Standing Orders and Treatment Protocols

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Nueces County ESD4 PROTOCOL AUTHORIZATION

To: All personnel with Nueces County ESD4

I have reviewed and officially approved the use of the Standing Delegation Orders and Protocol as written in this text for use by Nueces County ESD4 personnel working in all divisions of the service.

These Standing Orders and Protocols are implemented under authority granted by the Health and Safety Code, chapter 773, Emergency Medical Services. Authorized by House Bill #241, Senate Bill #184, and House Bill #2385 adopted during the session of the 73rd Legislature, Regular Session, 1993.

David E. Blanchard Date: 9-12-2025

David E. Blanchard, D.O.
Medical Director, Nueces County ESD4

Physician on Scene Policy:

1) The paramedic shall treat all physicians on scene with respect and shall explain any questions that may arise. Ask the physician to produce a copy of their Medical License. If they cannot do so, then the E.M.S. crew shall decline the assistance and continue to treat the patient per protocol.

2) A physician on scene caring for a patient before arrival of the E.M.S. may retain medical responsibility if he/she desires, provided that they will accept full legal and medical responsibility. The physician will decide to go with the patient in the unit or release the patient to the E.M.S. crew.

3) The Paramedic on scene that has initiated treatment on scene, and, after a Physician has showed up on scene, may turn his/her services over to the Physician on scene,but the Medical Control Physician has the sole authority to accept or deny the request. If such permission is granted, the medical control Physician, the physician on scene, and the E.M.S. crew shall work as a team. The Medical Control Physician may refuse to honor orders he feels medically inappropriate (according to established protocols), and the E.M.S. crew shall ultimately be responsible to the Medical Control Physician. The physicians shall mutually determine the responsibility for transport.

4) The private physician shall sign the Patient Care Report indicating that they provided the orders for the E.M.S. crew.

5) Above all else, treat the patient and transport per protocol; the physicians may work this out later. All Nueces County ESD4 personnel will be professional and courteous to the physicians on scene.

Nueces County ESD4 PROTOCOL INTRODUCTION

The following standing orders are approved by the Nueces County ESD4 Medical Director for use by appropriately certified Nueces County ESD4 personnel. Nueces County ESD4 personnel shall utilize these protocols at all times while under my medical direction only when acting in their official capacity for Nueces County ESD4. Personnel will be allowed to implement the procedures up to, but not exceeding their level of training. EMT's are allowed to start IV's after they have gone through an IV class and signed off on IV's by the EMS Director. This does not include external jugular cannulation or intraosseous cannulation. These standing orders are updated to reflect current prehospital treatment modalities. In the context of these protocols, the term 'consider' will have the following meaning: The Paramedic can institute this procedure or medication at his/her discretion, based upon the Paramedic's judgment, experience, and the patient's condition. These protocols shall only be utilized under my medical direction in the Nueces County ESD4 service area, mutual aid areas, and when on transfers. Consult service area map on page 152.

For the purpose of Nueces County ESD4, all procedures in the protocols can be performed and medications administered by the Paramedic without the direct order of an emergency physician. This is due to the large service area and the difficulty and time required in obtaining on-line medical control.

These protocols mainly cover the ALS aspect of patient care. In all cases, these protocols should be initiated only after a complete BLS assessment has been performed. This includes assessing the patient's airway, breathing, and circulation.

Paramedics following these standing orders should become familiar with all phases of this publication, and commit it to memory. This includes learning the algorithms, drugs, and dosages. **If the Paramedic is in doubt regarding a patient's care at any time, he/she should contact Medical Control.**

Licensed medical personnel, non-E.M.S. certified, performing patient care in Nueces County ESD4 ambulances shall have specific physician-patient care orders and all equipment, supplies, and medications necessary to carry out the physician orders.

These Standing delegations of Orders and Treatment Protocol authorize Nueces County ESD4 paramedics regarding the administration of any medications not covered in this document. During interfacility transports, the sending/receiving physician may order the use of a medication that is not included in the Nueces County ESD4 protocol. The Nueces County ESD4 crew shall administer/continue the specific medication as ordered or within the standard of practice at the appropriate dose and based on the patient's needs.

David E. Blanchard DO

David E. Blanchard, D.O., Medical Director

CRITERIA FOR MANAGEMENT OF CONTROLLED SUBSTANCES

All Nueces County ESD4 personnel shall follow the guidelines below when dealing with any controlled substance(s). The following drugs will be considered controlled substances: Morphine Sulfate, Fentanyl, Ketamine & Versed (Midazolam).

DISPENSEMENT:

A. If, for some reason, the Medical Director (physician) cannot supply the medication, the physician will make arrangements with a pharmacy or drug supplier to obtain the medication required by the Emergency Medical Service.

STORAGE:

A. Controlled substances shall be placed in a locked cabinet inside the confines of Nueces County ESD4offices. Access to this cabinet will be restricted to the Fire Chief, EMS Director, and/or his/her designee of the Service. The medications will be placed on the units only as required.
B. The controlled substances will be placed in a locked cabinet in the Mobile Intensive Care Units with only Paramedics with the Service having access.

ADMINISTRATION:

A. Controlled substances shall only be administered by direct physician orders by radio or telephone, except where noted in "Standing Delegation Orders and Protocol".
B. When "drawing up" and administering the medication (controlled substance) the paramedic shall go through the approved check and balance system used with all medications. To rule out any chance for error, each injection will be "drawn up" by one paramedic, checked by another paramedic or qualified staff member, and then administered if correct.

PROCEDURE FOR REPORTING SHORTAGE OR LOSS OF CONTROLLED SUBSTANCE

If any amount of a controlled substance is determined to be missing, whether due to theft, fire, storm, or inventory shortage, the following steps must be taken immediately.

1. Report the loss to the E.M.S. Director immediately. The E.M.S. Director will report the loss to the Medical Director.

2. Contact the appropriate local law enforcement agency to file a report.

3. An internal investigation, including questioning of any person having access to the controlled substances, will begin immediately.

4. The D.E.A. and the Department of Public Safety will be sent a copy of the report made by the local law enforcement agency.

Consent and Refusal

Throughout this protocol, the term Field Medical Control refers to the E.M.S. Supervisor, Shift Supervisor, or Department Chief. The term On-line Medical Control refers to a direct line with a physician whether it is the Medical Director or Medical Control for the receiving facility. **General Concepts and Rules Regarding Consent and Refusal**

1. A patient who is able to give consent is also able to refuse E.M.S. A patient that is unable to give consent is also unable to refuse E.M.S. Any adult patient of sound mind and body (alert with adequate vital signs) and is not under the influence of drugs or alcohol and has shown no signs of harming themselves or others is considered a competent adult.
2. Competent adult patients can consent to or refuse any of the three aspects of E.M.S. care. Those aspects are:
   A. Assessment (visual observation, palpation, vital signs, ECG, blood glucose levels, etc.)
   B. Treatment (all therapies and interventions)
   C. Transport (the complete transport or any time during the transport)
3. Acceptance of any of one of these components does not obligate the competent adult patient to accept all the components. For example, a patient may allow assessment and treatment and refuse transport; or they may allow transport but refuse assessment and treatment.
4. Competent adult patients may consent to or refuse any portion of the above components. A competent adult patient may allow an IV, but decline oxygen; or may accept vital signs and refuse other treatment.
5. Competent adults may refuse any component of E.M.S. care, even when the responding personnel believe it could be detrimental to the patient's well-being.
6. A competent adult patient can withdraw consent, and refuse further assessment, treatment, or transport at any time during patient contact. There is no limit to this rule no matter how extensive the treatment may be that has been performed or still needs to be performed.
7. Refusal of care must be made in an "informed consent" setting. This means that we must make every effort possible to ensure the patient completely understands the following before accepting the refusal: E.M.S. impression of the problem, the benefits of consenting to any of the components mentioned above, and all consequences related to the declining medical intervention for their condition.
8. Mental Status is evaluated and documented in reference to four components. These components are person, place, time, and event. In order to demonstrate competency to refuse E.M.S. services, the patient must be awake, alert, and oriented to at least person, place, and time. If a patient is oriented to all but the event, then they are still considered competent and are able to refuse care.
9. Any patient that is refusing any component of E.M.S. service and the E.M.S. disagrees with the patient, then the E.M.S. should enlist the assistance of the patient's family and friends to help convince the patient to accept E.M.S. treatment and/or transport. When this occurs it MUST be documented in the narrative of the patient care report.
10. If the patient presents competently and does not wish to be treated and/or transported and E.M.S. notes to evidence the patient may be a threat to themselves or others (verbal suicide threat or threat of violence), E.M.S. shall enlist the assistance of Law Enforcement. It is Law Enforcement's primary responsibility to determine whether the patient is a threat to themselves or others and whether or not the situation warrants the patient being placed into protective custody. If there is evidence of injury or illness, then the patient needs to be transported by E.M.S. Law enforcement; however, can order otherwise if the patient's behavior could be detrimental to E.M.S. personnel. This decision MUST be documented in the narrative of the patient care report and E.M.S. MUST obtain signatures from Law Enforcement noting these decisions.
11. When Law Enforcement elects to have E.M.S. transport the Above-mentioned patient(s), then E.M.S. can utilize the minimal force needed to perform said transports. When possible, enlist the assistance of Law Enforcement. E.M.S. must document the level of force used and whether it was performed by E.M.S. or Law Enforcement personnel in the narrative of the patient care report.

12. Emancipated Minor. An emancipated minor is defined as a person of minor age (17 years or less) who is legally empowered to make their own medical decisions as an adult. This includes any person living apart from their legal guardians and who are not financially supported by their guardians, a pregnant female, a person enlisted or commissioned in the United States Armed Forces, or a person who has been legally declared an adult by the US courts. These patients shall be handled as adults per the preceding sections.
13. Minor Patients
    A. As noted above, any patient that is 17 years of age or younger and is not considered emancipated cannot refuse E.M.S. services. A guardian must be present for these patients and the guardian must refuse treatment and/or transport for these patients. The guardian must be a competent adult. When competence is established, the E.M.S. shall follow the same guidelines as the Adult Consent and Refusal protocol.
    B. If the minor's legal guardian is absent and the patient's condition is considered urgent, E.M.S. will initiate treatment and transport per appropriate protocol. When the condition of the minor is not urgent, E.M.S. will attempt to contact the patient's legal guardian by telephone. If the guardian is not contacted within 10 minutes, E.M.S. shall initiate treatment and transport.
    C. When the patient's guardian is contacted by phone, and they do not wish for the patient to be transported, then the E.M.S. personnel shall contact Field Medical Control. Field Medical Control may elect to allow E.M.S. to accept the refusal, allow for the arrival of the patient's guardian, or reject the guardian's refusal and order E.M.S. personnel to proceed with treatment and transport. If E.M.S. can accept the refusal over the phone, at least two E.M.S. personnel or one E.M.S. person and one law enforcement officer must directly hear the patient's guardian refuse treatment and transport.
    D. When there is no guardian on scene, and the patient has no signs of injury or illness then the E.M.S. will make every effort possible to contact the patient's guardian. Once contact is made, E.M.S. will have the guardian come to the scene or designate an adult on scene who is willing to accept responsibility for the child.
    E. In cases where the patient's guardian is unavailable, then E.M.S. may release the child to the custody of law enforcement if law enforcement agrees to accept responsibility for the patient.
14. Motor Vehicle Collisions
    A. In order to completely rule out that all potential patients have been identified and evaluated for injuries, a complete refusal document with a complete patient assessment must be completed on ALL involved parties.
    B. If the patient completely refuses E.M.S., E.M.S. services MUST then document patient name if obtainable and that all services were refused. E.M.S. must obtain a signature from an outside agency (fire department or law enforcement) when possible, to witness the refusal of all services.
    C. Never delay transport of critical patients to obtain refusals. Notify dispatch of the situation and have them contact the E.M.S. Supervisor, Shift Captain, or Department Chief; who will take appropriate action to complete the task. When possible, delegate to Law Enforcement personnel.

Refusal Documentation

When the decision has been made to accept a refusal from a patient, then the following must be documented in the narrative of the patient care report by the E.M.S. Transporting Provider. E.M.S. shall document all demographic and operational information possible E.M.S. shall document all assessment information, especially the patient's mental status. E.M.S. shall document that E.M.S. offered the patient treatment and/or transport shall document that the patient refused the offer for treatment and transport. E.M.S. shall document what instructions were given to the patient (any immediate care or management for the injury/illness, to call E.M.S. back if there are further complications, and to see a physician as soon as possible), the acknowledgment of the instructions by the patient shall also be documented. The patient shall sign the refusal in full understanding of their condition and the consequences of refusing care. If the patient refuses to sign the refusal form, then E.M.S. shall seek witnesses to sign the refusal noting the patient refused to sign the refusal. If possible, the witnesses should be law enforcement on scene.

USE OF MEDICATIONS

1. Narcotics will be used only by a Paramedic under the direct supervision of a physician except where noted in the "Standing Delegation Orders and Protocol".

2. Intravenous Solutions: Normal Saline (0.9% Sodium Chloride Solution) will be considered the fluid of choice. Other solutions may be stocked and used on an optional basis.

3. All drug and drug items will be inventoried where applicable.

4. IV therapy will be of primary concern to the personnel of Nueces County ESD4 IV therapy should be initiated on all unstable or potentially unstable patients as soon as possible, when possible. The Paramedic will assess the need for an intravenous line on non-cardiac patients depending upon the condition of the patient, distance to a hospital, availability of personnel, and condition of the patient's veins.

5. Intraosseous (IO) therapy is indicated for emergent situations in which IV access is not readily obtained. It should be used when fluid and/or medication administration is essential to the patient's outcome.

Airway Management Guidelines
(See Airway management DSI & RSI section)

Consider utilizing sedation prior to and post intubation.

Once a patient is intubated you should:

1: Secure tube in place with tape or a commercially available device noting the cm measurement at the teeth of the patient

2: Continuously monitor the patient and reassess lung sounds or breathing exchange to verify tube placement, especially after the patient has been moved or transferred.

3: Thoroughly document the procedure including route, tube size, method of placement confirmation and depth of tube as measured to teeth of patient, as well as all reconfirmation measures utilized during course of patient contact.

4: When transferring care, maintain physical control of the intubation device and do not permit its removal until a qualified individual performs a medical evaluation to verify proper placement or to determine improper placement.

5: Once verification of proper placement has been made and the patient care has been transferred, signed documentation to that effect should be obtained from an attending medical staff person from the receiving facility.

6. Post-intubation sedation in the non-hypotensive patient may be utilized if necessary. Consider Ketamine 1 mg/kg or Versed 2.5-5 mg/pediatric 0.1 mg/kg up to 2.5 mg; repeat x 1prn.

Adenosine
6 mg/2ml or 12mg/4ml in single dose ampule, vial or prefilled syringe
-At least 3

Albuterol Sulfate Inhalation Solution
2.5mg/3ml single use plastic vials
-At least 3

Amiodarone (Cordarone)
150 mg
-At least 4

Aspirin (ASA)
324-325 mg tablets various packaging
-At least 4

Atropine Sulfate
1mg in a 10 ml prefilled syringe
-At least 3

Catapres (Clonidine Hcl)
0.1 mg tablets
-At least 2

Dextrose
D10, D25, D50, 10% in 250 mL,20% in 500 mL
25g in a 50 ml prefilled syringe
2.5g in a 10 ml prefilled syringe
-At least 2 of any concentration

Diltiazem Hcl (Cardizem)
5mg/ml in 5ml vial
-At least 1

Diphenhydramine
50mg in a 1ml vial
-At least 2

Dopamine (Intropin)
400mg in 250 mL premix bag concentration of 1600 mcg per mL
-At least 1

Epinephrine 1:1:000
1 mg in a 1 mL ampule
-At least 1 each

Epinephrine 1:10:000
1 mg in a 10 mL prefilled syringe
-At least 4

Etomidate (Amidate)
40 mg in 20 ml vial
-At least 1

Fentanyl
100 mcg in 2.0 ml vial
-At least 2

Furosemide (Lasix)
40 mg in a 4 mL prefilled syringe
-At least 2

Haloperidol (Haldol)
5 mg in 1 ml vial
-At least 2

Instant Glucose Paste
15 or 30 gram unit dose tubes
-At least 2

Ipratropium Bromide Inhalation Solution
0.5mg/2.5ml single use plastic vials
-At least 3

Ketamine
500 mg in 10 ml vial
-At Least 1

Lactated Ringer's
bags of 250cc, 500cc or 1000cc.
May stock as optional equipment.

Labetalol
100 mg in 20 ml vial
-At Least 1

Levophed
4 mg in 4.0 ml vial
-At Least 1

Lidocaine
100 mg in a 5 mL prefilled syringe
-At least 2

Lidocaine Drip
1g or 2g in various packages
-At least 1

Liquid Children's Ibuprofen
Follow bottle pre-weight, various packages
-At least 1

Magnesium Sulfate
5 grams in 10.0 ml vial or prefilled syringe
-At least 1

Methylprednisolone (Solu-Medrol)
125 mg in 2.0 ml vial.
-At least 2

Midazolam (Versed)
10mg in a 2ml vial or prefilled syringe
-At least 1

Morphine Sulfate
10 mg in a 2 mL ampule, vial, or prefilled syringe (tubex)
-At least 1 per unit

Naloxone (Narcan)
2 mg in a 2 mL prefilled syringe or commercial nasal atomizer device.
-At least 1

Nitroglycerin
4.9g in a metered spray bottle or tablet
-At least 1 bottle or 6 tablets

Normal Saline
bags of 250cc, 500cc or 1000cc.
-At least 3 of any size per unit.

Ondansetron HCL (ZOFRAN)
4 mg in 2.0 ml vial
-At least 2

Rocuronium Bromide
100 mg in 10 ml vial
-At least 1

Sodium Bicarbonate 8.4%
50 mEq in a 50 mL prefilled syringe
-At least 2

Terbutaline Sulfate (Brethine)
1 mg in a 1ml ampule
-At least 2

Tranexamic Acid - TXA
100 mg in 10 ml vial
-At Least 1

ADVANCED LIFE SUPPORT
EQUIPMENT AND SUPPLIES ON MICU

CARDIAC MONITOR/DEFIBRILLATOR w/AED CAPABILITIES
With external pacing capabilities.
To include pacing/defib pads adult
To include pacing/defib pads pediatrics
Rotated batteries
End Tidal C02 tubing

E.T. TUBES FOR M.I.C.U.'S
3.0mm through 9.0mm in full-size increments.
At least 1 per unit.
*May stock half sizes and 10mm as optional equipment.

IntraOsseous
IO Drill or Manual device
Pediatric/Adult Needles
At least 1 per unit.

INTRAVENOUS INFUSION SETS
Microdrip (60 gtts) and Macrodrip (10 gtts) sets.
At least 3 each per unit.

INTUBATION ASSIST DEVICE
Bougie or other commercial tube introducer
Optional per unit

LARYNGOSCOPE
Minimum of one set per unit to include adult and pediatric handles with batteries and a minimum of 4 blades in sizes for adult and pediatric patients.

May stock video laryngoscope devices as optional equipment.

LIST OF I.V. CATHETERS FOR M.I.C.U.
24, 22, 20, 18, 16, and 14 gauge catheters
At least 5 each per unit.

NASAL ATOMIZER
At least 2 per unit.

Supraglottic Airway
I-GEL - Various Sizes
May stock as optional equipment.

BLS EQUIPMENT/SUPPLY LIST

Adhesive tape 1 inch	4 ea	Oxygen Mask-Pediatric	3 ea
Batteries/battery powered equipment	2 ea	Penlights	1 ea
Biohazard Bags	3 ea	Portable 02 cylinders	2 ea
Stop the Bleed kit	1 ea	Portable 02 regulator	1 ea
Blood Glucose Monitor	1 ea	Portable suction	1 ea
Board splints, long or equivalent	2 ea	Protective Goggles/Biohazard kit	2 ea
BVMs: Adult, Pedi, Infant	1 ea	Pulse Oximeter	1 ea
Cold packs	3 ea	Rigid Extrication Collars:	
Fire Extinguisher- rear mod	1 ea	Adult and Pediatric adjustable	2 ea
Gloves-box small, med, large, X-Lg	1 ea	Or various sizes	
Hazmat Handbook	1 ea	Roller bandages, 3 or 4 inch	6 ea
Long spine boards	1 ea	Sealed Obstetrics Kit	1 ea
CPR Assisted Device (any brand)	Optional	Sharps containers/on board/portable	1 ea
Mobile Radio, dispatch/hospital	1 ea	Short board or KED	1 ea
Multilevel stretcher	1 ea	Sterile burn sheets	4 ea
Multi-Trauma dressings	2 ea	Sterile Water	2 ea
Nasal Cannulas	3 ea	Suction Catheters	2 ea
Nasopharyngeal airways (set)	1 ea	Trauma scissors	2 ea
Nebulizer Mask or mouthpiece	2 ea	Traction splints- Adult and Pediatric	1 ea
Occlusive dressings	6 ea	Triangle Warning Reflectors	3 ea
On Board Oxygen/with regulator	1 ea	Triangular bandages	10 ea
On Board Suction	1 ea	Tourniquet	2 ea
Oropharyngeal airways (set)	1 ea	Warm packs	3 ea
Oxygen Mask- NRB	3 ea		

David E. Blanchard DO Date: 9-12-2025

David E. Blanchard, D.O.
Medical Director, Nueces County ESD4

Figure: 25 TAC §157.25 (h)(2)

OUT-OF-HOSPITAL DO-NOT-RESUSCITATE (OOH-DNR) ORDER

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Print Form

STOP DO NOT RESUSCITATE

This document becomes effective immediately on the date of execution for health care professionals acting in out-of-hospital settings. It remains in effect until the person is pronounced dead by authorized medical or legal authority or the document is revoked. Comfort care will be given as needed.

Person's full legal name _____ Date of birth _____ ☐ Male ☐ Female

A. Declaration of the adult person: I am competent and at least 18 years of age. **I direct that none of the following resuscitation measures be initiated or continued for me: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Person's signature _____ Date _____ Printed name _____

B. Declaration by legal guardian, agent or proxy on behalf of the adult person who is incompetent or otherwise incapable of communication:

I am the: ☐ legal guardian; ☐ agent in a Medical Power of Attorney; OR ☐ proxy in a directive to physicians of the above-noted person who is incompetent or otherwise mentally or physically incapable of communication.

Based upon the known desires of the person, or a determination of the best interest of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

C. Declaration by a qualified relative of the adult person who is incompetent or otherwise incapable of communication: I am the above-noted person's:

☐ spouse, ☐ adult child, ☐ parent, OR ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

To my knowledge the adult person is incompetent or otherwise mentally or physically incapable of communication and is without a legal guardian, agent or proxy. Based upon the known desires of the person or a determination of the best interests of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

D. Declaration by physician based on directive to physicians by a person now incompetent or nonwritten communication to the physician by a competent person: I am the above-noted person's attending physician and have:

Date

☐ seen evidence of his/her previously issued directive to physicians by the adult, now incompetent; OR ☐ observed his/her issuance before two witnesses of an OOH-DNR in a nonwritten manner.

I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician's signature _____ Date _____ Printed name _____ Lic # _____

E. Declaration on behalf of the minor person: I am the minor's: ☐ parent; ☐ legal guardian; OR ☐ managing conservator.

A physician has diagnosed the minor as suffering from a terminal or irreversible condition. **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____

Printed name _____

TWO WITNESSES: (See qualifications on backside.) We have witnessed the above-noted competent adult person or authorized declarant making his/her signature above and, if applicable, the above-noted adult person making an OOH-DNR by nonwritten communication to the attending physician.

Witness 1 signature _____ Date _____ Printed name _____

Witness 2 signature _____ Date _____ Printed name _____

Notary in the State of Texas and County of _____. The above noted person personally appeared before me and signed the above noted declaration on this date: _____.

Signature & seal: _____ Notary's printed name: _____ *Notary Seal*

[Note: Notary cannot acknowledge the witnessing of the person making an OOH-DNR order in a nonwritten manner]

PHYSICIAN'S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person's medical records. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Physician's signature _____ Date _____

Printed name _____ License # _____

F. Directive by two physicians on behalf of the adult, who is incompetent or unable to communicate and without guardian, agent, proxy or relative: The person's specific wishes are unknown, but resuscitation measures are, in reasonable medical judgment, considered ineffective or are otherwise not in the best interests of the person. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Attending physician's signature _____ Date _____ Printed name _____ Lic# _____

Signature of second physician _____ Date _____ Printed name _____ Lic# _____

Physician's electronic or digital signature must meet criteria listed in Health and Safety Code §166.082(c).

All persons who have signed above must sign below, acknowledging that this document has been properly completed.

Person's signature _____ Guardian/Agent/Proxy/Relative signature _____

Attending physician's signature _____ Second physician's signature _____

Witness 1 signature _____ Witness 2 signature _____ Notary's signature _____

This document or a copy thereof must accompany the person during his/her medical transport.

PHARMACOLOGY

Medication Index

Adenosine (Adenocard)
Albuterol Sulfate
Amiodarone
Aspirin (ASA)
Atropine sulfate
Catapres (Clonidine Hcl)
Dextrose 50% (D50)
Dextrose 25% (D25)
Diltiazem Hcl (Cardizem)
Diphenhydramine
Dopamine (Intropin)
Epinephrine 1:1:000, 1:10:000
Etomidate
Fentanyl
Furosemide (Lasix)
Haloperidol (Haldol)
Instant Glucose Paste
Ipratropium Bromide
Ketamine
Labetalol
Lactated Ringer's
Levophed
Liquid Children's Ibuprofen
Lidocaine 2% (Xylocaine)
Magnesium Sulfate
Midazolam Hcl (Versed)
Morphine Sulfate
Naloxone (Narcan)
Nitroglycerin
Normal Saline (0.9% Sodium Chloride Solution)
Ondansetron HCL (ZOFRAN)
Rocuronium Bromide
Sodium Bicarbonate 8.4%
Solu-Medrol
Terbutaline Sulfate (Brethine)
Tranexamic Acid - TXA

ADENOSINE (ADENOCARD)

Therapeutic Effects: Adenosine is an indigenous nucleoside occurring in all cells of the body. Adenosine slows conduction time through the AV node, can interrupt the re-entry pathways through the AV node, and can restore Normal Sinus Rhythm in patients with Paroxysmal Supraventricular Tachycardia (PSVT), including PSVT associated with Wolf-Parkinson-White syndrome. Adenosine is antagonized by methylxanthines such as caffeine and theophylline, and potentiated by blockers of nucleoside such as Dipyridamole. (Dipyridamole =Persantine). IV Adenosine is removed from the circulation rapidly. The half-life of Adenosine is estimated to be <10 seconds. Adenosine is not effective in converting rhythms other than PSVT, such as atrial flutter, atrial fibrillation, or ventricular tachycardia to normal sinus rhythm. To date, administration of Adenosine to such patients did not result in adverse consequences.

Indications: Conversion to sinus rhythm from PSVT, including that associated with Wolfe-Parkinson- White Syndrome. When clinically advisable, attempt appropriate vagal maneuvers prior to administration.

Contraindications:

1. Second or third degree heart block.
2. Sick sinus syndrome (except in patients with a functioning pacemaker).
3. Atrial fibrillation, atrial flutter. (** Although contraindicated, administration of Adenosine in these dysrhythmias may result in transient slowing, therefore allowing proper diagnosis and treatment of the underlying dysrhythmia).
4. Ventricular tachycardia.
5. Hypersensitivity to Adenosine.

Side Effects:

1. Adenosine may produce short lasting First, Second- or Third-Degree Heart Block. Transient Asystole may result in extreme cases.
2. Dysrhythmias at time of conversion may be in the form of premature ventricular contractions.

   (Premature atrial contractions, sinus bradycardia, sinus tachycardia, skipped beats and varying degrees of AV nodal block).
3. Use with caution in patients with asthma, as Adenosine produces bronchoconstriction.

How supplied: 6mg/2ml. vial with a concentration of 3mg/ml.

Dosage and Administration: Adenosine is for RAPID IV BOLUS ONLY. To be certain, administer as proximal to the IV catheter as possible in the IV line, followed by a rapid saline flush. May be infused through a free-flowing line of Normal Saline. Administer an initial dose of 6mg. IV Bolus over 1-2 seconds. If effects are not seen in 1-2 minutes, an additional dose of 12mg. IV bolus may be given.

Pediatric Dosage: Initial bolus 0.1 mg/Kg rapid bolus with saline flush. Second bolus 0.2 mg/Kg rapid bolus with saline flush. Maximum pediatric dose: 12 mg.

