

Nye County EMS Protocols

EMT and AEMT Levels



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Introduction

The purpose of this document is to provide training material for new EMS providers or reference material in urgent situations. This document is not inclusive of all possible situations/treatments and is not meant to take the place of solid EMS training and practice.

Because of the unique needs of the providers in Nye County transporting patients to various hospitals, medical control may be the nearest, or most practical, facility which communications can be established. Online communications/orders from medical control may supersede this document. In cases of communication inability or failure, providers are expected to adhere to these guidelines in a way that is reasonable. The goal for all providers is to keep the needs of the patient in mind and act in good faith to maintain life or limb if communication is unavailable. In an event of communication failure, continuous efforts should be made to contact medical control or dispatch, who may relay information to medical control.

While many EMS systems have already adapted to industry changes that have evolved over the last years, many of these changes are new to Nye County EMS. Adopting these current standards makes our providers able to practice better, evidence-based, medicine tailored to patients and their individualistic signs and/or symptoms. There should be limited use of practicing “blanket” treatment methods simply because a patient falls under a large umbrella category, for example the umbrella of “trauma”. Instead, responders will investigate the issues with each individual patient and administer appropriate treatments as indicated by signs and symptoms.

It should be noted it is no longer a common practice to administer high flow oxygen via a non-rebreathing mask to patients unless there is a specific reason to do so. Current AHA guidelines recommend titrating oxygen administration to focus on maintaining minimum SPO2 readings ≥ 94 . It is possible to create adverse situations by over-oxygenating patients who are not hypoxic.

Another change comes regarding the use of rigid spinal immobilization. It has been concluded that backboards are ineffective for truly immobilizing the spine; they create soft tissue injuries and may exacerbate pain sensation. Furthermore, rescuers create more spinal motion than if a patient self-extricates when possible. As such, cervical/spinal restrictions are now different than years past.

There are also changes to medications and the level of the providers who can administer them.

These protocols are written with goals and growth in mind. There may be new equipment/tools or training mentioned that is not immediately applicable to each station. These will be introduced and training conducted and documented in each area as practically and financially possible.

The signatures below indicate these EMT/AEMT protocols are approved for implementation.

Nye Co. Emergency Management Signature 

Nye Co. Emergency Management Name and Date Vance Payne 3/13/2017

Medical Director Signature 

Medical Director Name and Date K. Alexander Makae, MD 3/13/17

Nevada State EMS Signature 

Nevada State EMS Name and Date Tina Smith 3/14/17

Approved Procedures and Medications

** As equipped with mandatory, approved, and documented training

In addition to all items listed at the EMT level, AEMT's may also perform the following:

EMT Procedures	AEMT Procedures
Administer medications as listed below	Status of fluid balance/shock
Bleeding control/hemostatic agent/tourniquet	Establish IV access, including using saline locks
Blood glucose monitoring	Establish IO access in adult and pediatric patients
Cervical/Spinal clearance, restriction	Suction advanced airway devices
CPR/AED as necessary	Supraglottic airways
Establish and maintain airway, OPA/NPA	** EKG capture 3, 5, or 12 lead (non-interpretive)
Mechanical Suction	**CPAP
Physical Restraint	**Capnography
Splinting, Traction	
Triage	
**EKG capture 3, 5, or 12 lead (non-interpretive)	
**Capnography	
*CPAP	

In addition to all the items listed at the EMT level, AEMT's may also administer the following:

***with permission from receiving facility**

EMT Medications	AEMT Medications
Acetaminophen (Tylenol®) - PO	Ipratropium Bromide (Atrovent®) - inhalation
Activated Charcoal (Actidose®) - PO	Cyanide antidote, Hydroxocobalamin - IV
Acetylsalicylic Acid/aspirin - PO	Dextrose 50% - IV
Diphenhydramine (Benadryl®) - PO	Diphenhydramine (Benadryl®) – IV
Glucose - oral	Epinephrine 1:1,000 IM, 1:10,000 IV
Ibuprofen (Motrin®, Advil®) - PO	Glucagon (GlucaGen®) - IM
Naloxone (Narcan®) – IM, IN	IV fluids - normal saline, lactated ringers
Oxygen - Inhalation	Ketorolac (Toradol®) – IM, IN, IV
Water based burn gel (only on intact skin) - topical	Lidocaine (Xylocaine®) 2% – for I.O. injections
Assist with patient's own medication listed below. If patient has no prescribed medication, may give with medical control permission:	Naloxone (Narcan®) – IV
*Albuterol (Proventil®, Ventolin®) (MDI or nebulizer) - Inhalation	Nitrous oxide - inhalation
*Epinephrine– SC/IM	Ondansetron (Zofran®) – PO, IM, IV
*Nitroglycerin (Nitrostat®, Nitrolingual®) spray or tablets - SL	

For detailed medication info, see “FORMULARY SECTION”.

