.
7. Using aseptic technique, carefully insert catheter into the tracheal tube or stoma. Do not apply suction, while gently advancing until resistance is felt. This will usually be 4 to 5 inches for an adult. Withdraw the catheter about 2 cm before starting suction.
8. Place thumb over opening in catheter to create suction and use a circular motion (twirl catheter between thumb and index finger) while withdrawing the catheter to allow mucous to be removed from all areas. **Avoid suctioning longer than 10 seconds.** Suction normal saline from a container if needed to clear catheter.
9. Allow the patient to rest and breathe, then repeat suction, if needed, until clear. Allowing 30 seconds between suction attempts. After 3 suction attempts, the patient should be allowed to rest for 5-10 minutes before resuming suctioning.
10. Oxygenate and ventilate as needed. If equipment is available, monitor patient's SPO<sub>2</sub>, ETCO<sub>2</sub>, and cardiac rhythm before, during, and after the procedure.

**SKIN CARE:** It is important to routinely clean the skin around the opening of the tracheostomy (stoma) following suctioning. This will help prevent skin irritation and the buildup of secretions. Gently remove any secretions surrounding the stoma using cotton-tipped applicators, damp washcloth, or moistened paper towels. Avoid using facial tissue or any material that has been cut, which can create particles that can irritate the airway. Cover the stoma with a dry 4x4 gauze dressing, folded, if necessary.

**TIE CHANGES:** If used, tracheostomy tubes are secured using either twill or Velcro® type ties. Have two persons available due to risk of tracheostomy tube dislodgment when attending to tie changes.

### **TWILL TIES PROCEDURE:**

1. Leave the old ties in place. Pull on the end of the twill tie through either neck flange hole. Adjust the ends of the tie until one is 3 to 4 inches longer than the other side.
2. Bring both ends of the tie around the neck and insert the longer end of the tie through the other neck flange hole.
3. Pull the tie snug. Place one finger between the tie and the neck. Tie the two ends together using a square knot. Do not use a bow.
4. Cut the ends of the ties leaving only 1 to 2 inches.
5. Carefully cut and remove soiled ties.

### **VELCRO® TIES**

1. Follow manufacturer's directions for measuring and applying the tie.
2. Use fingers to hold both sides of the neck plate of the tracheostomy tube in place. Release 1 side of the Velcro® fastener.
3. Insert and secure the Velcro® strip in the same neck plate hole.
4. With fingers still holding both sides of the neck plate, remove the old Velcro® tie from the other side.
5. Insert and secure the clean Velcro® strip into the neck plate. Remove the old Velcro® tie from the other side.
6. Adjust the clean ties to fit your neck. You should be able to fit 1 to 2 fingers between the tie and neck.