NOTE Print rhythm strip to show the timeframe during the administration of adenosine and resulting effect.

ADENOSINE (ADENOCARD) Cont.

NOTE Smaller doses may be required in patients currently taking Dipyridamole (Persantine)

NOTE Larger doses may be required in patients currently taking Theophylline as Adenosine may not be effective.

ALBUTEROL SULFATE, USP (VENTOLIN, PROVENTIL)

Therapeutic Effects: Albuterol, like other agents such as Metaproterenol and Terbutaline, are sympathomimetic that is non-selective for b2 adrenergic receptors. Once administered it causes bronchodilation with minimal side effects. Albuterol's duration of action is approximately 5 hours. Gradual absorption from bronchi following inhalation. Relieves Bronchospasm, and reduces airway resistance.

Indications: Albuterol is indicated to relieve bronchospasm in patients four years and older with reversible obstructive airway disease. Albuterol is also to be used as initial treatment for acute asthma attacks, COPD, and wheezing in CHF patients.

Contraindications: Albuterol is contraindicated in any patient with hypersensitivity to the drug, tachycardia.

Side Effects: Commonly observed side effects of Albuterol include; headache, nervousness, lightheadedness, nausea and or vomiting, muscle tremors, tachycardia, and hypertension.

Warnings and Adverse Reactions: Albuterol can produce paradoxical bronchospasm that can be life threatening. Rare cases of urticaria, angioedema, rash, bronchospasm, hoarseness, and oropharyngeal edema have been reported after the use of inhaled albuterol. In addition, albuterol can cause adverse reactions, such as angina, vertigo, and CNS stimulation. Cardiac monitoring is indicated.

How supplied: 6.8 gm canister, which provides at least 80 inhalations that deliver a metered dose of 90 mcg. of albuterol from the mouthpiece. 2.5mg/3mL. unidose vial with a concentration of 0.83 mg/ml.

Dosage & Administration: Place Albuterol unidose of 2.5mg/3m1. Attach to the oxygen source at 6 to 10 lpm. Administer over 5-15 min. If no significant relief of bronchospasm is noted and transfer time is greater than 20 minutes, you may administer a second dose of Albuterol Sulfate. Initial nebulizer treatment may be combined with ipratropium.

Pediatric Dosage: 0.05mg/kg (max 2.5mg) in 2-3mL NS

AMIODARONE

Therapeutic Effects: Antiarrhythmic

Indications:

1. Frequently recurring VF, refractory to other antiarrhythmic agents.
2. Recurrent hemodynamically unstable VT.
3. With expert consultation, amiodarone may be used for treatment of some atrial and ventricular arrhythmias.

Contraindications:

1. Severe SA node dysfunction (sinus bradycardia, 2nd and 3rd degree blocks).

Side Effects: Hypotension due to rapid infusion, bradycardia, prolongation of the P-R, QRS, and Q-T intervals. Use with digoxin may cause digitalis toxicity.

How Supplied: 150 mg in 3 mL prefilled Syringe.

Dosage and Administration: V-Fib/pulseless V-tach unresponsive to CPR, defibrillation, and vasopressors: 300 mg IV/IO push. Initial dose can be followed **one** time in 3-5 minutes at 150 mg IV/IO push. Recurrent life-threatening ventricular arrhythmias: Maximum cumulative dose is 2.2 g/24 hours, administered as follows: Rapid infusion: 150 mg IV/IO over 10 minutes (15 mg/min). May repeat rapid infusion (150 mg IV/IO every 10 minutes as needed.

Pediatric Dosage: Refractory V-Fib/pulseless V-tach 5 mg/kg IV/IO bolus. Can repeat the 5 mg/kg IV/IO bolus up to a total dose of 15 mg/kg per 24 hours. Maximum single dose is 300 mg. Perfusing supraventricular and ventricular tachycardias: Loading dose 5 mg/kg IV/IO over 20-60 minutes (maximum single dose of 300 mg). Can repeat to a maximum of 15/mg/kg per day.

Special Considerations: Pregnancy safety: Category D. Monitor patient for hypotension. May worsen arrhythmias or precipitate new arrhythmias.

ASPIRIN (ACETYLSALICYLIC ACID)

Therapeutic Effects: Aspirin is used in the prehospital setting of suspected acute myocardial infarction. It is believed that Aspirin used within the first 24 hours of the onset of acute myocardial infarct will reduce overall mortality to almost the same degree as thrombolytic agents.

Indications: Acute Myocardial Infarction.

Contraindications:

1. Hypersensitivity to Aspirin.
2. History of CVA or CNS complications in the last 6 months.
3. History of bleeding complications (GI Bleed, Ulcers).
4. Surgery or major trauma within the last 2 weeks.
5. Third Trimester Pregnancy.

Side Effects:

1. Although rare, Reye's Syndrome is reportedly associated with Aspirin usage.
2. Gastrointestinal Complications, with large doses.
3. Increase in blood pressure.

How Supplied: 81mg chewable tablet.

Dosage and Administration: The dosage of Aspirin is 324 mg (four 81 mg) chewable tablets. Have the patient chew.

ATROPINE SULFATE

Therapeutic Effects: Atropine Sulfate is a Parasympatholytic drug that enhances both sinus node automaticity and atrioventricular conduction via vagolytic action. Blocks parasympathetic (vagal) action on the heart, enhances conduction through the A-V junction and accelerates the heart rate, improving cardiac output. By speeding up heart rate to a normal rate, Atropine reduces the chances of ventricular ectopy and ventricular fibrillation. Atropine is most effective in reversing bradycardia due to parasympathetic hypertonicity. It is less effective in treating bradycardia due to actual damage of the A-V of S-A node.

Indications:

1. Sinus bradycardia when accompanied by significant hypotension and/or PVCs.
2. Heart block when accompanied by bradycardia.
3. Organophosphate poisoning, as an antidote.
4. To reverse the effects of Mushroom poisoning.

Contraindications:

1. Atrial flutter or atrial fibrillation with rapid ventricular response.
2. Glaucoma.
3. Tachycardia.
4. Use with extreme caution in acute myocardial infarction. Atropine may increase myocardial ischemia thereby increasing the size of the infarction.

Side Effects:

1. Blurred vision, headache, and pupillary dilation.
2. Dry mouth, thirst.
3. Flushing of the skin.
4. Dysuria, (especially in older men).
5. Tachydysrhythmias, palpitations.
6. Delirium, restlessness, tremors.

How supplied: 1.0 mg. in a 10 mL. Pre-filled syringe with a concentration of 0.1 mg/ml.

Dosage and Administration:

1. For **bradycardia**, administer 0.5 to 1.0 mg. IV/IO and repeat every 3 to 5 minutes as needed up to a total of 0.04mg/kg. **NOTE** Administration of doses smaller than 0.5 mg. or administration too slowly may have the paradoxical effect of reducing the heart rate rather than increasing it as desired. Administration of excessive doses of Atropine may precipitate Ventricular tachycardia or ventricular fibrillation. Use with caution in atrioventricular (AV) block at the HIS-Perkinje level (type II AV block and new third degree block with wide QRS complexes).
2. For **Organophosphate poisoning,** 1.0-2.0 mg IV. Double if no response after 5 min, repeat double dose after 5 mins with no response. Monitor oral/bronchial secretions, target effect to heart rate <80 or Systolic BP <80.
3. For **Mushroom poisoning**, administer 2 mg. IV

ATROPINE SULFATE Cont.

Pediatric Dosage:

1. For symptomatic bradycardia, administer 0.01 mg/kg

CATAPRES/CLONIDINE Hcl

Class: Anti-hypertensive

Action: Stimulates Alpha-adrenoreceptors which reduce sympathetic outflow from the CNS. A decrease in peripheral resistance, renal vascular resistance, heart rate and blood pressure.

Indication: Treatment of Hypertension

Contraindication: None known.

Side Effects:

1. dry mouth.
2. Drowsiness.
3. Dizziness.
4. Constipation.
5. Sedation.
6. Nausea and/or vomiting

How supplied: 0.1 mg tablets

Dosage and administration: Initial dose of 0.1mg. PO.

***Note.** Blood pressure declines within 30-60 minutes.

DEXTROSE

Therapeutic Effects: Restores circulating blood sugar to normal levels in states of hypoglycemia. Acts transiently as an osmotic diuretic.

Indications:
1. Coma due to hypoglycemia.
2. Coma of unknown etiology.
3. Status epilepticus of uncertain etiology.
4. Selected cases of refractory cardiopulmonary arrest.
5. BGL 80 or below, with associated signs and/or symptoms of hypoglycemia

Contraindications: Intracranial hemorrhage.

Side Effects:
1. May precipitate severe neurological symptoms in alcoholics.
2. Will cause tissue necrosis if it infiltrates, it should therefore be given only through a patent, rapidly flowing IV line.

How Supplied:
50%: 25 grams in a 50mL. prefilled syringe with a concentration of 500 mg/mL.
25%: 2.5 grams (250mg/mL).
10%: 25gm 250 mL

Dosage and Administration:
Deliver utilizing 10% Dextrose in 250 mL:

- Hang a 250mL bag of normal saline, withdraw and waste 50 ml of fluid, and inject 25g of 50% Dextrose solution; administer a bolus of 5g (50 mL).
- Repeat boluses as needed until the patient becomes alert and oriented, and/or until normoglycemia is achieved.

Pediatric Dosage: Utilizing a 10% Dextrose solution as described above (0.1g/ml), administer 0.5g/kg

Diltiazem Hcl (Cardizem)

Therapeutic Effects: The therapeutic benefits of CARDIZEM in supraventricular tachycardias are related to its ability to slow AV nodal conduction time and prolong AV nodal refractoriness. CARDIZEM exhibits frequency (use) dependent effects on AV nodal conduction such that it may selectively reduce the heart rate during tachycardias involving the AV node with little or no effect on normal AV nodal conduction at normal heart rates. CARDIZEM slows the ventricular rate in patients with a rapid ventricular response during atrial fibrillation or atrial flutter. CARDIZEM converts paroxysmal supraventricular tachycardia (PSVT) to normal sinus rhythm by interrupting the reentry circuit in AV nodal reentrant tachycardias and reciprocating tachycardias.

Indications:

1. Rapid conversion to sinus rhythm of paroxysmal supraventricular tachycardias, (PSVT). When clinically advisable, appropriate vagal maneuver, (Valsalva maneuver) should be attempted prior to administration of Cardizem Hcl.
2. Atrial flutter with rapid ventricular response.
3. Atrial Fibrillation with rapid ventricular responses.
4. Multifocal atrial tachycardias.

Contraindications:

1. Severe hypotension or cardiogenic shock.
2. Second or third degree AV block.
3. Sick Sinus Syndrome.
4. Wide complex Tachycardia of unknown origin.
5. Atrial fibrillation/flutter associated with Wolf-Parkinson-White Syndrome or short PR syndrome.
6. Ventricular Tachycardia.
7. Concomitant use of IV beta-blockers.
8. Hypersensitivity to Cardizem.

Side Effects:

1. Hypotension, bradycardia or intermittent asystole (usually lasting no more than 1-5 sec).
2. A-fib, A-flutter.
3. First and second degree AV blocks.
4. Chest pain, dyspnea, nausea, vomiting, syncope or diaphoresis.
5. Ventricular dysrhythmias.
6. CHF.

How Supplied:

25mg. Vial with a concentration of 5mg/ml.

Diltiazem (Cardizem) Cont.

Dosage and Administration:

Initial bolus of 0.25mg./kg. (20mg. For the average patient) administered IV over 2 minutes. If this dose is not effective, a second dose, after 15 minutes, 0.35mg/kg. (25mg. For the average patient) administered IV over 2-5 minutes. **Pediatric Dosage: Not Recommended.**

*****NOTE*****

During administration of Cardizem patients should be monitored continuously. **Caution** should be used when administering Cardizem to any patient taking Digoxin as this drug may increase toxicity. Caution in using Cardizem on patients who have known history of pulmonary edema, this drug may facilitate failure unless suspected cause is PSVT, atrial fib/flutter. There are known incompatibilities when using Cardizem in the same IV line as Diazepam, furosemide, and Sodium Bicarbonate.

DIPHENHYDRAMINE HCL (BENADRYL)

Therapeutic Effects:

1. Blocks the effects of histamine release in anaphylaxis.
2. Central nervous system depressant.
3. Reverses the untoward effects of some Phenothiazine Tranquilizers.
4. Inhibits motion sickness (antiemetic effect).

Indications:

1. As an adjunct to Epinephrine in anaphylaxis.
2. To treat extrapyramidal reactions (Parkinson-like movement disorders), caused by Phenothiazine.
3. Motion sickness.

Contraindications:

1. Asthma
2. Narrow-angle (acute) glaucoma.
3. Prostate enlargement or bladder outlet obstructions.
4. Ulcer disease with symptoms of obstruction.
5. Pregnancy or hypotension.
6. CNS depression, alcohol intoxication.
7. Newborns or premature.

Side Effects: Similar to those of Atropine Sulfate.

1. Drowsiness, confusion or blurred vision.
2. Acute urinary retention, especially in older men.
3. Dryness of the mouth, thirst.
4. Wheezing, thickening of bronchial secretions.
5. Respiratory depression or hypotension.
6. Palpitations.
7. Tachycardia.
8. Bradycardia.

How supplied: 50 mg. in 1 m1. Prefilled syringe with a concentration of 50 mg/ml.

Dosage and Administration: 25 to 50 mg. may be administered by deep intramuscular injection or by slow intravenous injection given over 5 to 10 minutes.

DIPHENHYDRAMINE HCL (BENADRYL) Cont.

Pediatric Dosage: 1 to 2 mg/kg of body weight given by deep intramuscular injection or by slow intravenous injection given over 5 to 10 minutes. **Maximum** Dose 50 mg.

DOPAMINE HCL (INTROPIN)

Therapeutic Effect: Dopamine is a naturally occurring catecholamine with both alpha and beta properties. It increases cardiac output by increasing contractility and stroke volume, thereby increasing blood pressure. Dopamine also selectively dilates blood vessels supplying the brain, kidneys, and gastrointestinal tract. Heart rates may rise slightly. Significant peripheral vasoconstriction is caused only with very high doses of Dopamine.

Indications:
1. Cardiogenic shock and hemodynamically significant hypotension.
2. Shock syndromes associated with myocardial infarctions.
3. Endotoxic septicemia.

Contraindications:
1. Hypotension secondary to hypovolemia.
2. Pheochromocytoma (a tumor that produces Epinephrine and/or related substances).
3. Uncorrected tachydysrhythmias or ventricular fibrillation.

Side Effects:
1. Ectopic activity.
2. Dyspnea.
3. Headache.
4. Palpitations
5. Angina pectoris
6. Tachydysrhythmias.
7. Nausea and/or vomiting

NOTEDo not mix with Sodium Bicarbonate, since Dopamine may be inactivated by alkaline solutions.

NOTEExtravasation of Dopamine must be avoided since tissue necrosis and sloughing may occur.

How supplied: 400 mg. in 250m1. of D5W premix bag with a concentration of 1600 mcg/ml.

Dosage and Administration: Given by titrated intravenous infusion through a mini drip infusion set, 400 mg. in a 250ml NS pre-mixed bag with a concentration of 1600 mcg/ml. Initiate the infusion at a rate of 2 to 5 mcg/kg/minute. The infusion should be started at the lowest possible dosage and gradually increased until blood pressure, urine output, and other parameters of organ perfusion show a response.

****NOTE**** Most patients will respond to dosages below 20 mcg/kg/min. rate which results in satisfactory perfusion should be the therapeutic goal.

Pediatric Dosage: Initiate an infusion of 2 to 5 mcg/kg/min., and titrate to perfusion.

EPINEPHRINE

Therapeutic Effects: Epinephrine is an endogenous catecholamine with both Alpha and Beta-receptor stimulating actions. In general, the following cardiovascular responses can be expected from the dosages used for these events:

1. CARDIAC ARREST:
   - A. Positive chronotropic effect.
   - B. Positive inotropic effect.
   - C. Increased peripheral vascular resistance.
   - D. Increased arterial blood pressure.
   - E. Increased myocardial oxygen requirements.
   - F. Increased automaticity,
2. ANAPHYLAXIS: Acts chiefly as a bronchodilator, through Beta action and maintains blood pressure through its Alpha effects.
3. BRADYCARDIA: refractory to Atropine and complicated by severe hypotension, may be indicated as it increases peripheral vascular resistance while increasing heart rate.

Indications:

1. In Cardiac Arrest, to elevate peripheral vascular resistance and thereby improve perfusion pressure during resuscitation.
2. In Asystole, to attempt to generate electrical and mechanical activity in the myocardium.
3. In pulseless electrical activity, Epinephrine, in some cases, may restore sufficient contractile activity to generate a pulse and blood pressure.
4. In ventricular fibrillation, to render the fibrillatory activity more amenable to removal by electrical defibrillation.
5. To treat acute attacks of asthma.
6. To treat life-threatening symptoms of anaphylaxis and relieve bronchospasms.
7. Hypotension, not due to hypovolemia

Contraindications: There are none in the situation of cardiac arrest or anaphylactic shock.

Side Effects: In the conscious patient, Epinephrine may cause palpitations from tachycardia or ectopy, and elevations of the blood pressure may be noticed. The asthmatic with pre-existing heart disease may experience dysrhythmias when treated with Epinephrine.

How supplied: 1.0 mg. in a 10 ml. prefilled syringe with a concentration of 0.1 mg/ml. (1:10,000).

Dosage and Administration:

1. During Cardiac Arrest, the recommended dose of Epinephrine is 0.5 to 1.0 mg. (5 to 10 mL. of the 1:10,000 solution) administered intravenously during the course of the resuscitation. It may be necessary to repeat this dose every 3 to 5 minutes. If there is a delay in establishing an IV/IO line, Epinephrine 1:10,000 may be administered through the endotracheal tube into the bronchoalveolar structure via the tracheobronchial tree. You must double the dosage of the IV dose for the endotracheal administration followed by hyperventilation via BVM. This route may be the most beneficial since increased sustained blood plasma levels have been reported when Epinephrine is administered through this route.

EPINEPHRINE Cont.

2. For Anaphylactic reactions, Epinephrine may be given IM, at a dosage of 0.5 mg. (1:1,000 solution). 0.5mg. of the 1:1,000 solution of Epinephrine is given S.Q. in the area of the sting or injection to delay absorption of the insect venom or drug (do not, however, inject fingers or toes). Another 0.5 mg. is given S.Q. on another extremity. If the anaphylactic reaction is severe, and the patient is in shock, administer 0.5 mg. of the 1:10,000 solution intravenously very slowly.

3. In cardiac arrest situations where an IV/IO route or an endotracheal route cannot be established, 0.5 to 1 mg. of the 1: 1,000 solution may be injected sublingually.

4. In mild to moderate asthmatic attacks, 0.3 to 0.5 mg. of the 1:1,000 solution of Epinephrine may be administered IM.

5. In severe asthmatic attacks, 0.5 mg. of the 1:10,000 solution of Epinephrine may be administered slowly intravenously.

6. To increase or sustain arterial blood pressure and/or heart rate in selected cases of Atropine refractory bradycardia complicated by severe hypotension and other states of depressed cardiac output, Epinephrine may be administered push-dose, or as a continuous intravenous infusion.

   Mix **1 mg (1:1000) in 250 ml of NS** (4 mcg/ml) utilizing a 60 gtt drip set. Using a syringe, administer 12mcg (3ml) every 3-5 minutes, titrate to MAP of 65. Consider infusion 2-10 mcg/min.

   Pediatric Dosage:

   In Cardiac arrest, 0.01 mg/kg of the 1:10,000 solution of Epinephrine is administered IV/IO at 5-minute intervals as needed during resuscitation.

   In asthma, 0.01 mg/kg of the 1:1,000 solution or Epinephrine is administered IM, Max dose 0.3 ml/dose.

*****NOTE****** Epinephrine should not be added directly with Sodium Bicarbonate, since catecholamines may be partially or completely inactivated by alkaline solutions.

ETOMIDATE (Amidate)

Therapeutic Effects: As a general anesthetic, Etomidate is a short-acting, non-barbiturate hypnotic, lacking analgesic properties used for induction of general anesthesia. The action is at the level of the reticular activating system in the brain system. Etomidate is generally considered to have minimal adverse effects on cardiac and respiratory function. The duration of action is 3-5 minutes and excretion is through the renal system.

Indications:
1. To induce general anesthesia to facilitate intubation or conscious sedation.

Contraindications:
1. Known hypersensitivity
2. Suspected sepsis

Side Effects:
1. Nausea
2. Vomiting
3. 4Uncontrolled skeletal muscle activity
4. Trismus (Lockjaw), if pushed too fast

Administration and Dosage:
1. Adult & Pediatric (over 10 years of age):
   0.3 mg/kg slow administration (about two minutes) IV
2. Max dose:
   Adults - 30mg
   Peds - 10mg

NOTE:

Supportive airway control must be monitored and under direct observation at all times. Etomidate can decrease the adrenal gland's production and steroid hormones in trauma patients. Monitoring vital signs is important for consciousness.

FENTANYL (SUBLIMAZE)

Therapeutic Effects: Fentanyl is a synthetic opiate with greater potency and faster onset of action than Morphine. It has a half-life of 30 – 60 minutes. Minimal histamine release, and hypotension are less likely over other analgesics.

Indications:

1. Management of acute pain that requires analgesia at the opioid level.
2. Isolated trauma or amputations.
2. Major burns.
3. Snakebite.
4. Transcutaneous pacing.

Contraindications:

1. Hypersensitivity of opiates.
2. Myasthenia gravis.
3. Patients receiving MAO inhibitors within the last 14 days.
4. Use with caution in patients with head injuries and ICP who may be particularly susceptible to respiratory depression.
5. Not to be used in patients under 12 years of age.

Side Effects:

1. Sedation.
2. Respiratory depression.
3. Myosis.
4. Hypotension (rare).
5. Muscular rigidity.
6. Bradycardia.

**Respiratory depression can be reversed by Narcan, an opioid antagonist. **

Administration and Dosage:

1. 50 to 100 mcg initial dose or 1 to 3 mcg/kg slow IVP over 1 to 2 minutes.
2. Has a rapid onset, (almost immediate) can be given IM (slow onset 7 to 8 minutes).
3. Reduce dosage in the elderly and debilitated.

FUROSEMIDE (LASIX)

Therapeutic Effects: Furosemide is a potent diuretic that inhibits the reabsorption of sodium in the proximal and distal tubules and in the loop of Henle. Furosemide also has a direct relaxant effect on the venous system. Administration of Furosemide usually results in the excretion of large volumes within 5 to 30 minutes, and usually, the effects will last up to 6 hours.

Indications:
1. Fluid overload and pulmonary edema associated with Congestive Heart Failure.
2. Hypertensive emergencies, usually administered in combination with other more potent anti-hypertensive agents, when first and second-line agents have failed to work. (e.g. Nitro spray).

Contraindications:
1. Pregnancy
2. Digitalized patients.
3. Hypokalemia.
4. Hypotension.
5. Hypovolemia.
6. Dehydration.
7. Severe Electrolyte Depletion.

Side Effects:
1. Nausea and vomiting.
2. Depletion of Potassium, Calcium, Magnesium, or Sodium.
3. Dehydration.
4. Hypotension.
5. ECG changes.

How supplied: 40 mg. in a 4 ml. Prefilled syringe with a concentration of 10 mg/mL.

Dosage and Administration: For Pulmonary Edema in Congestive Heart Failure, 40 mg. of Furosemide or preferably 0.5 mg/kg, if indicated, may be administered as an initial dose. This dose should be given slowly, intravenously over at least 1 to 2 minutes.

Pediatric Dosage: 1.0 mg/kg dose given slowly, intravenously over at least 1 to 2 minutes

HALOPERIDOL (HALDOL)

Therapeutic Effects: Antipsychotic agent and major tranquilizer. Haloperidol is a potent, long-acting Butyrophenone derivative with pharmacologic actions similar to those of Piperazine Phenothiazines but with higher incidence of extrapyramidal effects, less hypotensive, and relatively low sedative activity. Exerts strong antiemetic effect and impairs central thermoregulation. Produces weak central anticholinergic effects and transient orthostatic hypotension. Actions thought to be due to the blockade of Dopamine activity.

Indications: Used for management of manifestations of psychotic disorders and for the treatment of agitated states in acute and chronic psychoses. Also, it can be an effective antiemetic when nausea is not relieved with ondansetron.

Contraindications: Combativeness from trauma, Hypersensitivity to Haloperidol, Parkinson's disease, seizure disorders, coma, alcoholism, severe mental depression, CNS depression, Thyrotoxicosis, and cocaine overdose. Should not be administered in the presence of other sedatives.

Precautions: Orthostatic hypotension, use with caution in patients: with severe cardiovascular disorders (may cause transient hypotension and/or precipitation of anginal pain), receiving anticonvulsant medication (may lower the convulsive threshold), with a history of allergic reactions to drugs**. All patients receiving haloperidol must be continuously monitored with ECG and EtCO2. If adverse effects occur, administer diphenhydramine.**

Side Effects:

CNS: Parkinson like symptoms, restlessness, lethargy, headache, exacerbation of psychotic symptoms.

Cardio: Tachycardia, hypotension, hypertension (with overdose). Prolonged QT

GI: Nausea, vomiting.

Other: Bronchospasm, laryngospasm, respiratory depression, dry mouth, hyper-salivation, drooling.

Dosage and administration:

Behavior control: Adult 5 mg IM/IV

Nausea/vomiting: Adult 2.5mg IM/IV. May repeat after 15 minutes if nausea persists

INSTANT GLUCOSE PASTE

Indications: For hypoglycemic states.

Contraindications: Should not be given to children under 2 years of age unless directed by a physician. Should not be given to people who are unconscious.

Side Effects: None when used for hypoglycemic states.

How supplied: 15- or 30-gram unit dose tube.

Dosage and Administration: 15 or 30 grams given orally. Can be repeated in 10 minutes if necessary. Results should be seen within 10 minutes.

Pediatric Dosages: Not to be given to children under 2 years of age unless directed by a physician.

IPRATROPIUM BROMIDE (ATROVENT)

Therapeutic Effects: Atrovent is an anticholinergic. It inhibits vagally mediated reflexes by antagonizing acetylcholine. Used for treatment of bronchospasm associated with COPD. Minimal systemic absorption.

Indications: Relief of bronchospasm due to COPD, asthma, bronchitis, and patients with CHF and lung fields reveal wheezes.

Contraindications: History of hypersensitivity to atropine.

Side Effects: Nervousness, dizziness, headache, palpitations, cough, blurred vision, nausea, dry mouth, and rash.

Warnings and Adverse Reactions: use caution in patients with narrow-angle glaucoma, prostatic hypertrophy, and bladder neck obstruction. Not indicated for the Pediatric patient.

How supplied: 0.5 mg/2.5mL unidose vial.

Dosage and Administration: Treatment of bronchospasm in COPD, Asthma, Bronchitis, and wheezes in CHF patients. 0.5mg/2.5mL unidose vial mixed with Albuterol 2.5mg/3mL in nebulizer. Attach to the oxygen source at 6 to 10 lpm. Administer over 5-15 min. If no significant relief of bronchospasm is noted and transfer time is greater than 20 minutes, you may administer a second nebulizer treatment.

KETAMINE (KETALAR, KETANEST)

Therapeutic Effects: Ketamine belongs to a class of drugs known as dissociative anesthetics. Ketamine is dose dependent and used to induce loss of consciousness, or anesthesia. It can produce relaxation and relieve pain. Heart function, breathing, and airway reflexes generally remain functional.

Indications:
1. Procedural sedation
3. Pre-intubation induction agent
4. Post-intubation sedation
5. Pain control
6. Behavior Control of severely agitated and combative patient (e.g. hyperactive delirium syndrome)

Contraindications:
1. 2.
3. SBP > 210 or > 110 Diastolic
4. Known Hypersensitivity

Side Effects:
1. Tachycardia
2. Increased BP
3. Hallucinations
4. Delirium
5. Involuntary quivering
6. Nightmares
7. Transient Apnea when administered rapidly by IV

Warnings and Adverse Reactions:
Administer slow IV push in conscious patients to avoid transient apnea and psychosis.
All patients receiving ketamine must be continuously monitored with EtCO2, ECG, and SpO2

How supplied:
500 mg in a 5 ml with a concentration of 100 mg/mL.