Protocols

This document is written for EMT and AEMT levels. AEMT level providers should be sure to complete EMT level steps as well as the steps given for AEMT.

Initial Patient Care

Dispatch

Based on information determine response mode, consider additional resources, notify dispatch via radio that unit is en route to the scene

Scene Size-Up

1. Notify dispatch via radio that unit has arrived on scene
2. Consider and apply body substance isolation (BSI) and/or personal protective equipment (PPE)
3. Evaluate the scene for safety. If unsafe consider how to make it safe. If not possible, do not enter until scene is safe. Involve law enforcement, and wait for scene clearance as needed. Consider having ambulatory patient(s) come to you outside the danger zone.
4. Determine the number of patients and mechanism of injury (MOI) or nature of illness (NOI)
5. Again, consider additional resources



For calls where patient needs exceed the available EMS resources patient assessment and treatment will be conducted in accordance with the **TRIAGE PROTOCOL**.



Condition of the patient will dictate when transport is initiated.

Assessment

- 1. Check responsiveness and breathing.**
 - a. If unresponsive and not breathing, check for a pulse for no more than 10 seconds. If no pulse begin **CARDIAC ARREST PROTOCOL**.



Correct life-threatening problems as they are identified. Consider the need for spinal immobilization.

- 2. Airway**
 - a. Open airway
 - b. Head tilt, chin lift for no suspected cervical spinal injury
 - c. Jaw thrust for suspected cervical spinal injury
 - d. Consider the need for suction
 - e. If not breathing, begin ventilations with a bag-valve-mask (BVM)
 - f. Oral airway if gag reflex is ABSENT
 - g. Nasal airway if gag reflex is PRESENT

3. Breathing

- a. Determine the breathing is adequate in rate, rhythm, quality, and overall appearance of the patient.
- b. If patient is not breathing adequately, provide ventilations via BVM, connected to **oxygen** at 15 liters whenever possible.
- c. Administer **oxygen** as appropriate for signs/symptoms of the patient. Do NOT apply **oxygen** based on MOI/NOI only.
 - a. Utilize pulse oximetry as available. **oxygen** should be titrated to maintain a SPO2 of $\geq 94\%$, if possible.
 - b. Patients with prescribed home **oxygen** should receive their prescribed home dosage or an amount sufficient to provide a SPO2 of 90%.



Treat the patient, not the machine. If signs and symptoms dictate oxygen, apply oxygen.

4. Circulation

- a. Assess presence of pulse
- b. Rate, rhythm, and quality as patient condition allows
- c. Begin CPR as needed, see **CARDIAC ARREST PROTOCOL**.



Assess brachial pulse in infants less than 12 months of age. If patient exhibits signs of poor perfusion, is unresponsive or responsive to painful stimuli, and a pulse less than 60 bpm or absent, begin CPR. Infants and children less than 8 years old, consider AED if equipped with child pads, if not available use adult pads placed on patient's front and back as size dictates. Older than 8, use adult pads.

5. Level of Consciousness

- a. **A**lert, responds to **V**erbal stimuli, responds to **P**ainful stimuli, **U**nresponsive
- b. Assess pulse, motor, and sensory response.

6. History and Physical Exam



To assess injuries, it may be necessary to remove the patients clothing. Consider patient condition and environment.

