Yuma Regional Medical Center

Base Hospital Protocols

Revised 6-1-2021

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ALS Release of Patients for BLS Transport

Criteria 1: Vital signs MUST be within the following limits:

AGE	Preemie	<1mo	< 1yr	1-4 yr	5-7 yr	8-13 yr	Adult
SBP	MAP=EGA	> 54*	> 65*	>70+(2 x age)*	>70+(2 x age)	90-140	SBP 90-160 DBP 60-100
Resp	30-60	30-60	28-40	20-32	18-24	16-24	16-24
Pulse	100-160	100-160	100-160	80-140	70-120	60-110	60-100

Presence of strong Central/Peripheral Pulse as an alternative to SBP

**All ages Temp < 100.4F

EGA = estimated gestational age, MAP = mean arterial pressure

Criteria 2: Absence of the following:

- ❑ Abdominal Pain
- ❑ Altered mental status (altered for patient)
- ❑ Any acute arrhythmia
- ❑ Chest Pain
- ❑ Electrocution
- ❑ Foreign body ingestion
- ❑ Inability to walk (not normal for patient)
- ❑ Overdose or poisoning
- ❑ Patient volunteers high risk condition
- ❑ Pregnancy related complaint
- ❑ Seizures
- ❑ Water-related incidents
- ❑ Any injury threatening life, limb or function
- ❑ Patient requiring high risk SMR

No → Continue ALS Transport

Yes

Criteria 3: Absence of significant findings on physical exam

- ❑ A physical exam must be complete and documented
- ❑ The patient must have no signs, symptoms, or history that would appear to *OR* indicate significant findings or an emergent condition.
- ❑ Patch to base hospital to gain approval for BLS transport *OR* trasport ALS.
- ❑ BLS arrival time must be within reasonable limits.

No

No

Yes

Release patient to BLS Transport unit

Ambulance Bay Protocol

Purpose:
To ensure the safety of all pedestrians on the YRMC campus and to lend comfort for the Emergency Department patients and staff as well as protect the EMS agencies from liability.

Procedure:

- After pulling into the ambulance parking turn the ignition of the ambulance to the off position, remove the keys and place them in your pocket prior to exiting the vehicle. At **no** time should the ambulance motor be running while unattended by EMS staff.

Note: When motors are allowed to run it fills the ED with exhaust fumes. If the vehicle should slip out of park and roll down the parking lot it may cause serious injury to a pedestrian. If the vehicle is running and unattended it is also vulnerable to theft.

Continuing Education

Purpose:
The purpose of the continuing education policy is to ensure that all EMT's maintain an adequate level of current knowledge and proficiency in the field.

Procedure:

- Tape and Chart will be conducted on the last Tuesday and Wednesday of every month.
- Tape & Chart Attendance Requirements to maintain base hospital privileges: Paramedics that are employed by any Yuma County agency are required to attend **THREE** tape and charts per calendar year.
- Tape and Charts from outside the YRMC base hospital will not be accepted as meeting the tape and chart annual requirements.
- Failure to meet the requirements for tape and chart attendance for each calendar year must be made up with clinical time. Eight hours of productive clinical time in the Emergency Department will be assigned for each missing tape and chart for that year. This exception will be allowed once every 5 years.
- Tape and charts may incorporate run review and lecture. Topics will vary from month to month to address changes, new development, problem areas, and recommendations from personnel.
- Clinical experiences can be obtained by contacting department training officers who in turn will contact the EMS coordinator for scheduling. EMS coordinator will coordinate with specialized units for clinical experiences.
- Failure to meet requirements will result in loss of base hospital privileges.
- Every paramedic will submit a signed acknowledgment form that indicates that they are aware of the above requirements; this form will be kept on file.

Disaster Triage

Triage is the sorting of casualties and is, therefore, one of the most important functions to be performed at the scene of a disaster. Agencies will utilize the S.T.A.R.T triage system during mass casualty events. This will help ensure a more organized approach during a stressful event. Triage is a continuous process; it is necessary to re-evaluate all patient priorities, as resources become available. The most seriously injured persons can be quickly identified by:

- Evaluating respiratory rate, less than or greater than 30.
- Evaluating radial pulse
- Evaluating mental status, able to follow simple commands.

Establish Priorities: Casualties are sorted into four (4) categories:

1. Immediate (RED); Those who have serious injuries or medical problems (salvageable life threatening problems, taking into account the resources available);

    a. Airway and breathing difficulties which can be readily alleviated with head tilt and OPA insertion.

    b. Gross bleeding controlled by direct pressure

2. Delayed (YELLOW): Those for whom treatment and transportation can be delayed while more seriously injured persons receive care.

3. Minor (GREEN): Those patients who can ambulate to an alternative location without assistance.

4. Dead/Dying (BLACK): Those patients who do not resume spontaneous breathing after positioning of the head and insertion of an OPA, and have no spontaneous pulse. These patients should be re-triaged, as resources become available.

Disaster Scene Operations
Follow approved area Incident Management System procedures

EMS Committee

Purpose:
Review all ALS base hospital and EMS Pre-hospital activities. To maintain a high standard of care for our service area.

Procedures:

- Will meet on a monthly basis and will be comprised of a representative from each agency that is affiliated with the base hospital. Will also invite other agencies that play a role in the pre-hospital setting.
- Only agencies that are affiliated with the base hospital will have a vote.
- The Base Hospital Medical Director will be the final decision.
- Meetings will be conducted by the Base Hospital Medical Director or the Coordinator.
- Medical Director will attend at least one committee meeting per quarter.
- EMS committee will review all base hospital policies and protocols.
- Recommend continuing education topics through identified needs.
- Recommendations and discussion on implementation of new and developing standards of care.
- Review and evaluate new equipment.

EMS Radio Communication

Purpose:
To provide for quality Emergency Medical Services (EMS) care. YRMC has telephone and radio communications equipment to provide on-line medical control for communications between the EMS field personnel on-scene and the Emergency Department (ED). All communications are recorded on a CD and are stored with the EMS base hospital coordinator for five years. The communications and telemetry equipment is located in the ED. Notification that a radio patch is being initiated is received by one of the following:

- PRIMARY
  - Two direct land line phones routed through the EMS radio.
    - (928)344-4868
    - (928)336-7759

- SECONDARY
  - 800 megahertz line also routed through the EMS radio as well as one handheld portable as a freestanding unit.

Procedure:
- All Advanced Life Support (ALS)/Basic Life Support (BLS) personnel assigned to the YRMC Base Hospital shall contact the Base Station for "on-line" medical direction in accordance with DHS rules and regulations and in accordance with the Base Hospital Policy Manual.

- The EMS Medical Director or his appointed designee physician shall be responsible and accountable for on-line medical direction via radio of all EMS field personnel at all times.

- The Emergency Physician may, at times, designate an ED Resource Coordinator (RC) registered nurse (RN), a core staff RN who may function as an intermediary to relay medical and telemetry orders to EMS field personnel, under the direction and authority of the ED Physician.

Disaster Plan:
If communication is impossible to the base hospital due to internal disaster the following number will be used for medical direction:

- Yuma Country Radio System (YRCS)
- (480) 381-9095 Dr. Franco Castro-Marin

Infection Control

Purpose:
To decrease the exposure and spread of infectious diseases.

- Standard precautions will be utilized with all patient encounters.
- Contact precautions include:
  - Isolation gowns
  - Eye protection
  - Gloves
  - Dedicated stethoscope and BP cuff
  - Utilize contact precautions with patients that are known or suspected to have:
- MRSA
- VRE
- C-difficile (Extend care facility residents with a complaint of diarrhea)
- Lice/Scabies
- Airborne precautions include:
  - N95 mask
  - Gown
  - Gloves
  - Eye protection
  - Dedicated stethoscope and BP cuff
  - Utilize airborne precautions with patients that are known or suspected to have:
- Tb
- Chicken Pox/Shingles
- Measles
- SARS
- Avian Flu
- Droplet precautions include:
  - Masks
  - Eye protection
  - Dedicated stethoscope and BP cuff
  - Utilize droplet precautions with patients that are known or suspected to have:
- Influenza or pertussis
- RSV
- Meningitis
- MRSA sputum
- Mumps
- Rubella
- Ebola

Exposure to body fluids procedure

- Clean or rinse exposed area with copious amounts of water
- Notify ER RC on duty: description of exposure and patient information required
- Notify your agency representitive.
- Contact pre hospital coordinator (or RC after hours) for results of source patient; (exposed EMS personnel or supervisor)

Inter-facility Transfer

Purpose:
To provide appropriate transfer methods for patients requesting or requiring transfer to another licensed healthcare institution.

Inter-facility Transport –

- An immediate or prearranged ambulance transport of an individual receiving medical care from one licensed accredited hospital or other licensed health care institution to another licensed accredited hospital or licensed accredited health care institution.

Procedure:

- The skill level of the transporting unit personnel must be consistent with the level of care required by the patient during transport.
- The patient should be stabilized to the best ability of the sending facility before transport.
- All Base Hospital protocols will be followed for inter-facility transfers.
- Utilize Base Hospital Medical direction is available for any concerns.

Medication Handling, Storage and Disposal

Purpose:
To maintain accountability of medications in regards to handling, storage and restocking of medications.

Procedure:
Handling of Medications:

- A written chain of custody for each supply of agents, including at least the following:
  - The name and AZDHS certification number of each individual who takes custody of the supply of medications; and
  - The time and date that each individual takes custody of the supply of medications.
  - Daily Drug Box Check-Off utilized to ensure complete chain of custody (located in appendix)

- Each individual who takes custody of a supply of medications is to do the following:
  - Upon initially taking custody of the supply of medications, inspect the supply for expired medication, deteriorated medication, damaged or altered medication containers or labels, and depleted or missing medications.
  - Upon determining that any of the conditions described above exists, document the condition, notify your direct supervisor and the ALS base hospital's pharmacist-in-charge if a controlled substance is depleted or missing, and obtain a replacement for each affected medication for which the minimum supply is not present. A variance report must also be submitted to the Base Hospital Coordinator (see variance report policy).
    - The ALS base hospital pharmacist-in-charge will notify the Department in writing within 10 days after the pharmacist-in-charge receives notice, as required under A.A.C. R9-25-210 (D)(3)(b)(ii), that any quantity of a controlled substance is missing.

- Record each administration of a medication on a pre-hospital incident history report. Storage of Medications:
  - The appropriate medication boxes will be carried on all ambulances according to the EMCT's certification level.
  - ALS medication boxes will be sealed with medication box seal at all times when not in use or being inventoried.
  - Boxes will be secured in a dry, clean, washable receptacle.
  - While on a motor vehicle medication boxes will be secured in a manner that restricts movement of the agent and its receptacle.
  - If the medication box contains controlled substances, it must be locked in a substantially constructed cabinet
  - All medication boxes will be inventoried on the first day of each month.
  - All medication boxes shall be inventoried monthly.
  - Medication box inventory will include verification and appropriate documentation of all medications listed.
  - That each medication to which an EMCT has access while on duty for the emergency medical services provider is kept inaccessible to unauthorized individuals at all times.

- If a BLS employee finds an ALS medication box not attended by an ALS employee at any time, he/she must immediately notify a supervisor and will be placed out of service until the situation is rectified.

Restocking Medications:

- The following guidelines are to be used in an effort to provide a uniform practice by all paramedics as to restocking of medications. This procedure will also assure proper legal documentation:
  - To receive medications from pharmacy you must show a EMS agency specific order form.
  - If medications are delivered by responding agency then they can be restocked by the transporting agency at the scene. Documentation of transfer of medications will be documented on both patient care records. Documentation will include the Paramedics name and certification number. This excludes controlled substances and patient refusals.
  - Controlled substance waste must be signed by a registered nurse in the emergency department or a second Paramedic in the field if care is handed off. Wasted controlled substances must have the Paramedic cert # on the PCR.

Disposal/Destruction:

- The following process is intended for use when destroying expired or near expired medication:
  - Controlled substances will be wasted by designated Agency Personnel and witnessed by additional certified personnel.
  - All waste will be documented on the Controlled Substance Destruction Log and the form submitted to Base Hospital by the 15th of every month for the previous month (example: March 15th all audits for February are due), the log should contain Date, Time, Lot #, Amount Disposed, name of the medication, signatures and identification #'s for both individuals.
  - All waste should be made non-retrievable by agency specific methods which can include the dumping of liquid medication into kitty litter and/or saw dust, or unused coffee grounds.
  - Agencies can use Reverse distribution manufacturers for disposal of all pharmaceutical waste.

Obvious/Apparent Death

This guideline is intended to assist in determining how and when resuscitative measures should be withheld. Refer to appropriate treatment guidelines for other resuscitation guidance based on specific medical or trauma conditions.

Exclusion criteria:

- Patients experiencing cardiac arrest associated with medical conditions that may have better outcome despite prolonged efforts, such as hypothermia, lightning strikes, or submersion/drowning. Consider continuing efforts in such cases or contact on-line medical direction.

If the patient meets the criteria listed below, no resuscitative efforts need to be initiated. On-line medical direction is NOT necessary. Contact law enforcement and initiate grief support. An EMS provider must remain with the patient until released to law enforcement or medical examiner.

For these conditions, confirmation with cardiac monitor is NOT required:

- Decapitation
- Decomposition
- Transection of the torso
- Incineration: 90% of body surface area with full thickness burns as exhibited by ash rather than clothing and complete absence of body hair with charred skin

For these conditions, confirmation of pulseless and apneic state with cardiac monitor in 2 leads IS required:

- Dependent lividity
- Rigor mortis
- Injuries incompatible with life (such as massive crush injury, complete exsanguination, severe displacement of brain matter)

Paramedic Orientation

Goal: It is the intention of this document to outline the minimum competencies required for the orientation of all incoming paramedics. The goal of the orientation process is to confirm the Paramedic's adaptive and integrative competency as well as assure the paramedic's comprehensive knowledge of local protocols and procedures.

Each agency is tasked with creating its own process for orienting newly hired paramedics and submitting this process in writing to base hospital. Written process must include at minimum the process for 4 different types of newly hired paramedics as listed under the procedure heading of this policy. The following objectives serve as the minimum competency for any paramedic completing the orientation process. Although clinical and/ or field internship may not be required for all new paramedics, it is the responsibility of each agency to ensure that the following competencies are met:

Cognitive Objective:
Upon completion of the orientation process the Paramedic must:

- Understand the roles and responsibilities of a paramedic within the Yuma County EMS System,
- Demonstrate an understanding of the Policies and Procedures utilized by the agencies associated with Yuma Regional Medical Center,
- Demonstrate a comprehensive knowledge of the approved medications, including, indication, contraindication, dosage, and route,
- Formulate a treatment plan within local protocols, for patients with a variety of complaints.

Psychomotor Objectives:
Upon completion of the orientation process the Paramedic must demonstrate:

- Competency in the skills set forth by the local Scope of Practice model,
- The ability to perform a comprehensive history and physical exam,
- The ability to formulate a field impression based on the analysis of the comprehensive assessment findings, anatomy and physiology, pathophysiology and epidemiology,
- The ability to implement a treatment plan within local protocols for patients with a variety of complaints,
- A foundational understanding of the equipment utilized at their agency.
- The ability to function as the team leader, including directing other EMS providers of all certification levels.

Affective Objectives:
At the completion of the orientation process the Paramedic will:

- Serve as a role model for others relative to professionalism in EMS,
- Exhibit professional behaviors in the following areas: integrity, empathy, self-motivation, appearance and personal hygiene, self- confidence, communications, time management, teamwork and diplomacy, respect, patient advocacy, and careful delivery of service,
- Value the need to serve as the patient advocate, inclusive of those with special needs, alternate life styles and cultural diversity.

Procedure:

All paramedics regardless of years of service and experience level are required to complete the following steps to receive base hospital privileges. **(In this order)**

- Successfully completed the "Base Hospital EKG and Procedure Test" with a minimum score of 80%.
- A Department Representative has completed and submitted the Affiliate Form (see Appendix), and all required certificates.
- Complete the following Field Internship for the appropriate category
- A Department Representative has completed the Evaluation Form. To be completed and submitted when agency has determined that paramedic has completed orientation per its documented process. (see appendix)

YRMC in conjunction with Prehospital Care committee have identified areas that must be addressed in each agencies orientation. Although each agency is responsible for the orientation and eventual evaluation of a new paramedic, YRMC will have final decision authority on extra ordinary situations not covered. Areas identified are as follows:

1. Paramedics Graduating from a Local program and have received certification within 30 days of graduating:

- Department responsibility to determine appropriate sequence for orientation to meet the aforementioned objectives.
- No Clinical Rotation Requirement

2. Paramedics graduating from a local program who receive certification 31 days or longer, after the completion of the course.

- Department responsibility to determine appropriate sequence for orientation to meet the aforementioned objectives but must include
    - A minimum of 2, 24 hour shifts of field internship.
    - No Clinical Rotation Requirement

3. Paramedic new to Yuma County with one year or more experience elsewhere.

- Department responsibility to determine appropriate sequence for orientation to meet the aforementioned objectives and must include:
    - A minimum of 2, 24 hour shifts of field internship.
    - A minimum of 8 hours of clinical rotation with the Medical Director.

4. Paramedics newly graduated from a Paramedic Program outside of Yuma area.

- Department responsibility to determine appropriate sequence for orientation to meet the aforementioned objectives and must include:
    - A minimum of 3, 24 hour shifts of field internship
    - 8 hours of clinical rotation preferably with Medical Director or alternate ED physician

Definitions

- **Adaptive Competency:** Ability to anticipate and accommodate changes (e.g. patient trends, technological, professional) important to the profession and the patient alike.
- **Integrative Competency**: Ability to meld theory and technical skills in actual process.
- **Local Program**: Any program whose majority of Clinical Rotation and Field Internships are completed at YRMC and with local Agencies that are associated with YRMC base hospital.

Patient Confidentiality

Purpose:
To outline the responsibilities of all EMT's associated with the Base Hospital in regards to confidentiality.

Policy:
All providers who provide care or come in contact with potential patients will be held to the following standard:

- All information received regarding the patient will only be used for the purpose of continuity of care.
- All EMCT providers who are involved in an approved EMS training program or clinical setting are held to the same standard as above.
- Violation of patient confidentiality in any way will constitute a failure to comply with base hospital policies. Base Hospital Medical Director or Coordinator at his/her discretion may suspend or withdraw of base hospital privileges.
- Patient care scenarios discussed at peer review, tape and chart review, and continuing education sessions are covered by this confidentiality policy.
- All potential or actual violations of patient confidentiality will be reported to the provider's agency and the Base Hospital Coordinator for review and action.

Prehospital Medical Care Directive (PMCD)

"Do not resuscitate" (DNR) orders should be honored whenever possible. These orders appear on a PMCD document (aka "orange form"). This form will state that CPR and/or intubation are not to be initiated if the patient is in cardiac arrest. Specific interventions covered by this order and the details describing when to implement them can vary widely.

Consider the PMCD form applicable and valid when ALL of these criteria are present:

- Patient must be pulseless and apneic with no signs of life.
- PMCD form is printed on orange paper and readily available. Take up to 2 minutes to locate form.
- Form must be intact, should include the patient's name and physical description or recent photo, and must be signed by a physician or other licensed medical professional.

If a valid PMCD form is present, family requests to resuscitate do not need to be honored (A.R.S. 36-3205)

If there is question about the validity of the PMCD, the best course of action is to proceed with the resuscitation until additional information can be obtained to clarify the best course of action and contact on-line medical direction.

If the patient has a valid DNR, make every effort to honor the order to withhold CPR and/or intubation. Comfort measures should still be offered. If resuscitative efforts were initiated and a valid DNR is recovered later, efforts may be discontinued in accordance with the order. On-line medical direction is not required.

If there is a valid DNR but signs of life (pulse and respirations) and present, EMS providers should provide appropriate treatment under existing guidelines that apply to the patient's condition.

Provider Affiliation

Purpose:
For the documentation of affiliation of all levels of Emergency Medical Services (EMS) personnel practicing within Yuma County.

Procedure:

- Emergency Medical Services personnel provider affiliation will be documented by the completion of a "Provider Affiliation Form." This applies to all levels of EMCT's employed by contracted provider agencies affiliated with the Yuma Regional Medical Center Advanced Life Support Base Hospital.

- All certified providers must be affiliated with an EMS provider agency, before Basic or ALS medical control privileges can be granted to the individual EMCT.

- All agencies affiliated with the YRMC, ALS, Base Hospital will provide an affiliation form to the EMS Manager prior to privileges being granted for new hires or change of status.

- An addendum listing all personnel employed or volunteering with the agency will be attached to each Base Hospital contract upon acceptance or renewal of the contract.

- Copies of DHS certification cards, BLS and ACLS will be attached to affiliation forms submitted to the Base Hospital. The affiliation form will be placed on file in the individual records of all EMS personnel in the EMS Managers office.

- All agencies are required to maintain and provide current copies of DHS certifications, BLS and ACLS certifications to Base Hospital for any EMT affiliated with that agency. Medical control privileges will be suspended on date of expiration of any required certification and will remain suspended until updated certification is received. Agency will be notified via email regarding suspension to be followed by official letter to DHS and the agency involved.

- EMS agency Chiefs/Administrators will update the Base Hospital regarding any changes in personnel affiliation within 30 days of the change.

- Medical Control privileges for providers will not be granted unless the provider can document the provider affiliation. The EMS Manager may temporarily suspend medical control privileges pending the receipt of all completed and current documentation.

Quality Improvement

Purpose:
Patient care delivered by all Pre-Hospital Care agencies under a Base Hospital Medical Direction agreement with Yuma Regional Medical Center will be audited for quality on an ongoing basis. To involve the pre-hospital care agencies in an active peer review process whereby treatment guidelines, performance, and skill levels are monitored and evaluated both on a time to time and an ongoing basis.

Procedure:

- The Pre-Hospital agency will be responsible for auditing of Patient Encounter Forms.
- The Pre-Hospital Administrative Medical Director will approve Patient Encounter Forms auditing and performance compliance monitoring procedures.
- The audit will focus on specific aspects of the system or specific patient diagnosis, sign/symptom, or treatment.
- Mandatory chart audits:
    - Acute Strokes
    - Cardiac Arrest
    - STEMI
    - Major Trauma
    - Pediatric Emergencies
    - Emergency Transport
- Mandatory chart audits will be conducted 100%. Completed Patient Encounter Forms (unless coordinator has access to electronic PCRs) and quality improvement audit tool with be sent to Pre-hospital Coordinator by the 15th of every month for the previous month (example: March 15th all audits for February due)
- Agencies will be required to audit 50% of charts monthly up to 100 charts and store for 2 years.
- Pre-Hospital Coordinator will be required to randomly screen 10 charts submitted by agencies and review 10 patch recordings of on-line physicians orders no later than the 15th of each month.
- All submission of documentation must comply with HIPAA regulations.
- All drug box checks for the previous month will be submitted with monthly QA's.

Refusal of Treatment and/or Transport

Purpose

To define the circumstances and situations where paramedics may accept a patient's refusal of treatment and/or transport

General Guidelines

- All patients who request transport to the hospital will be transported
- Any patient who complains of any pain, discomfort, or problem will have an assessment performed.
    - If the patient refuses an assessment, document the manner of the refusal and the patient's reason for the refusal in the report.
    - Assessment should include all items referenced in the treatment algorithm related to the patient's complaint.
- In all cases, a refusal form will be filled out and signed by the patient or appropriate consenting adult (if the patient is a minor).
    - If the patient refuses to sign the form, document the reason and have a witness sign the form.

Who Can Refuse

- The patient **must** meet all of the following criteria:
    - Is an adult (18 or over), or if under 18, is being released to a parent, guardian, responsible party, or law enforcement personnel
    - Is oriented to person, place, time, and event.
    - Exhibits no evidence of:
        - Altered level of consciousness
        - Alcohol or drug ingestion that impairs judgment
    - Understands the nature of his/her medical condition, as well as the risks, and consequences of refusing care.
- An adult accepting care for a minor must sign the refusal form.
- Contact medical direction if any concerns.

HIGH RISK REFUSALS: CANNOT refuse without contacting medical direction to obtain physician's recommendation.

- Advised to be transported to the ED by an out patient provider (urgent care, PCP)
- Syncopal or near-syncopal episodes
- Chest Pain, acute cardiac dysrhythmias, or abnormal vital signs (see ALS release BLS)
- Foreign Body Ingestion
- Electrocution
- Taser Application/electro-muscular disruption weapon
  Note: an ECG strip must be evaluated and attached to the chart

- Positive ETOH or drug ingestion which impairs judgment (by exam or history)
- Head or Facial Injuries (by exam or history)
- Pediatric patient with reported Apparent Life-Threatening Event (ALT). >apnea, choking or gagging, color change (cyanosis, pallor, erythema), marked change in muscle tone (limpness)

Refusal of Treatment and/or Transport

- Post medication administration (by EMS, outpatient provider or self) to relieve symptoms within the last 24 hours: including but not limited to oxygen, sublingual nitroglycerin, etc.)
- Abdominal Pain
- Postictal or reported seizure activity (witnessed or unwitnessed)
- Persons that cannot understand the consequences of refusal
- Persons that do not speak/understand English (unless an interpreter is present)
- Persons that have, or appear to have, mental illness or mental retardation
- Altered mental status (altered for patient)
- Inability to walk (not normal for patient)
- Minors being released to anyone other than parent or guardian, adult accepting care must sign the refusal form.
- Falls:
    - Adults:> 20 ft. (one story is equal to 10 ft.)
    - Children:> 10 ft. or 2-3 times the height of the child
- High –risk auto crash, Intrusion > 12 in. occupant site; > 18 in. any site Ejection (partial or complete) from automobile, Death in same passenger compartment , Auto v. pedestrian/bicycle thrown, run over, or with significant (>20 mph impact, Motorcycle crash >20 mph.

Documentation Requirements for Refusal of Treatment and/or Transport:

Reports shall include:

- Patient name, age
- Date of birth (DOB)
- Medical history
- Complete sets of vital signs (Blood Pressure, Pulse, Respiratory rate, Pulse Ox, Pain Level)
    - Second set should be obtained if first set is abnormal or treatments were given
    - Document patient refusal to have vitals signs obtained
- Chief complaint
- Mental status exam findings (speech, gait, appropriate behavior, cooperative, follows instructions/commands)
- Physical exam findings
- Reason for refusal
- Signed refusal form
- Complaint or symptom specific advice with risks and benefits given
- Documentation of encouragement to allow treatment and/or transport
- Patient understands risks of refusal
- Patient understands possible outcome if advice is not followed

Refusal Form Signatures

- Witnessed by law enforcement officer, family member, or friend
- If a minor is refusing, adult accepting care for child must sign
- If patient/adult refuses to sign, get witnessed by police if possible

Required Notification

On-line treatment orders may only be received from online medical direction. If an on-line physician outside the Base Station wishes to give treatment orders, the ALS provider must discontinue the communication and contact his or her assigned on- line medical direction.

Clearly state at the beginning of an on-line communication if you are making a “notification” or a “patch.” If you are seeking orders, you are making a patch.

An ALS Notification includes the following patient-related information:

- Unit identifier
- Age
- Chief complaint
- Treatments rendered
- ETA
- Vital signs (complete set)
- Mechanism of injury (trauma)

Transmit required information to receiving facility; notify receiving facility of significant changes.

Notification or a patch is required on **all** transports. Notification may be done by phone or radio.

- (928)336-7759
- (928)344-4868
- 800 megahertz line (use as last option)

Rotor Transport Guidelines

Purpose:
To consider rapid air transport for all critically ill and or injured patients.

Procedure:

- It is not mandatory to be on scene to request a rotor. Consider contacting your dispatch center to have a civilian crew launched or put on standby.
- Level 1 trauma to include but not limited to; motor vehicle accidents with suspected head, spinal, chest, abdominal, open fractures of 2 or more long bones, gunshot wounds, stabbings, burns, electrocution, drowning, amputations, glascow coma scale of 13 or <.
- Extrication time of 10 minutes or greater.
- Transport time of 20 minutes or longer by ground.
- Patient location too lengthy or difficult to reach by ground, such as some areas of the sand dunes.
- Mass victim incidents of 10 patients or greater when local ground agencies are being over taxed.
- Or, there is a time benefit for the patient's condition.
- Level 1 medical patients to include but not limited to; acute MI's, acute CVA's, acute abdominal pain where an abdominal aortic aneurysm (AAA) is suspected, shock of any type, hemorrhage, glascow coma scale (GCS) of 13 or less.

Note: It is appropriate to request a rotor be launched when there is an incident out in the sand dunes that ground units cannot get to.

AeroCare Air Ambulance Company; 888-888-7828

Note: It can be time consuming and difficult for civilian agencies to get clearance to fly into military air space. Also in mountainous areas, mine shafts and the military ranges where technical and hoisting abilities may be needed. SAR can be contacted at (928)269-2326.

Safety of Crew and Patient

Purpose:
To assure the safety of all crew members.

Procedure:
The following procedure is to be followed for patients presenting with the following complaints, including but not limited to, all reported suicidal attempts, victims of domestic violence, stabbing and gunshot wound victims who are conscious.

- Request the law enforcement agency on the scene do a complete search of the patient for any weapons the patient may have.
- The pat down should also include the patient's pockets, shoes and socks for any contraband the patient may have and may attempt to put in their mouth during transport.
- This search is to take place before the patient is placed in the ambulance.
- Place all equipment the patient may use to harm himself or a crew member out of the patient's reach.
- Use extreme caution with patients that are having psychotic episodes.
- If necessary refer to violent or combative patient protocol.
- You may also request the law enforcement officer on scene accompany you during transport.
- No patient is to be loaded into the ambulance in handcuffs without an officer present during transport. A handcuff key must be readily available.
- You may request additional help from EMS personnel on the scene.
- All law enforcement officers that are patients should secure their weapon with another law enforcement official prior to transport.

Submission of Documentation

Purpose:
Submission of documentation that affects patient safety in regards to hand off of care and to submit other required documents in a timely matter.

Procedure:

- All agencies practicing within Yuma County will be responsible for turning in all patient contact report (PCR) for those patients transported to YRMC prior to leaving the Emergency Department.

