SAN JUAN COUNTY

2023
ALS/BLS PROTOCOLS

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These protocols were developed by the Medical Program Director for the EMS agencies of

San Juan County. The sources of the manual represent the consolidation of medical procedures and emergency pre-hospital guidelines and publications from many local, national, and international sources.

The following is an adaptation of the protocol for EMS approved by Washington State Department of Health. The Scope of Practice will meet or exceed the standards of the Department of Transportation (DOT) and the National Registry of EMTs. This Pre-Hospital Patient Care Manual establishes the recommended guidelines for patient care that should be provided by all Emergency Medical Services providers under the authority of the Medical Program Director for the San Juan County EMS Agencies.

The following procedures are to be used as guidelines for operation during EMS responses that require medical direction and those covered by standing orders. They are also intended to be guidelines to ensure that personnel are trained in proper patient care. These guidelines should not be considered rigid rules, but rather established standards against which EMS practice can be measured.

Treatment protocols are specific orders directing the actions pertaining to techniques and/or medications used by EMS personnel who are required to practice under direct supervision of a physician with MEDICAL CONTROL Authority. Treatment protocols may and should be initiated without prior direct MEDICAL CONTROL contact unless specifically specified. It is imperative that if a situation not covered in these protocols exists, contact must be established with MEDICAL CONTROL for confirmation of medical care and further medical direction.

When an emergency is declared through official channels and mutual aid is requested outside of San Juan County, these protocols become portable. You should follow these protocols while providing care in another county.

Our objective is not only to serve the citizens and visitors of the San Juan Islands, but also to give them our best possible service. Thank you for your hard work and dedication to duty that allows the San Juan County Fire and EMS Departments to continue to be one of the top providers of Emergency Medical Services in the country.

Joshua G. Corsa, MD
Medical Program Director

OVERVIEW

The purpose of this manual is to provide EMS personnel with guidelines for the pre-hospital treatment of the majority of patients. Providers should rely on knowledge gained from training, consultation with MEDICAL CONTROL, and common sense when encountering situations not covered in these guidelines. Always do what is right for the patient and within your scope of practice. Deviation from this manual requires prior approval from MEDICAL CONTROL, documentation in the patient care report, and completion of an unusual occurrence report to the Medical Program Director. Emergency medicine continues to evolve at a rapid pace. This document is subject to change as new information becomes available and accepted by the medical community.

These guidelines are intended to:

- Standardize pre-hospital medical care in San Juan County
- Provide pre-hospital personnel with a framework for care and an anticipation of supportive orders from MEDICAL CONTROL
- Provide local MEDICAL CONTROL, clinics, and receiving facilities with an understanding of the treatment capabilities of San Juan County's pre-hospital personnel
- Provide the basic framework through which MEDICAL CONTROL can audit the performance of pre-hospital personnel
- Be carried out in the appropriate clinical setting prior to contacting MEDICAL CONTROL, except when approval from MEDICAL CONTROL is specified
- Expedite patient delivery to institutions best equipped to handle their specific problems

These guidelines are NOT intended to:

- Be absolute treatment doctrines. Rather they are guidelines with sufficient flexibility to meet the needs of complex cases.
- Be a comprehensive textbook for EMTs or Paramedics. It is expected that each pre-hospital care provider is trained to his/her level of certification and that they will continue to meet the requirements of the State for continuing education. It is further assumed that MEDICAL CONTROL will provide continuing education based on the results of patient care audits and run reviews.

This manual is divided into three main sections as follows: Treatment Guidelines, Medical Procedures, and Medication Formulary. The Treatment and Procedures sections are further divided into subsections for ease of use.

Treatment Guideline Section

The Treatment Guideline section provides guidance for the pre-hospital treatment of the majority of patients. The treatments are outlined in chronological steps. The order of the steps should be considered as suggestions rather than requirements. Using the steps out of order or electing not to use a specific step is not considered deviation from guideline unless doing so would cause foreseeable harm to the patient.

Procedures Section

The Medical Procedures section lists the indications & contraindications, describes the procedure, and any special notes for the majority of skills used by field providers. Skills within each subcategory have a heading that indicates the provider level that is allowed to utilize the skill.

Medication Formulary

The Medication Formulary lists indications, dosage, contraindications, side effects, and any special notes for all medications that are permitted to be administered in the field. Keep in mind many of the contraindications listed for specific drugs are relative to the patient's condition. Contact MEDICAL CONTROL if there is a concern regarding a listed contraindication.

Specific treatment protocols address the treatment and disposition of each condition. Interventions are listed in recommended sequential order. It is understood that circumstances may require flexibility.

Each intervention preceded by the above definitions indicates the level of certification required to perform the indicated procedure.

Interventions preceding the words "**CONTACT MEDICAL CONTROL**" may be considered standing orders for the specific condition addressed by each protocol.

Interventions following the words "**CONTACT MEDICAL CONTROL**" may be considered standing orders only in the rare circumstances when: location or circumstances prohibit communication OR MEDICAL CONTROL communication cannot readily be established.

Emergency Medical Services in San Juan County are provided by:

All Islands

- Island Air Ambulance
- San Juan County Sheriff
- 911 Communications Center

Lopez Island

- San Juan County Fire Protection District 4

Orcas Island

- Orcas Island Fire & Rescue

Shaw Island

- San Juan County Fire Protection District 5

San Juan, Brown, Henry, Pearl, Spieden, Johns, and Stuart Islands

- San Juan County Public Hospital District 1 - San Juan Island EMS
- San Juan Island Fire & Rescue

EMS MEDICAL PROGRAM DIRECTOR

The Medical Program Director (MPD) for San Juan County is Joshua G. Corsa, MD

"The MPD is physician certified and designated by the State Department of Health and recommended by the San Juan EMS & Trauma Care Council."

The MPD has the ultimate responsibility for all the activities in the EMS system including 'off-line' and 'on-line' MEDICAL CONTROL, developing written guidelines, directing patient care and being a conduit of information from local EMS/TCC systems to state staff for purposes of training, certification, audit and discipline of EMS providers.

MPD duties are prescribed by the secretary of the Department of Health in accordance with RCW 18.71.212 and are described in WAC 246-976-920 and throughout WAC 246-976.

EMS MEDICAL CONTROL

MEDICAL CONTROL by local physicians for the purposes of 'on-line' MEDICAL CONTROL is authorized in writing by the San Juan County MPD and filed with the Department of Health [WAC 246-976-920 (2)].

The following physicians are authorized for Online MEDICAL CONTROL:

- Joshua G. Corsa, MD
- Jason Heiner, MD
- Matthew Russell, MD
- **The on-duty EM physicians at:**
  - Peace Island Medical Center
  - The receiving hospital
  - Providence Regional Medical Center - Everett

MEDICAL CONTROL

MEDICAL CONTROL may be contacted at any point in patient care or if a patient's condition is unusual and is not covered by a specific guideline. When a patient's presentation is atypical and the guideline treatment may not be the best treatment for the patient, or in any situation where the EMS provider is not sure about the best treatment for the patient, contact MEDICAL CONTROL.

If unable to contact MEDICAL CONTROL, proceed with standing orders only, **DO NOT** initiate MEDICAL CONTROL options. In the event of a communications failure, notify the receiving Emergency Department upon arrival.

Purpose of MEDICAL CONTROL contact:

- EMS personnel will provide care within their scope of practice and will follow Department of Health-approved guidelines or MEDICAL CONTROL orders when delivering EMS care
- MEDICAL CONTROL must order any ALS or BLS treatment when that treatment is not included in, or is a deviation from, the approved guidelines
- Guidelines cannot adequately address every possible patient scenario. EMS personnel can contact MEDICAL CONTROL when confronted with a situation that is not addressed by the guidelines or when the EMS personnel have any doubt about the appropriate care for a patient
- Contact with MEDICAL CONTROL may be particularly helpful in the following situations:
    - Patients who are refusing treatment
    - Patients with time-dependent illnesses or injuries who may benefit from transport to a specific facility with special capabilities (e.g. acute stroke, acute ST-elevation MI)
    - Patients with conditions that have not responded to the usual guideline treatments
    - Patients with unusual presentations that are not addressed in guidelines
    - Patients with rare illnesses or injuries that are not frequently encountered by EMS personnel
    - Patients who may benefit from uncommon treatments (e.g. unusual overdoses with specific antidotes)

QUALITY ASSURANCE / IMPROVEMENT

To maximize the quality of care in EMS, it is necessary to continually review all EMS activity in order to identify areas of excellence and potential opportunities for improvement. This method allows optimal and continuous improvement. QA/QI is defined as a proactive involvement in issues and applications to constantly assess the value and direction of the EMS system. Components of QA/QI include: active communication, documentation, case presentations, guideline review and refinement, medical direction involvement, medical community involvement, continuing education, and reassessment of expected goals and outcomes. Participation in the CQI process is mandatory to function within the system.

The primary focus of QA/QI is on 'system performance'. Specifically, QA/QI focuses on the bigger picture of our system, including protocols, guidelines, equipment, training, and standard operating procedures.

The EMS Medical Director may request additional documentation, typically an incident report, for the purposes of gathering information about a call, event or procedure in question. Failure to cooperate with the QA/QI process may result in withdrawal of medical direction and inability to practice in San Juan County.

All EMS personnel will be required to pass a written test on these guidelines. Paramedics applying for their first certification in San Juan County must pass the guideline test before approval. Thereafter, the state test recertification requirements must be passed with each subsequent Paramedic re-certification.

ON-SCENE CONFLICTS / PHYSICIAN ON SCENE

Any disagreements or potential conflicts at a scene should be discussed after the call in a setting of privacy. Efforts should be made to resolve interpersonal conflicts at the lowest possible level. One-on-one discussions are encouraged whenever possible. In the event the conflict cannot be resolved, the appropriate department/service chain of command shall be utilized. MEDICAL CONTROL shall be contacted immediately for patient care issues that cannot be resolved.

Critiques and debriefings play a valuable role in solving system issues after a particular call. These should take place within 72 hours after a call. Notify the appropriate chain of command and MPD to set up these meetings.

Medical professionals at the scene of an emergency call may assist the EMS team and should be treated with professional courtesy. Medical professionals who assist should identify themselves. If on scene physicians wish to assume or retain responsibility for direction of patient care, they should provide proof of identification, follow the guidelines below, and accompany the patient to the receiving hospital. Under Washington State Law, only physicians may provide medical direction or guidance to EMS.

When the patient's private physician is in attendance and has identified him/herself, the EMS team will comply with the private physician's instructions for the patient. MEDICAL CONTROL will be contacted for reporting. If orders are given by the private physician which conflict with San Juan County EMS Patient Care Guidelines, clearance must be obtained through MEDICAL CONTROL.

In such cases, the physician at the scene may:

- Request to talk directly to the MEDICAL CONTROL physician to offer advice and assistance
- Assist the EMS team with another pair of eyes, hands and/or suggestions yet leave the EMS team under MEDICAL CONTROL and established patient care guidelines
- Take total responsibility for the patient with the concurrence of the MEDICAL CONTROL Physician. (Remember: If the on scene/private physician wishes to take total responsibility for patient care, they will accompany the patient to the receiving hospital. If, during transport, the patient's condition should warrant treatment other than that requested by the private physician, then MEDICAL CONTROL will be contacted for information and for concurrence with the requested treatment.

These guidelines will also apply to cases where a physician may happen upon the scene of ongoing EMS care and chooses to interact/assist the EMS team. Medical professionals, other than physicians, may offer assistance to the EMS providers but are not authorized to give orders to the EMS team except in pre- approved circumstances (e.g. a critical care RN accompanying the patient and EMS crew on an inter-facility transport, or arrival of air transport/helicopter flight crews operating under San Juan County Guidelines for On Scene/Field Air Transport).

PATIENT ADVOCACY / TREATMENT & TRANSPORT RIGHTS

Our patients are our primary focus! Their requests must be heard and should be honored. Patients deserve to be fully informed of all decisions affecting their care, outcome and potential complications, whenever possible. Competent, rational adults have a right to accept or refuse treatment recommendations.

The patient's immediate family should be considered an extension of the patient in notification and scene management. Whenever possible, family members should be included and informed of events and supported in their role as patient advocates.

A rational patient has the right to select their transport destination (exceptions: medical facility not appropriate to problem, i.e. trauma, STEMI, pregnancy, etc.). When in doubt, contact MEDICAL CONTROL and fully document all of your actions.

If a patient is a minor (under age 18) and no consenting adult is available, and the minor refuses treatment, the provider should contact MEDICAL CONTROL.

PATIENT CARE RESPONSIBILITIES

The authorized individual with the highest level of certification as recognized by the Washington State Department of Health is in charge of patient care.

These guidelines shall take effect:

- Upon arrival on a scene by a certified EMS provider who is duly dispatched or requested within the EMS system standard operating procedures and with affiliation to an EMS department/service participating in these guidelines.
- In no case should a higher certified EMS provider who is duly dispatched or requested within the EMS be prevented from making patient contact, regardless of patient condition.
- The first arriving, highest certified EMS provider shall be in charge of patient care. If that provider is off-duty or out of district, he/she may be relieved upon the arrival of another responder with equal or higher training.
- Attendance of the patient during transport will be appropriate to the degree of illness. EMS personnel qualified and certified by the WAC to provide the appropriate level of care will attend all transports. The only exceptions may occur during mass casualty incidents (MCI), search and rescue or other special operational circumstances. Inappropriate assignment of EMS personnel will be grounds for suspension.

TRANSFER OF CARE TO RECEIVING FACILITY

In general, patients without life threatening injuries or disease states will be delivered to the medical facility of their or their family's choice or the medical facility indicated by the private physician. In cases of life-threatening injury or medical condition, the patient will be delivered to the closest appropriate facility hospital with the capability to deal with the problem, or to provide stabilization prior to transfer for definitive care. At times, patients may be diverted to other area hospitals depending on availability of hospitals‟ facilities or because patient guidelines mandate diversion to a Level I or II Trauma System. In cases where there is a question about the appropriate destination for a patient, MEDICAL CONTROL should be consulted.

Transfer of Care Responsibility and Delegation

An EMS provider will remain with the patient and remain responsible for patient care until another certified EMS provider of equal or higher training and capability receives an oral report and assumes responsibility for patient care.

Paramedics are not required to remain with a patient if ALS care is not warranted. Following a full patient assessment and examination, a Paramedic may transfer a patient to an EMT-Basic level of care if there is no reasonable expectation that the patient will require a higher level of care. **The assessment and decision for transfer of care shall be documented.**

In the event of a transfer from ALS to a lower level of care, the Paramedic will be held responsible for the appropriateness of care provided. Transfer to a lower level of care is acceptable in a MCI to ensure the greatest benefit for the greatest number of patients.

Law enforcement has NO AUTHORITY in transport decisions unless a law enforcement officer elects to take a patient into custody. The law enforcement officer is then responsible for ALL actions and decisions occurring as a result of his/her direct orders. Liability and system consequences should be clearly relayed to law enforcement officers. **Whenever a conflict exists, contact MEDICAL CONTROL.**

EMS Personnel will maintain charge and control of the patient until:

- Proper patient transfer to receiving personnel has occurred.
- A full patient report is provided to the appropriate receiving personnel.
- A written copy of the EMS report shall be made available to the receiving hospital within 24 hrs of the call.

PERSONAL PROTECTIVE EQUIPMENT

Handwashing

- **Hand washing is the most effective way to prevent transmission of infectious disease**
- After patient contact
- Before eating, drinking, smoking, or handling food
- Before & after using the bathroom
- After cleaning or checking equipment

Personal Protective Equipment

- **Gloves** and **eye protection** must be worn for every patient where bodily fluids are present
- **FULL PPE** must be worn for possible infectious contacts
    - Full PPE consists of mask, eye protection, gown, and gloves
- **N95** masks must be worn for patients with concerns about airborne infectious diseases
    - Place a surgical mask on the patient
- Donning sequence:
    - mask > eye protection > gown > gloves
- Doffing sequence
    - Gloves > gown > hand cleaner > eye protection > mask > hand cleaner
- Any contaminated PPE will be treated as contaminated waste and disposed of accordingly

PRIMARY MANAGEMENT

Establish Primary Management
This term is found throughout the protocols. It requires that a complete primary and secondary survey be accomplished and that, via STANDING ORDERS, all necessary and appropriate skills, medications and procedures be immediately used to maintain Airway, Breathing and Circulatory function. Rather than list the standard ABCs on each page, it is assumed that EMS providers will realize that this should occur commensurate with their level of training and applicable state and county protocols, on every patient.

Patient Care Goals
Facilitate appropriate initial assessment and management of any EMS patient and link to appropriate specific guidelines as dictated by the findings within the **Universal Care** guideline.

Patient Presentation

- **Inclusion Criteria**
  - All patient encounters with and care delivery by EMS personnel
- **Exclusion Criteria**
  - None

Patient Management

- **Assessment**
  - Assess scene safety
    - Evaluate for hazards to EMS personnel, patient, bystanders
    - Determine number of patients
    - Determine mechanism of injury
    - Request additional resources if needed and weigh the benefits of waiting for additional resources against rapid transport to definitive care
    - Consider declaration of mass casualty incident if needed
  - Use appropriate personal protective equipment (PPE)
  - Wear high-visibility, retro-reflective apparel when deemed appropriate
  - Consider cervical spine stabilization and/or spinal care if trauma

  - **Primary survey** (**A**irway**, B**reathing, **C**irculation is cited below; although there are specific circumstances where **C**irculation, **A**irway, **B**reathing may be indicated such as cardiac arrest or major arterial bleeding)
    - **Airway** (assess for patency and open the airway as indicated)
      - Patient is unable to maintain airway patency—open airway
        - Head tilt chin lift
        - Jaw thrust
        - Suction
        - Consider use of the airway adjuncts and devices: oral airway, nasal airway, blind insertion, or supraglottic airway device, laryngeal mask airway, endotracheal tube

        - For patients with laryngectomies or tracheostomies, remove all objects or clothing that may obstruct the opening of these devices, maintain the flow of prescribed oxygen, and reposition the head and/or neck
    - Obstructed airway, laryngectomy, or tracheostomy – go to **Airway Management** guideline
- **Breathing**
    - Evaluate rate, breath sounds, accessory muscle use, retractions, patient positioning
    - Administer oxygen as appropriate with a target of achieving 92-98% saturation for most acutely ill patients
    - Apnea (not breathing) – go to **Airway Management** guideline
- **Circulation**
    - Control any major bleeding [see **Massive Hemorrhage** guideline]
    - Assess pulse
        - If none – go to appropriate **Cardiac Arrest** guideline
        - Assess rate and quality of carotid and radial pulses
    - Evaluate perfusion by assessing skin color and temperature
        - Evaluate capillary refill
- **Disability**
    - Evaluate patient responsiveness: AVPU scale (Alert, Verbal, Pain, Unresponsive)
    - Evaluate gross motor and sensory function in all extremities
    - Check blood glucose in patients with altered mental status
    - If acute stroke suspected – go to **Stroke/TIA** guideline
- **Expose patient as appropriate**
    - Be considerate of patient modesty
    - Keep patient warm

Secondary survey

The performance of the secondary survey should not delay transport in critical patients. Secondary surveys should be tailored to patient presentation and chief complaint. The following are considerations for secondary survey assessment:

- Head
    - Pupils
    - Naso-oropharynx
    - Skull and scalp
- Neck
    - Jugular venous distension
    - Tracheal position
    - Spinal tenderness

- Chest
  - Retractions
  - Breath sounds
  - Chest wall deformity

- Abdomen/Back
  - Flank/abdominal tenderness or bruising
  - Abdominal distension
- Extremities
  - Edema
  - Pulses
  - Deformity
- Neurologic
- Mental status/orientation
- Motor/sensory

- Obtain Baseline Vital Signs within 10 minutes of arrival. (An initial full set of vital signs is required: pulse, blood pressure, respiratory rate, neurologic status assessment, repeat vital signs will be obtained every 5 minutes in unstable patients and every 15 minutes in stable patients)
  - Neurologic status assessment involves establishing a baseline and then trending any change in patient neurologic status
    - Glasgow Coma Score (GCS) is frequently used, but there are often errors in applying and calculating this score. With this in consideration, a simpler field approach may be as valid as GCS. Either AVPU (**A**lert, **V**erbal, **P**ainful, **U**nresponsive) or only the motor component of the GCS may more effectively serve in this capacity
  - Patients with cardiac or respiratory complaints
    - Pulse oximetry
    - 12-lead EKG should be obtained early in patients with cardiac or suspected cardiac complaints
    - Continuous cardiac monitoring, if available
    - Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry
  - Patient with altered mental status
    - Check blood glucose
    - Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry
  - Hemodynamically normal patients should have at least two sets of pertinent vital signs. Ideally, one set should be taken shortly before arrival at receiving facility
  - Critical patients should have pertinent vital signs frequently monitored

- Obtain OPQRST history:
  - **O**nset of symptoms
  - **P**rovocation – location; any exacerbating or alleviating factors
  - **Q**uality of pain
  - **R**adiation of pain
  - **S**everity of symptoms – pain scale
  - **T**ime of onset and circumstances around onset

- Obtain SAMPLE history:
  - **S**ymptoms
  - **A**llergies – medication, environmental, and foods
  - **M**edications – prescription and over-the-counter; bring to ED if possible
  - **P**ast medical history
    - look for medical alert tags, portable medical records, advance directives
    - look for medical devices/implants (common ones may be dialysis shunt, insulin pump, pacemaker, access port, gastric tubes, urinary catheter)
  - **L**ast oral intake
  - **E**vents leading up to the 911 call
    - In patients with syncope, seizure, altered mental status, or acute stroke,
    - consider bringing the witness to the hospital or obtain their contact phone
    - number to provide to ED care team

Treatment and Interventions

- Administer oxygen as appropriate with a target of achieving greater than 92% saturation
- Place appropriate monitoring equipment as dictated by assessment – these may include:
  - Continuous pulse oximetry
  - Cardiac rhythm monitoring
  - Waveform capnography or digital capnometry
  - Carbon monoxide assessment
- Establish vascular access if indicated or in patients who are at risk for clinical deterioration.
  - No IV larger than a 16g shall be placed.
  - If IO is to be used for a conscious patient, consider the use of .5 mg/kg of lidocaine 0.1mg/mL with slow push through IO needle to a maximum of 40 mg to mitigate pain from IO medication administration
- Monitor pain scale if appropriate

- Reassess patient

Patient Safety Considerations

- Routine use of lights and sirens is not warranted
- Even when lights and sirens are in use, always limit speeds to level that is safe for the emergency vehicle being driven and road conditions on which it is being operated
- Be aware of legal issues and patient rights as they pertain to and impact patient care (e.g. patients with functional needs or children with special healthcare needs)
- Be aware of potential need to adjust management based on patient age and comorbidities, including medication dosages
- The maximum weight-based dose of medication administered to a pediatric patient should not exceed the maximum adult dose except where specifically stated.
- Direct medical oversight should be contacted when mandated or as needed
- Consider air medical transport, if available, for patients with time-critical conditions where ground transport time exceeds 45 minutes

Notes/Educational Pearls

Key Considerations

- **Pediatrics:** use a weight-based assessment tool (length-based tape or other system) to estimate patient weight and guide medication therapy and adjunct choice
    - Although the defined age varies by state, the pediatric population is generally defined by those patients who weigh up to 40 kg or up to 14-years of age, whichever comes first
    - Consider using the pediatric assessment triangle (appearance, work of breathing, circulation) when first approaching a child to help with assessment.
- **Geriatrics:** although the defined age varies by state, the geriatric population is generally defined as those patients who are 65 years old or more
    - In these patients, as well as all adult patients, reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease)
- **Co-morbidities:** reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease)

- **Vital Signs:**
    - Oxygen
        - Administer oxygen as appropriate with a target of achieving 92% saturation
        - Supplemental oxygen administration is warranted to patients with oxygen saturations below this level and titrated based upon clinical condition, clinical

response, and geographic location and altitude
    - Normal vital signs (see chart in appendix)
        - Hypotension is considered a systolic blood pressure less than the lower limit on the chart
        - Tachycardia is considered a pulse above the upper limit on the chart
        - Bradycardia is considered a pulse below the lower limit on the chart
        - Tachypnea is considered a respiratory rate above the upper limit on the chart
        - Bradypnea is considered a respiratory rate below the lower limit on the chart
    - Hypertension. Although abnormal, may be an expected finding in many patients
        - Unless an intervention is specifically suggested based on the patient's complaint or presentation, the hypertension should be documented, but otherwise, no intervention should be taken
        - The occurrence of symptoms (e.g. chest pain, dyspnea, vision change, headache, focal weakness or change in sensation, altered mental status) in patients with hypertension should be considered concerning, and care should be provided appropriate with the patient's complaint or presentation

- **Secondary Survey:** may not be completed if patient has critical primary survey problems

- **Critical Patients:** proactive patient management should occur simultaneously with assessment
    - Ideally, one provider should be assigned to exclusively monitor and facilitate patient-focused care
    - Treatment and Interventions should be initiated as soon as practical, but should not impede extrication or delay transport to definitive care

- **Air Medical Transport:** air transport of trauma patients should be reserved for higher acuity trauma patients where there is a significant times savings over ground transport, where the appropriate destination is not accessible by ground due to systemic or logistical issues, and for patients who meet the Centers for Disease Control and Prevention's (CDC) anatomic, physiologic, and situational high-acuity triage criteria

- **Ongoing Assessment**
    - To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed **at least every 5 minutes on the hemodynamically ABnormal patient**, and **at least every 15 minutes on the hemodynamically normal patient.**
    - Reassess mental status.
    - Reassess airway.
    - Reassess breathing for rate and quality.
    - Reassess circulation including pulses, hemorrhage control and skin perfusion.

- Re-establish patient priority.
- Reassess and record vital signs.
- Repeat focused assessment regarding patient complaint or injuries.
- Assess interventions.
- Assess response to management.
- Maintain or modify management plan.

- **Transport Decision**
  - For patients <18 years of age, transport to a medical facility capable of handling pediatric patients (Providence Regional Medical Center-Everett or Seattle Children's Hospital).
  - For patients >18 years of age, transport to the closest appropriate facility.
  - See the Transport Destination Guidelines for further information.

- **Special Considerations**
  - These guidelines define adult and pediatric patients based on age and/or weight:
    - Adult: ≥15 years of age.
    - Pediatric: <15 years of age.
  - Medication dosing for pediatric patients:
    - Pediatric doses apply to pediatric patients weighing less than 40 kg (88 lbs).
    - For pediatric patients equal to or greater than 40 kg (88 lbs), utilize adult dosing.
  - Initial assessment may take 30 seconds or less in a medical patient or victim of minor trauma. In the severely traumatized patient, however, assessment and treatment of life-threatening injuries evaluated in the initial assessment may require rapid intervention, with treatment and further assessment en route to the hospital.
  - In the patient that is awake, the initial assessment may be completed by your initial greeting to the patient. This may make it clear that the ABCs are normal and emergency intervention is not required before completing assessment.
  - In a trauma patient, the neck should be immobilized and secured during airway assessment or immediately following initial assessment if indicated.
  - Vital signs should be obtained during the focused and detailed assessment. If immediate intervention for profound shock or hypoventilation is required, this may need to be initiated before numerical vital signs are taken.
  - After assessment of a patient, the ALS or BLS provider must assign a treatment priority. The following examples of priorities are not inclusive and sound judgment should be used when assessing patients.

PATIENT PRIORITIES

Priority 1: Critically Ill Patients

- Cardiac Arrest
- Post arrest with successful resuscitation
- Unconscious or GCS <13 that does not respond to therapy
- Moderate to severe respiratory distress with a respiratory rate >28, cyanosis, use of accessory muscles, or altered mental status
- Hypotensive (BP <90 systolic) with signs and symptoms of hypoperfusion
- Hypertensive (BP >230 systolic or >130 diastolic) with altered mental status or neurological deficit
- Cardiac related chest pain unrelieved by therapy with hypotension or cardiac dysrhythmia
- Suspected acute myocardial infarction
- Obstructed or uncontrolled airway
- Continuous vaginal hemorrhage with signs and symptoms of hypoperfusion
- Abnormal deliveries
- Evidence of prolapsed cord
- Eclampsia
- Allergic reaction with acute respiratory distress
- Status epilepticus
- Uncontrolled hemorrhage following trauma
- Multisystem trauma patient(s)
- Penetrating wounds head, neck, chest, abdomen or pelvis
- Burn patients:
    - Chemical, electrical, or respiratory burns
    - 2nd degree burn with greater than 20% BSA any age
    - 3rd degree burn with greater than 10% BSA in patients <10 or >50 years of age
    - 2nd or 3rd degree burns hands, face, feet or perineum
- Suspected stroke
- Unstable fracture with neurovascular compromise
- Any patient that is deemed **AB**normal by the senior provider

Priority 2: Potentially Critically Ill Patients

- Cardiac related chest pain
- Respiratory distress (mild to moderate)
- Hypertensive (BP >200 systolic or >120 diastolic) without signs and symptoms
- Patients involved in trauma with a GCS of 15, without signs and symptoms of hypoperfusion and associated with one of the below:
- MVC > 40 mph
- Hit by vehicles > 20 mph
- Patients thrown from moving vehicles
- Rollover MVC
- Falls ≥20
- Burn patients
- 2nd or 3rd degree burns < 10% BSA patients < 10 or > 50 years of age
- Any patient that is deemed potentially unstable by the senior provider

Priority 3: Not Critically Ill Patients

- Uncomplicated fractures
- Minor burns
- Lacerations requiring suturing, with bleeding controlled
- Seizure patients with a return of a GCS 15
- Any patient that is deemed not critically ill by the senior provider

HOSPITAL CAPABILITIES

CARDIAC
PeaceHealth St. Joseph's
Providence Regional Medical Center – Everett
Skagit Valley Hospital

STROKE – NON LVO
Island Hospital
PeaceHealth St. Joseph's
Providence Regional Medical Center – Everett
Skagit Valley Hospital

STROKE – LVO
Providence Regional Medical Center – Everett
Harborview Medical Center
Swedish Medical Center

TRAUMA
PeaceHealth St. Joseph's
Providence Regional Medical Center – Everett
Harborview Medical Center

PEDIATRICS
Providence Regional Medical Center – Everett (Trauma)
Seattle Children's Hospital (PICU)
Harborview Medical Center (Trauma & PICU)

OB/GYN
Island Hospital
PeaceHealth St. Joseph's
Providence Regional Medical Center - Everett

NICU
Providence Regional Medical Center – Everett (Level III)
Seattle Children's Hospital (Level IV)
Swedish Hospital First Hill (Level IV)
University of Washington (Level III)

COMMUNICATION & DOCUMENTATION

Medical communication is a vital component of pre-hospital care. Information reported should be concise and provide an accurate description of the patient's condition as well as treatment rendered. Therefore, a complete patient assessment and a full set of vital signs should be completed prior to contacting MEDICAL CONTROL or a receiving facility. Regardless of the destination, early and timely notification of MEDICAL CONTROL or the receiving hospital is essential for prompt care to be delivered by all involved.

- Medical Communications with MEDICAL CONTROL or the receiving facility should be conducted for every Priority 1 or 2 patient.
- Contact MEDICAL CONTROL as soon as feasible for medication or treatment modality orders that deviate from established guidelines. For seriously injured or critically ill patients, notification of the receiving facility is required. It is preferred that this be accomplished by the transport unit, however, notification through MEDICAL CONTROL is acceptable.
- When communicating with MEDICAL CONTROL or a receiving facility, a verbal report should include these essential elements:
    - Identify unit, level of provider and name.
    - Destination hospital and ETA.
    - Activation of ALNW, IAA, LFN, or other transport option.
    - Patient's age, sex, mental status and chief complaint.
    - Brief pertinent history of the present illness.
    - Most recent vital signs to include ECG, glucose, or other pertinent assessments.
    - Pertinent findings of the physical exam.
    - Past medical history, current meds and allergies.
    - Treatment rendered in the field.
    - Patient response to emergency care given.
    - Orders requested, repeat granted orders back to physician.
    - If MEDICAL CONTROL is obtained, document the physician's name.

Advise receiving facility of change occurring in patient's status enroute to the medical facility.

When transmitting patient information, **DO NOT** include personal or sensitive information (e.g. Name, Social Security number, address, race, etc).

Following all calls, a patient care report (PCR) form is to be completed within 24hrs of the completion of the call. The Paramedic or EMT in charge of patient care will document their report on one of the following PCRs:

State of Washington DOH Medical Incident Report
Patient Care Report (paper or electronic) approved by the MPD

For BLS attended EMT transports, the narrative portion of the MIR will be formatted consistent with the S.O.A.P. format. All ALS attended paramedic transports will use the expanded S.O.A.P. format. EMTs may also use the expanded format to improve documentation.

S.O.A.P. Format

S = SUBJECTIVE: This is the information you have received from dispatch, law enforcement, bystanders, family members, and of course, the patient. In other words, this is the information that has been told to you. This will include the chief complaint, events that led to the event, past history, allergies, and medications (with dosages and times taken each day).

O = OBJECTIVE: The objective information you obtain is that information that you and/or your team of responders personally see, hear, feel or smell from performing a patient assessment. This will include such things as patient exam, lung sounds, vital signs, odors on breath, blood loss, blood glucose, pulse oximetry, etc.

A = ASSESSMENT: After taking a history and doing an exam, what is your impression as to what is wrong with the patient. Remember that when stating/writing your conclusions/impressions it must be prefaced by the word 'possible' or 'R/O' (Rule-Out), unless the injury or illness is obvious, e.g.: fracture/laceration

P = PLAN: This will include the actual treatment/ intervention that was performed for the patient. Include all methods of treatment, equipment used as well as patient response to the treatment and the patient's disposition (where did you leave them and what kind of condition). Be specific and detailed with this information. The rule is **— IF IT ISN'T WRITTEN DOWN, IT WASN'T DONE.**

Expanded S.O.A.P Format

C/C - Chief complaint – This portion of the form should be used for documenting why EMS was called. When possible, use a quote from the patient such as, 'My chest hurts.' If the patient is unconscious, that becomes the chief complaint.

HPI – History of present illness (This is the "S" or subjective part of the SOAP format) Include the **AGE, SEX, SAMPLE** and **OPQRST** information as well as pertinent positive and negative symptoms and signs that relate to the chief complaint. MOI (mechanism of injury) including damage done to vehicles or objects causing trauma, seat belt use, airbag deployment etc. is included here. In addition, use this area to document any secondary or associated complaints.

Meds – Use the designated area on the EMR. Include dose and frequency of CURRENT medications and the amount of alcohol or illicit drugs the patient admits to taking, if any.

Allergies – Use the designated area on the MIR. This area would also be suitable for documenting any do-not-resuscitate (DNR) or supportive care orders. Try to bring a copy of these orders with you to the hospital if at all possible.

PMH/PSH – Past medical history and Past surgical history – Document all pertinent

medical problems, paying particular attention to heart and lung disease, diabetes, renal failure, seizure disorders and any communicable diseases, if such information can be elicited.

PE = Physical Exam – This is the "O" or objective part of the SOAP format.

The initial **— primary** exam includes the **— ABCs.** You should include where you found the patient, their position (sitting, standing, in bed etc…), the patient's level of consciousness (alert and oriented to person, place, time and event – A&O to PPTE.
Include the Glashow Coma Scale (GCS) for trauma patients, the patient's skin color, temperature and moisture (skin warm, dry, pink – skin W/D/P), and the initial vital signs – **blood pressure , heart rate** including a comment on if the pulse is regular or irregular, **respiratory rate** including effort (shallow, regular, labored etc…), **pulse oximetry, temperature** if indicated by chief complaint, finger stick glucose measurement, if indicated, and lactate measurement.

HEENT – **H**ead/**E**yes/**E**ars/**N**ose/**T**hroat
May include exam of **scalp** (atraumatic), **pupils** – PERRLA – pupils equal, round, reactive to light, accommodating), **conjunctiva** (pale, pink, any discharge), **Sclera** (clear, jaundice, hemorrhagic), **throat or oral pharynx**
(OP) – (clear, red or 'injected' which means there is erythema or redness. You can also comment on if there is pus on the **tonsils** which is called exudates and if the **uvula** is midline). Other optional things to comment on depending on the chief complaint (trauma) include if there is facial trauma/swelling, **fluid from the nose or ears**, epistaxis (nose bleeding), deformity or swelling to the nose.

Neck – If this is a trauma patient you can use the heading **C/T/L - cervical/thoracic/lumbar spine.** You can comment on if the neck is supple, has full range of motion, trachea is midline, presence of JVD (jugular venous distension), midline or lateral tenderness of the cervical spine to palpation. (No 'POP' pain on palpation to C/T/L). If this is a trauma patient you can also add trauma signs like abrasions, swelling, or ecchymosis (bruising).

Chest – Include comments on inspection, palpation and auscultation. Don't state the patient denies SOB as this should be in the HPI under pertinent negative signs or symptoms. A normal exam would be: chest (or thorax) intact and non- tender to palpation, lungs clear and equal in all fields (BS = bilat.). In trauma patients you can also comment on crepitus, subcutaneous air, flail segments, abrasions and ecchymosis (seatbelt patterns).

Abdomen – This should be assessed on all patients and could be as simple as – soft and non-tender. Depending on the chief complaint, you could report on if the abdomen is obese, flat, tender (indicate which quadrants), the presence of guarding, rigidity, or rebound tenderness. You can indicate the presence of bowel sounds (normo, hyper, or hypoactive). If this is a trauma patient, comment on abrasions or ecchymosis. If this is a medical patient you can comment on masses, bruits (see H&P handout), or organomegaly.
GI/GU – **(Optional/As Indicated)** Examine the genital area if indicated by trauma or the chief complaint. Pay attention to any trauma, scrotal swelling/erythema, vaginal discharge, and tenderness to palpation. Pay close attention to unilateral scrotal swelling and any masses in the groin which may indicate a hernia.

Pelvis – This is assessed on all trauma patients. Visual inspection only to note bruising, lacerations, etc. Do NOT roll, press, or squeeze pelvic ring.

Ext or Extremities – Document PMS (pulses/motor/sensory) in all four extremities, look for pitting edema and range of motion in the extremities. Document any trauma or rash in the extremities, paying particular attention to the anterior tibia and heels.

Neuro – Document clear (or slurred) speech, tongue position, hand grips, motor strength in extremities, gait if tested. Also remember facial muscle symmetry in the setting of stroke.

Assessment / Impression – (the A or assessment in the SOAP format) This is where you state what you think is going on with the patient. Using 'possible' or 'R/O' for problems that are not 100% clear. Try to list at least three possible illnesses or injuries unless the cause is obvious.

Plan – The plan **(the P in the SOAP format)** will always start out stating you examined the patient. Include everything you did for the patient – exam, O2, splinting, spinal immobilization, re-assessment, pain scale, repeat vital signs (although, you can place the repeat vital sign data in the VS section of the MIR), BLS or ALS transport, contact Med Control (name of MD). For EMT transport, you should add here if the patient received an ALS evaluation and if paramedics determined that the patient could be transported BLS. Basically, document anything you did as far as treatment for the patient including transport response code.

Disposition – This tells us what happened to your patient and who is now responsible for the patient's care. Include who received your pre-hospital report i.e. patient transferred to ALNW 5, report to nurse John or care transferred to PIMC, report to nurse Nancy. You can include if the patient remained without clinical changes or if the patient is in improved or worsening condition. Should a patient decide not to be transported by ambulance to the hospital, be sure that your charting is meticulous. Indicate any advice you give them (instruction sheets) including the risks of their decision and how many times you advised transportation. Document their response.

EMR

FLOW CHART

The following must be documented in the FLOW CHART:

- All procedures
- All medications administered, including those given prior to arrival (PTA)
- All IV starts, including unsuccessful attempts
- All IV fluids given
- All ALERTS (Trauma/Stroke/STEMI/Sepsis)

VITAL SIGNS

The following must be documented in the VITALS:

- If a 3 or 12 lead ECG is applied, the initial rhythm, any change in rhythm, and the final rhythm

BLS TRANSPORT

This guideline is to allow responders to consistently apply standards to decisions regarding basic life support transportation. It is not meant to be all-inclusive but rather a guide for general practice. Each responder needs to be familiar with normal vital sign ranges and request advanced life support when the patient falls outside of those parameters.

Parameters for BLS Transport

- Systolic BP greater than 90mmHg
- Heart rate between 60-110
- Respiratory rate less than 28 without distress
- Oxygen saturation greater than 92% after oxygen administration
- Blood glucose greater than 60mg/dl
- Interfacility transport where the IV is saline / heparin locked
- Emergent transport of saline / heparin locked IV if ALS is diverted to a more urgent call

Considerations for upgrade to Advanced Life Support

- Will time make a difference? Time critical patients always need to have rendezvous with paramedic considered.
- Do you feel patient would benefit from paramedic history and physical exam?
- Does patient have complex medical history that may contribute to current illness?
- Is the problem acute or chronic?
- Does the patient require IV access or meds?
- Would patient benefit from ALS pain management?
- Do vitals fall within BLS parameters and is the patient appropriate for transport?

ALS Indicators — Sick Patient

- Poor general impression
- Unconscious/unresponsive
- Difficulty breathing
- Signs of poor perfusion
- Complicated childbirth
- Uncontrolled bleeding
- Severe pain
- Chest pain
- Inability to move any parts of the body

CRITERIA FOR TRANSPORT DECISIONS

Leave At Scene

- Minor illness or injury with little or no potential for patients to worsen
- BLS indicators
- EMT feels confident that patient is responsible for self-care or that another responsible party is present
- EMT urges patient to call back if further concerns or problems arise
- EMT recommends patient to follow-up with private physician
- Patient receives appropriate after-care instruction sheet
- Patient refusal signed ONLY if:
    - EMT believes patient should go to medical facility
    - Patient refuses treatment/transportation
    - MEDICAL CONTROL contacted

Privately Owned Vehicle (POV) Transport to Hospital

- Minor illness or injury with little or no potential for patient to worsen
- Clearly a minor BLS patient with BLS indicators
- Further evaluation or treatment needed
- Responsible and capable driver and transportation is available
- Risks and benefits have been discussed with patient and driver
- MEDICAL CONTROL contacted

BLS Ambulance

- BLS indicators (no suspicion of ALS)
- Further evaluation or treatment needed
- Continued BLS assessment, oxygen or other treatment needed en route
- No other responsible transport available
- Patient requires stretcher for transport

ALS Ambulance

- ALS indicators (IV, cardiac monitoring, indications that the patient's condition may worsen)
- Continued ALS assessment or treatment needed during transport

AIR MEDICAL TRANSPORT

Air Medical Transport (AMT) will be utilized when available if conditions are favorable to reduce transport time for critically ill or injured patients. It is important to consider the risk/benefit ratio when making this decision.

***Basic considerations for air transport**:*

- Would the amount of time needed to transport a patient by ground or water transportation to an appropriate medical facility pose a threat to the patient's survival and/or recovery?
- Weather, road, or water conditions, or other factors affecting the use of ground or water transportation seriously delay the patient's access to tertiary medical care?
- Does the available ground ambulance have the clinical skills, equipment or extra personnel to care for the patient during transport from the scene?
- Is a crew available to conduct the transport and what potential issues arise with the extended loss of apparatus and personnel in the district?