UNSTABLE/UNRESPONSIVE TRAUMA patients: Rapid trauma assessment, assessing for DCAP-BTLS and/or as noted

- a. Head
- b. Neck - JVD, tracheal deviation
- c. Chest - Crepitus, paradoxical motion, breath sounds
- d. Abdomen - Distention, rigidity, guarding
- e. Pelvis/GU - Pain on motion, blood, urine, feces
- f. Extremities - Pulse, motor, sensory
- g. Posterior

- h. SAMPLE history
- i. Baseline vitals – if patient condition allows on scene, otherwise during transport

STABLE/RESPONSIVE TRAUMA patients:

- a. Determine chief complaint
- b. Perform focused exam of injured site/areas
- c. SAMPLE history
- d. Baseline vitals

UNSTABLE/UNRESPONSIVE MEDICAL patients:

- a. Perform rapid physical exam
- b. Head and Neck - JVD, medical alert device
- c. Chest - Breath sounds
- d. Abdomen – Distention, rigidity, guarding
- e. Pelvis/GU – Blood, urine, feces
- f. Extremities - Pulse, motor, sensory, medical alert device
- g. Posterior
- h. SAMPLE history, including OPQRST
Onset, Provokes, Quality, Radiates, Severity, Time
- i. Baseline vitals

STABLE/RESPONSIVE MEDICAL patients:

- a. Determine chief complaint
- b. Perform focused exam of injured site/areas
- c. SAMPLE history
- d. Baseline vitals

7. Treat Shock as Appropriate

- a. Maintain proper body temperature.
- b. Position patient in supine position. Trendelenburg and shock position are no longer used.
- c. Ensure patient is properly perfused. DO NOT over-oxygenate the patient.
- d. See SHOCK MANAGEMENT in PROCEDURE SECTION.



Equipment and medications must be appropriate to the size and weight of the patient. Use of the Broselow tape or similar device is encouraged. Treatment priorities are similar to those of an adult patient. When appropriate, family members should remain with children. Infants and children must be properly restrained prior to and during transport.

Communicate To Receiving Facility Before Arrival

- a. Identify patient (43-year-old female)
- b. History of the event/episode
- c. Objective findings (LOC, vital signs, exam results found)
- d. Treatments given (medications, splinting, etc)
- e. Extra info
- f. Estimated time of arrival (ETA)
- g. Ask if receiving facility has questions, or further treatment suggestions

Transport/Transfer of Care/Rendezvous

- CODE 1: Non-emergency response. No lights or siren, following the flow of traffic.
- CODE 2: Emergency response. Lights only. Follow traffic laws, but expedite response.
- CODE 3: Life-threat response. Use of lights and siren required to achieve a rapid response. This allows the responding unit to ignore jurisdictional traffic laws, but does not allow the responding unit to operate without due regard to safety.



Code 3 can create a distraction/hazard resulting in a traffic problem and therefore should be used sparingly and only as appropriate.



Because of the rural nature of Nye County and extreme distances to hospitals, transport decisions for critically ill, injured, or unstable patients must be made with time in mind. The ultimate needs of the patient must be weighed against the mode of transport as well as whether the patient needs an immediate higher level of care (rendezvous) or is stable enough for transport to definitive care such as a trauma center, burn unit, etc.

Verbal and/or written assessment and findings will be provided to receiving facility or other emergency service, including SAMPLE findings and a list of interventions performed.

Documentation

A patient care record (PCR) will be completed for each incident/patient encounter in accordance with county and state regulations within 24 hours of the incident. Cancellations, refusals, standby, etc must also be documented in a PCR within 24 hours.

Confidentiality

Patient confidentiality will be maintained at all times. Any breaches of confidentiality will result in dismissal from Nye County EMS.

Professional Conduct

All patients will be treated to put their needs and best interests first. All patients, family members, or caregivers, will be treated with dignity and respect in a reassuring manner.

Abdominal Pain (Non-traumatic)

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL.
2. Transport in position of comfort.
3. Be alert for vomiting.
4. Consider **oxygen**.
5. Assess abdomen for pain, guarding, distention. If patient reports an area of pain, you may avoid palpating that area if it will cause further pain or discomfort.

AEMT:

1. Consider establishing vascular access.
2. Consider fluid challenge if indicated.
3. Consider pain relief as appropriate.
4. Treat other conditions as appropriate.



Nitrous Oxide is contraindicated for abdominal distention.

Abdominal Pain (Traumatic)

EMT:

1. Follow steps above.
2. Consider ALS rendezvous.
3. If abdominal evisceration, cover organs with moist, sterile occlusive dressing.
4. Monitor for abdominal distention, swelling, bruising, or guarding.
5. See SHOCK MANAGEMENT in the PROCEDURES SECTION.