- If unable to leave PCR as stated above paramedic will do the following:

- Submit Patient Encounter Form for the transported patient (each agency will provide Base Hospital with a copy of Patient Encounter Form that they will be using)

- *Patient Encounter Form definition for the purpose of this protocol refers to a quick sheet including but not limited to the following information:*
    - Patient Name and date of birth
    - Chief complaint Allergies Medical History
    - Current Medications
    - Treatments received prior to arrival by EMS provider

- All PCR's (electronic and/or hard copies) must be turned into the Emergency Department within 2 hours of handing off care to YRMC staff for stroke, STEMI, trauma, sepsis, and out of hospital cardiac arrest.

  Exceptions
    1. In the event of extenuating circumstance, multiple traffic calls or high call volumes PCR's must be submitted within 8hrs
    2. Patient refusals, engine reports, medical DOA's and trauma DOA's pronounced on scene and not transported to YRMC will have patient contact paperwork to EMS coordinator within 14 days of call.

- When system is down, patient care forms are to be placed in an interoffice mail envelope and put in the locked box on the wall located in the EMS room in the ED. Patient care forms may also be sent via mail or email. Electronic medical records will be made available to the base hospital coordinator.
- It will be each agency's responsibility to ensure that a legible patient care form is given to the receiving hospital.
- All submission of documentation must comply with HIPAA regulations.

Termination of Resuscitative Efforts (TOR) - Medical Patients

Inclusion criteria:

- Any non-trauma patient in cardiac arrest that has received resuscitation in the field, but has not responded to treatment.

Exclusion criteria:

- Patients experiencing cardiac arrest associated with medical conditions that may have better outcome despite prolonged efforts, such as hypothermia, lightning strikes, or submersion/drowning. Consider continuing efforts in such cases or contact on-line medical direction.
- Patients meeting criteria for Obvious/Apparent Death.
- Trauma patients.

---

1. Initiate resuscitation unless valid PMCD (DNR) form is available and includes orders to withhold resuscitation.
2. Perform 4 rounds of CCR. Prioritize on resuscitation on-scene over “load-and-go.”
3. Consider TOR if all the following criteria are met:
    - Arrest not witnessed,
    - No shockable rhythm identified by AED or cardiac monitor,
    - No return of spontaneous circulation (ROSC).

Consider TOR if the patient meets all of the above criteria after 4 rounds of CCR. TOR always requires on-line medical direction. If ROSC is achieved, continue treatment as appropriate for the patient’s condition.

Contact on-line medical direction if the patient does not meet all TOR criteria, other special circumstances are present, or the patient is < 18 years old.

After TOR, do not alter the body condition in any way or remove equipment (lines, tubes, etc).

Special considerations:

- For narrow complex PEA with rate > 40 or refractory VF/VT, consider resuscitation for up to 60 minutes from time of dispatch.
- In addition to above criteria, consider TOR in these circumstances:
    - Greater than 30-minute downtime with pulselessness > 60 seconds with non-shockable rhythm (PEA/asystole) or,
    - Witnessed arrest with > 20 minutes of resuscitation with PEA and ETCO2 < 10 or other non-shockable rhythm (PEA/asystole).

Termination of Resuscitative Efforts (TOR) - Trauma Patients

Inclusion criteria:

- Any trauma patient in cardiac arrest that has received resuscitation in the field, but has not responded to treatment.

Exclusion criteria:

- Patients with a shockable rhythm. These patients should have resuscitative efforts continued.
- Patients experiencing cardiac arrest associated with medical conditions that may have better outcome despite prolonged efforts, such as hypothermia, lightning strikes, or submersion/drowning. Consider continuing efforts in such cases or contact on-line medical direction.
- Patients whose trauma mechanism does not correlate with clinical condition (consider a medical cause to cardiac arrest and provide appropriate resuscitation appropriate for the condition).
- Patients meeting criteria for Obvious/Apparent Death.

---

1. Initiate resuscitation.
2. TOR is appropriate in the following scenarios:
   - Blunt/penetrating trauma:
     - If pulses are not restored despite appropriate airway management with OPA/NPA or other airway device.
     - Consider bilateral needle thoracostomy for suspected tension pneumothorax.
   - Penetrating trauma:
     - Consider transport if transport time emergency department is < 15 minutes.

TOR always requires on-line medical direction.

Contact on-line medical direction if the patient does not meet all TOR criteria, other special circumstances are present, or the patient is < 18 years old.

After TOR, do not alter the body condition in any way or remove equipment (lines, tubes, etc).

Variance Report

Purpose:
To identify a method for identifying, resolving and tracking issues which may arise.

Procedure:

- Any member may send a variance report to the Base Hospital Coordinator.
- A variance must be completed with as much information as possible. The information should be factual.
- Base Hospital Coordinator will send a memo to all parties involved requesting clarification. If replies are sufficient the variance will be closed and filed. If the replies are not sufficient then a meeting will be scheduled and attendance mandatory.
- Base Hospital Medical Director will be informed of all variance reports and be involved as needed. The Director will have the final decision.
- Variance reports are to be submitted as soon as possible to the base hospital.
- Agencies will be informed of any variance reports and will be vital in completing the process.
- Issues that require, but not limited to, submission of a variance report are:
    - Missing or broken narcotics medications.
    - Problems which affect the delivery of quality patient care.
- Failure to follow established policies and protocols or medical direction.
- Actions deemed unprofessional by Arizona DHS or local standards as outlined in A.C.C R9-25-407. Notification Requirements
- Issues among individuals should be handled professionally and discussed on a 1:1 basis. If unable to resolve the issue a variance should be filled out and submitted.
- Base hospital variance report is found in appendix.

Withdrawing Medical Direction

Purpose:
Purpose of this policy is to state the situations and process for withdrawing medical direction from EMCT's.

Procedure:
Medical control may withdraw for any of the following reasons:

- Failure to meet base hospital continuing education requirements
- Failure to comply with local protocols
- False documentation
- Abusive behavior
- Pt abandonment
- False testimony
- Negligence

The YRMC ALS base hospital medical director or his designee will immediately notify the EMCT and the EMCT'S provider(s) and Dept of Health Services verbally and in writing of the withdrawal of medical control until such a time that has been determined by the medical director.

- 1st offense: Variance report generated and agency to submit plan of action/remediation. If action plan/ remediation accepted by Medical Director variance closed, If action plan/remediation not accepted move to 2nd offense criteria.

- 2nd offense: Variance report generated; agency and EMCT/Paramedic involved will meet with Medical Director to determine action plan/remediation.

- 3rd offense: Suspension of base hospital privileges for set period to be determined by Medical Director, during which time a remediation plan will be implemented. DHS notified.

- 4th offense: Permanent suspension of base hospital privileges, DHS notified.

<u>Appeal of Withdrawal of Medical Control</u>

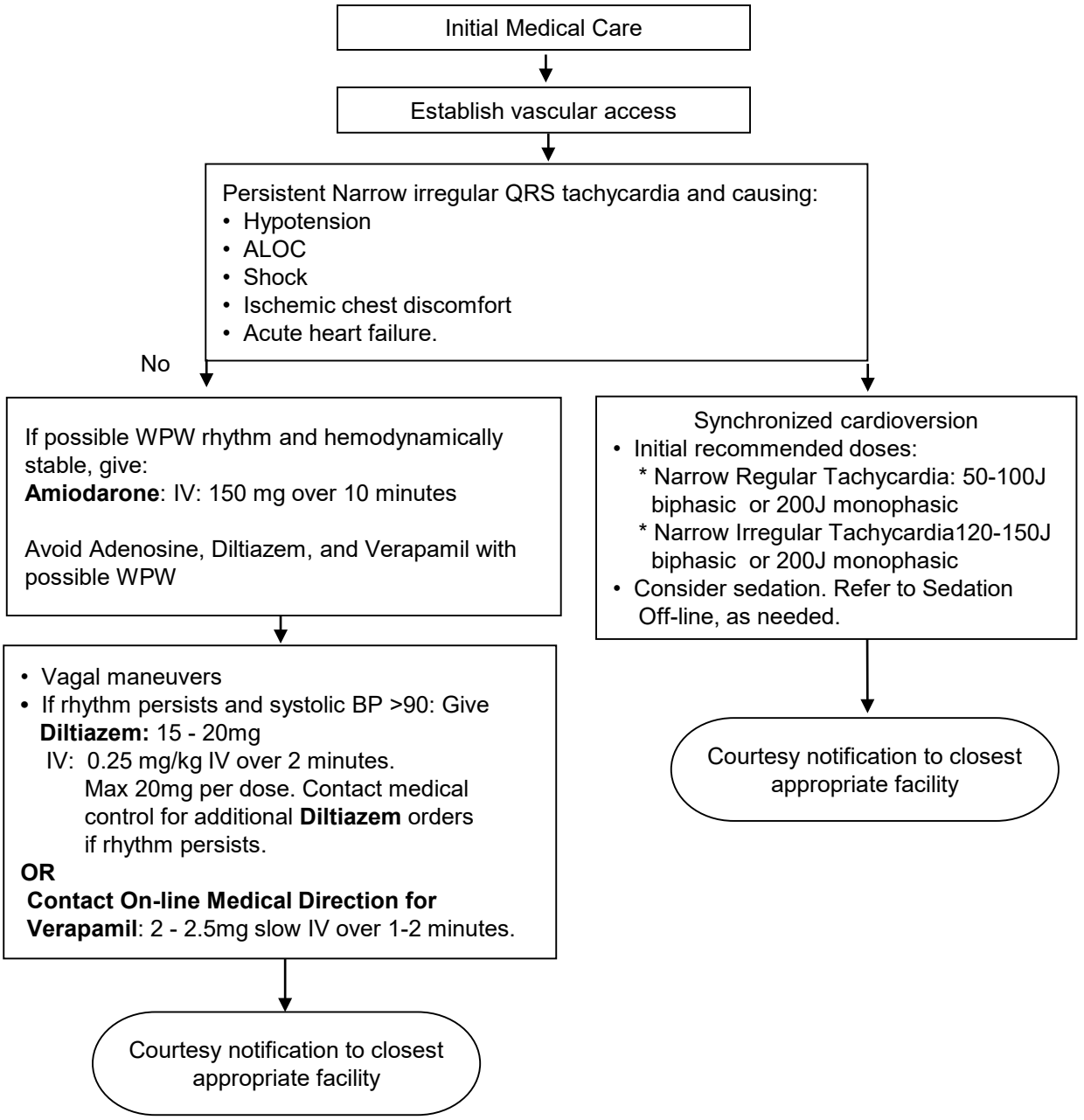
- Appeal may be submitted by the EMT. All appeals will be reviewed by the Medical Director and base hospital coordinator within 48 hours of the submission and a response to the EMCT and EMCT's provider within 72 hours of the submission of the appeal.

<u>Reinstatement of Medical Control</u>

- Medical control may be reinstated if the medical director determines that remediation has been effective and will notify the EMCT, the EMCT'S provider and the Dept. of Health Services verbally and in writing within 2 working days.

Atrial Fibrillation / Atrial Flutter

Adult (≥ 14 y/o)



Cardiocerebral Resuscitation
ALS/BLS

INC

Use standing orders on ALL patients 8 years of age or greater who appear to be the victims of sudden cardiac arrest/death.

EXCLUSIVE

Standing orders should not be used on patients:

- Less than 8 years of age – Follow Pediatric Cardiac Arrest
- Meeting YRMC Field Termination Protocol
- Involved in a traumatic or submersion (near drowning) event,

Or

- When evidence of primary respiratory arrest is present as in drug overdose or Asphyxia, follow AHA resuscitation guidelines

Patient meets ANY exclusion criteria

Begin appropriate resuscitative efforts. Contact Medical Direction Authority or implement appropriate standing orders

Patient meets inclusion criteria and is pulseless

ORDERS

Initiate immediate supportive care:

- CCR: 200 forceful, uninterrupted chest compressions* (One Cycle)
- Establish airway with OPA/NPA
- Intubate as soon as possible without interruption of compressions

If adequate bystander compressions are being provided, apply pads without interrupting compressions, analyze rhythm.

❑ With Severe Hypothermia (below 86*F / 30*C) use caution, consider Hypothermia Standing Order or contact Medical Direction

VF/PULSELESS VT:** or AED recommends shock

1. Complete a total of three (3) cycles of CCR, Defibrillate between each compression cycle.

ALS

**Administer IV/IO Epi and Amiodarone or Lidocaine as early as possible and with each cycle *without interrupting compression cycles.*

PEA/ Asystole:**or AED recommends no shock

1. Complete a total of three (3) cycles of CCR analyzing rhythm between each compression cycle.

ALS

**Administer IV/IO Epi as early as possible with each cycle *without interrupting compression cycles.*

After third CCR Cycle, follow standard ACLS/BLS guidelines or other approved resuscitative measures.

Transport and If ROSC follow Post Resuscitation Protocol

If no response after 20 min. or 3 rounds of drugs:

- Contact Medical Direction Authority
- Consider termination of efforts.

Cardiopulmonary Arrest - Asystole

Adult (> 14 y/o)

CPR with BLS airway management until monitor/defibrillator available

↓

Confirm asystole in two or more leads

↓

Intubate, CCR if appropriate, perform capnography, IV infusion

↓

Epinephrine (Repeat every 3 to 5 min)
IV/IO: 1.0 mg (1:10,000)

↓

Consider possible causes

(6H's/5T's):	**Treatment:**
Hypovolemia-	NS 20 ml/kg Bolus
Hypoxia-	Support Ventilation/Oxygenation
Hypo/hyperthermia	Cooling/Warming Measures
Hyperkalemia	0.5-1 Gm Calcium Cloride 10%
Hydrogen ion (acidosis)	Bicarb 0.5 mEq/kg IV Push
Hypoglycemia	Dextrose 50% 50 Gm/1 amp IV Push
Tension Pneumothorax	Needle Decompression
Tamponade, Cardiac	Volume Infusion
Toxins	Requires Patch
Trauma	See pg. 82
Thrombosis	Requires Patch

Consider obvious death guidelines if:
- Apneic
- Pulseless
- Rigor
- Asystole in two leads
- Signs of irreversible death
- Down time > 30 min.
- No on-scene request for resuscitation
- No presence of hypothermia

Required notification to receiving facility

Perform ETCO2 monitoring

Cardiopulmonary Arrest – Pulseless Electrical Activity (PEA)
Adult (> 14 y/o)

CPR with BLS airway management OR CCR until monitor/defibrillator available

↓

Intubate consider capnography
Establish IV access
Administer 500-mL fluid challenge

↓

Obtain patient history and document:
- Estimate/establish down time
- Circumstances surrounding arrest
- Witnessed?
- Bystander CPR in progress?
- AED used?
- DNR present?

Consider possible causes

(6H's/ 5T's):	Treatment:
Hypovolemia-	NS 20 ml/kg Bolus
Hypoxia-	Support Ventilation/Oxygenation
Hypo/hyperthermia	Cooling/Warming Measures
Hyperkalemia	0.5-1 Gm Calcium Chloride 10%
Hydrogen ion (acidosis)	Bicarb 0.5 mEq/kg IV Push
Hypoglycemia	Dextrose 50% 50 Gm/1 amp IV Push
Tension Pneumothorax	Needle Decompression
Tamponade, Cardiac	Volume Infusion
Toxins	Requires Patch
Trauma	See pg. 82
Thrombosis	Requires Patch

↓

Epinephrine (Repeat every 3 to 5 min)
IV/IO: 1.0 mg (1:10,000) OR
ET: 2.0 to 2.5 mg (1:1000)

↓

Required notification to receiving facility if transporting

Consider field termination if patient meets inclusion criteria and remains in PEA after 3 rounds of ACLS medications

PATCH required

Perform ETCO2 monitoring

Cardiopulmonary Arrest – Pulseless VT/VF

Adult (> 14 y/o)

Arrest NOT witnessed by EMS:
5 cycles of 30 compressions to 2 breaths (about 2 minutes) before first shock OR CCR
Arrest witnessed by EMS:
defibrillate once as soon as defibrillator ready

↓

Perform 5 cycles of CPR (about 2 minutes), establish vascular access (do not interrupt CPR and shocks to start IV/IO or give meds)

↓

Give vasopressor
Epinephrine (Repeat every 3 to 5 min)
IV/IO: 1.0 mg (1:10,000) OR
ET: 2.0 to 2.5 mg (1:1000)

↓

Assess rhythm. If shockable, defibrillate x 1 – resume CPR immediately (5 cycles), starting with chest compressions

↓

If polymorphic VT with long QT interval (Torsades de Pointes) consider: **Magnesium Sulfate** 1 to 2 g IV push X1

↓

Consider antiarrhythmic
Amiodarone
IV/IO: 300 mg initial dose.
Consider repeat dose of 150 mg once in 3 to 5 min OR
Lidocaine (if amiodarone not available)
IV/IO: 1-1.5 mg/kg, repeat 1/2 initial dose (0.5-0.75 mg/kg) prn q 5-10 min, max 3 mg/kg
ET: 2 to 3 mg/kg

↓

Assess rhythm. If shockable, defibrillate x 1 – resume CPR immediately (5 cycles), starting with chest compressions

→ Required notification to receiving facility if transporting

Obtain patient history and document:
- Estimate/establish down time
- Circumstances surrounding arrest
- Witnessed?
- Bystander CPR in progress?
- AED used?
- DNR present?

If asystole, refer to asystole protocol pg 29 If electrical activity present, check pulse
No pulse, refer to PEA protocol pg 30 Pulse present, assess vital signs

Attach strips of significant events to patient care report

Perform ETCO2 monitoring

Chest Pain / Acute Coronary Syndrome (non-traumatic) Adult (> 14 y/o)

This protocol is used for the patient experiencing chest pain or discomfort. Other signs and/or symptoms that may or may not be present include dyspnea, diaphoresis, nausea/vomiting, weakness/fatigue, etc. If these additional signs and symptoms are present in the absence of chest pain or discomfort, acute myocardial infarction may still be present.

Initial medical care

↓

Perform 12 lead

↓

Establish IV infusion

↓

Is the chest pain suggestive of myocardial ischemia?

No → Document use/nonuse of sexual enhancement drugs in past 48 hrs.
PATCH if <48 hrs
Levitra, Cialis, Viagra

Yes ↓

IV successful?

No → Contact medical control if you believe the patient would benefit from NTG administration and no IV has been established.

If allergic to Morphine, continue to use NTG

Yes ↓

If the patient is hypotensive (systolic < 90), give one fluid challenge of 250 mL (if lungs sounds clear)

↓

Aspirin
2-4 baby aspirin (81 mg) by mouth if:
- No aspirin allergy
- Patient can chew and swallow

↓

Nitroglycerin (ask about levitra, cialis or viagra use)
0.4 mg sublingual tablets or spray
May be repeated 2 times, every 5 minutes, to relief of pain if systolic >90

↓

Morphine
- 1-3 mg increments every 5 min. (after 3 NTG) slow IV push up to 10 mg if systolic BP >90 and chest pain unrelieved by nitroglycerin

Fentanyl
- Initial dose: 1mcg/kg
- Subsequent dose: 0.5 mcg/kg, q5 min to max 3mcg/kg or 200 mcg, whichever is less

↓

If chest pain continues and PVCs persist, administer

Lidocaine

1.0-1.5 mg/kg IV bolus, may be repeated at 0.5-0.75 mg/kg every 5-10 minutes to a total of 3 mg/kg. If suppression is successful, begin a Lidocaine infusion at 2-4 mg/minutes.

OR

Amiodarone 150 mg IV push over 10 minutes

→ Required notification to receiving facility

Narrow QRS Tachycardia

(> 14 y/o)

Perform ETCO2 monitoring

Initial Medical Care

Narrow QRS = ≤ 0.10 sec

Establish IV infusion

Perform 12 lead

If the patient is stable, perform a vagal maneuver (ask patient to cough, bear down)

Asymptomatic

Stable but mildly symptomatic (Anxiety, palpitations, mild SOB)

Unstable (Shock, pulmonary edema, unconscious,hypotension)

Adenosine IV: 6 mg rapid push over 1-3 sec followed with 20-mL NS flush. If no conversion repeat with 12mg IVP. **Reassess**

Perform synchronized cardioversion: Narrow regular 50J - 100J. Narrow irregular 120J - 200J.

If rhythm persists and systolic BP >90: Contact medical direction for:
Cardizem: 15-20mg (0.25 mg/kg) IV over 2 minutes. Max 20mg.
OR
Verapamil: 2-2.5mg slow IV over 1-2 minutes.

If rhythm persists:
Adenosine
IV: 6 mg rapid push over 1-3 sec followed with 20-mL NS. If no conversion repeat with 12mg IVP
Reassess

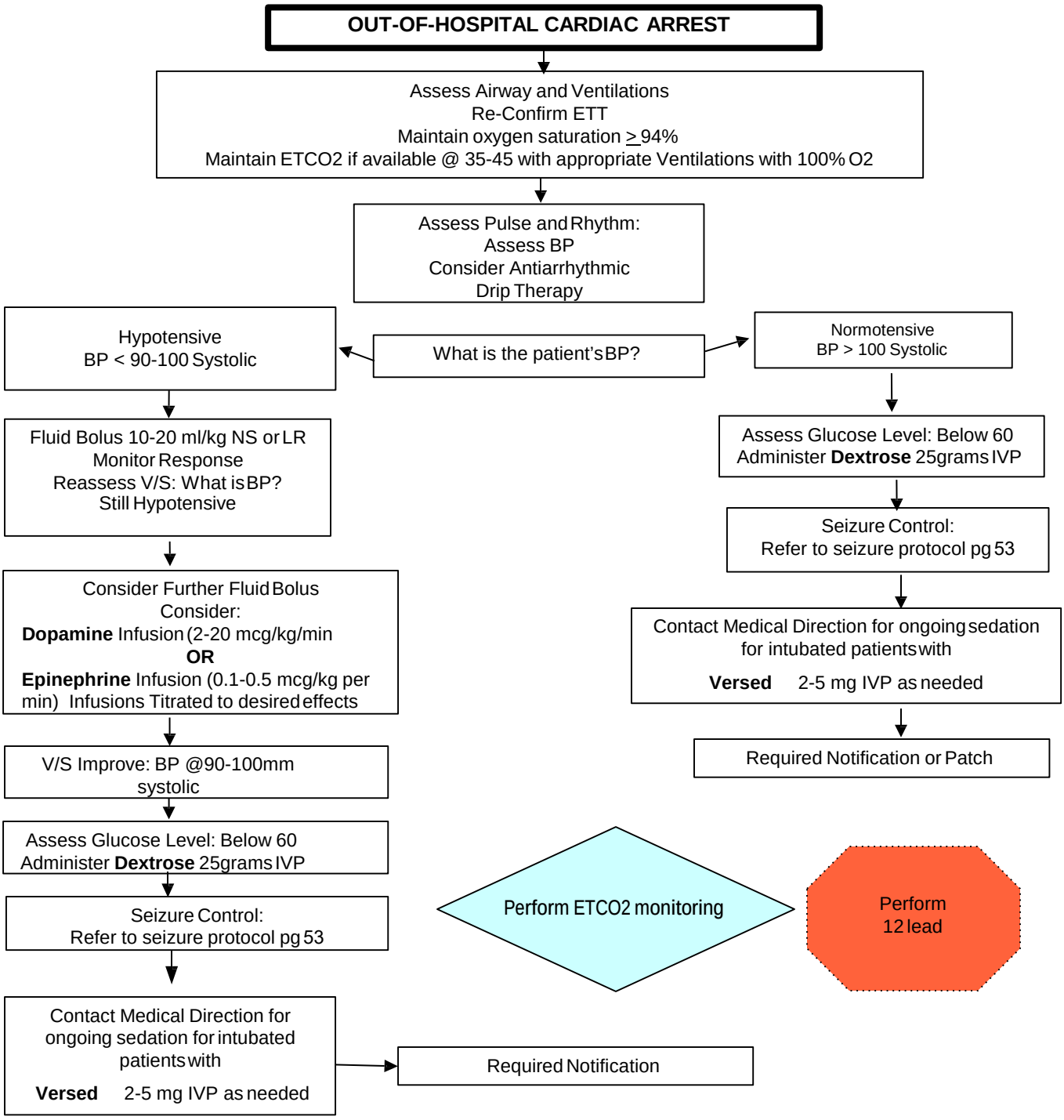
Contact medical control

If rhythm converts, CN to receiving facility.
Contact medical control for additional cardizem orders if rhythm persists and systolic >90.

Required notification to receiving facility

Sedation
Diazepam (Valium) - IV: 5 to 10 mg in 2 mg increments no faster than 2 mg/min OR
Midazolam (Versed)
Age 14 to 60:
IV/IO: 1 to 5 mg titrate to effect; administer slowly increments of no more than 2.5mg over at least 2 min
IM: 2 to 5 mg; *inject deep into large muscle mass*
Age > 60:
IV/IO: 1 to 3.5 mg titrated to effect; administer slowly in increments of no more than 1.5 mg over at least 2 min
IM: 1 to 3 mg; *inject deep into large muscle mass*

Post-Arrest Stabilization
Adult (> 14 y/o)



Symptomatic Bradycardia

with pulse

Adult (> 14 y/o)

Perform 12 lead

Look for causes of bradycardia.

Drug Overdose, Hypoxia, Heart blocks, MI, thyroid problems…..

Initial Medical Care

Establish IV infusion

Perform ETCO2 monitoring

Signs and symptoms of a symptomatic patient may include chest pain, shortness of breath, decreased LOC, hypotension, shock, pulmonary edema, CHF, or acute MI.

Is the QRS complex narrow (< 0.10 sec) or wide (> 0.10 sec)?

Narrow

3rd degree heart block

Atropine
IV: 0.5 mg every 3 to 5 min; max dose 3mg total.

Dopamine
IV infusion: 2 to 20 mcg/kg/min
OR
Epinephrine
IV infusion: 2-10 mcg/min
(consider if atropine is ineffective and/or pacer is not available or ineffective)
Microdrip tubing required

Consider transcutaneous pacing. Do not delay pacing for IV access. Consider sedation if systolic >90.

Initiate transcutaneous pacing. Do not delay pacing for IV access. Consider sedation if systolic >90.

OR

Dopamine
IV infusion: 2 to 20 mcg/kg/min
OR
Epinephrine
IV infusion: 2-10 mcg/min
(consider if atropine is ineffective and/or pacer is not available or ineffective)
Microdrip tubing required)
Mixing Epi :1mg to 250
2mg to 500
4mg to 1000

Sedation
Diazepam (Valium)
IV: 5 to 10 mg in 2 mg increments no faster than 2 mg/min
OR
Midazolam (Versed)
Age 14 to 60:
IV/IO: 1 to 5 mg titrated to effect; administer slowly in increments of no more than 2.5 mg over at least 2 min
IM: 2 to 5 mg up to 10 mg; *inject deep into large muscle mass*
IN Adults over 50 kg: 0.3mg/kg. Take total dose divided into each nostril. Max dose 10mg; *must use 5mg/ml concentration for IN route*
Age > 60:
IV/IO:1 to 3.5 mg titrated to effect; administer slowly in increments of no more than 1.5 mg over at least 2 min
IM: 1 to 3 mg up to 10 mg
IN: Adults over 50 kg: 0.3mg/kg. Take total dose divided into each nostril. Max dose 10mg; *must use 5mg/ml concentration for IN route*

Required notification to receiving facility

Ventricular Tachycardia with Pulse/ Wide Complex Tachycardia of Uncertain Origin

Adult (> 14 y/o)

Perform Post Conversion 12 lead

Initial Medical Care

Wide QRS = > 0.10 sec

Asymptomatic

Stable
(Anxiety, palpitations, mild SOB, no serious S/S)
Perform vagal maneuver

Unstable
(Shock, pulmonary edema, unconscious, hypotension)

If rhythm is stable undifferntiated regular monomorphic wide complex tachycardia consider Adenosine per *narrow QRS Tachycardia protocol pg 34*.

If rhythm is probably monomorphic VT, give either lidocaine **or** amiodarone.

Lidocaine
IV: 1 to 1.5 mg/kg. May repeat with ½ initial dose every 5-10 minutes (max. 3 mg/ kg).

If rhythm converts, initiate **Lidocaine Infusion** at 2-4 mg/min unless rate is< 100 or QRS complex wide.
Administer ½ usual maintenance infusion if age > 70, or if known liver disease.