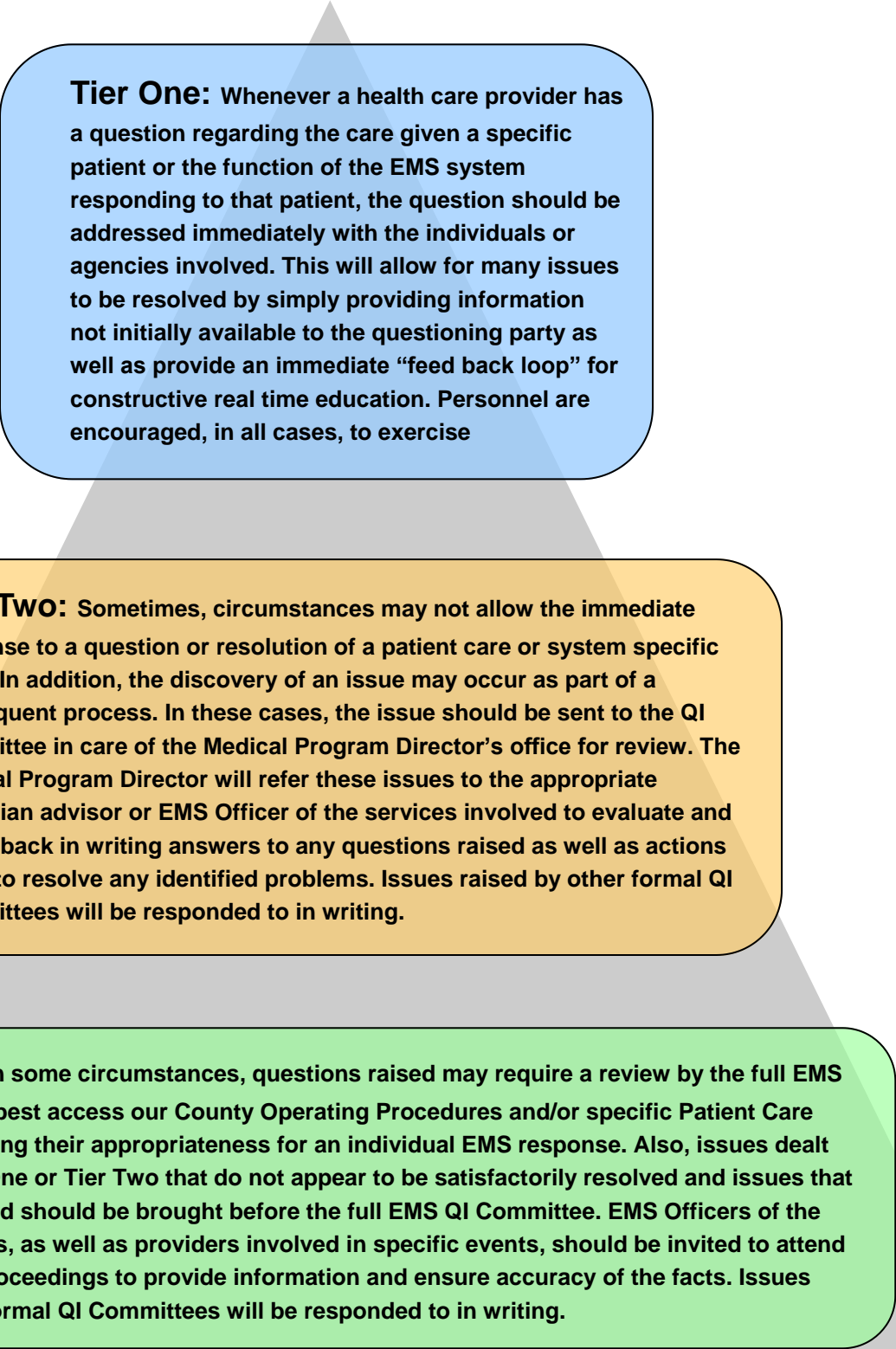
## TIERED RESPONSE TO EMS PATIENT CARE CONCERNS AND SYSTEM ISSUES



In order to more rapidly address patient care concerns and/or EMS operating procedures, it is recommended that a tiered approach be used (**see figure A.6 on next page**). This will allow for a more immediate resolution of minor issues as well as a progressive and thorough evaluation of potentially greater issues regarding individual patient care events and/or EMS system performance.



Fig. A.6: Tiered Response



**Tier One:** Whenever a health care provider has a question regarding the care given a specific patient or the function of the EMS system responding to that patient, the question should be addressed immediately with the individuals or agencies involved. This will allow for many issues to be resolved by simply providing information not initially available to the questioning party as well as provide an immediate “feed back loop” for constructive real time education. Personnel are encouraged, in all cases, to exercise

**Tier Two:** Sometimes, circumstances may not allow the immediate response to a question or resolution of a patient care or system specific issue. In addition, the discovery of an issue may occur as part of a subsequent process. In these cases, the issue should be sent to the QI Committee in care of the Medical Program Director’s office for review. The Medical Program Director will refer these issues to the appropriate physician advisor or EMS Officer of the services involved to evaluate and report back in writing answers to any questions raised as well as actions taken to resolve any identified problems. Issues raised by other formal QI Committees will be responded to in writing.

**Tier Three:** In some circumstances, questions raised may require a review by the full EMS QI Committee to best access our County Operating Procedures and/or specific Patient Care Protocols regarding their appropriateness for an individual EMS response. Also, issues dealt with within Tier One or Tier Two that do not appear to be satisfactorily resolved and issues that may have recurred should be brought before the full EMS QI Committee. EMS Officers of the involved agencies, as well as providers involved in specific events, should be invited to attend the committee proceedings to provide information and ensure accuracy of the facts. Issues raised by other formal QI Committees will be responded to in writing.

**WASHINGTON STATE DEPARTMENT OF HEALTH SCOPE OF  
PRACTICE FOR EMS PROVIDERS**

**SEE NEXT PAGE**

# APPENDIX D: REFERENCE FORMS

## ABANDONED BABIES ACT

**THE LEGAL PROCESS:** A baby who is transferred to a hospital employee or to a fire station worker will be placed in the legal custody of the Department of Social and Health Services (DSHS).