AEMT:

1. Consider establishing vascular access.
2. Consider the need for advanced airways.
3. Consider pain relief as appropriate.
4. Treat other conditions as appropriate.

Allergy/Anaphylaxis

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Look for medical alert device.
3. Assess for signs/symptoms of allergic reaction/anaphylaxis
4. For allergic reaction with no life threats:
 - a. consider oral **diphenhydramine** adult 25-50mg, child doses, see note below.
 - b. Transport in position of comfort.
5. For anaphylaxis:
 - a. Rapid transport in position of comfort.
 - b. Determine if patient has prescribed preloaded **epinephrine**, assist if available.
 - c. If not, contact medical control for option to administer **epinephrine** 0.5mg 1:1,000 IM every 15 minutes as indicated by patient condition for a total maximum dose of 1.5 mg.
6. Reassess in two minutes.
7. If condition fails to improve or remains unstable contact medical control for order to give additional **epinephrine**.
8. Prepare for the possibility of respiratory arrest.

AEMT:

1. Consider establishing vascular access.
2. Consider:
 - a. Slow push of **diphenhydramine** 25-50 mg IV/IM.
 - b. Allergic reaction with wheezing, administer **albuterol** 2.5 mg via nebulizer.
 - c. For severe allergic reaction administer **epinephrine** 0.5 mg 1:1,000 IM every 15 minutes as indicated by patient condition for a total maximum dose of 1.5 mg. If the patient's condition is so critical that imminent circulatory collapse is likely, administer **epinephrine** 1mL 1:10,000 IV.
 - d. Contact medical control for repeat doses.
3. Consider advanced airways.
4. Treat other conditions as appropriate.



Pediatric fluid bolus is 20 mL/kg. May repeat as clinically indicated to a maximum of 60 mL/kg
Consider: Pediatric **diphenhydramine** dose is slow push 1.0 mg/kg IV/IM, not to exceed 50 mg. Pediatric **albuterol** 2.5 mg via nebulizer. Pediatric **epinephrine** dose is 0.01 mg/kg 1:1,000 IM or every 15 minutes as indicated by patient condition with a maximum single dose of 0.3 mg. May repeat x 2 for total max dose of 0.9mg

Altered Mental Status



Consider other causes of altered mental status: e.g. hypoxia, poisoning, or diabetes. Alcohol can cause altered mental status but not commonly a cause of total unresponsiveness.

If known or suspected head injury, see **HEAD INJURY** in the **PROTOCOL SECTION**.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Look for medical alert device.
3. If the patient is seizing, see SEIZURE PROTOCOL.
4. Determine blood glucose level. Consider oral glucose. Also, see DIABETIC EMERGENCY PROTOCOL.
5. If patient is combative, notify medical control and consider soft restraints.
6. Pay special attention to airway and further changes to mental status.
7. If conscious, transport in a position of comfort.

If narcotic overdose is known or suspected, consider intranasal **naloxone**.

- a. 2mg, given 1mg/mL in each nostril.
- b. If no response in 5 minutes, give a second dose.
- c. Contact medical control for instructions for further doses.

AEMT:

1. If narcotic overdose is known or suspected:
 - a. Consider establishing venous access

Administer **naloxone** slow I.V. push, 0.5mg at a time, titrate dose to maintain respiratory effort. May need to repeat to maintain respiratory effect.



Pediatric **glucose** dose: 0.5-1.0 gram/kg up to 2-4 grams/kg.
Pediatric **naloxone** dose: 0.1mg/kg up to 2mg I.V. or IN

2. Consider advanced airway devices.
3. Treat other conditions as appropriate.

Amputated Part



The goal is to preserve the amputated part by keeping it cool. DO NOT place body parts directly on ice. For transports of more than 30 minutes, contact medical control for guidance regarding possible air transport to a hospital with surgical capabilities.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Control bleeding. Consult BLEEDING PROTOCOL and SHOCK MANAGEMENT in PROCEDURE SECTION as necessary.
3. Consider **oxygen**.
4. Maintain body temperature.
5. Position patient with legs elevated, if appropriate
6. Consider rapid transport.

Care of Amputated Part:

1. Place part in plastic bag
2. Place bag in container with ice and water.
 - a. Do NOT use ice alone.
 - b. Do NOT use dry ice.
3. Label bag with patient's name, date and time.