OR

Amiodarone
IV: 150 mg mixed in 50ml bag of D5W IV over 10 min. May repeat X1

Is it **Polymorphic**

Wide Irregular: Defibrillation Dose (not sync)

If **monomorphic**, then perform synchronized cardioversion with wide regular: 100J

Is it Torsades
Give Magnesium Sulfate IV 2g over 5 min

Successful change of rhythm Administer **Lidocaine** followed by **infusion** as specified under "stable"

Required notification to receiving facility

Perform ETCO2 monitoring

Sedation

Diazepam (Valium) - IV: 2 to 10 mg in 2 mg increments no faster than 2 mg/min

OR

Midazolam (Versed)
Age 14 to 60:
IV/IO: 2.5 to 5 mg titrated to effect; administer slowly in increments of no more than 2.5 mg over at least 2 min
IM: 2 to 5 mg *; inject deep into large muscle mass*
Age > 60:
IV/IO: 1 to 3.5 mg titrated to effect; administer slowly in increments of no more than 1.5 mg over at least 2 min
IM: 1 to 3 mg*; inject deep into large muscle mass*

Allergic Reaction EMCT

Initial Medical Care

↓

IV Certified EMT-B should initiate an IV of NS or LR at a rate of 30 ml/hr
Do Not Delay Treatment while establishing an IV

↓

Administer Epinephrine auto injector (epi-pen):
Pediatrics - 0.15 mg IM patients < 30 kgs
Adults - 0.3 mg IM > 30 kgs
IM, only into the anterolateral aspect of the thigh
(Through clothes if necessary)

↓

Administer oxygen 100% NRB

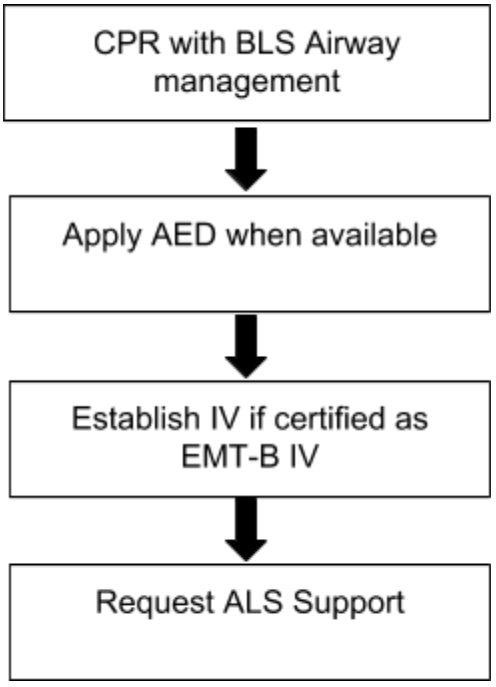
↓

Request ALS Support

Required Notification to receiving facility

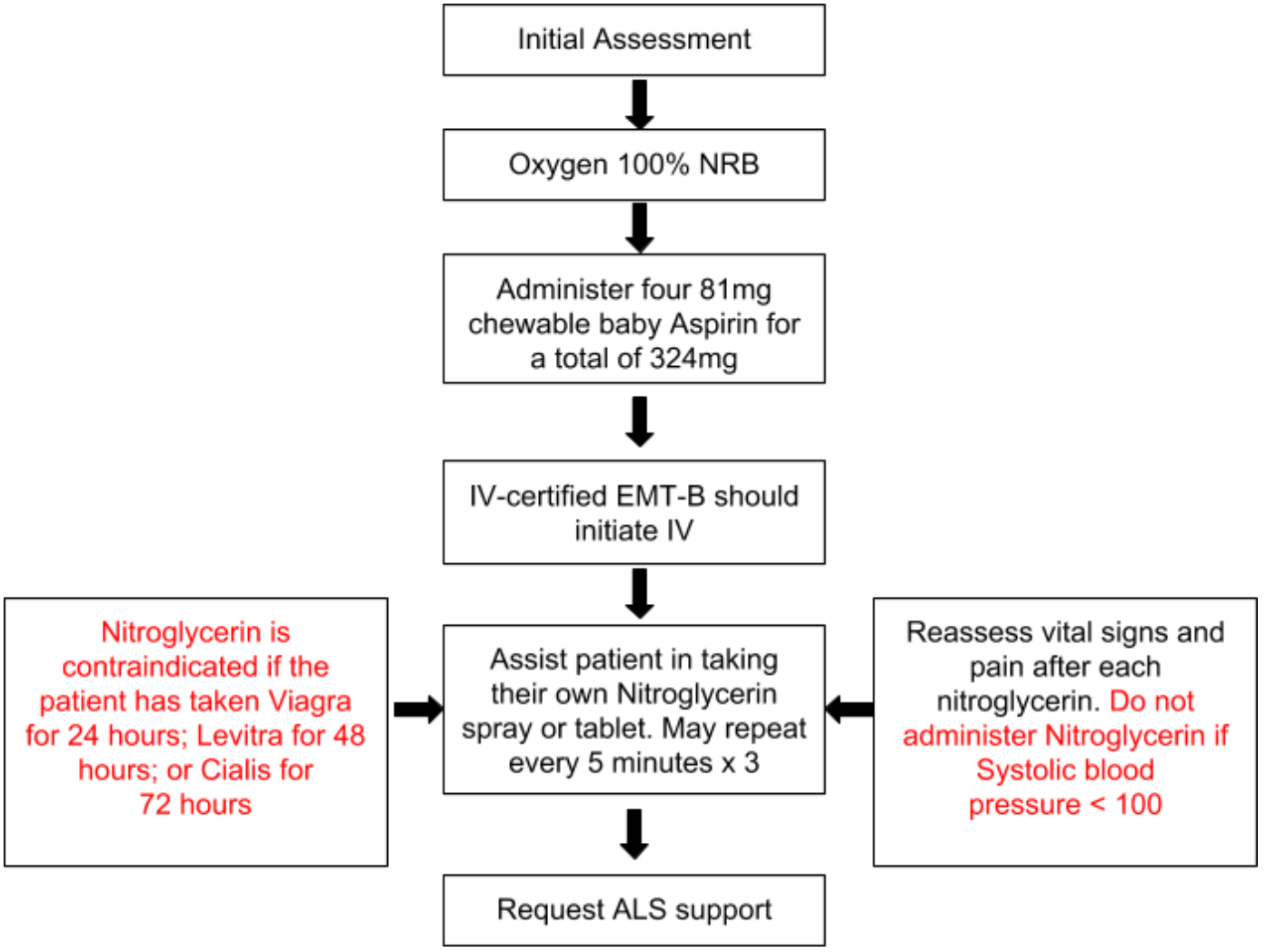
MILD REACTION: Itching, isolated urticaria, nausea, no respiratory distress
SEVERE REACTION: Stridor, bronchospasm, severe abdominal pain, respiratory distress, tachycardia, shock, generalized urticaria, edema of lips, tongue or face (angioedema)

Cardiac Arrest - EMCT



Note: Do not compromise effective CPR for IV insertion

Chest Pain of Cardiac Origin EMCT



Drug Box EMCT

Purpose:
To provide the patient with early access to lifesaving medications prior to the arrival of a paramedic.

Procedure:
The EMCT may carry, administer and or assist the patient in taking the following medications. The EMCT is responsible for checking the drug box at the beginning of each shift and replacing any used and or expired medications in the box. This check off will be documented in accordance with the base hospital policy for handling and storage of medications. The EMCT will be held accountable for the security of and restocking of the box. Drug box must remain out of the reach of the patient and any other unauthorized persons at all times.

Contents of the EMCT drug box will be as follows per AzDHS regulation R9-25-503:

1. Chewable baby aspirin- 1 bottle maximum, 324mg minimum.
2. Epinephrine auto-injectors- 2 adult and 2 pediatric.
3. Oral glucose- 30grams minimum.
4. Activated Charcoal without sorbitol- 50 grams minimum
5. Naloxone 4 mg maximum

Refer to specific treatment protocols for the dosage and route of administration of each medication listed above.

Note: EMCT *may assist patient with use of their own prescribed inhalers*

EMCT Intravenous Access

Purpose:
To provide a higher level of care to the critically ill or injured patient.

Procedure:

- Only EMCT's who have taken and successfully completed and passed the IV access course with an 85% or above on the final exam and have received a certificate for the successful completion will be given permission by the Base Hospital to start IV's in the field. The following procedure is to be followed when patients present with the following signs and symptoms:
  - Respiratory and or cardiac arrest.
  - Chest pain of suspected cardiac origin.
  - Allergic reactions.
  - Level 1 trauma patients by mechanism of injury.
  - Heat related dehydration

    OR
  - Under Paramedic Supervision (saline lock permitted) for any patient.

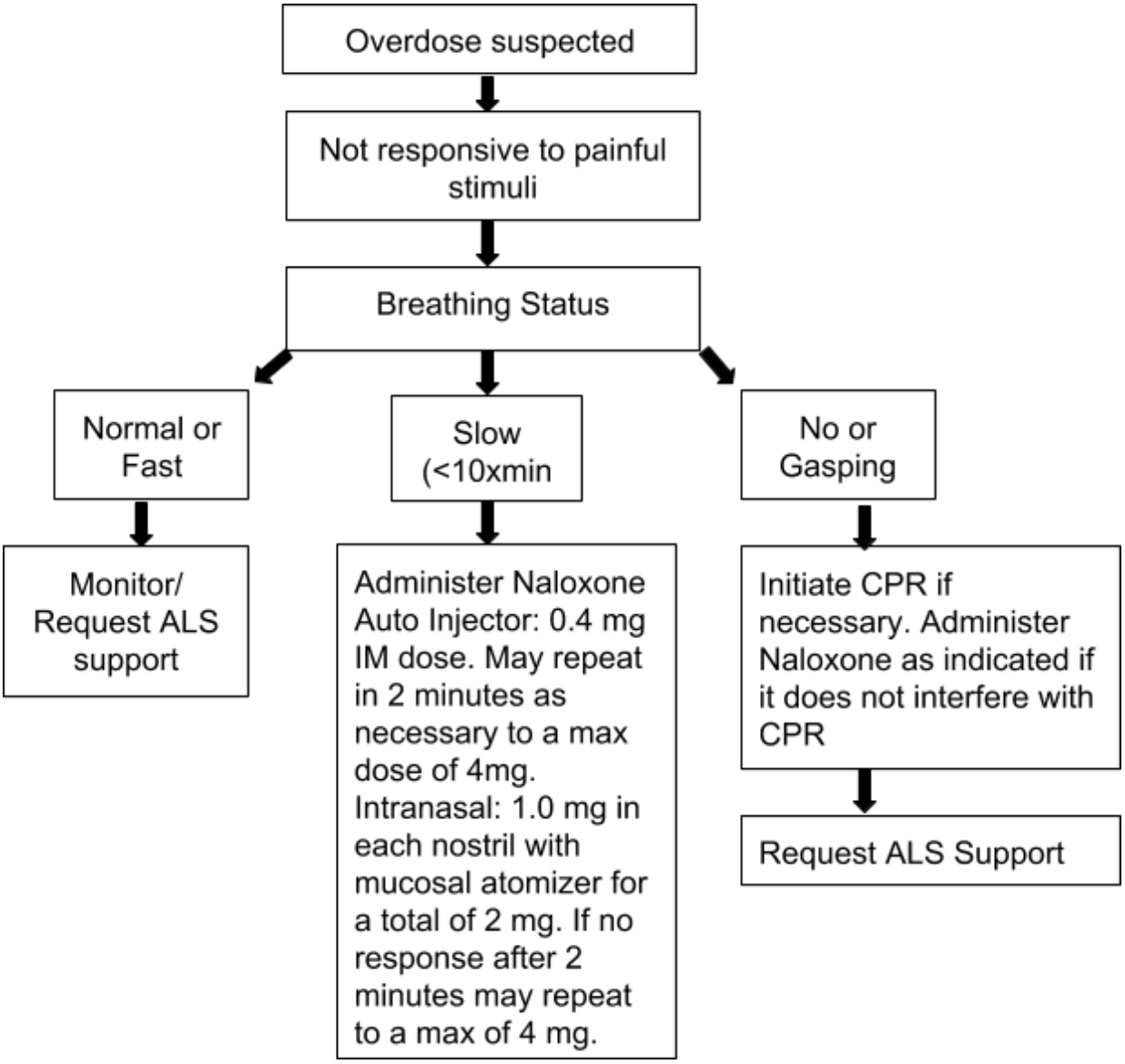
- The IV certified EMCT will be allowed 2 attempts. If attempts are unsuccessful, defer to the Paramedic when one becomes available. Permission for additional attempts may be requested and will be granted on a case by case basis at the discretion of medical control.

- The IV access course curriculum will be approved by base hospital accordance with Arizona Administrative Code R9-25-505.

- Upon successful completion of the classroom portion of the course there will be a clinical rotation through the Emergency Department where you will be expected to insert, under the direct supervision of a Registered Nurse, demonstrates proficiency of IV skills and complete 10 successful IV insertions.

- EMT-B shall have a minimum of 5 successful IV starts per year. If less than 5, the EMCT will participate in a supervised base hospital clinical experience in which to obtain the minimum of 5 successful IV starts.
  - All classroom teaching will be done in accordance with the Arizona Department of Health Services rules and regulations.

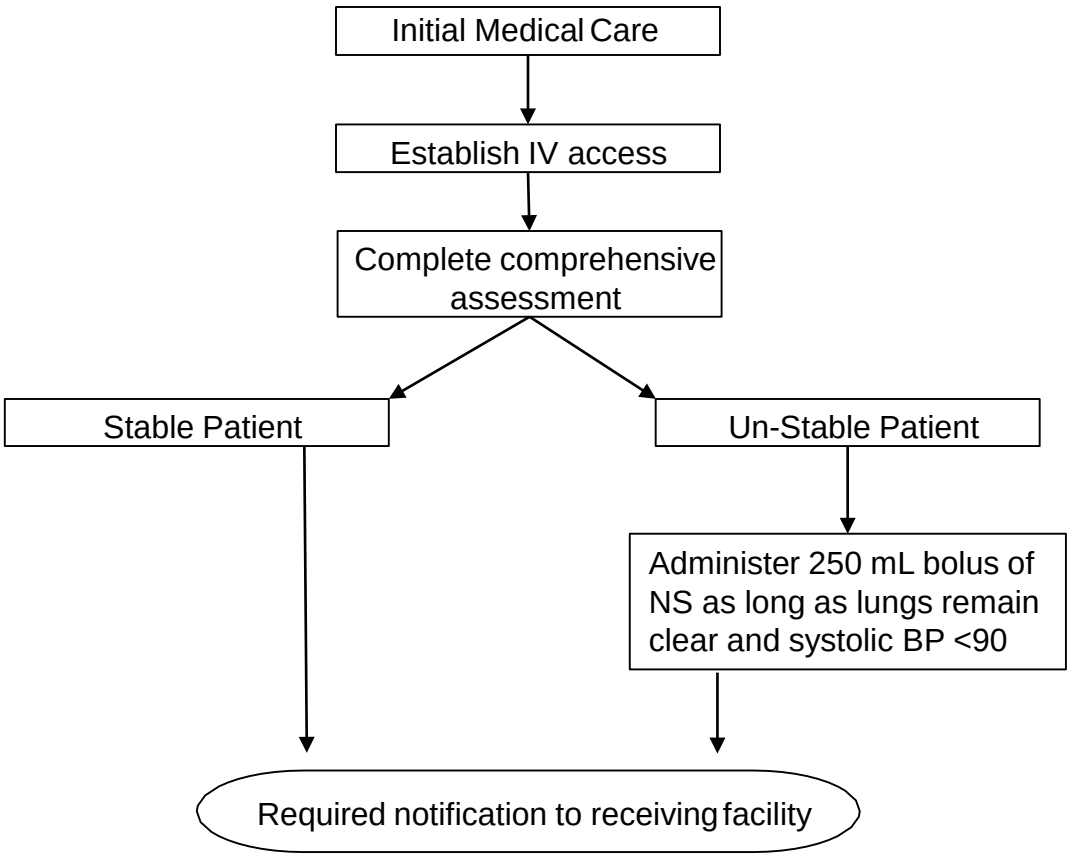
Suspected Overdose - EMCT



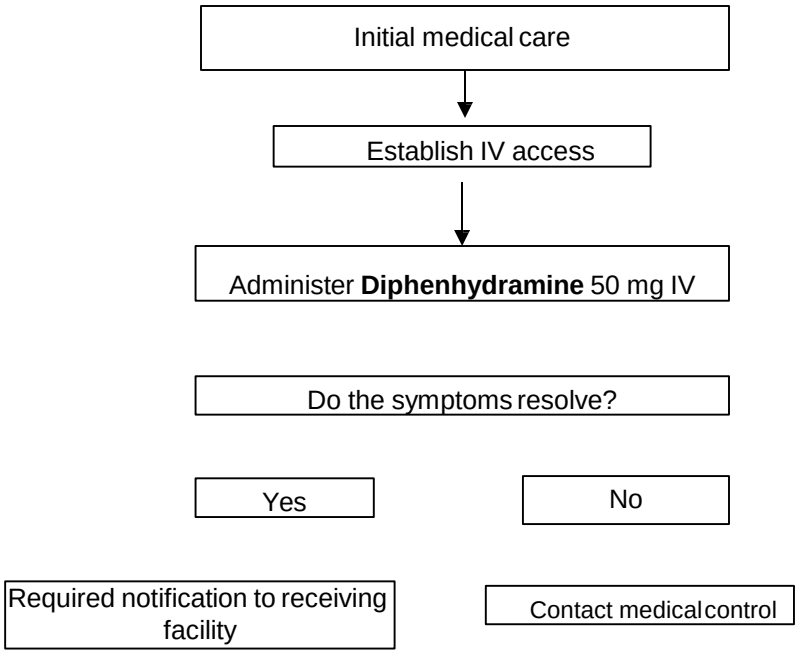
Abdominal Pain
Non-Traumatic, Non-Pregnant

Adult (> 14 y/o)

This protocol should be used for patients that complain of abdominal pain that are not pregnant and have no history of trauma.



Acute Dystonic Reaction



Dystonia is a neurological movement disorder characterized by involuntary muscle contractions, which force certain parts of the body into abnormal, sometimes painful, movements or postures. Dystonia can affect any part of the body including the arms and legs, trunk, neck, eyelids, face, or vocal cords.

Signs and symptoms of a dystonic reaction may include protruding or pulling sensation of the tongue; twisted neck, or facial muscle spasm; roving or deviated gaze; abdominal rigidity and pain; and/or spasm of the entire body.

The following medications can cause dystonia (partial list):

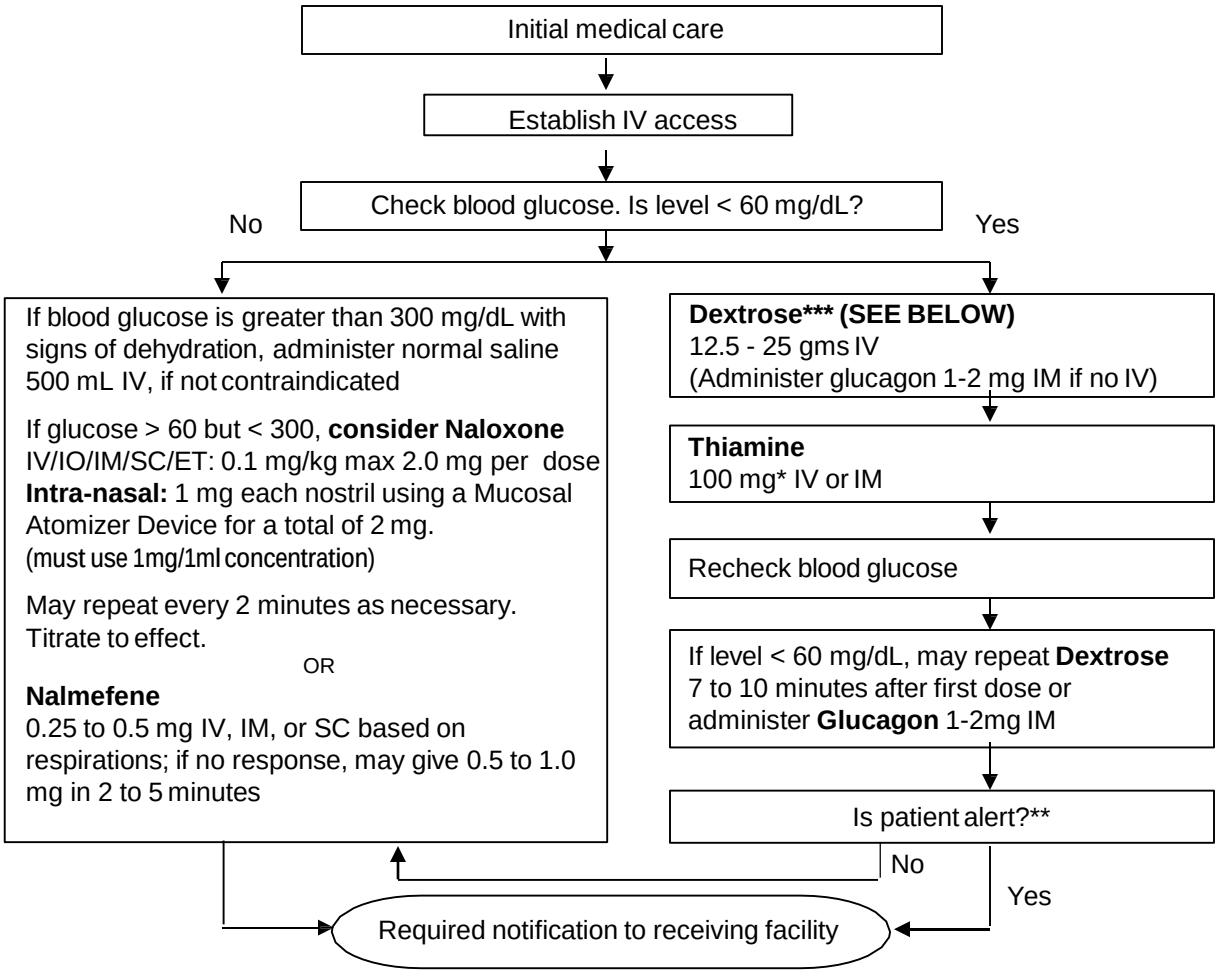
- Acetophenazine (Tindal®)
- Amoxapine (Asendin®)
- Chlorpromazine (Thorazine®)
- Fluphenazine(Permitil®, Prolixin®)
- Haloperidol (Haldol®)
- Loxapine (Loxitane®, Daxolin®)
- Mesoridazine (Serentil®)
- Metaclopramide (Reglan®)
- Molindone (Lindone®, Moban®)
- Perphenazine (Trilafon® or Triavil®)
- Piperacetazine (Quide®)
- Prochlorperazine (Compazine®, Combid®)
- Promazine (Sparine®)
- Promethazine (Phenergan®)
- Thiethylperazine (Torecan®)
- Thioridazine (Mellaril®)
- Thiothixene (Navane®)
- Trifluoperazine (Stelazine®)
- Triflupromazine (Vesprin®)
- Trimeprazine (Temaril®)

Altered Neurological Function

(Non-trauma)

Adult (> 14 y/o)

This protocol is used for patients with altered mental status where the etiology is unknown. Consider history and possibility of dysrhythmias, medication side effects, electrolyte imbalance, inner ear disorders, CVA, TIA, drug overdose, diabetic emergency, and MI. An ECG and glucose check are required on all patients with altered mental status.



*If no history of alcoholism or malnourishment, thiamine may be withheld.
**If patient is refusing transport, remain on-scene to ensure that patient eats. Do not release patient unless blood sugar > 100. Refusal requires a patch (high-risk). All patients with a syncopal episode or near-syncope should be transported to the hospital via ambulance. Refusal requires a on-line medical direction (high-risk).

***If 25 gram Dextrose not available: give 5% Dextrose in 500ml H2O or 10% Dextrose in 250ml H2O given IV over 10-20 minutes

Do not give if patient has symptoms of CHF or history of CHF

Allergic Reaction/Anaphylaxis

Adult (> 14 y/o)

This protocol should be used for patients exhibiting signs and symptoms consistent with an allergic reaction.

Initial medical care

Establish IV access
Do not delay treatment while establishing an IV.

Acute Allergic Reaction

Diphenhydramine (Benadryl)
IV/IM: 50 mg

Methylprednisolone (Solu-Medrol)
IV/IM: 125 mg

If severe respiratory distress, age <35, no cardiac history, and systolic BP <180 Consider:
Administer Epinephrine auto-injector (epi-pen) 0.3 mg IM >30kgs

Epinephrine 0.1 to 0.3 mg 1:1000 IM/SC

Consider **Albuterol (Proventil)**
SVN: 2.5 mg in 3.0 mL NS for respiratory distress; repeat as needed

Anaphylaxis
Any S/S of Cardio or Respiratory Distress

Epinephrine
Administer Epinephrine auto-injector (epi-pen):
0.3 mg IM > 30 kgs
IM/SC: *0.01mg/kg up to max 0.3 mg 1:1000 solution*
IV: **If no response Contact Medical Direction for** administer epinephrine infusion 2-10mcg/min for shock
IV/IO/ET: If cardiovascular collapse present, 0.3 to 0.5 mg IV, IO, ET (**1:10,000**)

Diphenhydramine (Benadryl)
IV/IM: 50 mg

Methylprednisolone (Solu-Medrol)
IV/IM: 125 mg

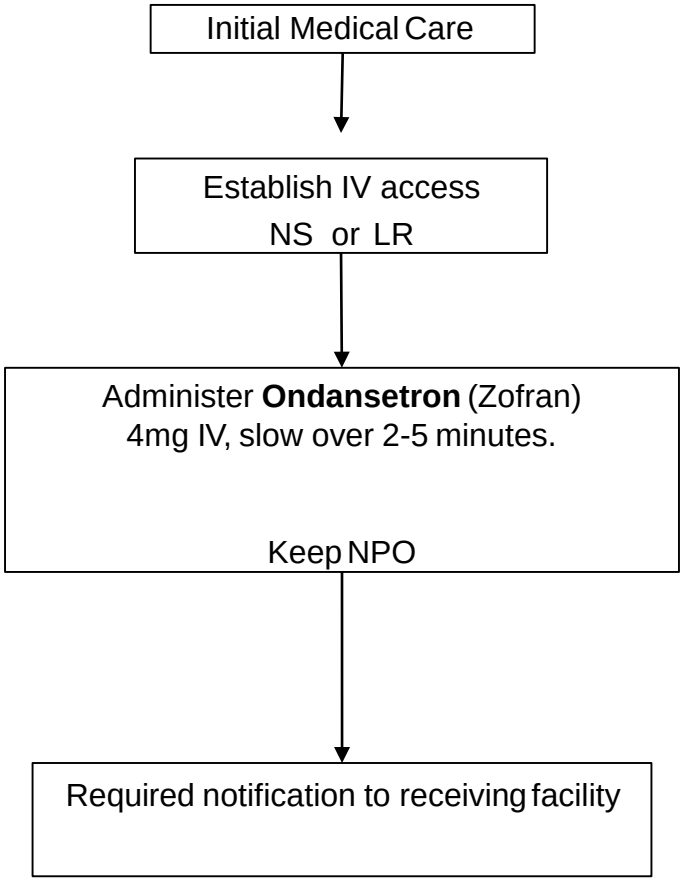
Consider **Albuterol (Proventil)**
SVN: 2.5 mg in 3.0 mL NS for respiratory distress; repeat as needed

Required notification to receiving facility

MILD DISTRESS: Itching, isolated urticaria, nausea, no respiratory distress
SEVERE DISTRESS: Stridor, bronchospasm, severe abdominal pain, respiratory distress, tachycardia, shock, generalized urticaria, edema of lips, tongue or face (angioedema)

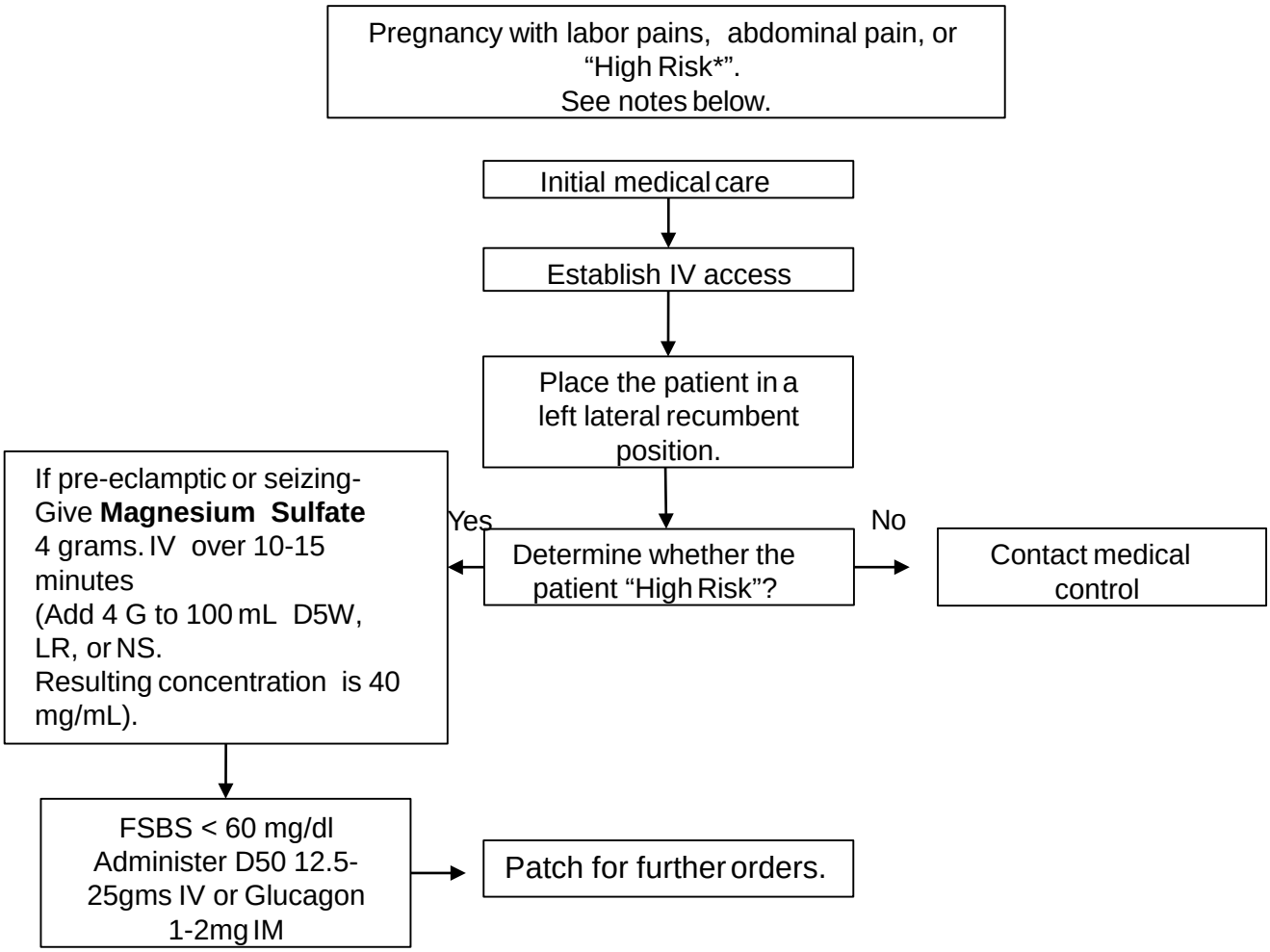
Nausea / Vomiting

Adult (>14 y/o)



Obstetrics

Adult (> 14 y/o)



High risk pregnancies include: prematurity (<32 weeks), any bleeding in third trimester, pre-eclampsia/eclampsia (seizures), no prenatal care, twins or >, premature rupture of membranes, ante-partum hemorrhage (abruptio placenta, placenta previa, and uterine rupture), or other complications of labor (breech position, prolapsed cord, ect.), or recent drug use.

Eclamptic Syndrome can occur up to 6 weeks post delivery.