**LEGAL RIGHTS OF PARENTS:** A parent who transfers custody of a newborn baby to qualified personnel at a hospital or fire station does not abandon the baby and does not commit any crime.

Once the baby is transferred, DSHS starts a lawsuit (called a “dependency action”) in juvenile court. A juvenile court judge will decide that the baby has no parent who can care for him/her. The judge will give custody of the baby to DSHS so that the baby can be placed in a foster home and so that DSHS has legal authority to make decisions about the baby’s health, safety and welfare. Most often the baby will be placed with foster parents who want to adopt a child.

The parent of a child who is in the custody of DSHS has legal rights. You continue to have these rights, if you take advantage of them, even though you have transferred custody of your baby, until the juvenile court makes a permanent decision about the child’s welfare. If you decide you want to take advantage of these rights you should contact DSHS as soon as possible so that you can begin to participate in the juvenile court case involving your baby. If you do participate in the legal action, your rights would include the following:

- ✓ **The right to a hearing within 72 hours** (excluding Saturdays, Sundays and holidays) from the time your child is taken into custody.
- ✓ **The right to an attorney** to represent you throughout the juvenile court proceeding. If you cannot afford an attorney, the court will appoint one to represent you at no expense to you.
- ✓ **The right to request a case conference** to decide what services you and your child should receive.
- ✓ **The right to be offered or provided all necessary services** that are reasonably available, to assist you in correcting any parenting deficiencies so that your child can be returned to you in the near future.

- ✓ **The right, in some cases, to make an adoption plan for the child,**  
subject to court approval, including selecting the adoptive parents.

**LEGAL PROCESS FOR THE CHILD:** The child will have his or her basic needs met by DSHS and the foster parents.

In placing the child, DSHS must place the child with a relative, if a relative is known, available, and qualified. If a relative is not known or is not available, the child will be placed in a foster home.

Please be aware that under Washington law, DSHS must try to locate the child's parents. This is necessary to provide notice to the child's parents regarding the legal proceedings. It does not mean that the hospital or fire department will not protect the anonymity of a parent leaving a newborn. These attempts would take place after CPS has received the child from the hospital or fire department. If the identity of the child's parents is not known, then DSHS will publish a notice in a newspaper in the county where the child is transferred letting the parents know about the juvenile court lawsuit and the date and time of any court hearing. If the parents do not go to the hearing, then the parents' rights to the child may be terminated. *(This means the child and the parent are no longer legally related and you will no longer have any rights to be involved in the child's case or in the child's life.)* The child would then be placed for adoption.

**POLICY:** This station, in conjunction with the State of Washington, recognizes that prenatal and post-delivery health care for newborns and their mothers is especially critical to their survival and well-being. Therefore, Emergency Medical Services (EMS), i.e., fire stations, are designated as an "appropriate location" under Washington law for a parent to transfer her newborn in lieu of leaving the newborn in an unsafe place. The parent who transfers the newborn *(less than 72 hours old and not appearing to have been intentionally harmed, see below)* to a qualified person at a fire station is not subject to criminal liability. The qualified person who receives the newborn shall attempt to protect the anonymity of the parent who transfers the newborn, while providing the parent an opportunity to render family medical history of parents and newborn. The qualified person shall provide referral information about adoption options, counseling, medical and emotional aftercare services, domestic violence, and legal rights to the parent seeking to transfer the newborn. The fire station, its employees, volunteers, and medical staff are

immune from any criminal or civil liability for accepting or receiving a newborn under these conditions. (*See References below*).

**Nothing in this policy is to be construed as inconsistent with our department's overall policies to provide needed care for an infant, child, or other patient of any age. The fire department's primary concern is the safety of any infant, child or adult patient.**

**PURPOSE:** To ensure the safety of newborn children left by a parent with a qualified person at a fire station, pursuant to the Newborn Safety Act (the Act), RCW 13.34.360.

**REFERENCES:**

1. Under the Act, a parent of a newborn who transfers the newborn to a qualified person at an appropriate location is not subject to criminal liability for abandonment or similar crimes.
2. Related fire department policies/administrative guidelines:
  - ✓ Reporting to Protective Services
  - ✓ Confidentiality and Privacy
  - ✓ Media Relations
  - ✓ Safety/Security

**DEFINITIONS:**

**Appropriate Location:**

- ✓ The emergency department of a hospital licensed by the state of Washington, during the hours of operation
- ✓ A fire station during its hours of operation and while fire personnel are present.