AEMT:

1. Consider establishing venous access and fluid challenge as appropriate to maintain blood pressure at 80 to 90 systolic. Two lines may be appropriate. See SHOCK MANAGEMENT in the PROCEDURE SECTION.
2. Consider the need for advanced airways.
3. Consider pain relief as appropriate.
4. Treat other conditions as appropriate.

Behavioral Emergency



Assistance from law enforcement should be requested on all calls involving potentially violent patients. Do NOT restrain and transport a patient in the prone position.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Consider medical causes of the patient's behavior
 - a. Hypoxia
 - b. Intoxication/overdose
 - c. Hypoglycemia
3. Implement **SAFER** model.
 - a. **S**tabilize the situation by containing and lowering the stimuli.
 - b. **A**ssess and acknowledge the crisis.
 - c. **F**acilitate the identification and activation of resources (chaplain, family, friends, or police).
 - d. **E**ncourage patient to use resources and take actions in his/her best interest.
 - e. **R**ecovery or referral - leave patient in care of responsible person or professional, or transport to appropriate facility.
4. If it is in the best interest of the patient and does not place EMS personnel in danger of physical harm, restraint may be warranted. See RESTRAINT PROCEDURE.

AEMT:

1. Treat other conditions as appropriate.
2. Consider establishing venous access, if warranted.

Bites/Stings

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Attempt to identify insect/animal. Consider taking photograph of insect/animal if possible.
3. Remove stinger using scraping motion if still present.
4. Clean area with soap/water or antiseptic wipe.
5. Remove jewelry or clothing that may be affected by swelling.
6. For stings, apply ice pack to the area and keep below heart level.
7. Be alert for vomiting or respiratory changes.
8. See ALLERGY/ANAPHYLAXIS PROTOCOL as needed.
9. Mark redness or swelling with a pen to monitor for further swelling.
10. If poisonous snakebite or anaphylaxis develops, consider ALS rendezvous.



Ice packs should NOT be applied to snake bites as it may cause vasoconstriction and further inject poison into the blood stream.

AEMT:

1. Consider establishing venous access.
2. Consider the need for advanced airways.
3. Consider pain relief as appropriate.
4. Treat other conditions as appropriate.

Bleeding (External)



New standards have removed elevation and pressure points. Firm, direct pressure and additional sterile gauze as needed or the use of tourniquets are most effective.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Apply direct pressure.
3. If minor bleeding, only use gauze thick enough to still allow for direct and even pressure on the wound. Gauze in direct contact with the injury shall not be removed. Additional sterile gauze may be applied as needed to control bleeding.
4. If major bleeding is not immediately controlled, apply tourniquet.
 - a. Note time tourniquet is applied.
 - b. Monitor tourniquet for effectiveness. They often must be retightened during transport.
 - c. Provide rapid transport; consider ALS rendezvous, preferably flight.
 - d. Contact medical control for transport greater than 60 minutes for possible reperfusion instructions.
5. Consider **oxygen**.
6. Treat for shock.
7. Consider splinting to restrict movement and possibly assist with pressure, depending on splint type.
8. Consider hemostatic gauze as individual conditions warrant.

AEMT:

1. Consider venous access and fluid challenge as appropriate to maintain blood pressure 80 - 90 systolic. It is better to have a patient who is hypotensive (permissive hypotension) and still perfusing than to overload them with fluid. Two lines may be appropriate. See SHOCK MANAGEMENT in the PROCEDURE SECTION.
2. Consider advanced airways as needed.
3. Consider pain relief as appropriate.
4. Treat other conditions as appropriate.



Injuries to the neck and chest may be “sucking” wounds. As such they should be covered with an occlusive dressing to block air from entering the wound. While preparing such a dressing, cover the wound with a gloved hand until the dressing is ready for use. If air has already entered the wound or surrounding tissues, if dressing does not have a relief valve, leave the dressing open on one side to allow air to escape.