***Indications for requesting Air Medical Transport of a patient include**:*

- The patient's injury meets criteria for transport to a trauma center as outlined in Field Trauma Triage Decision Guideline
- The patient is suffering from a time sensitive illness that requires rapid transport to a hospital (cardiac, stroke, sepsis, acute abdomen)
- The patient's condition is such that prolonged transport via ferry would be detrimental to their health or comfort (severe pain, fractures, etc)
- A multi-casualty incident (MCI) requiring additional ALS providers or transport modalities

***Contraindications for requesting Air Medical Transport of a patient include**:*

- Patients in cardiac arrest (unless hypothermic)
- Patients contaminated by hazardous materials
- Patients with violent or erratic behavior

***Helicopter safety and landing zones**:*

- When a helicopter has been requested, indicate a safe landing zone by taking into account, crowds, trees and overhead hazards.
- Never approach a helicopter until instructed by the flight crew to do so.
- Never approach a helicopter from the rear, always from the front or side
- See individual department operating procedures for additional information

Procedure for activation of Air Medical Transport

- Contact San Juan Dispatch and request the **closest or most appropriate** AMT provider.
- If civilian AMTs are unable to fly, consider Navy or Sheriff's boat assets
- **Requesting agency will be required to provide the following:**
  - Location
  - Pre-designated Island LZ site or GPS Coordinates for scene response
  - Destination Hospital
  - Patient Age, Weight and Chief Complaint
  - Ground Contact
  - Radio Frequency

Procedure for activation of Naval air assets

- Ensure commercial assets are unable to respond, (ALNW, IAA, LFN) and that the injury/illness threatens life/limb/eyesight.
- Call the Air Force Rescue Coordination Center (AFRCC) at 850-283-5955. Be clear of three things, 1: The injury threatens life/limb/eyesight 2: Commercial assets have declined, 3: There is a standing order that WA State DEM EOC does not need to vet the Medevac request. The AFRCC will ask about patient condition, pickup LZ, destination facility, etc.
- IF you are able to make a second call, contact the NASWI SAR ODO at 1-360-257-2681, and advise them that you have contacted AFRCC, and the mission details. Do not call NASWI before calling the AFRCC. They may ask for a contact number so that they can put their flight medic and or pilots directly in touch with personnel on scene. This is helpful during bad weather to coordinate scene conditions, where the patient could be transported to, etc.
- Please note that the above process is for Medevacs ONLY. For aviation incidents and Search and Rescue, the WA EMD EOC must be contacted and coordinate these mission types. In these instances, a state resource may be able to better handle the mission.

TRANSFER OF CARE

Responsibility for patient care in the pre-hospital setting may be transferred between pre-hospital personnel according to established procedures. These procedures are applicable for turnover responsibility to or from EMS providers or to hospital staff.

ALS Provider Transfer of Care to an equal or higher-level provider

Transfer of care can take place if:

- Transfer is being made to an aeromedical provider with a Paramedic or Nurse on board
- Transport is by another provider with the same level of training
- The patient has a secured airway
- The ALS provider provides the equal or higher-level provider a full patient report to include vital signs and physical assessment
- San Juan Dispatch is notified when transfer of care is complete

ALS Provider Transfer of Care to a BLS provider

Patients must be hemodynamically normal with complaints that could be cared for at the BLS level. Prior to transferring care to the BLS provider, the examining paramedic will reasonably determine that there are no anticipated changes in the patient's present condition that would deem the patient critically ill. No patient will be turned over to BLS once ALS or advanced interventions have been initiated. Transfer of care can take place if:

- Electrocardiogram is normal sinus rhythm
- Patient does not meet trauma alert criteria
- The patient has a patent airway maintained without assistance or adjuncts
- The patient is hemodynamically normal. Vital signs should be stable and appropriate for the patient's condition
- The patient is at their baseline mental status and is not impaired as a result of medications or drug ingestion
- No cardiac, respiratory, or neurological complaints that warrant ALS intervention
- The ALS provider provides the BLS provider with a full patient report to include vital signs and physical assessment
- The responsible EMT is comfortable assuming patient care

Transfer of Care at the Medical Facility

- EMS providers will continue all pre-hospital care initiated during the transport until the patient has been triaged and a report has been given to a hospital representative. Examples include oxygen administration, maintaining IVs begun in the field, and maintenance of splints applied in the field.
- Hospitals/Clinics will designate personnel to assess patients brought by EMS transport units with the goal of transferring care and putting the unit back in service within 30 minutes of the patient's arrival to the Emergency Department (ED). Transfer of care includes movement of the patient to a hospital bed, stretcher, waiting room etc.
- Transfer of care will be document by the EMS provider who will submit a completed Patient Care Report (PCR) to hospital triaging personnel.

Transfer of Care / Hospital Report

Patient care reports / transfer reports should be made in a consistent and concise manner using terminology that can be understood by all parties.

EMS personnel shall notify the receiving hospital via phone or radio of their pending arrival as soon as is practical and no less than five minutes before expected arrival. The radio report will be given in an abbreviated MIST report format:

M - Mechanism of injury / Medical illness
I - Injuries / inspection
S - Signs (vital signs, assessment)
T - Treatments

Upon arrival at the hospital, EMS personnel will first transfer the patient to the bed. After the patient has been transferred to the bed, a time out will be performed where all in attendance will avoid unnecessary talking until the report is complete. The report will be given by the primary EMS caregiver and will be given in a MIST format as detailed above. After the report, any questions or clarifications will be voiced and answered before EMS departure.

COMPETENCE

Purpose:
To establish guidelines for the management and documentation of situations where patients refuse treatment or transportation.

Types of Consent:

- Informed Consent – A competent patient or guardian is informed of the potential benefits and risks of a process or procedure, alternatives to that procedure, and the possible consequences related to each.
- Expressed Consent – written or verbal request to be evaluated and treated.
- Implied Consent – A patient is unable to express consent because of altered mental status or severe distress. It is implied that the patient would want measures taken to save their life.

Providers should attempt to assess the following three major areas prior to permitting a patient to refuse care and/or transportation:

- **Legal competence**
  - Ensure that the patient is at least 18 years of age in order to refuse care.
  - Exceptions include a minor patient that is married, is a parent, or is currently pregnant.
  - Patients is subject to a court decree of incapacity are not legally competent to refuse care.
- **Mental competence**
  - Start with the presumption that all patients are mentally competent unless your assessment clearly indicates otherwise.
  - Ensure that patient is oriented to person, place, time and situation.
  - Establish that patient is not a danger to themselves or others.
  - Ensure that patient is capable of understanding the risks of refusing care or transportation and any proposed alternatives.
  - Check to be sure that patient is exhibiting no other signs or symptoms of potential mental incapacity, including drug or alcohol intoxication, unsteady gait, slurred speech, etc…
- **Medical or situational competence**
  - Ensure that patient is not suffering from acute medical conditions that might impair their ability to make an informed decision to refuse care or transportation.
  - Rule out conditions such as hypovolemia, hypoxia, head trauma, metabolic emergencies, hypothermia, etc…
  - Determine if patient lost consciousness for any period of time.

PATIENT REFUSAL

Contact MEDICAL CONTROL for:

- Refusals of ALS care
- Patients that you believe are in need of further medical attention yet refuses care; MEDICAL CONTROL may be able to help persuade patient
- Any refusal where required by guideline

Who May Refuse Care:

- **The Patient:**
  - If patient is legally, mentally, and situationally competent, they may refuse care
    - Obtain refusal signature
- **Parent:**
  - A custodial parent (i.e., a parent with a legal right to custody of a minor child) may refuse care on behalf of a minor child. Obtain refusal signature from parent.
  - A parent of a patient who is 18 years of age or older may not refuse care on behalf of his or her child (unless the parent is also a legal guardian – see below).
  - A minor (i.e., under 18 years of age) may refuse care for his or her child. Obtain refusal signature from the minor parent.
- **Guardian:**
  - A legal guardian is appointed by a court to act as 'guardian of the person' of an individual who has been found by to be incapacitated.
  - A legal guardian may also be appointed in lieu of parents for a minor. If a person indicates they are a legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.). If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.
- **Health Care Agent ('Attorney in Fact'):**
  - A person appointed by the patient in a durable power of attorney document may refuse care on behalf of the patient if the power of attorney contains such authorization.
  - Attempt to obtain a copy of the durable power of attorney document to attach to the patient care report (PCR). If documentation is unavailable, you may obtain a refusal from a health care agent ('attorney-in-fact') as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting themselves as the health care agent or 'attorney-in fact.'

Incompetent Patient:

- If a patient is incompetent, and no other authorized individual is available to provide a refusal signature, the patient may be treated and transported as long as you act in good faith and without knowledge that the patient or authorized individual would refuse care.
- Take all reasonable steps to secure treatment or transportation for a patient who is legally or mentally incompetent to refuse care, but do not put yourself or your crew in jeopardy.

Refusal Procedure:

If patient refuses care, have the patient or designee complete the refusal of treatment or transport form.

- Conduct a thorough patient assessment to include vital signs
- Contact MEDICAL CONTROL if necessary
- Review form with patient or designee
- Provide detailed explanation of possible risks and danger signs to patient or other designee
- Inform the patient to call 911, call their doctor, or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear
- Obtain the signature of the patient or designee. If the patient refuses to sign, document this fact on the refusal form.
- Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, and who watched the patient sign the form. Witnesses may include law enforcement personnel. All witnesses should be 18 years of age or older.

Complete the patient care report and include the following documentation:

- Competency assessments
- Results of history and physical exam to include:
    - Vital signs including pulse oximetry, blood glucose, ECG as required.
    - The clinical symptoms upon which the need for transport was based.
    - Information provided to fully inform the patient and/or other authorized individual of the consequences of their refusal of treatment/transport.
    - The patient understands the risk and complications of his/her choice to refuse.
    - MEDICAL CONTROL instructions, if any.
    - Alternatives offered by EMS.
    - Crew signatures on the patient care report (PCR).

TIERED RESPONSE / CALL PRIORITIES

It is recognized that it is in the best interest of public safety and patient care to respond to all incidents in a safe and prudent manner at all times. To accomplish this, units should be judicious when responding with lights and sirens, reserving these responses for when a clear threat to life, limb, or eyesight exists. Responding units may be lowered to a non-lights & sirens response by the first EMS unit on the scene that determines the patient does not require IMMEDIATE Emergency Medical Services for life, limb, or eyesight threatening conditions. First arriving EMTs may lower/cancel response of responding units when the patient does not require IMMEDIATE PATIENT CARE (BLS/ALS) INTERVENTIONS. (i.e.: non-injury accident) First responders (fire or police) may cancel responding units when there is no patient.

BLS first response or BLS transporting units may downgrade responding ALS units when their evaluation clearly indicates a lack of potential need by the following BLS criteria:

- Warm, pink, dry skin
- Heart rate 60-100 and regular
- Respiratory rate 10-24, deep and easy
- Systolic blood pressure **greater** than 100 mm/Hg
- Systolic Blood pressure **less than** 180 mm/Hg
- Diastolic blood pressure **less than** 110 mm/Hg
- Patient is awake, talking, and alert & oriented
- No loss of consciousness prior to arrival
- No seizure activity prior to arrival
- No chest pain
- No shortness of breath
- No abdominal pain
- No drug overdose/suicide attempt
- No significant mechanism of injury or multiple trauma
- No signs or symptoms of CVA or stroke

A responding EMS unit may be diverted from one 911 call to a second call when all conditions below are met:

- It is obvious the second call is of a greater life-threatening emergency than the first call
- The first EMS unit is decidedly closer to the second call
- A second EMS unit is immediately dispatched to the first call
- The diversion and response of the first unit to the second call may be vital to the patient's outcome
- Once ALS interventions have commenced, ALS personnel may not leave the patient to respond to a second call

RESPIRATORY

UNIVERSAL AIRWAY PROTOCOL

Designation of Condition: Patients with failure to oxygenate, ventilate, or protect their airway due to a decreased level of consciousness or respiratory failure.

All EMS Providers

- Establish Primary Management
- Provide supplemental oxygen to achieve a goal SpO2 of greater than 92%
- Elevate patient's head to 15 degrees
- Head-tilt/chin-lift or jaw thrust as appropriate
- Place an Oropharyngeal Airway (OPA) or Nasopharyngeal Airway (NPA) for snoring respirations / apnea. Examine upper airway prior to placement to ensure no obstruction is present.
- Bag-Valve-Mask (BVM) assistance
- Administer naloxone if secondary to narcotic overdose (EMTs with MPD specialized training). Titrate naloxone to adequate respiratory rate & airway protection, NOT LOC
- Supraglottic Airway Placement (EMTs with SGA endorsement)

ALS Providers

- Continuous EtCO2
- Obstructed airway protocol (if needed)
- Endotracheal intubation indicated (no more than two total attempts)
    - **Ensure patient is properly resuscitated PRIOR to intubation**
    - Drug Assisted Intubation
    - Delayed Sequence Intubation
- Unable to intubate
    - Supraglottic Airway
    - Surgical Cricothyrotomy (adult)
    - Needle Cricothyrotomy (pediatric)

Post Airway Procedure Management

- Post intubation protocol
- Place head of bed at 30 degrees
- Full set of vital signs at least every 10 minutes
- Continuous EtCO2, SpO2, ECG
- Ensure adequate sedation & pain control per protocol

BRONCHOSPASM / ASTHMA

Designation of Condition: Constriction of the small airways of the lungs, increased secretions and wheezing due to inflammation. Physical exam generally reveals respiratory distress, decreased air movement and wheezing, however wheezing may not be present. Absence of wheezing or decreased breath sounds is a sign of impending respiratory arrest.

All EMS Providers

- Establish Primary Management
- Titrate oxygen commensurate to the patient's level of distress. Goal SpO2 > 92%
- Combine 1st albuterol with 0.5 mg ipratropium (same dose for adult/pediatric) Subsequent nebulizers should be albuterol only (EMTs with MPD specialized training). May repeat twice for three total doses before calling Medical Control
- If severe asthma attack, consider CPAP. Begin at 5 cm and titrate as needed to a max of 10 cmH2O (EMTs with MPD specialized training)
- Contact Medical Control for consideration of epinephrine or Epi-Pen administration
    - Adults 0.3 mg IM - Children 0.01 mg/kg IM up to 0.3 mg

ALS Providers

- Obtain continuous waveform EtCO2 capnography
- If asthma attack is severe and life threatening (e.g. cyanosis, inability to speak, impending respiratory arrest, unresponsive to albuterol, silent chest, poor SaO2):
    - Administer epinephrine 1:1,000
        - Adults 0.3 mg IM - Children 0.01 mg/kg IM up to 0.3 mg
        - Epinephrine should be administered judiciously to patients with a history of coronary artery disease and/or hypertension or over the age of 45
    - Administer albuterol 2.5 - 5 mg q 5-10 min as needed for respiratory distress
    - Deliver nebulized albuterol via assisted ventilation for patients who are unable to provide effective respiratory exchange
    - If severe symptoms persist may repeat epinephrine IM every 3 - 5 minutes
- Consider initiating isotonic IV. Titrate to maintain LOC, SBP > 90, and end organ perfusion
- EKG and 12-lead if ACS suspected, if epinephrine has been administered, or if > 5 mg of albuterol has been administered
- Dexamethasone:
    - Adult: 40 mg IV
    - Pediatric: 0.5 mg/kg up to 40 mg
- Magnesium sulfate
    - Adult: 2 gm in 100 – 250 ml NS over 20 minutes
    - Pediatric: 50mg/kg up to adult dose IV over 20 minutes

COPD EXACERBATION

Designation of Condition: A disease state characterized by the presence of airflow obstruction due to chronic inflammation. The airflow obstruction is generally progressive, may be accompanied by airway hyperreactivity and mucus production, and may be partially reversible.

All EMS Providers

- Establish Primary Management
- Titrate oxygen to a goal SpO2 >88%
- Albuterol nebulizer:
    - Combine 1st albuterol nebulizer with 0.5 mg ipratropium
    - Adults 2.5 mg. Repeat 2.5 mg per nebulizer treatment as necessary with ECG, vital sign, and EtCO2 monitoring
    - Providers are encouraged to deliver nebulized albuterol via assisted ventilation for patients who are unable to provide effective respiratory exchange
- Consider CPAP. Begin at 5 cmH2O and titrate as needed to a max of 10 cmH20 (EMTs with MPD specialized training)
- Do not delay on-scene care waiting for the medication or intervention to take effect

ALS Providers

- Albuterol nebulizer:
    - Combine 1st albuterol nebulizer with 0.5 mg ipratropium
    - Adults 2.5 mg. Repeat 2.5 mg per nebulizer treatment as necessary with ECG, vital sign, and EtCO2 monitoring
    - Providers are encouraged to deliver nebulized albuterol via assisted ventilation for patients who are unable to provide effective respiratory exchange
- Do not delay on-scene care waiting for the medication to take effect
- Consider initiating isotonic IV lock; titrate to maintain LOC, SBP > 90, and end organ perfusion
- ECG and 12-lead
- Intubation if indicated
- Dexamethasone 40 mg IV if no improvement with nebulized medications

OBSTRUCTED AIRWAY

Designation of Condition: Patients with either a complete or partial obstruction of their upper or lower airway.

Contraindications

- None

All EMS Providers

- Establish Primary Management
- Adult:
  - If patient is conscious and a complete obstruction is present, administer Heimlich Maneuver until relieved or patient becomes unconscious
  - If patient is unconscious administer chest thrusts / CPR
- Infant < 1 years old:
  - Alternate five back blows and five chest thrusts until obstruction relieved
- Head-tilt/Chin-lift or jaw thrust as appropriate
- Place an Oropharyngeal Airway (OPA) or Nasopharyngeal Airway (NPA) for snoring respirations / apnea. Examine upper airway prior to placement to ensure no obstruction is present
- Begin Bag-Valve-Mask (BVM) ventilations at age appropriate rate

ALS Providers

- If patient has a tracheostomy or stoma, refer to the stoma / tracheostomy care protocol
- If a visible obstruction is noted, attempt to retrieve the obstruction with MacGill forceps
- If no obstruction noted in upper airway, but lungs sounds are absent with adequate BVM ventilations, attempt direct laryngoscopy. If an obstruction is noted, attempt to retrieve the obstruction with MacGill forceps
- If no obstruction is noted, intubated the patient
- If unable to relieve the obstruction, proceed rapidly to a cricothyrotomy
- If no breath sounds after intubation with CONFIRMED tracheal placement and adequate BVM ventilations, advance the ETT into the right mainstem to push the obstruction forward
- After advancing the ETT, withdraw to the carina and listen for breath sounds in the left lung fields. Secure the tube at that depth

POST INTUBATION MANAGEMENT

Designation of Condition: Patients with an advanced airway in place***.*** To be addressed immediately following verification and securing of the tracheal tube

ALS Providers:

Verification & Ongoing Assessment

- Elevate head of bed to 30 degrees
- Continuous EtCO2 & SpO2 monitoring MUST be performed following intubation
- Blood pressure will be obtained at a minimum of every 5 minutes
- A RASS will be obtained every 10 minutes
- Place restraints on bilateral upper extremities

Medication – Refer to medication dosing protocols

- Do NOT use Etomidate for continued sedation
- A combination of fentanyl & ketamine shall be used unless otherwise already obtunded
- Starting doses will be 0.75 mg/kg/hr of ketamine and 50 mcg/hr of fentanyl. Titrate every 10 minutes for a goal RASS of -2 to 0
- The dosing maximum is 200 mcg/hr of fentanyl and 3 mg/kg/hr of Ketamine. For further sedation contact MEDICAL CONTROL
- Further paralysis shall be avoided if possible unless patient or crew safety is at risk

Ventilator Settings

- Place ventilator in SIMV or VC mode
- Decrease supplemental oxygen concentration to lowest level needed to maintain O2 saturation > 92% (except for suspected carbon monoxide poisoning, at which point supplemental oxygen should be as high as possible)
- Start with a PEEP of 5. May adjust for better oxygenation for a maximum of 10
    - For BMI > 30, start with a PEEP of 8 cmH2O
    - For BMI > 40, start with a PEEP of 10 cmH20
- Goal tidal volume of 6 mL/kg
- Titrate ventilation rate to an EtCO2 of 35 - 45

RESPIRATORY ARREST / FAILURE

Designation of Condition: Patients with either cessation of, or an inadequate, respiratory drive.

All EMS Providers

- Establish Primary Management
- If patient's airway is obstructed, refer to obstructed airway protocol
- Head-tilt/Chin-lift or jaw thrust as appropriate
- Place an Oropharyngeal Airway (OPA) or Nasopharyngeal Airway (NPA) for snoring respirations / apnea. Examine upper airway prior to placement to ensure no obstruction is present.
- Begin Bag-Valve-Mask (BVM) ventilations at an age appropriate rate
- Elevate the head to 15 degrees
- Squeeze BVM until you observe chest rise (roughly one - two seconds)
- Place supraglottic airway (EMTs with SGA endorsement)
- For pediatric patients:
    - Ensure the BVM has a PEEP / pop-off valve set to 5 mmH2O
    - Ensure the BVM has a manometer set to 20

ALS Providers

- Continuous EtCO2
- Obstructed airway protocol (if needed)
- Endotracheal intubation indicated (no more than two total attempts)
    - Non-Drug-Assisted Intubation
    - Drug Assisted Intubation
    - Delayed Sequence Intubation
- Unable to intubate (two failed attempts)
    - Supraglottic Airway
    - Surgical Cricothyrotomy (adult)
    - Needle Cricothyrotomy (pediatric)

STOMA / TRACHEOSTOMY CARE

Designation of Condition: Obstruction, displacement, or inability to ventilate through a stoma or tracheostomy

ALS Providers

Stoma Suctioning:

- Adjust suction to 120 – 150 mmHg
- Apply sterile gloves
- Flush suction catheter with saline to lubricate tip and establish patency of suction catheter.
- Remove the T-tube if a tracheostomy patient is on humidified oxygen
- Ventilate the patient with 100% oxygen until the patient's SpO2 is greater than 92%
- Insert the suction catheter into the stoma or tracheostomy opening with the suction off (the thumb hole open). The catheter may be directed through the right or left bronchus by having the patient turn his/her head to the opposite side. Suction no longer than 10 seconds
- Apply suction by occluding the thumb hole while slowly withdrawing the catheter in a twisting motion
- If mucous plugs or thick secretions are present, the instillation of 3 – 5 ml of sterile saline may be helpful
- Ventilate with 100% oxygen after suctioning
- Check breath sounds
- Suctioning can stimulate a cough reflex. Allow the patient to cough. Be prepared to suction or catch secretions from the tracheal opening. Recheck breath sounds

Stoma Intubation

- Select the largest endotracheal tube that will fit through the stoma without force. Check the cuff, unless an uncuffed tube is being used
- Ventilate with 100% oxygen using a bag valve mask device with the face mask fitted over the stoma
- Wear sterile gloves. Do not use stylet. It is not necessary to lubricate the tube
- Suction if necessary
- Pass the endotracheal tube ½ the length of the tube and inflate the cuff. The pharynx has been bypassed, so the tube will protrude from the neck several inches
- Hold the tube in place, watch for chest rise with ventilation
- Secure the tube and ventilate
- Auscultate the lung fields. Check the neck for subcutaneous emphysema, indicating false passage. Confirm tube placement with standard methods per airway protocols

CARDIAC

CARDIAC ARREST

0:00		
		Turn on monitor, start timer
		Begin CPR/Transition to two rescuer CPR
		Room for team to work on patient?
		Pads on patient's bare chest
		Suction, OPA, oxygen & BVM ventilations
		Drug box & monitor on same side of patient
		Airway bag at patient's head
		Air transport on standby?
1:30		
		Announce "30 seconds until switch"
		New compressor ready
		Charge defibrillator to 200 joules
2:00		
		Pulse check
		Vfib/Vtach on ECG or US – defibrillate
		Switch compressors
2:00-3:30		
		Establish IV/IO access
		1 mg epinephrine – all rhythms
		Set up for iGel/ETT/Cric
		Place capnography
3:30		
		Announce "30 seconds until switch"
		New compressor ready
		Charge defibrillator to 360 joules
4:00		
		Pulse check
		Vfib/Vtach on ECG or US – defibrillate
		Vfib/Vtach – 1 – 1.5 mg / kg lidocaine
		Asystole/PEA – 1 mg Atropine
		Switch compressors
		1 mg epinephrine – all rhythms
4:00-5:30		
		Place Advanced Airway (15 sec or less)
		Review & address H's & T's
		Obtain patient's medical history

Compress at a rate of 100-120/min
Compress at a depth of 2" – 2.5" (allow for full recoil)
Doppler femoral artery during compressions
BMV at 10 bpm, squeeze bag until chest rise noted

ADDITIONAL TASKS
IV hung / arm ready / blue roll open
Extra O2 Tank / IO drill/ Glide scope
Check for POLST/advanced directive
Family support/ discussion

NOTES

H's		T's	
Hypovolemia		Tablets/Toxins	
Hypoxia		Tamponade	
Hypo/Hyper K		Tension Pneumo	
Hydrogen ions		Thromb – card	
Hot (or cold)		Thromb – pulm	
Hypoglycemia		Trauma	

5:30		
		Announce "30 seconds until switch"
		New compressor ready
		Charge defibrillator to 360 joules
6:00		
		Pulse check
		Vfib/Vtach on ECG or US – defibrillate
		Switch compressors
		1 mg epinephrine – all rhythms
		20 mg dexamethasone
6:00-7:30		
		Evaluate for cardiac activity or femoral pulse on ultrasound
		High Quality CPR, change pad vector to AP
7:30		
		Announce "30 seconds until switch"
		New compressor ready
		Charge defibrillator to 360 joules
8:00		
		Pulse?
		Vfib/Vtach on ECG or US – defibrillate
		Switch compressors
		Vfib/Vtach – 0.5 – 0.75 mg / kg lidocaine
8:00-9:30		
		High Quality CPR
9:30		
		Announce "30 seconds until switch"
		New compressor ready
		Charge defibrillator to 360 joules
10:00+		
		High Quality CPR
		Rotate compressors every 2 minutes
		Pulse/rhythm check every 2 minutes
		Vfib/Vtach on ECG or US – defibrillate
15:00		
		Contact MEDICAL CONTROL

ROSC Checklist	
	Medevac ready/en route
	Palpate pulse continuously
	Obtain BP every 5 min
	12 lead every 10 min
	Backboard ready
	Goal EtCO2 35-40
	Goal MAP > 65
	Contact MED CONTROL
	Norepinephrine drip ready

Phone Numbers	
St. Joe's ED	**(360) 715 – 4149**
St Joe's Cath Lab	**(877) 821 – 8181**
Prov Everett ED	**(425) 404 – 5601**
Harborview ED	**(206) 744 – 6233**
Dr. Corsa	**(360) 375 – 5859**

NOTES

CHEST PAIN

Designation of Condition: Typically, patients may present with retrosternal chest discomfort, which may be described as tightness or pressure that may radiate into the epigastrium, jaw, arms, neck or back. Females and diabetic patients may present atypically. When in doubt, treat as an Acute Coronary Syndrome (ACS). Dissecting aortic aneurysm may mimic an ACS in presentation and in response to treatment. Providers should recognize that there are many types of chest pain and it may be difficult to distinguish between cardiac chest pain and other forms. Always be cautious and assume that chest pain is cardiac in origin.

All EMS Providers

- Establish Primary Management
- Oxygen 2-6 lpm NC, as needed to obtain a normal O2 saturation ≥ 92%
- Administer chewable baby aspirin 324 mg (four 81 mg pills)
- If systolic BP >110 mmHg EMTs may administer 0.4 mg nitroglycerin SL every 3-5 minutes up to a total of three doses of patient's prescribed nitroglycerin. Nitroglycerin administration is contraindicated in patients who have recently taken phosphodiesterase inhibitors (erectile dysfunction medications such as Viagra & Cialis).
- Perform 12-lead EKG if trained

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, & end organ perfusion
- Obtain 12-lead ECG within 10 minutes of patient contact. As time permits, serial 12-leads should be obtained every 10 minutes as indicated
- If evidence of occlusive myocardial infarction / STEMI is noted on ECG, proceed to OMI/STEMI protocol, and notify closest air transport provider
- If systolic BP >110 mmHg, administer 0.4 mg nitroglycerin SL. Repeat SL dose every five minutes for a total of three times
- If pain persists and patient remains hemodynamically normal, administer fentanyl per protocol
- Consider non-cardiac causes as well and treat as appropriate
- In patients refusing transport or care, calculate HEAR score to assist in shared decision making

CHEST PAIN CAUSES AND DESCRIPTIONS

	Myocardial Infarction	Angina Pectoris	Dissecting Aneurysm	Pericarditis	Peptic Ulcer
Location	Substernal may vary	Substernal	Substernal	Substernal more left sided	Epigastric Substernal
Onset	Usually sudden	Exertional	Acute	Subacute	Acute or Subacute
Provocation	Usually none. See comments.	Exercise excitement stress, cold, meals	None	Worsened: lying down breathing, swallowing, coughing, twisting	Alcohol, lack of foods, acid foods
Quality	Crushing Heaviness, dull Pressure Band-like Constricting Squeezing	Discomfort Choking Pressure Squeezing, Strangling, Constricting	Deep tearing Shearing "Knife-like"	Sharp	Burning
Radiation	Across, mid-thorax anterior, arms shoulder, neck jaw, teeth, fingers	Same as MI	Back lumbar region	Usually none occasionally shoulder, neck, flank	Occasionally back
Alleviation	None	Rest, NTG	None	Tripod position shallow respirations	Antacids, food
Duration	Usually under 30 minutes. Can be longer.	5-15 min.	Hours	Hours	Hours
Comments	SOB, N&V, pallor, diaphoresis impending doom	May be nocturnal	Sudden onset may subside spontaneously or be associated with paralysis	May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE	ASA, NSAID's eg. Motrin Advil, may trigger.

	Pancreatitis	Esophageal Rupture	Pulmonary Embolism	Esophageal Spasm	Costo- Chondritis
Location	Epigastric	Retrosternal	Multiple	Substernal, Epigastric	Anterior / Lateral
Onset	Acute / Sub-acute	Acute	Sudden or Gradual	Sub-acute	Sudden or Gradual
Provocation	Alcohol, trauma, gall bladder disease	Swallowing	Respirations, cough	Spontaneous, cold liquids, recumbency	Movement, palpation, cough, respiration
Quality	Severe or dull	Severe	Sharp or dull	Dull, pressure, colicky	Sharp superficial
Radiation	Back	Lateral	None	Jaw, either arm	None
Alleviation	Time	None	None	Antacids, occasionally NTG	Time, heat, analgesia
Duration	Hours	Hours	Variable	5-60 minutes	Variable
Comments	May be viral Eg. Mumps	Alcoholics with forceful vomiting; associated with pleural effusion, shock and hydro-pneumothorax	Sudden onset may subside spontaneously or be associated with paralysis	May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE	ASA, NSAID's eg. Motrin Advil, may trigger.

Occlusion Myocardial Infarction / STEMI

Designation of Condition: A occlusive myocardial infarction that may present as a STEMI, Q wave, hyperacute T wave, diffuse ST depression with aVR elevation, positive modified Sgarbossa's criteria, or other morphology.

All EMS Providers

- Establish Primary Management
- **Follow chest pain protocol**
- Notify closest air transport provider

ALS Providers

- Initiate 2 large-bore isotonic IVs; titrate to maintain LOC, SBP > 90, and end organ perfusion
- Obtain 12 lead ECG, repeat every 15 min or when patient condition changes
    - Consider R sided or posterior 12 lead ECG if indicated
- If ECG evidence of R sided or inferior occlusion, use caution and do not administer nitroglycerin if SBP less than 110 mmHg
- Administer 3 tabs NGT SL unless already completed in chest pain protocol
- Begin nitroglycerin infusion if SBP > 110 mmHg:
    - Starting dose of 10 mcg/min
    - If pain resolves, continue current rate
    - If pain continues, increase the drip rate by 10 mcg/min every 5 minutes until pain resolves or SBP falls below 110 mmHg
    - If SBP falls below 110 mmHg, decrease the rate by 10 mcg/min & administer a 250mL LR bolus. If SBP remains below 110 mmHg, discontinue infusion
- Administer 5mg metoprolol IV every 5 minutes three times unless HR <60
- Obtain full set of vital signs every five minutes
- Call receiving facility for STEMI activation
- Complete STEMI checklist, thrombolytic checklist, and consider thrombolytics if transport > 60 minutes away
    - Consult receiving hospital or MEDICAL CONTROL for guidance
- Perform cardiac ultrasound to evaluate wall motion as time and patient condition permits (Paramedics with MPD specialized training)
- If patient is hypotensive (<90 mmHg systolic) after 500cc bolus:
    - Begin norepinephrine drip unless the patient is also bradycardic
    - Begin epinephrine drip in bradycardic patients

CARDIOGENIC SHOCK

Designation of Condition: Hypotension secondary to a decrease in cardiac function.

All EMS Providers

- Establish Primary Management
- Obtain 12-lead ECG if trained
- Notify closest air transport provider
- Administer oxygen to maintain SpO2 >92%

ALS Providers

- Initiate 2 large-bore isotonic IVs; titrate IVF to maintain LOC, SBP > 90, and end organ perfusion.
    - If BP <90 mmHg systolic, administer a fluid challenge of 500mL (20ml/kg for pediatric) and reassess
- Obtain 12 lead ECG, repeat every 10 min or when patient condition changes
- If patient is hypotensive (<90 mmHg systolic) after 500mL bolus:
    - Begin norepinephrine infusion unless the patient is also bradycardic
    - Begin epinephrine infusion in bradycardic patients
- Perform cardiac ultrasound if time and patient condition permits (paramedics with MPD specialized training)

CONGESTIVE HEART FAILURE / PULMONARY EDEMA

Designation of Condition: Patient presenting with signs, symptoms and history of moderate/severe dyspnea and/or decreased perfusion secondary to pulmonary edema. The patient will usually present with shortness of breath (wet noisy respirations/crackles) and possibly pink frothy sputum (pulmonary edema). It should be noted that a fever suggests infectious instead of cardiac origin. Explore differential diagnoses.

All EMS Providers

- Establish Primary Management
- Administer supplemental oxygen for a goal SpO2 of >92%
- Begin CPAP. Begin at 10 cm and titrate down as tolerated. Max of 10 cm (EMTs with MPD specialized training)
- If systolic BP >110 mmHg EMTs may administer 0.4 mg nitroglycerin SL every 3-5 minutes up to a total of three doses of patient's prescribed nitroglycerin. Nitroglycerin administration is contraindicated in patients who have recently taken phosphodiesterase inhibitors (erectile dysfunction medications such as Viagra & Cialis).

ALS Providers

- Initiate isotonic IV or saline lock; titrate to maintain LOC, SBP > 90, and end organ perfusion. **Limit the amount of IVF, consider norepinephrine if hypotensive**
- Obtain a 12 lead ECG
- Consider intubation if CPAP failure or contraindicated
- If SBP > 140 mmHg:
    - Administer a 400 mcg NTG bolus over two minutes, then -
    - Start a NTG infusion with a starting dose of 100 mcg/min
        - Titrate up or down by 25 mcg/min every five minutes until blood pressure to goal SBP 110 – 120 or resolution of SOB. If SBP falls below 110 mmHg, decrease the rate by 10 mcg/min every five minutes until SBP 110 mmHg.
- Consider furosemide (20 - 40 mg or one half of total daily dose) if obvious signs of fluid overload. Consult MEDICAL CONTROL if unsure. Maximum dose of 80 mg.

ATRIAL FIBRILLATION / FLUTTER WITH RVR

Designation of Condition: The patient may have a heart rate >120bpm with atrial flutter or atrial fibrillation on the rhythm strip and may be symptomatic. Severely symptomatic patients (chest pain, SOB, and/or hypotension) should be determined to be hemodynamically **AB**normal and with significantly altered levels of consciousness to consider cardioversion in the prehospital environment. This risk should be balanced with the known risk of embolic complications with conversion of a-fib/flutter >48 hours in duration.

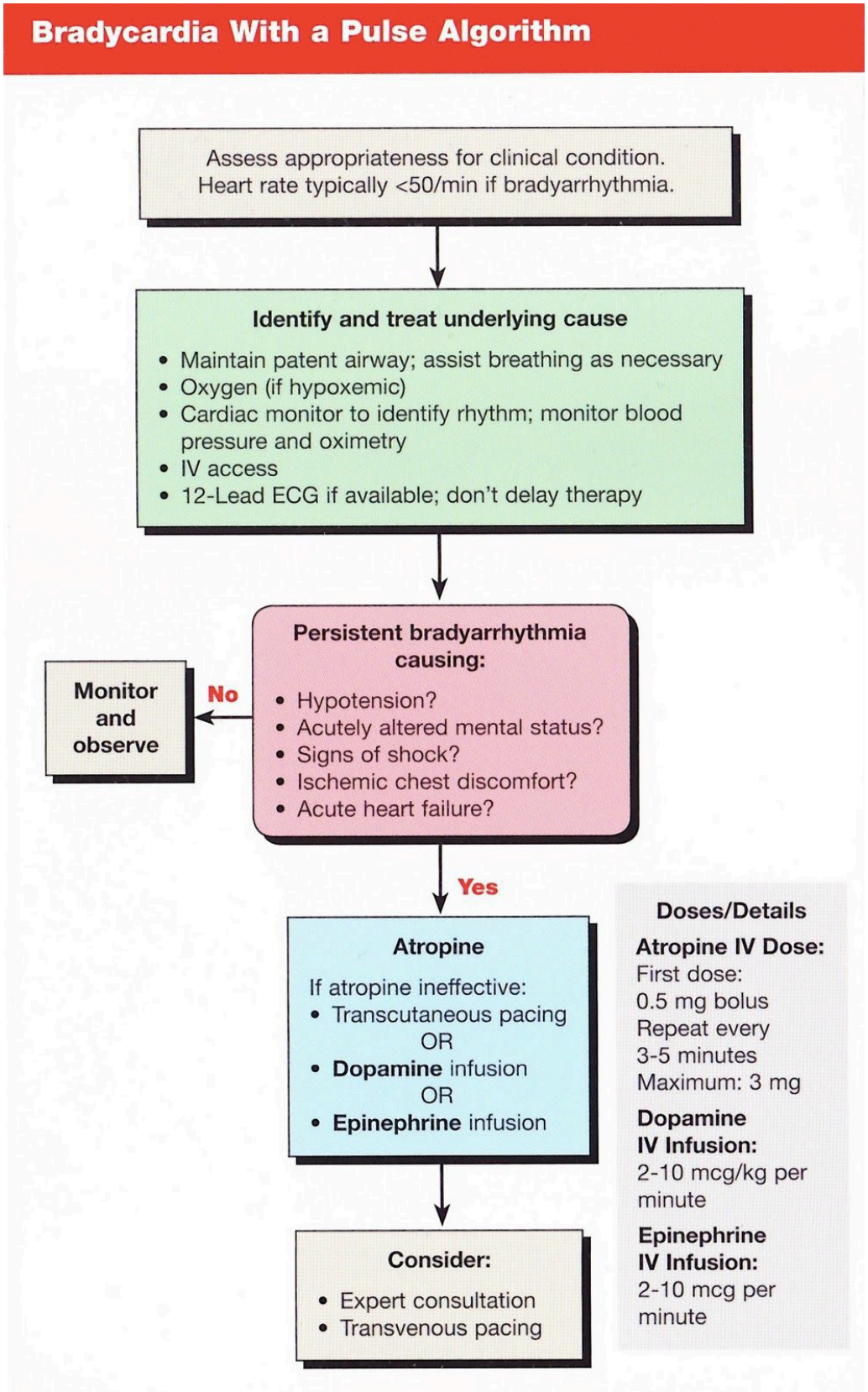
All EMS Providers

- Establish Primary Management
- Obtain a time when complaint began
- Obtain a 12-lead ECG if trained

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, end organ perfusion
- Obtain a 12-lead EKG
- Consider non-cardiac causes leading to tachycardia (sepsis, shock, trauma).
    - If non-cardiac causes present, do not attempt to convert rhythm, tachycardia may be compensatory
    - Treat underlying condition
- **Hemodynamically ABnormal:**
    - Consider premedication with midazolam or ketamine as appropriate.
    - Atrial Fibrillation / Flutter – synchronized cardioversion at 100J, and then increase in stepwise fashion as needed for conversion (if manufacturer has device specific recommendation for A-Fib, utilize this setting), placing pads in the AP position
- **Hemodynamically NORMAL:**
    - If symptoms or tachycardia started **less than 48 hrs ago:**
        - Metoprolol 5mg IVP every five minutes until rate < 120 up to 15 mg total
        - If unsuccessful, consider amiodarone 150 mg over 10 minutes once
        - Magnesium sulfate 4 g IV infusion over 20 min **in addition** to either medication
        - Consider MEDICAL CONTROL advice if above therapies are unsuccessful
    - If symptoms or tachycardia started **greater than 48 hrs ago:**
        - Treat chest pain as appropriate
        - Contact pt's cardiologist or MEDICAL CONTROL
            - Consider Metoprolol 5mg IVP every five minutes up to 15 mg total for rate control only. Stop when rate < 120
        - **DO NOT** attempt chemical or electrical cardioversion without contacting pt's cardiologist or MEDICAL CONTROL

BRADYCADIA


Bradycardia With a Pulse Algorithm
Assess appropriateness for clinical condition.
Heart rate typically <50/min if bradyarrhythmia.
Identify and treat underlying cause
• Maintain patent airway; assist breathing as necessary
• Oxygen (if hypoxemic)
• Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
• IV access
• 12-Lead ECG if available; don't delay therapy
Persistent bradyarrhythmia causing:
• Hypotension?
• Acutely altered mental status?
• Signs of shock?
• Ischemic chest discomfort?
• Acute heart failure?
No
Monitor and observe
Yes
Atropine
If atropine ineffective:
• Transcutaneous pacing
OR
• Dopamine infusion
OR
• Epinephrine infusion
Consider:
• Expert consultation
• Transvenous pacing
Doses/Details
Atropine IV Dose:
First dose:
0.5 mg bolus
Repeat every
3-5 minutes
Maximum: 3 mg
Dopamine IV Infusion:
2-10 mcg/kg per minute
Epinephrine IV Infusion:
2-10 mcg per minute

SUPRAVENTRICULAR TACHYCARDIA (SVT)

Designation of Condition: A patient with a heart rate >150bpm with symptoms of chest pain, palpitations, shortness of breath, or other cardiac symptoms. Severely symptomatic patients (chest pain, SOB, and/or hypotension) should be determined to be hemodynamically **AB**normal and with significantly altered levels of consciousness to consider cardioversion in the prehospital environment.

All EMS Providers

- Establish Primary Management
- Obtain a complete history & physical looking for non-cardiac causes of the SVT
- Obtain a 12-lead ECG if trained

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Obtain a 12-lead EKG prior to intervention if hemodynamically **AB**normal
- **If hemodynamically ABnormal:**
    - Consider premedication with midazolam or ketamine as appropriate.
    - Synchronized cardioversion at 100J, and then increase in stepwise fashion
- **If hemodynamically NORMAL:**
    - Attempt vagal maneuvers (bear down, blow into syringe, etc)
    - If unsuccessful, administer adenosine 12mg IV FAST push
    - If remains in SVT after 2 min, may repeat adenosine 12 mg IV FAST push for a total of two doses
    - If patient becomes hemodynamically **AB**normal:
        - Consider premedication with midazolam or ketamine as appropriate.
        - Synchronized cardioversion at 100J, and then increase in stepwise fashion
        - Consider MEDICAL CONTROL for advice

VENTRICULAR TACHYCARDIA (WITH A PULSE)

Designation of Condition: A patient with a wide complex tachycardia, usually with a heart rate >120 bpm, and possibly with symptoms of chest pain, palpitations, shortness of breath, or other cardiac symptoms. Severely symptomatic patients (chest pain, SOB, and/or hypotension) should be determined to be hemodynamically abnormal and with significantly altered levels of consciousness to consider cardioversion in the prehospital environment.

All EMS Providers

- Establish Primary Management
- Obtain a complete history & physical, looking for non-cardiac causes of the tachycardia
- Obtain a 12-lead ECG if trained

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Obtain a 12-lead EKG
- **If hemodynamically ABnormal:**
    - Consider sedation with midazolam or ketamine as appropriate
    - Synchronized cardioversion at 100J, and then increase in stepwise fashion
- **If hemodynamically NORMAL:**
    - Amiodarone 150mg IV infusion over 10 min
    - Consider MEDICAL CONTROL advice
    - If patient becomes hemodynamically **AB**normal:
        - Consider sedation with midazolam or ketamine as appropriate
        - Synchronized cardioversion at 100J, and then increase in stepwise fashion

LEFT VENTRICULAR ASSIST DEVICE (LVAD)

Designation of Condition: LVADs are devices implanted into a patient's heart and central blood vessels (Aorta and/or Pulmonary Artery) to help circulate blood and improve cardiac output. They are used as a bridge to support patients until cardiac transplant, or as definitive end of life care.