**Newborn:** A live human being less than 72 hours old.

**Qualified Person:** Any person that the parent transferring the newborn reasonably believes is a bona fide employee, volunteer, or medical staff member of the fire department and who represents, to the parent, that he or she can and will summon appropriate resources to meet the newborn's immediate needs. This could be any fire department employee.

Dear Birth Parent(s):

Thank you for bringing your baby to a safe place. You have taken the first step in making sure that your child will be well taken care of. We know that this has been a difficult decision for you, and we will do what we can to give your child the best possible care.

This packet has information to help you find care for yourself and to learn what your choices are right now. The baby will be at the hospital for at least one day. Child Protective Services will find a foster care home. More information about the foster care and adoption process is included in this packet, along with phone numbers for the hospitals and Child Protective Services.

Please look at the information about what to expect after having a baby. If you are unable to visit your own medical provider, come to the hospital or seek medical care through one of the resources listed in this packet. Tell the medical provider that you transferred your baby under the "Safety of Newborn Children" law and they will not report you to law enforcement.

Please help us by providing some health information. This information is important for your child's care now and in the future. This information will be used only for this purpose. It will not be used to identify you or find you. Only answer questions you feel comfortable answering.

Mail the forms in the addressed/stamped envelope provided in this packet. If you want to send additional information in the future, every effort will be made to get the information into the child's record. Information should be sent to:

Adoptions Program Manager  
Children's Administration  
Department of Social and Health Services  
PO Box 45710  
Olympia, WA 98504-5710

Thank you for coming to a safe place with your baby.



## MEDICAL AND SOCIAL HISTORY FORM

This form is intended to provide you an opportunity to anonymously provide information about your newborn and his/her family medical history. This information can be very helpful for your child's future medical care.

<b>TRANSFER INFORMATION</b>				
<i>Date Newborn Transferred:</i>		<i>Hospital / Fire Station:</i>		<i>ID Band Number:</i>
<b>DELIVERY INFORMATION</b>				
<b>Date and time of birth</b>	Date:		Time:	
<b>Place of birth</b>	<input type="checkbox"/> Hospital	<input type="checkbox"/> Home	Other:	
<b>Delivered by (If not hospital delivery)</b>	<input type="checkbox"/> Midwife	<input type="checkbox"/> Mother	<input type="checkbox"/> Father/family/friend	
<b>Position at birth</b>	<input type="checkbox"/> Head first	<input type="checkbox"/> Bottom first	Other:	
<b>Cried at birth</b>	<input type="checkbox"/> Right away	<input type="checkbox"/> Delayed, but soon	Other:	
<b>Baby moving arms/legs at birth?</b>	<input type="checkbox"/> Yes		<input type="checkbox"/> No	
<b>Baby's coloring at birth</b>	<input type="checkbox"/> Pink around mouth and pink hands and feet	<input type="checkbox"/> Pink around mouth, bluish hands and feet	<input type="checkbox"/> Bluish around mouth	<input type="checkbox"/> Other:
<b>Placenta (afterbirth) delivered within 10-15 minutes after baby?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>LABOR INFORMATION</b>				
<b>Date/time mother's water broke</b>	Date:		Time:	
<b>What color was the fluid?</b>	<input type="checkbox"/> Clear	<input type="checkbox"/> Greenish or brownish	<input type="checkbox"/> Other	
<b>Any odor to the fluid?</b>	<input type="checkbox"/> Yes (describe)		<input type="checkbox"/> No	
<b>Date/time contractions (labor pains) started</b>	Date:		Time:	
<b>PREGNANCY INFORMATION</b>				
<b>How far along was the pregnancy?</b>	In Months			
<b>Mother's age</b>	<input type="checkbox"/> Under 17 years old <input type="checkbox"/> 17-35 years old <input type="checkbox"/> Over 35 years old			
<b>Prenatal care?</b>	<input type="checkbox"/> Yes		<input type="checkbox"/> No	
<b>Other pregnancies?</b>	# of pregnancies: _____ Born alive: _____ Premature births (more than 3 weeks early): _____		Low birth weight (under 5½ lbs): _____ Stillborn: _____ Miscarried/abortions: _____	
<b>Complications of this pregnancy?</b> (Bleeding before labor, high blood pressure, high weight gain, infections, morning sickness more than 3 months, etc.)	Describe:			
<b>Complications of past pregnancies?</b>	Describe:			
<b>Substance use during pregnancy</b>	<input type="checkbox"/> Alcohol: _____ Drinks/day for _____ Months of pregnancy	<input type="checkbox"/> Tobacco: _____ Packs/day for _____ Months of pregnancy	<input type="checkbox"/> Prescription drugs: _____ Names:	<input type="checkbox"/> Other drugs (street drugs) _____ Names:

[illegible]

Descriptions and Characteristics of Birth Family				
	Mother	Father	Sibling of Newborn	Other – Identify Relationship
<b>Height</b>				
<b>Weight</b>				
<b>Age</b> <i>(at time of newborn's birth)</i>				
<b>Build/Bone Structure</b>				
<b>Complexion color</b> <i>(fair, medium, dark, olive, light brown)</i>				
<b>Hair color</b>				
<b>Hair texture</b>				
<b>Eye color</b>				
<b>Right or Left handed</b>				
<b>Blood type</b>				
<b>Education</b> <i>(to date)</i>				
<b>Glasses worn?</b> If yes, what for what condition?				
<b>Acne?</b> Age at onset? Treatment?				
<b>Distinguishing characteristics</b> <i>(e.g., birthmarks, scars, tattoos)</i>				
<b>Occupation</b>				
<b>Talents / hobbies / skills</b>				
<b>Family Religion</b>				
<b>Addictions</b> <i>(Drug, Alcohol, Tobacco, etc.)</i>				
<b>Deceased</b> • Age • Cause of Death				

**PARENTAL MESSAGE TO THE NEWBORN**

Dear Parent:

Please take this time to write a message to your newborn. We will pass this message on to the child's social worker so that your child may someday read it.

<i>Date Newborn Transferred:</i>	<i>Hospital / Fire Station:</i>	<i>ID Band Number:</i>
----------------------------------	---------------------------------	------------------------

Parent's Message To Newborn:

*This history is a thoughtful gift, and will accompany your child.*

*After filling out this form, please mail to: "Newborn Safety"*

**Adoptions Program Manager**  
**Children's Administration**  
**Department of Social and Health Services**  
**PO Box 45710**  
**Olympia, WA 98504-5710**

## HELPFUL INFORMATION

If you change your mind or have questions about the baby,  
call the Division of Children and Family Services at:

**1-800-562-5624**

Explain that you transferred your baby under the Safety of Newborn Children Law.  
Provide the date that you transferred your child and the location of the transfer  
(*hospital or fire station / city*). You may be asked to provide the child's bracelet

### Statewide Numbers

#### Adoption Agencies Statewide Listing

- Department of Social and Health Services: 1-800-562-5628  
[www.dshs.wa.gov](http://www.dshs.wa.gov)

#### Domestic Violence

- Washington State Domestic Violence Hotline: 1-800-562-1240

#### Substance Abuse Services

- 24 Hour Drug and Alcohol Helpline: 1-800-562-6025

#### Medical Assistance / Crisis / Counseling

- Healthy Mothers / Healthy Babies 1-800-322-2588
- Safe Place For Newborns 1-877-440-2229
- Parent Trust for Washington Children 1-800-932-HOPE

### Local numbers

#### Domestic Violence

- Alternatives to Domestic Violence 326-1190

#### Substance Abuse Services

- 24 Hour Drug and Alcohol Helpline: 1-800-562-6025

#### Medical Assistance (Mother)

- Spokane Regional Health District 324-1519

#### Counseling / Crisis

- Community Mental Health 838-4651

## AFFILIATE INTENT TO COVER

A Special Event is any activity outside of the normal place of business for the affiliate. This form should be completed and submitted to the EMS agency having jurisdiction at least 2 weeks prior to the event.