Pain Management

Initial supportive care
Oxygenate to keep sat >94%
Position of comfort

INCLUSION

Use standard Order on patients with:
- Acute extremity injuries to include hip, pelvis, and shoulder
- Acute back pain
- Burns <10% BSA
- Acute flank pain

EXCLUSION

Do not use Standard Orders on patients with:
- Decreased LOC due to ETOH or drug use
- Trauma with cardiovascular compromise
- Age <2 years
- Pregnancy
- Migraine
- Chronic Pain

ORDERS

If patient meets inclusion criteria:
- Initiate IV access and administer
- Morphine Sulfate IV
  - PEDS: 0.1mg/kg in 1-2mg increments q5 min to max dose of 10mg
  - Adults: 2-5mg q5 min to max dose of 20mg
    OR
- Fentanyl IV
  - Initial dose: 1mcg/kg
  - Subsequent dose: 0.5 mcg/kg q5 min to max 3mcg/kg or 200mcg. Whichever is less.

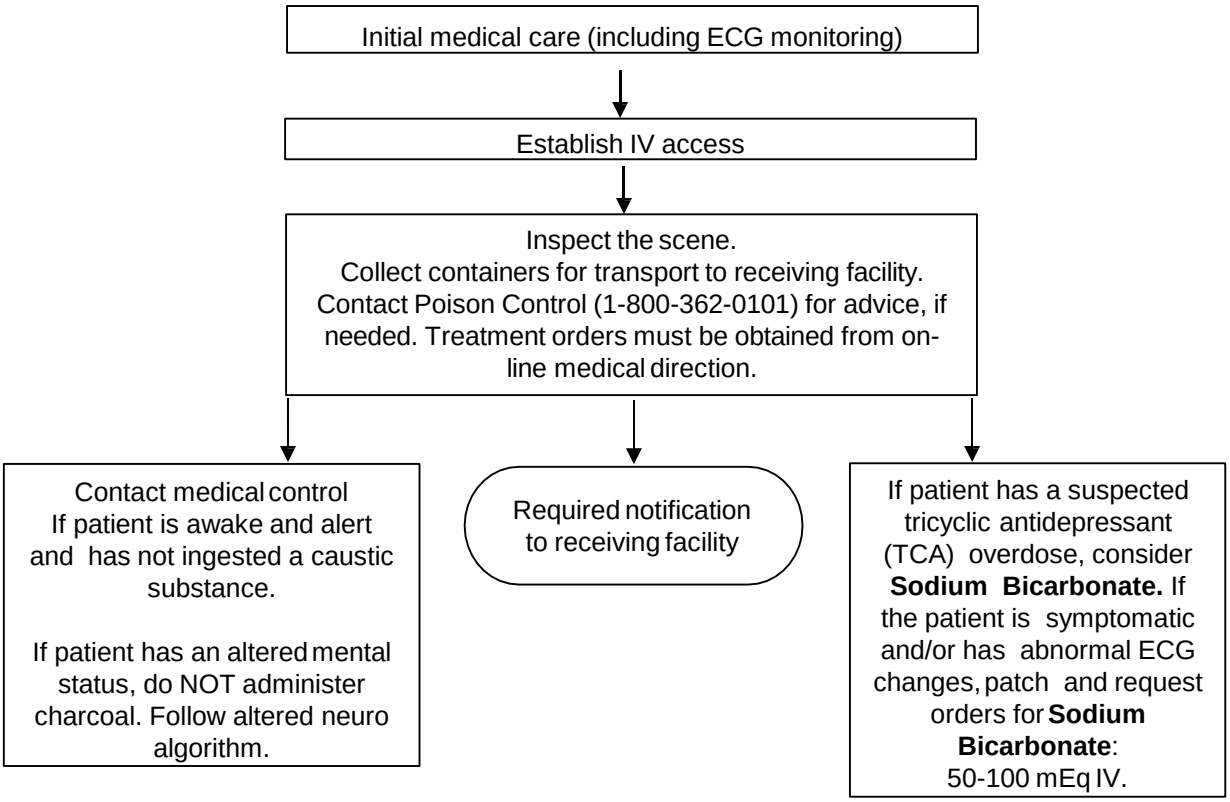
Do not continue dosing unless SBP remains >90mmHg, patient remains alert, and both respiratory rate and effort remains normal.
For nausea or vomiting administer Ondansetron
- **PEDS IV**: 0.1mg/kg over 2-5 min up to a max dose of 4mg
- **Adult IV**: 4mg over 2-5 min. May repeat once after 15 min if no response.

If patient is excluded:
- Contact medical direction for orders as needed

Utilize age appropriate pain scale (1 to 10) before medication administration and document data. Use scale as a measure to assess effectiveness after administration.

If no improvement or condition deteriorates, contact medical direction.

Poisoning/Overdose
Adult (> 14 y/o)



Document:

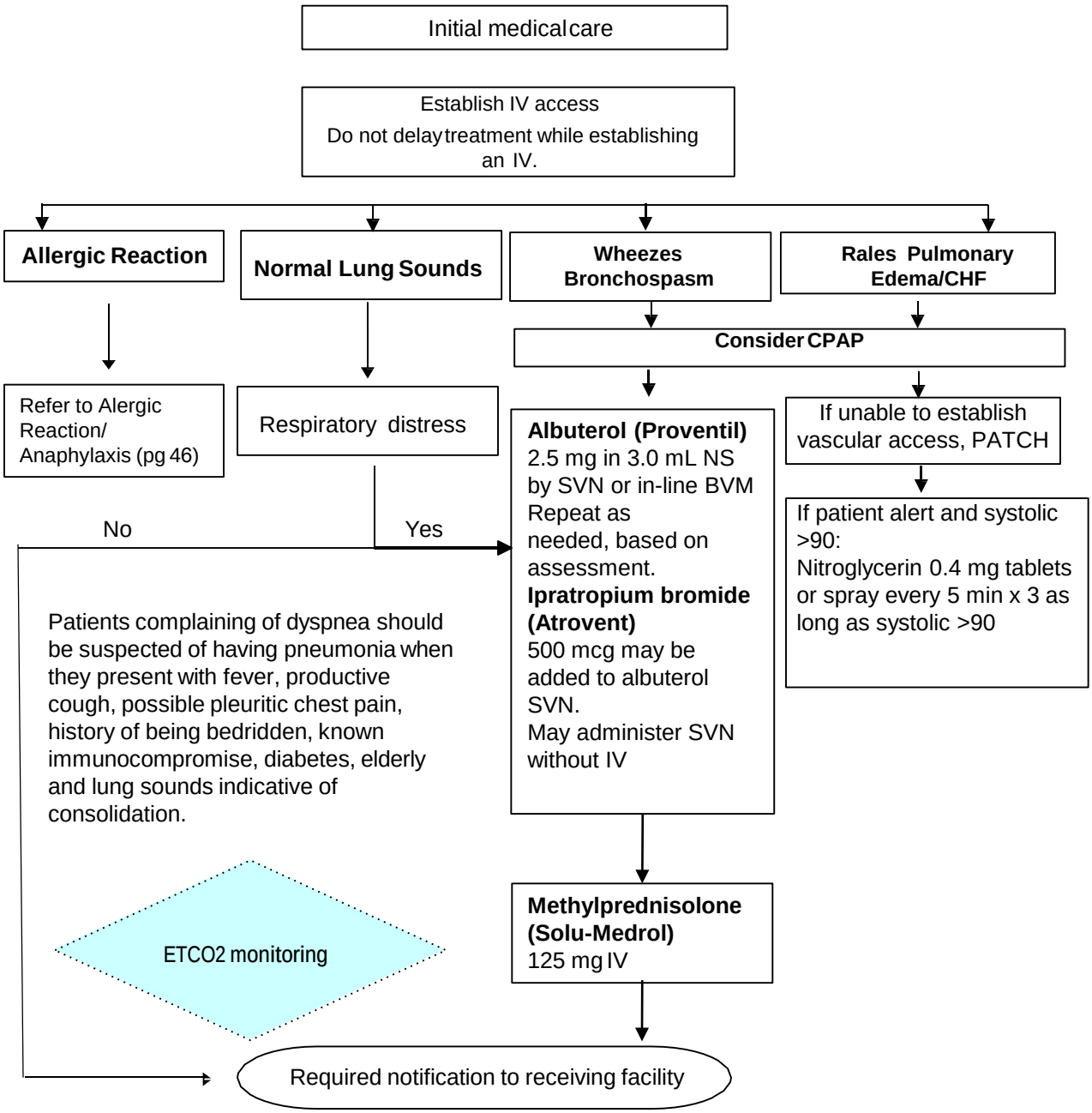
- Type of ingestion (What, when, how much)
- Past history (medications, suicide attempts)
- Action taken by bystanders (induced emesis? “Antidote” given?)

Notes regarding **Activated Charcoal**:

- Contraindications: Ingestion of caustics, ingestion of hydrocarbons (relative), oral administration to comatose patient, simultaneous administration of other oral medications.
- Ineffective for iron, lithium, heavy metals, and other ions.
- May reduce the effectiveness of other treatments (Mucomyst) in pure acetaminophen OD's.
- Since charcoal bonds with whatever it is mixed with, flavoring with drinks reduces effectiveness.

Respiratory Distress

Adult (> 14 y/o)



If patient is unstable, consider use of
Epinephrine 0.3 - 0.5 mg IM 1:1000 solution if age <35, if systolic BP <180, and no cardiac history or pregnancy

Contact Medical Control for **Magnesium Sulfate 40 mg/kg, max dose 2g IV over 15-30 minutes**

Sedation
Adult (≥ 14 y/o)

Contact Medical Direction prior to use.

Sedation

Lorazapam (Ativan)
IV/IM: 2-4 mg. May repeat once in 10-15 minutes, if needed

Or Midazolam (Versed)
Age 15 to 60:
IV: 1-5 mg titrated to effect; administer slowly in increments of no more than 2.5 mg over at least 2 min; total dose no more than 20 mg
IM: 2-10 mg. Max of 10mg every 10 minutes up to total dose of 20 mg
Intranasal: 0.2-0.3 mg/kg to a max of 10mg. May repeat once if needed. Must use 5mg/ml concentration

Or Diazepam (Valium)
IV: 5 -10 mg in 2 mg increments no faster than 2 mg/min

Or Ketamine

Use of Ketamine is an optional sedation medication for extreme cases of agitation / excited delirium and requires special training and agency approval.

Ketamine
IV: 1 mg/kg. Max single dose of 150 mg. May re-medicate every 5 minutes.
IM: 2 mg/kg. Max single dose of 250 mg. May re-medicate every 10 minutes.

Special Considerations

- Age > 60: Reduce dose by half
- If other CNS depressants, including alcohol and benzodiazepines, are on board, decrease dose
- Sedation has been associated with respiratory depression and respiratory arrest. Monitor patient closely with cardiac monitor, SPO2 and ETCO2, if available

Seizures

Adult (> 14 y/o)

Document history:
- Type of seizure?
- Witnessed by crew?
- First seizure?
- History of seizures?
- Fever?
- Length of seizure?
- Usual mental status?

Initial medical care

↓

Consider causes*

↓

Check blood glucose
Is level < 60 mg/dL?

No → Establish IV access

Yes → Follow altered Neurological protocol

****Diazepam (Valium)**
2 mg/min IV push until seizure is resolved; max total dose of 10 mg.
DO NOT administer Valium IM.

OR

****Midazolam (Versed)**:
Age 14 to 60:
IV: 2.5 mg over 2 minutes, repeat until seizure is resolved; total max dose of 10 mg
IM: 2.5 to 5 mg doses up to 10 mg; IM if no IV access
IN (intranasal): 0.3 ml per nare or 1.5mg per nare, total max dose of 3mg/ Must use concentration of 5mg/ml.
Age > 60:
IV/IO: 1.5 mg over 2 minutes, repeat until seizure is resolved; total max dose of 10 mg
IM: 1 to 3 mg doses up to 10 mg; IM if no IV access
IN (intranasal) : see above

OR

****Lorazepam (Ativan)**
IV/IO: slow IVP, 2mg over 2-5 mins; may repeat 2mg every 10 minutes; total max dose of 8mg ; IM if no IV access

IM medications should be given deep into a large muscle

If the patient is an eclamptic female, place patient in left lateral recumbent position, minimize external stimuli, and administer **Magnesium Sulfate** 4-6 G IV bolus over 10-15 min (Add 4G to 100 mL D5W, LR, or NS. Additional option: Add 2G in 50 mL D5W, LR, or NS. Resulting concentration is 40 mg/mL. Administer until desired dose of 4-6 G is aquired).

→ Required notification to receiving facility

*Consider underlying causes such as stroke, eclampsia, or drug use. Use appropriate algorithm.
**Diazepam or midazolam administration applies to seizures that last > 5 minutes, more than two seizures in one hour, or status epilepticus.

Note:
Females in the third trimester of pregnancy that are seizing should be assumed to have eclampsia.

Midazolam administered IV has been associated with respiratory depression and respiratory arrest, especially when used concomitantly with opioid analgesics for conscious sedation or when rapidly administered.

Sepsis
Adult (≥ 15 y/o)

Initial Medical Care

↓

Obtain focused history and perform assessment

↓

Suspected Infection or Immunosuppression

- Open wounds, sores, cellulitis
- UTI
- Indwelling medical device
- Vomiting, diarrhea
- Recent surgery/procedure
- Chemotherapy < 6 weeks
- Chronic steroid use
- Cough/Congestion/Pheumonia
- ALOC/Meningitis

1

Markers of Systemic Inflammatory Response Syndrome
(2 or more criteria = SIRS)

- Temp ≥ 100.4 or ≤ 96.8
- HR ≥ 90
- RR ≥ 20
- Altered mental status

Your patient meets SEPSIS CRITERIA if conditions 1 + 2 are present

Suggestion of Shock

- SBP < 90 or MAP < 65 or SBP drop of 40 mmHg from prior baseline
- ETCO2 ≤ 25
- O2 sat ≤ 92% on RA
- Mottled or cold extremities
- Central cap refill ≥ 3 seconds
- Purpuric rash
- No radial pulse

3

Your patient meets SEVERE SEPSIS CRITERIA if conditions 1 + 2 + 3 are present

Treatments

- Supplemental oxygen to maintain saturations ≥ 92%
- 2 large bore IVs preferred
- Administer boluses of 10-20 cc/kg NS as long as lungs remain clear
  – Use caution if patient has end-stage renal disease or CHF

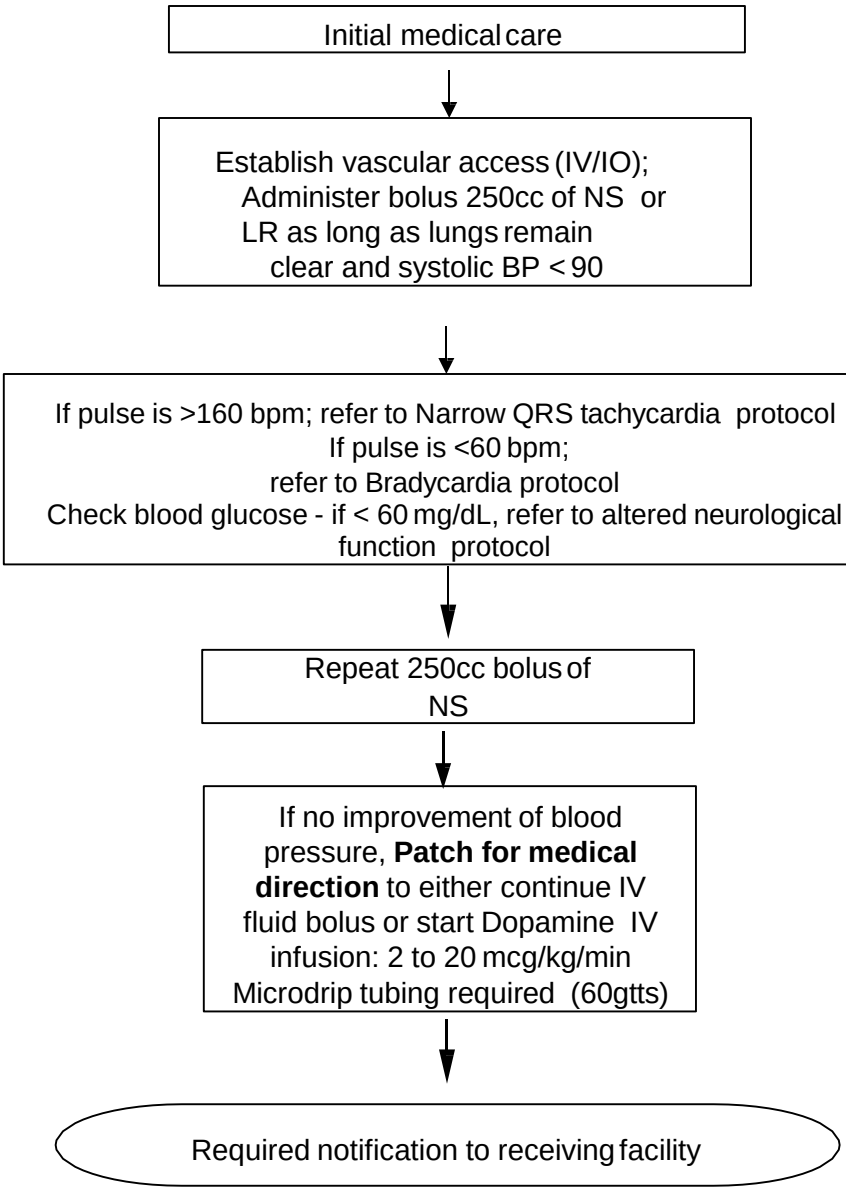
Notify closest appropriate facility of SEPSIS ALERT, if applicable

Sepsis Alert
The purpose of a sepsis alert is to provide pre-arrival Emergency Department notification in order to facilitate rapid assessment and ongoing treatment of a patient with suspected severe sepsis. These cases must be recognized early and treated aggressively to prevent progression to shock and death.

A sepsis alert will be activated en route to the receiving facility for either of the above scenarios. A hospital's specific response to sepsis alerts will vary depending on resources and internal protocols.

Shock/Hypotension

Adult (>14 y/o)



All patients with a syncopal episode or near syncope should be transported to the hospital via ambulance. Refusal requires an online medical direction (high risk)

Stroke

Initial medical care

↓

Place patient on O2, Obtain blood glucose, blood sample and IV access

↓

Obtain Cincinnati Stroke Scale → FSBS <60 mg/dl administer D50 12.5-25 gms IVP or glucagon 1-2mg IM

↓

If positive for arm weakness obtain VAN Scale

Cincinnati Stroke Scale

Facial Droop: Normal-Both sides of face move equally
- Abnormal- One side of face doesn't move at all

Arm Drift: Normal-Both arms move equally
- Abnormal- One arm drifts or doesn't move at all

Speech: Patient uses correct words without slurring
- Abnormal- Slurred or inappropriate words or listless

Any abnormal scores=Positive stroke scale

VAN SCALE

Visual disturbance
- Test: 4 quadrants and gaze

Aphasia -3 Step
- Name 2 objects, repeat "today is a sunny day", 2 commands(make a fist and close your eyes)

Neglect
- Gaze preference
- Touch right arm, touch left arm, touch both(will only recognize one)

Weakness plus one =Positive Van Scale

Transport Emergency traffic if onset of symptoms is <4.5 hours or Van scale is positive with symptoms started <24 hours

Plan: During the patch, EMS personnel will give pre-notification of acute stroke patient that may be candidate for acute intervention. When the paramedic identifies such a patient, he/she will provide telemetry notification that they are in transit with a "stroke alert" patient and give an estimated time of arrival.
EMS personnel will document the patients Cincinnati Stroke Scale and Stroke-VAN scale along with vital signs and blood glucose.

Action: At the beginning of the patch, the paramedic will clearly state that they have a "stroke alert" patient, if they drew blood, if the patient is on anticoagulants Warfarin (Coumadin), Apixaban (Eliquis), Dabigatran (Pradaxa), Rivaroxaban (Xarelto),Enoxaparin (Lovenox), Heparin and if the patient has a history of intracranial hemorrhage.

Candidate for Stroke Alert: Any patient with acute onset of focal neuroglial deficit known to have an onset within 4.5 hours or a Stroke-VAN scale of >4 with onset in the last 24 hours.

Additional treatment: Do not treat hypertension in patient suspected of having acute stroke unless directed to do so via online medical direction

Taser Patients

On occasion, EMS personnel may be called to evaluate and transports patients with or with out probes in place.

Initial medical care
Evaluation of ABCs and vital signs (including cardiac monitoring) is required.

Is the patient an immediate threat to him/herself, the EMS crew, or bystanders?

No

Yes

Apply physical restraints as necessary. If restraints used, the Agency ALS member is to accompany patient to receiving facility. Refer to the Violent/Combative Patient Protocol pg 56

Some signs and symptoms of extreme forms of behavioral disturbances may include: agitation, aggression, excitability, exertion, exhaustion, great strength, non-response to pain, fear, panic, paranoia, pre-existing medical problems, medication effects, and illicit drug use. Illegal drugs such as PCP, cocaine, methamphetamines and other stimulants are known to cause acute behavioral disturbances.

Persons that have been stunned/stopped by means of an electro-muscular disruption weapon (i.e., TASER) must be evaluated by ALS and a patch must occur for refusal. Note: an ECG monitor strip must be evaluated and attached to the chart for any patient situation involving the use of a TASER.

Required notification to receiving facility

1. The TASER probes should not be removed by EMS personnel unless they interfere with the safe transportation of the patient.
2. When safe to do so, patients should be immediately evaluated, with particular attention to signs and symptoms of excited delirium.
3. Any injuries or medical conditions should be treated, refer to the appropriate off-line as needed.
4. These patients will be in the custody of law enforcement and will require transportation to and ED for medical clearance.
5. Unless otherwise contraindicated, the patient should be adequately and safely restrained in an upright positions prior to transport.
6. If one or both of the TASER probes requires removal for safe transportation:
   a. Verify the wires to the probe have been severed
   b. Use universal precautions
   c. Place one hand on the patient in the area where the probe is embedded and stabilize the skin surrounding the puncture site between two fingers. Keep your hand several inches away from the probe. With the other hand, in one fluid motion pull the probe straight out of the puncture site
   d. Place TASER probes in sharps container. If sharps container unavailable, reinsert TASER probes, point down, into the discharged air cartridge and hand it to the law enforcement officer.
   e. Apply direct pressure for bleeding, and apply a sterile dressing to the wound site.
7. If the TASER may be in a dangerous area (face, neck, hand, bone, groin, or spinal column), where it may injure bone, nerves, blood vessels, or an eye, do not remove the probe. Transport the patient to the ED in an appropriate position.

Violent or Combative Patient

If a patient is violent and an immediate threat to the patient, EMS crew, or bystander safety exists, physical restraint may be used to prevent the patient from harming him or herself or others. If the patient is not violent, be alert for possible violence and avoid provoking the patient.

Initial medical care

Is the patient an immediate threat to him/herself, the EMS crew, or bystanders?

No

Proceed with appropriate algorithm

Yes

Constant monitoring of ABCs and vital signs (including pulse oximetry) is required

Apply physical restraints as necessary. If restraints are used, the Agency ALS member is to accompany patient to receiving facility.

Establish IV access

Check blood sugar. If < 60 mg/dL, proceed to altered neurol algorithm

Note: Midazolam administered IV has been associated with respiratory depression and respiratory arrest, especially when used concomitantly with opioid analgesics for conscious sedation or when rapidly administered.

Contact Medical Direction prior to administration. Should not be used in patients that are suspected to be under the influence of drugs or alcohol.

Midazolam (Versed) for chemical restraint

Age 14 to 60:

IV: 2.5 to 5 mg titrated to effect; administer slowly in increments of no more than 2.5 mg over at least 2 min; total dose no more than 20 mg

IM: 5 mg up to 20 mg; 0.2 mg/kg (up to 20 mg) IM if no IV access

IN (intranasal) Adults over 50 kg: 0.3mg/kg. Take total dose divided into each nostril. Max dose 10mg.

Age > 60:

IV/IO: 1 to 3.5 mg titrated to effect; administer slowly in increments of no more than 1.5 mg over at least 2 min; total dose no more than 20 mg

IM: 1 to 3 mg up to 20 mg; 0.2 mg/kg (up to 20 mg) IM for status seizures if no IV access; *inject deep into large muscle mass*

IN (intranasal) Adults over 50 kg: 0.3mg/kg. Take total dose divided into each nostril. Max dose 10mg;

must use 5mg/ml concentration for IN route

Ketamine

IV: 1 mg/kg. Max single dose of 150 mg. May re-medicate every 5 minutes.

IM: 2 mg/kg. Max single dose of 250 mg. May re-medicate every 10 minutes.

Violent or Combative Patient (cont.)

Patient Positioning –

1. Patients shall be positioned in a in a manner that does not compromise airway or breathing.
2. No patient will be restrained in a prone position or “hog-tied.” No patient will be placed between backboards or stretchers.
3. Restraints shall be placed in such a manner as to not preclude evaluation of the patient’s medical status or injure the patient in any way.

Documentation - If restraints are necessary, documentation must include:

1. Reason restraint was required
2. Type of restraint used
3. Position of the patient during treatment and transport
4. Data indicating constant supervision of ABCs and vital signs, including pulse oximetry
5. Status of circulation distal to restraints
6. Total time the patient was restrained while in the care of Agency ALS members
7. Patient status at the time of transfer of care

Neonatal Resuscitation

(Birth to One Month)

All situations:

- Consider immediate transport
- Assess and support the following:
  - Temperature (dry and warm)
  - Airway (position and suction)
  - Breathing (stimulate to cry)
  - Circulation (heart rate and color)
- What is the respiratory status and heart rate?

Stable Newborn

- Respirations are adequate, heart rate > 100/min, central color pink
- Continue assessment
- Observe, monitor vital signs, support, and transport
- Required notification to receiving facility

Unstable Newborn

Adequate respirations, HR > 100/min, central cyanosis	• Administer blowby oxygen via oxygen tubing OR • Ventilate with 100% O2 via bag-valve-mask at a rate of 40-60/min • Reassess heart rate and respiratory rate every 30 sec enroute • Required notification to receiving facility
Apnea, gasping, HR 60-100, or central cyanosis	• Administer 100% oxygen • Ventilate with bag-valve-mask at a rate of 40-60/min • Reassess heart rate and respiratory rate every 30 sec enroute • Required notification to receiving facility
HR < 60 bpm (pulse present)	•Assist ventilations with 100% O2 at a rate of 40-60/min •If no improvement after 30 sec of ventilation with 100% O2, begin chest compressions at 120/min, (3 compressions:1 breath every 2 sec) • If no improvement in 30 seconds, intubate • Establish vascular access • Give epinephrine 1:10,000 0.01 mg/kg IV/IO/ET q 3-5 min • Reassess heart rate and respiratory rate every 30 sec enroute • Required notification to receiving facility
HR > 60 bpm with signs of cardiopulmonary compromise	•Consider immediate transport • Assist ventilations with 100% O2 at a rate of 40-60/min •Establish IV of NS. If unable, establish IO. Administer 10 mL/kg NS over •5-10 min and reassess. •Check blood glucose. If < 40 mg/dL, administer 0.5-1 g/kg of D10 over 20 min. • Reassess heart rate and respiratory rate every 30 sec enroute • Required notification to receiving facility
HR > 60 bpm and increasing, signs and symptoms of cardiopulmonary compromise resolved	• Immediate transport • Observe • Monitor vital signs • Support enroute to hospital • Required notification to receiving facility

Neonatal Resuscitation

(Birth to One Month)

Dry, Warm, Position, Stimulate, Suction
Administer O2 as needed.

Apnea / gasping, HR < 100, or central cyanosis

Ventilate with BVM @ 40-60/min

HR < 60 after 30 BVM

Chest Compressions @ 120/min - Thumbs encircle chest
3:1 ratio

HR < 60

Intubate and Suction
Epinephrine 0.01 mg/kg
IV/IO/ET q 3-5 min

Check Glucose – treat if < 40 with Dextrose 10% 5-10ml/kg
(see reference for 4:1 dilution of Dextrose 50%)

Fluid bolus 10 mL/kg
X 1

Required notification to receiving facility

APGAR SCORE

	0	1	2
Appearance (Skin color)	Blue, pale	Body pink, blue extremities	Completely pink
Pulse rate	Absent	<100/minute	>100/minute
Grimace	No response (irritability)	Grimace	Cough, sneeze, cry
Activity (Muscle tone)	Limp	Some Flexion	Active Motion
Respirations (respiratory effort)	Absent	Slow, irregular	Good crying

Pediatric Algorithms

Pediatric Assessment Triangle

Appearance
- Tone
- Interactiveness
- Consolability
- Look/gaze
- Speech/cry

Work of Breathing
- Abnormal airway sounds
- Abnormal positioning
- Retractions
- Flaring

Circulation
- Pallor
- Mottling
- Cyanosis

Allergic Reaction/Anaphylaxis

Pediatric (≤ 14 y/o)

Initial medical care

Establish IV access

Do not delay treatment while establishing IV.