Dosage and Administration:
Procedural Sedation: 1 mg/kg slow IV/IO push over 1 minute.
Sedation to facilitate RSI/DSI: 2 mg/kg IV/IO
Post-intubation re-sedation: 1 mg/kg
Pain Control, severe pain or pain not relieved by opioid analgesics:
0.5mg/kg IN
0.3-0.5mg/kg IM
0.1-0.3mg/kg IV diluted in 10ml NS
Pediatric (<40kg) 0.1-0.2mg/kg IM
Behavior Control of severely agitated and combative patient: 4 mg/kg IM

LABETALOL (NORMODYNE, TRANDATE)

Therapeutic Effects: Dose related decrease in Blood Pressure without reflex tachycardia and without significant decrease in Heart Rate. Also has less decrease in cerebral perfusion pressure than with nitroprusside.

Indications: Control of Blood Pressure in Severe Hypertension.

Contraindications:
1. Asthma.
2. Cardiogenic Shock.
3. Severe Bradycardia; Hypotension.
4. Heart Block - Greater than 1st Degree
5. Suspected Cocaine use or drug abuse.

Side Effects:
1. Mild & Transient Hypotension.
2. Postural Hypotension if the patient is allowed upright within the first 3 hours.

How supplied: 100 mg in a 20 mL Multidose Vial with a concentration of 5mg/ml.

Dosage and Administration:

Adult Initial: 5-10 mg IV Slow (over at least 2 minutes)
Repeat: May administer 5-10 mg, IV Slow push after 10 minutes.
Total max dose 20 mg.

Pediatric Initial: 0.2 - 0.5 mg/kg/dose, up to a **MAXIMUM** of 20 mg.

Lactated Ringer's (Hartman's Solution)

Therapeutic Effects: Lactated Ringer's is an isotonic crystalloid solution that is osmotically equivalent to blood. When infused intravenously, it increases circulating blood volume by remaining in the vascular system. Ringer's lactate solution maintains a more stable blood pH than normal saline.

Indications: As a lifeline, in hemorrhagic hypovolemia, states of dehydration, as irrigation for eye injuries. Or as determined by Advanced EMT/EMT-Intermediate/Paramedics see standing orders front.

Contraindications: Lactated Ringer's should not be used in patients with congestive heart failure, liver failure, or renal failure.

Side Effects: Fluid overload may precipitate episodes of CHF. Hypersensitivity reactions, hyperkalemia, hypervolemia.

How supplied: 250, 500, and 1000 mL bags.

Dosage and administration: Administered intravenously through a large bore catheter and 10 gtt/mL set as indicated by the patient's state of hydration.

Pediatric Dosage: 10 to 30 mL/kg/hour or as indicated for shock states.

LEVOPHED (NOREPINEPHRINE)

Therapeutic Effects: $Alpha_1$, $Alpha_2$, and $Beta_1$ agonist. Alpha-mediated peripheral vasoconstriction is the predominant clinical result of administration, resulting in increased blood pressure and coronary blood flow. Beta-adrenergic action produces inotropic stimulation of the heart and dilates the coronary arteries.

Indications: Cardiogenic Shock, Septic Shock, Severe Hypotension

Contraindications:
1. Patients taking MAOIs
2. Known sensitivities
3. Caution in hypovolemic patients

Side Effects:
1. Dizziness.
2. Anxiety.
3. Cardiac arrhythmias.
4. Dyspnea.
5. Exacerbation of asthma.

How supplied: 4 mg in 4 ml vial

Dosage and Administration:

Adult

Mix **4 mg in 250 ml of NS** (16 mcg/ml) utilizing a 60 gtt drip set. Initial **4 mcg/min** (15 gtt/min), expect onset of 1-2 minutes, then titrate to BP effect of SBP >90

Pediatric

Mix **2 mg in 250 ml of NS** (8 mcg/ml) utilizing a 60 gtt drip set. Initial **0.1 mcg/kg/min**, then titrate to BP effect of SBP >70+(2 x Age)

****Do not administer in the same line with alkaline solutions****

LIDOCAINE HCL (XYLOCAINE)

Therapeutic Effects: Lidocaine suppresses ectopic activity by decreasing the excitability of the heart muscle and its conduction system.

Indications: Lidocaine is the drug of first choice:

1. To suppress premature ventricular contractions when:
    a. They occur in the context of myocardial ischemia.
    b. They are frequent (more than 6 per minute).
    c. They occur in salvos (2 or more in a row).
    d. They fall on the T wave (R on T phenomenon).
    e. They are multifocal (different shapes and sizes).
2. To prevent recurrence of Ventricular fibrillation after electrical conversion.
3. To prevent Ventricular Fibrillation in acute myocardial infarction.
4. To treat Ventricular Tachycardia.

Contraindications:

1. Known history of allergy to Lidocaine or local anesthetics (e.g., Novocain).
2. Second or Third degree heart block.
3. Sinus Bradycardia, or Sinus Arrest.
4. Idioventricular rhythm.

Side Effects:

1. By decreasing the force of cardiac contractions as well as decreasing peripheral resistance, may cause a fall in cardiac output and blood pressure.
2. May cause numbness, drowsiness, or confusion.
3. When given in high doses, especially to the elderly or patient with heart failure, it may cause seizures.
4. Bradycardia.
5. CNS Depression

How supplied: 100 mg. in a 5 mL. Prefilled syringe with a concentration of 20 mg/ml. (2% Solution), 1 Gram in 250 ml D5W (premix bags) with a concentration of 4 mg/ml.
Dosage and Administration: Lidocaine is given by intravenous bolus and infusion. If an intravenous route cannot be established, Lidocaine may be given via the E.T. tube.
1. In cardiac arrest situations, only bolus therapy should be used at a dosage of 1.5 mg/kg. Initially, with a subsequent dose given in 3 to 5 minutes, up to a maximum total dosage of 3 mg/kg. After restoration of circulatory function, a constant infusion should be started at 30 to 50 mcg/kg/min. (approx. 2-4 mg/min).

2. For treatment of ventricular ectopy, an initial bolus of Lidocaine should be given at a dosage of 1mg/kg. followed by a constant infusion at a rate of 2 to 4 mg/min. A second bolus should be given after 2 to 5 minutes to prevent sub therapeutic plasma Lidocaine levels, at a dosage of 0.5 mg/kg. If ventricular ectopy is still present, additional doses may be given at 0.5 mg/kg. up to a maximum of 3 mg/kg.

Pediatric Dosage: 1 mg/kg. IV or endotracheal. Another dose can be given in 10 to 15 minutes but if this is required, a constant infusion should be initiated and infused at a rate of 20 to 50

LIDOCAINE HCL (XYLOCAINE) Cont.

mcg/kg/min. Second or subsequent bolus doses should be given at rates of 0.5 mg/kg. to a maximum of 2 mg/kg.

****NOTE**** For patients over 70 years of age, or patients with liver impairment or those in Congestive Heart Failure, half doses of Lidocaine should be considered.

MAGNESIUM SULFATE

Therapeutic Effects: Magnesium is a non-selective calcium channel blocker and therefore blocks a wide array of calcium dependent processes, probably by substituting for calcium at a variety of calcium binding sites. It is a nervous system depressant; it stabilizes muscle cell membranes by interacting with the sodium/potassium exchange system, smooth muscle relaxation, hence vasodilation and bronchodilation. Vasodilation, if it occurs, is usually mild. Magnesium decreases neuronal and neuromuscular excitability, useful in helping to control seizures. Increases resting membrane potential, prolongs conduction time through the A-V node, increases absolute refractory period and shortens the duration of the vulnerable period in the cardiac cycle.

Indications:

1. For the treatment of Eclampsia.
2. For prophylaxis of cardiac dysrhythmias in acute MI.
3. For Refractory V-Fib or Pulseless V-Tach.
4. May prove useful in the management of acute asthmatic attacks.
5. Hypomagnesemia
6. Torsades de pointes

Contraindications: Renal disease, Heart Block, Shock

Side Effects: Excessive doses may cause respiratory depression or even cardiac arrest. Monitor for hypotension, bradycardia, arrhythmias, and decreased respirations. Antidote: Calcium Chloride.

OB: unless used for preterm labor, avoid continuous use during active labor or within 2 hrs of delivery.

How supplied: 5 grams in a 10 ml. Prefilled Syringe with a concentration of 0.5 gram/ml. or 5g/10ml in vial with a concentration of 5mg/ml.

Dosage and Administration: Should be given by SLOW INTRAVENOUS INJECTION.

Refractory V-Fib/Pulseless V-Tach: 2 grams given over 1 minute by slow IV push.

Refractory Torsades de pointes, Seizures, and Digitalis arrhythmias: 2 grams over 1 minute, slow IV push.

PreEclampsia/Eclampsia: 4-6 grams IV over 20-30 minutes, after loading dose, may start infusion at 1-2 grams/hr.

Bronchospasms: 2 grams IV over 20 minutes, after loading dose, may start infusion at 1-2 grams/hr.

Severe asthma: 3g in 100mL of NS 5-10 minutes

Pediatric Dosage: Cardiac arrest with Torsades: 25-50 mg/kg IVP

MIDAZOLAM HCL (VERSED)

Therapeutic Effects: Versed Injectable is a short acting water-soluble benzodiazepine CNS depressant indicated as an IV, IM, or Intranasal (IN) premedicant. Used as an induction agent for general anesthesia and, intravenously, as an agent for conscious sedation prior to short diagnostic, therapeutic or endoscopic procedures.

Indications:
1. General sedation.
2. To sedate patients prior to intubation or other procedures such as cardioversion.
3. Seizures
4. Musculoskeletal injuries with associated spasms

Contraindications:
1. Shock or coma
2. Acute alcohol intoxication with depressed vital signs.
3. OD with concomitant use of barbiturates, alcohol, narcotics, or CNS depressants.

Side Effects:
1. May cause hypoventilation, especially in children.
2. Larger doses may cause hypotension.

Precautions:
1. Consider the risk/benefit of giving to glaucoma patients or pregnant patients.
2. Use lower doses for elderly/debilitated.
3. **All patients receiving midazolam must be continuously monitored with EtCO2, ECG, and SpO2**

How Supplied: 10mg/2ml in vial or prefilled syringe with a concentration of 5mg/ml.
Dosage and Administration:

Adult Dosage: 0.1 mg/kg I.V. slow (starting 1-5mg depending on hemodynamic state), may repeat every 10 minutes as needed for continued sedation. PRN desired effect. May be given IM or Intranasal if no IV is available.

Intranasal Dose: (Seizures) 0.2-0.3 mg/kg. **Take into consideration any medications that may have been administered prior to E.M.S. arrival such as rectal diazepam, in that case, start with a lower dose.**

Pediatric Dosage: 0.1 mg/kg I.V. slow (2mg increments unless the calculated dose is <2mg) may repeat every 10 minutes PRN desired effect.

*******NOTE*******

Prior to administration of Versed, Oxygen and resuscitative equipment must be readily available for the maintenance of a patent airway and ventilatory support.

MORPHINE SULFATE

Therapeutic Effects: Morphine is a narcotic analgesic. It exerts its primary effect on the central nervous system (CNS) by interfering with pain conduction and the patient's emotional response to pain. It can also cause depression of the cough reflex and respiratory center. Its effect on the respiratory center is still unclear. Morphine has been shown to cause a rise in CSF pressure, as well as hypotension. Morphine increases venous capacitance and thereby pools blood peripherally and decreases venous return. Venous pooling may assist in relieving pulmonary congestion and in reducing left ventricular filling pressure and thereby decreasing oxygen demand.

Indications:

1. To treat pulmonary edema associated with congestive heart failure with or without pain.
2. To relieve pain and anxiety associated with myocardial infarctions and other severe pain.

Contraindications:

1. Hypovolemia, marked hypotension.
2. Respiratory depression, except that caused by pulmonary edema, where the drug may be used if ventilatory support is provided.
3. Asthma and Chronic Obstructive Pulmonary Disease.
4. In patients who have taken other depressant drugs, such as alcohol or barbiturates.
5. Head injury.
6. Undiagnosed Abdominal Pain.

Side Effects:

1. Hypotension (most likely in volume depleted patients).
2. Increased vagal tone, leading to bradycardia.
3. Respiratory Depression.
4. Nausea and vomiting.
5. Urinary retention.

How supplied: 10 mg. in a 2.0 mL (1.0 m1 fill) Vial or Tubex syringe with a concentration of 10 mg/ml.

Dosage and Administration: Morphine Sulfate should be administered by titration of small intravenous doses at frequent intervals until the desired response is achieved. There is considerable variation from patient to patient in the amount of the medication required to achieve a given effect. A dose of 2.0 mg. to 5.0 mg may be administered at 5 to 30 minute intervals. Morphine Sulfate may be diluted to 1 mg/ml. in order to make administration of small increments safer and more convenient.

Pediatric Dosages: 0.1 to 0.2 mg/kg Morphine Sulfate may be administered intramuscularly or very slowly intravenously as indicated and titrated to effect.

NALOXONE (NARCAN)

Therapeutic Effects: Naloxone is an effective narcotic antagonist and has proven effective in the management and reversal of overdoses caused by narcotic or synthetic narcotic agents. Recent studies have shown that Naloxone may also be effective in reversal of coma associated with alcohol ingestion.

Indications:

1. For the complete or partial reversal of depression caused by narcotics, including the following agents; *Morphine Sulfate, Heroin, Dilaudid, Methadone, and Codeine, Paregoric, Percodan, and Fentanyl.*
2. For the complete or partial reversal of depression caused by synthetic narcotic analgesic agents including Nubain and Darvon.
3. Alcoholic coma.
4. Treatment of coma of unknown etiology.

Contraindications: Naloxone should not be administered to a patient with a history of sensitivity to the drug.

Side Effects:

1. Too rapid administration may precipitate projectile vomiting and ventricular dysrhythmias.
2. Administration to people who are physically dependent on narcotics may cause an acute withdrawal syndrome. For this reason, Naloxone should be given very slowly, using improvement of respiratory status as an end point.
3. In general, the duration of action of Naloxone is shorter than that of the narcotics it is used to counteract. Thus, the patient who has been successfully aroused with Naloxone may fall back into a stupor or coma as the Naloxone wears off. These patients must therefore be watched closely, and the dose of Naloxone should be repeated as necessary.
4. Has been reported to cause pulmonary edema and sudden death in rare cases.

How Supplied: 2mg. in a 2.0mL. ampule or prefilled syringe with a concentration of l.0 mg/mL or commercial nasal atomizer device.

Dosage and Administration: IV/IO, ET, IM or IN: 0.4mg - 2 mg. slowly titrated to respiratory effort. If unsuccessful, then a second dose may be administered in five (5) minutes in the same fashion. If there is no response to two (2) doses, suspect overdose with another, non-narcotic drug. Larger than average doses (2mg to 5 mg.) have been used in the management of Darvon overdoses and alcoholic coma.

IN (intranasal): 1 mg (0.5mg per nostril) may repeat in 3-5 minutes.

Pediatric Dosage: 0.01 mg/kg administered IV/IO, ET, IM OR IN. If this dose does not result in the desired degree of clinical improvement, a subsequent dose of 0.01 mg/kg. may be administered.

NITROGLYCERIN (NITROSTAT)

Therapeutic Effects: Nitroglycerin is a rapid smooth-muscle relaxant that causes decreased cardiac work. It dilates both arterial and venous vessels and causes venous pooling of blood. To a lesser degree, it also causes vasodilation of coronary arteries, thus increasing perfusion of ischemic myocardium. Pain relief occurs within two minutes and therapeutic effects can be observed for up to thirty minutes. Nitrates relieve angina pectoris in part by dilating the smooth muscle of the venous system, which inhibits venous return leading to a decrease in ventricular volume, ventricular pressure, and wall stress. The decrease in left ventricular work and wall tension usually results in improved subendocardial perfusion. Sublingual nitroglycerin decreases left ventricular filling pressure without significantly lowering systemic vascular resistance. Cardiac output usually falls in response to the decreased preload or remains the same when left ventricular filling pressure is normal at the time of administration. Nitroglycerin loses its arterial effects even if preload is reduced. Nitroglycerin does not usually increase heart rate if preload is adequate.

Indications:
1. Angina Pectoris.
2. Chest pain possibly related to cardiac complications in an adult with stable vital signs.
3. Acute Pulmonary Edema

Contraindications:
1. Hypotension.
2. Head Injury.
3. Cerebral hemorrhage.
4. Inferior Wall MI. ****Use with caution or call online medical control**
5. **Patients who have used Erectile Dysfunction medication such as Viagra 24hrs, Cialis 72hrs, or Levitra 72hrs.**

Side Effects:
1. Headache
2. Hypotension
3. Nausea
4. Giddiness
5. Syncope and faintness.
6. Patients taking nitro may develop a tolerance for the drug and may require larger doses.

How Supplied: sublingual tablets 0.4 mg.

Dosage and Administration: Nitroglycerin is given sublingually at a dose of 0.4 mg. and can be repeated at 5-minute intervals to a total dose of 3 if discomfort is unrelieved.

NOTES

Treat shock with fluid support. Consider N.S.10-30 mL/kg to maintain Systolic Blood Pressure >90.

Recent data strongly suggests that the maintenance of high plasma levels of Nitroglycerin will rapidly induce tolerance. Thus, intermittent dosing, with nitrate-free periods, and the use of the lowest possible effective dose is advised.

NORMAL SALINE (0.9% SODIUM CHLORIDE SOLUTION)

Therapeutic Effects: Normal Saline is an isotonic electrolyte solution that is osmotically equivalent to blood. When infused intravenously, it increases circulating blood volume by remaining in the vascular system.

Indications: As a lifeline, in hemorrhagic hypovolemia, states of dehydration, as irrigation for eye injuries. **However, use Lactated Ringers if available**. Or as determined by Advanced EMT/EMT-Intermediate/Paramedics see standing orders front.

Contraindications: CHF, Pulmonary Edema, Do not mix with Diazepam (Valium), do not administer to pre-eclamptic patients.

Side Effects: Fluid overload may precipitate episodes of CHF.

How supplied: 250, 500 and 1000 mL bags.

Dosage and administration: Administered intravenously through a large bore catheter and 10 gtt/mL set as indicated by the patients' state of hydration.

Pediatric Dosage: 10 to 30 mL/kg/hour or as indicated for shock states.

ONDANSETRON HCL (ZOFRAN)

Therapeutic Effects: Selective antagonist of a specific type of receptor (5-HT3) located in the CNS at the chemoreceptor trigger zone and in the peripheral nervous system on the nerve terminals of the vagus nerve. Blocking action may occur at both sites.

Indications: Nausea/Vomiting

Contraindications: Known hypersensitivity to Zofran.

Side Effects:

CVS: Chest pain, Arrhythmias
CNS: Headache, sedation, dizziness, fatigue
Other: Chills, rash, hypoxia, injection site reaction

Precautions: Use caution in patients with hepatic impairment.

Adult dosage: 4-8 mg undiluted IVP over not less than 30 seconds, preferably over 2-5 minutes. 4-8mg ODT if IV access is unavailable.
IN (intranasal): 1 mg (0.5mg per nostril) rapid push.

Pediatric Dosage: Do not administer to children under two (2) years of age.

> 40 kg: 4 mg IVP (single dose only). 4mg ODT if IV access is unavailable
< 40 kg: 0.1 mg/kg IVP (single dose only. 4mg ODT if IV access is unavailable

Rocuronium Bromide

Therapeutic Effects: Rocuronium bromide is a non-depolarizing neuromuscular blocking agent with a rapid to intermediate onset depending on dose and intermediate duration. It acts by competing for cholinergic receptors at the motor end plate. Has no analgesic properties and the patient may be conscious, but unable to communicate by any means.

Indications: To paralyze patients to facilitate intubation, and if necessary because the patient has a gag reflex still.

Contraindications: None in cardiac arrest.

Side Effects: Hypersensitivity reactions are possible.

Precautions: Causes respiratory paralysis; supportive airway control must be continuous and under direct observation at all times. Patients should be premedicated with a sedative (ex. Versed, Ketamine, Etomidate) as Rocuronium has no effect on a patient's level of consciousness. First muscles affected include eyes, face, neck; followed by limbs, abdomen, chest; diaphragm affected last. Caution in patients with known significant hepatic disease, pulmonary hypertension and valvular heart disease.

Dosage:

Adult & Pediatric (over 16 years of age): 1.0 mg/kg slow administration (30-60 seconds)

Sodium Bicarbonate

Therapeutic Effects: During cardiopulmonary arrest, hypoxia induced anaerobic metabolism results in the generation of lactic acid and the development of metabolic acidosis. At the same time, ventilatory failure leads to carbon dioxide retention (hypercarbia) and respiratory acidosis. The acidotic state accompanying arrest of ventilations and circulation usually is of mixed metabolic and respiratory origin. Prompt and efficient ventilation via an endotracheal tube is essential for the elimination of carbon dioxide as well as for oxygenation. Effective ventilation and circulation of blood during CPR are the means available for preventing and managing the acidosis associated with cardiac arrest. Sodium Bicarbonate reacts with hydrogen ions to form water and carbon dioxide to buffer metabolic acidosis. The major problem with its use is that it has high carbon dioxide content (260-280 mmHg for each 50 mEq). The carbon dioxide crosses rapidly into the cells causing a paradoxical worsening of intracellular hypercarbia and acidosis. Bicarbonate crosses into cells much more slowly. Although metabolic acidosis lowers the threshold for induction of ventricular fibrillation, it has no effect on defibrillation threshold and the inhibitory effect of metabolic acidosis (as opposed to respiratory acidosis), on the action of catecholamine has not been documented to occur at Ph values encountered during cardiac arrest and in the presence of the very large doses of Epinephrine used in resuscitation. Administration of Sodium Bicarbonate does not facilitate ventricular defibrillation or survival in cardiac arrest.

Indications: To treat metabolic acidosis, as in;

1. Certain poisonings (e.g. ethylene glycol).
2. Shock and other low output states (e.g. after resuscitation from cardiac arrest).
3. To treat hyperkalemia (high serum potassium).
4. To promote the excretion of some types of barbiturates taken in overdose.
5. In some cases of status asthmaticus.

Contraindication: Hypokalemia (low serum potassium), sometimes detectable by large, prominent P waves and large U waves on the ECG. Conditions in which the patient cannot tolerate a salt load, such as congestive heart failure. Relatively contraindicated with increasing intracranial pressure.

Side Effects: Because each mEq of Bicarbonate comes along with a mEq of Sodium, Sodium Bicarbonate has the same effect as any other salt containing infusion, (i.e. it increases the vascular volume). Three 50 mL. syringes of Sodium Bicarbonate (1 mEq/mL) contain approximately the same amount of salt as 1 liter of Normal Saline. Patients in borderline heart failure cannot tolerate salt loads of this magnitude. Administration of Sodium Bicarbonate lowers serum potassium. In some cases, this is the desired effect, as when Bicarbonate is used to treat hyperkalemia. However, in cardiac patients, if the potassium falls too low, the heart becomes irritable and dysrhythmias may occur. This is especially likely in patients taking diuretics. Sodium Bicarbonate administration transiently raises the arterial carbon dioxide level, and thus its administration must be accompanied by controlled hyperventilation (i.e. with bag-valve mask) to blow off the excess CO2.

How Supplied: 50 mEq in a 50 ml. prefilled syringe with a concentration of 1mEq/mL. (8.4% solution).

Dosage and Administration: Given by intravenous bolus injections. When Sodium Bicarbonate is used, 1 mEq/kg should be given initially. A maximum of one-half of this dose may be given for

subsequent doses, which should not be given more frequently than every 10 minutes. After resuscitation, Bicarbonate administration should be determined by measurements of arterial Ph and PCO2.

Pediatric Dosage: The 1 mEq/mL. solution of Sodium Bicarbonate should be diluted with an equal amount of sterile water and the 4.2% solution should be given by slow intravenous injection at a rate of 2 mEq/kg.

SOLU-MEDROL (METHYLPREDNISOLONE)

Therapeutic Effects: A synthetic steroid that suppresses acute and chronic inflammation. In addition, it potentiates vascular smooth muscle relaxation by beta adrenergic agonists, and may alter airway hyperactivity. Also used for reduction of post-traumatic spinal cord edema.

Indications:
1. Anaphylaxis with increasing respiratory compromise and urticaria.
2. Bronchodilator-unresponsive asthma.
3. Shock.

Contraindications:
1. Hypersensitivity.
2. Use with caution in patients with GI bleeding, it could cause peptic ulcers.
3. Pregnant patients.
4. Renal insufficiency.
5. Premature infants.

Side Effects:
1. Headache.
2. Hypertension.
3. Hypokalemia.
4. Alkalosis.
5. Hypoglycemia.
6. With large doses, monitor for bradycardia.

How Supplied: 125 mg in 2.0 ml vial with a concentration of 62.5 mg/mL.

Dosage and Administration:

Adult Dosage: Asthma/COPD/Anaphylaxis - 125 mg Slow IV push or IM

Pediatric Dosage: 1 to 2 mg/kg Slow IV push.

****NOTE**** Blood sugar levels should be closely monitored when administering Solu-Medrol to the Diabetic patient. Solu-Medrol causes an increase in the body's requirements for insulin.

TERBUTALINE SULFATE (BRETHINE, BRICANYL)

Therapeutic Effects: Terbutaline Sulfate has been shown in controlled clinical studies to relieve acute broncho-spasms in acute and chronic obstructive pulmonary disease, resulting in a clinically significant increase in pulmonary flow rates.

Indications: Terbutaline Sulfate is indicated as a bronchodilator for bronchial asthma and for reversible bronchospasm which may occur in association with bronchitis and emphysema.

Contraindications: Terbutaline Sulfate is contraindicated when there is known hypersensitivity to sympathomimetic amines, in patients with tachydysrhythmias, and in patients with digitalis induced tachycardia.

Side Effects: Commonly observed side effects include; increases in heart rate, nervousness, tremor, palpitations, and dizziness. These occur more frequently at doses in excess of 0.25 mg. Other reported reactions include headache, nausea, vomiting, anxiety, and muscle cramps. These reactions are transient in nature and usually do not require treatment. In general, all side effects are characteristic of those commonly seen with sympathomimetic amines such as Epinephrine.

How Supplied: 1.0 mg. in a 2.0 mL Ampule (1.0 ml. fill) with a concentration of 1.0 mg/mL.

Dosage and Administration: The usual subcutaneous dose is 0.25 mg. injected into the lateral deltoid area. If significant clinical improvement does not occur within 15 to 30 minutes, a second dose of 0.25 mg. may be administered. A total dose of 0.5 mg. should not be exceeded within a four (4) hour period. If a patient fails to respond to a second 0.25 mg. dose of Brethine within 15 to 30 minutes, other therapeutic measures should be considered.

Pediatric Dosage: Studies are in progress to define the safe and effective dose or Brethine in children. Therefore, until such studies are completed and evaluated, Brethine is not recommended for use in pediatrics.

Drug Interactions: MAOIs may potentiate tachydysrhythmias.
Beta Blockers may antagonize Terbutaline.

Tranexamic Acid (TXA)

Therapeutic Effects: A synthetic derivative of the amino acid lysine that forms a reversible complex that displaces plasminogen from fibrin resulting in inhibition of fibrinolysis; it also inhibits proteolytic activity of plasmin.

Indications:
1. To reduce bleeding in case of severe hemorrhage
2. Must be administered within 3 hours of injury
3. Hemorrhagic shock- **the goal is adequate perfusion systolic <90, pulse >110, or both**

Contraindications:
1. Hypersensitivity to TXA
2. Patients younger than 12 years of age
3. Suspected CVA, MI, or PE

Side Effects:
1. Allergic dermatitis
2. Thrombosis
3. Hypotension
4. Nausea, vomiting, and diarrhea
5. Visual disturbances, blurred vision
6. Giddiness

How Supplied: 1.0 g in 10 mL vial, at a concentration of 100 mg/mL

Dosage and Administration: MUST BE ADMINISTERED WITHIN 3 HOURS OF INJURY - DO NOT DISTRIBUTE AFTER 3 HOURS

For severe hemorrhage control:

Initial Dose
1 gram IV administered over 10 minutes for the initial dose. Mix 1 gram in 50 mL of NS and infuse via IV drip over 10 minutes. (360 mL/hr). Mark with time of administration to alert the ER and to ensure maintenance dose is given.

Maintenance Dose
Mix 1 gram in 100 mL of NS and infuse over 8 hours. (13.75 mL/hr) Seek Medical Control order to administer.