Considerations when caring for LVAD patients:

- No palpable pulse
- NIBP may not register
- Pulse ox may not register
- Are anti-coagulated and can have obvious or occult blood loss and shock
- Have a 4-7% yearly incidence of hemorrhagic or ischemic stroke
- Can have sepsis from device infection
- Can be awake and look well during malignant dysrhythmia such as V-fib/V-tach

All EMS Providers

- Establish primary management
- Contact UW VAD Coordinator @ (206) 598-6190 (or appropriate VAD coordinator) and report an emergency situation that requires immediate contact
- Bring/keep all VAD equipment and back-up equipment, and patient companion with the patient
- Determine if device is functioning:
    - Device hum should be heard during auscultation of abdomen
    - If you do not hear a device hum, begin CPR if indicated
- Look/listen for alarms and trouble shoot with VAD coordinator
- Make sure power and pump are connected, no loose cables
- Determine MAP by doppler
- Assess blood glucose level
- Call for ALS intercept on all LVAD patients

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain MAP of 65 – 80
- 12-lead EKG for all LVAD patients
- If low flow alarm sounds, administer 500mL IVF bolus and reassess

⚠ NOTE:

- Follow most up to date AHA and University of Washington guidelines
- LVAD is not a contraindication for defibrillation or cardioversion
- Transport to LVAD Center if system resources and patient conditions allow

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MEDICAL

ABDOMINAL PAIN

Designation of Condition: The patient will present with abdominal pain that is not related to trauma or pregnancy. Careful evaluation should include attempting to ensure the pain is not cardiac related. When in doubt, the cardiac symptoms should be treated – refer to Cardiac Chest Pain protocol and transport in care of ALS. Remember that abdominal pain may be related to undiagnosed pregnancy in any female of child-bearing years – keep a high index of suspicion for ectopic pregnancy which may be associated with uncontrollable hemorrhage.

All EMS Providers

- Establish Primary Management
- Allow patient to seek position of comfort

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Cardiac monitoring as indicated
- Consider 12-lead EKG
- Consider antiemetics and analgesics for acute pain
- For nephrolithiasis (kidney stones) refer to back pain protocol

ABDOMINAL PAIN DIFFERENTIAL DIAGNOSIS

UPPER GI BLEED	LOWER GI BLEED	GYNECOLOGIC
Peptic Ulcer Disease Esophageal Varices ASA/NSAID Use Caustic Ingestion	DiverticulOSIS Hemorrhoids Inflam. Bowel Disease Cancer	Ectopic Pregnancy PID / STI UTI Endometriosis
COLICY	**PERITONEAL**	**VOMITING**
Bowel Obstruction Kidney Stones Inflam. Bowel Disease Gallbladder	Perforation Appendicitis Ovarian Cyst DiverticulITIS	Gallbladder Toxic Ingestion Bowel Obstruction GI Infection

ALTERED MENTAL STATUS

Designation of Condition: A disoriented, lethargic or unresponsive patient from an undetermined cause.

All EMS Providers

- Establish Primary Management
- Assess and ensure a patent airway, adequate rate and depth of respirations, and circulation.
    - Consider NPA placement
    - Advanced airway procedures should not be considered until hypoglycemia and/or the possibility of a narcotic overdose has been ruled out
- Titrate oxygen for an SpO2 of > 92%
- Assess and document the Glasgow Coma Scale (GCS) score
- If you believe the patient sustained trauma, consider spinal motion restriction
- Assess blood glucose level.
    - If blood glucose level is < 60mg/dl with signs and symptoms consistent with hypoglycemia, administer glucose per Diabetic Emergencies protocol
    - Oral glucose should not be administered to an unconscious patient or a patient who has a normal glucose level and no history of present illness (HPI) or past medical history (PMH) consistent with hypoglycemia.
- If no change, consider naloxone per Narcotic Overdose protocol
    - Be prepared for combativeness if the patient responds to above treatment

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- If the patient fails to respond to any of the above treatments and the patient is in a deep state of unconsciousness (no gag reflex), consider placing supraglottic airway
- Cardiac monitoring as indicated
- Maintain airway and intubate as needed

A **E** **I** **O** **U**	Alcohol Epilepsy Insulin Overdose Uremia/Underdose	**T** **I** **P** **S**	Trauma/Tumor Infection Psychosis Stroke

ANAPHYLAXIS / ALLERGIC REACTION

Designation of Condition: A systemic response to exposure to an allergen. Allergic reactions may involve a single or multiple body systems. While severe allergic reaction known as anaphylaxis is uncommon, it is important to recognize as it may progress very rapidly. Rash or mild hives not associated with breathing or swallowing problems are unlikely to develop into more severe symptoms later.

All EMS

- Establish Primary Management
- Titrate oxygen commensurate to the patient's level of distress and an SpO2 of >92%
- Diffuse progressive hives, severe respiratory distress/anaphylaxis (hypoxia and/or hypotension):
    - Administer epinephrine via auto-injector (Epi-Pen®/ Epi-PenJr®). If injecting via syringe & needle (EMTs with MPD specialized training):
        - Adults (>30kg): adult 0.3 mg IM.
            - Consider ½ dose for adults over age 65, those with active cardiovascular symptoms, hypertension, or history of hypersensitivity to epinephrine.
        - Pediatric dosage 0.01 mg/kg 1:1,000 IM up to 0.3 mg
    - If wheezing or decreased breath sounds administer albuterol 5 mg via nebulizer
    - If patient able to tolerate PO, administer 10mg cetirizine PO once (EMTs with MPD specialized training)

ALS PROVIDERS

- **Hemodynamically ABnormal:**
    - Epinephrine:
        - Adults (>30kg): adult 0.3 mg IM.
        - Consider ½ dose for adults over age 65, those with active cardiovascular symptoms, hypertension, or history of hypersensitivity to epinephrine.
        - If adult patient is perfusing too poorly to absorb the via IM, administer epinephrine 1:10,000 0.1 mg SIVP over 5 minutes. Repeat as necessary, but only when severe hypotension and/or hypoxia justify the cardiovascular risk of IV
        - Pediatric dosage 0.01 mg/kg 1:1,000 IM up to 0.3 mg
        - May repeat once in 3-5 minutes if hypotension or dyspnea is still present
    - If hypotensive, bolus LR in 500mL increments for adults, 20 mL/kg for pediatrics
    - Epinephrine drip should be considered for refractory hypotension
- **All pts:**
- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, end organ perfusion
    - Diphenhydramine: 25 IVP or 50 mg IM in the adult. 1 mg/kg IV or IM in pediatric patients **or** cetirizine 10 mg PO (5 mg for pts over 70 or between 2-11 years old)
    - Consider famotidine 20mg PO
    - Dexamethasone 40 mg (adult) or 0.5 mg / kg (ped) IVP once should be considered for refractory symptoms
    - Obtain 12 – lead ECG when able

BACK PAIN

Designation of Condition: Acute or acute on chronic pain in the back. May be associated with neuropraxia (numbness/tingling) secondary to nerve compression.

All EMS Providers

- Establish Primary Management
- Evaluate for numbness/tingling/weakness in extremities and dermatomes
- If no concern for C-spine injury, allow patient to seek position of comfort
- If numbness, tingling, or weakness in distal extremities, transport to hospital via EMS
- Determine if urine output is normal is volume and color

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Cardiac monitoring as indicated
- Consider 12-lead EKG
- Consider antiemetics and analgesics for acute pain
- For suspected nephrolithiasis (kidney stones):
    - Administer 30 mg (15 mg if suspicion of decreased renal function) ketorolac IV/IM as a first line treatment for kidney stone pain.
    - If pain persists, refer to pain management protocol
    - Pts with a history of nephrolithiasis may transport to hospital via POV after ketorolac administration if no narcotic analgesia administered

CARBON MONOXIDE EXPOSURE

Designation of Condition: Patients with possible exposure to carbon monoxide presenting with flu-like symptoms, headache, dizziness, fatigue, nausea, and vomiting, syncope, chest pain, dyspnea, confusion, hallucinations, and seizures.

Always consider CO poisoning when multiple medical patients are found in the same residence with no other apparent cause.

Remember your own safety first. Always remove the victim from the source before beginning resuscitation efforts.

Pulse oximetry will not provide accurate readings of true oxygen saturation in the case of CO poisoning.

All EMS Providers

- Establish Primary Management
- Administer high-flow oxygen via non-rebreather to any patient with a CO level higher than 7%. Assist ventilation with oxygen via BVM as needed
- Ensure the safety of asymptomatic individuals at the scene prior to transport

ALS Providers

- If CO poisoning is secondary to inhalation of combustible products and significant altered mentation is present, consider the possibility of concomitant cyanide poisoning
- Advanced airway management if indicated
- Initiate isotonic IV at 500 mL/hr for first 2 hrs, then 250 mL/hr unless signs of pulmonary edema
- Transport any patient with a SpCO level of >12% to the nearest hospital
- Contact Virginia Mason **(206) 341-1141** if pt meets criteria below:

Indications for Transfer to Virginia Mason Center for Hyperbaric Medicine:
Patients with documented exposure to CO (COHb level greater than 2% in a nonsmoker and greater than 10% in a smoker) within the previous 24 hours and any one or more of the following:

- Loss of consciousness
- SpCO level > 25%
- Any neurological deficits
- Cardiac ischemia
- Age > 50 year
- Lactate > 2.5 mmol/liter

DIABETIC EMERGENCIES

Designation of Condition: Patient presents with signs, symptoms or history of hypoglycemia or hyperglycemia (e.g. diabetics on insulin or oral agents), or chronic alcohol use. Completion of patient assessment and pertinent history, along with blood glucometry, is required prior to the administration of glucose or dextrose.

All EMS Providers

- Establish Primary Management
- Assess Blood Glucose Level
- If signs or symptoms of hypoglycemia or BGL < 60
    - If patient is wearing an insulin pump, turn pump off.
    - If the patient is conscious and able to protect airway, administer oral glucose as indicated for hypoglycemia
        - Do not administer oral glucose (Dextrose) to any patient who has a compromised airway or decreased level of consciousness
    - If unable to tolerate PO, administer 1mg glucagon IM (EMTs with MPD specialized training)
        - Glucose or food is required after the administration of IM glucagon to prevent recurrent hypoglycemia
- Repeat BGL should be performed and recorded after all interventions

ALS Providers

- Obtain IV or IO access as needed for dextrose administration
- **Hypoglycemia**
    - If BGL is < 60mg/dl and associated signs of hypoglycemia exist:
        - Adult: administer D10 or D25 for a total of up to 25 g via IV/IO
        - Pediatric: D10 or D25 for a total of up to 12.5 g via IV/IO
        - Neonate: D10 or D25 for a total of up to 6.125 g via IV/IO
        - May repeat dosage in ten minutes if patient's level of consciousness and condition does not improve
        - May administer oral glucose or dextrose if patient is conscious and able to protect airway
        - If patient also has suspected CVA, start at lower dosing
        - Glucose or food PO is required after the administration of IV/IO dextrose to prevent recurrent hypoglycemia
        - If patient is AO x 3 and has capacity, they may refuse transport. If so, remove IV / IO per protocol and cover with bandage.
- **Hyperglycemia**
    - Waveform capnography should be utilized to identify metabolic acidosis (signs of DKA: high BGL, tachycardia, compensatory tachypnea, ETCO2 less than 30 mmHg)
    - For possible DKA, a fluid bolus for the adult patient of 500ml isotonic fluid should be administered. If lung fields remain clear, follow with an additional 500ml of isotonic fluid. Pediatric patients receive 10ml/kg bolus repeated once

DIVING EMERGENCIES

Designation of Condition: Patients with a recent (within 48 hrs) history of SCUBA diving with signs or symptoms of barotrauma or decompression sickness.

Signs of barotrauma:
Pneumothorax, ear/sinus/dental pain

Signs of decompression sickness:
Joint pain, mental status change, confusion, paralysis, skin rash

All EMS Providers

- Establish primary management
- Determine total number of dives, time under water, depth of dive, decompression stops, and gas mixture used
- If air embolism is suspected, place patient in left lateral recumbent position
- Continuous monitoring of SpO2 & EtCO2
- Administer high flow supplemental oxygen regardless of SpO2

ALS Providers

- Initiate isotonic IV at 500mL/hr for first 2 hrs, then 250mL/hr unless signs of pulmonary edema
- Continuous ECG, 12-lead ECG
- Avoid CPAP or BVM ventilations if possible
- Notify Virginia Mason Center for Hyperbaric Medicine **(206) 341-1141**
- Notify the closest appropriate air medical provider
- Contact the Divers Alert Network (DAN) as needed for assistance **(919) 684 - 9111.**

DROWNING / NEAR-DROWNING

Designation of Condition: Submersion in water that may or may not cause cardiac arrest. Likely to be associated with hypothermia.

All EMS Providers

- Ensure Scene Safety and Establish Primary Management
- If patient is in cardiac arrest, begin CPR. Prioritize airway management and oxygenation over AED and other maneuvers
- The Heimlich maneuver is contra-indicated
- Ensure C-spine precautions if diving injury or other trauma is suspected
- If concerns about hypothermia, obtain core body temperature (rectal preferred) and refer to the hypothermia protocol. Begin active rewarming measures
- Provide high-flow supplemental oxygen
- Consider CPAP. Begin at 10 cm and titrate down as tolerated. Max of 10 cm (EMTs with MPD specialized training)

ALS Providers

- Evaluate the need for advanced airway
- Cardiac monitoring and 12-lead EKG to evaluate dysrhythmias, QT abnormalities, treat as per relevant protocols
- Continue resuscitative efforts until patient is warmed per the hypothermia protocol

END OF LIFE CARE

Designation of Condition: Patients with a terminal condition and a POLST / DNR designating comfort measures only that may or may not be under the care of a hospice agency.

All EMS Providers

- Ensure valid POLST / DNR are in place. Tailor resuscitation measures to patient's wishes as documented on these forms
- Contact hospice or patient's physician to develop care plan with the patient if needed
- Contact MEDICAL CONTROL if unable to reach the above contacts
- If patient desires transport to the hospital, honor their wishes
- Ensure patient's needs are met, questions are answered, and they are comfortable with the plan developed

ALS Providers

- May assist patient with administration of their own medications
- EMS will not administer narcotics and / or sedatives without transport to an appropriate hospital or medical control approval. Contact MEDICAL CONTROL for further guidance

HEAT EMERGENCY

Designation of Condition: The patient may exhibit a temperature >101° Fahrenheit and signs and symptoms consistent with an elevated temperature due to fever or environmental hyperthermia.

Definitions:

- Heat Cramps – Large muscle group cramping, usually after prolonged or heavy exertion. There are no changes in mentation
- Heat Exhaustion – This is often a progression from Heat Cramps. Symptoms include moist, pale and clammy skin, dilated pupils, normal temperature, weakness, dizziness, headache, or nausea. There are no changes in mentation
- Heat Stroke – A progression from Heat Exhaustion. Symptoms include mentation changes, flushed skin (dry or moist), constricted pupils, high temperature, rapid pulse, deep and rapid respirations, decreased blood pressure, dry mouth, or seizures

All EMS Providers

- Establish Primary Management
- Obtain a core body temperature (rectal preferred) at least every 10 min
- Move patient to a cool environment (temp <68° F)
- If patient is alert and without nausea, encourage oral hydration with cold fluid. Consider commercial electrolyte solution when available
- For suspected heat stroke, rapidly cool patient by whatever reasonable means possible. Cold water immersion or ice water-soaked sheets are preferable. Avoid shivering
- If LOC deteriorates further, place cold packs under patient's arms and at neck, ankles and head
- Assess Blood Glucose Level
- Goal core temperature is <102° F

ALS Providers

- Initiate IV, infuse 1000mL cold LR (40° F)

HYPERKALEMIA

Designation of Condition: Hyperkalemia is an often-asymptomatic condition that is discovered during routine lab testing, but it can lead to significant arrhythmias or sudden death. Providers may encounter patients at local clinics with a predetermined diagnosis or suspect the diagnosis from EKG findings (abnormal and wide QRS) or from history taking. Signs of hyperkalemia include generalized fatigue, weakness, paresthesias, paralysis, and palpitations. Special concern is warranted for patients with rhabdomyolysis, severe dehydration, severe agitation, crush injuries, or history of renal failure or dialysis. Any patient reported to have missed a dialysis session should be considered to have potential hyperkalemia and requires ALS evaluation including a 12-lead EKG. While not required in all situations, ALS transport is recommended as potentially life-threatening arrhythmias can occur without warning at almost any level of hyperkalemia.

All EMS Providers

- Establish primary management

ALS Providers

- MEDICAL CONTROL should be contacted early for cases of presumed hyperkalemia
- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- 12-lead EKG
- If there are EKG (widened QRS) changes in the setting of known or suspected hyperkalemia administer:
    - Calcium Gluconate
        - Adult: 5-10 ml SLOW IVP (Do not exceed 2 ml/minute) repeat if necessary after 5-10 minutes
        - Pediatric: 0.2 ml/kg SLOW IVP (Do not exceed 1ml/minute) repeat if necessary after 5-10 minutes
        - Calcium is caustic and must be administered through the largest vein possible
        - Calcium should be withheld in patients taking digoxin until MEDICAL CONTROL can be consulted
    - Albuterol via nebulizer 5 mg (pediatric dose 2.5 mg)
    - Sodium Bicarbonate 50 mEq IV adult and pediatric (must use separate IV or thoroughly flush before and after calcium)

HYPERTENSIVE EMERGENCY

Designation of Condition: Hypertension with evidence of end organ dysfunction such as chest pain, shortness of breath, epistaxis, headache, confusion, nausea, vomiting, hematuria.

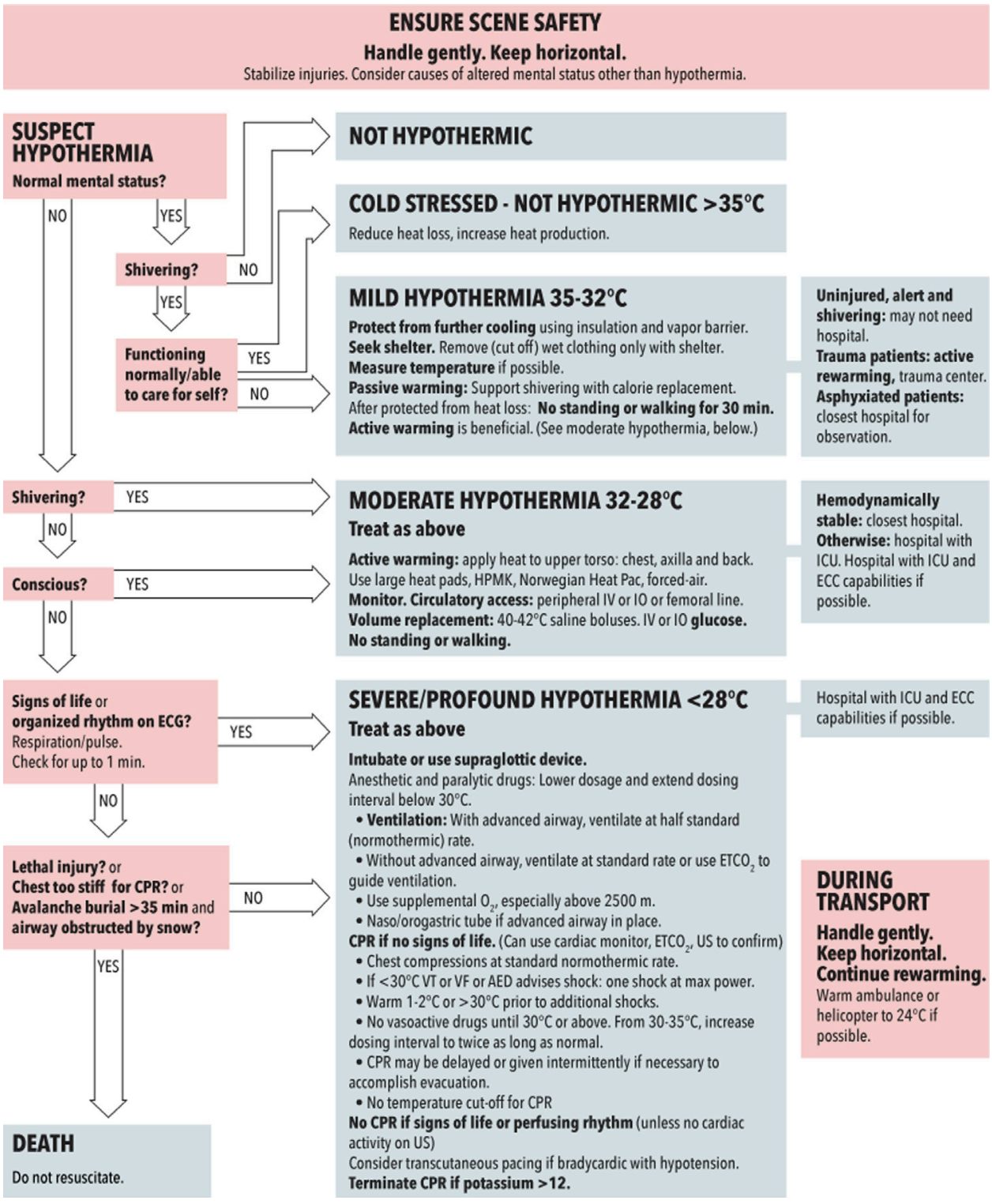
All EMS Providers

- Establish primary management
- Administer oxygen for an SpO2 of greater than 92%.

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Obtain 12 – lead ECG
- For patients with chest pain and SBP > 220:
    - Administer nitroglycerin SL every 3-5 minutes for a maximum of three doses
    - If chest pain persists, refer to the chest pain protocol for further guidance
- For patients with neurologic symptoms and SBP >185 or DBP >110:
    - Administer labetalol 10 mg slow IV push over two minutes. Repeat in 15 min for a target SBP < 185 or 20% decrease
- For patients with other symptoms and SBP >220:
    - Administer labetalol 10 mg slow IV push over two minutes. Repeat in 15 min for a target SBP < 185 or 20% decrease

HYPOTHERMIA



INFECTIOUS DISEASES (AIRBORNE/DROPLET)

Designation of Condition: Patients that are a risk for airborne infectious diseases such as COVID19, tuberculosis, anthrax, aspergillosis, legionellosis, MERS, SARS.

All EMS Providers

- N95 masks will be worn on responses that screen positive for airborne infectious disease (AID) or are suspicious for AID.
- Proper donning sequence: N95 or surgical mask -> hand sanitizer -> eye protection -> gown -> two pairs of gloves
- Ensure all loose hair is secured.
- Do not rely solely on dispatch for alerts for AID. Conduct “doorway triage.”
    - Ask “does anybody here have a fever, cough, or shortness of breath?” If yes, don appropriate PPE before entry.
- Initially, one to two members of the crew will enter the house to assess the patient while wearing full airborne PPE. Members will check each other for proper PPE placement prior to entry.
- If the entry team encounters a previously unknown infectious circumstances, they will back out and don PPE.
- The entry team will place a surgical mask on the patient and family ASAP.
- Involve the fewest EMS personnel necessary to assess patient & provide care. Close the door to the room and maintain distance of 6 feet to the patient if possible. Staff not involved in patient care should observe other personnel for breaches in isolation precautions.
- A definitive airway, if needed, will be placed via video laryngoscopy.
- If indicated, use the patient’s MDI if possible. Use EMS nebulizer if MDI unavailable.
- Care will otherwise proceed as normal for respiratory patients.
- If the crew is using a nebulized medication or performing an aerosolizing procedure, the ambulance doors will remain open, if able, to facilitate air flow.
- If an aerosolizing procedure (suction, BVM, CPAP, intubation) is needed, all caregivers must wear an N95 mask. If a BVM or ventilator is used a HEPA filter shall be used to filter expired air.
- The driver shall wear a gown, N95 mask, gloves, and eye protection unless the front of the ambulance has been sealed off from the patient care area. If the front is sealed off, this is considered a cold zone and no PPE shall be required.
- Caregivers exposed to patients with COVID19 should, if possible, avoid driving the ambulance and cross contaminating the front cab.
- If utilizing air transport, advise the responding unit to utilize droplet PPE precautions for infectious risk.
- The paramedic on scene shall notify the receiving hospital so that they can prepare a room. They shall also notify the hospital that the receiving ground transport unit, if applicable, should prepare for a potentially infectious patient.
- The hospital will notify the county public health department of the patient’s arrival to begin tracking and/or testing per their guidelines.

MIGRAINE

Designation of Condition: Severe headache THAT CANNOT BE ATTRIBUTED TO ANOTHER CAUSE. Headache lasting 4-72 hrs with the following criteria:

Headache has at least two of the following:

- Aggravation by or causing avoidance of physical activity (e.g., walking, climbing stairs)
- Moderate or severe pain intensity
- Pulsating quality
- Unilateral location

During headache, at least one of the following:

- Nausea and/or vomiting
- Photophobia and phonophobia

Headache not attributed to another disorder

History of at least five prior episodes fulfilling above criteria

All EMS Providers

- Establish Primary Management
- Minimize light exposure and other stimuli
- First time migraines **MUST** be transported to hospital for evaluation

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- If able to tolerate PO:
  - Aspirin 972mg – only for patients with migraine history
  - Acetaminophen 500mg
  - Ibuprofen 400mg
  - Caffeine, dose determined by patient
- If pain persists or unable to tolerate PO:
  - Droperidol 2.5mg IV/IM
- Treat nausea & vomiting per protocol

NAUSEA / VOMITING

Designation of Condition: Severe nausea and vomiting due to a variety of causes.

All EMS Providers

- Establish Primary Management
- Treat underlying cause of nausea & vomiting
- Administer oxygen via nasal cannula (avoid NRB due to risk of aspiration)
- Administer ondansetron 4mg PO (EMTs with MPD specialized training)

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- If unable to tolerate PO, utilize the following medications in order until cessation of symptoms:
    - Ondansetron 4 mg IV
    - Promethazine 12.5 mg IV
    - Droperidol 2.5 mg IV

OPIATE OVERDOSE

Designation of Condition: Evidence of ingestion, inhalation or injection of narcotics with a symptomatic patient (e.g. unconscious, respiratory depression, altered mental status).

All EMS Providers

- Establish Primary Management
- Titrate oxygen for an SpO2 of >92%
- Assist ventilations PRN
- Place a nasal EtCO2 monitor
- Assess blood glucose level
- Administer intranasal Narcan:
    - Unpackage pre-filled 4 mg naloxone nasal administrator **OR**
    - Load syringe with 2 mg (2 ml) of naloxone and attach nasal atomizer (NAD Device)
        - Place atomizer in nostril and briskly compress syringe to administer half of total dose in each nostril
        - **Pediatric Dosage:** 0.1 mg/kg IN, up to a maximum single dose of 2 mg.

ALS Providers

- Simple observation is more prudent than giving Naloxone when patient is ventilating adequately
- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Naloxone:
    - Administer 0.4 – 2 mg (4 mg IN) for adults
    - 0.1mg/kg for pediatrics (max dose 4mg),
    - IV/IO/IN/IM/SQ Repeat Naloxone every 2 minutes if necessary; titrate to respiratory improvement. High doses may be required for synthetic narcotics.
- Titrating to level of consciousness is not necessary unless it involves airway protection
- In cases of suspected multi-substance abuse, consider administration of sufficient amount of medication to restore adequate depth and rate of respirations
- Patient may awaken quickly and be combative. Be prepared for restraints, if needed Naloxone may send chronic narcotic users quickly into withdrawal, with likely severe agitation
- If still unresponsive AND NOT PROTECTING AIRWAY, secure a definitive airway (supraglottic)
- Obtain 12-lead ECG
- Monitor cardiac rhythm, treat as appropriate
- If prompt improvement does not occur, see protocol for unconscious/unresponsive
- Monitor waveform capnography to assure adequate ventilation

ORAL / NASAL BLEEDING (NON-TRAUMATIC)

Designation of Condition: Copious bleeding from the nose or mouth that has not stopped despite basic measures. May be as a result of prior surgery, hypertension, or other causes.

All EMS Providers

- Establish Primary Management
- Ensure patient has a patent airway and can protect their airway
- Suction as needed to keep airway clear
- Oral bleeding:
    - Fold a piece of gauze, place over site of bleeding, and have pt gently bite down
    - Keep pt upright or leaning forward to ensure a patent airway
- Nasal bleeding:
    - Have pt blow nose to remove old blood & clot
    - Administer oxymetazoline, 2 sprays per nostril after clot expelled (EMTs with MPD specialized training)
    - Instruct patient to pinch nose and lean FORWARD
    - Continue pressure & positioning for at least 10 minutes (do not check before)

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Oral bleeding:
    - May soak gauze in 1g of TXA and apply to bleeding area
- Nasal bleeding:
    - If patient still exhibits bleeding after oxymetazoline, administer 100mg (1mL) TXA via nasal atomizer in each nostril.
    - If patient still exhibits profuse nasal bleeding after 10 minutes, apply Rapid Rhino (Paramedics with MPD specialized training)
        - Apply 1g TXA to Rapid Rhino prior to insertion
        - Gently insert directly posterior (not upwards) until ½ cm protruding or resistance is felt. May need lubrication
        - Gently inflate balloon until similar inflation as ETT pilot balloon is noted
        - Patients with Rapid Rhino inserted must be transported by EMS

ORGANOPHOSPHATE EXPOSURE

Designation of Condition: Evidence of ingestion, inhalation or injection of an organophosphate substance.
S = Excessive Salivation
L = Excessive Lacrimation
U = Urination
D = Defecation
G = Gastric irritability
E = Emesis

All EMS Providers

- ENSURE SCENE SAFETY & Patient decontamination
- Establish Primary Management
- Titrate Oxygen commensurate to the patient's level of distress.

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Administer Atropine Sulfate 2mg IV/IO/IM every 1-3 minutes repeated until symptoms resolve. NO MAXIMUM DOSE
- Pediatric [0.05mg/kg] IV/IO every 1-3 minutes repeated until symptoms abate.
- CONTACT MEDICAL CONTROL

PAIN MANAGEMENT & SEDATION

Designation of Condition: Treatment of pain caused by patient condition or EMS procedures.

All EMS Providers:

- Establish Primary Management
- Treat the underlying condition
- Place in position of comfort
- For minor injuries, consider ice pack placement
- Tylenol 500 mg PO once if able to tolerate PO
- Ibuprofen 400 mg PO once if able to tolerate PO

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Obtain a complete set of vital signs every 5-15 minutes and continuously monitor ECG, SpO2, and EtCO2 if administering medication for sedation or severe pain
- Monitor patient for airway protection, apnea, hypercapnia
- Any patient that has received narcotics or sedation must be transported by EMS to hospital unless POV transport approved by MEDICAL CONTROL or receiving hospital
- **Pain control**
  - **Mild pain (pain scale 1-4):**
    - PO medication as above
  - **Moderate pain (pain scale 5-7):**
    - Any of the above PLUS:
      - Ketorolac 15mg IVP or IM
      - Fentanyl 25-50 mcg IVP, may repeat q 15 min, max 200 mcg
  - **Severe pain (pain scale 8-10):**
    - Any of the above PLUS:
      - Hydromorphone 0.2 – 1 mg IVP, may repeat once at 30 min
      - Ketamine 0.1-0.3 mg /kg IV infusion over 15 min. If pain persists, initiate a drip at a rate of 0.2 mg/kg/hr. Titrate to pain control. Maximum of 1 mg/kg/hr. *Patient should be awake, alert, and able to participate in pain assessment. Decrease dose if patient demonstrates emergence reaction or ALOC
- **Sedation**
  - **Severe Anxiety:**
    - Midazolam 0.2-0.5 mg mg once, contact MEDICAL CONTROL for further dosing
  - **Procedural sedation (one of the following):**
    - Midazolam 0.5 – 2 mg IVP once, contact MEDICAL CONTROL for further dosing
    - Ketamine 1 – 3 mg / kg IVP once, contact MEDICAL CONTROL for further dosing

POISONING / OVERDOSE

All EMS Providers

- Determine scene safety and ensure appropriate Personal Protective Equipment
- Establish Primary Management
- Obtain history:
  - Type/amount ingested
  - Route of ingestion (inhaled, injected, ingested, skin exposure)
  - Duration / time of ingestion or exposure
  - History of other drugs/ETOH use
  - Pre-existing medical problems
- Consider calling the Poison Center at **800-709-0911 or 800-222-1222**
  - EMS will still need to contact MEDICAL CONTROL for direction
- If inhaled poison:
  - Remove patient to fresh air
  - Administer oxygen
- If skin/eye contamination:
  - Remove contaminated clothes and gross contamination
  - Decontaminate as appropriate per ChemTrec/ MSDS/ Poison Control guidelines
- Determine blood glucose levels
- Administer activated charcoal if indicated
- Avoid supraglottic airway in known caustic ingestion

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Administer Dextrose per protocol for hypoglycemia
- **Organophosphate toxicity –** see appropriate protocol
- **Opiate overdose –** see appropriate protocol
- **Beta blocker overdose:**
  - Atropine 0.5 – 1 mg for symptomatic bradycardia
  - Calcium Gluconate 1 g for refractory hypotension
    - Pediatric dose 20 mg/kg (0.2mL/kg)
- **Tricyclic antidepressant overdose:**
  - If the patient has any one of the following:
    - QRS widening >0.12 mm
    - Ventricular dysrhythmias
      - Administer· Sodium Bicarbonate 1 mEq/kg (maximum single dose of 50 mEq), May give up to 2 repeat doses ten minutes apart.
- Treat any dysrhythmias per appropriate ACLS protocol.
- If seizing, refer to seizure protocol

REHABILITATION, FIRE / RESCUE INCIDENTS

Description of Condition: The physical and mental demands associated with emergency operations coupled with the environmental dangers of extreme heat and humidity or extreme cold with wind chill conditions creates an adverse working environment. Members who are not provided adequate rest and hydration during emergency operations and training exercises are at increased risk for illness or injury and may jeopardize the safety and integrity of the operation. Rehabilitation is an essential element for any incident to prevent more serious conditions such as heat stroke from occurring. This guideline applies to all emergency operations and training exercises where strenuous physical activity or exposure to heat or cold exists. (See NFPA 1584) Members will be sent to the rehab area according to Fire Department Protocol or discretion of the Incident Commander.

All EMS Providers:

- Evaluation:
  - After the initial evaluation members will be reassessed after a mandatory 10-minute rest period. If vital signs remain abnormal, they will remain in a rest period and re-evaluated every ten minutes or sooner if symptoms worsen. If vital signs have not returned to normal after 40 minutes the member should be transported to the closest appropriate facility.
  - **Complaints warranting further evaluation**:
    - Chest pain, shortness of breath, weakness, nausea or headache;
    - General complaints such as cramps or aches and pains;
    - Symptoms of heat or cold-related stress;
  - **Vital signs needed for return to firefighting duty:**
    - GCS = 15, Alert and Oriented to person/place/time/event
    - Temperature <100.6 F
    - Heart Rate <120
    - SpO2 >92%
    - SpCO <5%
    - BP >100 or <160 (systolic)
    - No medical complaints or signs/symptoms
- Treatment:
  - Initial 10-minute rest period
  - Cooling
  - Remove from environment (hot / cold / smoke) and place in air conditioning or heat.
  - For heat casualties, submerge forearms in cool water & refer to heat emergency protocol
  - Oral rehydration 1-2 quarts
    - 50/50 mixture of water with electrolyte solution
  - NO alcohol, caffeine, or carbonated beverages
  - Oxygen as needed for SpO2 >92%
  - Additional 20 minute rest period for abnormal vital signs
  - Follow appropriate guidelines as needed for additional medical complaints.
  - Consider cyanide toxicity in patients who have smoke inhalation from enclosed spaces who have soot in the mouth/nose, altered mental status, or hypotension.

SEIZURE

Designation of Condition: Most seizures spontaneously end within 5 minutes with a postictal state of varying length with unconsciousness or altered LOC. Status – epilepticus is witnessed seizure activity that continues for >10 minutes or multiple seizures that reoccur without a return to full mental capacity. Status – epilepticus and first-time seizures require Paramedic level intervention.

All EMS Providers

- Establish Primary Management
- Administer oxygen, assisted ventilations as needed
- Protect patient from further injury and embarrassment during seizure
- Obtain history of seizures including onset, duration, type, medication taken and prior history
- Assess blood glucose level

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- If seizure is prolonged or if more than two seizures occur without an intervening lucid period, administer one of the following:
  - **WITHOUT** Prior IV Access:
    - Midazolam 0.2 mg/kg IM, not to exceed 10 mg total without contacting medical control. After administration, establish IV access. If seizure persists, proceed with midazolam 2-5 mg IV push.
    - Pediatric dose 0.1 mg / kg up to standard adult dosing
  - **WITH** Prior IV Access:
    - Midazolam 2-5 mg IV push. May repeat once in 10 min if seizure persists
    - Pediatric dose 0.05mg / kg. May repeat once in 10 min if seizure persists
- If seizure persists **more than five minutes** despite above measures, administer ketamine 2 mg / kg IV slow push. Do not administer ketamine for seizures in pediatric patients.
- Monitor airway after benzodiazepine administration
- Contact MEDICAL CONTROL for benzodiazepine doses in excess of the above
- For pediatric febrile seizure see fever protocol
- See eclampsia protocol for treatment of pregnancy related seizures

SEPSIS

Designation of Condition: Sepsis is the combination of SIRS (Systemic Inflammatory Response) and a presumed source of infection. Sepsis runs a continuum from mildly abnormal vital signs to septic shock & altered mental status. Early recognition and resuscitation are paramount.

A **CODE SEPSIS** should be initiated for any patient found to meet sepsis criteria who also exhibits two (2) of the following:

- Shock Index of > 1
- SBP < 100
- RR > 22 **or** ETCO2 < 25
- HR >90
- Lactate >4 mmol/L
- Hypo or hyperthermia (<36 or >38 Celsius)
- Signs of shock: altered mental status, ischemic ECG changes, etc

CODE SEPSIS requires ALS evaluation, aggressive fluid resuscitation, early vasopressors & antibiotics, and early notification of the receiving hospital.

All EMS Providers

- Establish Primary Management
- Obtain full set of vital signs
- Thorough physical exam
- Maintain SpO2 >92%
- Obtain glucometry
- Obtain lactic acid measurement via StatStrip
- If positive for code sepsis, activate off-island transport

ALS Providers

- Initiate two large bore IVs. Titrate IVF to maintain LOC, SBP > 90, MAP > 65, and end organ perfusion
- Infuse IVF in increments of 500 mL over 10 min to a maximum of 2000 mL
- Reassess pulmonary function after every 500 mL of IVF
- Airway management as indicated
- Monitor ECG, ETCO2
- Obtain 12-lead ECG and repeat every 15 minutes
- If BGL < 60 mg/dl administer dextrose per protocol
- If SBP < 90, initiate norepinephrine at 4 mcg/min & titrate to a SBP of 90 or MAP > 65
- Contact medical control (Providence-Everett or Dr. Corsa). If approved, administer ceftriaxone 2g IV over 15 minutes (Paramedics with MPD specialized training).

SHOCK, NON-TRAUMATIC

Designation of Condition: Decreased tissue perfusion from a variety of causes as demonstrated by altered mental status, hypotension (MAP < 65 mmHg), or other signs or symptoms.

All EMS Providers

- Establish Primary Management
- Obtain full set of vital signs
- Thorough physical exam looking for underlying cause
- Maintain SpO2 >92%
- Obtain glucometry
- Obtain lactic acid and contact MEDICAL CONTROL if Paramedic unavailable (EMTs with MPD specialized training)

ALS Providers

- Initiate two large bore IVs.
- Infuse IVF in increments of 500mL, maximum of 2 L to maintain mentation & SBP > 90 or MAP > 65
- Reassess pulmonary function after every 500mL of IVF
- If BGL < 60mg/dl administer Dextrose per protocol
- Monitor ECG, ETCO2
- Obtain 12-lead ECG and repeat every 15 minutes
- If hypotensive, initiate norepinephrine drip at 4 mcg / min & titrate to a SBP of 90 or MAP > 65
- If hypotensive, initiate epinephrine drip at 2 mcg / min & titrate to a SBP of 90 or MAP > 65

SHOCK: MEDICAL	
Mechanism/Causes	Differential/Symptoms
HYPOVOLEMIA	
Dehydration Vomiting, diarrhea	Suggestive illness
Diabetes with hyperglycemia	Diabetes; acute illness, increased urine or blood loss, thirst, fever
Ectopic pregnancy	Female, 12-50 years, abdominal pain
GI bleed	Emesis: black or red stool
Ruptured abdominal aneurysm	Severe back/abdomen pain, age, history of high blood pressure
Vaginal bleeding	Suggestive history, miscarriage, abortion or delivery
Intra-abdominal bleeding	Minor trauma, abdomen, back or shoulder pain
CARDIOGENIC	
Arrhythmia	Palpitations
Pericardial tamponade	Chest area cancer, blunt or penetrating trauma
Tension pneumothorax	Respiratory distress, COPD, trauma
Myocardial failure	Chest pain, history of congestive failure
Pulmonary embolus	Sudden respiratory distress, chest pain
MIXED	
Sepsis symptoms	Fever, elderly, urinary symptoms
Drug overdose	Suggestive history
Anaphylaxis	SOB, itching, mouth swelling, dizziness, exposure to allergen

STROKE/CVA

Designation of Condition: Patients with new onset weakness, aphasia, ALOC, or other neurologic deficits.

All EMS Providers

- Ensure adequate ABCs
- Establish Primary Management
- Obtain a blood glucose finger stick
- Supplemental oxygen for an SpO2 >95%
- Perform a BEFAST-LAMS stroke scale (below)
- Determine a "last known normal" time
- Determine transport destination (utilize state stroke triage system)
- Alert receiving hospital
- Activate CLOSEST air transport provider
- Obtain a SAMPLE history

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Administer labetalol per hypertension protocol for target SBP of less than 185
- Advanced airway management as indicated
- Evaluate if patient is a candidate for thrombolytics
- Keep HOB at 30 degrees
- Consider alternate cause to include PRES, hypertensive encephalopathy, focal seizure

WITHDRAWAL SYMPTOMS

Designation of Condition: Physical symptoms from withdrawal from medications, chemicals, or drugs of abuse.

All EMS Providers

- Establish Primary Management
- Obtain full set of vital signs
- If manifesting with specific symptoms, refer to that protocol
- Thorough history to include dosage, last use, history of withdrawal, and reason for stoppage

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Airway management as indicated
- Monitor ECG, ETCO2
- Obtain 12-lead ECG as indicated
- Alcohol withdrawal:
  - Can manifest as delirium, tremors, tachycardia, hypertension
  - Can begin from 6-48 hrs after last drink
  - Obtain CIWA score
  - Midazolam 1-2 mg q 15 min for CIWA score > 15
- SSRI / SNRI withdrawal:
  - Dizziness, light-headedness, vertigo
  - Encourage pt. to take a single dose of SSRI/SNRI if available
- Benzodiazepine withdrawal:
  - Can manifest as delirium, tremors, tachycardia, hypertension
  - Lowers seizure threshold
  - Can begin from 12-48 hrs after last dose
  - Treat seizures per seizure protocol

TRAUMA

MAJOR TRAUMA, GENERAL PROTOCOL

Designation of Condition: Any injury to the body ranging from contusions to hemorrhagic shock.