Acute Allergic Reaction
Rash, mild swelling

Diphenhydramine (Benadryl)
IV/IM: 1.0 mg/kg (max dose 50 mg)

Consider Methylprednisolone
IV/IM: 2 mg/kg (max 125 mg)

Consider **Epinephrine:**
- **For patients 15kg – 30kg**
  Administer Epinephrine auto-injector (epi-pen junior): 0.15 mg IM
- **For patients >30 kg**
  Adminster Epinephrine auto-injector (epi-pen): 0.3 mg IM

Auto injectors: IM, only into the anterolateral aspect of the thigh (through clothing if necessary)

- **For patients less than 15kg or if auto injector is malfunctioning/unavailable administer:**

IM/SC: *0.01 mg/kg (0.01 mL/kg)* ***(1:1000 solution)*** *– max 0.3 mg (0.3ml)*

Consider **Albuterol (Proventil)**
SVN: 2.5 mg in 3.0 mL NS for respiratory distress; repeat as needed

Anaphylaxis
- Shock, "looks sick"
- Severe facial angioedema
- Severe respiratory distress
- Drooling

Epinephrine:
- **For patients 15kg – 30kg**
  Administer Epinephrine auto-injector (epi-pen junior): 0.15 mg IM
- **For patients >30 kg**
  Adminster Epinephrine auto-injector (epi-pen): 0.3 mg IM

Auto injectors: IM, only into the anterolateral aspect of the thigh (through clothing if necessary)

OR

0.01 mg/kg (0.01 mL/kg)
(1:1000 solution) *– max 0.3 mg (0.3ml)*

Diphenhydramine (Benadryl)
IV/IO/IM: 1.0 mg/kg (max dose 50 mg)

Methylprednisolone (Solu-Medrol)
IV/IM: 2 mg/kg (max 125 mg)

Consider **Albuterol (Proventil)**
SVN: 2.5 mg in 3.0 mL NS for respiratory distress; repeat as needed

Required notification to receiving facility

MILD DISTRESS:
Itching, isolated urticaria, nausea, no respiratory distress

SEVERE DISTRESS:
Stridor, bronchospasm, severe abdominal pain, respiratory distress, tachycardia, shock, generalized urticaria, edema of lips, tongue or face (angioedema)

Altered Neurological Function
(Non-trauma)
Pediatric (≤14 y/o)

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

Establish IV access
(IV/IO); bolus with 20 mL/kg if lungs are clear – repeat as needed

Check blood glucose
Is level < 60 mg/dL?
(< 40 mg/dL for neonate)

No

Consider naloxone
<20 kg=IV/IO/IM/SC/ET/IN: 0.1 mg/kg max 2.0 mg per dose
>20 kg=IV/IO/IM/SC/ET/IN: 2.0 mg

Contact medical control if:
•Repeat dose of naloxone needed
•Naloxone unavailable (use of nalmefene in a child requires a patch)

Yes

Dextrose*
IV/IO: 0.5 to 1.0 g/kg slowly over 20 min
Neonate to 1 year: 5 to 10 mL/kg (D10)
> 1 year - 14 y/o: 2 to 4 mL/kg (D25)

Glucagon
IM: Consider if unable to establish IV, for children over 1 month 0.5 to 1.0 mg
Glucagon <20kg 0.5 mg IM
>20kg 1mg IM

Required notification to receiving facility

*Dextrose 10% = 4:1 dilution of dextrose 50%
*Dextrose 25% = 1:1 dilution of dextrose 50%

To prepare D10: Use a 250 mL IV bag of normal saline. Waste 50 mL and add 50 mL of dextrose 50%. The resulting solution is dextrose 10% in normal saline or 10 g/mL.

To prepare D-25, mix in 50ml syringe 25ml D-50 with 25ml NS. Produces 50ml D-25

Cardiopulmonary Arrest – Asystole/PEA

Pediatric (≤14 y/o)

Initial medical care

↓

Confirm asystole in two or more leads

↓

Intubate, establish vascular access (IV or IO)
Bolus NS 20 mL/kg if lungs clear

↓

Epinephrine
IV/IO: 0.01 mg/kg (1:10,000, 0.1 mL/kg)
ET: 0.1 mg/kg (1:1000, 0.1 mL/kg)
Repeat every 3-5 min at same dose

↓

Consider causes and treat as needed

↓

Required notification to receiving facility

Obtain patient history and document:
- Estimate / establish down time
- Circumstances surrounding arrest
- Witnessed?
- Bystander CPR in progress?

6H's & 5T's
Hypovolemia (20 mL/kg of NS over 30 min)
Hypoxia (support ventilation)
Hyper/hypokalemia (treatment requires patch)
Hyperthermia/hypothermia (cooling measures or warming measures)
Hypoglycemia (dextrose or glucagon)
Hydrogen ion (bicarb)

Tension pneumothorax
(needle decompression)
Tamponade (volume infusion)
Toxins - drug overdose/accidents
(treatment requires patch)
Thromboembolism (treatment requires patch)
Trauma

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect.**
CPS: 1-888-767-2445

ETCO2 monitoring

Cardiopulmonary Arrest – Pulseless VT/VF
Pediatric (≤14 y/o)

Begin CPR, give oxygen when available
Attach AED or monitor/defibrillator
Assess rhythm; if shockable rhythm, defibrillate once (2 J/kg)* as soon as defibrillator ready

↓

Perform 5 cycles of CPR (about 2 minutes)
Without interrupting CPR, start IV/IO
During CPR, give vasopressor

↓

Vasopressor
Epinephrine (Repeat every 3 to 5 min)
IV/IO: 0.01 mg/kg (1:10,000)
ET: 0.1 mg/kg (1:1000), max 10 mg

↓

Assess rhythm. If shockable, defibrillate x 1 with 4 J/kg* – resume CPR immediately, starting with chest compressions

↓

Consider antiarrhythmic (choose one) and causes of arrest
Amiodarone
IV/IO: 5 mg/kg
Lidocaine
IV/IO: 1 mg/kg
Magnesium (consider for torsades)
IV/IO: 25 to 50 mg/kg, max 2 g

↓

Assess rhythm. If shockable, defibrillate x 1 – resume CPR immediately, starting with chest compressions

↓

If resuscitation successful, contact medical control for orders.

↓

Required notification to receiving facility

Obtain patient history and document:
- Estimate/establish down time
- Circumstances surrounding arrest
- Witnessed?
- Bystander CPR in progress?
- AED used?

Identify and treat possible causes:

Hypovolemia (20 mL/kg of NS over 30 min)
Hypoxia (give oxygen, support ventilation)
Hyper/hypokalemia (treatment requires patch)
Hyperthermia/hypothermia (cooling measures or warming measures)
Tension pneumothorax (needle decompression)
Tamponade (volume infusion)
Toxins - drug overdose/accidents (treatment requires patch)
Thromboembolism (treatment requires patch)

If asystole; refer PEA/asystole algorithm pg 30
If electrical activity present, check pulse No pulse, PEA/asystole algorithm pg 30
Pulse present, assess vital signs

*Defibrillation
2 J/kg initially, then 4 J/kg
or equivalent biphasic energy
If using AED, use energy settings per manufacturer

*or biphasic equivalent

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

ETCO2 monitoring

Pediatric Intubation & Vital Signs Guidelines

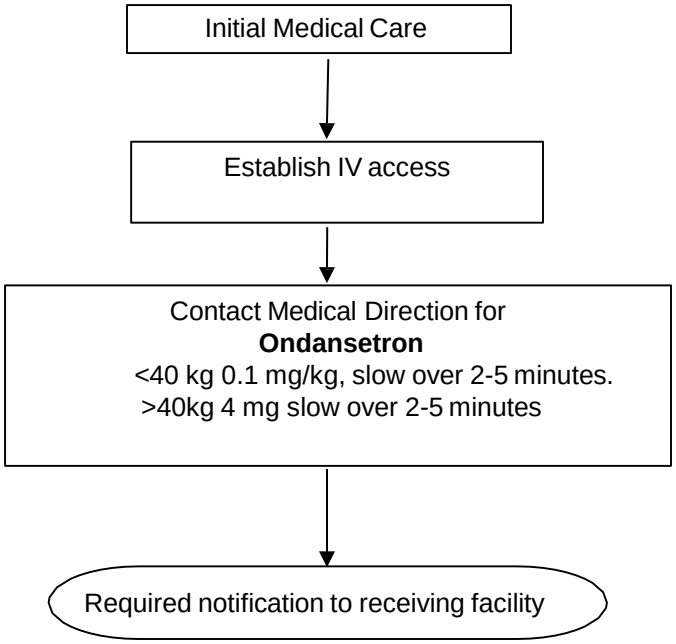
AGE (YR)	Preemie	< 1 mo	< 1 yr	1-4	5-7	8-13
WEIGHT (Kg)	1-3	3-4	5-8	8 + (2 x age)	8 + (2 x age)	8 + (2 x age)
SBP	MAP = EGA*	>54*	>65*	70 + (2 x age)*	70 + (2 x age)	70 + (2 x age)
RESP	30-60	30-60	28-40	20-32	18-24	18-24
PULSE	100-180	100-160	100-160	80-140	70-120	60-120
ETT SIZE (mm)	2.5-3.0	3.5	4.0	$\frac{16 + age}{4}$	$\frac{16 + age}{4}$	$\frac{16 + age}{4}$
ETT CUFFED/ UNCUFFED	uncuffed	uncuffed	uncuffed	uncuffed	uncuffed	**cuffed**
ETT DEPTH	7-9	10	10	10 + age (at lip)	10 + age (at lip)	10 + age (at lip)
Formulas for weight, BP, ETT size, and ETT depth for ≥ 1 yr						

*Presence of strong Central/Peripheral pulses as an alternative to SBP

EGA = estimated gestational age, MAP = mean arterial pressure.

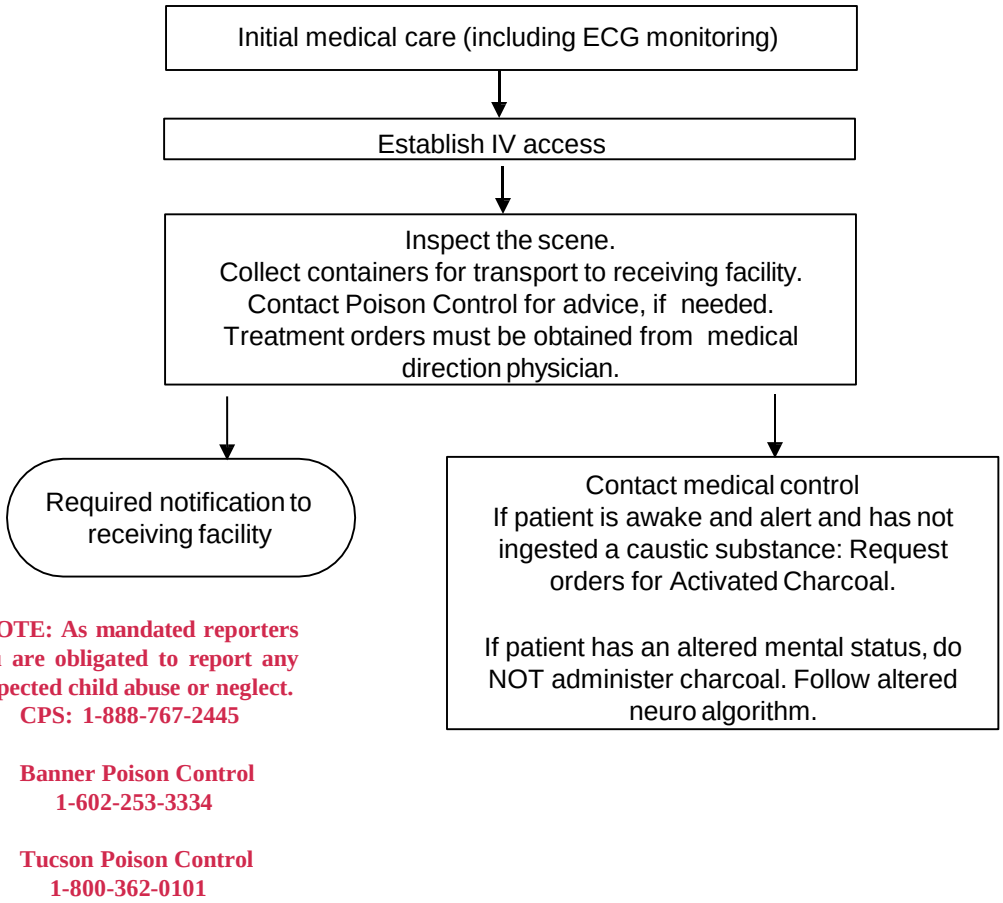
Nausea / Vomiting
Pediatric (≤14 y/o)

This protocol should be used for patients that complain of nausea and vomiting.



Poisoning/Overdose

Pediatric (≤14 y/o)



***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect.**
CPS: 1-888-767-2445

Banner Poison Control
1-602-253-3334

Tucson Poison Control
1-800-362-0101

Document:

- Type of ingestion (What, when, how much)
- Past history (medications, suicide attempts)
- Action taken by bystanders (induced emesis? "Antidote" given?)

Notes regarding charcoal:

- Contraindications: Ingestion of caustics, ingestion of hydrocarbons (relative), oral administration to comatose patient, simultaneous administration of other oral medications.
- Ineffective for iron, lithium, heavy metals, and other ions.
- May reduce the effectiveness of other treatments (Mucomyst) in pure acetaminophen OD's.
- Since charcoal bonds with whatever it is mixed with, flavoring with drinks reduces effectiveness.

Post-Arrest Stabilization

Pediatric (≤14 y/o)

OUT-OF-HOSPITAL CARDIAC ARREST

↓

Assess Airway and Ventilations
Re-Confirm ETT
Maintain ETCO2 @ 35-45 and Ventilations @ 12/minute with 100% O2

↓

Assess Pulse and Rhythm:
Assess BP
Consider Antiarrhthmic
Drip Therapy

↓

What is the patient's BP?

Hypotensive: Decompensated Shock (Age Specific)

↓

Fluid Bolus 10-20 cc/kg NS or LR
Monitor Response
Reassess V/S: What is BP? Still Hypotensive

↓

Consider Further Fluid Bolus
Consider:
Epinephrine Infusion: 0.1 mcg/kg/min
OR
Dopamine Infusion: 2-10 mcg/kg/min
Infusions Titrated to desired effects

↓

V/S Improve:
BP Age Specific pg 66

↓

Assess Glucose Level: Below 50
Administer 5-10ml/kg **D10** NS IV Bolus.
Repeat Glucose check

↓

Seizure Control:
Refer to seizure protocol pg 71

↓

Maintain temperature control

↓

Consider ongoing sedation with
Versed : 0.1mg/kg slow IVP as needed

↓

Required Notification

Normotensive
BP age specific refer to pg 61

↓

Assess Glucose Level: Below 50
Administer 5-10ml/kg D10 NS IV Bolus.
Bolus. Repeat Glucose check.

↓

Seizure Control:
Refer to seizure protocol pg 71

↓

Maintain temperature control

↓

Consider ongoing sedation with
Versed: 0.1 mg/kg slow IVP as needed

↓

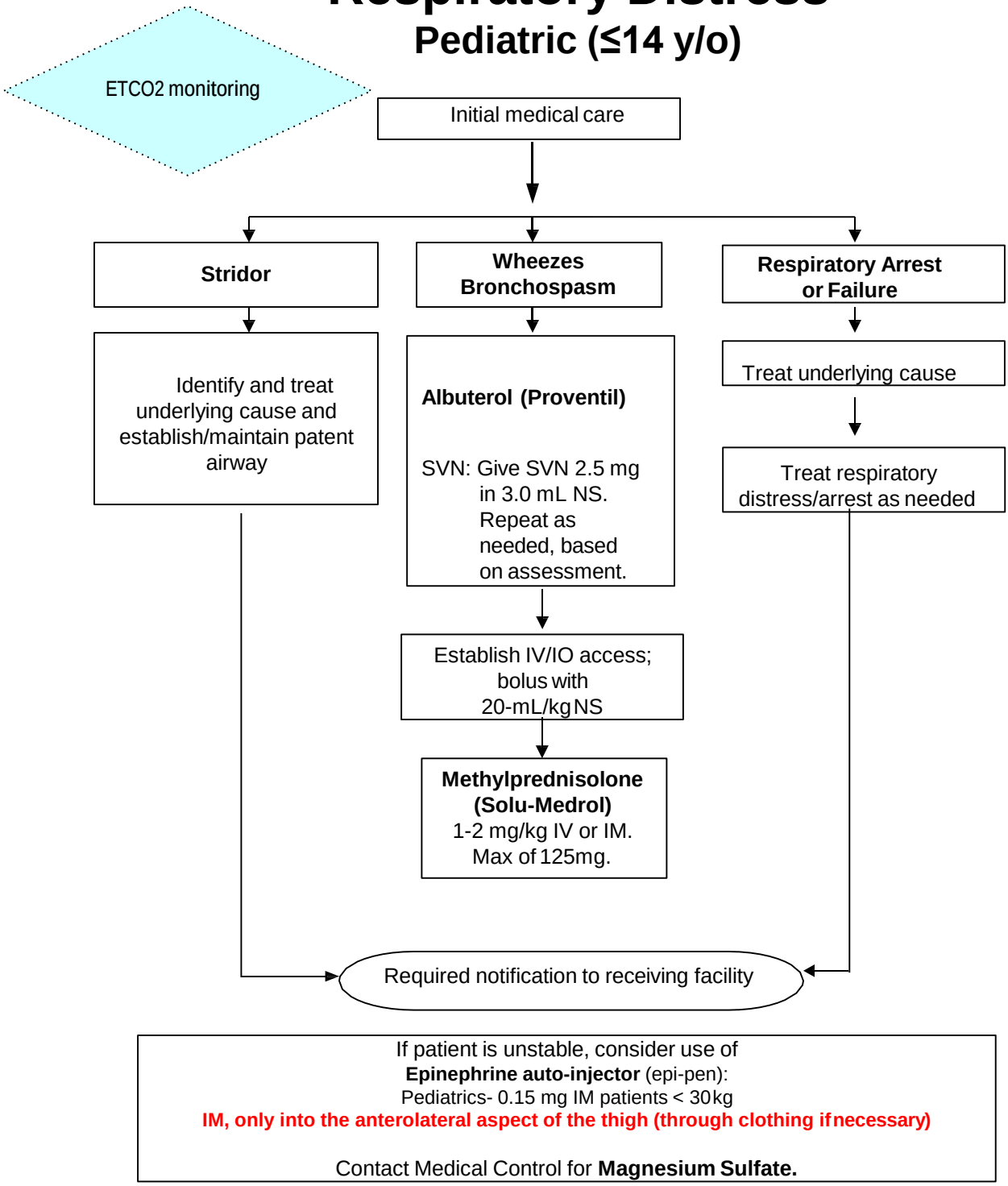
Required Notification or Patch

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

ETCO2 monitoring

Respiratory Distress

Pediatric (≤14 y/o)



If patient is unstable, consider use of
Epinephrine auto-injector (epi-pen):
Pediatrics- 0.15 mg IM patients < 30kg
IM, only into the anterolateral aspect of the thigh (through clothing if necessary)

Contact Medical Control for **Magnesium Sulfate.**

Seizures

Pediatric (≤ 14 y/o)

Note: Diazepam or midazolam administration applies to seizures that last > 5 minutes, more than two seizures in one hour, or status epilepticus. Febrile seizures typically occur in children between 5 months and 5 years of age. Febrile seizures are usually of short duration (lasting less than 15 minutes) and usually do not require anti-seizure medication therapy.

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

Initial medical care

↓

Consider causes

↓

Follow appropriate algorithm

↓

Establish IV access

↓

Diazepam (Valium)

IV/IO: 0.2-0.3 mg/kg every 15-30 minutes max of 1 mg/kg not to exceed 10 mg per dose; administer IV over at least 3 minutes or until seizure activity subsides.

Rectal: If no IV, consider rectal diazepam (≤6 years):0.3 - 0.5 mg/kg rectally at IV push rate; may repeat in 15-30 min at 0.25 mg/kg.

IV Dose after rectal dose: 0.1 mg/kg with same administration instructions as above

IO: Consider IO if seizure activity lasts longer than 30 min

OR

Midazolam (Versed)
0.05 to 0.1 mg/kg slow IV push or 0.2 mg/kg IM
IN (intranasal) Total kg wt X 0.2 mg = total mg maximum of 10mg. Divide total dose into each nostril. *Must use 5mg/ml concentration for IN use*

OR

Lorazepam (Ativan)
0.05-0.1mg/kg IV push over 2-5mins May repeat in 10- 15mins;Max 4mg

Required notification to receiving facility

Sepsis
Pediatric (≤14 y/o)

Sepsis Alert
The purpose of a sepsis alert is to provide pre-arrival Emergency Department notification in order to facilitate rapid assessment and ongoing treatment of a patient with suspected severe sepsis. These cases must be recognized early and treated aggressively to prevent progression to shock and death.

Your patient meets **SEPSIS CRITERIA if conditions 1 + 2 are present**.
Your patient meets **SEVERE SEPSIS CRITERIA if conditions 1 + 2 + 3 are present.**

A sepsis alert will be activated en route to the receiving facility for either of the above scenarios. A hospital's specific response to sepsis alerts will vary depending on resources and internal protocols.

Initial Medical Care

↓

Obtain focused history and perform assessment

↓

1

Suspected Infection
- Temperature abnormality on assessment or within 4 hours of assessment
- Open wounds, sores, cellulitis
- UTI
- Pneumonia
- Meningitis

High-Risk Criteria
- Malignancy
- Asplenia or sickle cell disease
- Bone marrow transplant
- Indwelling medical device
- Solid organ transplant
- Severe intellectual disability or cerebral palsy
- Immunocompromise, chronic steroid use

Clinical Criteria (2 or more criteria)

	0-2y	≥2y-10y	≥10y-14y
HR	➢190	➢140	>100
RR	➢50	➢34	➢30
Pulses	Decreased, weak, or bounding		
Cap refill	Delayed (> 2 sec) or flash (< 1 sec)		
Skin	Mottled, ruddy, petechiae		
Mental status	Decreased, irritability, confusion, inappropriate crying, poor interaction, diminished arousability		

3

Septic Shock Trigger (at least one)
- SBP < 70 + (age in yr X 2)
- 3 or more clinical criteria
- 2 or more clinical criteria in patient meeting high-risk criteria

↓

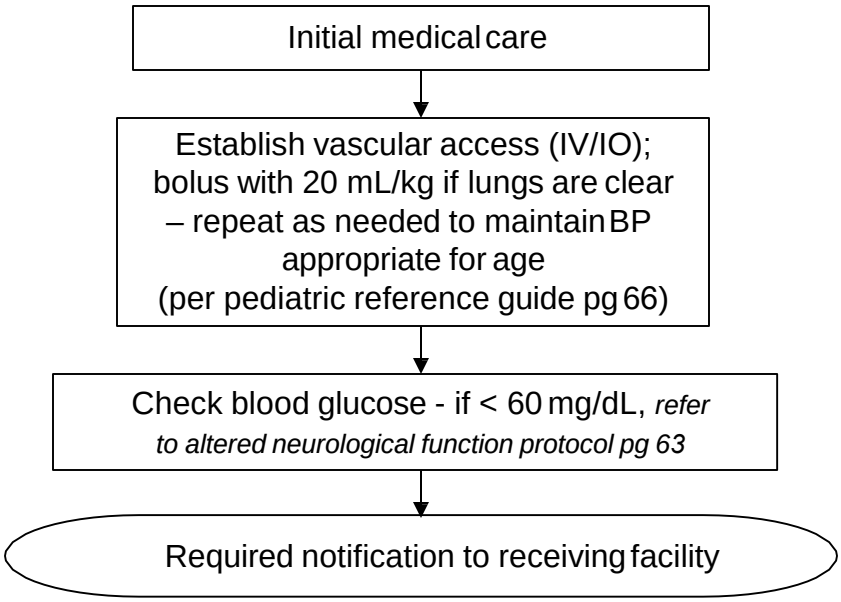
Treatments
- Supplemental oxygen to maintain saturations ≥ 92%
- Attempt IV access. Do not delay transport if unsuccessful. Consider IO placement for patients meeting SEVERE SEPSIS CRITERIA.
- Administer boluses of 20 cc/kg NS over 20 minutes as long as lungs remain clear
  – Use caution if patient has end-stage renal disease or CHF

↓

Notify closest appropriate facility of SEPSIS ALERT, if applicable

Shock/Hypotension

Pediatric (≤14 y/o)



***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

Age	Lower Limit of Normal Systolic Blood Pressure
Term neonate (0 to 28 days)	>60 mm Hg or strong central pulse
Infant (1 to 12 months)	>70 mm Hg or strong central pulse
Child 1 to 10 years	>70 + (2 x age in years)
Child ≥ 10 years	>90 mm Hg

SVT/VT with Pulse

Pediatric (≤14 y/o)

Probable sinus tachycardia if:
- history compatible
- present/normal P waves
- HR often varies with activity
- variable RR w/ constant PR
- infants' rate usually < 220
- children's' rate usually < 180

*NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445

Initial medical care

Establish IV access
Bolus NS 20 mL/kg if lungs clear

ETCO2 monitoring

Evaluate ECG rhythm
What is the QRS duration?

QRS 0.08 sec or <

Probable SVT
Infant HR >220
Children HR >180

STABLE

Try vagal maneuvers, start IV, identify/treat causes

Adenosine
IV/IO 0.1 mg/kg rapid push
Follow with 2-3 mL NS flush. Max first dose 6 mg.
Second dose
IV/IO 0.2 mg/kg rapid push using same procedure. Max second dose 12 mg.

Consider **Amiodarone** 5 mg/kg IV over 20 to 60 min

UNSTABLE

If IV/IO in place, consider adenosine

If rhythm persists, sedate if possible* then synchronized cardioversion with 0.5 to 1.0 J/kg; 2 J/kg if rhythm persists

Identify and treat contributing causes:

Hypoxemia (give oxygen, support ventilation)
Hypovolemia (replace volume; 20 mL/kg of NS over 30 min)
*Hypothermia (cooling measures or warming measures)
*Hyper-/hypokalemia and metabolic disorders (treatment requires patch)
Tamponade (volume infusion)
Tension pneumothorax (needle decompression)
Toxins/poisons/drugs - antidote/specific therapy (treatment requires patch)
Thromboembolism (treatment requires patch)
Pain (ensure effective pain control)

*Sedation:
Midazolam (Versed)
0.05 to 0.1 mg/kg slow IV push or 0.2 mg/kg IM

Required notification to receiving facility

QRS > 0.08 sec

Probable VT

STABLE

Consider vagal maneuvers, start IV, identify/treat causes
Give **Amiodarone**
5 mg/kg slowly IV
OR
Lidocaine: IV/IO: 1 mg/kg

Required notification to receiving facility

UNSTABLE

If IV/IO in place, consider **Adenosine**
Sedate* if possible, then synchronized cardioversion with 0.5 to 1.0 J/kg;
2 J/kg if rhythm persists

Contact medical control for orders.

Symptomatic Bradycardia

Pediatric (≤14 y/o)

ETCO2 monitoring

Initial medical care

Establish IV access

*NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445

Are signs/symptoms of shock present? Abnormal skin color, decreased LOC, cap refill > 2 sec., or other signs of shock

Yes

No

Perform chest compressions if despite oxygenation and ventilation HR < 60/min in infant or child and poor systemic perfusion

IV bolus NS 20 mL/kg; repeat as needed if lungs clear

Epinephrine every 3 to 5 min
IV/IO: 0.01 mg/kg (0.1 mL/kg) (1:10,000).
ET: 0.10 mg/kg (0.1 mL/kg) (1:1000)

Atropine*
IV/IO: 0.02 mg/kg (minimum dose 0.1 mg)
May be repeated x 1 in 3 to 5 min.

Maximum single dose = 0.5 mg in a child, 1.0 mg in adolescent.

Maximum total dose = 1.0 mg in a child, 2.0 mg in adolescent.

Consider transcutaneous pacing. If used, consider sedation with **Midazolam (Versed)** 0.05 to 0.1 mg/kg slow IV push or 0.2 mg/kg IM.

Consider contributing causes and treat as needed:

*Hypoxemia (give oxygen, support ventilation)
*Hypovolemia (replace volume; 20 mL/kg of NS over 30 min)
*Hypothermia (warming measures)
*Hyper-/hypokalemia and metabolic disorders (treatment requires patch)
*Head injury (give oxygen, support ventilation, treat increased ICP)
*Heart block (consider atropine, chronotropic drugs, early pacing)
*Heart transplant (special situation) - may require pacing or large doses of sympathomimetics (contact medical control)
*Tamponade (volume infusion)
*Tension pneumothorax (needle decompression)
*Toxins/poisons/drugs (treatment requires patch)
*Thromboembolism (treatment requires patch)

*Give atropine first for bradycardia due to suspected increased vagal tone (rare in children) or AV block

Required notification to receiving facility

Traumatic Brain Injury- Pediatric

Suspicion of TBI
•Mechanism
•GCS
•Exam

Automatically: 15 L/min O2 NRB & IV access

Every 3-5 minutes: Monitor O2, BP & Heart rate

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

O2 sat <90 &/or hypoventilation (despite NRB)

Hypotension ** or other signs of shock

Evaluate mental status/GCS

No

Yes

•BLS Airway maneuvers
•BVM*

Continue careful monitoring of O2 sats and airway

No

O2 sat <90 despite BLS

Yes

No

Yes

•Continue careful monitoring of BP/HR
•Pay attention for early signs of shock:
-Tachycardia
-Dropping SBP

•20ml/kg NS Bolus
•Repeat until hypotension resolves

ALWAYS evaluate for hypoglycemia (can mimic or cause TBI)

If blood glucose < 70mg/dl
Newborn: 5ml/kg D10 IV/IO
3mo-3yrs: 2ml/kg D25 (max 100ml)
Age >4 1ml/kg D50 (max 50ml)
Repeat BG @ 10 min. Repeat previous dose X1 if still <70 mg/dl

ALWAYS evaluate for impeding herniation

Dilated & unresponsive pupils
GCS <9 & rapid deterioration in GCS by >2 points
Extensor Posturing
Asymmetric pupils (one or both non-reactive to light)
RE-EVALUATE EVERY 3-5 MINUTES

Yes

Moderate hyperventilation
•Infants: (0-24mo) 30bpm
•Children: (2-14 yrs): 25bpm
•Adolescents: (15-17yrs) 20bpm

Elevate Head 30o if possible
If ETCO2 available 28-31 mmHg (avoid <28)

Consider ALS airway if experienced provider available:
Place advanced airway:
- Pre-oxygenate: BVM with 100% O2 age-appropriate rate
- Check placement using ETCO2 detector

AVOID even moderate hyperventilation
- Control Ventilatory Rate*
  - If available maintain ETCO2 between 35-45 mmHg
  - If ETCO2 not available:
    - Utilize cadence device for rate*
    - or
    - Maintain ventilatory rate**
- Control Ventilatory volume:
  - If available utilize pressure-control BVM

Monitor: O2 sat and airway every 3-5 minutes:
- If O2 sat <90mmHg despite above interventions, consider:
  - Tension pneumothorax & needle thoracostomy

***Ventilation Rates:**
•Infants: (0-24mo) 25 bpm
•Children: (2-14yrs) 20 bpm
•Adolescents: (15-17yrs) 10bpm

****Identifying Hypotension**

0-9 yrs:	70 + (age X 2)
≥10 yrs:	<90mmHg

Rules of thumb:

Newborn:	<70mmHg
5 yr old:	<80mmHg
10 & older:	<90mmHg

Cyanide Poisoning Option 1

Assure Scene Safety
Perform appropriate decontamination if able.
Confirm exposure, amount, and duration.