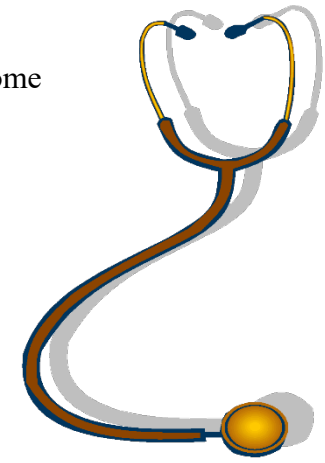
****NOT FOR PEDIATRIC USE****

TREATMENT & PROTOCOLS

Bypass Protocol
Acute abdomen
Acute myocardial infarction
Airway and Ventilation Management
- CPAP Procedure
- I-GEL Placement Procedure
- Delayed Sequence Intubation (DSI)
- Rapid Sequence Intubation (RSI)
- Cricothyrotomy Procedure

Anaphylaxis
Asthma/COPD
Asystole
Bradycardia (symptomatic)
Burns
Cardiac arrest, emergencies, general orders,
Electrical cardioversion
Cerebral vascular accident (CVA)
Coma of unknown origin
Congestive heart failure (CHF)/Pulmonary edema
Dead on scene
DNR Protocol
Diabetic emergencies
Hyperactive Delirium Syndrome
Hazmat
Head trauma
Heat exhaustion
Heat stroke
Hypertensive crises
Hypotension
Hypothermia
Musculoskeletal injuries
Obstetrical emergencies:
- Routine OB Patient Care
- Childbirth
- Abruptio Placenta/Placenta Previa
- Preterm labor
- Prolapsed Cord
- Postpartum Hemorrhage
- Pre-Eclampsia
- Eclampsia

Overdose
Pacing, External
Pain Management
Procedures References
Restraint/sedation of combative patients



Special Populations
Status epilepticus
Taser Barb Removal
Transport Initiated by Law Enforcement

Tension pneumothorax
Trauma arrest
Trauma Spinal Motion Restriction
Van Stroke Scale
Ventricular fib/PV Tach
Vomiting & Diarrhea

PEDIATRIC PROTOCOLS

Anaphylaxis
Croup
FBAO Conscious Child
FBAO Responsive Infant
FBAO Unconscious Child
FBAO Unconscious Infant
Pediatric Airway Management
Pediatric Altered Mental Status
Pediatric Asthma/Resp. Distress
Pediatric Asystole & Pulseless Arrest
V-Fib, V-Tach
Pediatric Bradycardia
Pediatric Burns
Pediatric Fever
Pediatric General Management
Pediatric Head Trauma/Injury
Pediatric Neurogenic Injury
Pediatric Poisoning
Pediatric Post Arrest Stabilization
Pediatric Seizure/Status Epilepticus
Pediatric Shock
Pediatric Tachycardia w/pulse
Pediatric Traumatic Arrest

BYPASS PROTOCOL FOR THE MAJOR TRAUMA VICTIM

Goal: Major trauma patients who are medically unstable, unconscious and/or at high risk of multiple and/or severe injuries will be quickly identified and transported to the appropriate trauma facility.
Decision Criteria: This bypass protocol is intended to ensure that major trauma patients who meet triage criteria will be transported directly to the appropriate trauma facility rather than to the nearest hospital EXCEPT under the following circumstances:

• If unable to establish and/or maintain an airway, or in the event of traumatic cardiac arrest, the patient will be transported to the nearest acute care facility.

• If transport time to the indicated trauma facility exceeds 60 minutes and EMS is unable to arrange air transportation or hand-off the patient to an EMS service with Advanced Life Support (ALS) capabilities, the patient will be transported to the nearest facility.

• Rural EMS systems with Advanced Life Support (ALS) capabilities and the concurrence of their medical director may bypass local facilities if that facility lacks the resources to address the trauma patient's specialty needs.

Criteria for Trauma Facility Destination: The Criteria listed below are guidelines for EMS services in Trauma Service Area-U.
Nearest Hospital / Handoff: The major trauma patient will be transported to the nearest hospital under the following conditions:
• If unable to establish and/or maintain an adequate airway
• If the patient is in traumatic cardiac arrest
• If the expected transport time to the appropriate trauma facility exceeds 60 minutes and EMS is unable to arrange air transportation or hand-off the patient to an EMS service with Advanced Life Support (ALS) capabilities.

Patient Criteria for Activation of Regional Trauma System Plan: The Regional Trauma System Plan and Bypass Protocol will be initiated for all trauma patients who are hemodynamically unstable, unconscious and/or at risk of multiple and/or severe injury as indicated by the following (age appropriate where applicable):
SEE CBRAC GUIDELINES FOR FIELD TRIAGE OF INJURED PATIENTS
Patient Criteria for Consideration of Bypass Protocol: These criteria should cause a high index of suspicion that the patient may have sustained a severe injury. Consultation with medical control is recommended to assist in the decision as to whether or not to activate the

Regional Trauma System Plan for these patients.
SEE CBRAC GUIDELINES FOR FIELD TRIAGE OF INJURED PATIENTS
Considerations
• Prehospital personnel's judgment of injury severity.
• Under age 5 or over age 55.
• Hostile environment (extremes of heat or cold).
• Cardiac or respiratory disease.
• Insulin-dependent diabetes mellitus, cirrhosis, morbid obesity, bleeding disorders, anticoagulants.
• Immuno-suppressed patients
• Second or third trimester of pregnancy

Injuries Requiring Specialized Medical Care:

Pediatric: Driscoll Children's Hospital will accept all trauma patients age 13 and younger unless the following criteria are present:
• Penetrating injury to the head, neck, torso, and/or extremities proximal to the knee and elbow
• All pregnant trauma
• All patients age 14 and older with major/severe injury will be transported to the Level II trauma facility.
• All patients age 14 and older with non-major injuries will be transported to an appropriate Level IV ED.

Burns: Consideration should be given for direct transport to an accredited burn center (if Air Transport is available) for patients with burns of second degree exceeding 15% body surface area (BSA), third-degree exceeding 10% body surface area (BSA), or burns involving face, hands, feet, genitalia, and/or perineum. If Air Transport is unavailable, transport to an age-appropriate facility.

Air Ambulance / Hand-off: If the expected ground transport time to the appropriate trauma facility exceeds 60 minutes, or if extrication time is exceeding 20 minutes; air ambulance transport should be considered.

Hand-off of the trauma patient to an advanced life support (ALS) or mobile intensive care unit (MICU) will be initiated in the following circumstances:

• Unable to arrange air ambulance transfer.
• EMS provider is first responder and unable to leave service area.

Contact Medical Control for questions regarding Trauma System Plan activation. Patient's rights, choices and best interests will be respected in the determination of hospital destination.

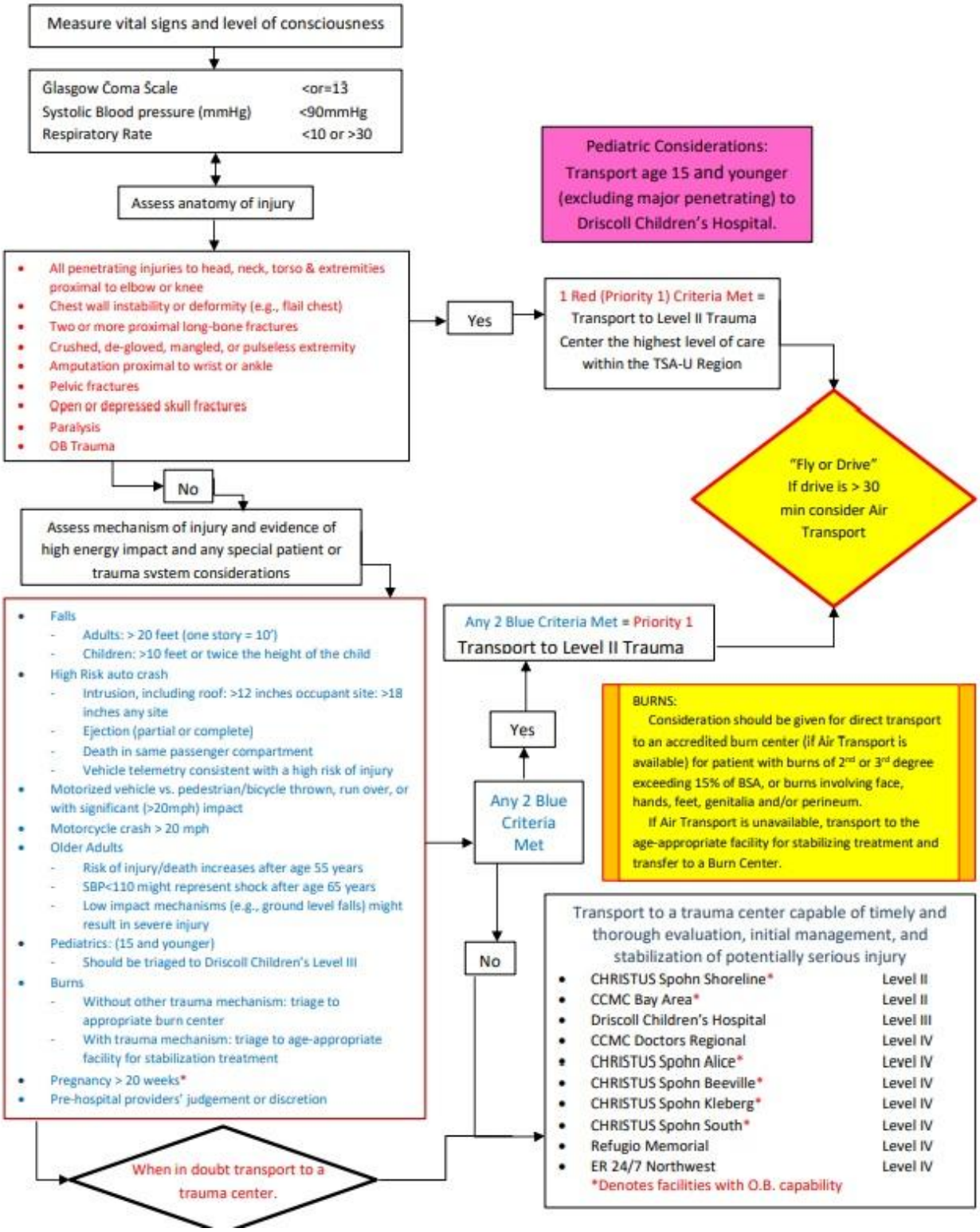
Trauma activation will be based on field triage report from EMS and the activation criteria. Patients brought in by private vehicle will be triaged by facility per activation criteria.
SEE CBRAC GUIDELINES FOR FIELD TRIAGE OF INJURED PATIENTS

Trauma Transfers: All requests for transfer of trauma patients will be initiated either through a transfer center or directly to the ED physician on duty according to the facility's protocol.

The sending and receiving physicians will discuss the patient's needs. The receiving trauma center will make efforts to accept the patient based on capability and capacity**.**

CBRAC Guideline for Field Triage of Injured Patients

Approved by General Membership January 2021



BYPASS PROTOCOL FOR THE SUSPECTED STROKE PATIENT

GOAL: Rapidly identify and assess; using a prehospital stroke scale, and transport patients suspected of an acute stroke to the nearest stroke accredited hospital in an expeditious manner.

Decision Criteria: This bypass protocol is intended to ensure that patients with a witnessed acute stroke be transported to an accredited stroke center. Exceptions to the bypass protocol requiring the patient to be transported to the NEAREST facility are:

- Inability to establish and/or maintain an airway or in the event of a cardiac arrest.
- If transport time to the indicated accredited stroke center exceeds 30 minutes; the patient should be transported to the nearest facility capable of treating stroke with Activase (t-PA) if indicated, then transferred to an accredited stroke facility.

Patient Criteria for Activation of Bypass Protocol for the Confirmed Witnessed Acute Stroke Patient:

- The activation of the Bypass Protocol for the symptomatic acute stroke patient should be initiated upon the recognition of confirmed witnessed changes in patient condition as to **"Last Known Well"** in less than 4 hours.
- If "Last Known Well" temporarily unknown due to patient's inability to talk or the lack of a witness, activate a stroke alert
- If "Last Known Well" was patient's bedtime, but patient awakes/awakened with stroke symptoms is less than 4 hours, activate a stroke alert

Air Ambulance/Hand-Off:

Hand off of the acute stroke patient to advanced life support, mobile intensive care unit or air transport will be initiated in the following circumstances:

- Basic life support unit is first responder only and unable to leave service area
- If air transport/pick-up total time is less than ground transport time.

Notes:

If there should be any questions regarding activation of treatment protocol, the receiving facility should be contacted regarding a decision for treatment.

The receiving facility should be notified at the earliest possible time by E.M.S. to provide the facility with the ability to activate a stroke alert.

Patient's rights, choices and best interest will be respected in the determination of hospital destination.

Recommended Prehospital Stroke Assessment Scale:

Cincinnati Prehospital Stroke Scale (CPSS) and Van Scale Assessment

Facial Droop (have patient smile)
Normal: Both sides of the face move equally
Abnormal: One side of face does not move as well
Arm Drift (have patient hold arms out and palms up for 10 seconds)
Normal: Both arms move equally or not at all
Abnormal: One arm drifts compared to the other, or does not move at all
Speech (have patient speak a simple sentence)
Normal: Patient uses correct words with no slurring
Abnormal: Slurred or inappropriate words, or mute

Thrombolytic (IV-tPA) Screening Exclusion Criteria in the Field:

- Clearly defined onset of stroke symptoms 4.5 hours or greater or patient awakens with stroke symptoms.
- History of intracranial hemorrhage, neoplasm, arteriovenous malformation, or aneurysm.

- Recent (within 3 months) intracranial or intraspinal surgery or serious head trauma.
- Active internal bleeding.

(*If all exclusion criteria "NO" the patient is a potential candidate for IV-tPA*)

E.M.S. Treatment Guidelines:
Refer to Stroke Algorithm
Hospital Treatment Guidelines for the Confirmed Stroke Alert Patient:

- Door to Triage by Doctor – 10 minutes
- Door to CT Scan – 25 minutes
- Door to CT Read/Lab Results – 45 minutes
- **Door to t-PA – 60 minutes**

E.M.S. Post-IV t-PA Transfer Protocol:
All post t-PA patients should be sent by Critical Care Transport (MICU)
• Document vital signs prior to transport and verify that SBP <180, DBP <100. If BP above limits, sending hospital should stabilize prior to transport
• Obtain contact method for family or caregiver (preferably cell phone) to allow contact during transport or upon patient arrival
• **Obtain and record Vital Signs and Neurological checks (CPSS) every 15 minutes**
• Perform and record baseline GCS
• Continuous cardiac monitoring
• **Strict NPO – this includes all *PO* medications**
• Verify total dose and time of IV t-PA bolus (if t-PA is completed prior to transfer)
• If IV t-PA dose administration will continue en route:
-Verify estimated time of completion.
-Verify with the sending hospital that the excess t-PA has been withdrawn and discarded (for example, if the total dose of t-PA to be given is 70mg, then verify the remaining 30cc has been wasted since a 100mg bottle of t-PA contains 100cc of fluid)
• If SBP >180 or DBP >100, and if antihypertensive medication started at sending facility, then adjust as follows:
1. If Labetalol IV drip started at the sending hospital, increase by 2 mg/min every 10 minutes (to a maximum of 5 mg/min) until SBP <180 and DBP <100; If SBP <150 or DBP <80 or HR <60, turn off drip and call receiving hospital for further instructions.
2. If Nicardipine IV drip was started at the sending hospital, may increase dose by 2.5mg/hr every 5 minutes. To a maximum of 15mg/hr until SBP <180 and DBP <100; If SBP <150 or DBP <80 or HR <60, turn off drip and call the receiving hospital for further instructions.
• For any acute worsening of neurologic condition, or if patient develops severe headache, acute hypertension or vomiting (suggestive of intracerebral hemorrhage) or profuse bleeding not controlled by pressure:
1. Discontinue t-PA infusion (if still being administered)
2. Call the receiving facility for further instructions including a decision to adjust blood pressure medication and/or divert to the nearest hospital.
3. Continue to monitor vitals and neuro checks every 15 mins.

ACUTE ABDOMEN

EMT

- Obtain Vital Signs
- Administer O2 @ 2 - 15 LPM as needed
- Obtain temperature
- Check blood sugar reading

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV of Normal Saline and attach ECG. Run IV at a rate to maintain a BP >90 systolic
- Consider Multiple IV sites
- Transport patient to appropriate facility in a position of comfort if possible. Do not give analgesics or PO fluids.
- Consider pain management for comfort.
- Consider Zofran for nausea and vomiting IVP.

****NOTE****

Consider the possibility of pregnancy in any female who is of reproductive age and complains of vaginal bleeding or abdominal pain. These symptoms may indicate possible extra uterine pregnancy or possibly a spontaneous abortion. These patients should be transported for further evaluation.

ANAPHYLAXIS

EMT

- Obtain Vital Signs
- Administer O2 @ 4 - 15 LPM as needed
- Albuterol 2.5 mg nebulizer if indicated, repeat prn.
- Attach ECG Leads

ADVANCED EMT/EMT-INTERMEDIATE

- Consider immediate oral or nasal intubation
- Consider Epinephrine 1:1,000 0.3 - 0.5 mg IM
- Establish IV access
- Consider 20 mL/kg IV NS bolus for hypotension
- Consider Benadryl 25 - 50 mg IVP or Deep IM (low priority)

PARAMEDIC

- Consider Epinephrine 1:10,000 0.3 - 0.5 mg SLOW IVP OVER 5 MINUTES in severe cases if IM epi fails. *Impending sense of doom with mild symptoms is indicative of a severe reaction.
- Consider Solu-Medrol:

  Adult Dosage: 125 mg Slow IV push or IM

  Pediatric Dosage: 1 to 2 mg/kg Slow IV push.

- Monitor ECG

****NOTE**** Blood sugar levels should be closely monitored when administering Solu-Medrol to the Diabetic patient. Solu-Medrol causes an increase in the body's requirements for insulin.

AIRWAY AND VENTILATION MANAGEMENT

All patients will have an assured airway and appropriate ventilation status. A patient alert enough to verbalize words (intact gag reflex), with purposeful movement to verbal stimuli, appropriate ventilation minute volume, a stable medical condition, and without extenuating circumstances may be managed with oxygen therapy, suctioning as needed, and close observation (for any change that would warrant advanced airway intervention).

Manual Control of the Airway: Utilizing jaw thrust/chin lift methods or oral or nasal airways is usually effective but often a temporary solution to airway compromise. Bag-valve-mask (BVM) ventilation with 100% oxygen (O2) is indicated for a compromised ventilation status or as an adjunct to intubation.

Mechanical support of the airway will be obtained when:

1. Relief of airway obstruction or developing airway obstruction
2. Respiratory depression/failure with clinical compromise (including profound shock)
3. Patients with a significantly decreased level of consciousness (often GCS of <8)
4. Clinical need for mechanical ventilation, PEEP, and/or pulmonary hygiene
5. Prevention of aspiration or inhalation of foreign objects
6. Delivery of endotracheal medications

Ventilation Maintenance: Provided by BVM or assisted manual ventilations (default 8-10 breaths/minute) utilizing 100% oxygen in the intubated patient. The goal is to obtain a pulse ox reading >94% while maintaining an appropriate ETCO2 (35-45) and avoiding barotrauma or auto-PEEP.

Hyperventilation: (>14 breaths/minute to target an ETCO2 (35-45) may be indicated for metabolic/respiratory acidosis, shock, or impending cerebral herniation. It may be helpful in the hypoxic patient. Monitor for hypotension due to Auto-PEEP.

ETCO2 Monitoring: Capnography is a powerful tool providing continuous real-time objective data to quantify and qualify ventilatory status. Continuous waveform capnography will be utilized for verification of endotracheal tube (ETT) placement. Familiarize yourself with capnography patterns and interventions to better guide your clinical treatments.

Advanced Airway Interventions: Outlined herein are intended for mechanical control of the airway. These procedures are described in detail below:

- **I-GEL Airway Placement Procedure**
- **CPAP Procedure**
- **Delayed Sequence Intubation/Rapid Sequence Intubation**
- **Cricothyrotomy procedure (In special procedures)**

I-GEL AIRWAY PLACEMENT PROCEDURE

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

Contraindications:

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

Precautions:

1. Do not allow peak airway pressure of ventilation to exceed 40 cm H2O
2. Do not use excessive force to insert the device
3. 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
4. Use care to avoid the introduction of lubricant in or near the ventilatory openings

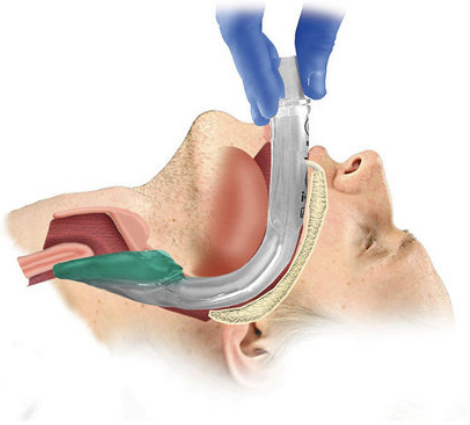
I-GEL	PATIENT SIZE	WT GUIDANCE **(kg)**
1	Neonate	2-5
1.5	Infant	5-12
2	Small Pediatric	10-25
2.5	Large Pediatric	25-35
3	Small Adult	30-60
4	Medium Adult	**50-90**
5	Large Adult	90+

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 while bagging
    b. Suction the upper airway before insertion as needed
2. The patient should be in the “sniffing” position, with head extended and neck slightly flexed forward. If a cervical injury is suspected, use modified “jaw thrust” instead of any flexion at the neck. The chin should be gently pressed down/inferior before inserting 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 backward along the hard palate with a continuous but gentle push until a definitive resistance is felt.
5. **WARNING:** Do not force the device excessively during insertion. It is not necessary to insert your fingers or thumbs into the patient's oral cavity during the insertion of this device. A ‘jaw thrust’ and slight device rotation are recommended if there is resistance during insertion.

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

I-GEL AIRWAY PLACEMENT PROCEDURE



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
        i. Head injuries: 30-35 ETCO2
        ii. Severe asthma, goal 40-50 ETCO2, will start >50 ETCO2
        iii. All other patients should be between 35-40 ETCO2
2. Secure the tube
3. Place NG tube in the 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

Removal:

1. Ensure suctioning equipment is ready, roll patient onto left side
2. Carefully remove the 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

I-GEL AIRWAY PLACEMENT PROCEDURE (con't) notes:

1. This is an alternative to a King-LT or Combitube.
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

CPAP PROCEDURE

Indications:

1. >16 years old
2. Respiratory distress in the conscious patient with impending respiratory failure (accessory muscle use, retractions, abdominal breathing, tripod position, unable to speak full sentences.
3. Refractory to conventional O2 (does not respond to oxygen via NRM, minimal or no improvement in SaO2).
4. Tachypnea, RR >24
5. Presumed Pulmonary Edema
6. CHF
7. Presumed COPD
8. Presumed Asthma
9. Presumed Near drowning

Clinical Contra-Indications:

1. Hypotension (SBP)
2. Aspiration risk
3. Need for immediate airway control (unresponsive)
4. Upper airway abnormalities or obstruction
5. Altered mental status GCS
6. AMI or unstable cardiac arrhythmia
7. Extreme anxiety

Procedure:

1. Check oxygen supply, set up CPAP and connect the circuit to the oxygen source.
2. Prepare intubation equipment so it is set up should it be needed.
3. Explain the procedure to patient.
4. Place CPAP mask over the patient's mouth and nose.
5. If medication is indicated i.e. NTG, administer prior to securing the mask.
6. Secure mask with provided straps and ensure there is an airtight seal. Some patients may need coaching or may need to hold the mask themselves prior to securing straps to avoid anxiety.
7. For Pulmonary Edema start with a 10 cm PEEP valve. If the patient is not tolerating CPAP, switch to a 7.5 cm PEEP valve.
8. For COPD, Asthma and Near Drowning start with a 5.0 cm PEEP valve. If no improvement and the patient is tolerating CPAP, increase PEEP to a 7.5 cm valve.

9. Monitor patient's respiratory status and vital signs with frequent reassessment. If the patient's respiratory status does not improve remove CPAP, assist ventilations with a BVM and consider intubation.
10. Document time and response on patient care report (PCR)
11. **In case of complications discontinue treatment and follow appropriate protocol.**

DELAYED SEQUENCE INTUBATION (DSI) PAGE 1 OF 2

PAAMEDIC

Indications: *(assumes prior clinical decision for intubation)*
DSI should be considered for any patient who falls into the following categories; (these categories are not all inclusive and the judgment of the paramedic is paramount in making the decision).

1. GCS </=8
2. Respiratory arrest which cannot be intubated due to non-flaccid state.
3. Unconscious or altered mental status with airway compromise.
4. Potential for airway compromise due to acute burns.
5. Respiratory insufficiency (patients with SPO2 <88% who have failed to respond to other therapy.

Contraindications:

1. **Absolute**: Known hypersensitivity to medications
2. **Relative:** Anatomical anomalies, (neck, oral, mandibular)

NODESAT

Assumes oral intubation/advanced airway equipment preparation/access.

1. Pre-oxygenate with 100% O2 (initially NRM, then BVM ventilations PRN, **PLUS** nasal cannula at 15 LPM).
2. Keep patient on nasal cannula at 15 LPM during intubation attempt.
3. Place the patient on ECG and pulse oximetry and capnography before attempt.
4. Draw up label all medications and equipment before starting sedation.
5. Begin sedation therapy.
6. Once the patient is at 94% on the pulse ox start timer for three (3) minutes. If a patient's SPO2 level falls below 94% at any time, start three (3) minutes over again.
7. After three (3) minutes of above 94% begin intubation attempt.

Sedate Patient:

Induction Agents

Ketamine – 2 mg/kg IV
Versed (if Ketamine is unavailable) 5mg IV

If suspected increased ICP, administer 100mcg Fentanyl

Paralytic (Neuromuscular Nondepolarizing Agent)

Rocuronium – 1 mg/kg IV

DELAYED SEQUENCE INTUBATION (DSI) PAGE 1 OF 2

Suction patient prior to first intubation attempt. Assess patient. If patient is flaccid and relaxed (90 seconds), procedure to next step:

Perform ET Intubation: USING VIDEO

- Continue oxygenation between unsuccessful attempts
- **If patient cannot be successfully intubated after two attempts, use an alternative airway (I-GEL). If a completely failed airway, consider surgical airway.**
- Confirm tube placement with appropriate methods. Lung sounds, ETCO2, Visual
- Secure tube with appropriate device.
- Consider the use of C-collar, head blocks or towel rolls to help hold the head in place during transport.
- **Frequently** reassess ET tube placement using multiple measures.

After intubation, elevate the head of the patient approximately 30 degrees to aid in respirations. If the patient is on a backboard and it is practical, place a pillow under the top end of the backboard to elevate the patient's head region.

Maintain Paralysis:

Rocuronium - 1.0 mg/kg IV

Maintain Sedation:

Ketamine - 1.0 mg/kg IV (given over 60 seconds)
Fentanyl - 1-2 mcg/kg IV

Remember, to keep your patient sedated during transport. Even though they are paralyzed, they can still wake up. It is important to keep your patient sedated if they are hemodynamically stable.
Sedation and paralysis and pain are three different issues and must be treated individually.

Note: This procedure may only be performed with both crew members present and with the approval of the Medical Director, Online Medical Control, or EMS Director.

RAPID SEQUENCE INTUBATION

PARAMEDIC

Indications:

Pharmaceutically assisted intubation should be considered for any patient who falls into the following categories: (these categories are not all-inclusive and the judgment of the paramedic is tantamount in making the decision). Any concerns or questions regarding the candidates for RSI call online Medical Control or the receiving facility for guidance.

1. GCS </=8
2. Respiratory arrest which cannot be intubated due to a non-flaccid state.
3. Unconscious or altered mental status with airway compromise.
4. Potential for airway compromise due to acute burns.
5. Respiratory insufficiency (patients with SPO2 <88% who have failed to respond to other therapy.