All EMS Providers

- Standard hemorrhage control (direct pressure, elevation, pressure bandage)
- Avoid hypothermia
- Place pelvic binder if indicated (signs of hemorrhagic shock, MOI of pelvic injury)
- If the patient is pregnant, obtain fetal heart rate and tilt to left side if on spine board
- **Hemostatic Dressing Indications & Procedure**
    - Device utilized should be commercially produced impregnated gauze when available, otherwise use gauze / Kerlix
    - Hemorrhage from head, junctional areas, or extremities refractory to direct pressure, elevation, splinting and proximal artery compression
    - Pack dressing tightly into wound, placing it into contact with all bleeding surfaces
    - Apply pressure to packing for at least 5 minutes
    - Place pressure dressing over top of hemostatic dressing
- **Tourniquet Indications/Device/Procedure**
    - Hemorrhage from extremities or junctions refractory to direct pressure, elevation, splinting and proximal artery compression
    - Massive and life-threatening hemorrhage in settings where risk of brisk exsanguination makes application of less aggressive methods impractical
    - SWAT-T, CAT, or SAM tourniquet preferred
    - Apply 2 inches proximal to injury site if crush/amputation/laceration
    - Apply high on the extremity for stabbing, shrapnel, or gunshot wounds
    - Tighten windlass rod or tensioning device until distal bleeding is stopped. Note: capillary oozing may continue after bleeding is controlled
    - Secure windlass rod or tensioning device in place for positive control
    - Document time and location of tourniquet
    - Reassess every 5 minutes for additional bleeding, tighten as needed

ALS Providers

- Initiate two large bore IVs. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion. Infuse no more than 1000mL of crystalloid, regardless of blood pressure.
- TXA 2 g IVP over 1 minute. Do not give if injury > 3 hrs old.
- Rapid transport to closest appropriate trauma center

ABUSE / RAPE

Definition of Condition: Physical or sexual abuse, rape, or neglect that may be evidenced by injuries in various stages of healing, inconsistent mechanism for the observed injuries, or provider concern.
Documentation is essential. Protect and preserve evidence and the scene. Comfort and reassure the victim. Encourage the victim to not change clothes, bathe or wash hands. Law enforcement activation is always appropriate. Consider additional resources such as rape crisis and protective services.
History taking should be limited to establishing the extent of injuries associated with the assault, and/or other medical issues immediately relevant to the situation. Discussions regarding details of a sexual assault/abuse may be construed as evidence tampering by the courts and therefore compromise prosecution of the assailant. This is especially true when gathering information from abused/assaulted children or gathering such information in a child's presence. This is an important exception to the general idea that more information is always better.

All EMS Providers

- Establish Primary Management
- Treat injuries as appropriate
- Protect the scene and evidence
- Offer reassurance and emotional support
- Make every reasonable attempt to prevent the patient from bathing, changing clothes or using the restroom
- Notify law enforcement if they are not present
- External vaginal and anal examinations are not appropriate unless uncontrolled life-threatening external hemorrhage is suspected
- Transport to the nearest appropriate facility
- Contact hospital facility for activation of Forensic Nurse Examiner (FNE), if available
- In the case of child / elder / domestic abuse, report information to the receiving hospital AND DSHS at 1-866-363-4276.

AMPUTATIONS

Designation of Condition: The patient presents with an extremity (e.g., hand, foot, leg, toe, and finger) that has been completely or partially amputated. Extremity parts are potentially salvageable. Optimal results occur when re-implantation occurs within a few hours (less than six hours post injury).

All EMS Providers

- Establish Primary Management
- If massive hemorrhage, apply tourniquet 2-3 inches above the amputation
- Consider rinsing the amputated parts with NS to remove loose debris. **DO NOT** scrub
- Wrap loosely in saline moistened gauze and place into plastic bag or emesis basin
- **DO NOT** pour water into bag and do not cool directly with ice. Place in sealed bag in ice water bath on **OUTSIDE** of bag, when possible
- If pt is hemodynamically **AB**normal, transport to closest appropriate trauma center
- If pt is hemodynamically normal and EMS has possession of the severed limb, transport via closest air transport provider to Harborview Medical Center. If EMS does not have the severed limb, transport to closest appropriate trauma center

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Anticipate large amounts of blood loss at time of injury:
    - Up to 1000 mL per arm
    - Up to 2000 mL per leg
- Pain control per protocol

BITES (HUMAN & ANIMAL)

Designation of Condition: Most bites, except in rare instances, are not life or limb threatening. Inappropriate treatment with ice and tourniquets can cause more damage than the bite itself.

Animal/Human

All EMT Providers

- Establish Primary Management
- Remove constrictive clothing
- Gently irrigate wound with sterile saline and dress with dry gauze.
- Notify Sheriff's Office if appropriate
- A physician should evaluate all bites that break the skin within four hours if possible.

ALS Providers

- If significant wound, Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion

Snake

All EMS Providers

- There are no poisonous snakes native to San Juan County
- Establish Primary Management
- Remove all jewelry from affected limb and flush with sterile saline
- Immobilize affected area at heart level. Keep patient calm and limit movement
- Contact MEDICAL CONTROL to assist with snake identification and assess antivenin resources.
- Contact closes air medical provider after discussing with MEDICAL CONTROL

ALS Providers

- Initiate IV or saline lock as necessary on unbitten extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Pain control per protocol

BRAIN INJURY (TBI)

Designation of Condition: Transient or sustained loss of consciousness or altered mental status after traumatic injury.

All EMS Providers

- Apply cervical spine immobilization (ensure collar is not too tight and obstructing venous return)
- Obtain full set of vital signs to include Glasgow Coma Scale and repeat every five minutes
- Obtain blood glucose reading
- Perform a thorough physical exam to include eyes, ear canals, nose, mouth, & head
- Administer supplemental oxygen for a goal SpO2 >95%. **DO NOT ALLOW SpO2 TO DECREASE BELOW 95% EVEN MOMENTARILY**
- Raise head of bed to 30 degrees
- Keep patient normothermic
- Initiate rapid transport to LZ, airport, or rendezvous location

ALS Providers

- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP >110, and end organ perfusion
- If ventilation is inadequate, assist ventilations for a goal EtCO2 of 40
- If unable to protect airway, establish definitive airway
    - Connect pt. to ventilator at a respiratory rate of 10 bpm (20 bpm for children 2-14, 25 for infants) and titrate to EtCO2 of 40
- Goal MAP >70, SBP >110
- **For children <12, evaluate patient based on PECARN criteria:**
    - If “very low” risk, may leave patient at home with parents and close monitoring after contacting medical control
    - If CT or observation advised, transport to closed appropriate trauma center
- **If GCS decreases >3 pts in 10 minutes or patient has GCS <12 that cannot be explained by an extra-cranial cause (medications, alcohol, etc):**
    - Administer 2g TXA IV over one minute
- **If GCS <8 with unilateral pupil dilation:**
    - Consult MEDICAL CONTROL
    - Administer two ampules of Sodium Bicarbonate (100mL) IV slow over 10 minutes (5 minutes per ampule).

BURNS, ELECTRICAL / LIGHTNING

Description of Condition: Burns from contact with electricity from either a manmade or natural source. There may be a combination of electrical and thermal burns

All EMS Providers

- Stop the burning process with water, smothering, or any process indicated
- Establish Primary Management
- Estimate depth and percent of area injured. Remember that will electrical burns the current will pass through all the tissue between the entry and exit burns
- If it is a minor burn, place burn under cool running water for at least 20 minutes
- Cover all burns with **dry** sterile burn sheets and keep warm
- For hemodynamically **AB**normal patients, airway involvement, or circumferential burns, immediate stabilization should take place at closest appropriate hospital facility (PIMC for San Juan Island, Prov Everett for other islands)
- For hemodynamically normal patients without airway involvement or circumferential burns, transport to Harborview Medical Center
- If questions, **CONTACT MEDICAL CONTROL** to discuss patient destination

ALS Providers

- Initiate IV or saline lock. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Obtain 12-lead ECG, continuous ECG
- Be prepared for cardiac arrhythmias, treat per appropriate protocol
- For thermal burns:
    - LR infusion rate:
        - Adult: 500 mL / hr
        - Pediatric > 5yo: 250 mL / hr
        - Pediatric < 5yo: 125mL/hr
    - **DO NOT** place IV in burned skin region unless absolutely necessary
- Pain management per protocol
- Be prepared for a difficult airway

BURNS, THERMAL

Classification

- Superficial – red skin (like sunburn)
- Superficial Partial Thickness – red skin, often with blisters
- Deep Partial Thickness – blistering (very painful) difficult to distinguish from full thickness
- Full Thickness – all skin layers (may be pain free). Dry, leathery, often charred appearance

Minor/Moderate Burns

- All partial thickness burns of <20% in adults and <10% in children
- Full thickness injuries of <10% body surface area

Major Burns

- Partial thickness burns >20% TBSA in adults and >10% in children
- Full thickness burns >10% TBSA
- All full-thickness burns involving hands, face, eyes, ears, feet and perineum
- All circumferential burns
- All burns with evidence of respiratory involvement
- All high voltage electrical injuries
- Burns with associated multi-systems trauma

All EMS Providers

- Establish Primary Management
- Estimate depth and percent of area injured
- If it is a minor burn, place burn under cool running water for at least 20 minutes
- Partial Thickness burns of <10% of adult and <5% of child may be cooled with water for 10-15 minutes and covered. Cover with dry burn sheets and keep warm.
- If burns are associated with severe trauma, trauma protocols supersede burn protocols.
- For hemodynamically **AB**normal patients, airway involvement, or circumferential burns, immediate stabilization should take place at closest hospital (PIMC for San Juan, Prov Everett for other islands)
- For hemodynamically normal patients without airway involvement or circumferential burns, transport to Harborview Medical Center
- If questions, **CONTACT MEDICAL CONTROL** to discuss patient destination decisions

ALS Providers

- Initiate two large bore IVs
- LR infusion rate:
  - Adults: 500mL/hr
  - Pediatric > 5: 250 mL/hr
  - Pediatric < 5: 125mL/hr
- Pain management per protocol
- Be prepared for a difficult airway

BURNS, SMOKE INHALATION

Classification

- Smoke, chemical, or superheated gas inhalation. Gases such as carbon monoxide may be colorless and / odorless.
- Carbon monoxide poisoning may manifest with headache, red skin, ALOC, or death

All EMS Providers

- Remove patient from environment
- Establish Primary Management
- Apply carbon monoxide (CO) monitor to patient
- If CO monitor consistently reads greater than 7%:
  - Provide 15 lpm supplemental oxygen via NRB
  - SpO2 will be inaccurate in these patients
  - Refer to Carbon Monoxide protocol

ALS Providers

- Initiate two large bore IVs
- Be prepared for advanced airway management
- If patient experiences worsening respiratory distress, hoarseness, or edema, intubate early
  - Always have surgical airway kit open and prepared for any smoke or burn intubation

RULE OF NINES

	ADULT	CHILD
HEAD	9%	18%
CHEST/ABDOMEN	18%	18%
BACK	18%	18%
ARM	9%	9%
LEG	18%	14%
PERINEUM	1%	1%

- The size of the patient's hand (including fingers) represents 1% body surface area.
- Be alert for patients with respiratory problems from smoke or chemical inhalation, respiratory tract burns or burns involving the face, head or chest. These patients are at an increased risk for airway compromise, hypothermia, and later for shock and infection.
- Major burns should be transported to the Regional Burn Center (Harborview) as soon as possible. Local stabilization may be required before transport to Regional Burn Center (PIMC or Prov-Everett).

BURNS, PROLONGED CARE

Fluid Management

- For expected transport times > 3hrs monitor urine output if able (jug/bottle/etc). Titrate IVF hourly for goal UO 50-100 mL/hr (100-200mL/hr if brown urine or signs of hyperkalemia)
- Bolus IVF in 500mL increments for hemodynamic instability

Hyperkalemia

- If brown urine, peaked T waves, or wide complex ECG, call MEDICAL CONTROL for hyperkalemia treatment

Pain Control

- Ketamine drip (0.1-0.3 mg/kg/hr) or intermittent boluses of ketamine & fentanyl as needed. Goal pain score < 5
- Monitor airway and monitor medication supply in ambulance. Ration based on expected time to definitive care

CARDIAC ARREST, TRAUMATIC

Designation of Condition: Cardiac arrest secondary to blunt or penetrating injury

All EMS Providers

- Assess for obvious death/catastrophic injuries (exposed brain matter, lividity, etc)
- Control bleeding
- Begin CPR
- If penetrating injury between neck and umbilicus apply chest seals over wounds on front and back
- Evaluate for pulses via doppler

ALS Providers

- Prioritize interventions over CPR if there is limited manpower
- Bilateral needle or finger thoracostomies
- Establish large bore IV access, infuse 1000 mL Lactated Ringers
- Perform FAST ultrasound, evaluate for cardiac activity
- Do not transport unless patient achieves ROSC
- Contact MEDICAL CONTROL if patient does not respond to above therapies

CHEST INJURIES

Designation of Condition: Chest injuries can include injuries to the chest wall and the internal organs of both the thorax and abdomen. Lack of obvious external injuries does not mean an internal injury did not occur. Signs of underlying injury include subcutaneous emphysema, crepitus, decreased breath sounds, and jugular vein distension.

All EMS Providers

- Administer oxygen for a goal SpO2 >92%
- Do not splint or brace flail segments
- Stabilize any impaled objects in place
- For shoulder injuries with active bleeding, control with aggressive wound packing

ALS Providers

- Initiate two large bore IVs. Titrate to maintain LOC, SBP of 90mmHg, and end organ perfusion. Infuse no more than 1000mL of crystalloid regardless of blood pressure.
- Be alert for signs of tension pneumothorax and prepare for respiratory and circulatory decompensation
- Perform needle / finger thoracostomy as indicated for profound shock & respiratory distress
- Provide for generous pain control
- Be prepared to intubate if patient shows signs of worsening respiratory distress/failure

CRUSH INJURIES

Designation of Condition: Trauma caused by crushing injuries causing cellular destruction, subsequent lactic acidosis, electrolyte imbalances and metabolic disturbances. When the crushing force is relieved, blood returning from the injured tissue to systemic circulation is acidotic and high in potassium, phosphorus, and myoglobin. These factors combine to cause cardiac dysrhythmias, electrolyte derangement, renal failure, and hypotensive shock.

All EMS Providers

- Ensure scene safety when accessing patient
- Remove lightly trapped victims before attempting extrication of the heavily entrapped
- Establish management of airway, breathing, circulation, and spinal motion restriction
- Administer Oxygen PRN for SpO2 >92%
- Obtain core body temperature measurement and treat for hypothermia
- Apply tourniquets to affected extremities, 2-3" proximal to crushed tissue if possible
- **CONTACT MEDICAL CONTROL** to determine patient destination. If extrication is unlikely, discuss alternate options
- Notify closest air transport provider
- Measure blood glucose level if altered mentation

ALS Providers

- Initiate two large bore IVs. Titrate to maintain LOC, SBP of 90mmHg, and end organ perfusion.
- Anticipate need for aggressive fluid therapy when crushing force is released
- For significant muscle mass involvement longer than 30 minutes:
    - **During Entrapment:**
        - Monitor EKG, ETCO2 and SPO2
        - Administer 1000mL/hr LR for the first two hours after arrival, then 500mL/hr for the duration of the extrication and transport.
        - Auscultate lung sounds frequently, assess for pulmonary edema
        - Pain control per protocol
    - **Before Removal of Crushing Force:**
        - Coordinate removal with rescue personnel
        - Remove crushing force slowly
    - **After Removal of Crushing Force**
        - Reassess. Anticipate deterioration
        - Consider norepinephrine for persistent SBP < 90
        - Treat dysrhythmias per appropriate protocol
    - **Treat Hyperkalemia** (Polymorphic VT/VF, Tall peaked T waves, Widening QRS):
        - Calcium per protocol, sodium bicarbonate, albuterol per protocol

EVISCERATION

***Designation of Condition*:** Exposed internal organs, usually omentum, from a blunt or penetrating mechanism of injury to the trunk.

All EMS Providers

- Establish Primary Management
- DO NOT attempt to push or place the eviscerated tissue back into the body
- Cover the eviscerated tissue with a loose, warm, and moist dressing
- Evaluate for other injuries
- Notify closest appropriate air transport provider

ALS Providers

- Initiate two large bore IVs. Titrate to maintain LOC, SBP of 90mmHg and end organ perfusion. Infuse no more than 1250mL of crystalloid regardless of blood pressure.
- High suspicion for underlying injuries and impending hemorrhagic shock
- Rapid transport to a trauma center – patient will require operative intervention

EYE INJURIES

Designation of Condition: The patient will present with signs and symptoms of eye pain due to small foreign bodies, superficial corneal abrasions, mace or pepper spray exposure or welder's burn (UV keratitis).

All EMS Providers

- Establish Primary Management
- **Chemicals or Foreign Objects**
  - Assess for obvious trauma to globe or cornea. If found, do not irrigate, cover both eyes with a loose dry dressing
  - Where there is no obvious trauma to the globe, gently flush eyes with NS for at least 15 minutes, or until 1-L of NS has been used
  - In the case of exposure to law enforcement type chemical agents such as Pepper Spray, transport may not be required following eye flushing if symptoms of eye irritation are resolved
- Consider covering both eyes to help decrease eye movement
- Do not patch any penetrating or open eye injury. May cover without any pressure on the globe (e.g., with a cup)

ALS Providers

- Tetracaine: instill 2 drops of anesthetic solution before irrigation. Tetracaine is contraindicated in the presence of penetrating eye injuries. When in doubt, contact MEDICAL CONTROL
- Patients with foreign bodies or penetrating eye injuries must be transported to the ED by either ambulance or POV unless discussed first with MEDICAL CONTROL
- Protect the eye after tetracaine administration as it will be insensate

FRACTURE & SPRAINS/STRAINS, EXTREMITY

Designation of Condition: Treat significant dislocations, strains and sprains as a fracture until proven otherwise.

All EMS Providers

- Establish Primary Management
- If a distracting injury exists, consider providing spinal motion restriction (if appropriate) and transport
- If patient is hemodynamically normal or if isolated injury exists:
    - Check distal pulses, motion, and sensation before and after splinting, and reassess frequently
    - Splint injuries in position found. If limb must be moved for extrication or transport, gently straighten to anatomically correct position and splint. Immobilize the joints proximal and distal to the injury. Consider pain control and sedation (if needed) prior
    - If extremity or joint is severely angulated with absent pulses or loss of sensation, gently straighten to anatomically correct positioning. Reassess circulation
    - Apply covered ice pack, elevate, Ace Wrap for suspected sprains/strains.
- Most isolated hip, acetabular and femur fractures are best managed WITHOUT the use of a traction splint. Carefully placing the patient on a soft gurney or vacuum splint will dramatically increase comfort and minimize pain during transport. When in doubt, splint the extremity

ALS Providers

- Initiate IV or saline lock as necessary on unaffected extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Pain control and sedation (if needed) prior to fracture reduction
- Reduce fracture if decreased/absent pulse or transport time greater than 2 hrs. (Refer to fracture/dislocation reduction procedure)
- If an open fracture is identified, administer 1g ceftriaxone in 250 mL normal saline IV infusion over 15 min.

FRACTURES, PELVIC

Designation of Condition: Fractures of the anterior or posterior pelvis resulting in instability and the potential for large amounts of internal blood loss. Usually from high mechanism trauma falls, motorcycle crashes, and crushing.

All EMS Providers

- Establish Primary Management
- Establish spinal precautions
- **DO NOT** evaluate for pelvic instability
- For any suspected pelvic fracture **with** hemodynamic instability (high energy MOI, pelvic/abdominal trauma, pelvic/abdominal pain) place pelvic binder, centering binder on the greater trochanters. Place pelvic binder prior to rolling/moving patient.
    - Do not roll patient greater than 15 degrees if possible.

ALS Providers

- Initiate two large bore IVs. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion. Infuse no more than 1000mL of crystalloid regardless of blood pressure.
- Prepare for hemodynamic instability. Refer to hemorrhagic shock protocol
- Judicious pain control per protocol
- Rapid transport to closest appropriate trauma center

HEMORRHAGIC SHOCK / MASSIVE HEMORRHAGE

Designation of Condition: Massive internal or external bleeding resulting in an altered level of consciousness, hypotension, tachycardia, or other systemic symptoms. Usually categorized as greater than a loss of 30% of patient's blood volume or more.

All EMS Providers

- Standard hemorrhage control (direct pressure, elevation, pressure bandage)
- Avoid hypothermia
- **Hemostatic Dressing Indications & Procedure**
  - Device utilized must be commercially produced impregnated gauze
  - Hemorrhage from head, junctional areas, or extremities refractory to direct pressure, elevation, splinting and proximal artery compression
  - May be used with tourniquet
  - Pack dressing tightly into wound, placing it into contact with all bleeding surfaces
  - Apply pressure to packing for at least 5 minutes
  - Place pressure dressing over top of hemostatic dressing
- **Tourniquet Indications/Device/Procedure**
  - Hemorrhage from extremities refractory to direct pressure, elevation, splinting and proximal artery compression
  - Massive and life-threatening hemorrhage in settings where risk of brisk exsanguination makes application of less aggressive methods impractical
  - SWAT-T, CAT, or SAM tourniquet preferred
  - Apply 2 inches proximal to injury site if crush/amputation/laceration
  - Apply high on the extremity for stabbing, shrapnel, or gunshot wounds
  - Tighten windlass rod or tensioning device until distal bleeding is stopped. Note: capillary oozing may continue after bleeding is controlled
  - Secure windlass rod or tensioning device in place for positive control
  - Document time and location of tourniquet
  - Reassess every 3 minutes for additional bleeding, tighten as needed

ALS Providers

- Initiate two large bore IVs. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion. Infuse no more than 1000mL of crystalloid regardless of blood pressure.
- TXA 2 g IVP over 1 minute as early as possible. Do not give if injury > 3 hrs old
- Rapid transport to closest appropriate trauma center

RAPID / SELF EXTRICATION

Designation of Condition: Research has demonstrated that patients that self-extricate from vehicle crashes have less manipulation of their spine than those extricated through traditional means (Spine Board, KED, etc). Safe helmet removal is a key component of

All EMS Providers

- If immediate life threat present (hemodynamic instability, fire, HAZMAT, etc)
  - Remove patient or assist patient with self-removal immediately
  - If time or personnel allow place cervical collar prior to movement
- Establish Primary Management
- Ensure patient does not meet Spinal Motion Restriction criteria
- Assist patient with extrication in a safe and controlled manner
- Place patient on EMS stretcher and continue with appropriate management

SPINAL MOTION RESTRICTION

Designation of Condition: SMR is indicated for trauma patients when there is a suspicion of spinal injury or the patient complains of pain in the area of the vertebral column. Caution should be exercised in patients < 8 or > 70 yrs old.

All EMS Providers

- The use of Spinal Motion Restriction may be waived if all the following are met:
  - No altered LOC. Pt is AO X4
  - No distracting injury
  - No obvious spinal deformity
  - No focal numbness or weakness in extremities
  - No midline neck or back pain with or without movement
  - No midline tenderness on back or neck upon palpation
  - No decreased neck mobility
  - No significant head, neck, or chest trauma
  - Not associated with diving/fall with significant axial loading
- Risk of SMR versus benefits should be weighed in special circumstances such as prolonged extrication from remote wilderness or technical rescue situations. Risks include emesis with subsequent airway compromise, pressure sores and extreme patient discomfort. Rescuer must carefully consider the index of suspicion for injury
- Patients entrapped with a cleared C-spine may self-extricate (through windows, dash, etc) with assistance from rescuers if safe to do so
- If pt is wearing a helmet AND it interferes with airway management, CPR, or SMR, remove the helmet while maintaining cervical spine stabilization. If the patient is wearing shoulder pads (ie football), keep the helmet in place and remove the face mask / grill
- **For those requiring SMR:**
  - HOB elevation not more than 30-degrees
  - Remain supine on gurney
  - Restriction from turning, bending, sitting up, or rolling on own
  - Enough personnel on hand to move and roll the patient

ALS Providers

- If spinal cord injury is suspected:
  - Initiate two large bore IVs. Titrate IV fluid to maintain LOC, SBP >100, and end organ perfusion
  - In cases of high cervical injury, be prepared to intubate if increasing respiratory effort or accessory muscle use noted

SPINAL / NEUROGENIC SHOCK

Designation of Condition: Decreased tissue perfusion from a spinal cord injury above the level of T6 as demonstrated by hypotension (MAP < 65 mmHg), priapism, lack of motor or sensory function below the injury, or other signs

All EMS Providers

- Establish Primary Management
- Establish spinal motion restriction
- Obtain full set of vital signs
- Maintain SpO2 >92%
- Determine dermatomal level of injury

ALS Providers

- Initiate two large bore IVs
- Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Infuse IVF in increments of 500mL, maximum of 1250 L
- Reassess pulmonary function after every 500mL of IVF
- Airway management as indicated
- Atropine for bradycardia
- Initiate norepinephrine at 4 mcg / min & titrate to a SBP of 90 or MAP > 65

WOUND CARE, TRAUMATIC

Designation of Condition: All traumatic wounds should be considered dirty and treated as such. They require thorough irrigation & cleaning. Wound repair is best done as early as possible, but within six hours of the injury at maximum. Certain wounds, such as those involving human or animal bites and those with significant amounts of devitalized tissue should not be closed.

All EMS Providers

- Ensure all bleeding is controlled with direct pressure & dressings
- Manually remove all large debris (rocks/sticks/dirt clods) from wound
- Thoroughly irrigate the wound with tap water using high pressure (6-12mmHg) and at least one liter of water. (High pressure irrigation can be accomplished by poking needle holes into the water bottle cap)
- Evaluate for signs of systemic infection/toxicity (cellulitis, warmth, fever, devitalized tissue, or sloughing skin). If found, dress wound and transport immediately

ALS Providers

- **If transport time < 6 hrs:**
  - Pain control if indicated
  - For minor wounds, apply topical antibiotic ointment to wound
  - May transport via EMS or POV
  - Call MEDICAL CONTROL if pt. desires POV transport

- **If transport time is expected to be > 6hrs:**
  - Contact MEDICAL CONTROL
  - Administer ceftriaxone 1g IV drip (Paramedics with MPD specialized training)
  - Dress all wounds (open & closed) with 4x4 & Kerlix for transport
  - EMS wound closure shall NOT be considered definitive and patients MUST be transported to the hospital for formal closure

OBSTETRICS & GYNECOLOGY

PRE-ECLAMPSIA / ECLAMPSIA

Designation of Condition: Pre-eclampsia and Eclampsia are hypertensive disorders specific to pregnancy. They occur late in pregnancy (after the 20th week) or up to six weeks after delivery. Pre-eclampsia is characterized by hypertension (> 140/90), protein in the urine, hyperreflexia, increased edema, headache, and/or visual disturbances. The patient will often present generally ill, pale, with edema in the face and hands. Pre-eclampsia can progress to Eclampsia as evidenced by seizures. Eclampsia is a life-threatening event. There may be accompanying pulmonary edema. History of a previous seizure disorder should be determined. When in doubt contact MEDICAL CONTROL.

All EMS Providers

- Establish Primary Management
- Position patient tilted to left side as able

ALS Providers

- Initiate IV or saline lock as necessary on unaffected extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- **For SBP > 160 or DBP > 110**
  - Administer magnesium sulfate 4 gm IV in 100-250ml NS over 15-20 minutes
  - Administer labetalol 20mg IV slow push once
    - If SBP remains >160 or DBP >110, may repeat labetalol 20 mg q 10 min two times.
- **Eclampsia no longer seizing:**
  - Administer magnesium sulfate 4 gm IV in 100-250ml NS over 15-20 minutes
- **Eclampsia with active seizure:**
  - Administer benzodiazepine administration per seizure protocol
  - Administer magnesium sulfate 4 gm IV in 100-250ml NS over 15-20 minutes
  - If no IV/IO access contact MEDICAL CONTROL for IM dosing
- Repeat magnesium sulfate 2gm IV in 100-250ml NS every hour after first administration completion
- Respiratory depression/arrest, hypotension, areflexia may be caused by rapid administration or overdose of magnesium sulfate. Effects can be reversed by calcium gluconate 1gm IV over 5-10 minutes

NORMAL DELIVERY

Designation of Condition: Imminent spontaneous vaginal delivery with crowning or contractions <2 min apart in which no complications are anticipated.

All EMS Providers

- Establish Primary Management
- Create field for delivery
- Treat infant with drying, warming, positioning, and stimulation
- Clean, dry and wrap baby in clean sheet, towel or blanket. Cover the head and place the infant skin-to-skin to mother's chest covered by a blanket
- If the baby's respirations and movement are depressed or abnormal despite above, follow neonatal resuscitation protocol
- Obtain APGAR scores at 1 & 5 minutes
- Urgent clamping of cord only indicated if neonatal resuscitation needed
- Oxygen blow-by as needed
- Firmly massage the fundus after delivery of neonate as needed to control bleeding
- Gently deliver the placenta; do not pull on the umbilical cord

ALS Providers

- Initiate IV or saline lock as necessary on unaffected extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion

BREECH PRESENTATION

Designation of Condition: Any delivery in which the head is not the presenting part

All EMS Providers

- Establish Primary Management
- Support infant's body. If head delivers spontaneously, proceed with care according to normal delivery
- After the umbilicus has been delivered, the head should be delivered in 3-5 minutes
- The shoulders are delivered by sweeping the anterior arm out rotating the fetus so that the other arm is anterior and sweep the second arm out
- The infant will then usually rotate so that the back faces anteriorly
- An assistant should provide suprapubic pressure downward and caudally to assist with delivery

NUCHAL CORD

Designation of Condition: The umbilical cord is wrapped around the baby's neck during delivery

All EMS Providers

- If the cord is wrapped around the neck of the newborn and delivery is imminent, IMMEDIATE intervention is required. Attempt gentle loosening of cord with fingers as a first maneuver
- Attempt to slip the cord over the baby's head
- Deliver baby as per normal delivery unless the cord is too tight to allow normal delivery
- If cord is too tight it should be clamped, cut, and immediate delivery of infant should proceed

PROLAPSED CORD

Designation of Condition: When the umbilical cord descends through the vagina before the baby presents.

All EMS Providers

- Place mother in prone knee-chest position on her elbows
- Insert gloved hand into vagina and gently provide space around cord until pulsations are felt. Maintain positioning if effective
- If the cord is exposed, it may be covered with gauze soaked in sterile warm saline
- No further manipulation should take place unless delivery is imminent

POSTPARTUM HEMORRHAGE

Designation of Condition: >500 mL of blood loss after delivery, or signs of ongoing significant bleeding due to uterine atony, retained placenta, or trauma

All EMS Providers

- Assess for active bleeding from a controllable source (perineal tear)
- Apply ABD or sanitary napkin to vagina
- Obtain a full set of vital signs
- Initiate rapid transport to LZ, airport, or rendezvous location

ALS Providers

- Establish two large bore IVs. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Administer 2 g TXA over one minute
- Administer 30 u of Pitocin in 250mL LR over 30 minutes
- Administer LR in 500mL increments to maintain SBP of 90, and/or normal LOC

TOCOLYSIS OF LABOR

Designation of Condition: The need to stop contractions. This should only be done under the direction of the patient's Obstetrician and/or MEDICAL CONTROL.

All EMS Providers

- Establish primary management

ALS Providers

- Initiate IV or saline lock as necessary on unaffected extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Administer magnesium sulfate 4gm SIVP in 250ml over 20 minutes.
- Respiratory depression/arrest, hypotension, areflexia may be caused by too rapid administration or overdose of magnesium sulfate. These effects can be reversed by Calcium Gluconate 1 g SIVP over 5-10 minutes

PEDIATRICS

BRIEF RESOLVED UNEXPLAINED EVENTS

Designation of Condition: An acute event in a patient less than two years of age with one or more of the following:

- Marked change or loss of muscle tone
- Color change (cyanosis or pallor)
- Absent, decreased, or irregular breathing
- Loss of consciousness or ALOC

All EMS Providers

- Establish Primary Management
- Obtain a thorough history with particular attention to the following:
  - Was child awake or sleeping at time of episode?
  - What resuscitative measures were taken?
  - Episode of choking or gagging?
  - Known chronic diseases?
  - Evidence of seizure activity?
  - Current or recent infections?
  - Recent trauma?
  - Medication history?
  - Known gastro esophageal reflux or feeding difficulties?
  - Unusual sleeping or feeding patterns?
- Treat identifiable causes
- In most cases, the infant/child will have a normal physical exam when assessed by prehospital personnel. The parent/caregiver's perception that "something is or was wrong" must be taken seriously
- Approximately 40-50% of BRUE cases can be attributed to an identifiable cause(s) such as child abuse, swallowing dysfunction, gastro esophageal reflux, infection, bronchiolitis, seizures, CNS anomalies, cardiac disease, chronic respiratory disease, upper airway obstruction, metabolic disorders, or anemia. The remaining causes have no known etiology
- Keep in mind, especially if the parent/guardian declines transportation, that child abuse is one cause of BRUE. **MUST** contact MEDICAL CONTROL if transportation declined

CARDIAC ARREST

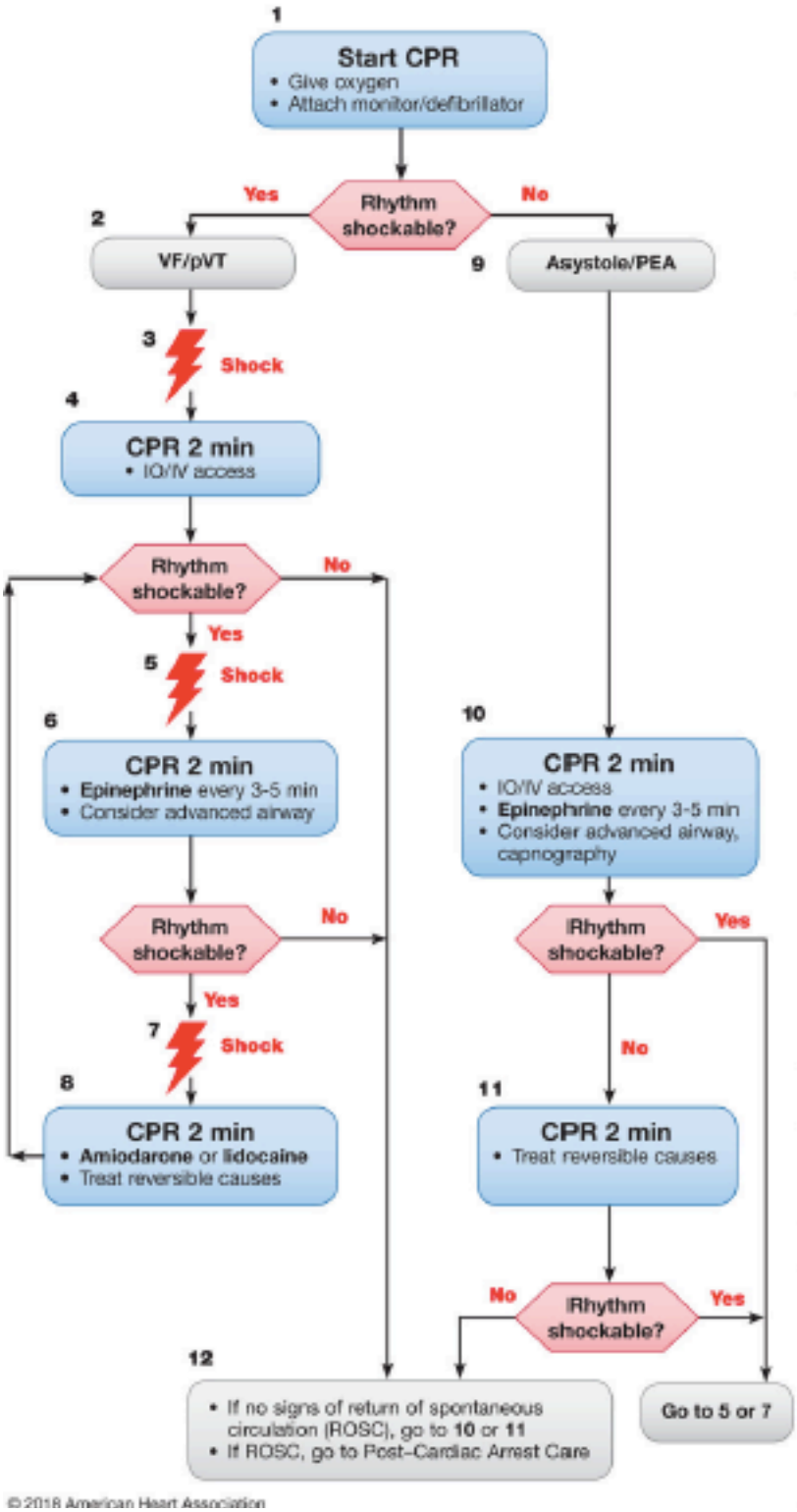
Designation of Condition: Pulseless and apneic from a medical cause in the prepubescent patient.

All EMS Providers

- Establish Primary Management
- Evaluate airway for obstruction and begin ventilation
- Providers should provide continuous compressions at a rate between 100-120 bpm for 2 minutes. The second rescuer should perform ventilations on every 10th upstroke of a compression for patients not intubated. At no time should the provider performing compressions stop or pause for ventilation
- Providers should follow current American Heart Association guidelines regarding CPR and AED use
- Perform CPR while the AED is being readied to shock. Sole rescuer 30:2
- Attach defibrillation pads to patient during CPR if personnel available (pediatric attenuators and pads preferred if available)
- Check rhythm (push “analyze”)
- Defibrillate once at pre-programmed setting if advised (pediatric pads)
- Perform two minutes of BLS HPCPR THEN check for rhythm/pulse
- If no pulse check rhythm and defibrillate once if advised
- The cycle is 2 minutes of CPR followed by rhythm check and one defibrillation (if needed) repeated until resuscitation successful or efforts terminated
- Interruptions to CPR should be limited and less than 10 seconds each
- Defibrillation should always be followed by 2 minutes of CPR before pulse check. Though the patient may have electrical activity or an undetected pulse, the body benefits from the increase cardiac output
- AED use in the child should use pediatric pads/attenuator as designed by the manufacturer, if unavailable adult pads may be used

ALS Providers:

- Emphasis should be on relieving any airway obstruction and ensuring adequate oxygenation and ventilation. Use the least invasive method. BVM preferable to iGel, which is preferable to an ETT
- Follow current PALS guidelines regarding medication frequency and dosing.
- Establish IO access in the distal femur



CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

Shock Energy for Defibrillation

First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IO/IV dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IO/IV dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.

-OR-

Lidocaine IO/IV dose: Initial: 1 mg/kg loading dose. Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

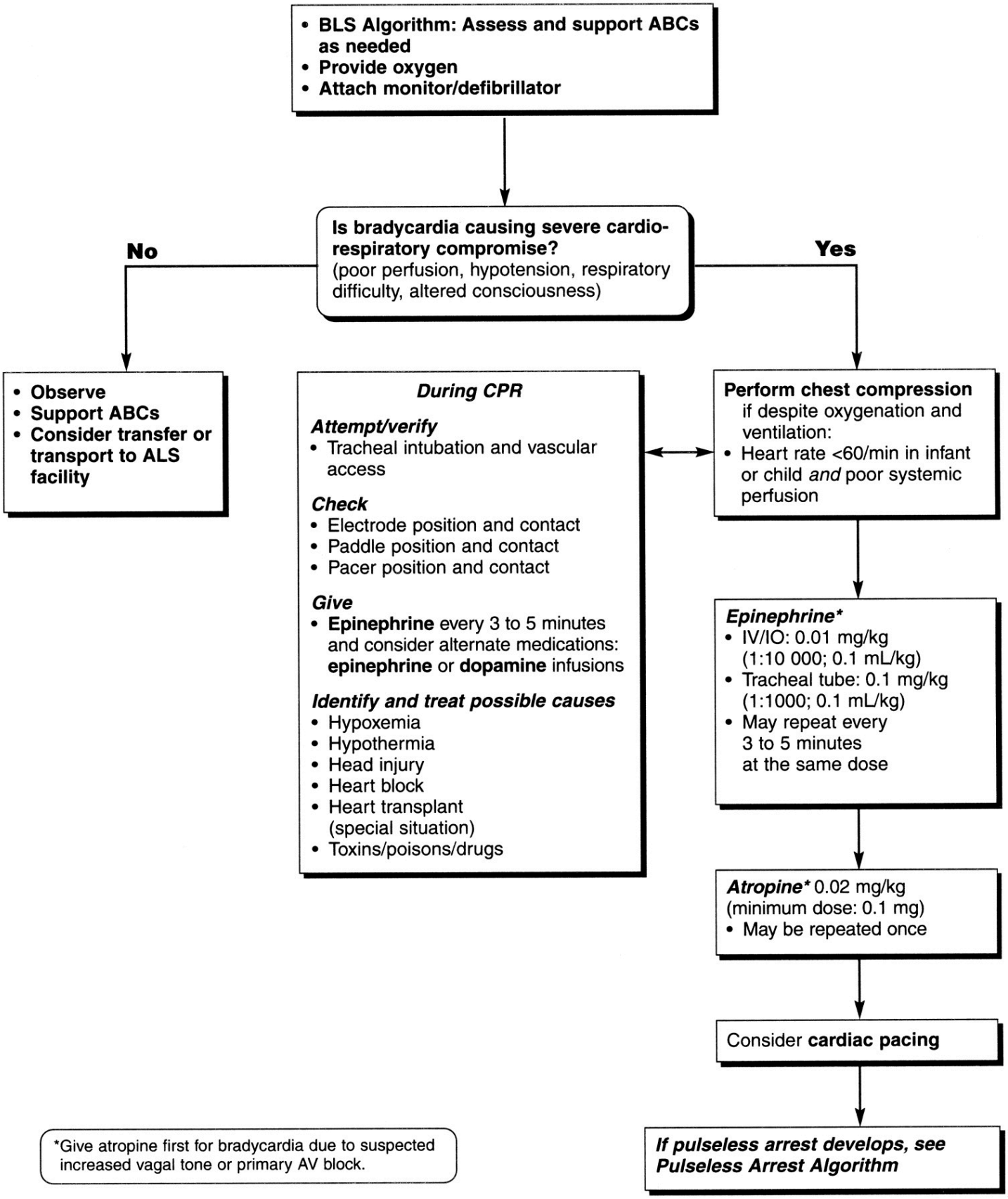
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

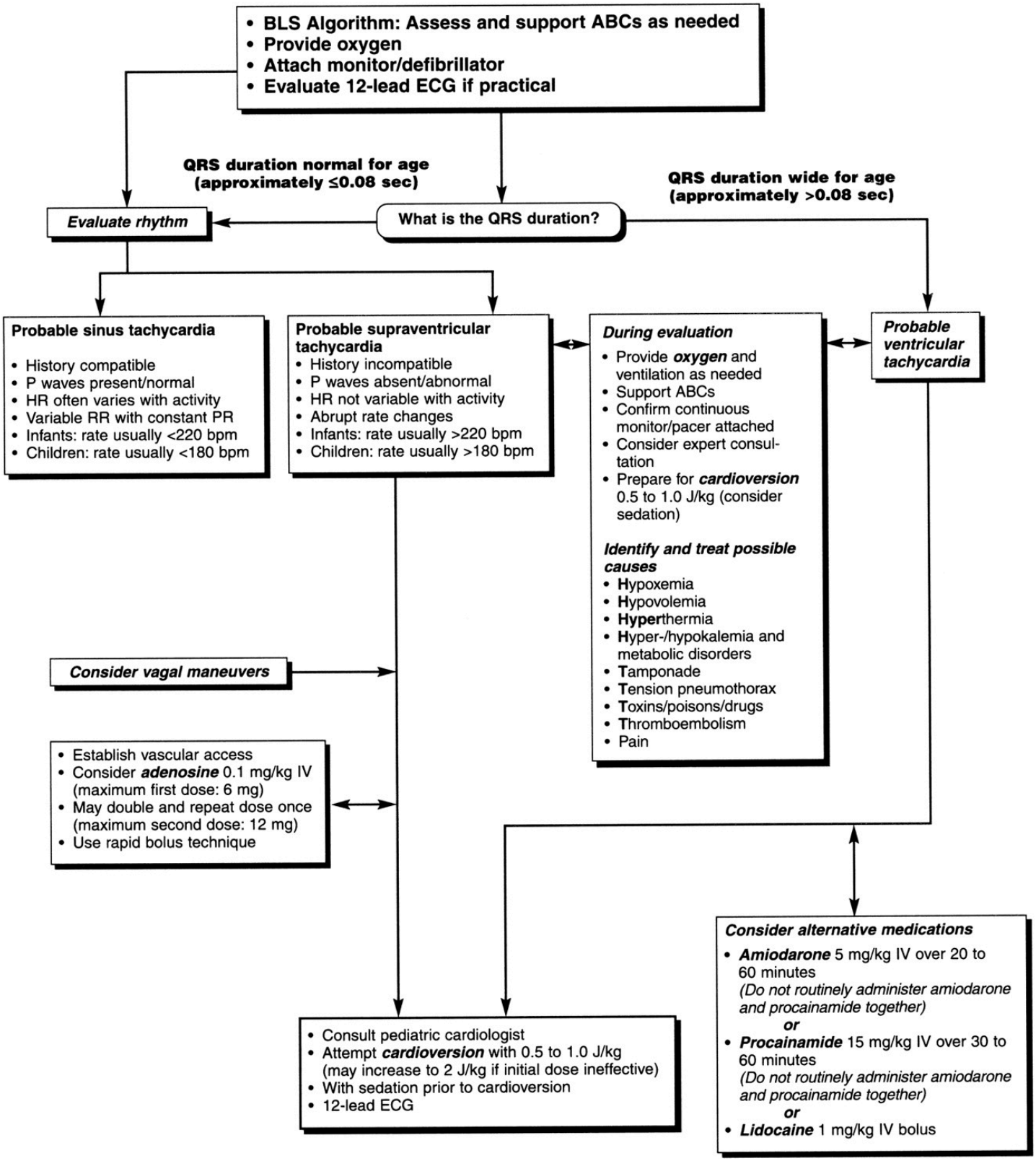
Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

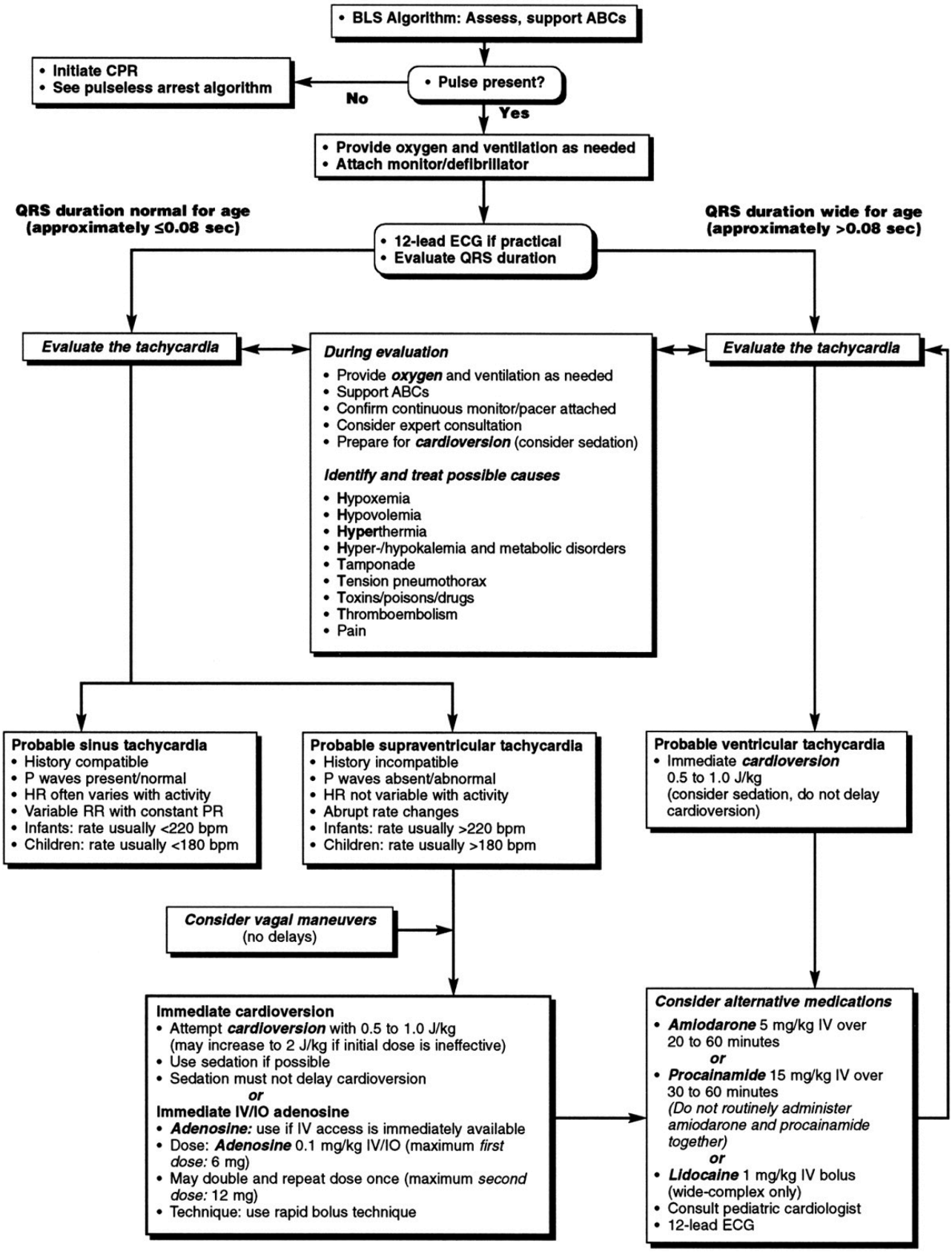
BRADYCARDIA



NORMOTENSIVE TACHYCARDIA



HYPOTENSIVE TACHYCARDIA



FEVER

Designation of Condition: A child with a temperature greater than 38° C or 101.4° F.