↓

Maintain Airway, Breathing, Circulation.
Establish IV of NS

↓

Administer **Amyl Nitrite**.
Break Amyl Nitrite Pearl and hold over face of breathing patient or over air intake of BVM for 30 seconds of every minute while IV is being established.
If IV is established go directly to IV Sodium Nitrite.

↓

Administer **Sodium Nitrite**

Adult: 300mg IV over 5-10 minutes
(Can give faster during cardiac arrest)

Pediatric: 0.33 ml/kg of 3% solution over 5-10 minutes.
May repeat if no response in 15 to 30 minutes.

↓

Administer **Sodium Thiosulfate** (25%)

Adult: 12.5g (50ml of 25%) IV over 5 minutes.
(Can be faster during codes)
Pediatric: 1.65ml/kg of 25% solution over 5 minutes.

↓

Contact Poison for further recommendation.
Contact Medical Direction

Signs and Symptoms

Abrupt onset of profound effects
Headache / Altered LOC
Loss of Consciousness
Nausea
Dyspnea / Agonal Respirations
Seizures
Cardiovascular Collapse
Hypotension
Cardiac Arrhythmias

Poison Control
1-800-362-0101

Notes

Chemical Asphyxiant
Almost never smells like almonds
Sources:
- Apricot Pits
- Combustion of plastics, synthetics, or wool

If smoke inhalation or suspected carbon monoxide poisoning present, then do not
- give Nitrites unless carboxyhemoglobin fraction is known to be less than 10%

Cyanide Poisoning Option 2

Assure Scene Safety
Perform appropriate decontamination if able.
Confirm exposure, amount, and duration.

↓

Maintain Airway, Breathing, Circulation. Administer High Flow O2. Treat dysrythmias (common with cyanide toxicity). Establish IV.

↓

Establish dedicated large bore IV with tubing provided in Cyano-kit (Regular IV tubing will not work for Cyano-kit administration)

↓

Administer Hydroxocobalamin (Cyano-kit)

Adult: 5g IV over 15 min.
(both 2.5g vials-7.5 min / vial or 15mL / min)

Second Dose: 5g for a total of 10g over 15 min – 2 HRS titrated to patient condition

↓

Contact Poison Control for further recommendation
Contact Medical Direction

Signs and Symptoms

Abrupt onset of profound effects
Headache / Altered LOC
Loss of Consciousness
Nausea
Dyspnea / Agonal Respirations
Seizures
Cardiovascular Collapse
Hypotension
Cardiac Arrhythmias

Poison Control
1-800-362-0101

Notes

Reconstitute each vial with 100mL of NS.
Use LR or D5W if NS not available.

Chemical Asphyxiant

Almost never smells like almonds

Sources:
Product of combustion/smoke inhalation
Fumigants

↓

Same IV Line Incompatibilities

Diazepam
Dopamine
NTG
Dobutamine
Propofol
Pentobarbitol
Sodium Nitrite
Sodium Thiosulfate

Methemoglobinemia

Assure Scene Safety
Perform appropriate decontamination if able.
Confirm exposure, amount, and duration.

↓

Maintain Airway, Breathing, Circulation.
Establish IV of NS
(Do not delay Decontamination for IV access)

↓

Administer **Methylene Blue**:
Mix in 100cc bag of NS
Dose: 2mg/kg IV over 5-10 minutes
May repeat at: 1mg/kg if no change within 10-20 minutes

↓

Note
Do not use when known G-6-PD deficiency

↓

Contact Poison for further recommendation.
Contact Medical Direction

Signs and Symptoms

Headache/Dizziness
Altered LOC
Nausea
Dyspnea
Seizures
Coma
Generalized Skin Discoloration
"Chocolate Cyanosis"
Chocolate Brown Blood

Poison Control
1-800-362-0101

Notes

Causative Agents
- Local Anesthetics
- Analgesics
- Anti-microbials
- Nitrates/Nitrites
- Amyl Nitrite/Butyl Nitrite
- Aniline Dyes
- Chlorates
- Nitrobenzenes
- Aminophenol

May occur with the use of Amyl Nitrite for Cyanide and Sulfide poisonings

Organophosphate/ N-Methylcarbamate/ Nerve Agent Exposure

Assure Scene Safety
Perform appropriate decontamination if able.
Confirm exposure, amount, and duration.

↓

Maintain Airway, Breathing, Circulation.
Establish IV of NS

↓

Administer **Atropine Sulfate**

Adult Dose: 2-5 mg IV every 2-5 minutes Ped Dose: 0.05 mg/kg IV every 2-5 minutes

↓

Continue to repeat dosing until atropinization:
No wheezing
No bronchorrhea
No diaphoresis
No bradycardia
No diarrhea
No vomiting

↓

Administer Pralidoxime Chloride (2 PAM)

Reconstitute with 20cc of sterile water

Adult dose: 1-2 grams IV over 10-15 minutes
Peds dose: 30-50mg/kg over 10-15 minutes

Note: Sudden onset apnea may occur in infants, usually after the second dose.

↓

Consider 2-PAM drip for severe cases after initial dose.

↓

Contact Poison for further recommendation.
Contact Medical Direction

Signs and Symptoms

SLUDGE Syndrome
Fasciculations / Seizures
Loss of Consciousness
Dyspnea / Apnea

Poison Control
1-800-362-0101

Notes

Exposure- Vapor or absorbed
Will penetrate clothing
Mark 1 Kit appropriate for mass casualty situation

Peds dosing for seizures:
Diazepam (Valium)
IV: 0.1 to 0.2 mg/kg (max 2.0 mg per dose, may repeat in 3-5 min)
Rectal: If no IV, consider rectal diazepam
IO: Consider IO if seizure activity lasts longer than 30 min
OR
Midazolam (Versed)
0.05 to 0.1 mg/kg slow IV push or 0.2 mg/kg IM

Adult dosing for seizures
Diazepam (Valium): 2.0 mg/min IV until seizure is resolved to a max dose of 10 mg
OR
Midazolam (Versed)
Age 14 to 60:
IV: 2.5 to 5 mg titrated to effect; administer slowly in increments of no more than 2.5 mg over at least 2 min; total dose no more than 10 mg
IM: 5 mg up to 10 mg; 0.2 mg/kg (up to 10 mg) IM if no IV access
Age > 60:
IV: 1 to 3.5 mg titrated to effect; administer slowly in increments of no more than 1.5 mg over at least 2 min; total dose no more than 10 mg
IM: 1 to 3 mg up to 10 mg; 0.2 mg/kg (up to 10 mg) IM for status seizures if no IV access

Sulfide Poisoning

Assure Scene Safety
Perform appropriate decontamination if able.
Confirm exposure, amount, and duration.

↓

Maintain Airway, Breathing, Circulation.
Establish IV of NS

↓

Administer **Amyl Nitrite.**
Break Amyl Nitrite Pearl and hold over face of breathing patient or over air intake of BVM for 30 seconds of every minute while IV is being established.
If IV is established go directly to IV Sodium Nitrite.

↓

Administer **Sodium Nitrite**

Adult: 300mg IV over 5-10 minutes
(Can give faster during cardiac arrest) Pediatric:

0.33 ml/kg of 3% solution over 5-10 minutes

May repeat if no response in 15 to 30 minutes.

↓

Contact Poison for further recommendation.
Contact Medical Direction

Signs and Symptoms

May report "rotten egg" odor
Upper airway irritation
Non-Cardiogenic Pulmonary Edema
(late onset)
Rapid collapse

Poison Control
1-800-362-0101

Notes

Cellular Aphyxiant
Rapid olfactory overload- may not report rotten egg odor
Sources:
- Decaying organic matter
- Petroleum refining
- Mining
- Pulp/Paper factories
- Sewage
- Hot Asphalt fumes
- Septic systems

"Rotten egg" odor may be present with as little as 0.025 PPM

Universal Toxicological Response

Determine Product or Agent Involved.
If unknown, determine symptoms of those exposed.
Provide for safety of responding personnel, patients, and bystanders

↓

Document findings and contact Poison Control.
Document recommendations from Poison Control

↓

Institute immediate life saving therapy, based upon Poison Control's recommendations.
Recommend dispatch of additional Tox Medic resources to Command, if necessary.

↓

Contact medical Direction as soon as possible.

Advise of Poison Control's Recommendations and treatment rendered.

Document Medical Direction's Orders.

↓

As new information is obtained, update:
Poison Control
Medical Direction
Receiving Hospitals

Refer to specific Guidelines for exposures to:
- Methemoglobinemia
- Cyanide Poisoning
- Sulfide Poisoning
- Organophosphate / N-Methylcarbamate Poisoning (Insecticide-Nerve Agent)
- Eye Contamination

Poison Control
1-800-362-0101
(Refer to Toxicology Report)

Product Concentration
Types of Exposure
Length of Exposure
Initial Signs and Symptoms
Present Signs and Symptoms

Burn Management

Secure airway and administer 100% O2

Consider C-spine with trauma and blast injuries.

↓

Initiate 2 large bore IV's with LR. May initiate an IV through a burn if no other sites available.
Utilize Parkland Formula for appropriate fluid resuscitation.
4ml X % of burn X kg administer ½ of fluid in first 8 hours from onset of burn.
% of burn= BSA of 2nd and 3rd degree burns

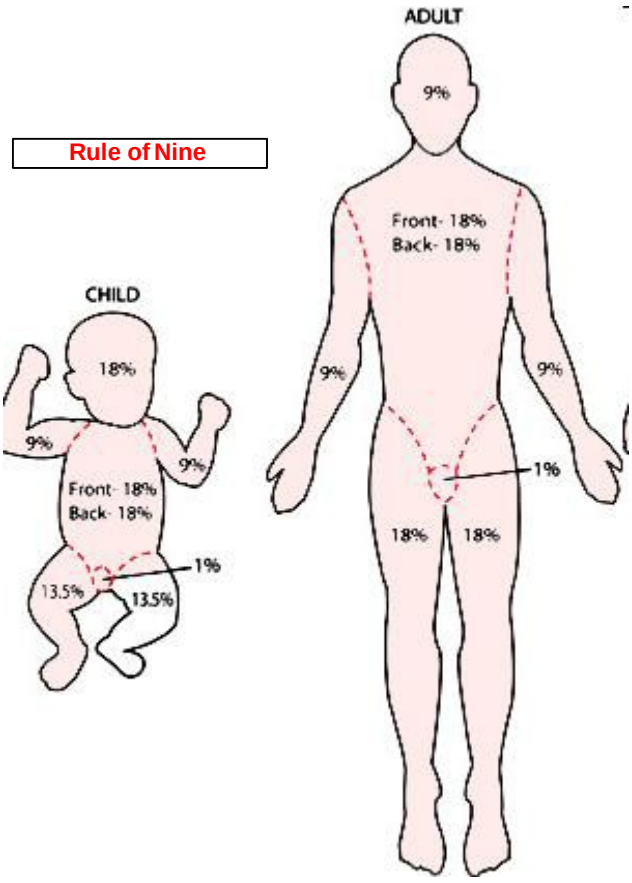
↓

Remove all jewelry and clothing.
Remove clothing and cover with burn sheet or appropriate sterile bandage.
Keep patient warm avoid hypothermia.
Refer to pain management protocol for pain relief.

↓

Required notification to receiving facility.

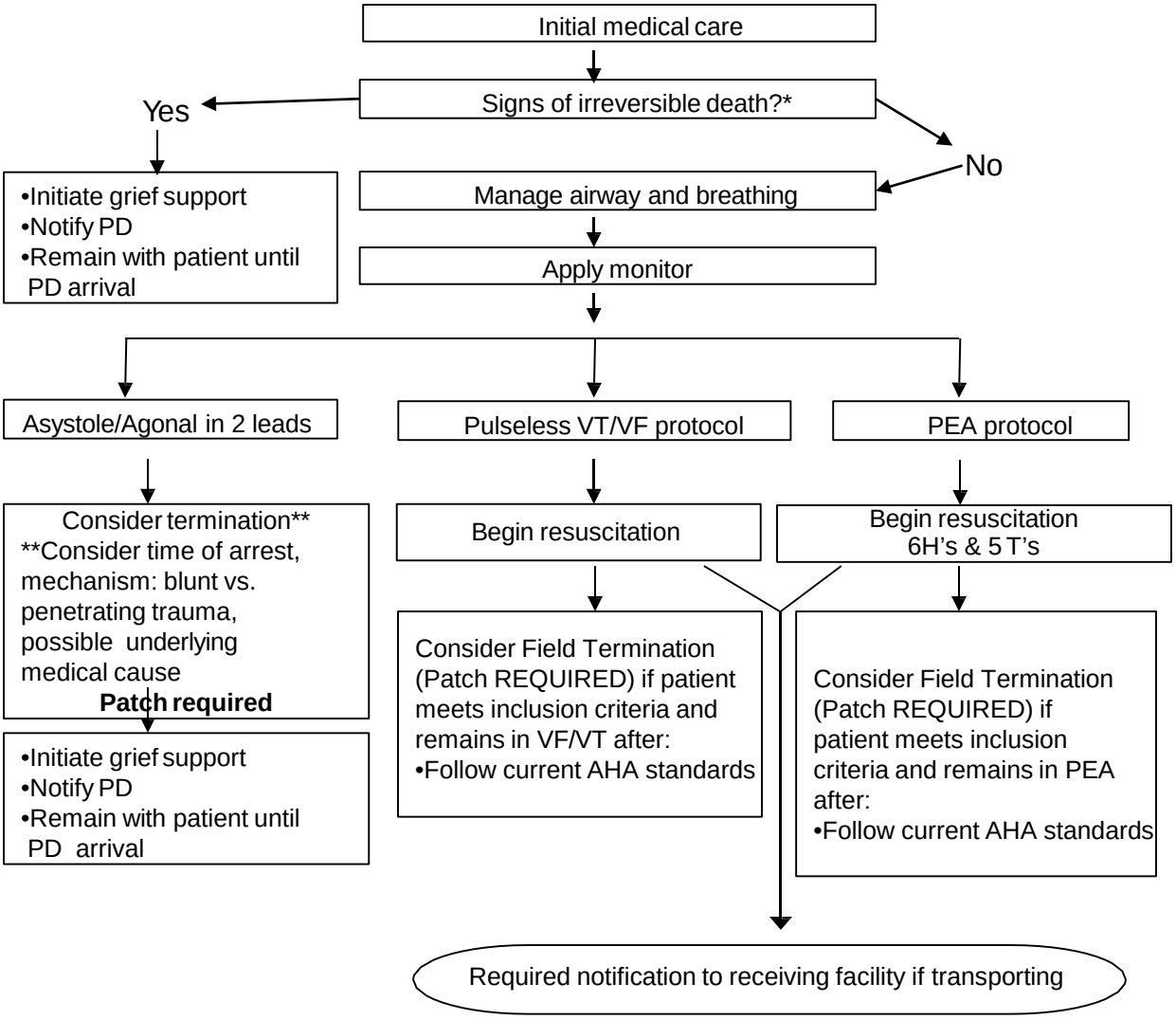
Rule of Nine



***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**

Cardiopulmonary Arrest - Blunt Trauma

Adult (≥ 18 y/o)



Consider possible causes (6H's/ 5T's):	Treatment:
Hypovolemia-	NS 20 ml/kg Bolus
Hypoxia-	Support Ventilation/Oxygenation
Hypo/hyperthermia	Cooling/Warming Measures
Hyperkalemia	0.5-1 Gm Calcium Chloride 10%
Hydrogen ion (acidosis)	Bicarb 0.5 mEq/kg IV Push
Hypoglycemia	Dextrose 50% 50 Gm/1 amp IV Push
Tension Pneumothorax	Needle Decompression
Tamponade, Cardiac	Volume Infusion
Toxins	Requires Patch
Thrombosis	Requires Patch

Hemorrhage Control Tourniquets

Apply Tourniquet for Primary Hemorrhage Control:
- Suspected life-threatening hemorrhage due to amputation or partial amputation
- Penetrating injuries proximal to the wrist/ankle with significant hemorrhage
- Potentially life-threatening hemorrhage as initial/primary treatment

↓

Expose the bleeding site.
Apply the tourniquet as proximal as possible on the extremity.
Do NOT cross any joints with a tourniquet.
Tighten tourniquet until bleeding stops.
If distal pulse is still present, tighten tourniquet until pulse is not palpated.
The bigger the limb, the tighter the tourniquet will need to be to control bleeding.
Document time of application.

↓

For non-life threatening hemorrhage or hemorrhage not amendable to tourniquet:
Apply direct manual pressure to bleeding site.
If continued bleeding, apply hemostatic gauze, if available.

↓

If the first tourniquet is ineffective, a second tourniquet can be applied proximal to the first tourniquet.

↓

Refer to Pain Management off-line, as needed.

↓

Courtesy notification to receiving trauma center.

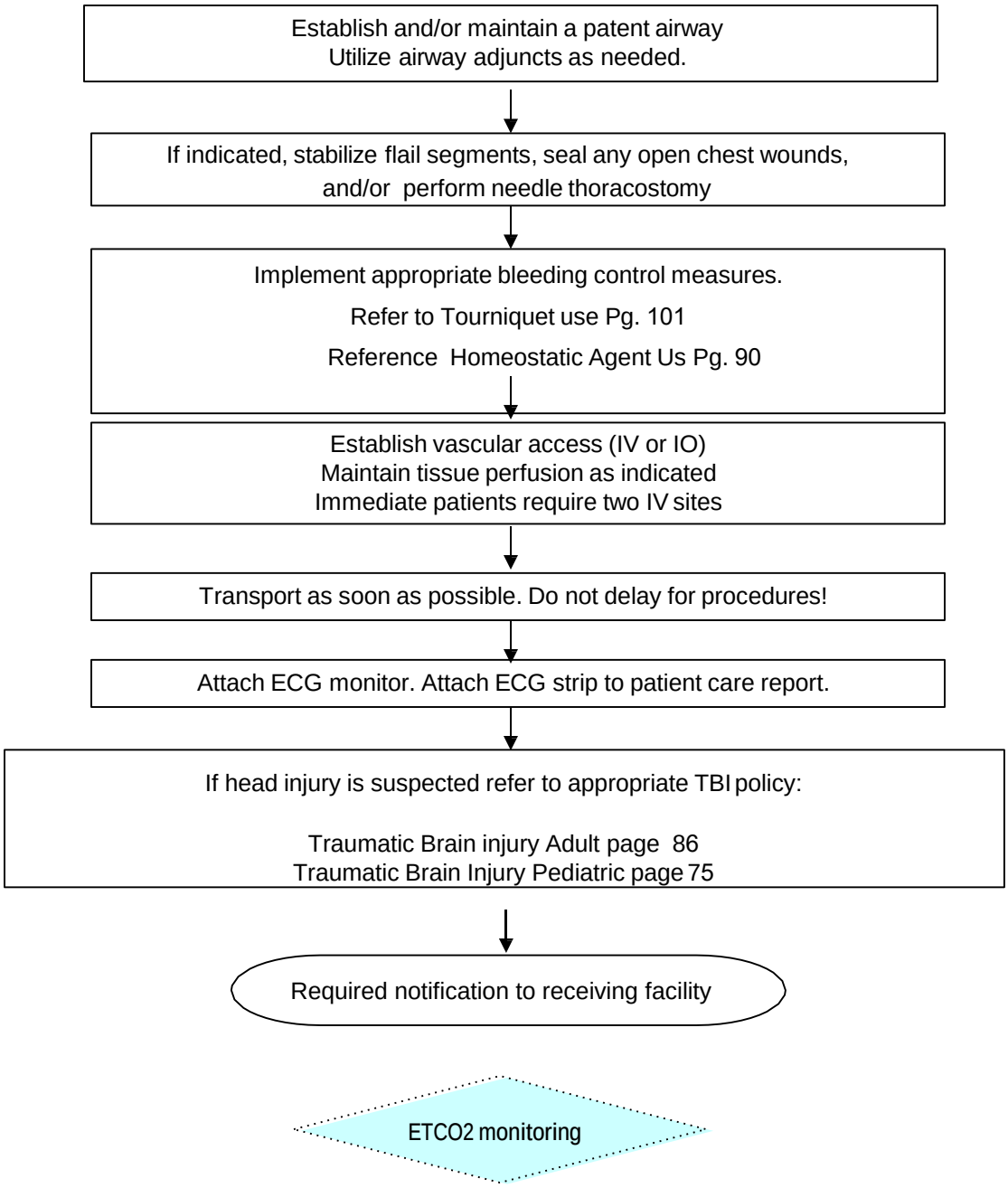
Contraindications to tourniquet use:
• Non-extremity hemorrhage (i.e., scalp, neck, thorax, etc.).
• Proximal extremity location where tourniquet application is not practical (i.e., high groin).

Precautions:
• A tourniquet applied incorrectly can increase blood loss.
• Applying a tourniquet can potentially cause nerve and tissue damage EVEN if applied correctly. Use only on appropriate patients.
• Injury due to tourniquet is unlikely if tourniquet is removed within two hours. In cases of life-threatening hemorrhage, the benefits outweigh the theoretical risk. Tourniquets may be removed if they are inappropriately placed, unnecessary for the wound, or are potentially damaging improvised tourniquets applied by bystanders.
• Only a commercially-made, Medical Direction-approved tourniquet should be used.

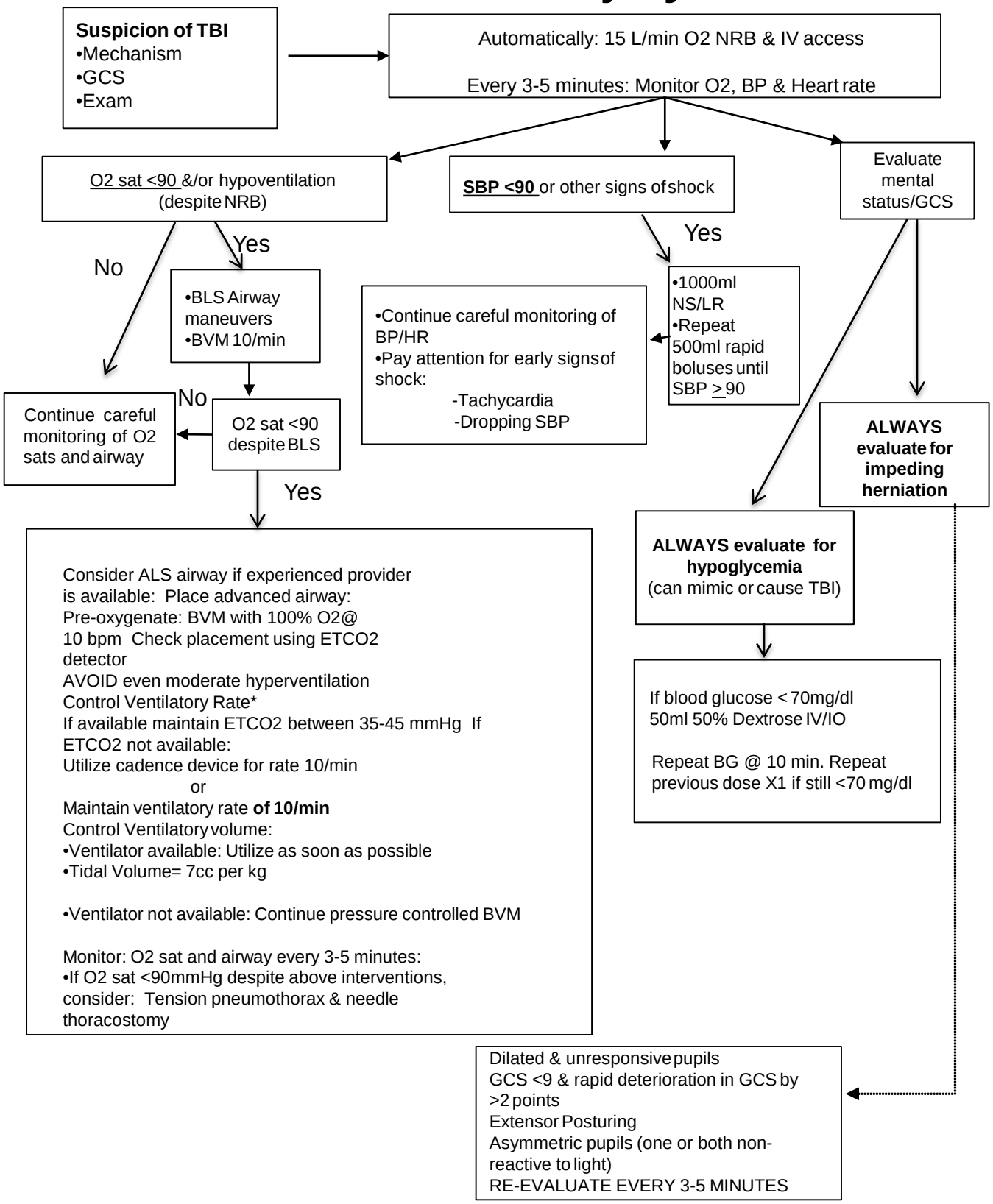
Trauma or Hypovolemic Shock

Adult and Pediatric

***NOTE: As mandated reporters you are obligated to report any suspected child abuse or neglect. CPS: 1-888-767-2445**



Traumatic Brain Injury- Adult



CPAP
Adult (> 14 y/o)

Procedure:

1. Explain the procedure to the patient
2. Ensure adequate oxygen supply to the ventilation device
3. Monitor pulse oximetry, ETCO2 (if available), and ECG continuously
4. Place patient in seated position with head of bed >45 degrees
5. Connect CPAP device to suitable oxygen supply
    1. Attach breathing circuit to CPAP device and ensure device is functioning properly
    2. Apply and secure appropriate size breathing circuit mask to patient
    3. Set CPAP at 15l/min = 5 cm H2O and titrate positive airway pressure until improvement in patient pulse oximetry and symptoms.
        1. WARNING: Do not exceed pressures of 25 l/min =10 cm H2O.
6. Follow Respiratory Distress off-line if appropriate (inline SVN).
7. Consider patching for Morphine Sulfate, Versed, or Valium if patient is benefiting from CPAP to reduce anxiety.

Indications for CPAP:

Severe respiratory distress due to suspected pulmonary edema, pneumonia, or COPD exacerbation (bronchitis, emphysema).

Contraindications:

1. Age <14
2. Patient is in respiratory arrest or unable to maintain own airway
3. Facial trauma preventing an adequate face to mask seal
4. Tracheotomy
5. Suspected pneumothorax
6. Active upper GI bleed or recent gastric surgery (2 weeks).

Relative Contraindications

1. Altered mental status, inability to follow commands
2. Systolic BP <100 mmHg
3. Excessive secretions
4. Nausea or vomiting

Special Notes:

CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask, experiences respiratory arrest, or begins to vomit.

Intermittent positive pressure ventilation with a BVM, placement of an OPA/NPA and/or intubation should be considered if the patient is removed from CPAP

Advise receiving ED of CPAP use ASAP so they can arrange for respiratory therapy

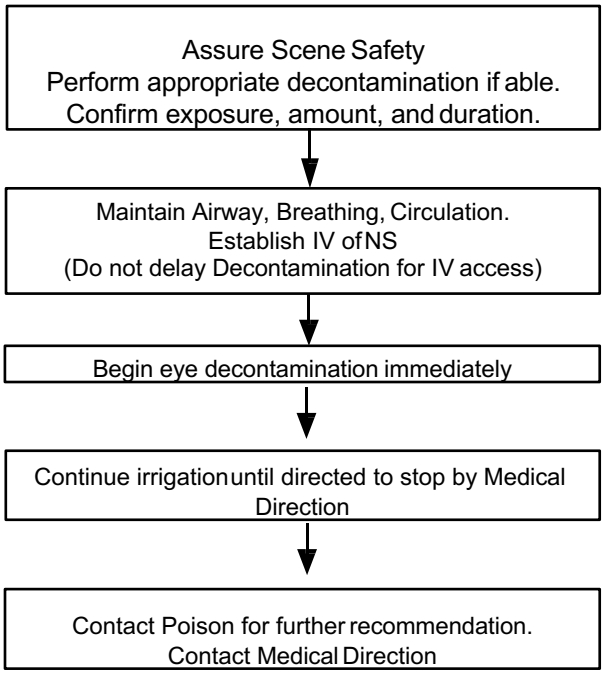
CPAP is only to be removed in the ED when the RT is present and ready to transfer the patient to their equipment, or at the discretion of the receiving physician who is present.

Watch patient for gastric distention

CPAP may be performed on a patient with a DNR

Due to changes in preload and afterload of the heart during CPAP therapy, a complete set of vital signs must be obtained every 5 minutes

Eye Decontamination



Notes:

Irrigate with copious amounts of LR, NS, or water. Do not use neutralizing agents. Transport for evaluation.

Poison Control

1-800-362-0101

Banner Poison Control

1-602-253-3334

EZ IO / or equivalent

Procedure:

1. If the patient is conscious, advise of EMERGENT NEED for this procedure and obtain informed consent.
2. Locate the proximal tibia insertion site. An acceptable alternative is the humeral head site for patients >18 years old
3. Prepare insertion site using aseptic technique
4. Prepare the EZ-IO® driver and appropriate needle set: for humeral insertion always use 45 mm needle set
5. Stabilize site and insert appropriate needle set
6. Remove EZ-IO® driver from needle set while stabilizing catheter hub
7. Remove stylet from catheter and place stylet in shuttle or approved sharps container
8. Confirm placement
9. Connect primed EZ-Connect® or primed extension set
10. Slowly administer 2% Lidocaine preservative free (cardiac lidocaine) IO to *conscious* patients

Adults-

40mg of 2% lidocaine IO over 2 minutes followed by 5-10ml Normal Saline flush followed by 20mg of 2% lidocaine IO over 1 minute and allow to dwell for 1 minute prior to use

Children-

0.5 mg/kg of 2% lidocaine IO over 2 minutes followed by 5ml Normal Saline flush

Note: If patient is unresponsive to painful stimuli lidocaine is not indicated

11. Rapid syringe bolus (flush) the EZ-IO AD® with 10 ml of normal saline. Repeat syringe bolus (flush) as needed
12. Utilize pressure (syringe bolus, pressure bag or infusion pump) for continuous infusions where applicable
13. Begin infusion
14. Dress site, secure tubing, and apply wristband as directed
15. Monitor EZ-IO® site and patient condition – Remove catheter within 24 hours.