Date of submission \_\_\_\_\_ Date of event \_\_\_\_\_

Name of affiliate Agency \_\_\_\_\_

Name & phone number of contact from affiliate agency \_\_\_\_\_

Time of coverage for event: Start \_\_\_\_\_ Stop \_\_\_\_\_

Name of event \_\_\_\_\_

Location(s) of event \_\_\_\_\_

Name and contact phone number for event supervisor \_\_\_\_\_

List specific locations and times where services will be provided \_\_\_\_\_

\_\_\_\_\_

Overview of event \_\_\_\_\_

Communication plan: Specifically, what method will be used to contact 911 \_\_\_\_\_

\_\_\_\_\_

1. Affiliate Agency proof of insurance on file with Spokane County EMS: \_\_\_\_ Yes \_\_\_\_ No

2. Affiliate Agency current business license or alternative state/federal paperwork on file with Spokane County EMS. \_\_\_\_ Yes \_\_\_\_ No

3. All personnel working under the affiliate agency DOH approval for this even event have current Washington State certification. \_\_\_\_ Yes \_\_\_\_ No

4. All personnel have current knowledge of Spokane County Protocols and East Region Patient Care Procedures. \_\_\_\_ Yes \_\_\_\_ No

5. Indicate numbers and levels of certification that will be providing service at the event.

FR \_\_\_\_ EMT \_\_\_\_ ILS \_\_\_\_ PM \_\_\_\_ Other \_\_\_\_

6. List equipment and supplies available on site for use by EMS Personnel.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Affiliate agency representative signature \_\_\_\_\_

Jurisdictional Agency Review \_\_\_\_ Yes \_\_\_\_ No Date \_\_\_\_\_

Jurisdictional Agency Representative Name \_\_\_\_\_ Signature \_\_\_\_\_

Copy sent to affiliate agency. \_\_\_\_ Yes \_\_\_\_ No Date \_\_\_\_\_

## BLOOD DRAW DIRECTIONS

### DIRECTIONS TO TAKE BLOOD TEST

The undersigned states that \_\_\_\_\_ is either:

- ☐ Unconscious
- ☐ Has had a Search Warrant issued for blood to be drawn
- ☐ Is under arrest/in custody for the crime of vehicular homicide as provided in RCW 46.61.520 or vehicular assault as provided in RCW 46.61.522.
- ☐ Is under arrest/in custody for the crime of driving while under the influence of intoxicating liquor or drugs as provided in RCW 46.61.502 and/or RCW 46.20.308.

The undersigned directs Spokane County EMS to administer a blood test without the consent of the individual so unconscious or so arrested.

OFFICER \_\_\_\_\_ DATE \_\_\_\_\_

## COUNTY FIELD TRAINING LETTER

Re: John Smith

The above individual is/will be affiliated with our EMS agency. They will not work independently until they have successfully completed the following:

- ✓ Our Field Training and Evaluation Program
- ✓ Additional Spokane County requirements as identified in the “Paramedic Guideline for Practicing in Spokane County”
- ✓ A review of protocol knowledge and procedural skills by the physician advisor and documented in the recommended format.
- ✓ EMS Office acknowledgement of receipt of documentation that each of these requirements are successfully completed.

Sincerely,

Joe Jones, EMS Officer



## INFECTIOUS DISEASE EXPOSURE FORM

**SEE NEXT PAGE FOR FORM**

## NON-TRANSPORT OF PATIENT FORM

### CALL IDENTIFICATION

Patient Name \_\_\_\_\_ Age \_\_\_\_\_

Call location \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Unit# \_\_\_\_\_ Agency Run # \_\_\_\_\_

### PATIENT ASSESSMENT Chief Complaint \_\_\_\_\_

**VITAL SIGNS** BP \_\_\_\_\_ Pulse \_\_\_\_\_ Resp \_\_\_\_\_

Oriented to: \_\_\_\_\_ Person \_\_\_\_\_ Place \_\_\_\_\_ Time \_\_\_\_\_ Situation \_\_\_\_\_

### **GENERAL ASSESSMENT**

\_\_\_\_\_  
\_\_\_\_\_

### **DISPOSITION**

\_\_\_ Patient transported by private vehicle.

\_\_\_ Released in care or custody of self.

\_\_\_ Released in care or custody of relative or friend. \_\_\_\_\_

Name

\_\_\_ Released in care or custody of other agency. \_\_\_\_\_

Agency Name

Name of Responsible Individual

### **PATIENT INSTRUCTIONS**

\_\_\_ Patient instructed to call 9-1-1 or follow up with his/her physician if condition persists or worsens.