Contraindications:

1. **Absolute**: Known hypersensitivity to medications
2. **Relative:** Anatomical anomalies, (neck, oral, mandibular)

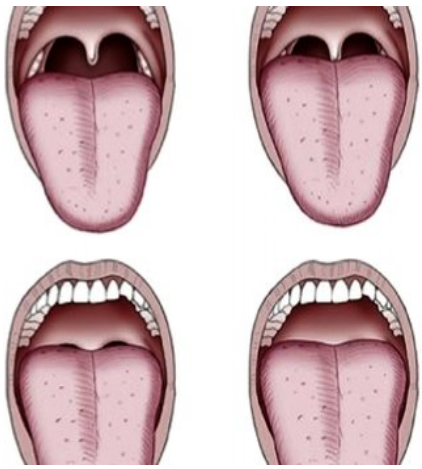
Procedure: (requires 2 rescuers/same general procedure for non-CSI intubation)

Assess Difficulty of Airway

- **B.O.N.E.S.**
  - Beard
  - Obese
  - No Teeth
  - Elderly
  - Snoring/Sleep Apnea

Assess Difficult LMA

- **R.O.D.S**
  - Restricted mouth
  - Obstruction to opening
  - Distorted airway
  - Spinal Injury



Top left is a score of I, Top right is a score of II
Lower left is a score of III, Lower right is a score of IV

Assess Difficulty of Intubation (See Mallampati Chart below)

- **L.E.M.O.N. – Utilize to predict the difficulty of intubation**
  - Look
  - Evaluate
  - Mallampati Score (1-4)
  - Obstruction
  - Neck Mobility

Difficult Surgical Airway

- **S.H.O.T.**
  - Surgery/Scar
  - Hematoma
  - Obesity
  - Tumor

RAPID SEQUENCE INTUBATION Cont.

RSI Procedure shall include the following:

1. Equipment preparation and implementation of NODESAT
2. Sedation of patient
3. ET Intubation
4. Maintain Paralysis
5. Maintain Sedation

Equipment preparation and implementation of NODESAT

Prepare all necessary intubation equipment including ET intubation supplies, bougie, suction equipment, medications, and ventilation assessment/monitoring devices.

Select proper ET Tube Size:

Adult
Female - **6.5 to 8.0**
Male - **7.0 to 8.5**

Pediatric
Ages 1-8 - **Age / 4 + 4**
Infant - **3.5mm (usually)**

Blade Selection

Straight Blade for Pediatric/Younger PT's
Curved Blade for Adults

NODESAT

1. Elevate head of stretcher for intubation procedure
2. Pre-oxygenate with 100% high-flow O2 by BVM
3. Place patient on nasal cannula at 15 LPM during intubation attempt
4. Place patient on ECG and pulse oximetry and capnography

Sedate Patient

Induction Agents

Ketamine – 2 mg/kg IV over 60 seconds
Versed (if Ketamine is unavailable) 5mg IV
If suspected increased ICP, administer 100mcg Fentanyl

Paralytic (Neuromuscular Nondepolarizing Agent)

Rocuronium – 1 mg/kg IV

Perform ET Intubation: (Utilize Video Laryngoscope if available)

Guidelines

- Suction oral cavity prior to intubation attempt as needed
- Take no more the 30 seconds on ET intubation attempt
- Continue oxygenation between unsuccessful attempts
- Avoid cricoid pressure
- Must visualize cords to pass Bougie or ETT
- If patient cannot be successfully intubated after two attempts, use alternative airway
- Adult insertion depth typically between 21-23 cm
- Pediatric insertion depth typically 3 x ETT size
- Confirm tube placement with appropriate methods. Lung sounds, ETCO2, Negative Gastric Sounds, or SPO2 Saturation
- Secure tube with the appropriate device, BVM ventilations maintaining ETCO2 of 35-45
- If the patient cannot be intubated, consider **IGEL** if unable to place **IGEL**, ventilate with BVM and oral airway.
- Consider the use of C-collar, head blocks, or towel rolls to help hold the head in place during transport.

Frequently reassess ET tube placement using multiple measures.

Maintain Paralysis

Paralytic (Neuromuscular Nondepolarizing Agent)

Rocuronium – 1 mg/kg IV

Maintain Sedation

Ketamine –1.0mg/kg IV
Fentanyl – 1-2 mcg/kg IV

NOTE:

THIS PROCEDURE OF RSI IN THE PRE-HOSPITAL SETTING MUST BE APPROVED BY THE MEDICAL DIRECTOR OR MEDICAL CONTROL BEFORE UTILIZED. PROPER TRAINING AND SIGN OFF IS NEEDED. THE ABOVE NARRATIVE IS AN OUTLINE AND NOT ALL INCLUSIVE

ASTHMA/COPD

EMT

- Obtain Vital Signs
- Administer O2 @ 2 - 15 LPM as needed
- Consider Albuterol nebulizer individually or in combination with Ipratropium Bromide nebulizer treatment.

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access and attach ECG leads

PARAMEDIC

- Consider Brethine 0.25 mg IM. May be repeated in 10 - 15 min. if needed
- Consider Epi 1:1,000--0.3 - 0.5 mg IM as an alternative to Brethine in severe cases
- Consider Solu-Medrol 125 mg slow IV push or IM in severe cases.
- Consider Magnesium Sulfate for severe asthma 3g in 100mL of NS 5-10 minutes

****NOTE** If patient has a history of known Coronary artery disease, Active Angina, or Arrhythmias, administer Brethine 0.25mg IM instead of Epinephrine. Brethine may be repeated in 15-30 minutes if indicated and vital signs are stable.**

Use of nebulizer:

1. Open selected agent/s, and pour into the reservoir.
2. Connect the reservoir to the mouthpiece or facemask.
3. Connect the nebulizer to air or oxygen source, and run at a rate adequate to create mist, 10 or more lpm.
4. Have the patient breathe from the mouthpiece or mask, clammy, deeply, and evenly as possible until no more mist is formed in the nebulizer chamber.
5. Dispose of the nebulizer after use.

BURNS

Local and Minor Burns

* First and Second degree burns less than 10% total body surface area (TBSA)

EMT

- Cool Burned area by cool water immersion
- Remove any constricting clothing or jewelry
- Obtain Vital Signs

Moderate to Severe Burns
*Second Degree Burns to more than 30% TBSA or Third degree burns to more than 5% TBSA

EMT

- Cover with Dry Sterile dressing
- Consider use of burn sheets depending on size of burn

ADVANCED EMT/EMT-INTERMEDIATE

- Establish large bore IV/IO of Lactated Ringer's or Normal Saline and run at a rate to keep BP>90 systolic. Lactated Ringer's is the preferred solution.
- For severely large TBSA burns, run IV wide open
- Consider Multiple IV sites

****NOTE****Consider Immediate Endotracheal Intubation if facial burns are present with respiratory distress.

PARAMEDIC

- Manage pain with Morphine, Fentanyl, or Ketamine

The Parkland formula for the total fluid requirement in 24 hours is as follows:

- 4mL x TBSA (%) x body weight (kg);
- 50% given in first eight hours;
- 50% given in the next 16 hours.

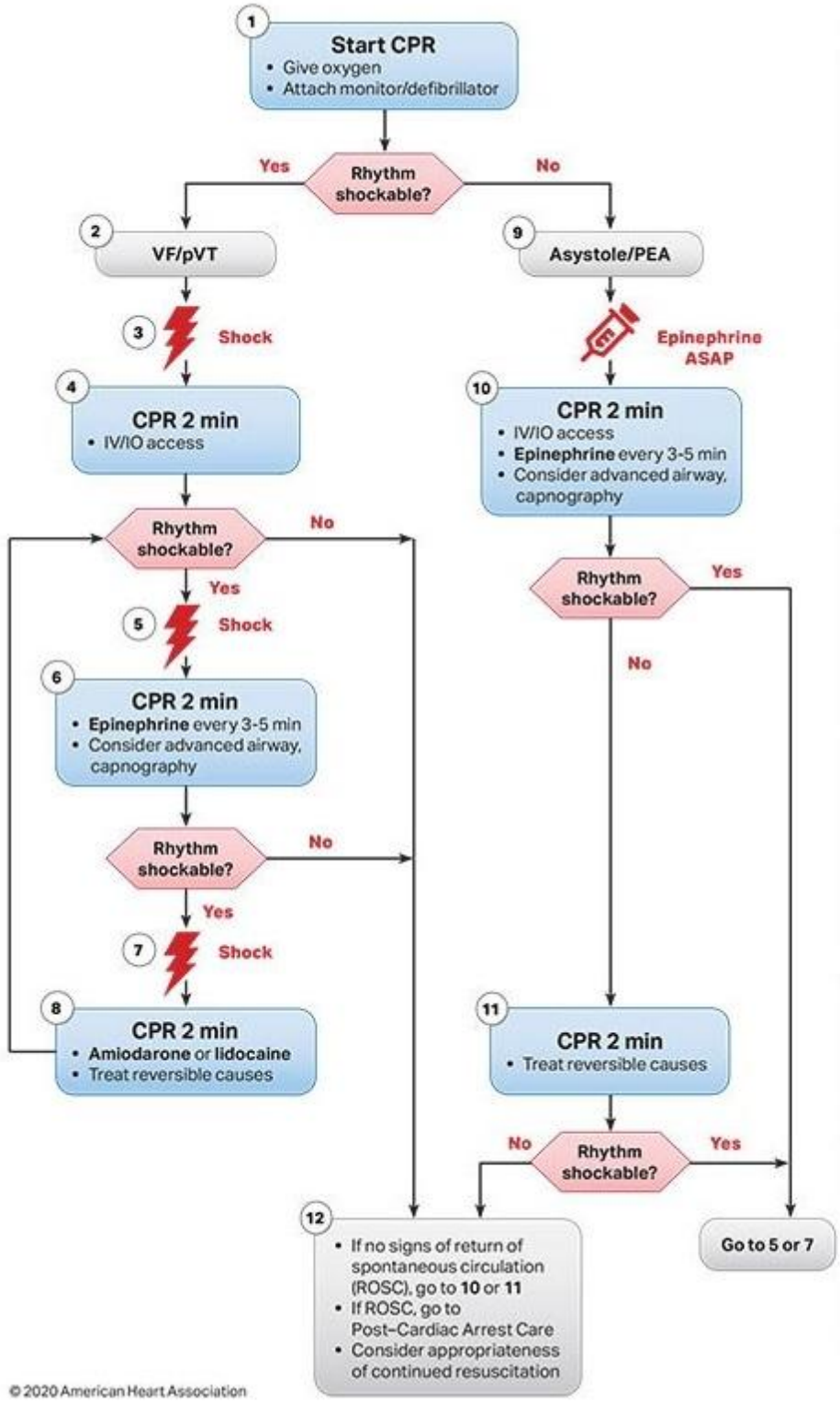
Children receive maintenance fluid in addition, at an hourly rate of:

- 4 mL/kg for the first 10 kg of body weight plus;
- 2mL/kg for the second 10 kg of body weight plus;
- 1mL/kg for >20 kg of body weight.

CARDIAC EMERGENCIES
GENERAL ORDERS

Unless specifically contraindicated within these "Standing Delegation Orders and Protocol", the standards of emergency cardiac care shall be those as recommended by the American Heart Association's Advanced Cardiac Life Support manual.

Adult Cardiac Arrest Algorithm (VF/pVT/Asystole/PEA)



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic**: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic**: 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
  Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

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

Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

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

SUSPECTED ACUTE MYOCARDIAL INFARCTION

EMT

- Obtain Vital Signs
- Attach ECG Electrodes
- Administer Oxygen 4 - 15 LPM as needed
- Consider Aspirin 324-325 mg; chew and swallow ASAP if suspected cardiac chest pain

ADVANCED EMT/EMT-INTERMEDIATE

Establish IV/IO access. Consider Multiple IV sites

- Administer Sublingual Nitroglycerin (0.4 mg). Repeat in 3 - 5 minutes up to a total dose of 1.6 mg.
  **Capture 12-Lead, be aware of Inferior Wall M.I., seek Medical Control for Sublingual Nitroglycerin administration, obtain 15-Lead if indicated.
  **Discontinue if BP drops below 90 systolic

PARAMEDIC

- Consider Morphine Sulfate 2 mg - 5 mg IVP every 5 minutes up to a total of 10 mg for continuing chest pain, or for acute pulmonary edema. **Discontinue if BP drops below 90 systolic.
- Fentanyl may be used for pain instead of Morphine if hypotension is a concern.
- Consider Narcan 0.4 - 2.0 mg IVP for Respiratory Depression due to Narcotic Administration
- Follow Current AHA Guidelines.

ASYSTOLE

History:

- Trauma
- Illness
- Exposure to elements/Toxins
- Possible poisonings
- Recent surgery

Physical Findings:

- Hypovolemia
- Hypoxemia
- Hyperthermia
- Hyper-/Hypokalemia
- Tamponade
- Tension Pneumothorax
- Toxins/Poisons/Drugs
- Thromboembolism

PROTOCOL:

EMT

- Obtain Vital Signs
- Assess ABC's, CPR if indicated.
- Attach ECG leads or defib pads

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access, consider intubation

PARAMEDIC

- Confirm asystole in at least two leads
- Consider possible causes and treat accordingly
- Administer Epinephrine 1mg (1:10,000) IVP every 3-5 minutes
- Consider Sodium Bicarbonate 1 mEq/Kg
- Follow Current AHA Guidelines.

BRADYCARDIA PROTOCOL (SYMPTOMATIC)

EMT

- Attach ECG electrodes
- Obtain Vital Signs
- Administer O2 @ 10-15LPM

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access.

PARAMEDIC

- Consider immediate transcutaneous pacing with severely symptomatic patients.
- Consider sedation if transcutaneous pacing.
- Consider Atropine 0.5 mg IVP Repeat up to a total of 3 mg IVP
- Consider Epinephrine infusion 2-10 mcg/min titrate to effect.
- Consider Dopamine infusion of 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.
- If heart rate increases without improvement of blood pressure (systolic pressure less than 90 mm/Hg) pharmacological support of blood pressure agents such as Dopamine 2-20 mcg/kg/min IV infusion should be considered.
- Follow Current AHA Guidelines.

ELECTRICAL CARDIOVERSION PROTOCOL

PARAMEDIC

- If Ventricular Rate is >150 Beats per Minute
- If patient is unstable
- Prepare for Immediate Synchronized Cardioversion
  (Cardioversion is usually not needed if HR<150)
- Premedicate Patient if Necessary
- Versed: 1-2 mg I.V. slow, may repeat every 5 minutes up to 4 mg, then may repeat 1mg every 10 minutes. PRN desired effect.
- Ketamine may be used instead of versed if hypotension is a concern. 1 mg/kg IV
- Make sure Sync is turn on with the monitor

Synchronized Cardioversion Rates:

PRESS THE SYNC BUTTON BEFORE EACH ATTEMPT

V-Tach: 100, 120, 150, 200 Joules (Biphasic)

SVT: 50, 75, 120, 150, 200 Joules (Biphasic)

Atrial Fibrillation: 120, 150, 200 Joules (Biphasic)

Atrial Flutter: 50, 120, 150, 200 Joules (Biphasic)

PULSELESS ELECTRICAL ACTIVITY (PEA)

EMT

- Assess ABC's
- Obtain Vital Signs
- CPR
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Intubate and establish IV/IO of Normal Saline at a wide-open rate.

PARAMEDIC

- Monitor ECG
- Consider possible causes and treat accordingly
- Administer Epinephrine 1mg (1:10,000) IVP. Repeat as needed every 3-5 minutes
- Consider Sodium Bicarbonate 1mEq/Kg IVP
- Follow Current AHA Guidelines.

TACHYCARDIA

EMT

- Establish and maintain ABC's
- Obtain SPO2 in both upper extremities
- Administer high flow Oxygen
- Assess vital signs.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO at KVO rate.
- Secure airway. Intubate if necessary.

PARAMEDIC

- Monitor cardiac rhythm
- Drug therapy according to the designated algorithm.

Narrow Complex PSVT:

Prior to drug therapy, attempt vagotonic maneuvers such as Valsalva maneuver. Have Atropine Sulfate at hand during these maneuvers, since bradycardia or asystole could result.

Cardiac rate and rhythm should be closely monitored during vagal maneuvers.
If unsuccessful...
Administer Adenosine, 6mg rapid IV push followed by a rapid flush of the IV tubing. Transient Asystole may result, monitor ECG closely. Wait for 1 to 2 minutes, if there is no change...
Administer Adenosine 12 mg. rapid IV push followed by a rapid flush of the IV tubing. A second dose of 12 mg rapid IV push may be given in 1-2 minutes.

NOTE Print rhythm strip to show timeframe during administration of adenosine and resulting effect.

If Adenosine proves unsuccessful, complexes are narrow, and blood pressure is normal or elevated:

Administer Cardizem (Diltiazem HCL) 0.25mg/kg. (20mg for average pt) slow IV push over 2 minutes. A second dose of 0.35mg/kg (25mg for the average pt) IV push over 2-5 minutes. If rhythm does not convert, consider a possible unstable tachycardia algorithm.

Wide Complex Tachycardia WCT (Stable Patient): Consider this to be Ventricular Tachycardia
Administer 1 to 1.5 mg/kg of Lidocaine IV push, repeat at 5 to 10 minutes at a dose of 0.5 to 0.75 mg/kg until the rhythm changes or a maximum total of 3 mg/kg has been given.
**If the rhythm does not convert, and is a wide complex of uncertain type:
Administer Adenosine, 6mg rapid IV push followed by a rapid flush of the IV tubing. Transient heart block and asystole may occur. Monitor ECG closely.

**If there is no conversion after 1 to 2 minutes, administer Adenosine, 12mg rapid IV push followed by a rapid flush of the IV tubing. If the rhythm does not convert (Or the patient is in Ventricular Tachycardia and has not converted after Lidocaine therapy): administer Amiodarone rapid loading infusion at a rate of 15 mg/minute. Mix 150 mg in 100 mL NS (concentration = 1.5 mg/mL). Infuse 100 mL over 10 minutes. May repeat rapid infusion as needed every 10 minutes. If rhythm does not convert, go to synchronized cardioversion as for unstable tachycardias.

Unstable Tachycardia:

Hemodynamically significant Paroxysmal Supraventricular Tachycardia requires emergency treatment when it:

Causes or exacerbates cardiovascular dysfunction (e.g. induces or exacerbates chest pain, dyspnea, other signs of ischemia, hypotension, or congestive heart failure.)

Occurs in a setting where deleterious effects due to tachycardia are likely (e.g. patients with acute ischemic heart disease such as acute myocardial infarction).

In the patient who is deteriorating rapidly, prepare for immediate cardioversion.

NOTEConsider this with any heart rate above 150. Pre-medicate when possible with 2 mg Versed every 10 minutes prn up to 8 mg.

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PRESS THE SYNC BUTTON BEFORE EACH ATTEMPT

V-Tach: 100, 120, 150, 200 Joules (Biphasic)

SVT: 50, 75, 120, 150, 200 Joules (Biphasic)

Atrial Fibrillation: 120, 150, 200 Joules (Biphasic)

Atrial Flutter: 50, 120, 150, 200 Joules (Biphasic)

If clinical conditions are critical, go to immediate unsynchronized shocks.

Remember that Supraventricular Tachycardia may be a symptom of an underlying process such as hypovolemia. Consider treating the underlying cause of non-paroxysmal supraventricular tachycardia.

Follow Current AHA Guidelines.

SUPPRESSION OF VENTRICULAR ECTOPY

Premature Ventricular Complexes are significant if one or more of the following conditions are present:

- Six (6) or more premature ventricular complexes (PVC's) per minute.
- Close coupled PVC's.
- PVC's that fall on the T wave (R on T phenomenon).
- PVC's that occur in pairs (couplets), or runs (i.e. ventricular tachycardia).
- Multifocal PVCs.

TREATMENT OF ABOVE SIGNS IS NOT RECOMMENDED IN THE ASYMPTOMATIC, HEMODYNAMICALLY STABLE PATIENT.

EMT

- Assess ABC's
- Obtain Vital Signs
- High flow oxygen
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- IV/IO at KVO rate

PARAMEDIC

- Monitor ECG
- TREATMENT OF SIGNIFICANT PVC's:

Administer Lidocaine, 1-1.5 mg/kg, IV, initial dose. If PVC's are not suppressed, repeat Lidocaine every 2 to 5 minutes at a dosage of 0.5 - 1.5 mg/kg, until PVC's are suppressed or until the patient has received a maximum of 3 mg/kg.

**If there is no conversion after 1 to 2 minutes, administer Adenosine, 6 mg rapid IV push, flush, then after two minutes if unresolved, 12mg rapid IV push followed by a rapid flush of the IV tubing. If the rhythm does not convert (Or the patient is in Ventricular Tachycardia and has not converted after Lidocaine therapy): administer Amiodarone rapid loading infusion at a rate of 15 mg/minute. Mix 150 mg in 100 mL NS (concentration = 1.5 mg/mL). Infuse 100 mL over 10 minutes. May repeat rapid infusion as needed. If rhythm does not convert, go to synchronized cardioversion as for unstable tachycardias.

Once ectopy has been resolved, maintain as follows:

After Lidocaine 1 mg/kg. Lidocaine drip at 2mg/minute.

After Lidocaine 1-2 mg/kg. Lidocaine drip at 3 mg/minute.
After Lidocaine 2-3 mg/kg. Lidocaine drip at 4 mg/minute.

- Rule out contributing factors such as bradycardia, drugs, or Digitalis toxicity.
- Follow Current AHA Guidelines.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

EMT

- Assess ABCs
- Obtain Vital Signs
- Ventilate via BVM with supplemental oxygen.
- Establish unresponsiveness and pulselessness.
- Initiate C.P.R. until a Defibrillator is available.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO at KVO rate.
- Intubate, ventilate with 100% oxygen.

PARAMEDIC

- Monitor rhythm to confirm VF or VT
- Defibrillate for persistent VF/VT. 200 joules (biphasic) Continue CPR.
- Defibrillate with 200 joules (biphasic) Continue CPR
- Administer Epinephrine 1:10,000, 1.0mg, IV push repeat every 3-5 minutes. Continue CPR
- Defibrillate with 200 joules (biphasic) Continue CPR
- Administer Lidocaine 1 to 1.5mg/kg IV push. Repeat in 3-5 mins to total loading dose of 3mg/kg. **OR** Amiodarone 300 mg first dose, repeat in 3-5 minutes with 150 mg if needed.
- Defibrillate with 200 joules (biphasic) Continue CPR
- Administer Epinephrine 1:10,000, 1.0mg, IV push, Continue CPR
- Defibrillate with 200 joules (biphasic) Continue CPR

V-FIB/PULSELESS V-TACH: (cont.)

PARAMEDIC'S (cont.)

****Start infusion of medication which converts rhythm****

*Value of Bicarbonate is questionable during cardiac arrest, and is not recommended for routine cardiac arrest sequences. Consider its use in a dose of Sodium Bicarb 1 mEq/kg:

*If known pre-existing bicarbonate-responsive acidosis
*If overdose of tricyclic antidepressants.
*To alkalinize the urine in drug overdoses.
*If intubated and continued long arrest interval.
*Upon return of spontaneous circulation after a long arrest interval.
*Hypoxic lactic acidosis.

*For patients with a spontaneous return of circulation:

- Assess vital signs.
- Support airway.
- Support breathing.
- Provide medications appropriate for blood pressure, heart rate, and rhythm.
- Start infusion of medication which converts the rhythm.

History: Consider and treat the causes:

- Severe hypoxemia
- Severe acidosis
- Severe Hypovolemia
- Tension Pneumothorax
- Cardiac Tamponade
- Profound Hypothermia
- Massive PE
- Drug overdose
- Hyper/hypocalcemia

Consider if the Pt is in polymorphic V-Tach (Torsades de pointes) give 1-2g IVP Magnesium Sulfate.

Follow Current AHA Guidelines.

CEREBRAL VASCULAR ACCIDENT (CVA)

EMT

- Obtain Vital Signs
- Administer O2 @ 2-6 LPM as needed.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access.

PARAMEDIC

- Monitor ECG

**Transport to the appropriate facility.

The **Cincinnati Prehospital Stroke Scale**

***Facial droop**:* Have the person smile or show his or her teeth. If one side doesn't move as well as the other so it seems to droop, that could be a sign of a stroke.

- Normal: Both sides of face move equally
- Abnormal: One side of face does not move as well as the other (or at all)

***Arm drift**:* Have the person close his or her eyes and hold his or her arms straight out in front for about 10 seconds. If one arm does not move, or one arm winds up drifting down more than the other, that could be a sign of a stroke.

- Normal: Both arms move equally or not at all
- Abnormal: One arm does not move, or one arm drifts down compared with the other side

***Speech**:* Have the person say, "You can't teach an old dog new tricks," or some other simple, familiar saying. If the person slurs the words, gets some words wrong, or is unable to speak, that could be a sign of stroke.

- Normal: Patient uses correct words with no slurring
- Abnormal: Slurred or inappropriate words or mute

Interpretation: If any of these signs is abnormal, the probability of stroke is 72%

VAN Stroke Scale

How weak is the patient?

- Raise both arms palm up
- Mild (minor drift)
- Moderate (severe drift - touches or nearly touches ground)
- Severe (flaccid or no antigravity)

Patient shows no weakness. Patient is VAN negative

(exceptions are confused or comatose patients with dizziness, focal findings, or no reason for their altered mental status then basilar artery thrombus must be considered; CTA is warranted)

Visual disturbance

- Field cut (which side) (4 quadrants)
- Double vision (ask patient to look to right then left; evaluate for uneven eyes)
- Blind new onset
- None

Aphasia

- Expressive (inability to speak or paraphasia errors); do not count slurring of words (repeat and name 2 objects)
- Receptive (not understanding or following commands) (close eyes, make fist)
- Mixed
- None

Neglect

- Forced gaze or inability to track to one side
- Unable to feel both sides at the same time, or unable to identify own arm
- Ignoring one side
- None

Weakness plus one or more of the VAN constitutes a VAN positive and is indicative of a LVO.

Van stroke assessments have 90% specificity versus 74% for NIHSS.

COMA OF UNKNOWN ORIGIN

EMT

- Consider utilizing ammonia inhalant in an attempt to wake patient
- Obtain Vital Signs
- Administer O2 @ 10 - 15 LPM
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access and attach ECG Leads
- Consider Obtaining Blood sugar reading.
- Consider Dextrose 25 - 50 g IVP If Blood Sugar < 80. Use caution in suspected stroke patients.
- Consider Narcan 0.4 - 2.0 mg IV/IO, IM, ET, IN, in suspected cases of narcotic overdose. May be repeated up to a total of 8.0 mg. Slow push, titrate for respiratory improvement.
- Consider Immediate Intubation (GCS < 8)

PARAMEDIC

- Monitor ECG
- Consider Sodium Bicarbonate ($NaHCO^3$) 1 mEq/kg IVP for:
    - Tricyclic antidepressant overdose with widened QRS on ECG
    - Renal patients with widened QRS or irregular rate on ECG (toxic metabolic syndrome)

CHF / PULMONARY EDEMA

EMT

- Obtain Vital Signs
- Attach ECG
- Administer Oxygen @ 4-15 LPM as needed
- Secure to stretcher in High Fowler position or position of comfort.
- Consider CPAP if the patient is in respiratory distress.

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access
- Consider nebulized breathing treatment for wheezing.
- Consider assisting ventilations with BVM or Possible ET Tube Placement.

PARAMEDIC

- Administer two (2) dose Nitroglycerin (0.8 mg) every 5 minutes up to 4 total doses (1.6 mg), or until systolic BP drops to or below 90 mm Hg. ****NOTE**** Unless contraindicated.
- Administer Lasix 40-120 mg IVP
- Consider Morphine Sulfate 2-5 mg IVP every 5 - 10 minutes up to 8 mg total, or until systolic BP drops to or below 90 mm Hg.
- Consider Fluid Bolus 250-500 mL for Hypotension. If no change, Consider Dopamine 2-20 mcg/Kg/min. IV drip, titrate to BP>90 systolic.

DEAD ON SCENE/WITHHOLDING/TERMINATING RESUSCITATIVE EFFORTS

This policy and criteria have been established as a guideline to determine whether or not to resuscitate a patient at the scene.

Dead on Scene. Bluntzer ESD4 personnel are authorized to withhold resuscitative measures in the following cases:

The patient must present pulseless and apneic.

A. Fixed and Dilated Pupils,

B. Verifiable period of apnea and absent pulse of >20 minutes without any resuscitative measures,

C. Asystole confirmed in at least 2 leads,

OR-

Multi-patient incidents when one patient is pulseless or apneic,

Decapitation,

Decomposition,

Rigor Mortis,

Dependent Lividity,

Head or Chest trauma that has resulted in the arrest,

Valid DNR.

Do Not Resuscitate Orders (DNR). If E.M.S. is presented with a patient that is apneic and pulseless and has a valid out of hospital DNR then they will refer to the DNR protocol. If the patient is not apneic or pulseless, then the patient will be treated and transported accordingly. The DNR must be signed by all applicable parties, but DOES NOT need to be original. **See DNR Protocol.**

Terminating Resuscitative Measures. Bluntzer ESD4 personnel may discontinue resuscitative measures initiated by family and/or first responders if the patient fits into the criteria noted above. In cases where Bluntzer ESD4 personnel initiate resuscitative measures then discover the patient fits into the above noted criteria then Bluntzer ESD4 will be allowed to discontinue resuscitative measures. If a question or conflict arises, On-Line Medical Control shall be contacted.