Indications:

1. Immediate vascular access in emergencies.
2. Intravenous fluids or medications are emergently needed and a peripheral IV cannot be established in 2 attempts or 90 seconds

AND the patient exhibits one or more of the following:

1. An altered mental status (GCS of 8 or less)
2. Respiratory compromise (SaO2 <90% after appropriate oxygen therapy, respiratory rate < 10 or > 40 min)
3. Hemodynamic instability (Systolic BP of < 90).
4. IO should be considered PRIOR to peripheral IV attempts in the following situations:
   a. Cardiac arrest (medical or traumatic)
   b. Profound hypovolemia with alteration of mental status
   c. Patient in extremis with immediate need for delivery of medications and or fluids.

Contraindications:

1. Fracture of the bone selected for IO infusion (*consider alternate site*)
2. Excessive tissue at insertion site with the absence of anatomical landmarks
3. Previous significant orthopedic procedures (*IO within 24 hours, prosthesis to targeted site).*
4. Infection at the site selected for insertion
5. Known severe osteoporosis

Hemostatic Agent Use

PURPOSE:

For Emergent patients that have uncontrolled bleeding

INDICATIONS:

Indicated for uncontrolled bleeding of any wound where direct pressure or tourniquet is not sufficient to control bleeding.

PROCEDURE:

1. Apply approved non-heat-generating hemostatic agent per manufacturer's instructions.
2. Supplement with direct pressure and standard hemorrhage control techniques.
3. Expose and **clearly mark site with date & time** of application
5. Monitor for bleeding control throughout transport to emergency dept.
6. Transport Emergency Traffic to Emergency Department
7. Required Patch to ED; indicate in patch that a Hemostatic Agents have been used.

If you receive a patient with hemostatic agents already in place contact medical control with the following information: Date/time of application (if known), current bleeding status.

I-gel Airway Placement

A. INDICATIONS

1. Apneic patient when endotracheal intubation is not possible or not available.
2. Patient must be **unconscious, without a gag reflex**
3. No history of esophageal foreign body, disease or caustic ingestion
4. Failed airway

B. CONTRAINDICATIONS-PRECAUTIONS

1. Obstructive lesions below the glottis.
2. Trismus, limited mouth opening, pharyngo-perilaryngeal abscess, trauma or mass.
3. Conscious or semi-conscious patients with an intact gag reflex
4. Do not allow peak airway pressure of ventilation to exceed 40cm H2O.
5. Do not use excessive force to insert the device.
6. As with all supraglottic airway devices, particular care should be taken with patients who have fragile and vulnerable dental work, in accordance with recognized airway management.
7. Use care to avoid the introduction of lubricant in or near the ventilator openings

i-gel size	Patient size	Patient weight guidance (kg)
1	Neonate	2-5
1.5	Infant	5-12
2	Small pediatric	10-25
2.5	Large pediatric	25-35
3	Small Adult	30-60
4	**Medium Adult**	**50-90**
5	Large Adult	90+

C. PROCEDURE

1. Grasp the lubricated i-gel firmly along the integral bite block (tube portion of the device). Position the device so that the i-gel cuff outlet is facing toward the chin of the patient.

a. NOTE: be sure that there is only a thin layer of lubricant on the end of the i-gel to avoid blowing it into the lungs with bagging
b. Suction the upper airway PRIOR to insertion as needed

2. The patient should be in the “sniffing” position, with head extended and neck slightly flexed forward. **If cervical injury is suspected, use modified “jaw thrust” instead of any flexion at the neck.** The chin should be gently pressed down/inferior before proceeding to insert the i- gel.

3. Introduce the leading soft tip into the mouth of the patient in a direction toward the hard palate.

4. Glide the device downwards and backwards along the hard palate with a continuous, but gentle push until a definitive resistance is felt.

5. WARNING: Do not apply excessive force on the device during insertion. It is not necessary to insert your fingers or thumbs into the oral cavity of the patient during insertion of this device. If there is resistance during insertion, a 'jaw thrust' and slight rotation of the device is recommended.

6. At this point, the tip of the device should be located into the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite block.

D. POST PLACEMENT

1. Auscultate breath sounds, check for chest rise and confirm placement with ETCO2 monitoring and SpO2 monitoring
    a. Attach SpO2 monitor and capnometer
    b. ETCO2 monitoring
        1. Head injuries: 30-35 mmHg
        2. Severe asthma, goal 40-50 mmHg, will start >50 mmHg
        3. All other patients should be between 35-40 mmHg
2. Secure the tube
3. Place NG tube in side port and advance to appropriate position, apply suction to decompress the stomach
4. Continue to monitor, sedate per protocol as necessary
5. Consider definitive airway placement, if possible
    a. Endotracheal tube placement
    b. You can intubate through the I-gel tub with either a Bougie introducer or 5-0 ET tube

E. REMOVAL

1. Ensure suctioning equipment is ready, roll patient onto left side
2. Carefully remove I-gel airway with gentle, but firm traction. Suction as needed.
3. Insert an oropharyngeal or nasopharyngeal adjunct, as needed
4. Continue ventilations with a BVM at 10-15 LPM flow, as needed or place on non-rebreather mask at 10 LPM
5. Document time of removal and ongoing vitals

F. PEARLS OF USING THE I-GEl

1. This is an alternative to a King-LT or Combitube, considered a supraglottic airway (SGA)
2. This is NOT a definitive airway and aspiration can occur with this device
3. Preload the OG port with a 12 French Tube to prevent any fluid leakage from this hole during insertion
4. Apply a small amount of lubricating gel to the tip of the I-gel to aid in insertion, but do not over lubricate!
5. Do not leave in place for >4 hours

Implanted Ports

Purpose:

To maintain an accessed implanted port. If a port has been accessed by a Registered Nurse, the paramedic may monitor and utilize the access as needed.

Procedure:

- Aspirate with a 10ml syringe and check for blood return. You may or may not get a blood return. Flush with 10 ml of normal saline. The port should flush easily. If it doesn't you can move the patients arm above their head and attempt again. If you are still unable to flush the port then discontinue the use and initiate a peripheral line as indicated.
- Clean the saline lock with alcohol and connect the primary tubing once it has been primed.
- Utilize the implanted port as you would a peripheral intravenous catheter. All the meds that are permitted by the base hospital to be given IV can be given in an implanted port.

Needle Cricothyroidotomy

PURPOSE:

For the emergent provision of a patent and secure airway for patients ≥10 years.

Procedure:

Needle Cricothyroidotomy is a temporary fix and should have an alternative airway placed as soon as possible.

- Locate the cricothyroid membrane this will be the insertion site.
- Attach a 3ml syringe to a 12-14g catheter. Insert at a 90 degree angle aspirating slowly. When air suddenly returns, change the angle to 45 degrees and insert the catheter into the larynx.
- Remove the syringe and place a 3.0 ETT adapter into the catheter hub.
- Attach a ambu-bag to the adapter and start ventilation with 100% oxygen.
- Hold or secure the catheter to prevent dislodgement.

Needle Thorocostomy

PURPOSE:

For the decompression of the pleural space when a tension pneumothorax is suspected. **INDICATIONS:**

Tension pneumothorax is a complication of multiple trauma. Pleural decompression should only be used if the patient demonstrates significant dyspnea and distinct decrease or absence of lung sounds. Successful treatment depends on rapid recognition of the signs and symptoms. Signs of tension pneumothorax: Unilateral absent or diminished breath sounds, tachycardia, hypotension, jugular vein distension (JVD), tracheal deviation.

PROCEDURE:

1. Assess airway to include pulse oximetry, inspection for possible penetrating injuries, and auscultation of lung sounds for equality and effectiveness and palpation of chest for possible crepitus/subcutaneous emphysema.
2. Place patient on high flow 100% 02 @ 15L via NRB.
3. On the mid-clavicular line of the affected side palpate the ribs to locate the space between the 2nd and 3rd rib. Clean area well with alcohol, betadine or NS to keep as aseptic as possible.
4. To avoid damaging the intercostal neurovascular bundle with the needle, follow the upper border of the 3rd rib when entering the pleural space.
5. Insert a long 10-14 gauge IV catheter through the chest wall. As you enter the pleural space you may feel a pop or rush of air. Patients who are awake during this procedure will rapidly note a significant improvement in their symptoms.
6. Secure the catheter in place with tape being careful not to kink or dislodge the catheter. Leaving the catheter open to the air will convert the tension pneumothorax to a simple pneumothorax and stabilize the patient. You may create a flutter valve by cutting the finger off a CLEAN glove; place a small hole in the end and attaching it to the top of the catheter hub. If signs and symptoms return you may repeat the procedure as many times as necessary leaving all catheters in place. Frequently the catheters will clog making it necessary to repeat the procedure.

Esophageal Airway (King LTS-D)

The Esophageal Airway, or King LTS-D, is a single-use device intended for airway management. It can be used as a rescue airway device when other airway management techniques have failed, or as a primary device when advanced airway management is required in order to provide adequate ventilation. The esophageal airway does not require direct visualization of the airway or significant manipulation of the neck.

Its main use is in cardiac arrest situations (pulseless and apneic patients). In some patients it may be preferable to use initially (e.g. patients who are obese or with short necks, patients with limited neck mobility, difficult visualization due to access to the patient, or blood or emesis in the airway). It is not necessary to attempt endotracheal intubation before opting for the esophageal airway.

Because it is not tolerated well in patients with airway reflexes, it should not be used in patients with perfusing pulses unless all other methods of ventilation have failed.

Two intubation attempts with the esophageal airway are permissible. Ventilations should be interrupted no more than 30 seconds per attempt. Between attempts, patients should be ventilated with 100% oxygen for one minute via bag-valve mask device.

The King LTS-D is available in three sizes and cuff inflation varies by model:

- Size 3 – Patient between 4 and 5 feet tall (55 ml air)
- Size 4 – Patient between 5 and 6 feet tall (70 ml air)
- Size 5 – Patient over 6 feet tall (80 ml air)

Indications

- Cardiac arrest (of any cause)
- Inability to ventilate non-arrest patient (with BLS airway maneuvers) in a setting in which endotracheal intubation is not successful or unable to be done

Contraindications

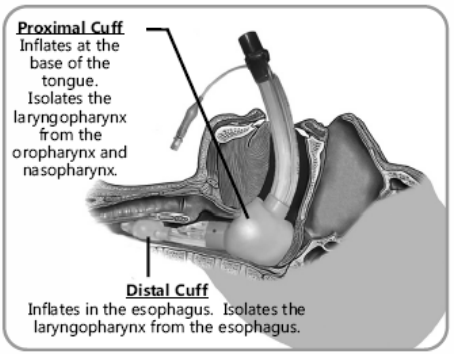
- Presence of gag reflex
- Caustic ingestion
- Known esophageal disease (e.g. cancer, varices, stricture, others)
- Laryngectomy with stoma (can place ET tube in stoma)
- Height less than 4 feet

Note: Airway deformity due to prior surgery or trauma may limit the ability to adequately ventilate with this device (may not get adequate seal from pharyngeal cuff)

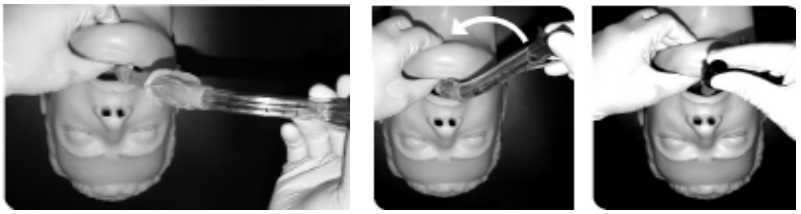
Equipment

Suction
King LTS-D Kit (Size 3, 4, or 5)
Bag-Valve-Mask
Stethoscope
End-tidal CO2 detection device

Esophageal Airway (King LTS-D)



Insertion of LTS-D King Tube
(Source: King LTS-D Manufacturer's Instructions for use)



Procedure

1) Assure an adequate BLS airway (if possible).
2) Select appropriately sized esophageal airway.
3) Test cuff inflation by injecting recommended amount of air for tube size into the cuffs. Remove all air from cuffs prior to insertion.
4) Apply water-based lubricant to the beveled distal tip and posterior aspect of tube, taking care to avoid introduction of lubricant in or near ventilatory openings.
5) Have a spare esophageal airway available for immediate use.
6) Oxygenate with 100% oxygen.
7) Position the head. The ideal head position for insertion is the "sniffing position." A neutral position can also be used (e.g. spinal injury concerns).
8) Hold mouth open and apply chin lift unless contraindicated by cervical spine injury or patient position.
9) With tube rotated laterally 45-90 degrees such that the blue orientation stripe is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. **Never force the tube into position**.
10) As the tube tip passes under tongue, rotate tube back to midline (blue orientation stripe faces chin).
11) Without exerting excessive force, advance tube until base of connector aligns with teeth or gums.
12) Inflate cuff to required volume.
13) Attach bag-valve to airway. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing.
14) Confirm proper position by auscultation, chest movement, and verification of CO_2 by capnography. Do not use esophageal detector device with esophageal airway.
15) Secure the tube. Note depth marking on tube.
16) Continue to monitor the patient for proper tube placement throughout prehospital treatment and transport. **Capnography should be done in all cases.**
17) Document airway placement and results of monitoring throughout treatment and transport.

Troubleshooting:

- If placement is unsuccessful, remove tube, ventilate with BVM and repeat sequence of steps.
- If unsuccessful on second attempt, BLS airway management should be resumed.

Additional Information:

- The key to insertion is to get the distal tip of the airway around the corner in the posterior pharynx, under the base of the tongue. It is important that the tip of the device is maintained at the midline. If the tip is placed or deflected laterally, it may enter the piriform fossa and cause the tube to appear to "bounce back" upon full insertion and release.

Spinal Immobilization

Adult (≥ 14 yo) Blunt Trauma

(Refer to SMR procedures for preferred packing methods/tools)

Low-Risk Characteristics

All Criteria Must Be Met

Negative mechanism of injury, no reasonable possibility for spinal injury based on force.

Ambulatory on scene
No areas of spinal tenderness
No spinal deformity
No neurological deficit/complaints
i.e. numbness, tingling, weakness
GCS must be 15
Must not meet any unreliable criteria*

→ May Omit SMR

High-Risk Characteristics

If ANY are Present

Positive mechanism of injury: any violent impact with the capacity to damage spine

Age > 65
Potential mechanism for unstable spinal injury:
- Axial loads/diving injuries
- Sudden acceleration/deceleration
- Lateral bending forces to neck/torso
- Violent impact to head, back or neck
- Fall > 6ft

Spinal pain/tenderness
Spinal deformity
Evidence of external trauma
Violent impact to torso or pelvis
Presence of numbness, tingling, paresthesia
Altered LOC
Uncertain mechanism of injury
Drowning
Unreliable Patient*

Zofran 4mg IVP, slow over 2-5 minutes
May be given prophylactically for nausea/vomiting to patients in SMR.

→ MUST Apply SMR

Modified SMR

The patient is too large or small for c-collar, head and spine should be immobilized by other means to prevent injury.

Straps may be re located to accommodate suspected fractures.

Head is rotated in an un-natural position, secure the patient to board without changing head position.

Accommodate natural spinal curvatures filling voids with blankets/pillows

Immobilize severely agitated or combative patients as securely as possible

*Unreliable Patient Criteria

Communication barriers
Acute-stress reaction
Uncooperative
Evidence of drugs/ETOH
Painful/distracting injury
Altered Mental Status

Spinal Immobilization

Documentation Requirements

SMR Not Required Documentation

The initial chief complaint, signs, symptoms

Mechanism of injury

Neurological exam: GCS, PMS

No pain/tenderness on palpation

All pertinent criteria met to omit SMR

Any special circumstances involving variance from policy with supporting rationale.

SMR Required Documentation

Prior to immobilization:
- The initial chief complaint, s/s
- Mechanism of injury
- Neurological exam: GCS, PMS

The specific immobilization equipment used

Patient's neurological status post immobilization

Patient's neurological status at the time care is relinquished to another provider or medical facility.

Any special circumstances involving variance from policy with supporting rationale.
- EX: Modified SMR
  - Refusals
  - Pediatrics

Spinal Motion Restriction (SMR) Procedures

Your selection of SMR should be based off your physical assessment of the patient with the goal to reduce gross movement of the spine, to prevent further injury to the spine, and to reduce the incident of negative effects associated with immobilization.

****If the patient experiences negative effects from a particular SMR method, alternative measures should be implemented.**

METHODS OF SMR

The following are acceptable methods and tools that achieve SMR.
Arranged from least to most invasive:

- Fowler's, semi fowler's, or supine positioning on gurney with cervical collar only.
- Supine position with vacuum mattress device splinting from head to toe.
- Child car seat with appropriate supplemental padding.
- KED Board.
- Supine position with long backboard, soft spine, or scoop stretcher, secured with strap system and appropriate padding including head blocks.
- Care must be taken in limiting spinal movement when transferring patient (i.e. slide board).

SMR PROCEDURES

1. Provide manual stabilization to restrict gross head movement.
2. Place appropriate size cervical collar.
3. Extricate patient while limiting flexion, extension, rotation, and distraction of the spine. Tools to be considered: pull sheets, scoop stretchers, other flexible devices.
4. Apply adequate padding for patients being transported on a hard device.
5. Place the patient in the best position to protect the airway.
6. Repeat neurological exam and regularly reassess motor/sensory function.
7. Consider using SpO2 or ETCO2 to monitor respiratory function.
8. Carefully document exam findings from before and after patient movement and packaging.

Surgical Cricothyroidotomy

Contraindicated under the age of 10 years.

Consider a needle cricothyrotomy.

PURPOSE:

For the emergent provision of a patent and secure airway for patients >10 years.

Procedure:

With a surgical cricothyrotomy, an incision and opening is made in the cricothyroid membrane to secure an emergency airway. The soft tissue covering the membrane that separates the thyroid and cricoid cartilages is then held open by a small oral airway, Kelly clamp or scalpel to prepare for the insertion of an endotracheal tube.

1. BSI, wear both goggles and gown if available. Gather equipment needed to perform the procedure.
2. Cleanse the anterior neck with alcohol, betadine and/or normal saline to provide a clean field.
3. Palpate upward from the sternal notch. The first slightly larger and firm ring you feel is the cricoid cartilage. Immediately above it and before the next firm and even larger cartilage (the thyroid cartilage) is the cricothyroid membrane. It is found in the depression between the two cartilages.
4. Insert the blade of a sterile scalpel into the skin and the cricothyroid membrane until you feel a pop. Enlarge the opening to allow enough space to introduce an endotracheal tube into the trachea. Use the largest tube possible that is appropriate for the size of the patient.
5. Introduce the tube into the surgical opening.
6. Ventilate the patient with a bag valve mask using 100% 02.
7. Assess breath sounds for equality, check the depth of tube placement versus possible pneumothorax for unequal breath sounds or unequal rise and fall of chest. Readjust tube depth as necessary.
8. Pack the surgical area with sterile dressing materials and secure tube in place to avoid dislodgement.

Complications of Surgical Cricothyrotomy:

Serious bleeding from the soft tissue surrounding the surgical site and that bleedings further threat to the airway. Damage to the thyroid and parathyroid glands below the incision site.

Tourniquet Use and Management

PURPOSE:

For Emergent patients that have uncontrolled bleeding to an extremity

INDICATIONS:

Indicated for uncontrolled bleeding of an extremity where direct pressure is not sufficient to control bleeding.

PROCEDURE:

1. Attempt to control bleeding by direct pressure; if not adequate prepare for tourniquet placement with commercial tourniquet device, if available
2. Apply tourniquet 2-3 inches above wound on effected extremity following application directions for device being used
3. Tighten tourniquet per device instructions until distal pulse of effected extremity is no longer palpable and bleeding is controlled
4. Expose and **clearly mark tourniquet site with date & time** of tourniquet application
5. Monitor for distal pulse and bleeding throughout transport to emergency dept.
6. Transport Emergency Traffic to Emergency Department
7. Required Patch to ED; indicate in patch that a tourniquet is in place

If you receive a patient with tourniquet already in place contact medical control with the following information: Date/time of application (if known), current bleeding status and distal pulse presence or absence to effected extremity

Note: DO NOT remove tourniquet once in place unless instructed to do so by medical control

YRMC Affiliation/Disaffiliation Form

Provider Agency:

EMS Personnel Name:

Level of Certification: ☐ **Paramedic** ☐ **EMT/EMT-B**

AZ DHS Certification #: **Expiration Date:**

Expiration Date: **ACLS** **BLS**

Affiliation: ☐ **The EMS Personnel listed above is functioning under the administrative control and is affiliated with the EMS Provider Agency listed. The individual is covered by this agencies liability insurance while performing EMS duties as stipulated by the AZ DHS, Base Hospital, and Agencies established policies, procedures and standing orders.**

Disaffiliation: ☐ **The EMS Personnel listed above is no longer functioning under the administrative control and is disaffiliated with the EMS Provider Agency listed.**

Authorized Supervisor:

Title:

Date:

Copy of the following must be submitted with this form for affiliations: AZ DHS Certification, BLS Card, and ACLS card (paramedics only)

Notes/Remarks:

Daily Drug Box Check Off Sheet

By signing this form, the provider attests that upon initially taking custody of the supply agents he/she has inpsected agents per ARS R9025-210, including face to face verification of controlled substances when there is an exchange of custody.

				Controlled Substance Verification		Drug Box Verification		Drug Box/Unit # _____
Date	Time	Off-Going Name & Cert#	On-Coming Nmae & Cert	Old Narc Tab #	New Narc Tab #	Old Box Tab #	New Box Tab #	Medications Used During Shift Notes for oncoming shift

Glasgow Coma Scale
Adult and Pediatric

Adult Glasgow Coma Scale
Eye Opening
4=Spontaneous 3=To voice 2=To pain 1=None
Verbal Response
5=Normal conversation 4=Disoriented conversation 3=Words, but not coherent 2=No words.....only sounds 1=None
Motor Response
6=Normal 5=Localizes to pain 4=Withdraws to pain 3= Abnormal flexion to pain (Decorticate) 2= Extensor response to pain (Decerebrate) 1=None
Total = E+V+M

Pediatric Glasgow Coma Scale
Eye Opening
4=Spontaneous 3=To voice 2=To pain 1=None
Verbal Response
5= Oriented (Infant coos or babbles) 4= Confused (Infant irritable/cries) 3= Inappropriate words (Infant cries to pain) 2=Incomprehensible sounds (Infant moans to pain) 1=None
Motor Response
6= Obeys (Infant moves spontaneously / purposefully) 5= Localizes to pain (infant withdraws to touch) 4=Withdraws to pain 3= Abnormal flexion to pain (Decorticate) 2= Extensor response to pain (Decerebrate) 1=None
Total = E+V+M

Revised Trauma Score

GCS	Systolic BP	Resp Rate	Value
13-15	>89	10-29	4
9-12	76-89	>29	3
6-8	50-75	6-9	2
4-5	1-49	6-9	1
3	0	1-5	0

Paramedic Orientation Evaluation Form

Name:_____ Certification #: _____

This paramedic has completed_____hours of orientation in the field with a paramedic that has a minimum of 2 years experience and is in good standing with Base Hospital.

The following has been submitted to EMS Coordinator by the EMS manager:

Affiliation form: ☐ Certification card: ☐ ACLS card: CPR Card: ☐

The following criteria have been meet in addition to each agencies requirements for completion of orientation in order to obtain Base Hospital privileges: (initial each line)

_____ Paramedic has been evaluated as to his or her knowledge of the paramedic drug box and has the ability to verbalize each drug, dosage, route indications and contraindications and effects of these drugs

_____ Paramedic has been evaluated as to his or her knowledge of Base Hospitals Policies and Protocols.

_____ Paramedic can independently perform a patient assessment

_____ Paramedic initiates treatment appropriately for patient presentation and complaint

_____ Paramedic has demonstrated the ability to perform a focused and pertinent radio patch/notification

_____ Paramedic has demonstrated the ability to interpret the cardiac monitor

_____ Paramedic has demonstrated the ability to take charge of scene and direct BLS personnel

_____ Paramedic has demonstrated the ability to treat patients with respect and maintain professionalism

Preceptor/Training Officer Printed Name: _____

Preceptor/Training Officer Signature: _____Date: _____

Submit completed form to EMS Coordinator when Paramedic has completed orientation after week 2, week 4 or week 6 depending on requirements, see Paramedic Orientation on page 6.

YRMC Base Hospital Variance Form

Submit to EMS Coordinator as soon as possible

Incident Date: _____ Incident Time: _____

EMS Provider: _____ Agency: _____

Cert #: _____

Patient Name: _____ Patient DOB: _____

Incident Location: _____

Narrative Report:

Witness Name: _____

Report Writer Name: _____

Report Writer Signature: _____

Report Date:

For Base Hospital use only, do not write below line

Date Received: _____ Follow up indicated: _____

Base Hospital Follow Up:

Closed Date: _____ Signature: _____

DO NOT COPY/DO NOT FORWARD/PRIVILEDGED AND CONFIDENTIAL -Pursuant to ARS 36.445

Discussion of records exempt by law from public inspection ARS 38.431.03 (A) (2) Utilization Review and information per ARS 36.411 et.seq. Peer review, professional pratices, quality assurance/improvement records and information per ARD 36.445 et.seq.

DOPAMINE DRIP CHART Dopamine concentration = 1600 mcg/ml solution = 400 mg in 250 ml NS or D5w Drops per minute based on microdrip tubing (60gtt/ml)				
Patient Weight	**5**	**10**	**15**	**20**
(kg)	**mcg/kg/min**	**mcg/kg/min**	**mcg/kg/min**	**mcg/kg/min**
40	8	15	23	30
45	8	17	25	34
50	9	19	28	38
55	10	21	31	41
60	11	23	34	45
65	12	24	37	49
70	13	26	39	53
75	14	28	42	56
80	15	30	45	60
85	16	32	48	64
90	17	34	51	68
95	18	36	53	71
100	19	38	56	75
105	20	39	59	79
110	21	41	62	83

EPINEPHRINE DRIP CHART For a concentration of 4 mcg of epinephrine per milliliter solution. 1 mg of 1:1,000 mixed in 250 ml of NS Mix 1mg of epinephrine 1:1,000 in 250ml = 4 mcg/ml OR Mix 2mg of epinephrine 1:1,000 in 500ml = 4 mcg/ml Drops per minute based on microdrip tubing (60gtt/ml)	
1 mcg drip = 15 gtt/min	6 mcg drip = 90 gtt/min
2 mcg drip = 30 gtt/min	7 mcg drip =105 gtt/min
3 mcg drip = 45 gtt/min	8 mcg drip=120 gtt/min
4 mcg drip = 60 gtt/min	9 mcg drip=135 gtt/min
5 mcg drip = 75 gtt/min	10 mcg drip=150 gtt/min

LIDOCAINE DRIP CHART For a concentration of 4 mg of lidocaine per milliliter solution. 1 gm mixed in 250 ml of NS. Drops per minute based on microdrip tubing (60gtt/ml)	
1 mg drip = 15gtt/min	2mg drip = 30gtt/min
3mg drip = 45 gtt/min	4mg drip = 60gtt/min
D10% DRIP	
To make D10% take 250ml saline bag and waste 50ml. Inject 1 amp of D50. This gives a concentration of 1gm/10cc	

APGAR SCORING SYSTEM				
	0 Points	**1 Point**	**2 Points**	**Points Totaled**
Activity (muscle tone)	Absent	Arms & legs flexed	Active movement	
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimmace (reflex irritability)	Flaccid	some flexion of extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed		0-3
Moderately depressed		4-6
Excellent condition		7-10

AZ Drug Profiles

These drug profiles were developed by the Department, in cooperation with its advisory committees, to provide guidelines for the safe and effective use of agents for maximum patient benefit. These drug profiles are intended to be used as reference documents by medical control authorities, EMS educators, and EMS providers. A list of specific drugs is provided below, along with the Agency Guidance Documents that reflect the most current drug profiles.