\_\_\_\_\_  
Patient signature                      Print patient name                      Date                      Time

\_\_\_\_\_  
Surrogate signature                      Print surrogate name                      Date                      Time

\_\_\_\_\_  
Witness signature                      Print witness signature                      Date                      Time

\_\_\_\_\_  
EMS personnel signature                      Print EMS Personnel Name                      Date                      Time

## PATIENT REFUSAL OF TREATMENT/TRANSPORT

### CALL IDENTIFICATION

Patient Name \_\_\_\_\_ Age \_\_\_\_\_  
Call location \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Unit# \_\_\_\_\_ Agency Run # \_\_\_\_\_

### PATIENT ASSESSMENT Chief Complaint

**VITAL SIGNS** BP \_\_\_\_\_ Pulse \_\_\_\_\_ Resp \_\_\_\_\_

Oriented to: \_\_\_\_\_ Person \_\_\_\_\_ Place \_\_\_\_\_ Time \_\_\_\_\_ Situation \_\_\_\_\_

### **GENERAL ASSESSMENT**

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### **PATIENT INFORMED**

\_\_\_\_ Medical Treatment/ambulance transport needed  
\_\_\_\_ Further harm could result without medical evaluation/treatment  
\_\_\_\_ Transport by other than ambulance could be hazardous in light of patient's illness/injury

### **SPECIFIC EMS SERVICE REFUSED**

\_\_\_\_ Patient refused treatment  
\_\_\_\_ Patient refused ambulance transport  
\_\_\_\_ Patient refused ambulance transport to appropriate facility

### **PATIENT DISPOSITION**

\_\_\_\_ Transported by private vehicle.  
\_\_\_\_ Released in care or custody of self.  
\_\_\_\_ Released in care or custody of relative or friend. \_\_\_\_\_

Name

\_\_\_\_ Released in care or custody of other agency. \_\_\_\_\_

Agency Name

Name of Responsible Individual

### **PATIENT INSTRUCTIONS**

\_\_\_\_ Patient instructed to call 9-1-1 or follow up with his/her physician if condition persists or worsens.

### **The following statement should be read to the patient:**

The evaluation and / or treatment provided to you by the EMS providers is not a substitute for medical evaluation and treatment by a doctor. By signing this, you indicate that you understand the nature of the proposed care and transportation and that you fully comprehend the potential consequences of this refusal. And that you further attest that you are capable and authorized to make said refusal, that you do forever release and give up any claim, demand, or action against all Emergency Medical Services personnel and their agents and do hereby covenant and agree to hold such persons harmless from any claim, demand, loss, or action for any alleged act or omission in the care or transport in compliance with this refusal. This release is binding on your heirs, executors, and assigns.

_____ Patient signature	_____ Print patient name	_____ Date	_____ Time
_____ Surrogate signature	_____ Print surrogate name	_____ Date	_____ Time
_____ Witness signature	_____ Print witness signature	_____ Date	_____ Time
_____ EMS personnel signature	_____ Print EMS Personnel Name	_____ Date	_____ Time

## PHYSICIAN ORDERS FOR LIFE-SUSTAINING TREATMENT

**SEE NEXT PAGE**

## PRELIMINARY FIELD MEDICAL

**SEE NEXT PAGE**

## RECOMMENDATION FOR FOLLOW-UP TO A POSSIBLE INFECTIOUS DISEASE EXPOSURE\*

**Incident #:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Dear Citizen,

Thank you for providing assistance to this patient at the time of their emergency, illness, or injury. It is possible that, in the course of assisting this patient, you may have been exposed to an infectious disease.

Although the likelihood of contracting infectious disease by rendering emergency medical care is small, we recommend you contact the Spokane Regional Health District, 324-1542, as soon as possible.

They will provide medical advice regarding what, if any, steps should be taken by you to document this potential exposure and evaluate whether any treatment would be indicated which might reduce the potential of contracting an illness in this circumstance.

Again, thank you for your actions in this emergency.

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\* EMS agencies should have this on business card size to give to the citizen. Please check cards for correct phone number and change to number above if incorrect.

## **SPOKANE COUNTY EMS KING AIRWAY INSERTION EVALUATION**

**SEE NEXT PAGE**

## THANK YOU FOR YOUR OFFER OF ASSISTANCE

Please be advised that this EMS team is operating under the authority of Washington State Law and protocols that were developed and approved by me as Medical Program Director. The EMS team performs their functions at the scene under the guidance of EMS Medical Control. If you, as a physician at the scene, decide you must intervene in the patient's care, then you are responsible for any and all care given, and must accompany the patient to the hospital in the ambulance and sign the Medical Incident Report.

James M. Nania, MD, FACEP  
Medical Program Director  
Spokane County, Washington



## TRAINING, CME, AND SKILLS MAINTENANCE DOCUMENTATION

**SEE NEXT PAGE**