Life sustaining procedures should not be withheld or withdrawn from a patent that is pregnant.

NOTE If the patient has been determined to be Dead on Scene, contact the appropriate Law Enforcement Agency.

DNR PROTOCOL

The Out-of-Hospital Do-Not-Resuscitate (OOH DNR) program allows people to decide that they do not want to be resuscitated if they stop breathing and their hearts stop beating. The program allows people to declare that certain resuscitative measures will not be used on them. Those resuscitative measures specifically listed in the OOH DNR legislation are cardiopulmonary resuscitation (CPR), advanced airway management, defibrillation, artificial ventilations and transcutaneous cardiac pacing.

HONORING DIRECTIVE DOES NOT CONSTITUTE OFFENSE OF AIDING SUICIDE. A person does not commit an offense under Section 22.08, Penal Code, by withholding or withdrawing life-sustaining treatment from a qualified patient in accordance with this subchapter. (TAC 166.047) **EMT, AEMT, PARAMEDIC**

All personnel should become thoroughly familiar with the OOH DNR form and included instructions.

Resuscitation efforts that have been initiated prior to discovery of DNR orders shall continue until the Termination of Resuscitation Efforts protocol can be followed Contact should be made with medical control and the presence of DNR orders made known.

When presented with a properly executed DNR order, personnel shall honor the DNR order and withhold all listed interventions. Verification of the Order can be made with either the original standard form, a copy of the completed standard form, or the presence of a Texas DNR identification device on the patient. Should transport occur, the order or a copy of the order or the Texas DNR Identification device must accompany the patient. Personnel may accept an OOH DNR order or device that has been executed in any other state, if there is no reason to question the authenticity of the order or device.

Positive Identification of the patient with an OOH DNR Order must be made. This may be by:

- Self Identification by the patient.
- Identification of the patient by the patient's Legal Guardian! Agent/managing conservator/Qualified Relative, parent (if a minor), or physician who executed the Order.
- The wearing by patient of a TDH standardized identification bracelet or necklace.

The OOH DNR Order may be revoked at ANY time by the patient OR the patient's Legal Guardian Agent/Managing Conservator/Qualified Relative, Parent (if a minor), or physician who executed the order. The revocation may involve the communication of wishes to responding health care professionals, destruction of the form, or removal of all or any Do-Not -Resuscitate identification devices the patient may possess. If any of these responsible persons makes it known to the attending personnel that resuscitation should be initiated, personnel shall then proceed as if no order exists. Once the OOH DNR Order has been revoked and resuscitation has been initiated, those resuscitation efforts shall continue and personnel shall proceed as if no order exists.

If the patient is known to be pregnant or in the presence of unnatural or suspicious circumstances, the OOH DNR is considered to be automatically revoked and personnel shall proceed as if no order exists.

In the event of any dispute involving honoring the OOH DNR Order, the revocation standards included in the instructions for the Order shall apply. In the event of any dispute relating to the Order by any other persons, an attempt should be made to clarify the Order. If available, the attending physician should be consulted as a resource for on-site dispute resolution.

Document the following data on each incident in which an OOH DNR order or device is encountered:

- an assessment of the patient's physical condition
- whether an identification device or a DNR form was used to confirm DNR status and patient ill number
- any problems relating to the implementation of the DNR order i.e., on-site revocation of DNR order
- the name of the patient's attending physician
- and the full name, address, telephone number, and relationship to patient, any witness to patient identity

DIABETIC EMERGENCIES

EMT

- Assess and maintain A.B.C.'s
- Obtain Vital Signs
- Support ventilation as indicated.
- Administer oxygen.
- If the patient is comatose, maintain the patient in supine position, unless conditions require positioning for drainage.
- Check blood sugar reading. Utilize readings of the patient's cutaneous monitoring device if available.
- If 80 or below, with signs and symptoms associated with hypoglycemia, altered mental status is present and the patient can maintain airway, administer oral glucose 15-30 grams. Reassess patient, dose may be repeated in 10 minutes.

PARAMEDIC and ADVANCED EMT/EMT-INTERMEDIATE

- If 80 or below, with signs and symptoms associated with hypoglycemia, establish an I.V. lifeline of NS and administer 12.5-25 grams of D50.

If delivering utilizing 20% Dextrose in 500 mL:

- Hang a 1000 mL partial filled bag of 20% dextrose, and administer a bolus of 100-200 mL.
- If a very small catheter has been used (22-24G), may apply light pressure to the bag to facilitate administration.
- Clamp tubing between boluses, and reassess for improvements in mental status. Re-check the fingerstick glucose.
- Repeat boluses as needed until the patient becomes alert and oriented, and/or until normoglycemia is achieved.
- If 180 or above, establish I.V. lifeline of NS at a KVO rate.
- Recheck glucose levels as needed during extended transports.

NOTE: capillary levels are usually about 20 points lower than actual plasma glucose levels when used with the glucometer. D50 should be given through a free-flowing I.V. as Dextrose may cause tissue necrosis if it infiltrates.

Blood glucose Analysis Procedure:

1. Gather and prepare equipment
2. If possible, blood samples for performing glucose analysis should be obtained simultaneously with intravenous access.
3. Place an adequate size drop of blood on reagent strip or site on glucometer per the

manufacturer's instructions.

4. Time the analysis as instructed by the manufacturer or wait for the glucometer to show reading.
5. Document the glucometer reading and treat the patient as indicated.

HYPERACTIVE DELIRIUM SYNDROME

Hyperactive delirium syndrome is considered a relatively uncommon health condition characterized by severe agitation, aggression, or distress. *Hyperactive delirium syndrome* can be fatal if untreated, so it is important that we do not hesitate to treat these patients when we recognize that their condition may escalate to dangerous levels. Those that experience *Hyperactive delirium syndrome*, typically go through various stages including: severe agitation, potential violence, physical restraint, struggle, respiratory failure, and usually death. The first step may involve properly restraining the individual so that they do no harm to themselves or others, and secondly a medical professional will consider administering treatment as outlined below. Please reference the Restraint Section for Do's and Don'ts of physical restraint.

EMT

- Check for underlying causes of combativeness, and treat accordingly
- Consider calling law enforcement.
- Consider Physical Restraints in a manner to prevent trauma.
- Obtain Vital Signs

PARAMEDIC

- Consider Benzodiazepines (Versed) *Consider Versed IVP/IM in the absence of alcohol consumption and narcotic/barbiturate overdose
- Consider Antipsychotic - Haldol 5 mg IM
- Consider Dissociative - Ketamine 4 mg/kg IM or 1.0 mg/kg IV/IO push over 1 minute
- Consider Antihistamine - Benadryl 25 mg IM
- Consider combination therapy: Chemical Sedation with 3-drug combination (B52) *Adult Only
    - Haldol – 5 mg IM
    - Benadryl – 25 mg IM
    - Versed – 2 mg IM
- As alternative combination, consider *Adult Only
    - Haldol - 5 mg IM
    - Versed - 5 mg IM

HAZARDOUS MATERIALS (HAZMAT)

This protocol is intended to guide E.M.S. personnel who do not normally function as hazardous materials responders. All Hazmat situations should be considered potentially hazardous. Important information to consider is wind direction (approach from upwind and above grade if possible, or at least 90 degrees perpendicular to the prevailing wind direction), where the staging area is located and confirmation that the fire, police, and HAZMAT team have been notified of the situation.

ALL LEVELS:

Medical Control should be consulted for all complex exposures. In addition, E.M.S. Communications can contact Poison Control for additional information.

Based on information from dispatch of a possible existing Hazmat situation, Stage an adequate distance away so as not to be in danger of becoming involved with the contaminated area. If you arrive before other responding units, keep others away. If the unit becomes inadvertently contaminated, stage in an isolated area and notify dispatch.

When the responding Hazmat team is on scene, the Hazmat team will be considered in charge of patient care until the patients have been adequately decontaminated and care released to responding E.M.S. unit.

HEAD TRAUMA

EMT

- Immobilize C-Spine
- Baseline Vitals
- Obtain Vital Signs
- Consider O2 @ 10 - 15 LPM via Non - Rebreather.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Consider Immediate Orotracheal Intubation if necessary
- Consider IV/IO access en route. Keep IV at KVO rate

PARAMEDICS

- Monitor ECG
- Monitor EtCO2
- Consider permissive hyperventilation for ICP (ETCO2 of 30-35)

**Monitor patient closely throughout

HEAT EXHAUSTION

EMT

- Place patient in a cool environment
- Obtain Vital Signs
- Consider O2 @ 3-15 LPM as needed
- Consider giving patient oral fluids
- Loosen restricting clothes or footwear
- Attach ECG
- Apply room temperature water over patients and increase air flow, consider ice packs over neck, groin, axilla, etc.

ADVANCED EMT/EMT-INTERMEDIATE

- Establish an IV/IO of Lactated Ringer's or Normal Saline and consider giving a fluid bolus (500-2000 mL)

PARAMEDIC

- Monitor ECG
- Consider Zofran: 4 mg undiluted IVP over not less than 30 seconds, preferably over 2-5 minutes

HEAT STROKE

EMT

- Place patient in a cool environment immediately
- Obtain Vital Signs
- Administer O2 @ 10 - 15 LPM via NRB or BVM
- Remove patients clothing and place cool packs on pressure points (arm pits, groin)
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO of Lactated Ringer's or Normal Saline via large bore catheter
- Consider IV fluid bolus 1000 - 2000 mL
- Consider Immediate Endotracheal Intubation

PARAMEDIC

- Monitor cardiac rhythm closely

HYPERTENSIVE CRISIS

EMT

- Assess A.B.C.'s
- Obtain Vital Signs
- Administer oxygen
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish I.V/I.O. T.K.O.

PARAMEDIC

- Monitor ECG
- Consider Nitroglycerin, 0.4 mg. SL.
- Consider Labetalol 5-10 mg. Slow IV, repeated after 10 mins as needed up to 20 mg maximum dose.
- Consider: Catapres 0.1 mg PO

HYPOTENSION

EMT

- Obtain Vital Signs
- Administer O2 @ 10 - 15 LPM
- Consider placing patient in Trendelenburg (legs above level of head)
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access.
- Consider Multiple IV sites
- Consider IV Fluid Bolus 250 - 1000 mL. If BP increases, keep I.V.s at a rate to maintain blood pressure above 90 systolic.

PARAMEDIC

- Monitor ECG
- For hypotension not related to hypovolemia, give Epinephrine

  Adult

  Mix **1 mg in 250 ml of NS** (4 mcg/ml) utilizing a 60 gtt drip set. Using a syringe, administer 12mcg (3ml) every 3-5 minutes, titrate to MAP of 65. Consider infusion 2-10 mcg/min. titrate to MAP of 65

  Pediatric

  1 mcg/kg IV/IO, repeat every 3-5 minutes as needed
- Consider Dopamine 5 - 20 mcg/kg/min. IV drip (60 gtt set)
- Consider Levophed (Norepinephrine)

  Adult

  Mix **4 mg in 250 ml of NS** (16 mcg/ml) utilizing a 60 gtt drip set. Initial **2-4 mcg/min,** 30 mg/kg over 30 minutes, titrate to BP effect of SBP >90

  Pediatric

  Mix **2 mg in 250 ml of NS** (8 mcg/ml) utilizing a 60 gtt drip set. Initial **0.1 mcg/kg/min**, then titrate to BP effect of SBP >70+(2 x Age)

HYPOTHERMIA

EMT

- Place the patient in a warm environment (Be sure to slowly warm and move the patient carefully as sudden movements may cause cardiac fibrillation).
- Obtain Vital Signs
- Administer O2 @ 4 - 15 LPM as needed
- Apply warm packs to patient (arm pits, groin)
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access and check blood sugar level

PARAMEDIC

- Closely monitor cardiac rhythm.

**Transport to appropriate facility

MUSCULOSKELETAL INJURIES

****Patients presenting with fractures that have poor distal circulation are considered IMMEDIATE CATEGORY PATIENTS and should be transported immediately to an appropriate facility.**

EMT

- Obtain Vital Signs
- Administer Oxygen 2 - 15 LPM if needed
- Immobilize the affected limb
- Cover and pad open fractures with moist sterile dressings
- Control hemorrhaging, apply commercial tourniquet if necessary
- Consider manipulation of fracture (ONE ATTEMPT):
  If isolated femur fracture and time allows application of traction splint.
  If distal pulses or perfusion is inadequate.
  If the position of the fracture prevents appropriate packaging and transportation.

  Check for distal pulse in affected limb.

ADVANCED EMT/EMT-INTERMEDIATE

- I.V./I.O. access in patients with suspected multiple or femur/hip fractures.

PARAMEDIC

- Consider Morphine Sulfate
- Consider Fentanyl - Consider Ketamine – for severe pain or if you have to manipulate fracture due to loss of distal pulses.
- Consider Midazolam for muscle spasms associated with fracture or dislocation

ROUTINE OB PATIENT CARE

History:

Document Gravida, Parity, Estimated date of conception, Gestation, patient's age, past OB history, date of last OB exam. NEED TO DOCUMENT AB (ABORTED)

Assessment: Document chief complaint, signs and symptoms.
Severe abdominal pain with excessive bleeding follow, ***Abruptio Placenta protocol***
Preterm bleeding with no associated pain, follow Placenta ***Previa protocol.***
Cord presentation in vagina and follow ***Prolapsed Cord protocol.***

EMT

- Obtain Vital Signs
- Assess vital signs every 5 minutes for unstable patients.
- *If patient appears to be in shock, follow the* ***Shock Protocol.***
- Position the mother on her left side with a pillow under the right side of the pelvis.
- Administer O2 PRN.
- Attach ECG

Advanced EMT/EMT-Intermediates

- Establish one or possibly two IV's of Normal Saline. Administer KVO if the patient is stable. Unstable patients: administer a fluid challenge of 200ml.
- ***Often, patients who are dehydrated, develop pre-term contractions which disappear after a fluid challenge.***

Paramedics

- Monitor ECG for tachycardia.

CHILDBIRTH

ESTABLISH ROUTINE OB PATIENT CARE

HISTORY:

Which pregnancy is this? Obtain Para/Gravida numbers.
Due date?
Problems. with previous pregnancies or deliveries?
Have the membranes broken?
When did the contractions begin?
Frequency, duration, and regularity of contractions?
Prenatal care? By whom?
Any other medical problems?
Pain other than the contractions?

EXAM:

Are respirations adequate?
Is the baby crowning?
Any presenting parts visible?
Is there bloody show or frank bleeding?
Mother's skin color, temperature, and moisture?
Vital signs?
Any peripheral edema?

Determine if there is time to transport or if the birth is imminent. Consider possible complications such as: breach birth, multiple births, prolapsed cord, placenta previa, abruptio placenta, and/or eclampsia. If birth is imminent, proceed with the birth while trying to maintain a sterile field.

EMT

- Obtain Vital Signs
- Administer oxygen
- Remove the mother's clothing from the waist down. Drape the mother appropriately.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish an IV Normal Saline KVO

PARAMEDIC

Monitor ECG

CHILDBIRTH (Cont.):

All Certification Levels

- Warm the environment as much as possible.
- Position the mother for safe delivery
- Create a sterile field around the vaginal opening.
- Support the mother and guide the delivery. If the amniotic sac does not break, use a clamp to puncture the sac and push away from the infant.
- As soon as the head is delivered, suction the infant's mouth then nostrils with a bulb syringe.
- Support the infant as he/she is delivered.
- After the baby is delivered, assess Apgar at 1 and 5 minutes. Resuscitate as necessary.
- Wipe blood/mucous from the infant's mouth and nose with sterile 4x4, suction mouth and nose again.
- Dry the infant and wrap in a clean, dry, warm blanket.
- Keep the infant level with the vagina until the cord is cut.
- Once the cord stops pulsing, clamp and cut the cord.
- Allow placenta to be delivered, do not pull on cord. Do not delay transport waiting for placenta to deliver. This usually occurs 10-15 minutes postpartum. Bring placenta for evaluation.
- Once the placenta has delivered, control postpartum bleeding by massaging the fundus; increase the I.V. flow rate if indicated.
- Record the time of delivery for the neonate.
- Monitor the mother's vital signs.

SPECIAL NOTES

BREECH BIRTH:

If birth is breech, allow the infant to deliver to the waist without active assistance, give support only. Once the legs and buttocks are delivered, the head can be assisted out. If the head does not deliver within 4-6 minutes, insert a gloved hand into the vagina and create an airway for the infant. Many times, this procedure will be sufficient that the baby's head will deliver. If the head does not deliver, transport the mother to the hospital while maintaining an airway for the baby.

CORD AROUND INFANT'S NECK:

If the cord is wrapped around the infant's neck, slip the cord over the head and off the neck. If this cannot be done without undue pulling on the cord, clamp and cut the cord and allow the birth to continue normally.

MULTIPLE BIRTHS:

Multiple births are an unusual but possible occurrence. Be aware of the possibility and continue to monitor the mother closely following the first delivery.

PROLAPSED CORD:
Transport supine with hips elevated. Insert gloved hand into vagina to exert pressure away from cord. Gently cover all protruding cord with moist sterile dressings.

Abruptio Placenta and Placenta Previa

**Any patient having third trimester bleeding should be treated as having abruptio placenta or placenta previa until proven otherwise

EMT

- Obtain Vital Signs
- Administer O2 @ 10 - 15 LPM
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO of Normal Saline - Run at a rate to maintain BP >90 systolic
- Consider Multiple IV sites

**Transport immediately to the appropriate facility.

PARAMEDIC

- Monitor ECG
- Consider TXA

PRETERM LABOR

History:

- Pregnancy
- Labor before 37 weeks gestation
- Contractions
- Ruptured membranes
- Urge to push
- Bloody discharge

Physical Findings:

- Pain
- Anxiety
- Contractions
- Crowning
- Bloody discharge
- Urge to push
- Tachycardia
- Tachypnea

Protocol

EMT

- Initiate Routine OB Care Protocol
- Obtain Vital Signs
- Administer O2 15 LPM via NRB
- Transport left lateral recumbent with pelvis elevated
- Have child birth kit readily available
- Transport to hospital with LD capabilities
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access
- Administer fluid Bolus
- Monitor for hypertension, KVO the IV after the bolus

PARAMEDIC

- Monitor ECG

Contact Medical Control should any complications arise. Be prepared to perform a field delivery. SEE CHILDBIRTH PROTOCOL. If this occurs, call for a second unit as you will be dealing with two patients, one of which may be critical.

POSTPARTUM HEMORRHAGE

History:

Recent delivery of an infant and placenta.

Assessment:

- Hemorrhage (1200-1500 ml blood loss)
- Tachycardia
- Hypotension
- Vertigo
- Pallor

EMT

- Obtain Vital Signs
- Administer O2 via NRB at 15 lpm.
- Place the mother in Trendelenburg position.
- Cover the mother with warm blankets.
- Massage the mother's fundus for 3-5 minutes until firm.
- If the infant is stable, encourage breastfeeding.
- Follow Shock/Hypotension protocol PRN
- Apply heart monitor

ADVANCED EMT/EMT-INTERMEDIATE

- Establish two large bore IV/IO of Normal Saline.
- Administer 1-2 liters of NS over 30-45 minutes during transport.

PARAMEDIC

- Monitor ECG
- Consider TXA

PRE-ECLAMPSIA

History:

- Headache
- Right upper quadrant pain
- Decreased urine output
- SOB, Dyspnea
- Hand, Facial edema
- Visual disturbances
- Nausea and vomiting
- Confusion

Physical Findings:

- Blood Pressure: Mild > 140 systolic > 90 diastolic, Severe > 160 systolic > 110 diastolic
- Tachycardia
- Tachypnea
- Rales/crackles
- Pulmonary edema
- Altered LOC
- Local neuro deficit
- Generalized Edema

EMT

- Initiate Routine OB Care Protocol
- Administer O2
- Transport Semi-Fowlers in Left lateral recumbent.
- Monitor vital signs
- Transport to hospital with LD capabilities
- Apply ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access.

PARAMEDICS

- Monitor ECG
- Consider Magnesium Sulfate 2-6g IVP if seizure activity is present

ECLAMPSIA

History:

- Hypertension
- Seizures
- Postictal
- Headache
- General Edema
- Visual disturbances
- Abdominal pain with nausea
- Amnesia or altered LOC

Physical

Findings:

- Blood Pressure >160 systolic and >110 diastolic
- Tachycardia
- Tachypnea
- Rales
- Altered LOC
- Anuria
- Neuro deficit
- RUQ or epigastric tenderness
- General edema

EMT

- Initiate Routine OB Care Protocol
- Obtain Vital Signs
- Administer O2
- Transport in left lateral recumbent position
- Transport to hospital with LD capabilities
- Apply ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access.

PARAMEDIC

- Monitor ECG
- If your patient begins to have seizures: *Contact medical control, and Secure airway if necessary
- If Diastolic BP >110, Consider Labetalol 5-10 mg. IV, repeated after 10 mins as needed up to 20 mg maximum dose.
- Consider Magnesium Sulfate 2-6g IVP if seizure activity is present

OVERDOSE

Consider contacting the National Capital Poison Center (**Poison Control**) for assistance at **1-800-222-1222.** Poison Control can assist with the identification of unknown pills as well as provide precautions for patient reactions to overdose exposure to medications and chemical exposure.

EMT

- Assess and maintain A.B.C.'s
- Maintain airway as necessary.
- Obtain Vital Signs including Blood Glucose Level
- Oxygen if indicated.
- Contact poison control for handling of specific drugs/substances.
- Apply heart monitor

ADVANCED EMT/EMT-INTERMEDIATE

- Consider IV/IO access.
- If a narcotic overdose is suspected, consider Narcan.

PARAMEDIC

- Monitor ECG

Poison Control

1-800-222-1222

EXTERNAL PACING (ZOLL X-SERIES)

PARAMEDIC

NOTE Consider procedural sedation with midazolam or ketamine

1. Select monitor to “on” position.
2. Set output to zero (0) mA.
3. Attach ECG electrodes and connect ECG cables.
4. Adjust ECG size and lead for a convenient waveform display.
5. Verify proper R-wave detection.
6. The “Heart Shaped” R-wave detector flashes on the monitor when proper detection of the R-wave is taking place.
7. Place the hands-free pads on the patient. (anterior/anterior or anterior/posterior).
8. Connect the pads to the output cable.
9. Set the pacer rate to a value of 10-20 BPM higher than the patient’s intrinsic rate. If no rate exists, set to 60-82 BPM.
10. Observe the pacing stimulus marker and verify that it is well positioned in diastole. Increase the pacer output mA until stimulation (capture) is effective. Check to make sure that physical pulse rate matches monitor rate. Response is characterized by suppression of the intrinsic QRS complex. Assess the patient's mental status, central and peripheral pulses, skin color, and BP.

PAIN MANAGEMENT

Pain is a subjective experience. Efforts to use objective criteria (heart rate, grimace, desaturation) are notoriously unreliable. There is ample evidence in literature that health care providers systematically underestimate and undertreat pain. We do not need to have a diagnosis before treating pain, e.g., abdominal pain. We should always consider the possibility of pain in our patients and address it. This does not mean all patients must be given narcotics; we have multiple options for analgesia. Nor does treating pain mean that pain scores need to be reduced to zero.

EMT

Ice Packs
Splinting

PARAMEDIC

Moderate to severe pain
Fentanyl

- Adult: 50 to 100 mcg every 15 min PRN, IV/IO/IM/IN
- Pedi: 1-2 mcg/kg q 10 min PRN, max single dose 50 mcg, IV/IO/IM/IN

Morphine

- Adult: 2-5mg every 10 min PRN till desired effect or blood pressure stays >100 systolic
- Pedi: 0.1 to 0.2 mg/kg may be administered IM or very slow IVP as indicated and titrated to effect.

Consider Ketamine for Severe pain not relieved with one of above medications or severe trauma.

Ketamine

- 0.5mg/kg IN
- 0.3-0.5mg/kg IM
- 0.1-0.3mg/kg IV diluted in 10ml NS
- Pediatric (<40kg) 0.1-0.2mg/kg IM

PROCEDURES REFERENCE PAGES

INTRANASAL MEDICATION – MUCOSAL ATOMIZATION DEVICE (MAD)

Overview: **After unsuccessful** IV attempts, intranasal is a rapid route offering a high level of bio-availability of the medication being administered. The intranasal route can reduce the risk of needle sticks while delivering effective medication levels.

The rich vasculature of the nasal cavity provides a direct route into the bloodstream for medications that easily cross the mucous membranes. Due to this direct absorption into the bloodstream, rate and extent of absorption are relatively comparable to IV administration. **CONTRAINDICATIONS**

___ Epistaxis (nosebleed)

___ Nasal Trauma

___ Nasal septal abnormalities

___ Nasal congestion / discharge

Medication that may be used Intranasal

___ Naloxone (Narcan)
___ Midazolam (Versed)
___ Ondansetron HCL (Zofran)
___ Fentanyl
___ Ketamine

PROCEDURE

___ Draw up medication into a syringe using appropriate transfer needle
___ Intranasal dose is the same as IV / IM dose
___ Do not exceed 1.0 ml per nostril
___ Remove air from syringe
___ Remove needle and place MAD nasal tip onto syringe
___ Place MAD tip into nostril
___ Timing the respirations, depress the plunger rapidly when patient fully exhales and before inhalation
___ Evaluate the effectiveness of the medication, if desired effect has not been achieved, consider repeating and/or changing route of administration

Documentation of adherence to protocol:

___ Dose and time of medication administered
___ Vitals before and after administration of medication

Medical Control Contact Criteria

___ If any question exists as to the best option for the patient.

CRICOTHYROTOMY

Indications:

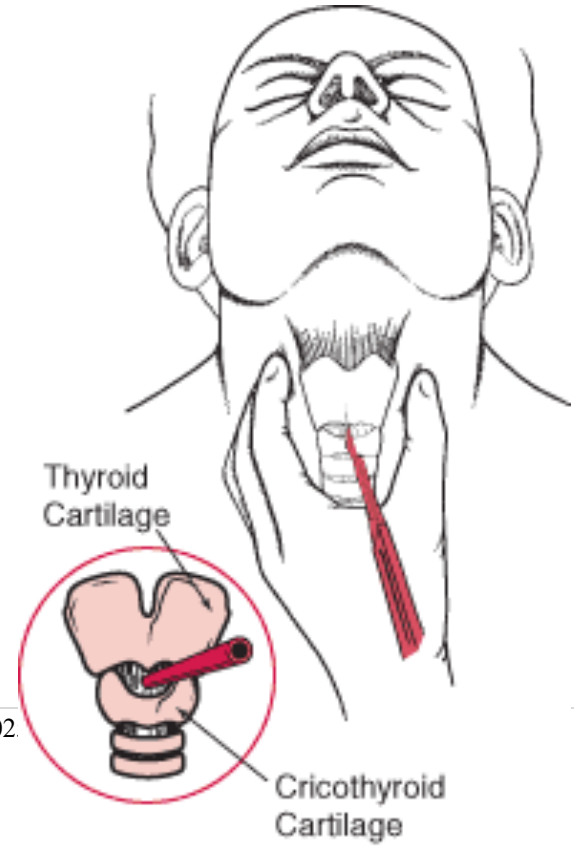
For management of an airway when standard airway procedures cannot be performed or have failed in a patient 12 years of age or older.

Assessment Difficulties - S.H.O.T

- Surgical/Scars
- Obstruction to Opening
- Distorted Airway (congenital, surgical, trauma)
- Spinal Injury

Procedure:

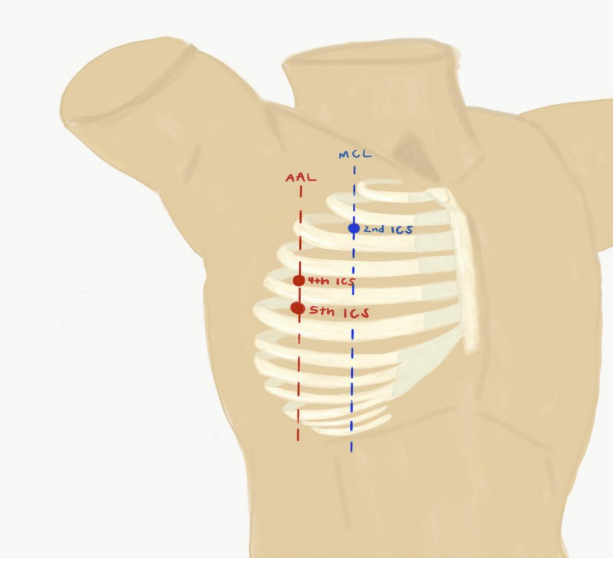
Locate the cricothyroid membrane utilizing anatomical landmarks. Prep the area. make a 1 inch vertical incision through the skin and subcutaneous tissue above and below the catheter using a scalpel. Make a horizontal stabbing incision (approx. 1/2 inch) through the membrane on each side of the catheter. While maintaining surgical opening, insert the cuffed endotracheal tube. Inflate the cuff with 5-10 cc of air and ventilate the patient while manually stabilizing the tube. Assess for correct placement and ventilation. Secure the tube.