Drug Profiles main link: http://www.azdhs.gov/preparedness/emergency-medical-services-trauma-system/index.php#drug-profiles

Drug Profiles: http://www.azdhs.gov/documents/preparedness/emergency-medical-services-trauma-system/drugs/drug-profiles.pdf

Drug Shortage: http://www.azdhs.gov/documents/preparedness/emergency-medical-services-trauma-system/drugs/drug-shortages-letter.pdf

Drug Shortages Document: http://www.azdhs.gov/documents/preparedness/emergency-medical-services-trauma-system/drugs/drug-shortages-guidance-document.pdf

Activated Charcoal	
Indications	Poisoning/Overdose, should only be given within the first hour of ingestion
Contraindications	Do not give before or together with Ipecac, protect airway
Side Effects	None for the field
Dosage, route	**Adult: 30-60 Gm (1-2 Gm/kg); if not in pre-mixed slurry, mix one part charcoal with four parts water.** **Pediatric: 0.5 -1.0 Gm/kg; if not in pre-mixed slurry, mix one part charcoal with four parts water.**
Adenosine	
Indications	PSVT
Contraindications	Do not give if second or third degree heart block or sick sinus syndrome, or known WPW
Side Effects	Transient dysrhythmias, facial flushing, dyspnea, chest pressure, hypotension, headache, nausea, bronchospasm
Dosage, route	**Adult: 6mg IV rapidly over 1-3 sec with a 20ml N/S flush. If no effect after 1-2 minutes give 12mg IV rapidly with a 20ml N/S flush. May repeat 12mg dose in 1-2 min.** **Pediatric: 0.1mg/kg IV rapidly with a 2-3ml N/S flush. If no effect after 2 min give 0.2mg/kg rapidly with a 2-3ml N/S flush. May repeat 0.2mg/kg dose in 1-2 minutes. Max dose should not exceed 12mg.**
Albuterol	
Indications	Treatment of brochospasm
Contraindications	Do not use with MAO inhibitors, cyclics, or when tachycardia or hypertension is present
Side Effects	Muscle tremors, tachycardia, heartburn, nausea/vomiting
Dosage, route	**Adult: 2.5mg/3ml NS via SVN or inline. (Use 0.083% solution) May mix with atrovent up to 3 times, if needed** **Pediatric: 2.5mg/3ml NS via SVN or inline. (Use 0.083% solution) May mix with atrovent up to 3 times, if needed**
Amiodarone	
Indications	Treatment of: shock-refractory VF/pulseless VT, polymorphic VT, and wide complex tachycardia of uncertain origin. Control hemodynamically stable ventricular tachycardia when cardioversion unsuccessful. Adjunct to cardioversion of SVT and PSVT. Rate control in atrial fibrillation or flutter.
Contraindications	Bradycardia. Second or third degree heart block. Cardiogenic shock. Hypotension. Pulmonary congestion
Side Effects	Cardiovascular: bradycardia, hypotension, asystole/cardiac arrest, atrio-ventricular block, Torsades de Pointes, congestive heart failure. GI & Hepatic: nausea, vomiting, abnormal liver function tests. Skin: slate-blue pigmentation. Other: fever, headache, dizziness, flushing, abnormal salivation, photophobia.
Dosage, route	**Adult V-Fib/Pulseless V-Tach: 300mg IV Push.** May repeat once in 3-5 minutes with 150mg IV push. **Adult wide complex tachycardias, A-flutter, A-fib, SVT with cardioversion: 150mg IV over 10 minutes. May repeat every 10 minutes.** **Pediatric V-fib/Pulseless V-tach: 5mg/kg IV push (max 300 mg dose). May repeat every 5 minutes two times to a total max dose of 15mg/kg/day.** **Pediatric probable V-tach with a pulse: 5mg/kg IV push over 20 minutes. May repeat every 5 minutes two times to a total max dose of 15mg/kg/day.**

Aspirin (Chewable)	
Indication	Chest pain of cardiac origin
Contraindications	Known allergy, bleeding disorders such hemophilia
Side Effects	None for the field
Dosage, route	**Adult: 2-4 chewable 81 mg tablets** PO chew and swallow **Pediatric: None**
Atropine Sulfate	
Indication	Sinus bradycardia, AV Blocks
Contraindications	A-fib or flutter with rapid ventricular response, myocardial infarction, glaucoma
Side Effects	Blurred vision, dry mouth, flushing, urinary retention, headache, dilated pupils
Dosage, route	**Adult IV: 0.5 mg rapid IVP q 3-5 minutes. MAX Dose 3mg** **Pediatric: IV: .02 mg/kg. Min dose 0.1 mg. Max. single dose 0.5 mg. May repeat x1 in 5 minutes.** Maximum single doses: 0.5 mg
Atrovent	
Indication	Treatment of brochospasm
Contraindications	It should not be used in patients with hypersensitivity to Atrovent or Atropine
Side Effects	Coughing, sputum increase, dizziness, insomnia, tremor, nervousness, nausea
Dosage, route	**Adult and Pediatric dose: 500 mcg in 2.5 NS (single bullet) SVN. May be mixed with Albuterol to a max of 3 times**
Calcium Chloride	
Indications	Acute hypocalcaemia, calcium channel blocker and magnesium overdoses, acute hyperkalemia
Contraindications	Incompatible with all drugs, flush the line before and after administration. Use cautiously on digitalis pts
Side Effects	Brady-asystolic arrest, sever tissue necrosis if extravastates, serious arrhythmias in digitalis patients
Dosage, route	**Adult: IV bolus 5-10 ml of a 10% solution. May repeat in 10 minutes. Pre-treatment for IV Verapamil: 3ml of 10%, may repeat once.** **Pediatric: IV bolus 0.2-0.25 ml/kg of a 10% solution infused slowly. Should not be repeated.**
Dextrose 50% (D-50)	
Indications	Adult hypoglycemia, unconscious diabetic, coma, or seizure of unknown etiology.
Contraindications	Pediatrics: use D25 or D10; head injury pts; incompatible with $NaHCO_3$, diazepam will precipitate if not flushed
Side Effects	Tissue necrosis if infiltrated
Dosage, route	**Adult: 25-50cc of 50% solution IV push, may repeat one time.** **Pediatric: See D-25 and D-10.**
Dextrose 25% (D-25) and Dextrose 10% (D-10) **See Next Page**	

Dextrose 25% (D-25) and Dextrose 10% (D-10)	
Indications	Pediatric and infant hypoglycemia, unconscious diabetic, coma or seizure of unknown etiology
Contraindications	Incompatible with $NaHCO_3$, diazepam will precipitate if given concurrently without flushing
Side Effects	Tissue necrosis if infiltrated
Dosage, route	**Pediatric: 0.5-1 Gm/kg 25% solution slow IV push or 2-4 ml/kg of D-25** To prepare D-25, mix in 50ml syringe 25ml D-50 with 25ml NS. Produces 50ml D-25 **Newborn: 0.5-1 Gm/kg 10% solution slow IV push (usually over a 20 minute period) or 5-10 ml/kg of D-10** To prepare D-10, obtain a 250ml bag of NS for IV use, waste 50ml, and add 50ml of Dextrose 50%
Diazepam (Valium)	
Indications	Seizure, sedation prior to cardioversion, sedation post RSI
Contraindications	Pregnancy, when patient has ingested other sedatives, respiratory depression, hypotension
Side Effects	Hypotension, confusion/stupor, respiratory depression or arrest if given too rapidly, vertigo, ataxia
Dosage, route	**Adult IV: 2-10 mg at 2 mg/min. Do not mix with any other drug, have respiratory support equip available** **Pediatric IV: 0.2 -0.3 mg/kg every 15--30 min (Max of 1 mg/kg); administer slowly over at least 3 minutes**
Diltiazem (Cardizem)	
Indications	Rapid ventricular rates associated with A-fib and A-flutter, and for PSVT refractory to adenosine
Contraindications	Hypotension, Acute MI, Cardiogenic Shock, V-Tach of unknown origin, 2nd or 3rd degree AV block, WPW syndrome, Sick Sinus Syndrome, or Beta blocker use.
Side Effects	Hypotension, bradycardia, heart block, chest pain, asystole, nausea, vomiting, headache, fatigue, drowsiness
Dosage, route	**Adult: 0.25mg/kg administered IV over 2 minutes. If no response in 15 minutes, may repeat 0.35mg/kg IVP over 2 minutes. Max of 20mg per dose**. **Pediatric: None**
Diphenhydramine (Benadryl)	
Indications	Allergic reactions, anaphylaxis, acute dystonic reaction
Contraindications	Glaucoma, presence of alcohol and/or other depressants
Side Effects	Decreased LOC, hypotension, blurred vision, dry mouth, wheezing, OD may cause convulsions, coma
Dosage, route	**Adult: 50 mg slow IV push or deep IM** **Pediatric: 1 mg/kg slow IV push or deep IM. Max of 50mg.**

Dopamine (Intropin)	
Indication	Cardiogenic shock, hypotension, or unresolved bradycardia after pacing
Contraindications	Tachyarrhythmias, V-Fib, do not give with $NaHCO_3$, hypotension due to hypovolemia until fluid replaced
Side Effects	Nausea/vomiting, htn, infiltration will cause local necrosis, tachycardia, angina, palpitations
Dosage, route	**Adult: 1600 mcg/ml pre-mixed. Begin at 2-5 mcg/kg/min. Max of 10mcg/kg/min. See Table.** **Pediatric: 2-10 mcg/kg/min. Begin at 2mcg/kg/min.**
Epinephrine 1:1,000	
Indications	Anaphylaxis, cardiac arrest, asthma, croup, unresolved bradycardia after pacing and dopamine
Contraindications	Use with caution in pts >35 y/o, w/angina, hypertension, pregnancy, tachycardia. None in cardiac arrest
Side Effects	Palpitations, tachycardia, increased blood pressure
Dosage, route	Anaphylaxis and asthma – **Adult: 0.3mg -0.5mg. Preferred route is IM.** **Pediatric: 0.01 mg/kg up to a max of 0.5mg. Preferred route is IM.** Cardiac arrest: **Adult:** Cardiac Arrest IV/IO dose . See 1:10,000 concentration below **Adult ETT: 2-2.5 mg in 10cc of saline** **Pediatric:** IV cardiac IV doses. See 1:10,000 concentration below **Ped ETT: 0.1 mg/kg q 3--5 minutes diluted in 3-5 ml saline** Croup/Strido**r** **Peds SVN for croup: =/< 4 y/o deliver 2.5 mg diluted in 3cc of NS** **=/> 5 y/o deliver 5.0 mg diluted in 3cc of NS** Bradycardia IV Infusion **Adult: IV infusion: 2-10 mcg/min**
Epinephrine 1:10,000	
Indications	Cardiac arrest
Contraindications	None in cardiac arrest
Side Effects	Palpitations, tachycardia, increased blood pressure
Dosage, route	**Adult: 1.0 mg IV push every 3--5 minutes with a 20cc flush.** **Pediatric: 0.01 mg/kg of 1:10,000. IV/IO push** **Pediatric ETT:** (See 1:1,000 concentration above)
Etomidate (Amidate)	
Indication	Sedation for rapid sequence intubation
Contraindications	Patient must be >14 years of age, hypersensitivity to the medication
Side Effects	CNS depression, anesthesia, transient muscle movements, apnea
Dosage, route	**Adult dose: 0.3 mg/kg IV over 30--60 seconds.** **Pediatric: None**

Fentanyl	
Indications	Pain analgesic
Contraindications	Hypersensitivity, fetal acidosis/non-reassuring fetal tracing
Side Effects	Bradycardia, hypotension, cardiac arrest, respiratory depression, chest tightness, and laryngospasm
Dosage, route	**Adult: IV: 1 mcg/kg mcg slow , may repeat to max of 200 mcg total.** **IM: 2mcg/kg to a max of 200 mcg. Intranasal: 2mcg/kg to a max of 200 mcg** **Pediatric: IV: 1-2 mcg/kg slow , may repeat to max of 200 mcg total.** **IM: 2mcg/kg to a max 200 mcg. Intranasal: 2mcg/kg to a max of 200 mcg**
Furosemide (Lasix)	
Indications	Congestive heart failure, pulmonary edema
Contraindications	Pregnancy, hypokalemia, digitalis toxicity
Side Effects	Nausea/vomiting, potassium depletion, dehydration
Dosage, route	**Adult: 0.5-1.0 mg/kg slow IV push.** Or double the patient's daily dose if on Lasix and compliant with medications **Pediatric: 1mg/kg IV slowly.**
Glucagon	
Indications	Blood sugar less than 80 mg/dL and unable to start an IV
Contraindications	Contraindicated in patients with known hypersensitivity to glucagon, beef or pork protein
Side Effects	Occasional nausea/vomiting or generalized allergic reaction
Dosage, route	**Adult: 1 mg IM.** **Pediatric: >20kg: 1mg IM** **<20kg: 0.5 mg IM.**
Ketamine	
Indications	RSI, Excited Delirium
Contraindications	Angina, CHF, Symptomatic Hyperthyroidism, Pregnancy-Relative (Category B)
Side Effects	An emergence reaction (in approximately 12% of patients) may occur near end of medication half-life, when patient is awakening, that may require Versed 1-5 mg IV/IM/IO to calm patient.
Dosage, route	**RSI: Adult: 1.5 mg/kg max 150mg** **Excited Delirium/Sedation: Adult: 1 mg/kg IV (max single dose 150 mg) or 2 mg/kg IM (max 250 mg)**
Lidocaine (if Amiodarone is unavailable)	
Indications	Cardiac arrest, suppression of ventricular arrhythmias
Contraindications	Patients with conduction disturbances (2nd and 3rd degree blocks). Don't treat ectopic beats if rate <60
Side Effects	SA nodal depression or conduction problems and hypotension in large doses, or if given too rapidly. Drowsiness, disorientation, paresthesia, decreased hearing acuity, muscle twitching, seizures, agitation
Dosage, route	**Adult: Pulseless VF/VT:** 1.0-1.5 mg/kg IV push. Repeat boluses 0.5-0.75 mg/kg every 5-10 min. Max: 3mg/kg. Hang a drip at 1-4 mg/min after conversion. **Pediatric: 1mg/kg may repeat x1 for VF/Pulseless V-tach, and unstable V-tach**

Lorazepam	
Indications	Status epilepticus, seizures, sedation
Contraindications	Known sensitivity to benzodiazepines, hypersensitivity to polyethylene glycol, propylene glycol, benzyl alcohol, pregnancy, acute narrow angle glaucoma
Side Effects	Sedation, transient amnesia, memory impairment, confusion, hypotension, dizziness, headache, respiratory depression
Dosage, route	**Adult: Status epilepticus 2-4 mg Slow IV. May give IV/IO if no IV access. May repeat in 10-15 minutes.** **Pediatric: Status epilepticus 0.05-0.1 mg/kg Slow IV. May give IO if no IV access. Max dose 4mg. May repeat in 10-15 minutes.**
Magnesium Sulfate	
Indications	Torsades de Pointes, VF/Pulseless VT refractory to Lidocaine, Pre-eclampsia, Eclampsia, Pregnancy Inducted Hypertension, Pre Term Labor, severe asthma
Contraindications	Renal disease, heart block, recent MI
Side Effects	Respiratory and CNS depression, hypotension
Dosage, route	Torsades **Adult: Torsades with a pulse: 2 Gm in 100 ml NS over 10 min.** **Torsades without a pulse 1-2 Gm in 10ml of N/S Fast IV.** **Pediatric Torsades without a pulse 25-50 mg/kg. Max of 2 Grams rapid IV push.** Eclamptic, Pre-eclamptic, and PIH **Adult: 4-6 G IV bolus over 10-15 min (Add 4 Gms to 100 ml of NS, D5W, LR. Resulting concentration is 30-60 mg/mL).** Pre Term labor **Adult: 4-6 G IV bolus over 10-15 min (Add 4 Gms to 100 ml of NS, D5W, LR. Resulting concentration is 30-60 mg/mL).** Asthma **Adult: 2 Grams in 50Ml of N/S given over 5 minutes.** **Pediatric: 25-50 mg/kg in 50 ml of N/S over 20 minutes.**
Methylprednisolone Sodium Succinate (Solu-Medrol)	
Indications	Reactive airway disease (acute exacerbation of emphysema, chronic bronchitis, asthma, anaphylaxis
Contraindications	Do not use in preterm infants
Side Effects	None from a single dose
Dosage, route	**Adult: 125 mg slow IV bolus or IM** **Pediatric: 2 mg/kg slow IV bolus or IM**
Midazolam (Versed)	
Indications	Sedation, post rapid sequence intubation (RSI)
Contraindications	Hypotensive, hypoxia
Side Effects	CNS and respiratory depression
Dosage, route	**Adult: 14-60 years: 1 -5 mg IV push over 30 seconds. 2-5 mg IM. 0.2mg/kg for status seizures if no IV access.** **Age >60: Reduce by half.** **Pediatric: 0.05 to 0.1 mg/kg slow IV push. 0.2 mg/kg IM for status seizures if no IV access** Intranasal for Adult and Peds: 0.2-0.3 mg/kg to a max of 10mg. May repeat once if needed. Must use 5mg/ml concentration

Morphine Sulfate	
Indications	Analgesia, sedation post RSI
Contraindications	Head injury, exacerbated COPD, depressed respiratory drive, hypotension, acute abdomen pain, altered LOC
Side Effects	Respiratory depression, decreased BP, decreased LOC, decreased HR, nausea/vomiting
Dosage, route	**Adult: IV 1-20mg in 2-4mg increments. 5-10 mg IM** **Pediatric: 0.1 mg/kg IV or IM. May repeat to a max dose of 0.2 mg/kg.**
Naloxone (Narcan)	
Indication	Opiate overdose, coma of unknown etiology
Contraindications	Withdrawal symptoms in the addicted patient
Side Effects	Precipitous vomiting, ventricular dysrhythmias, acute withdrawal
Dosage, route	**Adult: 0.4-2 mg IV, IM, inject SL, SC, ETT. May repeat in 2 minutes.** **Intranasal: 2 mg in each nostril using a mucosal atomizer device, may repeat every 2 minutes.** **Pediatric: 0.1 mg/kg IV, IM, IN, or ETT** Titrate to respiratory improvement -- not necessary to wake patient up in the field
Neo-Synephrine	
Indication	Facilitation of nasotracheal intubation
Contraindications	No known contraindications
Side Effects	Hypertension, palpitations, tremors
Dosage, route	**Adult: 2-4 sprays in each nostril before attempting ETT insertion.** **Pediatric: none**
Nitroglycerin	
Indications	Angina, myocardial infarction, CHF with pulmonary edema
Contraindications	Hypovolemia, increased intra cranial pressure
Side Effects	Hypotension, temporary pulsating headache, flushing
Dosage, route	**Adult: 0.4 mg (either by tablet or spray) SL. May repeat q 5 minutes for a total of 3 doses.** **Pediatric: none**

Ondansetron	
Indications	Nausea, vomiting
Contraindications	Hypersensitivity. Use with caution in patients with hepatic impairment
Side Effects	CNS: Headache, malaise, fatigue, dizziness, fever, sedation, extrapyramidal syndrome Cardiovascular: Chest pain, arrhythmias. Respiratory: Hypoxia. GI & Hepatic: Diarrhea, constipation, abdominal pain, xerostomia, decreased appetite. Skin: Rash
Dosage, route	**Adult: 4– 8 mg IV slow push over 2 – 5 minutes. Or 8 mg PO ODT or tablet** **Pediatric: <40 kg 0.1 mg/kg, slow over 2-5 minutes.** **>40kg 4 mg slow over 2-5 minutes. 4-12 years old 4 mg PO or ODT** **May be given IM if no IV access**
Sodium Bicarbonate	
Indications	Metabolic acidosis, cardiac arrest with a down time >10 minutes, tricyclic antidepressant overdose
Contraindications	Low serum potassium, patient unable to tolerate salt load (i.e., CHF)
Side Effects	Alkalosis, precipitates when mixed with calcium chloride
Dosage, route	**Adult: 1 mEq/kg IV initially then 0.5 mEq/kg every 10 minutes** **Pediatric: 1mEq/kg IV or IO slowly. Neonate dose 1 mEq/kg IV or IO of 4.2% solution**
Succinylcholine (Anectine)	
Indication	Endotracheal intubation requiring paralysis
Contraindications	Muscle disorders and personal or family history of malignant hyperthermia
Side Effects	Vagal stimulation leading to bradycardia or asystole. Will cause muscle paralysis
Dosage, route	**Adult: 1.5 mg/kg IVP.** **Pediatric: None**
Thiamine	
Indications	Coma of unknown origin, use prior to D50 administration
Contraindications	Hypotension
Side Effects	Restlessness, nausea, diarrhea, anaphylactic reaction, pulmonary edema
Dosage, route	**Adult: 100 mg slow IV or IM** **Pediatric: none**

Useful Phone Numbers

Useful Phone Numbers	
Adult Protective Services	1-877-767-2385
Child Protective Services	1-888-767-2445
Amberly's Place	1-928-373-0849
YRMC ER	1-928-336-7133
Poison Control	1-800-362-0101
2400 Patch line	928-344-4868/ 928-336-7759
EMS Coordinator	(928) 336-7106

Ventricular Assist Devices: Adult & Pediatric

Use this guideline for
1. Patients that have had an implantable ventricular assist device (VAD), including a left ventricular assist device (LVAD), right ventricular assist device (RVAD), or biventricular assist device (BiVAD), and have symptoms of cardiovascular compromise
2. Patients with VADs that are in cardiac arrest
3. Patients with VADs that are experiencing a medical or injury-related event not involving the cardiovascular system or VAD malfunction

EMS role is to:
- Contact patient's VAD program on-call coordinator, using the phone number on the device
- Rapidly identify cardiovascular compromise in patients with VAD and provide interventions
- Rapidly identify VAD-related malfunctions or complications (including stroke, infection) and provide interventions

EMCT

- Manage airway as indicated
- Contact the patient's VAD program on-call coordinator, using the phone number on the device; follow coordinator's advice

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- If patient is in full cardiac arrest, CPR should not be performed if there is evidence that the pump is still functioning
- Decision to perform CPR should be made in consultation with patient's VAD-trained companion and VAD coordinator. CPR may be initiated only where:
- Confirmation that the pump has stopped and troubleshooting efforts have failed, and
- Patient is unresponsive and has no detectable signs of life

↓

Assess for possible pump malfunction
- Assess for alarms
- Auscultate for pump sound "hum"
- Signs of hypoperfusion including pallor, diaphoresis, altered mental status (blood pressure reading is unreliable)

If the VAD pump has malfunctioned
- Contact the patient's VAD-trained companion, if available
- Check all the connections to system controller
- Change VAD batteries, and/or change system controller if indicated
- Have patient stop all activity and assess for patient tolerance
- Follow appropriate cardiovascular condition-specific protocol(s) as indicated

If patient is experiencing VAD-related complications or cardiovascular problems, expedite means of transport that will get patient to his/her VAD program if patient's clinical condition and time allows, otherwise to the nearest VAD-trained facility

↓

- If patient has a functioning VAD and is experiencing a non-cardiovascular-related problem, transport to a facility that is appropriate for the patient's main presenting problem without manipulating the device

↓

AEMT

- Establish PIV
- If patient has a functioning VAD and is hypoperfusing (pale, diaphoretic, delayed capillary refill, altered mental status), administer IV fluids: 30 mL/kg, maximum 1 L, over < 15 minutes, using push-pull method
- May repeat up to 3 times based on patient's condition and clinical impression
- Avoid nitroglycerin

↓

EMT-I/Paramedic

- Cardiac monitoring • Acquire 12-lead EKG • Patient's baseline may be arrhythmia; obtain VAD coordinator's advice prior to administering antiarrhythmics

12 Lead Indications

Does the patient have one or more complaints from the following list:

Arm numbness or tingling
Chest pressure/heaviness
Unexplained diaphoresis
Unexplained general weakness
Syncope
Shortness of Breath
Nausea
Vomiting
Dizziness
Not feeling well
Impending Doom
Suspected diabetic ketoacidosis
Suspected drug overdose
Altered mental status
Palpitations
Heart Rate <50 or >150
Metabolic derangement
Examples include: dialysis patients
liver impairment

New onset of abnormal pain for the patient
Examples include: jaw pain
shoulder pain
back pain

No

Consider doing a Pre-hospital 12 lead on this patient.

Yes

A Pre-hospital 12 lead needs to be done on this patient.

Risk Factors for Acute Coronary Syndromes include, but are not limited to:

Family History
Hypertension
High Cholesterol
Diabetes
Obesity
High Stress
Sedentary Lifestyle
>65 years old or older.
Male sex (gender)
Alcohol intake
Heredity (including Race) —
African Americans
Mexican Americans
American Indians
Native Hawaiians
Some Asian Americans.
Tobacco smoke — Exposure to other people's smoke

Females, diabetic, and elderly patients often present with atypical chest pain or anginal equivalents.

When a 12 Lead is done on a patient, a copy must be provided when transferring care.

[Aa]

@..... at
AAA abdominal aortic aneurysm
ABD..... abdomen
ABC..... airway, breathing, circulation
AC..... antecubital
ACLS.. advanced cardiac life support
A&D.... admission and discharge
AED.... automatic external defibrillator
A-fib.. atrial fibrillation
AIDS.... acquired immune deficiency syndrome
ALS... advanced life support
AKA.. also known as/ above the knee amputation
A.M.A., AMA..... against medical advice
AMI.. acute myocardial infarction
AMT amount
AOS arrived on scene
APAP acetaminophen
APGAR infant assessment scale
APPROX approximately
ASA aspirin
ASHD arteriosclerotic heart disease

[Bb]

BB backboard/ bundle branch
BBB bundle branch bloc
BS Breath sounds
BBS bilateral breath sounds
Bilat bilateral
BKA below knee amputation
BLS basic life support
BM bowel movement
BP blood pressure
BG blood glucose
BVM bag valve mask

[Cc]

CABG coronary artery bypass graft
CAD coronary artery disease
CAOx3 conscious, alert, oriented to person, place and time
CA cancer
Cath catheterization
CC chief complain
Cath catheterization

CCU coronary care unit/critical care unit
CHF congestive heart failure
CNS central nervous system
C/O complains of
CO2 carbon dioxide
COD cause of death
COPD chronic obstructive pulmonary disease
CP chest pain
CPR cardiopulmonary resuscitation
CQI continuous quality improvement
CSF cerebral spinal fluid
CT Scan.....computerized axial tomography
CVA cerebral vascular accident

[Dd]

DA drug abuse
D/C discontinue or discharge
DCAP-BTLS.... deformities, contusions, abrasions, punctures & penetrations, burns, tenderness, lacerations, swelling
DNR do not resuscitate
DOA dead on arrival
DOS dead on scene
DT's delirium tremens
DVT deep vein thrombosis
D5W dextrose 5% in water
DX diagnosis

[Ee]

ECG electrocardiogram
EEG electroencephalogram
EENT eyes, ears, nose, throat
EJ external jugular
EMS Emergency Medical Services
EMT Emergency Medical Technician
EOA esophageal obturator airway
EPS extra pyramidal symptoms
ETA estimated time of arrival
ETOH ethyl alcohol
ET endotracheal tube
EXT external (extension)

[Ff]

F female
FB foreign body
FOB foreign object/ body
FLEX flexion

FROM full range of motion
FX fracture

[Gg]

G gram(s)
GCS Glasgow Coma Scale
GI gastrointestinal
GOA gone on arrival
GSW gunshot wound
gtts drops
GU genitourinary
GYN gynecology

[Hh]

H/A headache
HEENT head, ears, eyes, nose, throat
HIV human immune deficiency virus
HR heart rate
HTN hypertension
Hx history
hyper above or high
hypo below or low

[Ii]

ICF..... intracellular fluid
ICP..... intracranial pressure
ICS..... intercostals space
ICU..... intensive care unit
IM.....intramuscular
IO.....intraosseous
IV.....intravenous
IVP.....intravenous push
IVPB.....intravenous piggy back

[Jj]

J..... joules
JVD..... jugular vein distension

[Kk]

Kg..... kilogram
KO.....keep open
KVO..... keep vein open

[Ll]

L&D labor and delivery
LAT lateral
LBBB.... left bundle branch block
lb..... pound
LLQ..... left lower quadrant
LMP..... last menstrual period
LOC..... loss of consciousness
LR.....lactated ringers
L-Spine.....lumbar spine
LSB.....long spine board
LUQ..... left upper quadrant

[Mm]

MAE.....moves all extremities
MAST...military anti-shock trousers
mcg.....microgram
MCI.....mass casualty incident
MDI ..... metered dose inhaler
ME..... medical examiner
mEq..... millequilvalent
MED.....medication/ medium
mg..... milligram
MICU... medical intensive care unit
MI.....myocardial infarction
MOI..... mechanism of injury
MRI.....magnetic resonance imaging
MS..... morphine sulfate/ multiple sclerosis
MVA.... motor vehicle accident

[Nn]

NaCl.....sodium chloride
NAD.....no acute distress
NC..... nasal cannula
NEB.....nebulizer
NKA.... no known allergies
NKDA no known drug allergies
NS.....normal saline
NSR .....normal sinus rhythm
NT.....non-tender
NTI..... nasotracheal intubation
NTG..... nitro- nitroglycerine
N/V.....nausea and vomiting
N/V/D nausea, vomiting and diarrhea

[Oo]

O2..... oxygen
O2Sat...oxygen saturation by pulse oximeter
OB.....obstetrics
OD..... overdose
OPA..... oralpharyngeal airway
OPQRST..... onset, provoking factors, quality, radiation, severity, time.
OTC.....over the counter
(**OU**).....both eyes

[Pp]

P..... pulse
PAC.....premature atrial contraction
PALP.... palpation
PALS pediatric advanced life support
PASG....pneumatic antishock garment
PCN..... penicillin
PE..... physical examination/ pulmonary embolism/pulmonary edema.
PEA.....pulseless electrical activity
PEEP positive end expiratory pressure
PEARL...pupils equal and reactive to light
PJC.....premature junctional contraction
PMHx past medical history
PO orally
POV privately owned vehicle
PRN, prn..... as needed
PSVT paroxysmal supraventricular tachycardia
PRN, prn...... as needed
PT patient
PTA prior to arrival
PVC premature ventricular contraction

[Qq]

q..... every
QAM, **qam**..... every morning
Qd every day
qh every hour
q2h every two hours
q3h every three hours
q4h every four hours
QHS, qhs..... every night at bedtime
qid or QID..... four times a day
qod, QOD..... every other day

[Rr]

R/O rule out
ROM.... range of motion/movement
(R right
RLQ right lower quadrant
RUQ right upper quadrant
Rx prescription therapy

[Ss]

SaO2 systemic arterial oxygen saturation (%)
SIDS sudden infant death syndrome
SL sublingual
SOB short of breath
SpO2 oxygen saturation by pulse oximeter
ST sinus tachycardia
STAT at once
STD sexually transmitted disease
SQ subcutaneous
SR sinus rhythm
START simple triage & rapid treatment
SVT supraventricular tachycardia
SZ seizure
SX symptom

[Tt]

T temperature
TCP transcutaneous pacing
TIA transient ischemic attack
TKO to keep open
Tx treatment

[Uu]

UOA upon our arrival
URI upper respiratory infection
UTI urinary tract infection
UTL unable to locate

[Vv]

V-fib ventricular fibrillation
VS vital signs
VT ventricular tachycardia

[Ww]

W/C Wheel Chair
W&D warm and dry
WNL within normal limits

WPW Parkinson-White Syndrome

[Xx]

None

[Yy]

YO (YOA)..... years of age/ years old
YTD..... year to date

Symbols

M or ♂ male
F or ♀ female
+ positive
- negative
? ..... questionable
Ψ ..... psychiatric
~ ..... approximately
> ..... greater than
= ..... equal
s ..... without
Δ ..... change
ā ..... before
L ..... left
R ..... right