All EMS Providers

- Establish Primary Management
- Attempt to reduce patient's temperature by removing clothing and applying cool towels
- Avoid reducing temperature rapidly enough to induce shivering
- If patient develops seizures, refer to seizure protocol
- May administer acetaminophen 15mg/kg PO every six hrs
- May administer ibuprofen 6 mg/kg PO every six hrs. Maximum single dose 400mg
- **Aspirin is contraindicated in children**

ALS Providers

- Patients with a history of febrile seizures, and **ALL** of the following, may be allowed to stay home after contacting MEDICAL CONTROL:
    - Neurologically intact
    - Normal vital signs for age
    - Competent caregiver at home
- If patient is experiencing their first seizure, or develops a focal seizure, transport to the hospital

NEONATAL RESUSCITATION

Designation of Condition: Newborn child in distress. Extent and level of intervention is patient condition dependent. Neonatal cardiac arrest is predominantly asphyxia, assessment should consist of simultaneous evaluation of 3 clinical characteristics:

- Heart rate: apical pulse with stethoscope or palpate at umbilical cord
- Respiratory rate > 60
  Oxygenation: assessment of color, central cyanosis

All EMS Providers

- Establish Primary Management
- There is no need for regular suctioning just because meconium is present. Only suction if the child is non-vigorous. Suction mouth before nose, avoid vigorous suctioning
- Warm and dry baby
- Place in supine position in slight Trendelenburg and open/maintain airway
- Tactile stimulation of feet and/or back
- Check blood glucose
- If apneic, gasping, or persistent central cyanosis despite high flow blow-by oxygen and/or HR < 100, initiate BVM ventilations (oxygen titrated to effect) and provide tactile stimulation
- If HR is less than 60, begin CPR (you can palpate umbilical cord for fetal pulse)
- Assess for pulse every two minutes, if HR > 60 discontinue CPR and apply oxygen

ALS Providers

- Establish femoral IO, bolus 10mL/kg IVF to maintain LOC, SBP > 80, and end organ perfusion.
- Epinephrine:
  - ○IV/IO (1:10,000) 0.01mg / kg
- Repeat dose every 3-5 minutes until HR > 80
- Atropine Sulfate:
  - , 0.02 mg / kg IV/IO (0.5 mg max single dose) for signs of increased vagal tone or AV block. May be repeated once
- Narcan:
  - 0.05-0.1 mg / kg. May repeat at five minutes if no response
- Dextrose:
  - If < 2 days old:
    - D10 2mL/kg IV/IO for BGL < 25
  - If > 2 days old:
    - D10 2mL/kg IV/IO for BGL < 50

RESPIRATORY DISTRESS (Croup/Epiglottitis)

Designation of Condition: Pediatric illness marked by signs of upper airway inflammation. When severe, child will have stridor at rest. Consider foreign body aspiration in your differential diagnosis. Watch for drooling (common in epiglottitis) and listen for a barking cough (common in croup)

All EMS Providers

- Ensure child has a patent airway
- Allow child to assume position of comfort.
- Keep child comfortable and quiet with parent
- Obtain full set of vital signs including continuous SpO2
- Physical exam with particular attention paid to upper airway (stridor) and lung sounds
- Obtain SAMPLE, OPQRST histories
- Provide supplemental oxygen to maintain an SpO2 of >92%
- Suction airway as needed

ALS Providers

- Establish IV or femoral IO access if in shock or medication administration needed
- If signs of croup, severe stridor, or respiratory distress:
    - Epinephrine 1:1000
        - > 2 yrs – 0.5mg/kg per dose (maximum of 5mg total) via nebulizer
        - < 2 yrs– 0.25mg/kg per dose (maximum of 5mg total) via nebulizer
    - Dexamethasone 0.5 mg / kg IVP once (MEDICAL CONTROL Order)
- Escalate airway support as needed, using least invasive as possible. AVOID INTUBATION
- Oxygen via nasal cannula
- Oxygen via mask
- CPAP
- BVM ventilation w/ NPA or OPA
- Supra-glottic airway
- Needle cricothyrotomy

SHOCK

Designation of Condition: Hypotension due to a variety of causes including sepsis, toxicity, hypoxia, and cardiac causes.

All EMS Providers

- Ensure child has a patent airway
- Provide supplemental oxygen to maintain an SpO2 of >92%
- Obtain full set of vital signs including continuous SpO2
- Physical exam with particular attention paid to any underlying cause of illness to include recent fevers, URI, neck stiffness.
- Obtain SAMPLE, OPQRST histories

ALS Providers

- Establish IV or femoral IO. Administer bolus of 10mL/kg IVF to maintain LOC, SBP > 80, and end organ perfusion. Repeat up to two times as needed.
- If persistent hypotension, initiate norepinephrine infusion at 0.1mcg / kg / min. Increase as needed to a maximum of 2 mcg/kg/min.
- If patient remains hypotensive, consult medical control.
- Escalate airway support as needed, using least invasive as possible. AVOID INTUBATION
- Treat underlying cause, if known

BEHAVIORAL

BEHAVIORAL EMERGENCY

Designation of Condition: Safety of the patient, public, and EMS providers must be considered. At the first indication of a dangerous situation, notify law enforcement.

Patients are potentially dangerous when there is an indication of:

- Suicidal or self-destructive behavior
- A threat against others
- An underlying medical, traumatic, psychiatric, or substance abuse disorder causing an altered mental status

All EMS Providers

- Scene security, including moving the patient to a safe location, should occur prior to treatment
- EMS team members should enter and depart the scene together. Each individual EMS responder has the authority to decline to enter a potentially hazardous scene or elect to move. If any EMS team member is uncomfortable with the situation and wants to relocate for safety, all team members must move
- Any medical and traumatic needs must be addressed per appropriate protocol

ALS Providers

- If patient is non-compliant and violent or severely agitated, refer to severe agitation protocol.
- If patient is compliant with IV, initiate saline lock. Titrate IVF as needed to maintain LOC, SBP > 90, and end organ perfusion. Do not hang IV bag unless fluid bolus indicated.
    - If patient becomes violent or severely agitated, refer to severe agitation protocol.
- If patient is non-compliant with IV and non-violent, consider oral anti-psychotic.
    - Olanzipine 5 – 10 mg PO / ODT once. Contraindicated in organic behavioral diagnosis (autism, dementia, developmental delay).
- If patient is non-compliant with oral medication, continue to reassure and provide transport.
- All chemically sedated patients must also have IV access, 12-lead EKG, 3-lead ECG, ETCO2, and oxygen saturation monitoring established as soon as feasible
    - Obtain & document a full set of vital signs every 5 minutes
    - If unable, obtain what vital signs you are able and document barriers preventing full set of vital signs every 5 minutes

COMPASS HEALTH EVALUATION

Designation of Condition: It is appropriate to use restraints, chemical and/or physical, when a patient is believed to represent a severe danger to themselves or others, or when a patient lacks capacity to understand the consequences of their actions and is felt to be a danger to themselves or others because of an acute medical, traumatic, mental health, or chemical dependency disorder. The reason for the restraints must be explicitly documented in the narrative section of the electronic health record.

All EMS Providers

1) On Scene Paramedic or EMT initiates the call.
    a. M-F 8-5, Try 360.362.9161 first
    b. If no answer above, or any other time 24-7, call 800.584.3578

2) Describe the situation and the need for consultation (i.e. suicidal ideations, psychosis, etc)

3) Advise the counselor that you have a tablet (kept in the Fly Car) for live Zoom consultation…this will also allow the counselor to evaluate the patient as appropriate

4) Provide them (they should have this info) your Zoom name information

5) Next, the counselor will initiate a Zoom call with you…steps to accept this call are below

6) Turn tablet on, make sure it is charged and that it's connected to WiFi

7) Swipe up

8) Click on the Zoom App

9) Enter Username (compasss*******@compassh.org) and Zoom password (Compass123)
*****You may not have to do this each time – usually, it stays logged in. *****

10) Accept call when Zoom rings

11) Join with video

12) Join with device audio

13) Compass employee will admit you to the meeting

14) Power off when Zoom call is done

IMPORTANT: The numbers above are available to all EMTs on scene if needed, even if there is no tablet access for Zoom

INVOLUNTARY RESTRAINT & TRANSPORT

Designation of Condition: It is appropriate to use restraints, chemical and/or physical, when a patient is believed to represent a severe danger to themselves or others, or when a patient lacks capacity to understand the consequences of their actions and is felt to be a danger to themselves or others because of an acute medical, traumatic, mental health, or chemical dependency disorder. The reason for the restraints must be explicitly documented in the narrative section of the electronic health record.

All EMS Providers

- Ensure scene safety and establish primary management
- Attempt crisis intervention and de-escalation techniques
- Physical restraints must be used in a humane manner, offering the patient as much dignity as possible
- Explain to the patient and their family the reason for the restraints
- Use the least restrictive restraints possible
- Never place the restrained patient in the prone position or use hobble restraints
- In addition to any extremity restraints, appropriate securement to the gurney for patient transport is required
- All physically restrained patients must have their airway, circulatory, and respiratory status monitored and documented along with physical assessment and vital signs and glucometry if mental status is altered
    - Obtain & document a full set of vital signs every 5 minutes
    - If unable, obtain what vital signs you are able and document barriers preventing full set of vital signs every 5 minutes
- Evaluate for hyperthermia
- The ongoing need for restraints must be documented
- Restraints must be removed as soon as the provider deems it is safe to do so

SEVERE AGITATION

Designation of Condition: Severe agitation and aggressive behavior that may progress to sudden death with the use of physical control measures. Signs and symptoms include paranoia, disorientation, hallucination, incoherent speech, seemingly superhuman strength, tachycardia, and hyperthermia. Drugs, alcohol, history of mental illness, and head trauma may contribute to the condition. In addition to scene safety measures, law enforcement involvement, and de-escalation techniques, **chemical sedation may be employed as a last resort to prevent worsening the condition.**

All EMS Providers

- Ensure scene safety and stablish Primary Management
- Obtain blood glucose measurement as soon as feasible

ALS Providers

- Initiate IV or saline lock as necessary on unaffected extremity. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- The goal is to prevent harm to the patient, the public, law enforcement, and EMS responders
- All chemically sedated patients must also have IV access, 12-lead EKG, 3-lead ECG, EtCO2, and oxygen saturation monitoring established as soon as feasible
    - Obtain & document a full set of vital signs every 5 minutes
    - If unable to obtain a complete set, obtain what vital signs you are able and document barriers preventing obtaining a full set of vital signs every 5 minutes
- Prepare for airway and ventilatory support
- For patients who deteriorate, consider causes including hyperthermia or hyperkalemia with metabolic acidosis and, if indicated, treat per protocol
- **Droperidol:**
    - 5 mg IV/IM once
        - Obtain 12-lead ECG when able to safely do so
        - Contact MEDICAL CONTROL for further doses or before combining with another agent
- **Benzodiazepines:**
    - Midazolam: 2 - 5 mg IV, 5 – 10 mg IM once
    - Intranasal midazolam (10 mg for adult)
        - Contact MEDICAL CONTROL for further doses or before combining with another agent.
- **Ketamine:**
    - 1 – 3 mg/kg IV or 4 mg/kg IM once. May repeat IV/IM once
        - Contact MEDICAL CONTROL for further doses or before combining with another agent.

PATIENT IN LAW ENFORCEMENT CUSTODY

Designation of Condition: Law enforcement may call EMS for a field evaluation of a patient in custody. They may be in physical restraints or have been subjected to the use of less-lethal methods during apprehension. These patients often have psychological and toxicological factors contributing to their presentation. The patient must also be evaluated with respect to the immediate effects of the force used, e.g. trauma from taser barbs or bean bag projectiles, and the possible underlying pathophysiologic processes.

All EMS Providers

- Ensure scene safety and establish Primary Management
- Evaluate for abnormal vital signs, pinpoint or dilated pupils, diaphoresis, altered mental status, signs of trauma, multiple taser shocks
- Evaluate for hyperthermia (temperature >101°F / 38°C)
- If patient is awake, alert, and oriented with a normal evaluation as outlined above, and is refusing care, the patient may be released to police custody per protocol
- Taser barbs may be removed as per protocol

ALS Providers

- Evaluate for severe agitation and treat per protocol as needed
- Initiate IV or saline lock as necessary. Titrate IVF to maintain LOC, SBP > 90, and end organ perfusion
- Cardiac monitoring and 12-lead EKG to evaluate dysrhythmias, QT abnormalities, treat as per relevant protocols
- Look for unexplained changes in waveform capnography or SpO2 that may indicate hypoxia, hypercapnia, or other signs of inadequate respiratory effort
- May be released to police custody per protocol

SPECIAL SITUATIONS

AGAINST MEDICAL ADVICE / RELEASE OF RESPONSIBILITY

Designation of Condition: A situation where a patient's condition does not warrant EMS transport or the patient refuses EMS transport.

All EMS Providers

Release of Responsibility:

- A Release of Responsibility (ROR) may be considered by EMS personnel when, after evaluation of the patient, the patient's medical needs are considered to be of such a minor nature that 9-1-1 activation was unnecessary and/or signs and symptoms do not meet treatment/transport criteria OR the patient will seek treatment via POV transport. EMS personnel and a patient may be released under ROR if the following conditions are met:
  - No substantial medical intervention has been rendered by EMS
  - There is no potential risk for loss of life or limb
  - It is reasonable not to expect a recurrence or worsening of the condition within the next 6 hours
  - There is an individual with adequate decision-making capacity who can observe the patient for a reasonable amount of time
  - The adult patient or his/her caregiver meet all elements of competence
  - Patient agrees to sign a ROR Form
  - If the patient does not meet above criteria, ROR of the patient can only be done at the discretion of MEDICAL CONTROL

Against Medical Advice:

- An Against Medical Advice (AMA) may be considered if the patient refuses EMS recommendations of transport to the hospital and all of the following are met:
  - The patient is believed to be ≥ 18 years old or an emancipated minor
  - The patient meets all elements of competence
  - The patient has been told of his or her condition, the risks of refusing and the benefits of seeking medical treatment/transport
  - The patient has been offered a reasonable alternative
  - MEDICAL CONTROL shall be consulted whenever possible

Patients that do not meet all the elements of competence to refuse care:

- Non- transport of the patient with diminished decision-making capacity can only be done at the direction of MEDICAL CONTROL
- Documentation of every ROR and AMA shall be accomplished on a Patient Care Report (PCR). EMS personnel shall document the following:
  - Reason(s) for the 9-1-1 call (description of events)
  - Patient's medical history and current assessment findings
  - Quotes made by the patient, to include reasons for ROR or AMA
  - Signs of injury/illness (why treatment/transport is recommended)
  - When applicable, name of the MEDICAL CONTROL physician and whether they spoke with the patient or not, time of contact, and any orders given
  - Disposition of the patient (left in care of family, transported by friend, etc)

BLOOD TRANSFUSION (INTER-FACILITY)

Designation of Condition: An actively bleeding or severely anemic patient requiring blood transfusion during transport from a healthcare facility to a higher level of care. Transfusion must be started by referring facility (PIMC) prior to transport.

Precautions:

- NEVER precede or follow blood by a solution containing dextrose. If patient has IV running containing dextrose, the IV must be stopped and the tubing flushed with normal saline solution before blood may be administered
- NEVER administer additives of any kind to blood bag. If meds must be given through the blood IV pathway, turn off blood and flush the tubing with Normal Saline and do same after the medications are given

ALS Providers

- Two qualified individuals must check blood bag and charge slip tag at bedside before departure and again before administration
    - **Must check:** Patient name and arm band, hospital number, ABO group, RH type, blood bank arm band number and, if the patient is alert, ask them to state their name.
- Gently rotate blood to disperse red cells
- Prepare unit for administration with all flow clamps closed. Insert red blood piercing pin into proper opening on blood bag. Open flow clamp to blood. (If clamp to Normal Saline is open, blood will flow into the saline bag)
- Fill drip chamber until filter completely covered to prevent damage. (Filter must remain covered to prevent damage to fragile cells)
- Open main flow clamp and observe for reaction. Obtain vital signs every five minutes until blood is completed
- Watch for adverse reactions:
    - Sudden pain in chest or back
    - Dyspnea and shock
    - Chills
    - Elevation of temperature and pulse
    - Urticaria
- If patient develops any of these symptoms:
    - Stop blood immediately; disconnect blood set from main IV line. Flush line with Normal Saline. Maintain patency of IV
    - Contact MEDICAL CONTROL for treatment regarding transfusion reaction
- Chart on Paramedic record: Time started and ended, any reaction. Record blood products, IV solutions, blood check # on Paramedic record. Record all vital signs taken during transfusion on flow sheet. Any reactions and the steps taken as a result

CRIME SCENE

Designation of Condition: A situation where a crime may have taken place. The objective is crime scene protection is to preserve physical evidence that may be used to develop investigative leads and to prosecute defendants in court. Physical evidence must be protected from accidental or intentional alteration from the time it is first discovered to its ultimate disposition at the conclusion of an investigation.

All EMS Providers

- Often, emergency medical service personnel are the first to arrive at potential crime scenes. EMS personnel may be unaware that the incident which necessitated the request for medical aid is a result of a criminal act
- Personnel should consider evidence preservation and crime scene protection while en route to such an emergency. While saving life is paramount, personnel should do all they possibly can to prevent the loss of related evidence
- Ensure that items of evidence (spent cartridges, weapons, clothes, etc.) are not stolen or destroyed, moved or inadvertently disturbed
- Designate a garbage spot for all non-essential or non-evidentiary items
- Contain the crime scene area and restrict/stop pedestrian/vehicle traffic (limit the number of EMS personnel to what is needed)
- Note position of clothes on the body before disturbing for medical aid and check for any foreign substances that may be on the body
- Do not move any bodies found. If you must move the body, be aware that pertinent evidence is often found underneath a body. Mark its location
- Call for assistance as needed to control onlookers and bystanders
- Seek guidance from the on-scene police officer
- Inform the officer in charge about any material (coat, sheet, blanket, etc.) used to cover/protect the victim from the elements. Officer may want those items as evidence
- Check with the officer in charge of the crime scene if you had close contact with the victim/deceased (your clothes may contain fibers and trace evidence)
- Law enforcement should be notified of any weapons found during patient care. DO NOT MOVE OR HANDLE the weapon
- Do not move evidence unless necessary. Point the evidence out to the officer where it is found, or mark (chalk, tape, etc.) the location of the item if it must be moved
- Do not use bathroom facilities or sinks
- Avoid using the telephone and items in and around the crime scene
- If clothing must be cut, do not cut through bullet holes or knife cuts. These are critical pieces of evidence
- If patient is deceased or dies during your resuscitation, do not remove any invasive equipment

DECLARATION OF DEATH

Upon arrival at a scene in which the patient is obviously dead (pulseless and apneic) and resuscitation efforts would be unsuccessful, resuscitation efforts of any kind may be withheld. See Termination of Resuscitation protocol for procedures of efforts are underway and unsuccessful.

To withhold resuscitation at least one of the following criteria should be present:

- Presence of rigor mortis
- Presence of livor mortis
- Obvious external exsanguination
- Truncal transection
- Decapitation
- Decomposition
- Extruded brain matter
- Sustained down time prior to arrival without CPR in progress with presenting rhythm of asystole and no cardiac activity on ultrasound in warm adults

EMS personnel must notify the coroner of cases where they encounter a deceased patient who dies suddenly, accidentally, violently, or from unknown causes, or under suspicious, unnatural, or criminal circumstances. This requirement is fulfilled if law enforcement on scene is expected to contact the medical examiner.

⚠ **NOTE:** Hypothermic arrests, near-drowning events, and medical pediatric arrests deserve full resuscitative attempts. **CONTACT MEDICAL CONTROL** for direction.

DO NOT RESUSCITATE (DNR)

Definitions:

- A **DNR Order** is an order issued by a physician, directing that in the event the patient suffers a cardiopulmonary arrest, CPR will not be administered
- A DPOA (Durable Power of Attorney) designates who shall make medical decisions of the subject is unable to make their own decisions and may specify what medical treatments the subject would want.
- **POLST** (Physician Orders for Life Sustaining Treatment) is an order issued by a physician directing what level of care the patient desires in the event EMS is contacted
- **Resuscitation** includes attempts to restore failed cardiac and/or ventilatory function by procedures such as endotracheal intubation, mechanical ventilation, chest compressions, and defibrillation

Resuscitation may be withheld if:

- A valid original DNR, DPOA, or POLST specifying no resuscitation is present
- The following compelling reasons to withhold resuscitation if both are present:
    - Verbal indication from family members or caretakers of patient's desire to not be resuscitated
    - A terminal condition is present
    - MEDICAL CONTROL MUST be contacted for confirmation in this case

The EMT or Paramedic must document the DNR order in the patient care report

No BLS or ALS procedures should be performed on a patient who is the subject of a confirmed DNR, DPOA, or POLST order and who is **pulseless and apneic**

Except when the above circumstances apply, all other cases must be considered potentially revivable and resuscitation efforts must be initiated until further orders are received from the responsible physician.

HAZARDOUS MATERIALS

All EMS Providers

- Assume all scenes have a potential for HAZMAT
- If you are first on scene, assume Incident Command until HAZMAT arrives
- If Incident Command is already established, report to Incident Commander or Staging Area Manager
- Approach cautiously from upwind and uphill and position vehicle well away from incident and headed away from the scene
- Isolate scene and keep others away

Patient Care

- Determine material involved from HAZMAT team and advise MEDICAL CONTROL of material involved and request direction for treatment
- HAZMAT or Fire will be responsible for initial decontamination and patient packaging.
- Don personal protective equipment as directed by HAZMAT team
- Receive packaged patient at decontamination corridor from HAZMAT or Fire and transfer to PREPARED ambulance and treat as directed by Fire, HAZMAT and MEDICAL CONTROL

Ambulance Preparation

- Prepare ambulance as directed by HAZMAT or Fire
- Remove all non-essential supplies/equipment
- Drape interior and floor of vehicle with plastic as directed

Transport

- Notify receiving facility: provide all relevant information and ask where they would like you to park. **DO NOT** enter the ER without specific direction from the ER staff
- After transferring the patient to ER staff, return to the ambulance and remain inside. Do not move the vehicle or allow others inside
- Contact Incident Commander to determine how and where the vehicle should be decontaminated

EMS Personnel Exposure

- If exposed at the scene: remove yourself from further contamination and report incident to the Safety Officer or HAZMAT and wait for direction
- If exposed en route to the hospital: inform the ER and await direction
- After decontamination and treatment, receive clearance from HAZMAT Group Supervisor or MD AND your supervisor before returning to duty

INTERFACILITY TRANSPORT

Interfacility transport will occur at the BLS or ALS level in the following general categories:

- Transfer between hospitals for admission for services not available at the initial hospital
- Transport of patient to and from facility for diagnostic evaluations at the second facility
- Transport from hospital to extended care facility
- Transport of patient between facilities at patient or physician's request

As a general rule, it is the responsibility of the transferring facility to ensure that the medical necessities for safe patient transfer are met. EMS providers are to operate within their scope of practice and training. If a physician attends the patient during transfer, s/he will direct all care regardless of standing orders. If a registered nurse attends the patient, s/he 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 desire to defer emergency care in some situations to the paramedic.

The responsibility for transfer to another facility resides with the transferring facility. It is the transferring facility's responsibility to determine the need for BLS, ALS, or RN transport. Patients will not be transferred to another facility without first being stabilized, unless the physician states the patient's needs exceed the current resources available. Stabilization includes adequate evaluation and initiation of treatment to assure that transfer of a patient will not, within reasonable medical probability, result in material deterioration of the condition, death, or loss or serious impairment of bodily functions, parts, or organs. Evaluation and treatment of patients prior to transfer will include the following:

- Ensure an adequate airway and ventilation
- Initiate control of hemorrhage
- Stabilize and splint the spine and fractures
- Establish & maintain adequate access routes for fluid & medication administration
- Initiate fluid and/or blood replacement as indicated
- Determine that the patient's vital signs are sufficient to sustain adequate perfusion
- If an EMT will be transporting the patient, ensure all IV fluids and drips are stopped and the IV access is capped/locked.

LEGAL BLOOD DRAW

Collecting blood samples without consent under the direction of law enforcement is authorized in RCW 18.130.410. In San Juan County, blood samples shall only be obtained by Paramedics certified by the State of Washington and approved by the San Juan County EMS Medical Program Director to practice at a paramedic level under WAC 246-976-182 Authorized care - Scope of Practice.

Blood draws should be accomplished using sterile technique. A **non-alcohol-based** skin prep must be used in preparing the skin for venipuncture. The preferred agent is povidone-iodine solution. Cleansing solutions which do not contain alcohol are acceptable alternatives in patients allergic to iodine, e.g. ShurClens. Avoid cleansing solutions which contain isopropyl alcohol (cross reacts on test and reads as ethanol), e.g. Hibiclens. Two gray top blood tubes, containing the preservatives Sodium Fluoride and Potassium Oxalate shall be drawn. The expiration date on the blood tubes must be checked and verified that the blood tubes are in-date prior to the blood draw. A minimum of three cubic centimeters of blood shall be injected into each gray top blood tube.

Each blood tube shall be marked as follows:

- The name of the subject from whom the blood was drawn
- The date of the blood draw
- The time of the blood draw using 24-hour clock
- The cleansing agent used to prepare the skin prior to the draw
- The name of the Paramedic drawing the blood

Chain of custody shall be from the hands of the Paramedic drawing the blood, directly into the hands of the law enforcement officer requesting the blood draw. The Paramedic shall document on the patient care report, the blood draw, and shall also sign and complete any forms required by law enforcement.

If the incident scene where a blood draw is requested is also a scene where patient care is required, patient care shall take precedence over any request for blood draws. If a patient's condition is stable enough to accommodate a request for blood draw, the Paramedic shall perform the procedure according to their best judgment. If, in the Paramedic's judgment, it is not in the best interest of the patient to delay transport for a requested blood draw, the Paramedic must exercise their authority to defer the request for blood draw and initiate patient care and transport as needed.

MARINE RESPONSE

Outer Island EMS Calls (islands not serviced by WSDOT Ferry System)

Dispatch:

- Is the call ALS?
  - YES – Dispatch the closest appropriate air medical transport provider, the closest appropriate marine response provider, EMS (if different from the marine response provider) and, when able, notify the MPD and the USCG.
  - NO – Place the closest appropriate marine response provider on standby and notify EMS (if different from the marine response provider). The highest certified EMS responder will contact the reporting party, and in concert with the marine response provider will determine the type of response indicated (ALS/BLS/POV).

- If the standard response boat(s) is/are NOT able to respond (weather, crew, etc):
  - Contact mutual aid resources to include USCG, Navy, CCG, WDFW, USCBP, or other resources.

- Gather the following information:
  - Reporting party name and contact information (radio v phone)
  - Patient age/gender/weight
  - Chief complaint
  - Location of patient
  - Location (lat/long) of nearest LZ, runway, dock, etc
  - Local resources available for assistance and/or transport
  - Family members/friends that require transport with patient

- When communicating with the mainland fire department, SJC Dispatch shall relay the number of patients to be transported. If the mainland department cannot handle the request, a private ambulance shall be contacted to arrange transport from the landing point to the hospital.

EMS:

- While the boat crew is preparing for launch, the **highest certified EMS responder shall coordinate with the MGS** or boat pilot and attempt to contact the reporting party to ascertain further information to include vital signs, exam, and assessment (if applicable). If, in their professional judgement, they feel air transport is warranted, they may launch the appropriate air medical transport provider prior to arrival.
- The M/V Sentinel shall be the primary response boat, and the M/V Guardian shall be secondary. If neither are available in a timely manner, mutual aid resources (USCG, Navy, CCG, WDFW, USCBP) Vessel Assist or other privately-owned boats may be used in appropriate and safe conditions.
- Two EMS providers (EMT or Paramedic as appropriate), and a minimum of two additional responders (fire or EMS) will be utilized on all marine responses unless conditions warrant otherwise. Changes may be made as needed by the responding personnel or MPD.
- If possible, a secondary EMS crew will be assembled to respond to calls on the agency's primary island.

- The pilot of the marine vessel shall retain final authority in regard to safety and conduct of the boat, crew, passengers.
- The marine pilot shall identify the crew at the dock and conduct a briefing prior to proceeding to the call that includes at a minimum a USCG GAR, IAP & nature of patient/incident.
- For multi-agency or complex incident response, a Marine Group Supervisor (MGS) will be assigned that is separate from EMS crew members or Marine crew members and will assume command of the response.
- If a pediatric patient is transported, an adult shall be allowed to accompany the patient. The decision to transport other patient's family members and/or associates shall be determined by the MSG or marine pilot.
- Any equipment needed shall be provided by the EMS agency providing patient care.
- All personnel shall wear a PFD at all times while in the boat or while transporting the patient on a dock or beach or near water. If transporting in an open boat, consider the use of an exposure suit. A PFD shall be placed on any passengers, and on the patient if condition allows.
- The patient shall be transported to the closest, most appropriate medical facility by the most appropriate transport method available.
- In the event of a patient who exhibits violent or criminal behavior, a deputy from the Sheriff's office will be requested to accompany EMS personnel and the patient will be appropriately restrained for the entire transport.
- This policy establishes basic procedures. Each department shall determine the training, qualifications, and requirements for a marine response and those will be adhered to by all crew and passengers on the vessel.

Inter-Island and/or Mainland EMS Transports

- The receiving hospital shall be notified of an incoming patient by the referring agency prior to initiation of marine transport.
- If a backup crew is available on the referring island, the referring agency shall provide patient care personnel. If no backup crew is available from the referring agency, the receiving agency shall provide patient care personnel if a backup crew is available from their agency. If no backup crew is available from either agency, the referring crew shall provide patient care personnel. Patient care personnel will be dedicated solely to patient care and shall not have additional duties related to the operation of the watercraft.
- The highest certified EMS provider caring for the patient shall discuss the case with the receiving EMS provider at least 15 minutes prior to patient transfer.
- The referring agency, or highest certified provider, in cooperation with the pilot or MGS, shall make the final determination about patient transport and destination.
- If transporting to the mainland, the appropriate transport agency will be notified when the boat is underway.
- If there is not a backup EMS crew available on the transporting island and there are pending 911 calls on the island, the mainland EMS crew shall assume patient care and transport the patient unless patient condition necessitates additional personnel.
- If there is a backup EMS crew available on the referring island, that EMS crew shall continue patient care to the hospital with transport provided by the mainland EMS crew.

MASS CASUALTY INCIDENTS

All EMS Providers

- Upon dispatch, ensure PIMC, St. Joseph's, and Providence-Everett are notified
- ASSURE SCENE SAFETY!
- Contact dispatch with **METHANE** report:
    - **M –** Major incident declaration
    - **E –** Exact incident location and **staging area location**
    - **T –** Type of incident (number of vehicles, buildings, etc)
    - **H –** Hazards (current and potential)
    - **A –** Access: Best route in and out
    - **N –** Number of casualties (estimate)
    - **E –** Emergency services needed
        - Call for air assets early. (Island Air, ALNW, LifeFlight, Navy)
        - **All** air ambulance staging will be at airport

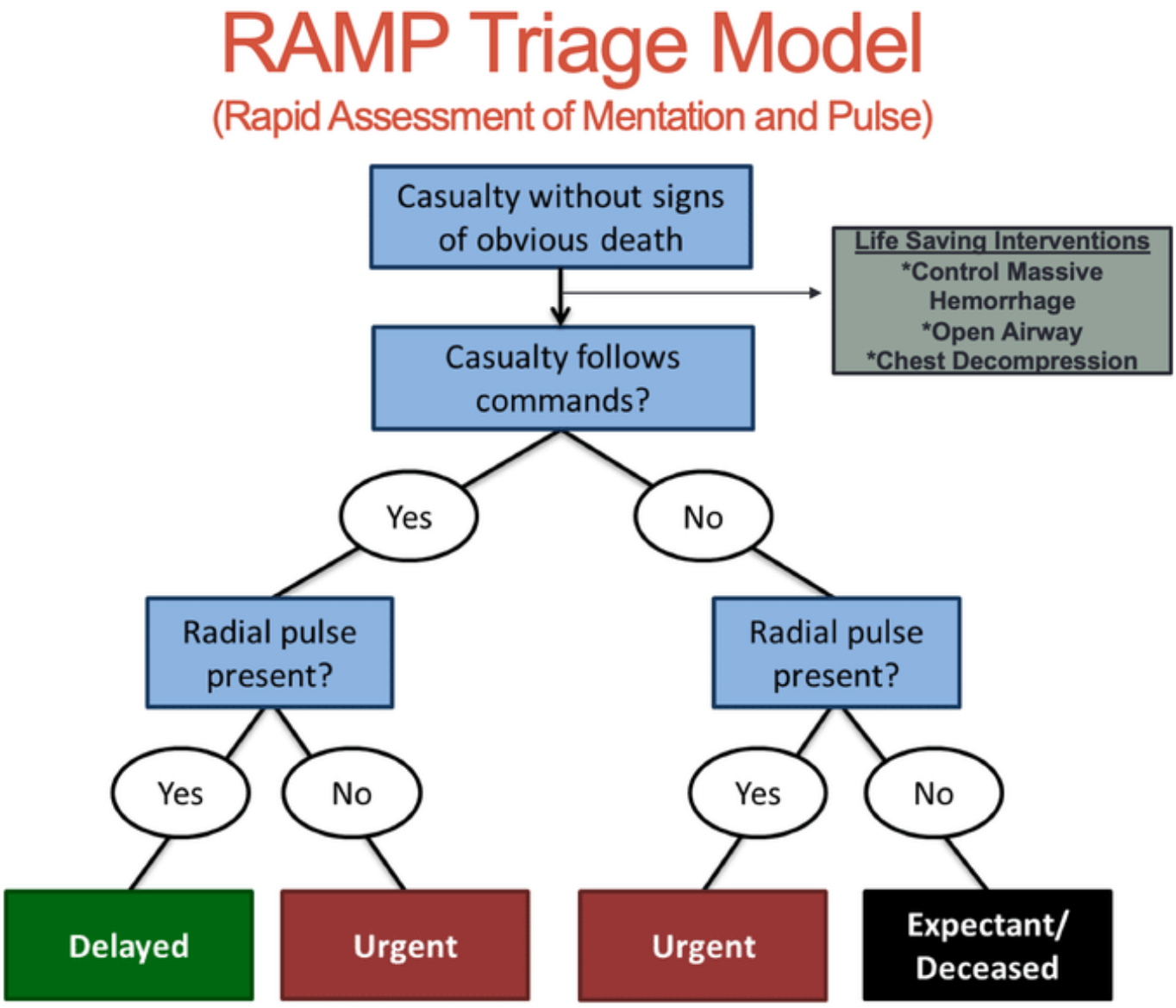
- Park the first due ambulance in an area where it will be safe to access for patient treatment and triage
- The first due ambulance crew will establish command and begin triage
- Subsequent ambulances will be staged in a way that they can easily egress the scene
- As personnel arrive, command, transport, triage, and treatment sectors will be established. ALS personnel should be placed in triage & treatment sectors as available

Triage

- The first due ambulance crew will establish command and being triage:
    - Triage will be conducted using the RAMP system (next page)
    - Any pulseless patient will be black tagged without exception

Transport

- The first due EMS crew will not transport patients
- Next arriving units will position their units so that:
    - They are not blocking transport unit
    - They are able to rapidly egress the area (back in or park along road)
- The most critical trauma patient will be transported to St. Joseph's
- The second & third most critical trauma patients will be transported to Providence-Everett
- Further patient destinations will be determined based on hospital capability
- All green tagged patients will be transported to PIMC or Island Hospital for further treatment/triage as patient flow allows


RAMP Triage Model
(Rapid Assessment of Mentation and Pulse)
Casualty without signs of obvious death
Life Saving Interventions
*Control Massive Hemorrhage
*Open Airway
*Chest Decompression
Casualty follows commands?
Yes
No
Radial pulse present?
Radial pulse present?
Yes
No
Yes
No
Delayed
Urgent
Urgent
Expectant/ Deceased

TERMINATION OF RESUSCITATION

Non-traumatic cardiac arrest

All EMS Providers

- **Request ALS help but may consider Termination of Resuscitation (TOR) prior to ALS arrival if ALS has more than a 10 min ETA with all of the following:**
  - Arrest was not witnessed by EMS providers or first responder
  - No ROSC obtained at any time
  - No AED shocks were delivered
- **CONTACT MEDICAL CONTROL**

ALS Providers

- **Termination of resuscitation - Ensure the following have been completed:**
  - Arrest was not witnessed
  - No bystander CPR was provided
  - No ROSC after at least 20 minutes of ALS care
  - No defibrillator shocks were delivered
  - No neurologic activity present
  - EtCO2 < 10 mmHg
  - No cardiac activity noted on ultrasound
  - Definitive airway management for cases thought to be of respiratory origin
  - No reversible cause suspected (H's/T's addressed)

Exceptions – consult MEDICAL CONTROL prior to terminating efforts:

- Age <18
- Hypothermia
- Late term pregnancy
- Unsafe environment to stop efforts
- Poisoning/overdose other than opiates
- Pediatric arrest

Neonatal Arrest:

- APGAR score of 0 at 10 minutes with family and MEDICAL CONTROL approval
- Consider withholding resuscitation when the family indicates they have been counseled by their provider that the neonate has a congenital disorder and is not expected to survive

PROCEDURES

Airway Management –Intubation

Indications*:*

- Patients unable to protect their airway or patients that are unable to oxygenate or ventilate

Preparation

- **Ensure patient is adequately resuscitated prior to intubation**
- Have suction running and placed at head of bed
- Place head of bed at 15 degrees
- Pre-Oxygenate & resuscitate for at least three minutes after sedation and before intubation atttempt
- Utilize 2 sources of oxygen (BVM/ NRB **AND** NC) at 15 lpm
- 2 person BVM technique with PEEP valve set at 5
- Continuous O2, ETCO2, and cardiac monitoring

Procedure

- Ketamine 1- 3 mg / kg OR
- Etomidate 10 – 20 mg **AND**
- Rocuronium 1mg / kg ***if needed***
- Pass an appropriately sized ETT into the trachea.
- No more than two attempts will be made before transitioning to an alternative airway device
- **It the patient's SpO2 drops below 88%, stop procedure and transition to BVM**

Verification

- Continuous ETCO2 monitoring **MUST** be performed
- Utilize at least three methods to confirm endotracheal tube placement (auscultation, chest rise, tube fogging)

Reassess immediately and frequently

- Assessment must include full set of vital signs, lung sounds, O2 saturation, and ETCO2

Document

- Description of all attempts at airway management
  - ***An attempt shall be defined as any time a laryngoscopy blade passes the lips***
  - CO2 numerical values and waveforms must be recorded SPO2 before, during, and after intubation must be recorded Tube depth at time of placement, after moves, and at transfer of care must be recorded

A small percentage of patients may respond well to medication & resuscitation, obviating the need for endotracheal intubation.