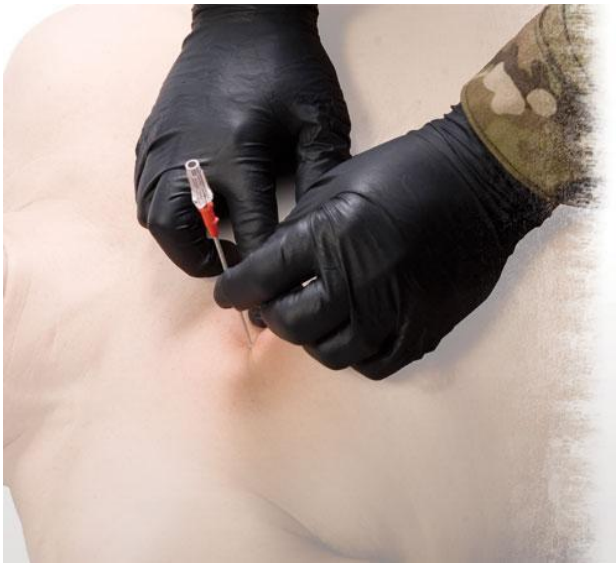


NEEDLE DECOMPRESSION

Approximate the fourth or fifth intercostal space at the anterior axillary line or second or third intercostal space at the midclavicular line. Locate the middle of the clavicle on the affected side and move the fingers down to the second or third intercostal space. Prep the area and insert a 14 gauge over the needle catheter or chest decompression needle at a 90-degree angle in the 2nd or 3rd intercostal space until air escapes. Remove the needle and advance the catheter. Place the finger of a sterile glove on the end of the catheter. Secure with a rubber band or tape. Cut the end off of the finger to allow air to escape. Secure the catheter in place with tape. Monitor the patient closely and frequently.

Note: Decompression needles may become clogged. Do not remove, repeat decompression procedure as necessary.





INTRAOSSEOUS ACCESS

Indications: In life threatening illness or injury after effective ventilation is established.

Tibial Tuberosity – Adult or Child/Infant

Expose the lower leg. Identify the tibial tubercle (bony prominence below the knee cap) on the proximal tibia. The insertion location will be 1-2 cm (2 finger widths), below this and medially. Prep the site. Holding the Intraosseous needle perpendicular to the skin, twist the needle handle with a rotary, grinding motion applying controlled downward force until a "pop" or "give" is felt indicating loss of resistance. DO NOT advance the needle any further. Remove the trocar and attach the IV. Stabilize and secure the needle.

Patients where rapid, regular IV access is unavailable with any of the following:

-Cardiac arrest.
-Multisystem trauma with severe hypovolemia.
-Severe dehydration with vascular collapse and/or loss of consciousness.
-Respiratory failure / Respiratory arrest.

Contraindications:

-Fracture proximal to proposed intraosseous site.
-History of Osteogenesis Imperfecta
-Current or prior infection at proposed intraosseous site.
-Previous intraosseous insertion within 24 hours or any orthopedic procedures at the selected site.

Proximal Humerus - Adult or Child/Infant

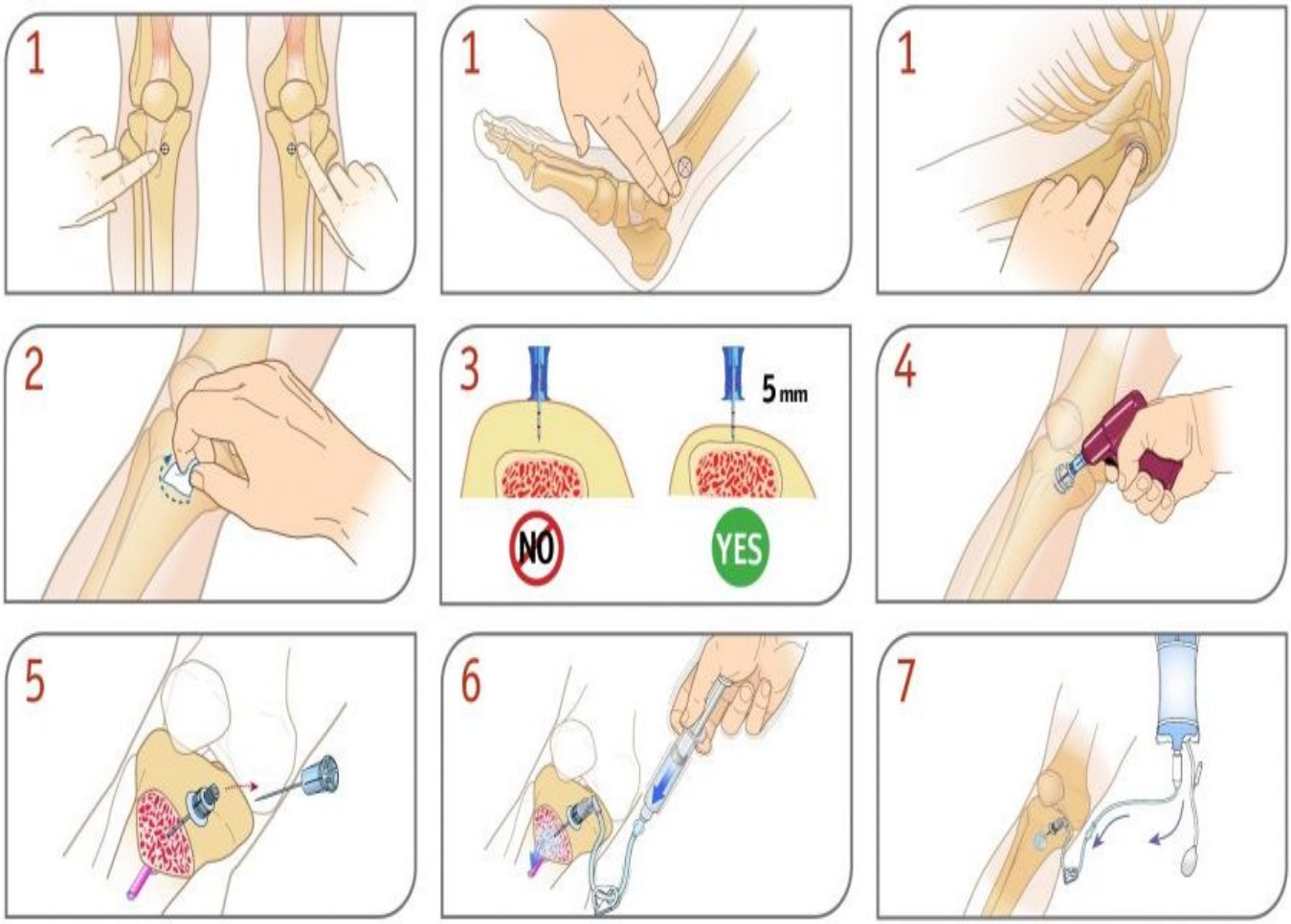
The proximal humerus insertion site is located directly on the most prominent aspect of the greater tubercle. Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body). The hand may be pronated on the side of the body if unable to bend or move the arm. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. This is the preferred site for patients who are responsive to pain. Once the insertion is completed, secure the arm in place to prevent movement and accidental dislodgement of the IO catheter.

Distal Femur – PEDIATRIC PATIENT ONLY

Secure the leg out-stretched to ensure the knee does not bend. Identify the patella by palpation. The insertion site is just proximal to the patella (maximum 1cm) and approximately 1-2 cm **medial** to midline.

1. Locate the site you want to use.
2. Clean the area with a povidone-iodine swab.
3. Select the appropriate needle. Small (pink) 15 mm needle: weight = 3-39 kg Medium (blue) 25 mm needle: weight > 40 kg. Large (yellow) 45 mm needle: weight > 40 kg and patients with excessive tissue over insertion sites.

4. Remove the needle from the case. Push the needle onto the power driver, and make sure that it is securely seated.
5. Remove and discard the needle set safety cap from the needle.
6. Insert the EZ-IO needle onto the tibial site at a 90-degree angle to the bone surface.
7. Gently power the needle set until it touches bone and then apply steady downward pressure.
8. Release the driver's trigger until: There is a sudden "give" or "pop" Or
The needle reaches the desired depth at 5mm, which is indicated on the needle by the black line.
9. Remove the power driver and needle stylet.
10. Confirm that the catheter is stable and secure with EZ-Stabilizer.
11. Use 10 ml of normal saline to flush the EZ-Connect extension set and then attach to the exposed luer lock hub of the needle. Pediatric flush is 2-5 ml.
12. Pull back on the syringe to aspirate blood (may not always see a flash), then flush with 10 ml of normal saline in under 5 seconds. Some patients may require more than one 10 ml flush.
13. If the route is patent, disconnect 10 ml syringe from EZ-Connect extension set.
14. Connect primed EZ-Connect extension set to **primed** IV tubing.
15. Attach a pressure infuser.
16. Following the administration of any IO medications, flush the IO line with 10 ml of IV fluid.
17. Secure the site and attach the wrist label to the patient's hand.
11. You may administer (SLOWLY – over 60-120 seconds) up to 40 mg (1 to 2 ml) of 2% Lidocaine in adult patients who experience infusion-related pain. Pediatric patient dosage is 0.5 mg/kg up to 40 mg of Lidocaine. Allow lidocaine to swell in IO space for 60 seconds. This may be repeated prn to a maximum of 60 mg (6 cc) over 60 seconds.
12. Following the administration of any IO medications, flush the IO line with 10 mL of IV fluid. Pediatric flush is 2-5 mL.
13. Document the procedure, time, and result (success) on/with the patient care report (PCR).
14. Use a pressure bag or blood pressure cuff on an IV bag to ensure continuous infusion.



EXTERNAL JUGULAR ACCESS

PARAMEDIC

Place pt. in supine head down position. Turn pts. head toward the opposite side if no risk of cervical injury exists. Prep. site and align the catheter with the vein and aim toward the same side shoulder. Compressing the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method. Attach the IV and secure the catheter avoiding circumferential dressing or taping.

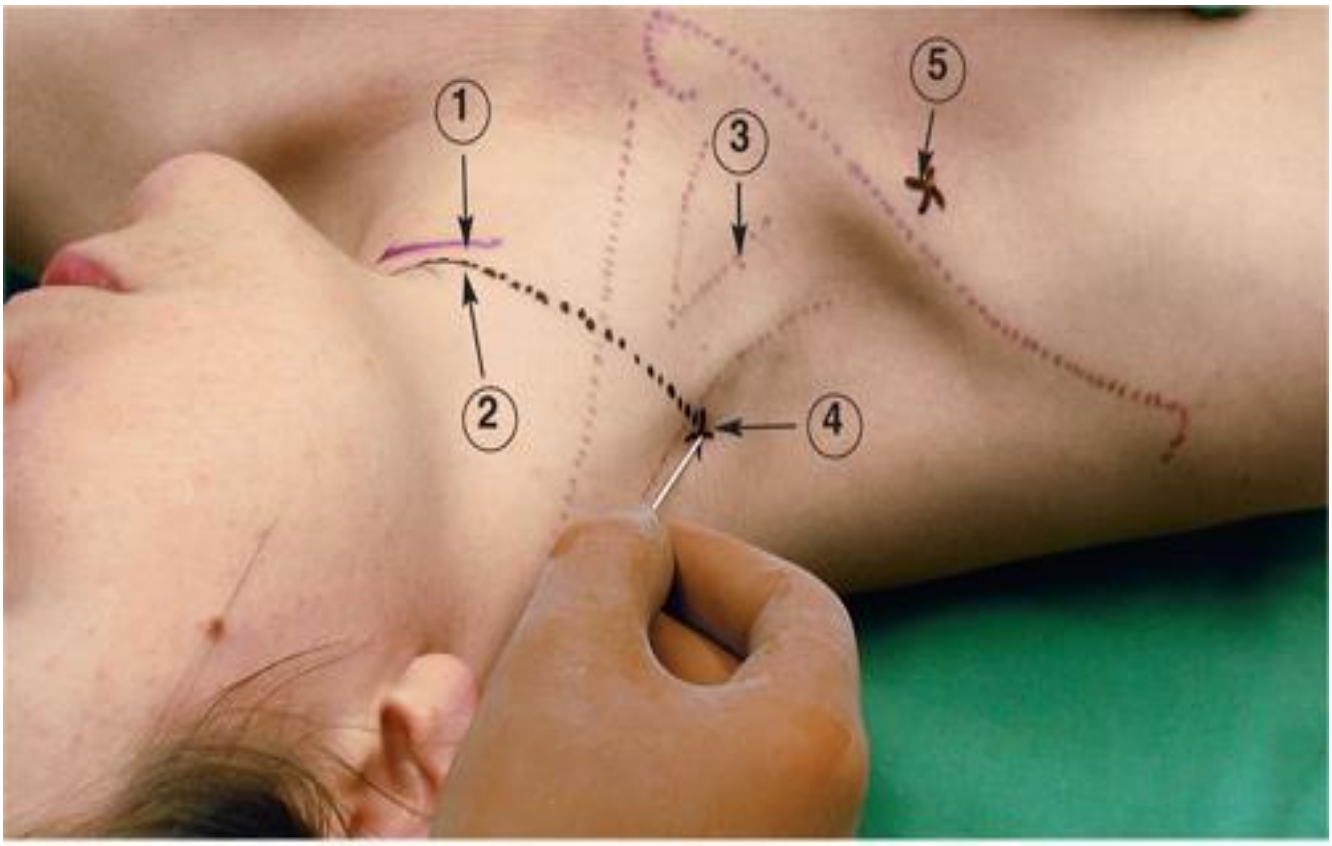


Fig. 11: Interscalene nerve block: Modification according to G. Meier

1. Cricoid
2. Superior thyroid notch
3. Sternocleidomastoid muscle
4. Puncture site for anterior access
5. Vertical, infraclavicular puncture site

RESTRAINT AND/OR SEDATION OF COMBATIVE PATIENTS

Preventing further injury to the patient will be a primary concern of Nueces County ESD4 personnel. At times, it may be necessary to restrain combative patients in order to prevent them from further injuring themselves or E.M.S. members; and to provide adequate care. The following protocol should be followed when restraining combative patients, utilize Do's & Don'ts list below:

EMT

- Check for underlying causes of combativeness, and treat accordingly
- Consider calling law enforcement.
- Consider Physical Restraints in a manner to prevent trauma.
- Obtain Vital Signs

PARAMEDIC

- Consider Benzodiazepines (Versed) *Consider Versed IVP/IN in the absence of alcohol consumption and narcotic/barbiturate overdose
- Consider Antipsychotic - Haldol 5 mg IM
- Consider Dissociative - Ketamine 4 mg/kg IM or 1.0 mg/kg IV/IO push over 1 minute
- Consider Antihistamine - Benadryl 25 mg IM
- Consider combination therapy: Chemical Sedation with 3-drug combination *Adult Only
    - Haldol – 5 mg IM
    - Benadryl – 25 mg IM
    - Versed – 2 mg IM
- As alternative combination, consider *Adult Only
    - Haldol - 5 mg IM
    - Versed - 5 mg IM

PHYSICAL RESTRAINT DO'S & DON'TS

DO

- Utilize 4- or 5-point restraints
- One arm up, one arm down
- Elevated head of bed
- Tie restraints to stretcher frame
- REASSESS FREQUENTLY

DON'T

- Restrain prone
- Tie restraints to bed rail
- Use 2- or 3-point restraints
- Place a pillow under the head

SPECIAL POPULATIONS

In order to provide accurate and comprehensive care we must recognize that a number of our patients may require special assessment and care in order to better serve their medical needs. Please follow the advised recommendations and cautions.

Elderly

- Avoid Benzodiazepines
- Use antipsychotics (Haldol)
- Start low, Go Slow

Pediatric

- The art of verbal de-escalation is even more important
- Don’t delay restraints if you need it

SEPSIS

Suspected Infection and At least 2 for the following

- Altered mental status (Any GCS<15, agitated or changed from baseline)
- Respiratory rate greater than or equal to 20 bpm
- Heart rate > 90
- Systolic blood pressure less than or equal to 100 mm Hg
- End Tidal CO2 less than or equal to 25 mm Hg
- Temperature above 100.4 F or below 96.8 F

EMT

- Assess and maintain A.B.C.'s
- Maintain airway as necessary.
- Obtain Vital Signs including Blood Glucose Level
- Oxygen if indicated.
- Temporal/tympanic
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Consider IV/IO access.
- Do not attempt IV access more than 2 times
- Consider early IO placement for volume resuscitation
- Give 500mL Lactated Ringer's or Normal Saline bolus wide open
- consider repeating bolus if patient improves
- May give up to 2000 mL
- Monitor lung fields before and after each bolus

PARAMEDIC

- Consider Levophed (Norepinephrine) – **Preferred**

  Adult
  Mix **4 mg in 250 mL of LR or NS** (16 mcg/ml) utilizing a 60 gtt drip set. Initial **2-4 mcg/min,** 30 mg/kg over 30 minutes, titrate to BP effect of SBP >90

  Pediatric
  Mix **2 mg in 250 mL of LR or NS** (8 mcg/ml) utilizing a 60 gtt drip set. Initial **0.1 mcg/kg/min**, then titrate to BP effect of SBP >70+(2 x Age)

- Consider Dopamine at 10mcg/kg/min IV, titrate to SBP 100; max 20 mcg/kg/min IV

- Monitor ECG

STATUS EPILEPTICUS

EMT

- Obtain Vital Signs
- Consider checking blood glucose level
- Administer O2 @ 4 - 15 LPM as needed. Assist ventilations if necessary

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO of Normal Saline
- Consider 25g D50 IVP if patient's glucose level is < 80

PARAMEDIC

- Consider **Midazolam** 1-5 mg IV, IM, IN (see below for dosing) titrated until seizure activity stops.

  ****Observe patient closely for signs of respiratory depression.**

Basic Intranasal Delivery Materials:

1. Syringe and needle/needless device to draw up the medication.
2. Atomizer
3. Medication of appropriate concentration for nasal medication delivery.
    - High concentration – Low volume

Procedure:

1. Aspirate the proper volume/dose of medication required to treat the patient (an extra 0.1 ml of medication should be drawn up to account for the dead space within the atomizer)
2. Twist off/remove the syringe from the needle/needleless device.
3. Attach the atomizer tip via Luer lock mechanism – it twists into place.
4. Using your free hand to hold the crown of the head stable, place the tip of the atomizer snugly against the nostril aiming slightly up and outward. (Towards the top of the ear on the same side)
5. Briskly compress the syringe plunger to deliver **half** of the medication into the nostril.
6. Move the device over to the opposite nostril and administer the remaining medication into that nostril.

Patient age(years)	Weight(kg)	IN Midazolam*5 mg/ml concentration	
Neonate	3 kg	0.3 ml	0.6 mg
<1 yr	6 kg	0.4 ml	1.2 mg
1 yr	10 kg	0.5ml	2.0 mg
2 yr	14 kg	0.7 ml	2.8 mg
3 yr	16 kg	0.8 ml	3.2 mg
4 yr	18 kg	0.9 ml	3.6 mg
5 yr	20 kg	1.0 ml	4.0 mg
6 yr	22 kg	1.05 ml	4.4 mg
7 yr	24 kg	1.1 ml	4.8 mg
8 yr	26 kg	1.2 ml	5.2 mg
9 yr	28 kg	1.3 ml	5.6 mg
10 yr	30 kg	1.4 ml	6.0 mg
11 yr	32 kg	1.4 ml	6.4 mg
12 yr	34 kg	1.5 ml	6.8 mg
Small teenager	40 kg	1.8 ml	8.0 mg
Adult or full-grown teenager	> 50 kg	2.0 ml	10.0 mg

TASER BARB REMOVAL

Indications:
To remove the remaining barb after use of a Taser by Law Enforcement agencies.

Contraindications:
Do not remove taser barbs from the face, neck, genitals, spine, hands, feet, or breasts or any barb that may be embedded in the bone. These patients must be seen at the Emergency Department.

Precautions:
Patients should be in police custody for the safety of medical personnel. Tasers have two barbs, make sure that both are removed. Do not remove barbs that are still attached to the taser.

Procedure:

1. Perform complete patient assessment.
2. Cut wires from the barb if they are still attached.
3. Expose the area where the barbs are implanted.
4. Place a hand in the form of a "V" around the barb to stabilize the patient's skin, and prevent loose skin from coming up during the removal.
5. Grasp the barb firmly and quickly pull it out of the patient's skin.
6. Assess the site where the barb was pulled. Control any bleeding and dress the wound.
7. Visually inspect the barbs to make sure that the tip did not break off and remain in the patient's skin.
8. Contact Med Control if you are unsure whether or not to remove the barbs.
9. Apply wound care to the area as needed.
10. Patient should be transported to hospital if the patient has previous cardiac history, appears intoxicated, or has altered mental status.

Notes:

- Remember that removing the barbs is not a time critical emergency. Calm and decisive actions by the EMT will deliver the best patient care.
- Always assess the patient for any injuries that may have occurred secondary to the tasing

- Fully document your assessment and the removal of the barbs.

TRANSPORT INITIATED BY LAW ENFORCEMENT

Indications:
If a patient is in custody of law enforcement, or if an Emergency Detention Warrant (EDW) has been issued

Procedure:

- In the event that a patient is in custody of law enforcement, and the law enforcement agency is requesting ambulance transport, an involved LEO must accompany the patient to the receiving facility.

- It is acceptable for the accompanying LEO to utilize their own vehicle and follow the ambulance.

- If the patient is combative, necessitates use of hard restraints, or by judgment of EMS providers, a LEO shall ride in the patient compartment

- Any behavioral health patient that is being transported under the authority of an EDW shall be subject to the same expectations.

- Assess and treat all patients per standard treatment protocols.

TENSION PNEUMOTHORAX

EMT

- Obtain Vital Signs
- Administer O2 @ 12 - 15 LPM via Non – Rebreather
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Consider immediate endotracheal intubation
- Establish IV/IO access
- Consider Multiple IV sites in route to the hospital.
- Consider Needle Decompression (See Below)

PARAMEDIC

- Monitor ECG

*Transport rapidly to appropriate facility

TRAUMA ARREST

EMT

- Maintain C-Spine control while assessing ABC's.
- Obtain Vital Signs
- CPR
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Intubate and assist ventilations with BVM
- Establish IV/IO of Normal Saline with large bore catheter

PARAMEDIC

- Monitor ECG
- Follow Cardiac Arrest protocols
- Follow Current AHA Guidelines.

SPINAL MOTION RESTRICTION PROTOCOL

Introduction: This protocol is to serve as a guide in determining when spinal immobilization may be omitted if all the following criteria are met. This is not an absolute and the **PARAMEDIC** should use sound clinical judgments when utilizing this protocol. All patients that are candidates for c-spine clearance should have a **NEGATIVE (NO)** response to **ALL** of the following:

Does the patient meet any of the following criteria?

1. Patient < 8 years of age.
2. Altered mental status and/or decreased level of consciousness.
3. Suspected alcohol intoxication and/or drug use.
4. Presence of neurological deficit or complaint.
5. Presence of C-spine pain and or para spine tenderness.
6. Distracting injuries of any kind (i.e. long bone fractures, abdominal trauma, chest pain, crushing injuries, extensive BSA burns, etc.)
7. Language barrier between Paramedic and patient.
8. Significant MOI (i.e. MVC > 40 MPH, ATV injury, fall > 3 feet or five steps, bicycle collision, diving accident, rollover, or ejection).

NOTE: Always err on the side of utilization of cervical spine motion restriction if any question exists. Elderly patients are more prone to osteoporosis and other bone disease that may make them more susceptible to fractures or injuries. Keep this in mind and if questions arise call medical control if this protocol is utilized, then all negatives should be noted in the patient run report.

VOMITING AND DIARRHEA

EMT

- Obtain Vital Signs, and SPO2 in both upper extremities

- Assess for orthostatic changes or potential for Cardiac, CNS, Renal, Traumatic, or Diabetic Ketoacidosis etiologies. Positive changes in orthostatic B/P in absence of other etiologies encourage PO fluid intake.

- Consider Sepsis protocol.

- Obtain Blood sugar level

ADVANCED EMT/EMT-INTERMEDIATES

- Establish IV/IO of Lactated Ringer's or Normal Saline
- Positive orthostatic changes in absence of other etiologies infuse fluid bolus.
- Consider Zofran 4mg IV.
- Consider Benadryl 25 mg IV

PARAMEDIC

- In absence of other etiologies, with continued vomiting and/or nausea.
- If Zofran is ineffective as an antiemetic, consider haloperidol

Notes:

- Document the mental status and vital signs prior to administration of Zofran.
- Diabetic patients should have finger stick glucose documented.

PEDIATRIC

PROTOCOLS

PEDIATRIC GENERAL MANAGEMENT

Pediatric patients are sometimes difficult to assess. Allow the patients' parents/guardians to assist you in the assessment as much as possible. This will reduce stress on the pediatric patient, calm the parent and make your job much easier.

Remember to assess the pediatric patient from toe-to-head, as this approach is less frightening to them.

- Scene Safety
- Body Substance Isolation
- ABC's
- Mental Status/Level of Activity appropriate for that age group
- History and Physical
- Obtain Vital Signs
- Baseline SPO2
- Treatment PRN*
- Medication Administration PRN
- Transport… Treatment and Medication Administration should be performed en route whenever possible.
- More than one Protocol may apply to any single patient.

- All pediatric patients must be properly secured to the stretcher or car seat prior to transport.
- Proper consent obtained to treat and transport.
- **All patients should be transported to the closest and <u>most appropriate</u> facility.**

**** Treatment includes any advanced procedure the patient may require***.

PEDIATRIC ANAPHYLAXIS

EMT

- Measure Vital Signs
- Administer O2 @ 4 - 15 LPM as needed
- Albuterol Unit dose (2.5 mg in 3 mL) Nebulized
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Consider immediate oral or nasal intubation
- Establish IV/IO access
- Consider Epinephrine 1:1,000 - 0.01 mg/kg (0.01 mL/kg) IM every 15 minutes PRN. Max dose 0.3 mg dose
- Consider Benadryl 1 mg/kg Slow IVP or IM (low priority)

PARAMEDIC

- Monitor ECG
- Consider Solu-Medrol:
  Pediatric Dosage: 1 to 2 mg/kg Slow IV push.

****NOTE**** Blood sugar levels should be closely monitored when administering Solu-Medrol to the Diabetic patient. Solu-Medrol causes an increase in the body's requirements for insulin.

CROUP

History:

- Infant or Toddler
- Several days of "cold like" symptoms
- Barking or "Seal Like" cough
- Stridor
- Respiratory Distress
- Fever
- Symptoms usually worse at night

Physical Findings:

- Any of the symptoms associated with the history above.

EMT

- Maintain an open airway.
- Administer humidified O2 via Pedi-mask 10-15 LPM,
  allow the parent to assist you.
- Monitor Vital Signs, including temperature, maintain O2 saturation > 95%.
- Provide positive pressure ventilations for patients in respiratory failure.
- Transport in a position of comfort to the appropriate hospital.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Consider: 3 mL Nebulized NORMAL SALINE.
- Establish IV/IO access PRN.

PARAMEDIC

- Consider: Nebulized Epinephrine 1:1000, 3-5 mg (3-5 ml)
- Patients in respiratory failure:
  * BVM with 100% O2
    If no response
    * Endotracheal Intubation using ET tube 1-2 sizes smaller than usual.
- Monitor ECG

FBAO CONSCIOUS CHILD (1-8 yrs. old)

History:

- Eating or running with food in mouth
- Placing foreign objects in mouth
- Improperly chewed food

Physical Findings:

- Anxiety
- Arm Flailing
- Cyanosis
- Inability to cough
- Inability to speak
- Making high pitched sounds
- Apnea
- Possibly grasping one's throat

EMT

- **(Abdominal thrust aka *Heimlich maneuver)***
- Stand or kneel behind the victim
- Encircle the victim's chest with your arms
- Place the thumb side of your fist against the victim's abdomen (between the lower half of the ribs and just above the victim's navel) *Avoid the xiphoid process!*
- Grasp your fist with the other hand and exert 5 quick and upward thrusts.
- Continue this process until the object is expelled or the patient becomes unconscious.