Airway Management – Difficult Airway

Indications: Airway management in a patient with predictable or proven barriers

- LEMON score
- Provider is unable to secure an endotracheal tube after two or three unsuccessful laryngoscopy attempts
- O2 saturation <88% at onset of, during, or in between laryngoscopy attempts
- The need for, or use of needle or surgical cricothyrotomy
- Use of a supraglottic airway after an unsuccessful laryngoscopy attempt

Predicting difficulty

LEON score (one point each, total >2 predicts difficult airway)

- LOOK EXTERNALLY
  - Large incisors,
  - Beard
  - Large tongue
  - Trauma
- EVALUATE
  - Inter-incision distance < 3 finger breadths
  - Hyoid to mental distance < 3 finger breadths
  - Thyroid to hyoid distance < 2 finger breadths
- OBSTRUCTION
  - Trauma, foreign body, OSA
- NECK MOBILITY
  - C-spine restriction, kyphosis

Strategy

- Predict difficulty and prepare backup plans accordingly
- Utilize all tools and skills, have the most experienced provider attempt
- Routine preparation and use of the Bougie is expected
- Have video laryngoscopy & cric kit at head of bed
- Mark midline of neck and prep with chlorhexidine

Document

- Description of all attempts at airway management
- SPO2 & ETCO2 before, during, and after intubation attempts
- Complete the Difficult Airway QA report form

Cricothyrotomy (Surgical) – Adult Only

ALS Providers Surgical placement of an ET tube through the cricothyroid membrane ***Indications*** ● Adult with immediate life-threatening airway compromise ● Unable to ventilate or oxygenate by other means ***Contraindications*** ● Pediatric patients	
Sterile technique	
Proper equipment ● 6.0 endotracheal tube ● 10 blade scalpel ● Bougie	
Identify landmarks ● The cricothyroid membrane is located midline on the anterior neck between the inferior thyroid cartilage and above the cricoid ring	
Insertion ● Make a generous vertical incision through the skin over the cricothyroid membrane ● Use your finger to dissect/expose the cricoid membrane' ● Insert the scalpel horizontally into the cricoid membrane ● Rotate the scalpel 90 degrees. ● Insert the Bougie next to the scalpel inferiorly towards the carina until resistance is met ● Pass a 6-0 ETT over the Bougie to the black line ● Inflate the balloon ● Remove the Bougie ● Secure the ETT and watch for kinking of the tube	
Reassess immediately and frequently ● Assessment may include full set of vital signs, lung sounds, O2 saturation, and ETCO2	
Document ● Description of all attempts at airway management ● SPO2 before, during, and after procedure ● Patient response to procedure	

Cricothyrotomy (Needle – aka Needle Cric) – Pediatric Only

ALS Providers Needle puncture through the cricothyroid membrane to facilitate ventilation ***Indications*** ● Pediatric patient with immediate life-threatening airway compromise ● Unable to ventilate or oxygenate by other means ***Contraindications*** ● Non-pediatric patients	
Sterile technique	
Proper equipment ● 15 mm adapter from a 3.0 tube or Jet Ventilator ● 12-gauge needle decompression needle	
Identify landmarks ● The cricothyroid membrane is located midline on the anterior neck between the inferior thyroid cartilage and above the cricoid ring	
Insertion ● Draw up 2.5ml of lactated ringers with a 5ml syringe and attach to an appropriate gauge catheter-over-needle device ● Insert the needle through the cricothyroid membrane at a 45 to 60-degree angle towards the feet while aspirating for air ● When air return is seen, advance the catheter over the needle ● Remove the needle and syringe ● Attach the adapter to the catheter and ventilate. ● Ventilate through the catheter with BVM OR Jet Device at highest concentration of oxygen until adequate chest rise ● Allow for adequate exhalation (OPA / NPA) ● Secure the catheter	
Reassess immediately and frequently ● Assessment may include full set of vital signs, lung sounds, O2 saturation, and ETCO2	
Document ● Description of all attempts at airway management ● SPO2 before, during, and after procedure ● Patient response to procedure	

Continuous Positive Airway Pressure (CPAP)

Indications: Continuous airway pressure for patients with impending failure

Conscious patients with severe respiratory distress due to:

- Congestive heart failure (CHF) with pulmonary edema
- Near drowning with pulmonary edema
- Exacerbation of asthma
- Exacerbations of Chronic Obstructive Pulmonary Disease (COPD)

Contraindications

- Patient less than 12 yrs old
- Unable to maintain airway
- Unconscious
- Respiratory arrest or inadequate respiratory effort
- Facial trauma or deformities
- Neck or chest trauma
- Recent GI surgery or GI bleeding
- Nausea or emesis

Notes

- Start CPAP at 5 cmH2O for asthma & COPD, 10 cmH20 for CHF & near drowning.
- Continuous ETCO2 monitoring MUST be performed on all CPAP patients
- Advise receiving hospital ASAP so they can prepare
- Monitor patient for gastric distension

Reassess:

- Assessment will include full set of vital signs after application and every 5 minutes, lung sounds, and continuous SpO2 and ETCO2

Document

- EtCO2 numerical values and waveforms shall be recorded
- SpO2 before, during, and after CPAP placement shall be recorded
- Patient response to treatment shall be recorded

SUPRAGLOTIC AIRWAY PLACEMENT

BLS and Above Providers **(EMTs with an SGA endorsement)** **Indications :** ● Unconscious patient without a gag or cough reflex ● Rescue device in a difficult airway **Contraindications :** ● Intact gag reflex ● Ingestion of caustic material	
Preparation ● Pre-Oxygenate – Utilize 2 sources of Oxygen (BVM/NRB at 15 lpm and nasal cannula at 15 lpm for a minimum of 3 minutes unless unable to maintain SpO2 above 92% ● Assess for gag reflex ● ○ Check for and remove if possible, any dentures/plates	
Insertion ● Perform a head tilt chin lift maneuver ● Suction prior to insertion ● Insert the supraglottic airway following the natural curvature of the airway until properly seated (teeth between marks on tube) ● If significant resistance is encountered remove the supraglottic airway, ventilate and re-attempt	
Verification ● Attach a BVM and ventilate the patient ● Assess lung sounds and chest rise ● Assess SPO2 ● Placement should be reassessed every time the patient is moved	
Reassess immediately and frequently ● Assessment includes full set of vital signs, lung sounds, & SpO2	
Document ● Description of all attempts at airway management ● SPO2 before, during, and after placement	

Code	Description	Size	Weight	Box Qty.
8205000	i-gel, large adult, supraglottic airway	5	90+kg	25
8204000	i-gel, medium adult, supraglottic airway	4	50-90kg	25
8203000	i-gel, small adult, supraglottic airway	3	30-60kg	25
8225000	i-gel, large paediatric, supraglottic airway	2.5	25-35kg	10
8202000	i-gel, small paediatric, supraglottic airway	2	10-25kg	10
8215000	i-gel, infant, supraglottic airway	1.5	5-12kg	10
8201000	i-gel, neonate, supraglottic airway	1	2-5kg	10

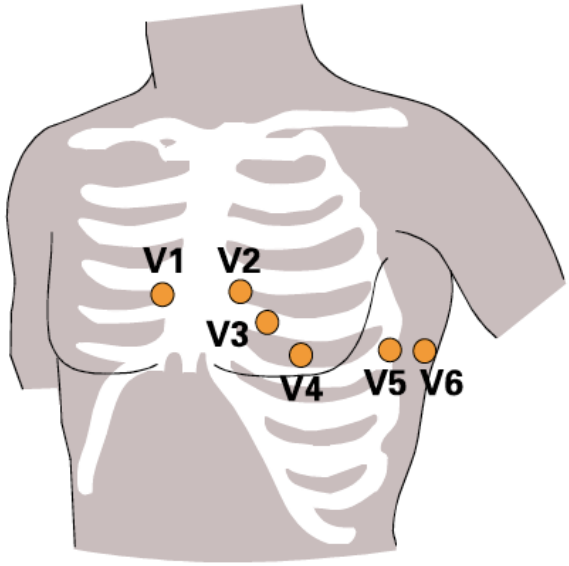
12 LEAD ECG ACQUISITION

Clinical Indications: (Perform within the first 10 minutes of patient evaluation)

- Suspected cardiac event
- Electrical Injuries
- Syncope
- CHF

Procedure:

- If patient is hemodynamically **AB**normal, definitive treatment is the priority. If patient is hemodynamically normal or normal after treatment, perform a 12 Lead EKG.
- Expose chest and prep as necessary. Modesty of the patient should be respected.
- Apply chest leads and extremity leads using the following landmarks:
  - RA – Right Arm
  - LA – Left Arm
  - RL – Right Leg
  - LL – Left Leg
  - V1 -4th intercostal space at right sternal border.
  - V2 -4th intercostal space at left sternal border.
  - V3 -Directly between V2 and V4.
  - V4 -5th intercostal space at midclavicular line.
  - V5 -Level with V4 at left anterior axillary line.
  - V6 -Level with V5 at left midaxillary line.



- Have the Paramedic or MPD interpret the EKG and if STEMI is suspected, transmit the EKG to the interventional cardiology facility

Wall affected	Leads	Artery(s) involved	Reciprocal changes
Anterior	$V_2 – V_4$	Left coronary artery, Left anterior descending (LAD)	II, III, AVF
Anterolateral	I, AVL, $V_3 – V_6$	Left anterior descending (LAD) and diagonal branches, circumflex and marginal branches	II, III, AVF
Anteroseptal	$V_1 – V_4$	Left anterior descending (LAD)	
Inferior	II, III, AVF	Right coronary artery (RCA)	I, AVL
Lateral	I, AVL, V_5, V_6	Circumflex branch or left coronary artery	II, III, AVF
Posterior	V_8, V_9	Right coronary artery (RCA) or circumflex artery	$V_1 – V_4$ ST segment depression (R > S in V_1 and V_2).
Right ventricular	V_4R	Right coronary artery (RCA)	-----

CARDIAC PACING

Indications:
Symptomatic bradycardia

Procedure:

- Place pads in AP position
- Push “Pacer” on monitor and set to “Demand” mode.
- Set rate to 80 or to 10 bpm above patient’s intrinsic rate, whichever is higher
- Set mA to 80
- Start pacing and increase mA until electrical capture on monitor and mechanical capture as evidenced by femoral or radial pulse
- If capture is not achieved by 130 mA, reassess electrode positioning and consider adjusting pad position then repeat above
- Once capture is achieved, set current at 10 mA above level of capture
- If symptoms have not improved (i.e., improvement of mental status, dizziness,
- chest pain, SOB, etc), increase the rate until improvement
- Sedate as needed

SYNCHRONIZED CARDIOVERSION

Indication: Hemodynamically **AB**normal wide or narrow tachycardia

Procedure:

- Synchronize machine prior to each shock.
- Confirm machine is synchronizing with upside down triangles above each T wave
- Deliver first shock at 100J
- Increase by 50J for each subsequent shock (max 200J)
- Sedate as clinical condition and acuity permit

FRACTURE & DISLOCATION REDUCTION

Indications: Deformities (fractures) with distal neurovascular compromise and estimated transport to definitive greater than two hours should be reduced in an attempt to regain circulation.

ALS Providers

- **Contact MEDICAL CONTROL**
- Identify site of injury
- Assess for compromised distal circulation, sensation and motor function
- Irrigate open fractures per traumatic wound protocol
- Consider pain control & sedation per protocol
- Grasp extremity above and below injury (use two rescuers if available)
- Apply steady gentle traction below (distal to) injury in direction of the long axis of limb
- Continue until patient complains of intolerable pain, resistance is felt, or reduction to anatomic position is accomplished
- Apply splint
- Reassess distal circulation, sensation and motor function
- Document procedure
- Patient **MUST** be transported by to physician's office or hospital for post-reduction evaluation

INJECTION, INTRAMUSCULAR / VACCINATION

Indications: A need to administer an intramuscular medication or a vaccination during a declared Public Health Emergency in accordance with the Washington State Department of Health Policy Statement EMS20-01 EMS Providers and Emergency Vaccinations.

Contraindications:

- Infection at or near insertion site
- Allergy / hypersensitivity to medication / vaccine

Procedure:

- Scrub the skin vigorously with alcohol, betadine, or chlorhexidine & allow to air dry
- Hold a large portion of the muscle, do not pinch the skin
- Insert the needle swiftly at a 90° angle to the skin
- Depress the plunger in a slow, steady motion until the desired amount is injected
- Place a bandage over the site as needed

Preferred sites:

- Triceps:
  - Posterior upper arm
- Lateral Gluteus Maximus:
  - Lateral buttock, upper outer quadrant
- Lateral Thigh:
  - Lateral portion of mid-thigh

References:

- DOH Policy Statement EMS 20-1
- Chapters 18.71 RCW; 18.73 RCW; and 38.52 RCW; RCW 35.21.930 Chapter 246-976 WAC

INTRAOSSEOUS ACCESS

Indications: A need for access for fluid or medication administration.

Contraindications:

- Infection at or near insertion site
- Suspected or known fracture of the extremity being used
- History of orthopedic surgery near insertion site (joint replacement, hardware in place)

Preferred sites:

- Humeral Head:
  - Adult/Pediatric: Anterior humeral head at base of greater tubercle (approximately 2 finger widths inferior to line between the coracoid process and the acromion) Adduct humerus (palm over abdomen) and position elbow on ground/gurney
- Proximal tibia:
  - Adult: 1 finger width medial to the tibial tuberosity
  - Pediatric:
    - If tibial tuberosity CAN be palpated: 1 finger width below the tuberosity and then medial along the flat aspect of the tibia
  - If tibial tuberosity CANNOT be palpated: 2 finger widths below the patella and then medial along the flat aspect of the tibia
- Distal Femur:
  - Secure the leg out-stretched to ensure the knee does not bend
  - Identify the patella by palpation. The insertion site is just proximal to the patella (maximum 1cm) and approximately 1–2cm medial to midline

Special Considerations:

- All fluids and medications may be given by intraosseous route
- Pressure infusion is required via pressure bag. Flush catheter with a 10 ml saline syringe prior to fluid challenge
- When placing an IO in a conscious patient:
  - Administer Lidocaine 40 mg (2 mL of 2% Lidocaine) and allow it to sit in the catheter for one minute, then flush with 10 ml saline. May repeat with Lidocaine 20 mg (Pediatric 0.5 mg/kg)

  Removing an IO:
  - An IO needle may be removed in the field if the patient does not require transport Puncture site should be properly cleaned and covered with a Band-Aid

Removal:

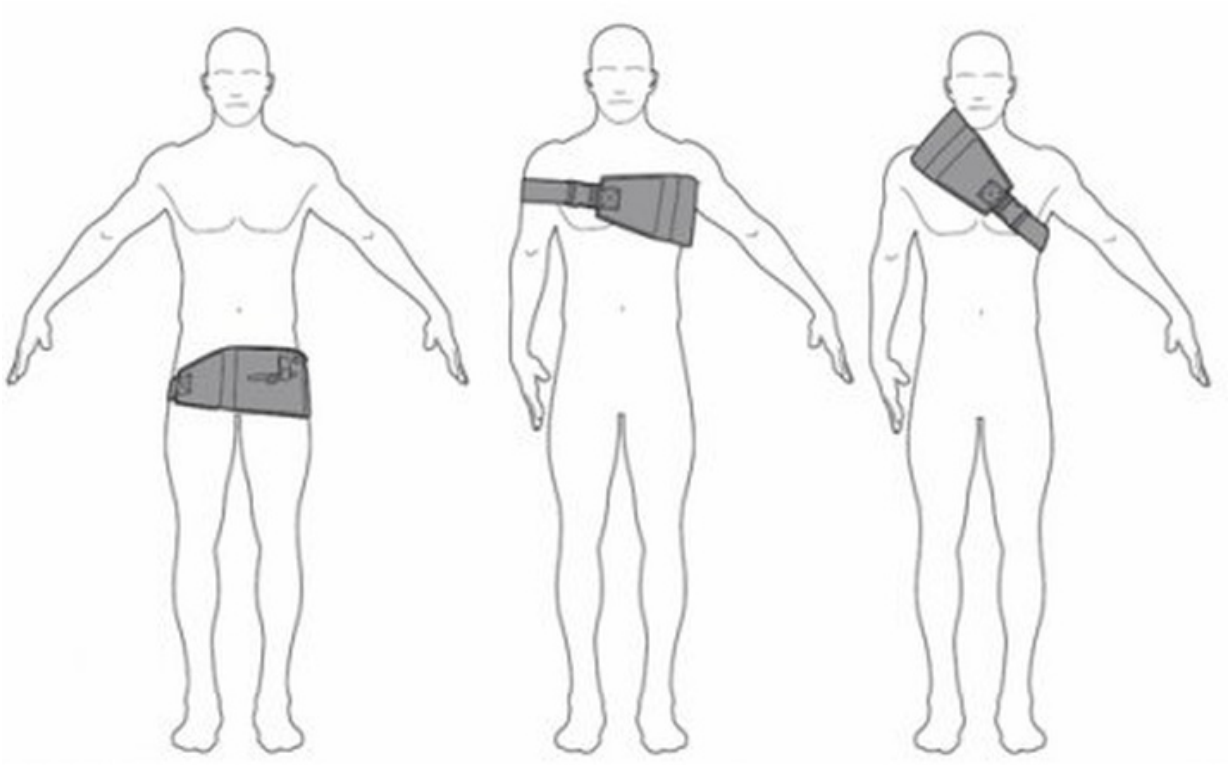
- Attach a 10 mL syringe to the needle's Leur lock connection.
- Stabilize the patient's extremity
- Rotate the catheter clockwise while pulling straight back
- **Do not rock the catheter while removing. Rocking or bending the catheter may cause the catheter to separate from the hub.**
- Place catheter in sharps container

JUNCTIONAL TOURNIQUET

Indications: Arterial bleeding from the axilla, clavicle, or groin that is unable to be controlled with packing, direct pressure, or tourniquet.

All EMS Providers (with MPD specialized training):

- Apply direct pressure to bleeding site with hands (Do NOT place knee over injury)
- Pack the wound with Combat Gauze, Celox, or Kerlix as tight as possible
- Center the compression device over the bleeding area
- Remove all slack from the belt prior to activating / inflating the compression device
- Tighten / inflate until bleeding has stopped
- Rapidly transport patient to trauma center



NEBULIZER / METERED DOSE INHALER

Indications: Asthma attack, anaphylaxis

MDI Dose:
- 1 – 4 MDI actuations, then reassess peak expiratory flow using a peak flow meter

MDI Procedure:
- Shake the MDI to mix the medication
- Uncap Inhaler
- Prime once before first use
- Attach inhaler to spacer (if available)
    - Remove the caps from the mouthpiece on the inhaler and on the spacer
    - Put the inhaler mouthpiece into the wider rubber-sealed end of the spacer

Taking an Inhaled Treatment:
- Instruct patient to gently breathe out
- Have patient put the mouthpiece in their teeth and close their lips around it
- Press the inhaler **once** while the patient inhales
- Instruct the patient to hold their breath for up to ten seconds. This allows the medication time to deposit in the airways
- Advise the patient to resume normal breathing
- Repeat steps 1 – 6 when more than one puff is required (up to 4 puffs)
- Use the Peak Flow Meter (if available) to assess improvement

Albuterol Hand-Held Nebulizer

- Pour 2mL of albuterol into collection chamber
- Turn oxygen to 6 lpm
- Instruct patient to breath normally through inhaler

Adult Dosage:
- 2.5 mg in 2ml saline administered by nebulizer
- May administer up to 7.5 mg without contacting MEDICAL CONTROL

Pediatric Dosage:
- Less than 10kg or under 12 months
    - 1.25 mg in 2ml saline administered by nebulizer
- 10-35 kg (12 months to 10 yrs)
    - 2.5 mg in 2 mL saline administered by nebulizer
- Greater than 35mg or over age 10
    - 2.5 mg in 2 mL saline administered by nebulizer
    - May administer up to 2.5 mg without contacting MEDICAL CONTROL

NOXIOUS STIMULI

Indications: To determine if a patient is responsive to painful or noxious stimuli

All EMS Providers

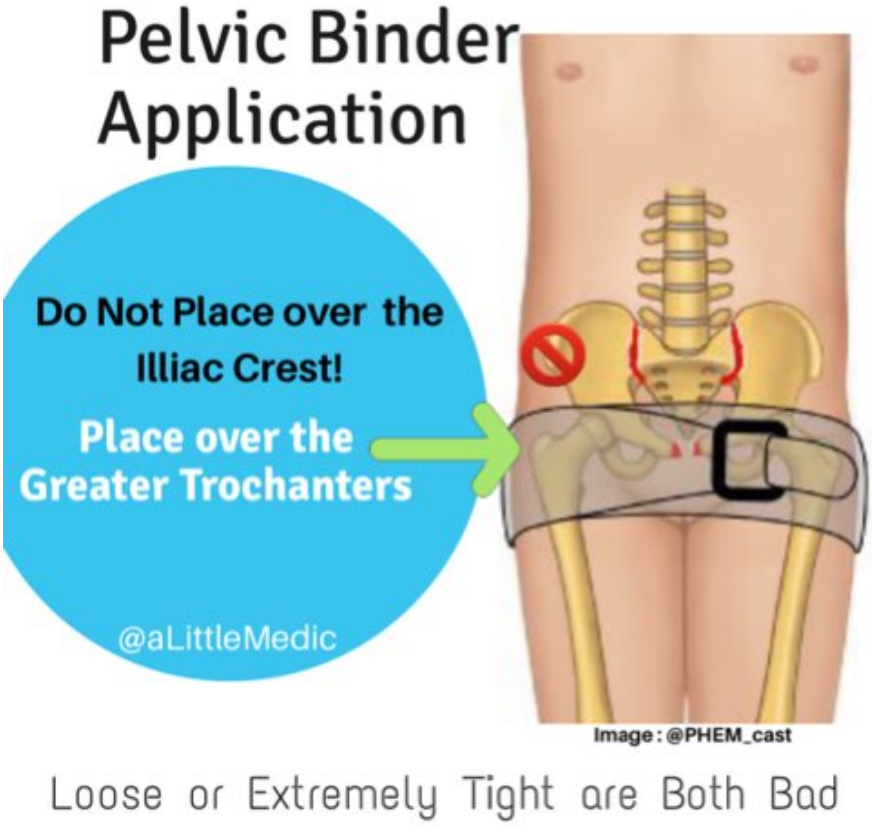
- There are two approved methods of delivering noxious stimuli:
  - Firm pressure behind the earlobe
  - Firm pressure on the fingernail bed
- Apply firm pressure to the area for up to five seconds in order to assess a response to painful / noxious stimulation. This stimulation may be applied up to twice for no longer than 5 seconds each time during the initial evaluation and infrequently thereafter if monitoring of the level of consciousness is necessary.
- Prolonged application of stimuli, excessive number of applications, chemical stimuli, sternal rubs, or eyeball pressure are **NOT** indicated nor approved by the Medical Program Director.

PELVIC BINDER

Indications: Suspicion of open book pelvic fracture due to mechanism (straddle injury) with hemodynamic instability

All EMS Providers

- Pelvis should be stabilized prior to movement
- DO NOT roll patient
- Remove clothing prior to binder placement
- To apply binder:
    - Bring knees, ankles, and toes together and secure
    - Slide binder under patient's knees
    - Locate & center binder over greater trochanters
    - Hand tighten until unable to fit finger underneath or per manufacturer's instructions
    - Recheck binder with any patient movement



POINT OF CARE HCT/LAC TESTING

Indications: Patients with signs or symptoms suspicious for sepsis and/or blood loss to include unexplained weakness/dizziness, melena, trauma, SIRS criteria.

All EMS Providers

- Obtain consent for procedure prior to initiating testing. If patient is unconscious or does not demonstrate decisional capacity, proceed with implied consent
- Remove appropriate strip and insert in meter (red – Hct, purple – lactate)
- Obtain blood sample from IV draw and place in end of strip
- If both lactate and Hct are to be measured, measure the lactate level first
- Record all findings on the information sheet

Positive Findings

- Lactate level > 4
- Hct < 21 WITHOUT symptoms
- Hct < 27 WITH symptoms

POSTURAL VITAL SIGNS

Indications: Evaluation of a patient that reports weakness, dizziness, or other symptoms of hypotension when ambulating.

Contraindications:

- Symptomatic hypotension while supine
- Trauma
- Cardiac events
- Bleeding (GI, OB/GYN related, etc)

All EMS Providers

- Place patient in the supine position for two minutes. Obtain heart rate and blood pressure
- Slowly bring the patient to the sitting, then standing, position
- If patient becomes weak, lightheaded, or experiences a syncopal event at any time, move the patient back to the supine position
- Place patient in the standing position for one minute. Obtain heart rate and blood pressure

Positive Findings

- Increase in heart rate of greater than 20% upon standing
- Decrease in systolic blood pressure of greater than 20% upon standing
- Weakness, dizziness, lightheadedness, syncope at any point

REDUCTION OF DISLOCATED FINGER OR TOE

Indications (ALL must be present):

- Greater than two hours transport time to definitive care
- Evidence of distal neurovascular compromise
- Obvious deformity to proximal or distal interphalangeal joint
- Patient with limited ability to bend finger secondary to pain
- Procedure does not delay care & transportation of life-threatening injuries

ALS Providers (with MPD specialized training):

- **Contact MEDICAL CONTROL**
- Provide analgesia & sedation, if indicated, per protocol
- If laceration or exposed bone, irrigate per traumatic wound protocol
- Grasp distal portion of finger securely with gauze
- Stabilize proximal portion of finger and hand per included diagram
- Apply firm, steady, longitudinal traction while pushing distal bone back into place
- Reduction is confirmed by “clunk”, resolution of deformity and return of motion
- If successful, digit should be buddy taped and padded
- If unsuccessful or not attempted, finger should be splinted in the position found
- Reassess distal circulation, sensation and motor function
- Patient **MUST** be transported by to physician’s office or hospital for post-reduction evaluation

REDUCTION OF DISLOCATED PATELLA

Indications (ALL must be present):

- Greater than two hours transport time to definitive care
- Evidence of distal neurovascular compromise
- History of indirect "lever-type" trauma to knee rather than direct blow
- Obvious lateral displacement of patella
- Knee held flexed (bent) and limited ability to straighten knee because of pain
- No physical findings of direct knee trauma (lacerations/contusions/abrasions)
- Procedure does not delay care and transportation of life-threatening injuries

ALS Providers (with MPD specialized training):

- **Contact MEDICAL CONTROL**
- Provide analgesia & sedation, if indicated, per protocol
- Apply steady, gentle pressure from lateral (outside) to medial patella and simultaneously straighten leg
- If successful, knee should be immobilized in extension (straight)
- If there are no other extremity injuries that prevent walking, patient may ambulate with immobilization (e.g., pad wrapped and secured around leg). Minimize walking unless necessary to facilitate evacuation and patient states there is no significant pain
- If unsuccessful, time/injuries do not permit reduction, or all indications are not met, the knee should be immobilized in the position found
- Reassess distal circulation, sensation, and motor function
- Patient **MUST** be transported by to physician's office or hospital for post-reduction evaluation

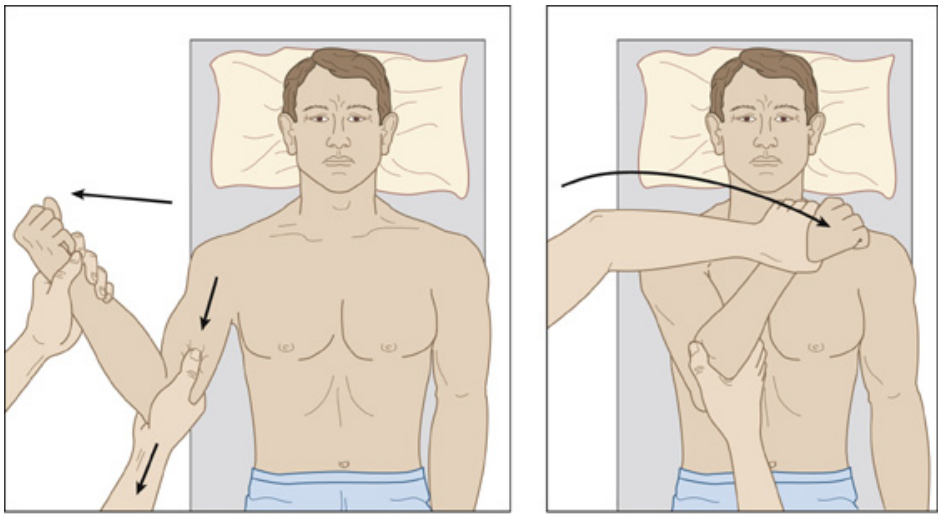
REDUCTION OF DISLOCATED SHOULDER

Indications (ALL must be present):

- Greater than two hours transport time to definitive care
- Evidence of distal neurovascular compromise
- History of indirect "lever-type" trauma to arm rather than blow directly to shoulder
- Clear deformity to shoulder (loss of rounded appearance of lateral shoulder)
- No physical findings of direct shoulder trauma (e.g. shoulder contusions/abrasions)
- No other suspected fractures to same arm
- Patient with limited ability to move shoulder because of pain
- Procedure does not delay care and transportation of life-threatening injuries

ALS Providers (with MPD specialized training):

- **Contact MEDICAL CONTROL**
- Provide analgesia & sedation, if indicated, per protocol
- Place patient on unaffected side
- Continually remind patient to relax shoulder muscles
- Apply gentle steady traction away from shoulder by grasping wrist and slowly lift the entire arm away from the body to 90 degrees. Slowly lift patient using their body weight for countertraction. This may take several minutes. Maintain traction at all times
- Continue steady traction until reduction is felt/heard, patient reports relief, or five minutes have elapsed
- If reduction is accomplished, arm should be moveable into position against body
- Apply sling and swath
- If reduction is not accomplished, arm should be slowly moved into original position, if tolerated, padding applied between arm and body, and arm secured for transport
- Reassess distal circulation, sensation and motor function
- Patient **MUST** be transported by to physician's office or hospital for post-reduction evaluation



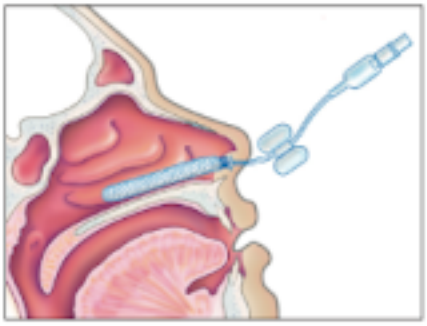
A B

RAPID RHINO

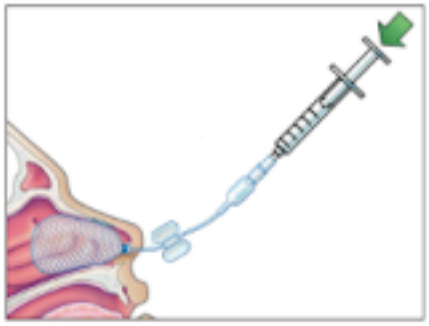
Indications: Persistent severe epistaxis after pressure and nasal spray

ALS Providers:

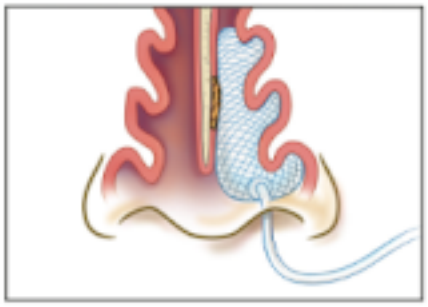
1 Soak in sterile water for a FULL 30 seconds.



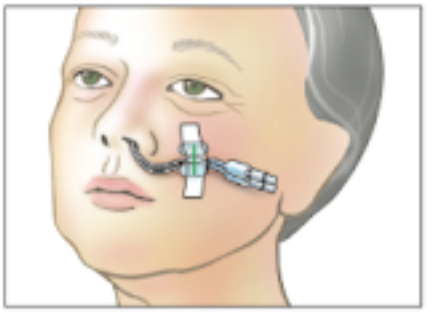
2 Insert along superior aspect of the hard palate until the blue indicator is past the nares.



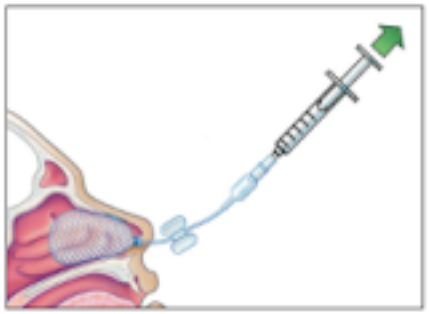
3 Using a 20ml syringe, inflate the Rapid Rhino device with AIR only. Monitor the pilot cuff for direct tactile feedback; Stop inflation when the pilot cuff becomes rounded and feels firm when squeezed.



4 Inflate the cuff to provide a gentle, low-pressure tamponade delivering the CMC fabric directly to the bleed site.



5 Reassess after 15-20 minutes; reinflate to ensure proper pressure (if necessary) and tape to patient's cheek away from the upper lip.



6 Removal should occur 24-72 hours after treatment.

TASER BARB / PROBE REMOVAL

Indications:

- Patient that has been apprehended by law enforcement, is in custody, compliant, and needs a taser probe(s) removed.

All EMS Providers:

- Use PPE and ensure procedure is safe to perform
- Prior to removal inform all caregivers that you are about to remove the contaminated sharp
- Do not remove if barb is in eye, genitalia, or face. Transport to hospital
- Be careful to avoid accidental needle sticks when removing probes
- Place hand in the form of a “V” around the Taser dart in order to stabilize the surrounding skin and to keep loose skin from coming up with the dart. Firmly grasp the rear of the probe and with one smooth hard jerk, remove probe from subject’s skin
- Examine the probe and the patient closely in an effort to make sure the probe tip did not break off during removal. Accordingly, it is important that the person removing the barb visually inspect it to make sure that the tip is fully intact. If the barb remains in the subject, the patient will be transported to a medical facility for removal
- Promptly dispose of the probe immediately after removal and examination to ensure that it is intact. Place in an appropriate sharps disposal container. If the dart falls into the law enforcement chain of custody, ensure it is placed in an appropriate container that contains no other sharps
- Provide wound care by cleansing the affected area with water and apply a Band-Aid
- Inform patient of basic wound care and the need to seek additional care in event that signs of infection occur (redness, fever, drainage, swelling)
- Clear and thorough documentation is required in the body of the report narrative whether or not EMS transports the patient
- If transport is necessary, transport to the closest appropriate hospital

THORACOSTOMY, NEEDLE

Indications:
- Traumatic cardiac arrest
- Signs of tension pneumothorax **with severe hemodynamic compromise:**
  - Acute respiratory distress or failure AND/OR
  - Hypotension not responsive to fluid bolus

Contraindications
- None in above situation

Equipment
- 4.5-8 cm thoracostomy needle
- Largest gauge available angiocath is acceptable however should be minimum 4.5 cm in length

Identify landmarks
- Mid-axillary line – 5th intercostal space (preferred)
- Mid-clavicular line – 2nd or 3rd intercostal space

Insertion
- Insert at 90-degree angle
- Keep insertion superior to the rib
- Listen for escaping air
- Reassess immediately and then at least every five minutes
- Respiratory distress level
- Lung sounds
- Full set of vital signs
- Continuous ETCO2 monitoring

Document
- Time of procedure
- Physical exam findings before and after procedure
- Patient response to the procedure

When in doubt contact MEDICAL CONTROL

THORACOSTOMY, FINGER

Indications:

- Traumatic cardiac arrest
- Signs of tension pneumothorax **with severe hemodynamic compromise:**
  - Acute respiratory distress or failure AND/OR
  - Hypotension not responsive to fluid bolus

Contraindications

- None in above situation

ALS Providers (with MPD specialized training):

Equipment:

- Sterile gloves
- Eye protection/face shield
- Chlorhexidine prep
- #10 blade scalpel
- Hemostats or Kelly clamp
- Skin marking pen

Procedure:

- Utilize universal precautions including face and eye protection
- With arm abducted, find and mark the area over the fifth rib at the midaxillary line (within the triangle of safety). The mark for incision should be above the nipple line, or at the lower edge of the axillary hair
- Clean the area as best as possible with an antiseptic swab stick in a circular motion starting from the inside and working out
- Make a 2-3 inch transverse incision through the skin along the 5^{th} rib at the marked location anterior to the mid axillary line
- With large forceps, rapidly dissect over the rib and through the intercostal muscles
- Push through the pleura and open the forceps
- With the forceps open, retract from the chest
- Insert finger along the track into the pleural cavity and perform sweep
- Assess for release of air or blood
- Each wound should be circled with a permanent marker and labeled EMS-R or EMS-L to identify incisions made by EMS in the event of autopsy or criminal investigation
- Apply chest seal over incision
- If patient redevelops tension pneumothorax, remove chest seal and re-insert finger into incision to relieve pressure.

ULTRASOUND

Indication: Multi-system trauma, traumatic cardiac arrest, medical cardiac arrest, venous access

ALS Providers (with MPD specialized training):

- All conditions
- Connect ultrasound device to phone or tablet and launch app
- If cellular service available, sync with MPD via the Butterfly IQ app
- All images and videos should be saved in the Butterfly IQ app and sent to the MPD via the app (HIPPA compliant)
- Apply generous amount of ultrasound gel to target area & probe
- Select appropriate mode
- Orient blue dot to patient's right (when horizontal) or patient's head (when vertical)

Multi-System Trauma / Traumatic Cardiac Arrest

- Select "abdominal" mode
- Set starting depth to 15cm. Adjust depth and gain as needed
- Note that the exterior kidney is usually dark and circular, this is not a positive finding. (See reference images)
- With the probe oriented in the vertical position, fan across the RUQ at the mid axillary line to identify the liver & kidney. If a dark stripe is noted between the two, it is a positive finding.
- With the probe oriented in the vertical position, fan across the LUQ at the posterior axillary line to identify the spleen & kidney. If a dark stripe is noted between the two, it is a positive finding.
- With the probe oriented in the horizontal position, fan across the lower pelvis at the midline to identify the bladder. If a dark stripe is noted outside of the bladder wall, it is a positive finding
- With the probe oriented in the horizontal position, fan superiorly across the lower left chest just left of the xiphoid process to identify the heart. The probe will need to be very shallow and will require posterior pressure. If a dark stripe is noted between the heart and the pericardium, it is a positive finding.

A dark stripe in any of these locations denotes a positive FAST ultrasound.

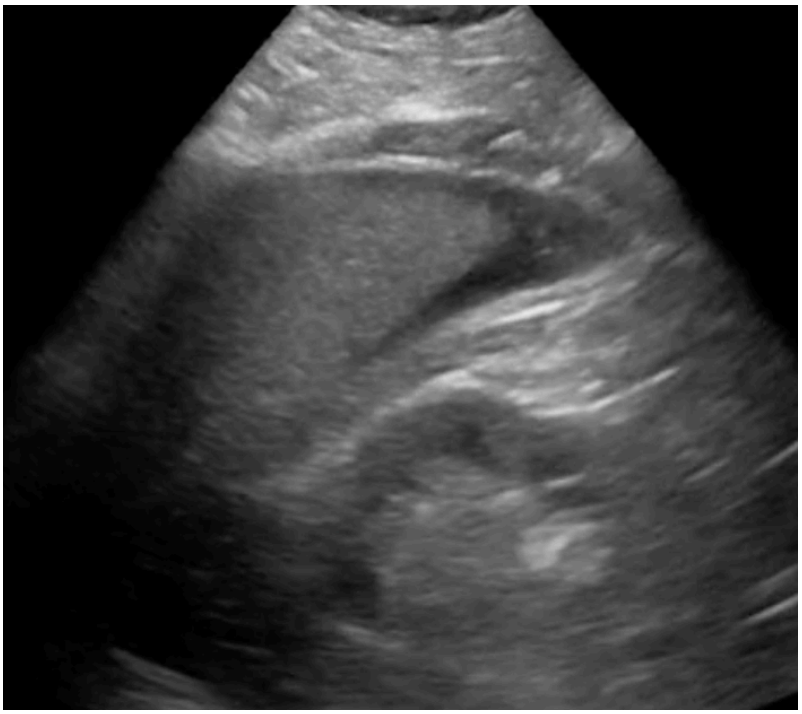
- Change the probe to the "lung" setting. Set the starting depth to 12cm. Adjust the depth and gain as needed. With the probe oriented in the vertical position, fan across the bilateral upper chest at the mid clavicular line at the second intercostal space. Watch for lung sliding along the pleural wall. If no sliding is noted, it is a positive finding (pneumothorax). If the patient is in extremis, proceed to "Finger Thoracostomy" protocol. If the patient is hemodynamically normal, continue to monitor.

NORMAL RUQ FAST

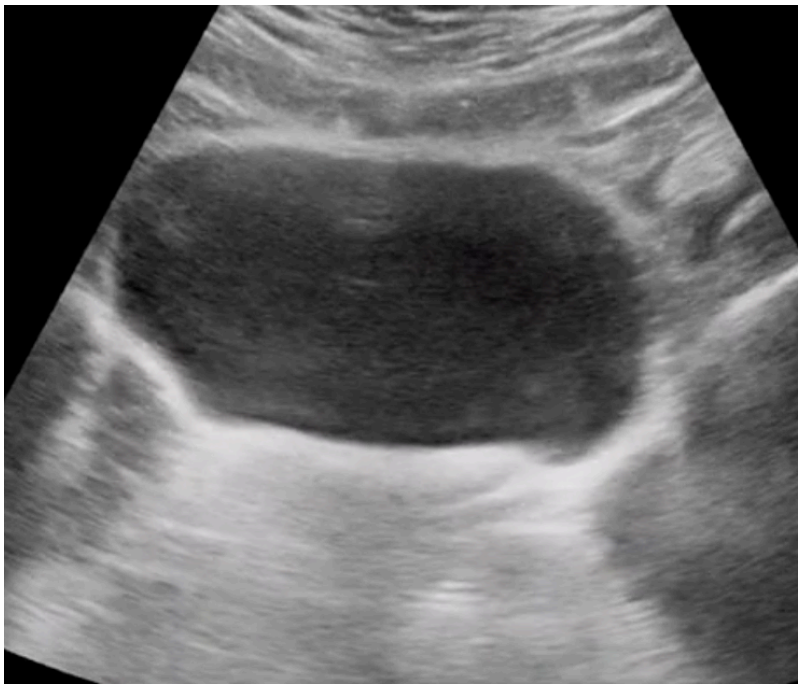
POSITIVE RUQ FAST

NORMAL LUQ FAST

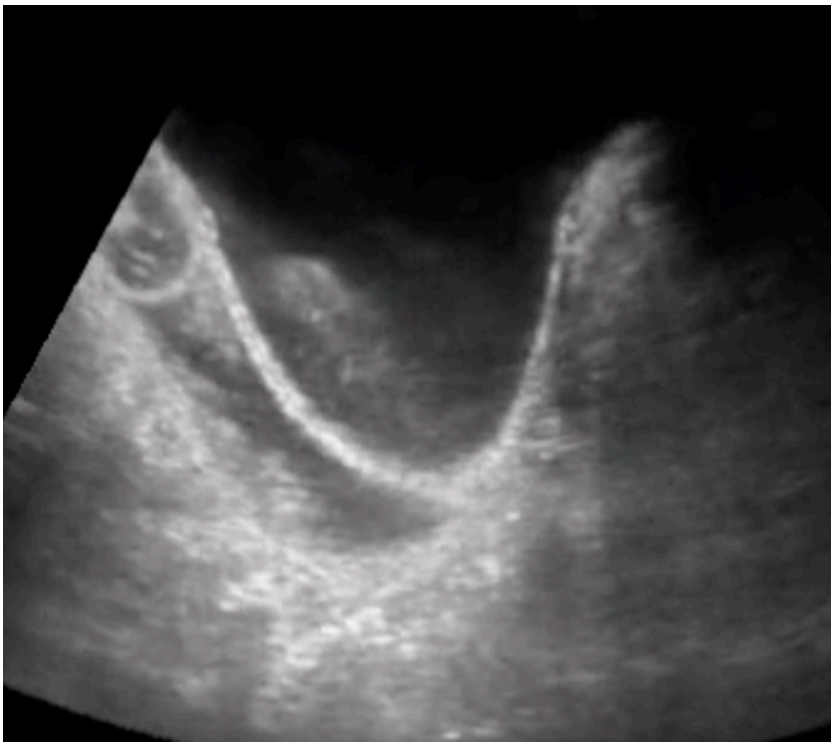
POSITIVE LUQ FAST



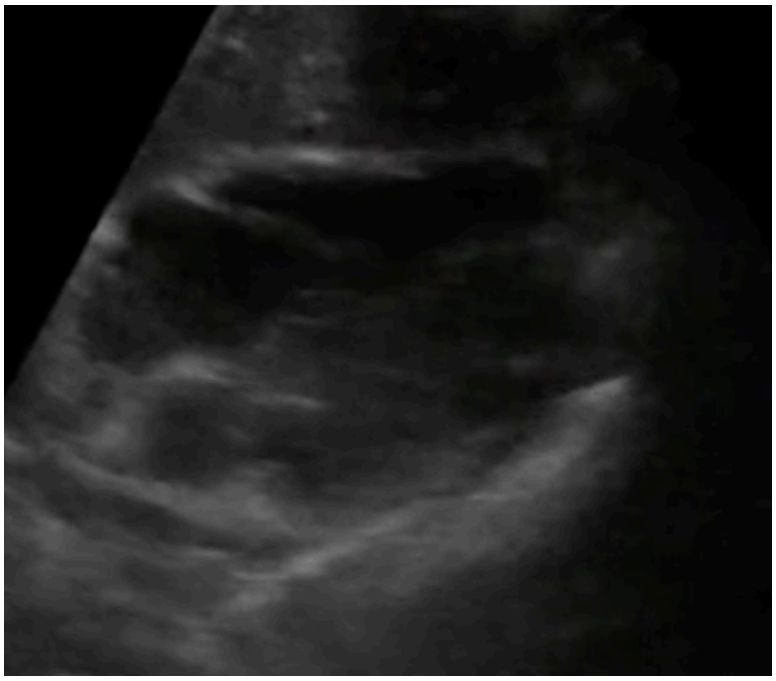
NORMAL PELVIC FAST



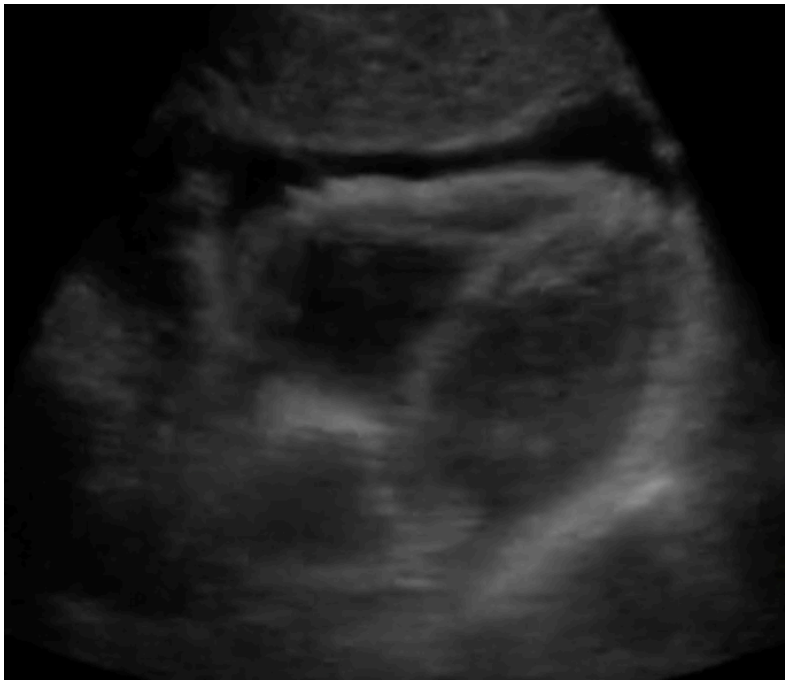
POSITIVE PELVIC FAST



NORMAL CARDAIAC FAST



POSITIVE CARDIAC FAST



Medical Cardiac Arrest

- Select “cardiac” mode
- Set starting depth to 22cm. Adjust depth and gain as needed
- With the probe oriented in the horizontal position, fan superiorly across the lower left chest just left of the xiphoid process to identify the heart. The probe will need to be very shallow and will require posterior pressure. Observe for a minimum of 15 seconds for cardiac activity. If cardiac activity is observed, continue resuscitation and contact MEDICAL CONTROL. If no cardiac activity is observed and patient has met other Termination of Resuscitation criteria, the resuscitation may be terminated
- If unable to observe the heart from the sub-xiphoid position, transition to the secondary site. With the probe oriented in the horizontal position, fan laterally and inferiorly across the lower left chest just from the sixth intercostal space at the anterior axillary line. Observe for a minimum of 15 seconds for cardiac activity. If cardiac activity is observed, continue resuscitation and contact MEDICAL CONTROL. If no cardiac activity is observed and patient has met other Termination of Resuscitation criteria, the resuscitation may be terminated

Venous Access

- Select “vascular” mode
- Set starting depth to 2cm. Adjust depth and gain as needed
- With the probe oriented in the horizontal position, place the probe perpendicular to the arm. Fan and move the probe, observing for round, black, compressible, non-pulsatile structures
- Center the probe over the target vein and hold the probe with the non-dominant hand
- Advance the IV catheter under visualization, watching the for the catheter to enter the vein. Advance the catheter and proceed as with normal IV access

UMBILICAL VEIN CANNULATION

Indications: Neonatal patient <14 days, with an intact umbilical cord, without IV/IO access, and in need of access.

ALS Providers (with MPD specialized training)

- Clean cord and abdomen
- Prep umbilical IV line
  - Flush with LR
  - Apply 3-way stopcock if available
- Tie umbilical tape loosely around base of umbilicus
- Hold cord clamp, cut parallel to clamp with scalpel just below the clamp, at least 2 cm from the abdominal wall
- Gently grasp edge of cord with forceps
- Identify the larger, single, thin-walled vein
- Remove visible clots at the meatus of the vein
- Gently advance a 20g catheter into the vein until free blood flow, usually 3-5 cm.
  - May use smaller or larger catheter based on vein size
- Aspirate blood and flush line
- Tighten umbilical tape to secure the line

VENTILATOR MANAGEMENT

Indications: Patient with an advanced airway that is either appropriately sedated or without a respiratory drive.

ALS Providers (with MPD specialized training):

- **Ensure patient is adequately sedated (RASS score)**
- Set respirations to 12. Titrate to an EtCO2 of 35-45 or based on condition
- Set FiO2 to 50%, titrate for SpO2 < 92% unless stroke or head injury (goal 95%)
- Set Vt (tidal volume) to 4-6 mL/kg. Do not increase higher than 8 mL/kg
- Set PEEP to 5 mmH2O. Do not increase to higher than 10 without calling MEDICAL CONTROL
- **To alter carbon dioxide exchange:**
  - Increase rate to decrease EtCO2
  - Increase Vt (tidal volume) to decrease EtCO2
- **To alter oxygen exchange:**
  - Increase FiO2 (do not go lower than 30), keep as low as possible
  - Increase PEEP – Minimum 5, maximum 10
- **Causes of malfunctions or high-pressure alarms**
  - **D** – displacement of ETT. Recheck breath sounds and EtCO2
  - **O** – obstruction. Aggressive suctioning of ETT upper airway
  - **P –** pneumothorax. Listen to lung sounds, monitor vitals, decompress
  - **E –** equipment failure. Check battery, tubing, ETT cuff pressure, etc.
- **Approach to alarming ventilator**
  - **D –** disconnect the patient from the ventilator, assess for and treat breath Stacking and Equipment failure
  - **O–** oxygen (increase to 100%) and manual ventilate with a BVM (check compliance by squeezing the bag: difficult bagging suggests Pneumothorax or Obstructed tube, very easy bagging suggests Dislodged tube or Equipment failure due to a deflated cuff)
  - **T –** tube position/function (see if the tube has migrated to assess for Dislodged tube; pass a bougie or suction catheter through to see if the tube is Obstructed)
  - **T –** tweak the vent (prevents breath Stacking by decreasing respiratory rate, decreasing tidal volume or decreasing inspiratory time)
  - **S –** sonography (assess for pneumothorax, mainstem intubation, plugging

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FORMULARY

ACETAMINOPHEN

Class:

- Antipyretic/analgesic

Actions :

- Inhibits prostaglandins in CNS to reduce fever.
- minor to medium pain without effect on platelet production

Onset of Action:

- 10-30 minutes

Duration of action:

- 3-4 hours

Indications :

- Fever
- Minor painful conditions

Contraindications :

- Hypersensitivity
- Hepatic failure or impairment

Precautions:

- Anemia
- Renal disease

Adverse Reactions:

- Nausea/Vomiting, Rash

Adult Dosage / Route:

- 500-650 mg PO

Pediatric Dosage / Route:

- 15mg/kg PO

ACTIVATED CHARCOAL

Class:

- GI Adsorbent

Actions :

- Binds to certain ingested substances

Indications :

- Significant ingestion of appropriate medication WITHIN 1 hr of ingestion

Contraindications :

- Decreased or altered level of consciousness
- Caustic ingestion
- Medication not adsorbed by activated charcoal

Precautions:

- May cause vomiting with risk of aspiration and further esophageal damage

Adult & Pediatric Dosage / Route:

- Contact MEDICAL CONTROL prior to administration
- 1-2 g / kg ONCE by mouth

LIST OF ADSORBED TOXINS

Agents WELL Adsorbed by Activated Charcoal				Agents POORLY Adsorbed by Activated Charcoal
Acetylsalicylic Acid	Chloroquines	Indomethacin &	Phenylbutazone	Cyanide
Aflatoxin	& Primaquine	other NSAIDs	Phenylpropanolamine	Ethanol
Amphetamines	Cimetidine	Kerosene, Benzene,	Piroxicam	Ethylene Glycol
Antidepressants	Dapsone	Dichloroethane	Phenol Syrup of	Iron
Antiepileptics	DDT	Malathion & other Pesticides	IPECAC constituents	Isopropanol
Antihistamines	Dextropropoxyphene	Meprobamate	Quinidine & Quinine	Lithium
Aspirin/	& other opioids	Nefopam	Strychnine	Methanol
Other Salicylates	Digitalis	Methotrexate	Tetracyclines	Strong Mineral Acids & Alkali
Atropine	DIQUAT &	Mexiletine	Theophylline	
Barbiturates	other Herbicides	NSAIDS	Torbutamide,	
Benzodiazepines	Glycosides Disopyramide	(e.g. Tolfenamin Acid)	Chlorpropamide	
Beta-blockers	Ergot Alkaloids	*Paracetamol	Carbutamide,	
Biphenyls	Furosemide	PARAQUAT	Tolazamide	
Carbamazepine	Glibenclamide & Glipizide Glutethimide	Polychlorinated Phenothiazines		

** In cases of severe paracetamol poisoning, concurrent intravenenous antidote (N-acetylcysteine) administration and oral Norit Carbomix is recommended.*

ADENOSINE

Class:

- Antiarrhythmic

Actions :

- Adenosine is a naturally occurring substance present in all cells that slows conduction through the AV node of the heart. Because of its rapid onset of action and short half-life, the administration of Adenosine is sometimes referred to as 'chemical cardioversion'

Indications :

- Paroxysmal Supraventricular Tachycardia (PSVT) refractory to common vagal maneuvers

Contraindications :

- 2nd and 3rd degree heart blocks
- Sick sinus syndrome
- Hypersensitivity
- History of WPW or in the presence of 'Delta waves'

Precautions:

- May cause transient dysrhythmias
- Effects antagonized by theophylline
- May cause bronchospasm in asthma patients

Adverse Reactions:

- Dyspnea
- Nausea
- Headache
- Dizziness

Adult Dosage / Route:

- 12 mg rapid IV push followed by a rapid 10-20 cc flush
- If no response after initial dose in 2 minutes; administer 12 mg rapid IV push followed by a rapid 10-20 cc flush
- May repeat 12 mg IV once if no response from 2nd dose

Pediatric Dosage / Route:

- 0.2 mg / kg rapid IV push followed by a rapid 10-20 cc flush
- If no response after initial dose in 2 minutes; administer 0.2 mg / kg rapid IV push followed by a rapid 10-20 cc flush

ALBUTEROL

Class:

- Sympathetic beta 2 agonist

Actions :

- A synthetic sympathomimetic that causes bronchodilation with very little cardiac effects. Beta 2 adrenergic

Indications :

- Bronchial asthma
- Bronchospasm associated with chronic bronchitis, emphysema, allergic reaction, toxic inhalation, pulmonary edema and congestive heart failure

Contraindications :

- Hypersensitivity
- Uncontrolled cardiac dysrhythmias

Precautions:

- Caution should be exercised in patients with a cardiac history

Adverse Reactions:

- Palpitations
- Anxiety
- Dizziness
- Headache
- Nervousness
- Arrhythmias
- Nausea / vomiting

Adult Dosage / Route:

- 2.5 mg in 3 ml saline administered by nebulizer
- May repeat x 2, for a total of three then call MEDICAL CONTROL

Pediatric Dosage / Route:

- Less than 10kg or under 12 months
  - 1.25 mg in 2ml saline administered by nebulizer.
- 10-35 kg (12 months to 10 yrs)
  - 2.5 mg in 2 mL saline administered by nebulizer
- Greater than 35mg or over age 10
  - 2.5 mg in 2 mL saline administered by nebulizer
  - May administer up to 2.5 mg without contacting MEDICAL CONTROL

AMIODARONE

Class:

- Antiarrhythmic

Actions :

- Prolongs the refractory period and action potential duration

Indications :

- Ventricular fibrillation
- ventricular tachycardia
- Wide complex tachycardia with a pulse (with consultation)
- Atrial fibrillation / atrial flutter

Contraindications :

- Known hypersensitivity
- Do not use both lidocaine & amiodarone
- Second / third degree AV blocks

Adverse Reactions:

- Hypotension
- Prolonged QT interval

Atrial Fibrillation / Flutter (With Pulse):

- 150 mg diluted in 250 mLs normal saline IV infusion over 15 minutes

Wide Complex Tachycardia (With Pulse):

- 150 mg diluted in 250 mLs normal saline IV infusion over 15 minutes

ANTIBIOTIC OINTMENT

Class:

- Polypeptide antibiotic in a white petrolatum base (ointment)

Actions :

- Inhibits bacterial cell wall synthesis and promotes wound healing indirectly by controlling the level of infection on a wound surface
- May also enhance re-epithelialization of the wound

Indications :

- Superficial wounds
- Minor superficial partial thickness burns

Contraindications :

- Hypersensitivity

Precautions:

- None

Adverse Reactions:

- Hypersensitivity reactions (itching, swelling, anaphylaxis)

Dosage / Route:

- Apply a thin layer onto affected skin

ASPIRIN

Class:

- Analgesic, anti-inflammatory, antipyretic, anti-platelet aggregator

Actions :

- Blocks pain impulses in the CNS, dilates peripheral vessels, reduces platelet adhesion, and reduces coronary artery vasoconstriction

Indications :

- Chest pain or discomfort suggestive of MI or cardiac ischemia

Contraindications :

- Hypersensitivity

Precautions:

- Significant bleeding

Adverse Reactions:

- Gastritis, nausea and vomiting

Adult Dosage / Route:

- Migraine
  - 975 mg PO once
- Chest Pain
  - 324 mg / four 81 mg baby aspirin PO if not taken during the previous 24 hours

Pediatric Dosage / Route:

- Not indicated

ATROPINE

Class:

- Anticholinergic / Parasympatholytic agent

Actions :

- Blocks acetylcholine receptors, may decrease vagal tone in bradycardia, asystole, and PEA

Indications :

- Symptomatic bradycardia
- Asystole/Pulseless Electrical Activity with rate less than 60
- Organophosphate poisoning

Contraindications :

- Use with caution in high degree blocks (2nd degree Type II and 3rd degree)

Precautions:

- If given too slowly, can cause transient bradycardia
- Use caution when administering to patients with glaucoma

Adverse Reactions:

- Dilated pupils
- Dry mouth
- Blurred vision

Adult Dosage / Route:
Bradycardia

- 0.5 mg IV/IO. Repeat once in 5 minutes if the patient remains symptomatic

Asystole / Agonal, Pulseless Electrical Activity

- 1 mg IV/IO. Repeat every 3-5 minutes, up to a maximum of 3 mg IV/IO

Organophosphate Poisoning

- 2-5 mg IV/IO/IM as an initial dose, repeat as needed

Pediatric Dosage / Route:
Bradycardia

- 0.02mg IV/IO, minimum dose of 0.1 mg and a maximum of 0.5 mg in a child and 1 mg in an adolescent

Organophosphate Poisoning

- 0.05 mg/kg IV/IO/IM as an initial dose, repeat as needed

CALCIUM GLUCONATE

Class:

- Electrolyte, calcium supplement

Actions :

- Increases myocardial contractile force and ventricular automaticity
- Balances hyperkalemia
- Aids in the re-entry of calcium into muscle when given for calcium channel blocker or magnesium sulfate toxicity

Indications :

- Known or suspected hyperkalemic cardiac arrest (renal patient)
- Magnesium sulfate toxicity
- Calcium channel blocker toxicity (toxicity may be caused by overdose of calcium channel blocker medications such as Nifedipine, Verapamil, etc.)

Contraindications :

- Digitalis toxicity (Calcium worsens arrhythmias secondary to digitalis toxicity)

Precautions:

- **Sodium bicarbonate precipitates with Calcium Gluconate. Therefore, flush the IV line with 10 ml of IV fluid between administrations of these medications**

Adverse Reactions:

- Tissue necrosis if the IV infiltrates
- Bradycardia, hypotension or asystole can occur with rapid injection

Adult Dosage / Route:

- 1 gram IV/IO. Slow administration for patients with a palpable pulse

Pediatric Dosage / Route:

- 10 mg/kg IV/IO. Slow administration for patients with a palpable pulse

CEFTRIAXONE (ROCEPHIN)

Class:

- Antibiotic

Actions :

- Broad spectrum antibiotic. Bactericidal agent that acts by inhibition of bacterial cell wall synthesis

Onset of Action:

- Immediately

Duration of action:

- 8 hrs

Indications :

- Severe sepsis

Contraindications :

- Known hypersensitivity, severe (airway swelling, anaphylaxis) penicillin allergy

Precautions:

- Patients with renal or hepatic impairment

Adverse Reactions:

- Rash, shortness of breath

Adult Dose / Route:

- Open fracture:
  - 1g in 250mL normal saline IV infusion over 15 min
- Severe sepsis:
  - 2g in 250mL normal saline IV infusion over 15 min

CETIRIZINE (ZYRTEC)

Class:

- Histamine H1 receptor antagonist

Actions :

- Selective inhibition of peripheral H_1 receptors

Onset of Action:

- 60 minutes

Duration of action:

- 8 to 12 hours

Indications :

- Acute allergic response with urticaria
- Seasonal allergic rhinitis

Contraindications :

- Known hypersensitivity
- Allergy to hydroxyzine

Precautions:

- Patients with renal or hepatic impairment
- Theophylline use

Adverse Reactions:

- Somnolence, fatigue, dry mouth

Adult Dose / Route:

- 12 years to 70 years: 10 mg PO
- Greater than 70 years: 5mg PO

Pediatric Dose / Route:

- 2 years to 11 years: 5mg PO
- 6 months to 2 years: 2.5mg PO

DEXAMETHASONE (DECADRON)

Class:

- Corticosteroid

Actions :

- A synthetic steroid that is effective as an anti-inflammatory in anaphylaxis, COPD, and asthma and supplements adrenal deficiency in cardiac arrest. It has lower mineralcorticoid activity than methylprednisolone

Indications :

- Asthma
- Severe anaphylaxis
- Exacerbation of COPD
- Cardiac arrest
- Croup/Epiglotitis

Contraindications :

- Known hypersensitivity

Precautions:

- Cardiac arrhythmias can occur with large rapidly administer dosages

Adverse Reactions:

- Cardiac arrhythmias
- Hypertension
- Vertigo
- Headache

Adult Dosage / Route:

- Anaphylaxis / COPD / Asthma
  - 40 mg IV / IM once
- Cardiac Arrest
  - 20 mg IV once

Pediatric Dosage / Route:

- 0.5 mg / kg IV/IM, up to a maximum single dose of 40 mg

DEXTROSE

Class:

- Carbohydrate

Actions :

- Increases blood glucose levels

Indications :

- Hypoglycemia

Contraindications :

- Suspected intracranial hemorrhage
- Known or suspected CVA in the absence of hypoglycemia

Precautions:

- Blood glucose measurement is preferred prior to the administration of glucose

Adverse Reactions:

- Dextrose can cause local venous irritation and tissue necrosis if infiltration occurs

Adult Dosage / Route:

- > 12 years – dilute 25 g in 250mL LR via IV infusion. ALS providers may repeat once if BGL remains < 60 mg/dl

Pediatric Dosage / Route (ALS only):

- 1 month to 12 years, dilute 1:1 and administer 2 ml/kg of D25 for BGL < 60
- If < 2 days old:
  - D10 2mL/kg IV/IO for BGL < 25
- If > 2 days old:
  - D10 2mL/kg IV/IO for BGL < 50

DIPHENHYDRAMINE (BENADRYL)

Class:

- Potent antihistamine

Actions :

- Block histamine receptor sites in allergic reactions
- Reverses side effects of dystonic reactions caused by phenothiazines

Indications :

- Anaphylaxis
- Allergic reactions
- Dystonic reactions

Contraindications :

- Hypersensitivity

Precautions:

- Use with caution in patients that are pregnant, history of asthma, or experiencing severe intoxication

Adverse Reactions:

- Hypotension
- Headache
- Palpitations
- Tachycardia
- Sedation
- Drowsiness

Adult Dosage / Route:

- 25 - 50 mg, slow IV / IM

Pediatric Dosage / Route:

- 1 mg/kg, slow IV / IM up to a maximum dose 50 mg

DROPERIDOL

Class:

- Tranquilizer
- Anti-psychotic
- Anti-emetic
- Anti-migraine

Actions :

- Droperidol is a butyrophenone used for multiple indications. It has numerous sites of biochemical activity, most notably as a dopamine receptor antagonist (D2).

Indications :

- Management of severe agitation
- Adjunct treatment to severe migraines
- Third line agent for severe nausea

Contraindications :

- **QTC >440ms**
- Patients with known hypersensitivity
- Parkinson's Disease
- Alcoholism
- CNS depression
- Cocaine use

Precautions:

- **Obtain 12-lead ECG prior to administration if possible prior to administration**
- Severe cardiovascular disorders (may cause transient hypotension or angina pectoris)
- Prolonged QT syndrome
- Anticonvulsant medication use

Adverse Reactions:

- Extra-pyramidal Syndrome (EPS)
- Headache
- Lethargy
- Headache
- Tachycardia
- Hypotension

Adult Dosage / Route:

- 2.5 – 5 mg IV / IM for severe agitation. Max dose 5 mg
- 2.5 mg IV / IM third line agent for severe nausea & vomiting. Max dose 2.5 mg
- 2.5 mg IV / IM second line agent for severe migraine. Max dose 2.5 mg

EPINEPHRINE

Class:

- Sympathomimetic

Actions :

- A potent alpha and beta stimulant that increases heart rate, cardiac contractile force, myocardial electrical activity, systemic vascular resistance, blood pressure and automaticity. Increases myocardial oxygen demand.

Indications :

- Cardiac arrest
- Severe anaphylaxis
- Bronchial asthma
- Croup

Contraindications :

- Hypertension
- Tachydysrhythmias with a pulse

Precautions:

- Use with caution in patients with a history of coronary artery disease
- Use with caution in pregnant patients
- Do not mix with sodium bicarbonate

Adverse Reactions:

- Palpitations, anxiety, tremors

Adult Dosage / Route:

- **Cardiac Arrest:**
  - 1 mg 1:10,000 IV / IO every 3-5 minutes for three total doses

- **Hypotension:**
  - **Infusion**
    - Inject 1 mg of epinephrine into a 1000mL bag of LR.
    - Concentration is now 1 mcg / mL
    - Begin infusion at 2 mcg /min. May titrate up every 10 min for a maximum of 10 mcg / min.
  - **Push dose (temporary until norepinephrine drip can be established)**
    - Take 1 mg of cardiac epinephrine (1:10,000) and waste 9 mL.
    - Into that syringe, draw up 9 mL of NS / LR. Shake well
    - The concentration is now **10 MCG / mL** (0.01 mg / mL)
    - Administer **0.5 – 2 mL** (5 – 20 mcg) pushes every 3-5 minutes for a goal systolic blood pressure of 90 mmHg

- **Severe Anaphylaxis:**
  - 1:1,000 0.3mg IM, every 3-5 min as necessary

- **Asthma:**
  - 1:1,000 0.3 mg IM

Pediatric Dosage / Route:

- **Cardiac Arrest**
  - 1:10,000 0.01 mg/kg IV/IO every 3-5 minutes for three total doses

- **Bradycardia**
  - 1:1,000 0.01 mg/kg IV/IO.

- **Severe Anaphylaxis**
  - 1:1,000 0.01 mg/kg IM, up to a maximum of 0.3 mg, repeat as necessary (ALS)
  - 0.15 mg IM for patient's ≤ 30kg (66lbs)
  - 1:10,000 0.01 IV/IO/ET, Repeat as necessary

- **Asthma / Croup**
  - 1:1,000 0.01 mg/kg SQ, up to a maximum of 0.3 mg
  - > 2 yr – 0.5mg/kg per dose (maximum of 5mg total) via nebulizer
  - < 2 yr – 0.25mg/kg per dose (maximum of 5mg total) via nebulizer

ETOMIDATE

Class:

- Non-narcotic, non-barbiturate, sedative hypnotic.

Actions :

- Depresses the activity of the brain stem reticular system. It may lower intraocular and intracranial pressure and lower the rate of cerebral oxygen utilization.
- Onset of action within 60 seconds. Duration of action is dose dependent but can be 3 – 5 minutes with full recovery in 15 minutes.

Indications :

- Induction agent for RSI in adults and pediatric patients > 10 years old

Contraindications :

- Known hypersensitivity to the agent
- Not recommended for pregnant or nursing mothers

Adverse Reactions:

- Adrenal suppression
- Hypotension

Adult Dosage / Route:

- 20 mg IV or IO push over 30 seconds
- If in shock, 10 mg IV or IO push over 30 seconds

Pediatric Dosage / Route:

- Contact MEDICAL CONTROL. 0.3 mg / kg IV/IO push over 30 seconds

FAMOTIDINE (PEPCID)

Class:

- Histamine H2 receptor antagonist

Actions :

- Competitive inhibitor of histamine H2-receptors, which decreases gastric acid secretion

Indications :

- Augment histamine blocking effects in the setting of acute allergic response
- Gastroesophageal reflux / gastritis

Contraindications :

- Known hypersensitivity

Precautions:

- Dosage adjustment for moderate to severe renal insufficiency

Adverse Reactions:

- Headache, dizziness, constipation, diarrhea

Adult Dosage / Route:

- 20mg PO

FENTANYL

Class:

- Synthetic Opioid Agonist / Narcotic analgesic

Actions :

- A potent short-acting synthetic narcotic that binds to opiate receptors as an agonist

Onset of Action:

- Onset < 1 minute IV (7-15 minutes IM)

Duration of Action:

- 30-60 minutes IV (1-2 hrs IM)

Indications :

- Acute pain
- Procedure related pain
- Acute STEMI

Contraindications :

- Known hypersensitivity
- Myasthenia gravis, MAO inhibitors use
- Severe liver or renal insufficiency

Precautions:

- COPD, Altered mental status, hypotension
- Use of alcohol and other CNS depressants potentiate effect

Adverse Reactions:

- CNS & respiratory depression
- Nausea, vomiting, bradycardia

Adult Dose / Route:

- 25-50 mcg q 10-15 min for pain IV/IO/IM.
- Contact MEDICAL CONTROL for doses beyond 2 mcg/kg or 200mcg total

Pediatric Dose / Route:

- 1-2 mcg/kg IV or IM, titrate to pain and vital signs
- Max dose is 100mcg
- Contact MEDICAL CONTROL for doses beyond 2 mcg/kg
- Do not use in infants less than one year of age

FUROSEMIDE (LASIX)

Class:

- Loop diuretic

Actions :

- A potent diuretic that inhibits sodium re-absorption by the kidneys

Indications :

- Acute pulmonary edema WITH SBP >140

Contraindications :

- Hypersensitivity
- Known allergy to sulfonamides
- Dehydrated patients
- Pregnancy
- Hypotension

Precautions:

- Caution of pt already taking diuretics

Adverse Reactions:

- Hypovolemia
- Decreased circulatory blood volume
- Hypokalemia
- Tinnitus

Adult Dosage / Route:

- 20 – 40 mg IV
    - If chronic furosemide dose > 80 mg / day, may administer one half of the patients total daily dose IV (maximum of 80 mg)

Pediatric Dosage / Route:

- 0.5-1 mg / kg slow IV

GLUCAGON

Class:

- Pancreatic hormone
- Anti-hypoglycemic

Actions :

- Converts stored glycogen to glucose, increasing blood glucose levels
- Improves cardiac contractility and increases heart rate

Indications :

- Hypoglycemia when IV access is unobtainable (should not be a first line treatment for hypoglycemia when IV access is available)
- Beta blocker and calcium channel blocker overdose with bradycardia

Contraindications :

- Hypersensitivity to proteins

Precautions:

- Administer cautiously to patients with kidney and liver dysfunctions
- Effective only if sufficient stores of glycogen in the liver

Adverse Reactions:

- Nausea and vomiting
- Tachycardia

Adult Dosage / Route:

- **Hypoglycemia**
  - 1 mg IM

Pediatric Dosage / Route:

- **Hypoglycemia**
  - 1 mg IM

Neonatal Dosage / Route:

- **Hypoglycemia**
  - 0.5 mg IM

GLUCOSE GEL

Class:

- Carbohydrate

Actions :

- Increases blood glucose level

Indications :

- Altered mental status secondary to hypoglycemia

Contraindications :

- Patients unable to protect their own airway
- Patients unable to swallow

Precautions:

- Assure that the patient has a gag reflex

Adverse Reactions:

- Aspiration
- Nausea and vomiting

Adult Dosage / Route:

- 24 gm PO. May repeat once

Pediatric Dosage / Route:

- 0.5 gm/kg PO if the child is <12 years of age (ALS)

HYDROMORPHONE (DILAUDID)

Class:

- Pure Opioid agonist / narcotic analgesic

Actions :

- Potent analgesic that binds to opiate receptors as an agonist
- Decreases peripheral vascular resistance – vasodilatation

Onset of Action:

- IV: 1-3 minutes

Duration of Action:

- IV: 2 hours

Indications :

- Moderate to severe pain management

Contraindications :

- Known hypersensitivity
- Respiratory depression, hypotension
- Acute or severe asthma or COPD
- Labor pain
- Shock
- Myasthenia Gravis

Precautions:

- Hepatic or renal impairment should receive half dose, titrated to their pain tolerance
- Age greater than 65
- If the patient exhibits marked respiratory depression administer naloxone

Adult Dosage / Route:

- 0.2-1 mg. May repeat once after 30 min for a maximum of 2 mg.

Pediatric Dosage / Route:

- 0.01 mg / kg. Contact MEDICAL CONTROL for repeat dosing.

IBUPROFEN

Class:

- Antipyretic/analgesic

Actions :

- Non-Steroidal Anti Inflammatory

Onset of Action:

- 10-30 minutes

Duration of action:

- 3-4 hours

Indications :

- Fever
- Minor painful conditions

Contraindications :

- Hypersensitivity
- Gastritis/peptic ulcers
- Renal failure or impairment

Precautions:

- Anemia
- Renal disease

Adverse Reactions:

- Nausea/Vomiting, Rash

Adult Dosage / Route:

- 800 mg PO

Pediatric (older than six months) Dosage / Route:

- 6 mg/kg PO (maximum 400mg)

IPRATROPIUM BROMIDE (ATROVENT)

Class:

- Anticholinergic
- Bronchodilator

Actions :

- Bronchodilatation
- Dries respiratory tract secretions

Indications :

- Bronchospasm related to asthma, chronic bronchitis, and emphysema

Contraindications :

- Sensitivity to soybeans or peanuts
- Sensitivity to atropine
- Tachydysrhythmias

Precautions:

- Administer cautiously to patients with glaucoma

Adverse Reactions:

- Tachycardia
- Palpitations
- Dizziness
- Headache
- Dry mouth

Adult Dosage / Route:

- 0.5 mg (500 mcg) mixed with 2.5 mg albuterol via nebulizer

Pediatric Dosage / Route:

- <1 year 0.25 mg (250 mcg) mixed with 2.5 mg albuterol via nebulizer
- >1 year 0.5 mg (500 mcg) mixed with 2.5 mg albuterol via nebulizer

KETAMINE

Class:

- Dissociative analgesic & sedative

Actions :

- Exhibits peripherally acting non-narcotic analgesic and dissociation by inhibiting prostaglandin synthesis

Indications :

- Short term management of moderate to severe pain. Especially effective for kidney stones, back pain, gall bladder or sickle cell disease

Contraindications :

- Hypersensitivity
- Uncontrolled hypertension
- Liver disease
- Acute stroke
- Alcohol use

Precautions:

- Use with caution in elderly patients
- May increase bleeding time in patients taking anticoagulants
- Not effective for acute trauma (broken bones) or burns

Adverse Reactions:

- GI bleeding
- Emergence reaction

Adult Dosage / Route:

- Pain Control – 0.1 - 0.3 mg/kg IV drip over 10 - 15 min
    - If pain persists, initiate a drip at a rate of 0.2 mg/kg/hr. Titrate to pain control. Maximum of 1 mg/kg/hr. *Patient should be awake, alert, and able to participate in pain assessment. Decrease dose if patient demonstrates emergence reaction or can no longer participate in pain assessment.
- Severe agitation/ Sedation – 1 - 3 mg/kg IV/IM push over one minute
    - For ongoing sedation, initiate a drip at a rate of 0.75 mg/kg/hr. Titrate to a RASS of -2 to 0. Maximum of 3 mg/kg/hr.

Pediatric Dosage / Route:

- Not recommended for patients one year of age
- Severe agitation/ Sedation – 1 - 3 mg/kg IV/IM push over one minute
    - For ongoing sedation, initiate a drip at a rate of 0.75 mg/kg/hr. Titrate to a RASS of -2 to 0. Maximum of 3 mg/kg/hr.

KETOROLAC (TORADOL)

Class:

- Non-steroidal anti-inflammatory (NSAID) analgesic

Actions :

- Exhibits peripherally acting non-narcotic analgesic activity by inhibiting prostaglandin synthesis.

Indications :

- Short term management of moderate to severe pain.
- Especially effective for kidney stones, back pain, or sickle cell disease.

Contraindications :

- Allergy to aspirin or other NSAID
- Patients with a history of asthma
- Bleeding disorders, especially GI related (peptic ulcer disease)
- Renal failure

Precautions:

- Use with caution in elderly patients
- Use with caution in patients with a history of renal disease
- May increase bleeding time in patients taking anticoagulants

Adverse Reactions:

- Anaphylaxis due to hypersensitivity
- GI bleeding

Adult Dosage / Route:

- 15 mg IV / IM

Pediatric Dosage / Route:

- Not recommended.

LABETALOL

Class:

- Anti-Hypertensive Agent

Actions :

- Reduces blood pressure by decreasing peripheral vascular resistance

Indications :

- Reduction of blood pressure in a hypertensive emergency

Contraindications :

- Known hypersensitivity to labetalol or beta blockers
- Bradycardia
- Heart blocks
- Shock
- Sick sinus syndrome
- Heart failure

Precautions:

- Asthma / bronchospastic diseases
- Impaired liver function
- Elderly and thyroid disorders
- Hypotension may occur

Adverse Effects:

- Hypotension, bradycardia
- Dizziness, fatigue
- Arrhythmias

Adult Dosage / Route

- **Hypertension in pregnancy with SBP > 160 or DBP > 110**
  - Administer labetalol 20mg IV slow push once
  - If SBP remains >160 or DBP >110, may repeat labetalol 10 mg q 10 min two times
- **Signs of stroke AND hypertension greater than 185 systolic or 110 diastolic:**
  - 10 mg IV SLOW over 2 minutes
  - Repeat 10 mg once 15 min after first bolus if BP is still greater than 185 systolic or 110 diastolic

Key Points

- Reduce BP to 185 systolic or 110 diastolic but not greater than 20% overall
- Check blood pressures in both arms, with at least one BP being a manual measurement
- Monitor cardiac and pulmonary status during and after administration

LACTATED RINGER'S SOLUTION

Class:

- Isotonic crystalloid solution

Actions :

- Fluid and sodium replacement

Indications :

- Anytime IV access and/or medication administration is obtained

Contraindications :

- High doses in the presence of congestive heart failure can cause circulatory overload

Adverse Reactions:

- Thirst

Adult Dosage / Route:

- IV/IO
  - 500mL boluses to maintain SBP > 90 or normal mentation

Pediatric Dosage / Route:

- IV/IO
  - 10mL/kg boluses to maintain SBP > 90 or normal mentation

LIDOCAINE

Class:

- Local anesthetic

Actions :

- Inactivates sodium channels

Indications :

- IO Access
- VF/VT arrest

Contraindications :

- Dysrhythmias when greater than 4 mg / kg administered

Precautions:

- Avoid administering greater than 4 mg / kg

Adverse Reactions:

- Dysrhythmias

Adult Dosage / Route:

- **Cardiac Arrest :**
  - 1 – 1.5 mg / kg IVP first dose
  - 0.5 – 0.75 mg / kg IVP second dose
- **IO Access :**
  - 40 mg of 2% IO once

Pediatric Dosage / Route:

- **Cardiac Arrest:**
  - 1 mg / kg IVP first dose
  - 0.5 mg / kg IVP second dose
- **IO Access:**
  - 1 mg / kg up to 40 mg of 2% IO once

MAGNESIUM

Class:

- Electrolyte

Actions :

- Calcium channel blocker
- Increases intracellular potassium
- Relaxes smooth muscle

Indications :

- Torsades de pointes
- Eclamptic seizures
- Afib/Aflutter w/ RVR
- Bronchospasm in asthma or COPD refractory to other therapy

Contraindications :

- Heart block
- End stage renal disease/dialysis
- Myasthenia Gravis
- Hypocalcemia

Precautions:

- Monitor blood pressure, respirations, and muscle tone before and after administration

Adverse Reactions:

- Muscle weakness

Adult Dosage / Route:

- **Torsades de pointes (Pulseless)**
  - 4 g in 10ml of NS/LR IVP over 2 min
- **Torsades de pointes (With a pulse)**
  - 4 g IV infusion over 20 min
- **Eclampsia/Pre-term labor**
  - 4 g IV infusion over 20 min
- **Asthma**
  - 2 g IV infusion over 20 min
- **Afib/Aflutter**
  - 4 g IV infusion over 20 min

Pediatric Dosage / Route:

- **Torsades de pointes (Pulseless)**
  - 25-50 mg/kg slow IV/IO. Mix required dosage in 10 ml Normal Saline and administer over 2 minutes. Maximum dose of 2 g

- **Torsades de pointes (With a pulse)**
  - 25-50 mg/kg IV/IO over 20 minutes, up to a maximum single dose of 2 g

- **Asthma**
  - 25-50 mg/kg IV/IO over 20 minutes, up to a maximum single dose of 2 g

METOPROLOL

Class:

- Beta Blocker

Actions :

- Selective beta – 1 adrenergic receptor blocker that decreases the automaticity of contractions thus reducing heart rate. Negative inotropic and chronotropic effects are manifested by slowing AV conduction, antidysrhythmic effects, and decreased myocardial oxygen demand.

Indications :

- Acute Coronary Syndrome
- Atrial Fibrillation w/ RVR, Atrial Flutter

Contraindications :

- Hypersensitivity
- Decompensated CHF
- AV conduction abnormalities
- Cardiogenic shock
- Bradycardia
- Asthma (relative)

Precautions:

- During IV administration, carefully monitor BP, HR and ECG. Use of calcium channel blockers may potentiate side effects/adverse effects; toxicity of metoprolol may increase with coadministration of phenothiazines. This drug may increase toxicity of digoxin, flecainide, clonidine, epinephrine, nifedipine, prazosin, verapamil, and lidocaine.

Adverse Reactions:

- Hypotension
- Bronchospasm
- Bradycardia
- Dizziness
- Chest pain
- Headache

Adult Dosage / Route:

- **Acute Coronary Syndrome**
  - 5mg IV over 2 minutes, repeat every 5 minutes unless pt has a heart rate less than 60 or a SBP less than 110. Maximum dose of 15 mg.
- **Atrial Fibrillation w/ RVR, Atrial Flutter**
  - 5mg IV over 2 minutes, repeat every 5 minutes to a target heart rate < 110. Maximum dose of 15 mg.

MIDAZOLAM

Class:

- Benzodiazepine

Actions :

- A short acting central nervous system depressant that causes amnesia, sedation and muscle relaxation.

Indications :

- Active seizures / status epilepticus
- Sedation prior to cardioversion transcutaneous pacing, or intubation
- Chest pain or tachycardia due to ingestion of cocaine, amphetamine, LSD, or PCP
- Chemical sedation for combative patients with severe agitation

Contraindications :

- Hypersensitivity

Precautions:

- Monitor respirations
- Avoid mixing with other medications, flush IV/IO line after administration

Adverse Reactions:

- Respiratory depression
- Hypotension
- Nausea

Adult Dosage / Route:

- **Seizures**
  - **WITHOUT** Prior IV Access:
    - Midazolam 0.2 mg/kg IM, not to exceed 10 mg total without contacting medical control. After administration, establish IV access.
  - **WITH** Prior IV Access:
    - Midazolam 2-5mg. May repeat once in 10 min if seizure persists
- **Sedation/Withdrawal**
  - 1-2 mg IV/IO/IN/IM, q 15 min, up to a maximum dose of 5 mg. Contact MEDICAL CONTROL for further dosing

Pediatric Dosage / Route:

- **Seizures**
  - **WITHOUT** Prior IV Access:
    - Pediatric dose 0.1 mg / kg up to standard adult dosing
  - **WITH** Prior IV Access:
    - Pediatric dose 0.05mg / kg. May repeat once in 10 min if seizure persists

NALOXONE (NARCAN)

Class:

- Narcotic Antagonist

Actions :

- Reverses narcotic effects

Indications :

- Suspected narcotic / opiate overdose
- Coma of unknown origin

Contraindications :

- Hypersensitivity

Precautions:

- Half-life is shorter than most narcotics and may allow the patient to re- develop a decreased level of consciousness and/or respiratory depression.
- May induce opiate withdrawal in patients that have a physical dependency to narcotics / opiates.

Adverse Reactions:

- Nausea / vomiting
- Headache
- Tachycardia
- Acute withdrawal syndrome (violent behavior)

Adult Dosage / Route:

- 0.4 – 4 mg IV / IM / IN. May repeat once if no response

Pediatric Dosage / Route:

- 0.1 mg / kg IV / IM / IN, up to a maximum single dose of 2 mg

NITROGLYCERIN

Class:

- Nitrate, Vasodilator

Actions:

- Coronary and systemic vasodilator that decrease peripheral vascular resistance and preload.

Indications:

- Cardiac chest pain / STEMI
- Pulmonary edema associated with congestive heart failure
- Hypertension

Contraindications:

- Hypotension
- Suspected intracranial pressure
- Use of Viagra or similar medications (sildenafil, Cialis, tadalafil, Levitra, vardenafil) in the previous 24 hours

Precautions:

- Use extreme caution when right ventricular involvement (RVI) is suspected. Consult MEDICAL CONTROL prior to administration.
- Establish IV access prior to nitroglycerin in patients with a suspected inferior wall MI.