ADVANCED EMT/EMT-INTERMEDIATE

- Same as EMT'S

PARAMEDIC

- Same as EMT'S and Advanced EMT/EMT-Intermediates

FBAO RESPONSIVE INFANT (birth-1 year)

History:

- Swallowed improperly chew food
- Foreign object in mouth

Physical Findings:

- Unable to cough
- Cyanosis
- Anxiety
- Unable to speak
- High pitched sounds
-

EMT

- Hold the infant prone while supporting their weight on your forearm
- Support the infant's head by holding the jaw with your hand
- Deliver up to 5 forceful back blows, between the shoulder blades with the heel of your hand.
- Cradle the infant supine in your arms and deliver 5 chest compressions one finger's width below the nipple line using two fingers.
- Continue this procedure until this infant loses consciousness or the object is expelled.

ADVANCED EMT/EMT-INTERMEDIATE

- Same as EMT'S

PARAMEDIC

- Same as EMT'S and Advanced EMT/EMT-Intermediate

FBAO UNCONSCIOUS CHILD (1-8 YRS. OLD)

History:

- FBAO unrelieved by Heimlich Maneuver
- Choking Child
- Running or playing with food in mouth
- Improperly chewed foods
- Foreign object in mouth

Physical Findings:

- Unconscious
- Unresponsive
- Apneic
- Possibly, cardiac arrest
- Cyanosis

EMT

- Place the victim in a supine position, on a firm, flat surface
- Look in the victim's mouth using the tongue-jaw-lift technique
- Open the airway using the head-tilt-chin-lift technique
- If foreign object is observed, attempt to remove it with your fingers. DO NOT perform a blind finger sweep.
- Attempt to deliver two rescue breaths
- If the two rescue breaths do not cause the chest to rise
  * Reposition the victim's head
  * Attempt two more rescue breaths
- Deliver 5 quick and upward abdominal thrusts below the ribcage and just above the navel (avoid the xiphoid process)
- Repeat the above steps until the object is dislodged.
- Suction PRN

ADVANCED EMT/EMT-INTERMEDIATE

- Same as the EMT'S
- May use a pediatric laryngoscope and Magill Forceps to dislodge the FBAO.
- Suction PRN
- Establish IV/IO

PARAMEDIC

- Same as Advanced EMT/EMT-Intermediates
- Suction PRN
- Once the FBAO is retrieved, follow the appropriate Pediatric Protocol. (Pediatric Asystole, Seizure, etc.)

**Transport all choking victims to the ED to ensure aspiration had not occurred.*

FBAO UNCONSCIOUS INFANT (BIRTH-1 YEAR)

History:

Complete airway obstruction

Physical Findings:

- Unconscious
- Apnea
- Cyanosis
- Possibly, Cardiac Arrest

EMT

- Open the infant's airway using the tongue-jaw lift
- Look in the infant's mouth for the foreign object (perform finger sweep if the object is visible)
- Open the airway using the head-tilt-chin-lift
- If foreign object is observed, attempt to remove it with your fingers. DO NOT perform a blind finger sweep.
- Attempt to deliver two rescue breaths (reposition the head if ineffective)
- Deliver 5 forceful back blows, between the shoulder blades
- Deliver 5 chest compressions using 2 fingers, 1 finger's width below the nipple line (compress the chest ½ to 1 inch)

Repeat the above steps until the object is expelled or the infant's chest rises with a rescue breath.

All choking victims should be transported to the ED to ensure that aspiration has not occurred.

ADVANCED EMT/EMT-INTERMEDIATE

- Same as EMT'S
- May use a pediatric laryngoscope and Magill forceps for visualization of FBAO.
- Establish IV/IO

PARAMEDIC

- Same as Advanced EMT/EMT-Intermediates
- Once the FBAO is retrieved, follow the appropriate Pediatric Protocol. (Pediatric Asystole, Seizure, etc.)

**Transport all choking victims to the ED to ensure aspiration had not occurred.*

PEDIATRIC AIRWAY MANAGEMENT

History:

- Seriously ill
- Injury with respiratory insufficiency
- Shock
- Trauma

Physical Findings:

- Anxiety
- Listlessness
- Cyanosis
- Apnea
- Tachypnea
- Delayed capillary refill
- Bradycardia
- Tachycardia

EMT

- Position the child (5-8yrs) supine with padding under the head to open the airway.
- Position the infant (0-5yrs) supine with padding under the shoulders to open the airway.
- Monitor SP02, but do not delay O2 if one is not readily available.
- Insert NPA, OPA (assure proper sizing)
- Administer 100% 02 using pediatric size BVM (child or infant)
- Deliver one breath every 3 seconds (watch for chest rise, allow pt. to exhale)
- Monitor for signs of improvement or deterioration.

ADVANCED EMT/EMT-INTERMEDIATE

- Intubate using appropriate tube size (reference: Pediatric Tube Size Chart)
- Confirm proper tube placement by more than one method
- Secure ET Tube
- Establish IV access using Normal Saline through 60 gtt. set
- Maintain Vital Signs at minimum 96%
- Monitor for signs of improvement or deterioration
- Ventilate (1 breath every 3 seconds for children less than 8 yrs., 1 breath every 5 seconds for children over 8 yrs.)

*In the event of deterioration, evaluate for (DOPE): **D**islodgement, **O**bstruction, **P**neumothorax, **E**quipment Failure*

PEDIATRIC ALTERED MENTAL STATUS

History: *Possible causes:*

- Alcohol
- Epilepsy, endocrine, electrolytes
- Insulin
- Opiates and other drugs
- Uremia
- Trauma, Temperature
- Infection
- Psychogenic
- Poisons
- Shock, Stroke, Space-Occupying Lesion, Subarachnoid Hemorrhage

Physical Findings:

- Inappropriate behavior
- Less alert
- Less interactive
- Inconsolable
- Non-distractible
- Unresponsive

EMT

- Initiate Pediatric General Management Protocol
- Observe for the presence of odors (hydrocarbons, ethanol)
- Assess pupils
- Assess motor activity (extremity movement, seizures, posturing, flaccidity)
- Perform finger stick for glucose monitoring.
- If the child is hypoglycemic (<60 mg% in child) and conscious enough to follow command, administer Glucose Paste.
- Obtain Vital Signs
- Administer 100% O2 via NRB.
- In the absence of gag reflex, insert OPA or NPA
- If cyanotic, administer positive pressure ventilations with 100% O2 via BVM.
- Attach ECG

PEDIATRIC ALTERED MENTAL STATUS Cont.

ADVANCED EMT/EMT-INTERMEDIATE

- Consider: Intubation using appropriate ETT.
- Confirm tube placement with more than one method.
- Establish IV/IO access PRN.
- For patients with Normal Saline hypoperfusion, administer 20 ml/kg Normal Saline fluid bolus.
- Hypoglycemic *Newborn* (glucose <40 mg %):

  * Administer D10W, 2-4 ml/kg/bolus IV/IO
  (1 part D50W, 4 parts Normal Saline)
  Child <2 years old (glucose <60 mg %)
  * Administer D25W, 2-4 ml/kg IV/IO
  (Dilute D50W 1:1 with Normal Saline)
  Child >2 years old (glucose <60 mg %)
  * Administer D50W, 1-2 ml/kg IV/IO bolus

PARAMEDIC

- Monitor ECG
- Assess Rhythm, if symptomatic, treat the rhythm. *See Pediatric Cardiac Protocols*
- Seizure Patient. *See Pediatric Seizure Protocol.*
- Head Injury. *See Pediatric Head Trauma Protocol.*

PEDIATRIC ASTHMA/ RESPIRATORY DISTRESS

History: Asthma or sudden respiratory distress.

Physical Findings:

Mild: SOB, Wheezes, normal or slightly elevated respiratory rate.
Moderate: Tachypnea, wheezes, accessory muscle use, decreased air movement, and/or hunched shoulders.
Severe: Impending respiratory failure, decreased or absent air movement, wheezes, accessory muscle use, and/or fatigue.

EMT

- Obtain Vital Signs
- Maintain and administer oxygen at high flow and high concentration preferably by non-rebreather mask. If respiratory effort and respiratory rate are normal for age and a pulse oximeter is available with a saturation reading greater than 95%, then oxygen administration is optional. Oxygen should be administered as needed to raise oxygen saturation to at least 95%.
- Administer Albuterol 0.15 mg/kg (5 mg. Max) May repeat x 2, 20 minutes apart.

ADVANCED EMT/EMT-INTERMEDIATE

- IV/IO

PARAMEDIC

- Consider 1-2 mg/kg Solu- Medrol IV sooner, considering delay of onset
- Consider: Epinephrine (1:1000) 0.01 mL/kg SQ every 20 minutes x3 (Max 0.3 ml/dose) if poor inspiration.

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<u>Prepare to intubate if the patient becomes apneic. See chart for tube sizing.</u>

<u>Pediatric Tube Size Chart</u>

Newborn 3 kg ET (mm)	3.0
Infant 5 kg (mm)	3.5-4.0
Toddler 10 kg (mm)	4.5-5.0
6 yr old 20 kg (mm)	5.0-5.5
9 yr old 30 kg (mm)	6-6.5
Adolescent 50 kg (mm)	7-7.5

PEDIATRIC ASYSTOLE AND PULSELESS ARREST, V-FIB/ PULSELESS V-TACH

History: Consider and treat the causes:

- Severe hypoxemia
- Severe acidosis
- Severe Hypovolemia
- Tension Pneumothorax
- Cardiac Tamponade
- Profound Hypothermia
- Massive PE
- Drug overdose
- Hyper/hypocalcemia

Physical Findings: Apneic, Pulseless, Cyanotic, Pale, Cool, Clammy and/or Mottled.

EMT

- Initiate CPR
- Pediatric General Management Protocol
- If no advanced airway is in place and you are alone, use a compression to ventilation ratio of 30:2. If you have a partner use a compression to ventilation ratio of 15:2. If there is an advanced airway in place, perform non-stop compressions.
- Provide artificial ventilations using a pediatric BVM with 100% O2 Ventilate at a rate of 1 breath every 3 seconds if less than 8yrs. Old. Older than 8 yrs. Old, ventilate at a rate of 1 breath every 5 seconds.
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV or IO and administer Normal Saline 20 ml/kg. May repeat PRN.
- Intubate the patient.

PARAMEDIC

- Confirm cardiac rhythm in more than one lead. Continue CPR
- Defibrillate 1 time if needed, 2 J/kg Continue CPR
- Obtain IV or IO access Continue CPR
- Epinephrine, first dose IV/IO 0.01 mg/kg (1:10,000, 0.1 ml/kg), ETT: 0.1 mg/kg (1:1,000, 0.1 ml/kg), Continue CPR
- Defibrillate 4 J/kg Continue CPR
- Lidocaine 1 mg/kg IV/IO/ETT **OR** Amiodarone 5 mg/Kg IV/IO, Continue compressions
- Defibrillate 6 J/kg Continue CPR
- Epinephrine, Second and subsequent doses (repeat every 3-5 minutes)
- IV, IO, ET: 0.1 mg/kg (1:1,000, 0.1 mL/kg) (IV/IO doses up to 0.2 mg/kg of 1:10,000 may be effective), continue compressions
- Defibrillate 8 J/kg continue compressions
- Lidocaine 1 mg/kg **OR** Amiodarone 5 mg/Kg IV/IO, Continue compressions

- **Consider if the Pt is in polymorphic V-Tach (Torsades de pointes) give 1-2g IVP of Magnesium Sulfate till rhythm changes.**

****Start infusion of medication which converts rhythm****

Regarding field terminations for pediatric cardiac arrests, once treatment has been initiated by Bluntzer ESD4 staff, authorization is required from Medical Control

PEDIATRIC BRADYCARDIA

History: Consider the causes:

- Hypoxemia
- Hypothermia
- Head Injury
- Heart Block
- Heart Transplant
- Toxins/Poisons/Drugs

Physical Findings:

- Poor Perfusion
- Hypotension
- Respiratory Difficulty
- Altered LOC

EMT

- Assess and Support ABC's
- Obtain Vital Signs (document O2 saturation on room air)
- Provide O2
- Attach ECG
- Perform chest compression*

If, despite oxygenation and ventilation, heart rate<60/min and poor perfusion.

ADVANCED EMT/EMT-INTERMEDIATE

- Attempt/Verify Tracheal Intubation
- Establish IV/IO

PARAMEDIC

*Check electrode position and contact
*Check pad position and contact
*Check pacer position and contact

- Epinephrine IV/IO 0.01 mg/kg (1:10,000; 0.1 mL/kg) **or**
- Epinephrine ETT: 0.1 mg/kg (1:1,000; 0.1 mL/kg)

May repeat every 3-5 minutes at the same dose.

- Consider Atropine 0.02 mg/kg (minimum dose 0.1 mg max single dose 0.5 mg)

May repeat once 0.5mg up to 8 yrs old. Max dose 3.0 mg for all other ages.

- Consider Transcutaneous Pacing

If pulseless arrest develops, see Pulseless Arrest Protocol:

- Consider Epinephrine infusion .1-1.0 mcg/kg/min, or Dopamine infusion 5-20 mcg/kg/min

PEDIATRIC BURNS

History: Thermal, Chemical, or Electrical

Physical Findings:

- Minimal to Minor burns: < 10% TBSA, first degree burns
- Moderate to Severe burns > 30% TBSA, second degree burns
  - 5 % TBSA, third degree burns
  - Inhalation burns, burns to face, hands, feet, genitalia, perineum

Thermal Burns:

- Identify the severity of burns and score TBSA
- Assure the airway is protected.
- Administer O2 PRN
  Remember- SPO2 *might give you false readings in the presence of CO2.*
- Cool the burn with water if appropriate.
- Maintain normal body temperature.
- Dress the burn with sterile dry dressings.
- Transport PRN to the appropriate facility.

Chemical Burns:

- Identify the severity of burns and score TBS
- Avoid becoming contaminated by the chemical.
- Identify the chemical
- Call poison control 1-800-222-1222
- Brush off any solid chemicals.
- Follow poison control treatment, IE :(flush with H2O for 15 min.)
  Some chemicals may react adversely with water.
- Once the skin is cleaned of chemicals, Dress with dry sterile dressings.
- Transport PRN to the appropriate facility

Electrical Burns:

The heart is most susceptible to voltage < 400v. With injuries associated With voltage > 400v. internal burns pose a major complication. Most injuries Associated with electrical burns will be internal. Always assess for secondary Injury with electrical burns.

EMT

- Turn off the source of power or contact the electricity company
- Extinguish flames
- Maintain open airway
- Apply appropriate device for O2 delivery.
  Remember, SPO2 readings may be inaccurate in the presence of CO2.
- Only cool first-degree burns and second-degree burns if < 10%TBSA.
- Spinal Immobilization for Electrical burns.
- Irrigate chemical burns with water as directed by Poison Control.
- Brush off all dry chemicals as much as possible.
- Splint any fractures PRN after the burns have been dressed.
- Attach ECG

PEDIATRIC BURNS Cont.

- Remove contaminated or constricting clothing and/or jewelry.
- Do not attempt to peel off any burned clothing, which has melted to the skin.
- Maintain normal body temperature.
- Cover all patients who have suffered third degree burns > 5%.
  These patients are susceptible to hypothermia due to tissue damage.
- Place the patient in the Trendelenburg position if displaying S/S of shock.

ADVANCED EMT/EMT-INTERMEDIATE

- Establish two large bore IV's or IO using NORMAL SALINE as fluid replacement may be indicated. Maintain SBP > 90mmHg.

If possible, cannulate unburned extremities. If peripheral access is not accessible, Perform EJ (External Jugular) cannulation. See EJ Protocol.

- Utilize the Parkland Burn Formula for fluid replacement.
- Consider early intubation as laryngeal edema may develop from superheated gasses or smoke inhalation.

Have high suspicion of inhalation injuries in patients with facial burns, singed nasal hair and/or sooty sputum.

Parkland Burn Formula

% Burn area x pt. wt. in kg.=4mL/hr. Example: 20% burn area x 70 kg. = 1400
1400 divided by 4 = **350 mL/hr.**

This formula does not apply to patients in shock as they require more aggressive fluid therapy. Refer to the Pediatric Shock Protocol if the patient is in shock.

PARAMEDIC

- *Consider: Morphine Sulfate 0.1-0.2 mg/kg IVP*
- *Consider: Fentanyl 1-2mcg/kg IVP.*
- *Monitor ECG*

Burn Chart

Infant (0-1)

- *Head 18%*
- *Chest 18%*
- *Each Arm 9%*
- *Each Leg 13.5 %*
- *Genitalia 1%*

Or their palm is equal to 1% of BSA burned.

Child (1-8)

- *Head 12%*
- *Chest 18%*
- *Each Arm 9%*
- *Each Leg 16.5%*
- *Genitalia 1%*

Or their palm is equal to 1% of BSA burned.

Adolescent (over 8)

- *Head 9%*
- *Chest 18%*
- *Each Arm 9%*
- *Each Leg 18%*
- *Genitalia 1%*

Or their palm is equal to 1% of BSA burned.

PEDIATRIC FEVER

History:

- Recent illness
- Recent surgery
- Recent infection

Physical Findings:

- Flushed skin
- Hot to touch skin
- Sweating
- Ill appearance
- General weakness
- Irritability
- Possible dehydration

EMT

- Initiate Pediatric General Management Protocol
- Remove the patients clothing, except for under garments
- Administer O2 PRN, maintain **SPO2** 95%
- Verify accurate temperature
- Lower core temperature (cool towels on pressure points)
  Do not allow the patient to shiver as this can further elevate the temperature.

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access
- Administer NORMAL SALINE fluid bolus 20 ml/kg
- Administer liquid Ibuprofen per the instructions on the bottle for the child's weight.

PARAMEDIC

Same as EMT and Advanced EMT/EMT-Intermediates

PEDIATRIC HEAD TRAUMA/INJURY

History:

- Recent event of trauma
- Altered Mental Status

Physical Findings:

- Decreased mental status
- Obtunded
- Lethargy
- Combativeness
- Listlessness
- Hypertensive
- Tachypnea
- Bradycardia

EMT

- Initial Pediatric General Management Protocol
- Oxygenate/Ventilate
- Elevate head 45 degrees
- Monitor vital signs every 5 minutes
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Intubate PRN
- Establish IV/IO access KVO *do not bolus*.

PARAMEDIC

- Monitor ECG
- Follow Pediatric Seizure Protocol PRN
- Follow Pediatric Cardiac Protocols PRN

PEDIATRIC NEUROGENIC INJURY

History:

- Infection
- Fall
- MVC
- Ejection
- Sporting Injury
- Dive Accident
- Other

Physical Findings:

- Incontinence
- Priapism
- Neurogenic Shock
- Motor/Sensory Function Diminishment/Absence

EMT

- Initiate Pediatric General Management Protocol
- Spinal Immobilization
- Obtain Vital Signs
- Administer O2 15 lpm via NRB
- BVM 100% O2 PRN
- Document pulses, movement, sensation prior to transport
- Keep the patient warm
- Document GCS
- Provide emotional support
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Establish multiple IV/IO access
- Maintain systolic BP greater than 80 mm HG with bolus

PARAMEDIC

- Monitor ECG

PEDIATRIC POISONING

History:

- Toxic exposure by ingestion
- Toxic exposure by inhalation
- Toxic exposure by injection
- Toxic exposure by absorption

Physical Findings:

- Altered mental status
- Chemical odor on breath
- Changes in pupillary
- Changes in temperature and moisture of the skin
- Stains and powders on the skin or clothes
- Burns in or around the mouth
- Dysphagia
- Hypoglycemia
- Respiratory distress
- Dysrhythmias
- Tachycardia/Bradycardia
- Seizures
- Excessive salivation
- Abdominal cramping

EMT

- Remove from exposure
- Remove soiled clothing
- Avoid becoming contaminated
- Maintain an open airway
- Obtain Vital Signs
- Administer O2 using appropriate O2 delivery devices.
- Identify Toxin
- Determine amount of toxin and duration since exposure
- Contact Poison Control 1-800-222-1222
- Follow Poison Control's directions for treatment
- If Recommended by Poison Control administer Activated Charcoal
  Mix 1g/kg patient weight with water to form slurry. May add a flavoring agent.
- Whenever possible transport the toxin with you to the hospital if unable to identify.
- If altered mental status, obtain a finger stick for glucose reading.
- Monitor V/S, attach ECG
- Transport to the appropriate facility
- Provide Positive Pressure ventilations PRN

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access PRN
- Consider: Intubation for patients in respiratory failure.
  1-2 sizes smaller ETT may be appropriate as the patient may have laryngeal edema.

PARAMEDIC

Do Not administer these medications until you have properly identified the toxin as such and your patient is deteriorating!

- *Organophosphate Poisoning:* Consider: Atropine 0.05 mg/kg IVP until V/S improve. Contact Medical Control for additional doses.
- *Potassium, Tricyclic Antidepressants:* Consider: Sodium Bicarbonate 1 mEq/kg IVP. Contact Medical Control for additional doses.
- *Opiates:* Consider: Narcan 0.01 mg/kg IV/IM/IN/IO Contact Medical Control for additional doses.

PEDIATRIC POST ARREST STABILIZATION

History:

- Recent Cardiac Arrest (Asystole, PEA, VF/VT)

Physical Findings:

- Hypovolemia
- Hypotension
- Bradycardia
- Compensated Shock
- Decompensated Shock
- Apnea

EMT

- Maintain open airway (pad the shoulders)
- Apply NPA or OPA PRN
- Obtain Vital Signs
- BMV with 100% O2 PRN (one breath every 3 seconds)
- Non Rebreather mask with 100% O2 PRN
- Preserve body heat
- Place patient in Trendelenburg position
- Monitor vital signs every 3-5 minutes
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Intubate PRN
- Establish IV/IO
- Normal Saline bolus 20 ml/kg

PARAMEDIC

- Monitor ECG
- Reassess signs of shock
- *Hypotensive:*
    a. Consider further fluid bolus
    b. Epinephrine (0.05 mcg/kg/min)
    Or
    Dopamine at higher doses (5-20 mcg/kg/min)
- *Normotensive:*
    a. Consider further fluid bolus
    b. Dopamine (2-20 mcg/kg/min)
    Or
    Low-dose Epinephrine (0.01mcg/kg/min)

PEDIATRIC SEIZURE/STATUS EPILEPTICUS

History:

- Epilepsy
- Febrile
- Head Injury (past or present)
- Poisoning

Physical Findings:

- Tonic Phase
- Clonic Phase
- Postictal Phase (loss of continence, confusion, disorientation)
- Hypertensive

EMT

- Initiate Pediatric General Management Protocol
- Apply Spo2, obtain room air Spo2
- Administer O2, ensure SPO2 is > than 95%
- *Febrile Seizures*:
  - * Remove all clothing (leave undergarment on)
  - * Apply wet towels on pressure points (groin, axillary, neck)
  - * Avoid Shivering
  - * Watch for hypothermia
- Monitor Vital Signs every 5 minutes
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Obtain IV access, administer Sodium Chloride 20 ml/kg (watch for hypothermia)
- Obtain BLOOD SUGAR READING
- Intubate PRN

PARAMEDIC

- Monitor ECG
- For Status Epilepticus consider Midazolam

Consider intranasal administration of Midazolam (Versed) see dosage chart below:

Patient age(years)	**Weight(kg)**	**IN Midazolam*5 mg/ml concentration**	
Neonate	3 kg	0.3 ml	0.6 mg
<1 yr	6 kg	0.4 ml	1.2 mg
1 yr	10 kg	0.5ml	2.0 mg
2 yr	14 kg	0.7 ml	2.8 mg
3 yr	16 kg	0.8 ml	3.2 mg
4 yr	18 kg	0.9 ml	3.6 mg
5 yr	20 kg	1.0 ml	4.0 mg
6 yr	22 kg	1.05 ml	4.4 mg
7 yr	24 kg	1.1 ml	4.8 mg
8 yr	26 kg	1.2 ml	5.2 mg
9 yr	28 kg	1.3 ml	5.6 mg
10 yr	30 kg	1.4 ml	6.0 mg

11 yr	32 kg	1.4 ml	6.4 mg
12 yr	34 kg	1.5 ml	6.8 mg
Small teenager	40 kg	1.8 ml	8.0 mg
Adult or full-grown teenager	> 50 kg	2.0 ml	10.0 mg

PEDIATRIC SHOCK

History:

Recent Trauma, Recent Illness, Chronic Illness or Possibility of Anaphylaxis or Poisoning.

Physical Findings:

Signs and symptoms of hypo-perfusion. Altered LOC (inappropriate for age group), Capillary Refill <2 seconds, Anxiety, Eyes: lackluster appearance. Pale, Cool, Clammy Skin. Tachycardia, Tachypnea and or Hypotension (late sign)

EMT

- Pediatric General Management Protocol
- Obtain Vital Signs
- Administer O2@ 10-15 LPM via Non-Rebreather Mask
- Cover the patient with blankets (even if it's warm)
- Place the patient in Trendelenburg position.
- Monitor vital signs every 5 minutes if the patient is unstable and every 10 minutes if the patient is stable
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE

- Fluid Resuscitation of Normal Saline at 20 mL/ kg bolus IV or IO over 5-20 minutes. May repeat x2 PRN. Warmed fluids should be utilized if available.

- *Watch for hypothermia with fluid resuscitation.*

PARAMEDIC

- *If the patient is still hypotensive:* Administer Dopamine at 5-20 mcg/kg/min.
- Monitor ECG

PEDIATRIC TACHYCARDIA WITH A PULSE

History:

- Trauma
- Illness
- Exposure to elements/Toxins
- Possible poisonings
- Recent surgery

Physical Findings:

- Hypovolemia
- Hypoxemia
- Hyperthermia
- Hyper-/Hypokalemia
- Tamponade
- Tension Pneumothorax
- Toxins/Poisons/Drugs
- Thromboembolism
- Pain

EMT

- Initiate Pediatric General Management Protocol
- Obtain Vital Signs
- Administer O2 10-15 lpm via NRB
- Monitor vital signs every 3-5 minutes for unstable patients and every 8-10 minutes for stable patients

ADVANCED EMT/EMT-INTERMEDIATE

- Establish IV/IO access using Normal Saline (IO only if the patient is unstable)
- Attempt vagal maneuvers by applying ice to upper half of infant's face

PARAMEDIC

- Apply heart monitor and confirm rhythm
- *Unstable patient with no IV access:*
  Synchronized Cardioversion for SVT, A-Fib, A-Flutter (.5 J/Kg) x1
  If no conversion 1 J/Kg x1 (Monophasic and Biphasic)
- *Unstable patient with IV/IO access:*
  Administer Adenosine 0.1 mg/kg rapid IVP/IO. If no conversion:
  Administer Adenosine 0.2 mg/kg rapid IVP/IO. If no conversion:
  Administer Adenosine 0.3 mg/kg rapid IVP/IO. Max Dose 12 mg/administration
- If no conversion, go to synchronized cardioversion

V-Tach without a pulse is treated like V-Fib. See Pediatric Asystole and PEA

V-Tach with a pulse, Synchronized Cardioversion is the treatment
Pediatric Traumatic Cardiac Arrest

History:
- MVA
- Fall
- Ejection
- Sporting Accident
- Crushing Injuries
- Other

Physical Findings:
- Apnea
- Asystole, PEA, V-Fib
- Cyanosis
- Delayed capillary refill
- Hypovolemia
- Flat neck veins
- JVD
- Tracheal Deviation
- Muffled heart tones
- Pulsus Paradoxus
- Absent or diminished breath sounds
- Multisystem trauma

EMT
- Initiate Pediatric General Management Protocol
- Secure Airway
- Initiate CPR
- Insert appropriate airway (OPA/NPA)
- Attach ECG

ADVANCED EMT/EMT-INTERMEDIATE
- Intubate using appropriate tube size.
- Confirm ETT placement with more than one method
- Secure ETT
- Establish multiple IV/IO access
- Administer Fluid Bolus 20 ml/kg

PARAMEDIC
- Monitor ECG
- Confirm Rhythm and follow appropriate Pediatric Cardiac Protocol/PALS
- Repeat Fluid Bolus 20 ml/kg
- Perform bilateral needle decompression using appropriate size needle for that size patient
- Assess for Beck's Triad (JVD, muffled heart tones, pulsus paradoxus) Advise Physician IMMEDIATELY if present!
  Consult Physician for Field Termination Effort Order

NUECES COUNTY ESD4 SERVICE AREA