Adverse Reactions:

- Hypotension
- Headache

Concentration

- 100 mcg/mL

Adult Dosage / Route:

- **Cardiac chest pain / CHF**
  - Sublingual
    - 0.4 mg every 5 minutes, up to a maximum of 3 doses. EMTs may administer patient's prescribed NGT.
  - IV Infusion
    - STEMI: starting dose 10 mcg/min. Titrate up by 10 mcg/min every five minutes to an SBP of 120 - 110 mmHg or pain relief.
    - CHF: 400 mcg bolus, then starting dose 100 mcg/min. Titrate up by 25 mcg / min until SOB resolves or SBP 110 – 120.
    - Either: If SBP falls below 110 mmHg, decrease the rate by 10 mcg/min & administer a 250mL LR bolus.

NOREPINEPHRINE (LEVOPHED)

Class:

- Vasopressor

Actions :

- Potent vasoconstrictor with some beta but mostly alpha receptor effects.

Indications :

- Code Sepsis
- Hypotension despite fluid boluses

Contraindications :

- None in the emergent setting

Precautions:

- Do not mix with other medications
- Use large proximal vein (AC fossa) when possible

Adverse Reactions:

- Peripheral vasoconstriction

Concentration

- Inject contents of one vial (4 mg) into 250 mL of normal saline
- 16 mcg / mL

Adult Dosage / Route:

- **Hypotension & Sepsis**
  - If SBP < 90 or MAP < 65, begin rate at 4 mcg / min. Titrate to SBP of 90, MAP > 65, or normal mental status. Maximum dose of 20 mcg / min.

Pediatric Dosage / Route:

- **Hypotension**
  - If SBP < 80 or MAP < 60, begin rate at 0.1mcg / kg / min. Titrate to SBP of 80, MAP > 60, or normal mental status. Maximum dose of 2 mcg / kg / min.

OLANZAPINE

Class:

- Anti-psychotic

Actions :

- An atypical anti-psychotic for both new-onset and chronic disease.

Indications :

- Behavioral emergency caused by schizophrenia, bipolar, medications, other psychosis
- Patient has not received IV/IM anti-psychotics or sedatives in the past four hours

Contraindications :

- Age >65
- Organic behavioral diagnoses (autism, dementia, developmental delay)
- Pregnancy **(medical control option only)**

Precautions:

- Avoid subcutaneous administration

Adverse Reactions:

- Allergic reaction

Adult Dosage / Route:

- 5-10 mg oral dissolving tablet PO once

Pediatric Dosage / Route:

- Not indicated

ONDANSETRON (ZOFRAN)

Class:

- Anti-emetic

Actions :

- A selective serotonin receptor antagonist used for prevention and management of nausea and vomiting.

Indications :

- Persistent vomiting due to gastrointestinal problems

Contraindications :

- History of allergic reaction
- Pregnancy – **MEDICAL CONTROL option only**

Precautions:

- Avoid subcutaneous administration

Adverse Reactions:

- Allergic reaction

Adult Dosage / Route:

- 4 mg IV
- 4 mg oral dissolving tablet PO

Pediatric Dosage / Route:

- Rarely used. 2-4 mg IV– **MEDICAL CONTROL option only**

OXYGEN

Class:

- Gas

Actions :

- Odorless, colorless, tasteless gas that is essential for life

Indications :

- Hypoxia

Contraindications :

- None

Precautions:

- Use a lower goal SpO2 (88%) in COPD patients unless signs of frank hypoxia are present
- Titrate to a goal SpO2 of 92%, not everyone needs high flow oxygen.

Adverse Reactions:

- Prolonged high flow oxygen may reduce respiratory drive in some COPD patients.

Adult Dosage / Route:

- 15 lpm for BVM
- 12-15 lpm via NRB mask
- 2-6 lpm via nasal cannula

Pediatric Dosage / Route:

- 15 lpm for BVM
- 12-15 lpm via NRB mask or blow-by
- 2-6 lpm via nasal cannula

OXYMETAZOLINE (AFRIN)

Class:

- Adrenergic sympathomimetic nasal spray

Actions :

- Causes vasoconstriction of the smaller arterioles in the nasal passages which lasts up to 12 hours.

Indications :

- Control of epistaxis

Contraindications :

- Hypersensitivity

Precautions:

- Not recommended for children under 6 years old

Adverse Reactions:

- Headache
- Hypertension
- Nasal irritation

Adult Dosage / Route:

- 2 sprays intranasal in affected nostril

Pediatric Dosage / Route:

- 6 years and older: 2 sprays intranasal in affected nostril

OXYTOCIN (PITOCIN)

Class:

- Hormone

Action:

- Produces phasic uterine contractions characteristic of normal labor and delivery, used to treat uterine atony resulting in postpartum hemorrhage

Onset of action:

- IV: 1 minute, IM: 3 – 7 minutes

Duration of Action:

- IV: 30 minutes with half-life of 12-17 minutes, IM: 60 minutes with half-life of 12 – 17 minutes

Indications :

- Control of postpartum hemorrhage (>500mL) when other methods fail

Contraindications :

- Hypersensitivity
- Undelivered baby
- Pre-eclampsia / Eclampsia

Precautions:

- Status post cervical or uterine surgery
- Primipara after age 35
- Use with other vasopressors or amphetamine like drugs may result in hypertension

Adverse Reactions:

- Hypertension, Subarachnoid hemorrhage
- Anxiety, tetany
- Dysrhythmias, hyponatremia
- Uterine rupture

Adult Dose / Route:

- 30 units in 250 ml normal saline over 30 minutes

PROMETHAZINE (PHENERGAN)

Class:

- Antiemetic, antihistamine

Actions :

- Competes for muscarinic and histamine receptors sites in medullary chemoreceptor zone, in the inner ear and H1 blocking activity peripherally

Onset of Action:

- Onset rapid and peaks within 30-80 minutes

Duration of Action:

- 4 to 6 hours

Indications :

- 2nd line agent for nausea, vomiting
- Motion sickness
- Vertigo

Contraindications :

- Any allergy to promethazine or the phenothiazines
- Sulfite allergy, Use of MAO Inhibitors
- Altered mental status

Precautions:

- Hypotension, History of seizures
- CNS depression

Adverse Reactions:

- Drowsiness, dizziness, dry mouth and blurred or double vision are common.
- Hypotension
- Agitation and disorientation in the elderly

Adult Dose / Route:

- 12.5 mg IV. May repeat once in 10 min

ROCURONIUM

Class:
- Nondepolarizing neuromuscular blocker

Actions :
- Competes for cholinergic receptors at motor endplate to antagonize action of acetylcholine, which blocks neuromuscular transmission resulting in paralysis.

Onset of Action:
- 1 – 3 minutes IV

Duration of Action:
- 20 – 40 minutes (varies with dose and underlying patient pathophysiology).

Indications :
- Facilitate endotracheal intubation
- Maintenance of skeletal muscle relaxation during mechanical ventilation

Contraindications :
- Hypersensitivity

Precautions:
- Renal/hepatic impairment will result in variations in the duration of action
- Coadministration with antibiotics, verapamil, succinylcholine, magnesium sulfate, quinidine and ketamine may enhance action
- Coadministration with azathioprine, carbamazepine (Tegratol), phenytoin (Dilantin) and theophyllines may decrease duration of action
- Use caution in patients with primary pulmonary hypertension

Adverse Effects:
- Dysrhythmias, hypertension, hiccups, rash, injection site edema
- Nausea / vomiting, bronchospasm

Adult & Pediatric Dose / Route:
- Induction: 0.6 – 1mg/kg IV. Maximum of 100 mg
  - **Must wait one minute before attempting intubation**
- Maintenance: 0.6 – 1.2mg/kg IV q 30 – 45 min
- Decrease dose in cachectic/debilitated patients and patients with neuromuscular disease

SODIUM BICARBONATE

Class:

- Electrolyte
- Alkalizing agent

Actions :

- Sequesters serum potassium in the cell
- Enhances urinary excretion of tricyclic antidepressants
- Neutralizes acidosis

Indications :

- Brain Injury
- Cardiac arrest
- Hyperkalemia
- Metabolic acidosis
- Tricyclic antidepressant (TCA) overdose

Contraindications :

- Pre-existing alkalosis

Precautions:

- Inactivates simultaneously administered catecholamines (epinephrine or dopamine)
- Flush IV line between medication administrations

Adverse Reactions:

- Alkalosis
- Hypokalemia
- Seizures
- Tissue sloughing at injection site

Adult Dosage / Route:

- **Brain Injury:**
  - 100 mEq IV/IO
- **Other indications:**
  - 50 – 100 mEq IV/IO

Pediatric Dosage / Route:

- 1 mEq / kg IV/IO

SUCCINYLCHOLINE

Class:
- Depolarizing neuromuscular blocker

Actions :
- Binds to the motor endplate acetylcholine receptors and causes depolarization of the musculature, no allowing the muscles to repolarize to contract again.

Onset of Action:
- 1 – 3 minutes IV

Duration of Action:
- 6-10 minutes (varies with dose and underlying patient pathophysiology).

Indications :
- Facilitate endotracheal intubation when rocuronium is not available

Contraindications :
- Hypersensitivity
- Hyperkalemia
- Renal failure
- Burns
- Crush Syndrome
- Pregnancy

Precautions:
- Renal/hepatic

Adverse Effects:
- Hypertension
- bronchospasm

Adult & Pediatric Dose / Route:
- Induction: 0.5 – 1mg/kg IV
    - **Must wait until fasciculations stop before attempting intubation**

TENECTEPLASE

Class:

- Thrombolytic

Actions :

- Tenecteplase is a modified form of human tissue plasminogen activator (tPA) that binds to fibrin and converts plasminogen to plasmin.

Indications :

- Acute Coronary Syndrome with ST Elevation myocardial infarction (STEMI). Treatment should be initiated as soon as possible after the onset of STEMI symptoms.

Contraindications :

- Active internal bleeding
- History of cerebrovascular accident, intracranial or intraspinal surgery or trauma within 2 months.
- Intracranial neoplasm, arteriovenous malformation, or aneurysm
- Known bleeding diathesis
- Severe uncontrolled hypertension.
- Arterial and venous punctures should be minimized.

Adverse Reactions:

- Re-perfusion dysrhythmia
- Bleeding complications
- Nausea, vomiting
- Hypotension

Adult Dosage / Route

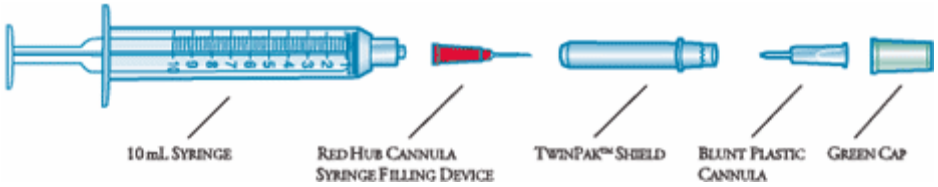
Simple, weight-tiered dosing in 5 easy increments

Patient Weight* (kg)	Patient Weight* (lb)	TNKase (mg)	Reconstituted TNKase (mL)
<60	<132	30	6
60 to <70	132 to <154	35	7
70 to <80	154 to <176	40	8
80 to <90	176 to <198	45	9
≥90	≥198	50	10

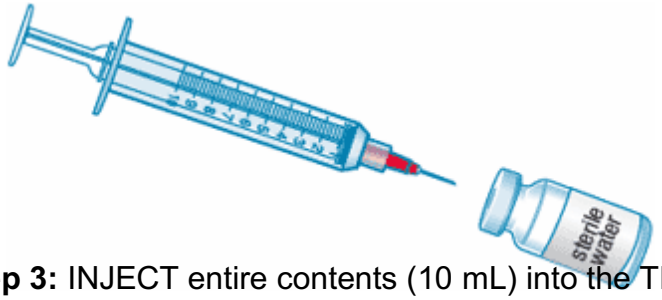
*Dosing in the ASSENT-2 trial was based on actual or estimated patient weight.

TNKASE ADMINISTRATION INSTRUCTIONS

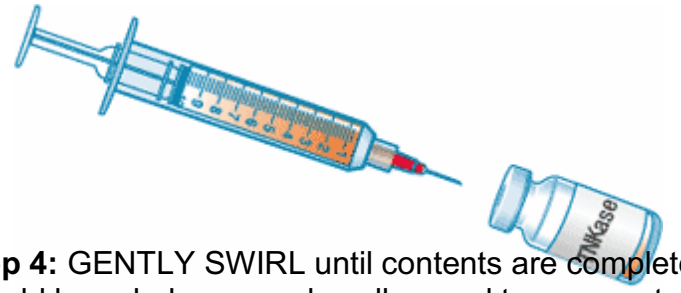
Step 1: Remove the shield assembly from the supplied B-D 10 mL syringe with TwinPak™ Dual Cannula Device.



Step 2: Aseptically WITHDRAW 10mL of sterile water for injection using the enclosed syringe.



Step 3: INJECT entire contents (10 mL) into the TNKase vial, directing the diluent into the powder. Slight foaming upon reconstitution is not unusual; any large bubbles will dissipate if the product is allowed to stand undisturbed for several minutes.



Step 4: GENTLY SWIRL until contents are completely dissolved. DO NOT SHAKE. Solution should be colorless or pale yellow and transparent. Once the appropriate dose of TNKase is drawn into the syringe, stand the shield vertically and recap the red tab cannula.

Step 5: USE UPON RECONSTITUTION. If not used immediately, refrigerate solution at 2–8°C (36–46°F) and use within 8 hours. DO NOT FREEZE. Final concentration of TNKase is 5 mg/mL.

TETRACAINE

Class:

- Topical anesthetic

Actions :

- Blocks calcium release channels which inhibit nerve conduction (pain)

Indications :

- Non-penetrating eye injuries
- Oral / buccal pain
- Pre-procedure topical anesthetic (IV & Rapid Rhino insertion)

Contraindications :

- Hypersensitivity

Precautions:

- Wear protective gloves when handling to prevent numbing sensation

Adverse Reactions:

- Impaired swallowing may lead to aspiration
- Numbness of tongue or buccal mucosa may enhance possibility of unintentional biting trauma

Adult Dosage / Route

- Apply two drops to eye, skin, gauze, or Rapid Rhino

TRANEXAMIC ACID (TXA)

Class:

- Pro-coagulant

Actions :

- Important factor in the coagulation cascade. Prevents clot breakdown

Indications :

- Hemorrhagic shock
- Traumatic brain injury
- Post-Partum hemorrhage
- Oral & Nasal bleeding

Contraindications :

- Do not give greater than three hours after injury

Precautions:

- None

Adverse Reactions:

- None

Adult Dosage / Route

- 2g IV slow push over one minute
- Do not repeat

APPENDIX

APPROVED ABBREVIATIONS

1st degree, primary	1°	greater than or equal to	≥
2nd degree, secondary	2°	ground level fall	GLF
3rd degree	3°	gunshot wound	GSW
about, approximately	≈	headache	HA
abdomen	abd	head, eyes, ears, nose, throat	HEENT
acetaminophen/Tylenol	APAP	heart rate	HR
acute coronary syndrome	ACS	history	Hx
acute myocardial infarction	AMI	increased, elevated	↑
advanced cardiac life support	ACLS	inferior	inf.
Against medical advice	AMA	multiple sclerosis	MS
airway, breathing, circulation	ABC	intensive care unit	ICU
alcohol (ethanol)	ETOH	intramuscular	IM
alert and oriented	A&O	intranasal	IN
ambulate, ambulatory	amb	intraosseous	IO
antecubital	AC	intravenous	IV
anterior	ant	jugular venous distention	JVD
aspirin	ASA	keep vein open	KVO
atrial fibrillation	Afib	kilogram	kg
atrial flutter	Aflutter	laceration	LAC
automatic internal cardiac defibrillator	AICD	lactated Ringer's	LR
automated external defibrillator	AED	last menstrual period	LMP
awake, alert, oriented	AAO	left, liter	L
bag-valve-mask	BVM	left lower quadrant of abdomen	LLQ
beats per minute	BPM	left upper quadrant of abdomen	LUQ
bilateral	B/L	less than	<
blood glucose level	BGL	less than or equal to	≤
blood pressure	BP	level of / loss of consciousness	LOC
breath sounds	BS	liters per minute	LPM
bowel movement	BM	male	m or ♂
calcium chloride	CaCl	milliequivalent	mEq
carcinoma, cancer	Ca	microgram	mcg
cardiopulmonary resuscitation	CPR	milligram	mg
centigrade	C°	milligrams per deciliter	mg/dL
cerebrospinal fluid	CSF	milliliter	mL or ml
cerebrovascular accident	CVA	millimeters of mercury	mmHg
change	Δ	minute	min
chest pain	CP	motor vehicle collision	MVC

chief complaint	CC	moves all extremities	MAE
Chronic Obstructive Pulmonary Disease	COPD	myocardial infarction	MI
circulation, motor, sensation	CMS	nasal cannula	NC
clear to auscultation	CTA	nasogastric tube	NGT
complains of	c/o	nausea/vomiting	N/V
congestive heart failure	CHF	negative	–
coronary artery bypass graft	CABG	nebulized	Neb
coronary artery disease	CAD	Nitroglycerin	NTG
dead on arrival at hospital	DOA	none	Ø
dead on scene	DOS	no known drug allergies	NKDA
decreased, depressed	↓	Non-rebreather	NRB
delirium tremens	DTs	normal saline	NS
dextrose 25%	D25	normal sinus rhythm	NSR
dextrose 5% in water	D5W	overdose	OD
dextrose 50%	D50	oxygen	O2
diabetes mellitus	DM	patient	pt.
diagnosis	Dx	person, place, time, event	PPTE
diastolic blood pressure	DBP	physical exam	P.E.
discontinue	D/C	positive	+, c, or w/
drops	gtt(s)	posterior	post
ear, nose, and throat	ENT	privately owned vehicle	POV
electrocardiogram	ECG, EKG	pulseless electrical activity	PEA
emergency department	ED	pulse, motor, sensation	PMS
epinephrine	Epi	sublingual	SL
equals	=	supraventricular tachycardia	SVT
endotracheal tube	ETT	systolic blood pressure	SBP
every	q or Q	times 2, or times 3, etc	x 2, x 3
external jugular	EJ	to keep open	TKO
Fahrenheit	F°	transcutaneous pacing	TCP
female	f. or ♀	treatment	Tx
gastrointestinal	GI	ventricular fibrillation	VF
gauge	ga	ventricular tachycardia	VT
Glasgow Coma Scale	GCS	vital signs	V.S.
gram or grams	g or gm	wheelchair	w/c
gravida	G	weight	wt.
greater than	>	without	s or w/out
		year(s) old	y.o.

APGAR SCORE

Criteria	0	1	2
Heart Rate	Absent	<100	>100
Resp Effort	Absent	Slow or Irreg.	Strong Cry
Muscular Tone	Limp	Some Flexion	Active Motion
Irritability	None	Some Motion	Vigorous
Color	Blue or Pale	Blue Limbs	Pink

- **Obtain APGAR Score at 1 & every 5 minutes until 20 minutes**
- **Score Significance:**
  - **7-10 – Normal, treat as indicated**
  - **4-6 – Apply oxygen, stimulate, resuscitate as needed**
  - **0-3 – Initiate aggressive resuscitation**

CIWA SCORE

Clinical Institute Withdrawal Assessment Scale for Alcohol, Revised (CIWA-Ar)

Nausea and Vomiting
0 – No nausea or vomiting
1
2
3
4 – Intermittent nausea with dry heaves
5
6
7 – Constant nausea, frequent dry heaves and vomiting

Paroxysmal Sweats
0 – No sweat visible
1 – Barely perceptible sweating, palms moist
2
3
4 – Beads of sweat obvious on forehead
5
6
7 – Drenching sweats

Agitation
0 – Normal activity
1 – Somewhat more than normal activity
2
3
4 – Moderate fidgety and restless
5
6
7 – Paces back and forth during most of the interview or constantly thrashes about

Visual Disturbances
0 – Not present
1 – Very mild photosensitivity
2 – Mild photosensitivity
3 – Moderate photosensitivity
4 – Moderately severe visual hallucinations
5 – Severe visual hallucinations
6 – Extreme severe visual hallucinations
7 – Continuous visual hallucinations

Tremor
0 – No tremor
1 – Not visible, but can be felt at finger tips
2
3
4 – Moderate when patient's hands extended
5
6
7 – Severe, even with arms not extended

Tactile Disturbances
0 - None
1 – Very mild paraesthesias
2 – Mild paraesthesias
3 – Moderate paraesthesias
4 – Moderately severe hallucinations
5 – Severe hallucinations
6 – Extremely severe hallucinations
7 – Continuous hallucinations

Headache
0 – Not present
1 – Very mild
2 - Mild
3 - Moderate
4 – Moderately severe
5 - Severe
6 – Very severe
7 – Extremely severe

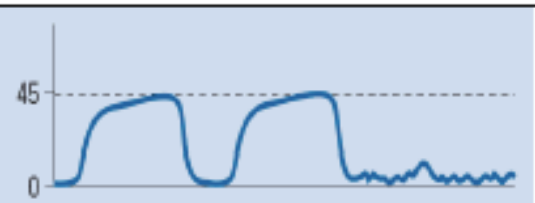
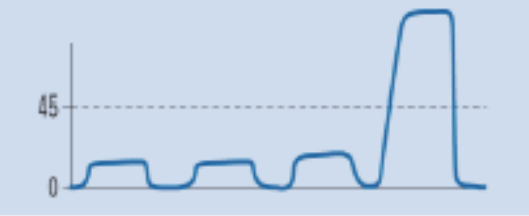
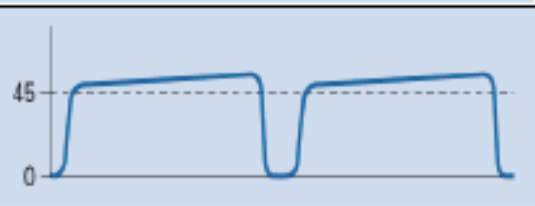
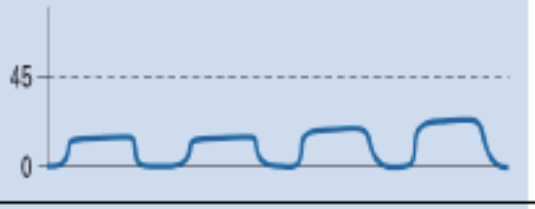
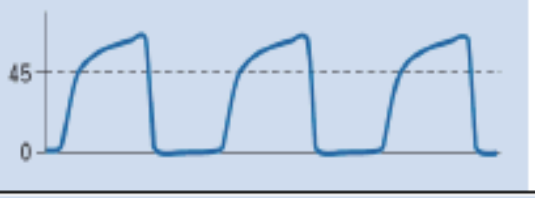
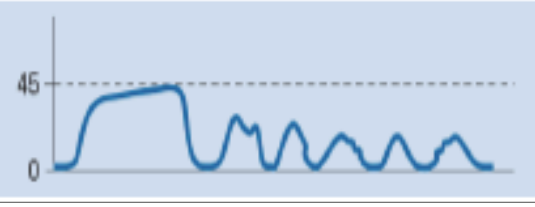
Auditory Disturbances
0 – Not present
1 – Very mild harshness or ability to frighten
2 – Mild harshness or ability to frighten
3 – Moderate harshness or ability to frighten
4 – Moderately severe hallucinations
5 – Severe hallucinations
6 – Extremely severe hallucinations
7 – Continuous hallucinations

Orientation and Clouding of the Sensorium
0 – Oriented and can do serial additions
1 – Cannot do serial additions
2 – Disoriented for date but not more than 2 calendar days
3 - Disoriented for date by more than 2 calendar days
4 – Disoriented for place/person

Cumulative scoring

Cumulative score	Approach
0 – 8	No medication needed
9 – 14	Medication is optional
15 – 20	Definitely needs medication
>20	Increased risk of complications

END TIDAL CO2 WAVEFORM / CHANGES

	Normal $EtCO_2$	• Normal perfusion
	Loss of previous waveform with $EtCO_2$ near zero	• Endotracheal tube disconnected, dislodged, kinked or obstructed • Loss of circulatory function
	Sudden increase in $EtCO_2$	• Return of spontaneous circulation
	Slow rate with increased $EtCO_2$	• Hypoventilation • If elevated above normal levels, need for increased ventilation • Partial airway obstruction
	Rapid rate with decreased $EtCO_2$	• Effects of hyperventilation
	CPR Assessment	• Cardiac arrest • Attempt to maintain minimum of 10 mmHg
	"Sharkfin" waveform	• Asthma • COPD
	Decreasing EtCO2 with loss of plateau.	• ET tube cuff leak or deflated cuff • ET tube in the hypopharynx • Partial obstruction

FIBRINOLYTIC CHECKLIST

Patient MUST Meet All of the Following Criteria to Qualify for Fibrinolytic Administration:

	Chest pain > 15 min and < 12 hrs
	ECG w/ STEMI or new LBBB
	OR
	Positive stroke screen
	Arrival to destination hospital > 60 min
	SBP <180 mmHg and DBP <100 mmHg
	Difference in R & L arm SBP < 15 mmHg
	History of structural central nervous system disease
	No significant head or facial trauma within the last 3 months
	No stroke within the previous 3 months
	No major trauma, surgery, or GI bleed in the last month
	No lumbar puncture within the past three weeks
	No history of intracranial hemorrhage
	No bleeding problems or blood thinners
	No active bleeding (excluding menses)
	Not pregnant
	No serious systemic disease (cancer, liver, kidney disease)
	No CPR greater than 10 minutes

GLASGOW COMA SCORE

	Eyes	Voice	Motor
1	No eye opening	No speech	No movement
2	Eyes to painful stimulus	Incoherent speech	Extending Decerebrate
3	Opens eyes to voice	Inappropriate words	Flexing Decorticate
4	Spontaneously opens eyes	Confused	Withdraws from painful stimulus
5		Oriented	Localises to painful stimulus
6			Obeys commands

PEDIATRIC GLASGOW COMA SCALE (PGCS)				
	> 1 Year		**< 1 Year**	**Score**
EYE OPENING	Spontaneously		Spontaneously	4
	To verbal command		To shout	3
	To pain		To pain	2
	No response		No response	1
MOTOR RESPONSE	Obeys		Spontaneous	6
	Localizes pain		Localizes pain	5
	Flexion-withdrawal		Flexion-withdrawal	4
	Flexion-abnormal (decorticate rigidity)		Flexion-abnormal (decorticate rigidity)	3
	Extension (decerebrate rigidity)		Extension (decerebrate rigidity)	2
	No response		No response	1
	> 5 Years	**2-5 Years**	**0-23 months**	
VERBAL RESPONSE	Oriented	Appropriate words/phrases	Smiles/coos appropriately	5
	Disoriented/confused	Inappropriate words	Cries and is consolable	4
	Inappropriate words	Persistent cries and screams	Persistent inappropriate crying and/or screaming	3
	Incomprehensible sounds	Grunts	Grunts, agitated, and restless	2
	No response	No response	No response	1
TOTAL PEDIATRIC GLASGOW COMA SCORE (3-15):				

HEAR SCORE

FOR USE WHEN EVALUATING PATIENTS WITH CHEST PAIN

History	Value
Highly Suspicious	2
Moderately Suspicious	1
Slightly Suspicious	0
ECG	
Significant ST-Depression	2
Non-Specific Repolarization Disturbance	1
Normal	0
Age	
≥ 65 years	2
45-65 years	1
≤ 45 years	0
Risk Factors	
≥ 3 Risk Factors or History of Atherosclerotic Disease	2
1 or 2 Risk Factors	1
No Risk Factors Known	0
Total	**0-8**
"Low Risk" = 0-3 and Normal Troponin "High Risk" = 4-8 **or** Troponin (>0.065 ng/ml)	

RISK FACTORS INCLUDE: Peripheral vascular disease, prior stroke, known cardiac disease, smoking, known hyperlipidemia.

LOW RISK: 2% risk of major adverse cardiac event in the next 30 days (death, AMI, etc)

HIGH RISK: 15% risk of major adverse cardiac event in the next 30 days

HELICOPTER LANDING ZONES

Island	LZ #	Location	Lat	Long

Blakely		Blakely Airport	48.34.78	-122.49.39
Canoe		Soccer Field	48.33.28	-122.55.37
Center		SW End of Center Island Airport	48.29.24	-122.49.54
Crane		Crane Island Airstrip	48.35.52	-122.59.52
Decatur		Decatur North	48.31.12	-122.49.69
Johns				
Lopez	1	Lopez Airport (S31)	48 29.190	-122 56.230
	2	Lopez Clinic (03WT)	48 31.495	-122 54.744
	3	Windsock Farms (4WA4)	48 33.150	-122 53.080
	4	Lopez School	48 29.412	-122 53.860
	5	Grace Church	48 31.680	-122 54.570
	6	Odlin Park Baseball Field	48 33.420	-122 53.450
	7	MacKaye Harbor	48 26.210	-122 51.841
	8	Sperry Peninsula	48 27.730	-122 49.170
	9	Spencer Spit State Park	48 32.110	-122 51.445
	10	Iceberg Point	48 25.328	-122 53.631
	11	Lopez Hill North	48 29.500	-122 52.400
	12	Fish Bay Preserve	48 31.110	-122 55.330
	13	Holly B's	48 31.380	-122 54.830
	14	Cousins Rd	48 27.990	-122 52.900
	15	Watmough	48 25.930	-122 49.750
Orcas	21	Eastsound Airport	48.42.47	-122.54.57
	21A	Eastsound Backup	48.42.17	-122.55.90
	23	1600 Rosario Rd	48.38.83	-122.52.27
	24	Deer Harbor Rd - Ralph Gott Rd	48.36.80	-122.59.68
	25	Obstruction Pass	48.37.24	-122.49.21
	26	Killebrew Lake Rd - Laporte Rd	48.36.12	-122.55.74
	27	Alderbrook Ln-Forest Ln	48.39.36	-122.45.91
Patos		Patos N	48.47.30	-122.58.21
San Juan		Friday Harbor Airport	48.31.11	-123.01.16
		Roche Harbor Airport	48 36.44	-123 08.18
		Cattle Point	48.27.26	-122.57.58
Shaw	1	Nichols' Field - 222 Squaw Bay Rd	48 34.11	-122 56.20
	2	Shaw Airstrip - 831 Neck Point Rd	48 34.41	-122 58.25
	3	Neck Point Dock	48 35.061	-123 00.485
Speiden				
Stuart		West Airport	48 41.09	-123 13.38
		West	48 41.07	-123 12.58
		Logan (Erickson)	48 40.00	-123 12.60
		Fire Station	48 39.76	-123 11.32
		North Star Ranch	48 40.00	-123 11.00
		Airpark	48 40.40	-123 10.40
Sucia		Echo Bay	48.45.78	-122.54.70
		Fossil Bay	48.45.15	-122.54.44
Waldron		SE end of the airstrip	48.42.42	-123.01.05

IDEAL BODY WEIGHT / TIDAL VOLUME

ADULT

IBW/Vte Robinson Formula					
ft/in	in	Male IBW	vTE 4-8mL/kg	*Female IBW*	*vTE 4-8mL/kg*
4'10	58	48	192-384	*46*	*184-368*
4'11	59	50	200-400	*47*	*188-376*
5'0	60	52	208-416	*49*	*196-392*
5'1	61	54	216-432	*51*	*204-408*
5'2	62	56	224-448	*52*	*208-416*
5'3	63	58	232-464	*54*	*216-432*
5'4	64	60	240-480	*56*	*224-448*
5'5	65	62	248-496	*58*	*232-464*
5'6	66	63	252-504	*59*	*236-472*
5'7	67	65	260-520	*61*	*244-488*
5'8	68	67	268-536	*63*	*252-504*
5'9	69	69	276-552	*64*	*256-512*
5'10	70	71	284-568	*66*	*264-528*
5'11	71	73	292-584	*68*	*272-544*
6'0	72	75	300-600	*69*	*276-552*
6'1	73	77	308-616	*71*	*284-568*
6'2	74	79	316-632	*73*	*292-584*
6'3	75	81	324-648	*75*	*300-600*
6'4	76	82	328-656	*76*	*304-608*
6'5	77	84	336-672	*78*	*312-624*

PEDIATRIC

Age	IBW	4mL/kg	6mL/kg	8mL/kg
Newborn	4 kg	16	24	32
4 mo	6 kg	24	36	48
6 mo	8 kg	32	48	64
1 year	10 kg	40	60	80
2 years	12 kg	48	72	96
3 years	15 kg	60	90	120
4 years	17 kg	72	102	144
5 years	20 kg	80	120	160
6 years	22 kg	88	132	176
7 years	25 kg	100	150	200
8 years	27 kg	108	162	216
9 years	30 kg	120	180	240
10 years	35 kg	140	210	280
11 years	40 kg	160	240	320
12 years	50 kg	200	300	400
13 years	60 kg	240	360	480

CRITICAL LAB VALUES

		Lab Values	Critical Values
BMP-			
Calcium		8.6 - 10 mg/dl	≤ 6 mg/dl, ≥ 13 mg/dl
Cl-		99 - 109	< 80, > 115 mEq/L
Gluc.		74 - 106 mg/dl	< 40, > 450 mg/dl
K+		3.5 - 5.5	< 2.8, ≥ 6.2
Na++		132 - 146 mEq/L	≤120, ≥ 160 mEq/L
BUN		9 - 23	≥ 80 mg/dl
Creat.	Female Male	0.5 - 1.1 mg/dl, 0.7 - 1.3 mg/dl	> 4 mg/dl
Total Protein		6.4 - 8.3 g/L	
Albumin		3.2 - 4.8 g/L	
CBC			
Hgb		12.0 - 16.0	≤ 6.0 g/dl, ≥ 20 g/dl
Hct	Female Male	37 - 47, 40 - 54	≤ 18%, > 60%
WBC		5.2 - 12.4	≤ 2.0, ≥ 30,000
RBC	Female Male	4.2 - 5.4, 4.6 - 6.19	
Platelets		130,000 - 400,000	≤ 40,000, ≥ 999,000
Ultra-Troponin		0.006 - 0.039	0.040 - 0.779 (high) > 0.78 (Critical)
Serum Drug Levels			
Carbamazepine (Tegretol)		4 - 10 mcg/ml	> 15 mcg/ml
Digoxin (Lanoxin)		0.8 - 2.0 mg/dl	> 2.0 mg/dl
Gentamycin		peak - 5 -10 mcg/ml valley - < 2.0 mcg/ml	> 10 mcg/ml
Phenobarbital		15 - 40 mcg/ml	> 40 mcg/ml
Phenytoin (Dilantin)		10 - 20 mcg/ml	> 20 mcg/ml
Theophylline (Aminophyllin)		10 - 20 mcg/ml	> 20 mcg/ml
Tobramycin		peak - 5 - 10 mcg/ml valley - 0.5 - 2.0 mcg/ml	> 10 mcg/ml
Valproic Acid (Depakene)		50 - 100 mcg/ml	> 125 mcg/ml
Vancomycin		peak - 25 - 40 mcg/ml valley - 5 - 15 mcg/ml	> 30 mcg/ml
Anticoagulant Related and Clotting			
PT		9.0 - 11.7 sec.	> 80 sec.
INR (Coumadin)		0.9 - 1.2	> 6
PTT (Heparin Monitoring)		55.0 - 75.0 sec.	> 70 sec.
APTT (therapeutic)		23.3 - 31.9 sec.	SJH ≤19 sec, ≥ 100 SJE No Low, ≥ 100
Fibrinogen Level		203 - 377 mg/dl	≤ 100.0, ≥ 600.0 mg/dl

ABG's -norms:					
pH	7.35 - 7.45	$P O_2$	80 - 100	BE	-2 /+2
$P CO_2$	35 - 45	HCO_3	22 - 26	O_2 sat	> 95

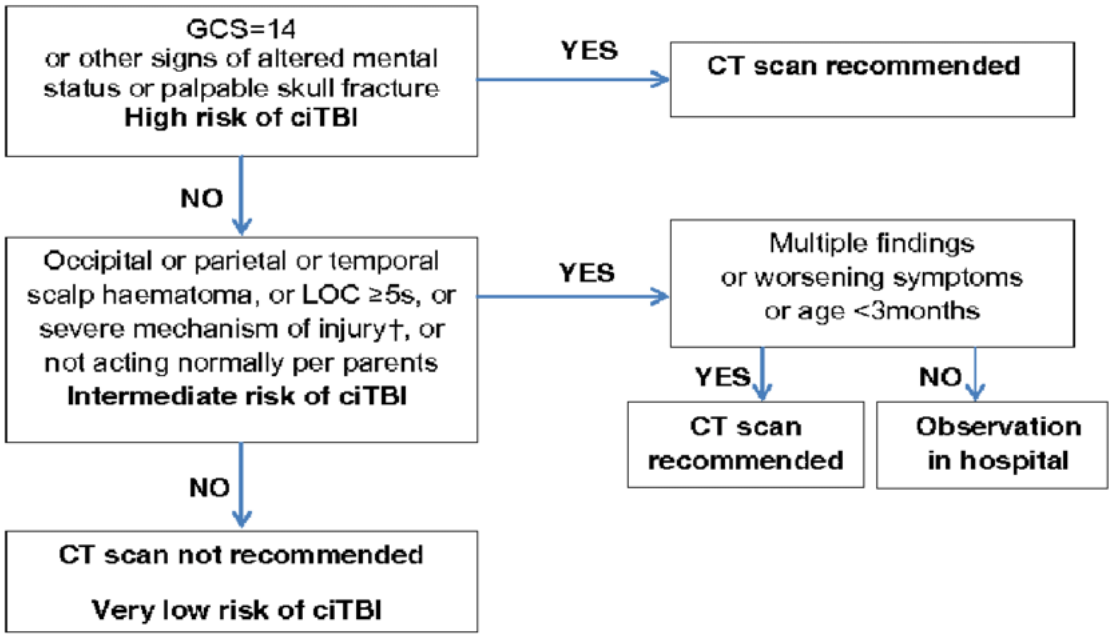
PECARN RULES

Any Finding Other Than Very Low Risk MUST be Transported to a Trauma Center

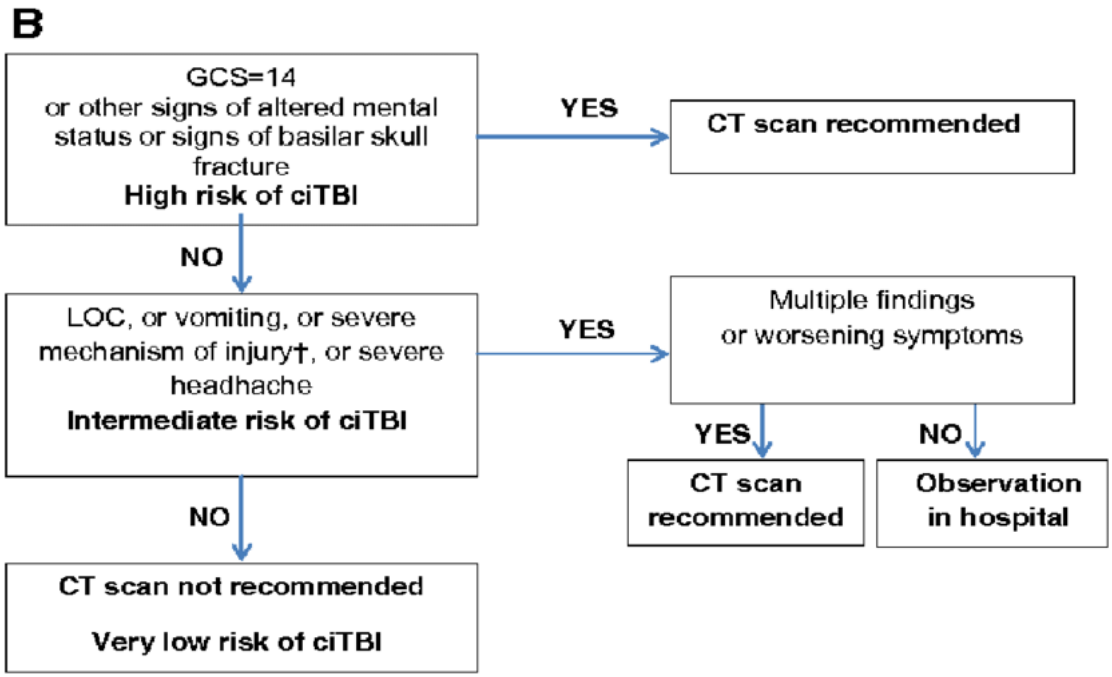
A - Children Less Than 2 Years of Age

B - Children Greater Than 2 Years of Age

A



B



RICHMOND AGITATION & SEDATION SCORE (RASS)

Richmond Agitation-Sedation Scale (RASS)		
RASS Score	Term	Description
4+	Combative	Combative, violent, immediate danger to staff
3+	Very agitated	Pulls or removes tubes or catheters, aggressive
2+	Agitated	Frequent non-purposeful movement, fights ventilator
1+	Restless	Anxious but movements not aggressively vigorous
0	Alert and Calm	
-1	Drowsy	Not fully alert but has sustained eye opening/contact 10 sec or more to voice
-2	Light Sedation	Briefly awakens to voice with eye contact less than 10 sec
-3	Moderate Sedation	Movement or eye opening to voice (no eye contact)
-4	Deep Sedation	No response to voice but movement or eye opening to physical stimuli
-5	Unarousable	No response to voice or physical stimuli

- The **RASS** is a tool used to objectively evaluate an intubated patient's level of agitation. The goal is to keep an intubated patient between a -2 and 0. Pts should not be agitated, nor should they be obtunded or deeply sedated. Avoid repeat doses of paralyzing medication. Refer to the Pain Control & Sedation protocol for guidance.

Pediatric Vital Signs Reference Chart

Heart Rate (beats/min)			Respiratory Rate (breaths/min)	
Age	**Awake**	**Asleep**	**Age**	**Normal**
Neonate (<28 d)	100-205	90-160	Infant (<1 y)	30-53
Infant (1-12 mos)	100-190			
Toddler (1-2 y)	98-140	80-120	Toddler (1-2 y)	22-37
Preschool (3-5 y)	80-120	65-100	Preschool (3-5 y)	20-28
School-age (6-11 y)	75-118	58-90	School-age (6-11 y)	18-25
Adolescent (12-15 y)	60-100	50-90	Adolescent (12-15 y)	12-20

Reference: PALS Guidelines, 2015

Blood Pressure (mmHg)

Age		Systolic	Diastolic	Systolic Hypotension
Birth (12 h)	<1 kg	39-59	16-36	<40-50
	3 kg	60-76	31-45	<50
Neonate (96 h)		67-84	35-53	<60
Infant (1-12 mos)		72-104	37-56	<70
Toddler (1-2 y)		86-106	42-63	<70 + (age in years × 2)
Preschool (3-5 y)		89-112	46-72	
School-age (6-9 y)		97-115	57-76	
Preadolescent (10-11 y)		102-120	61-80	<90
Adolescent (12-15 y)		110-131	64-83	

Reference: PALS Guidelines, 2015
For diagnosis of hypertension, refer to the 2017 AAP guidelines Table 4 & 5:
http://pediatrics.aappublications.org/content/early/2017/08/21/peds.2017-1904

Temperature (°C)		Oxygen Saturation (SpO_2)
Method	**Normal**	SpO_2 is lower in the immediate newborn period. Beyond this period, a SpO_2 of **<90-92%** may suggest a **respiratory condition** or **cyanotic heart disease**.
Rectal	36.6-38.0	
Tympanic	35.8-38.0	
Oral	35.5-37.5	
Axillary	36.5-37.5	
Ranges do not vary with age. **Screening:** axillary, temporal, tympanic (↓ accuracy) **Definitive:** rectal & oral (↑ reflection of core temp.) *Reference: CPS Position Statement on Temperature Measurement in Pediatrics (2015)*		

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(Edited March 2020 by Richard He)

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