Burns

EMT:

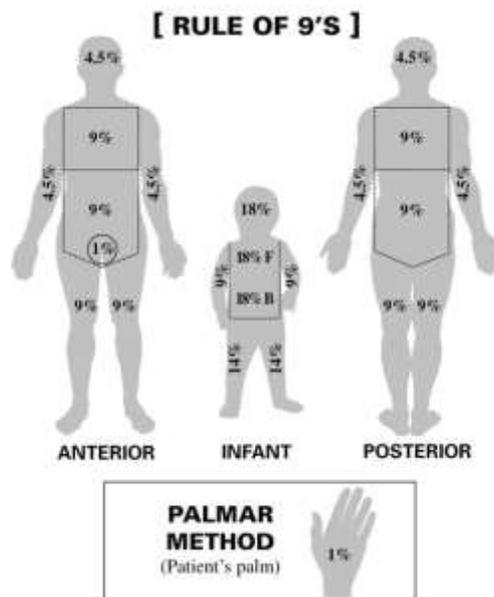
1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Stop the burning process with water or saline.
3. Remove smoldering clothing and jewelry.
4. Continually monitor the airway for evidence of obstruction.
5. Cover the burned area with a dry, sterile dressing.
 - a) Water based burn gel may be used on areas with intact skin.
6. Estimate involved body surface area (BSA) using the "Rule of Nines" as well as depth.
7. Maintain body temperature.

AEMT:

1. Consider the need for advanced airway devices
2. Consider establishing venous access using LR solution. Two lines may be appropriate.
3. If vital signs and patient's condition indicate hypo perfusion, OR there is greater than 10% BSA involved, consider fluid challenge of 20mL/kg.
4. Burns deeper than superficial layer consider fluid using the Parkland Burn Formula
 - a. $4\text{mL} \times (\text{kg}) \times \% \text{ of burn} = \text{total fluid in 24 hours}$
 - b. $\text{Total fluid}/2 = \text{fluid in first 8 hours}$
 - c. Divide the total by 8 for amount of fluid each hour
5. Consider pain relief as appropriate



Pediatric fluid bolus is 20mL/kg.
May repeat as clinically indicated to a maximum of 60 mL/kg



Cardiac Arrest - Adult



Interruptions in chest compressions should be avoided. Contact medical control as early as possible to determine transport necessity or termination of efforts. Patients found in cardiac arrest in hypothermic conditions will receive warming measures before terminating efforts. Extra personnel should attend CPR scenes whenever possible to allow for switching CPR positions and extra help.



**Reference current AHA CPR guidelines in the PROCEDURE SECTION.
Follow the most current BLS/ACLS/PALS guidelines.**

NO INITIATION OF CPR

1. Patient is found to have rigor mortis, lividity, decomposition, obvious mortal injury, or other definitive signs of death, even if CPR was previously initiated by bystanders.
2. Down time greater than 15 minutes reported from a reliable source.
3. DNR, advanced directive, or POLST documentation.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Establish unresponsiveness, apnea, and absence of pulse.
3. Begin **CPR** using current AHA guidelines.
 - a. Crews will remain in place for a minimum of 3 rounds of CPR and AED analysis before considering transport or contacting medical control.

AEMT:

1. Consider the need for advanced airway devices.
2. Consider establishing venous access.
3. Consider I.O. if peripheral I.V. access is unsuccessful.

Consider appropriate medications such as **oxygen, IV fluids, naloxone** and/or **dextrose 50%**.

TERMINATION OF RESUCITATION:

1. If the patient develops rigor mortis or dependent lividity.
2. **EMT level:**
 - a. No witnesses to the event.
 - b. **AND** no return of spontaneous circulation within 20 minutes of CPR
 - c. **AND** consecutive non-shockable rhythms as directed by the AED

Cardiac Arrest – Adult Continued

- d. While still continuing care, contact medical control for further instructions or pronouncement of death.
 - i. If communications with medical control cannot be established, if patient meets above criteria a deputy coroner may pronounce death.
- 3. **AEMT level –**
 - a. No return of spontaneous circulation (**ROSC**) or no shockable rhythms consecutively after 20 minutes of resuscitative efforts.
 - b. While still continuing care, contact medical control for further instructions or pronouncement of death.
- 4. Document the time of death and the name of the physician who issued the order.
- 5. Leave all medical interventions in place.
- 6. Notify dispatch.
- 7. Do not leave a body unattended. (In order to leave the scene, the body must be left with law enforcement, coroner, etc.)
- 8. Never transport/move a body without permission from law enforcement or the coroner except for assessment or its protection.



If the body is in public view and cannot be isolated, screened, or blocked from view, and is creating an unsafe situation with citizens/family, the body may be covered with a sterile burn sheet.

CONTINUE FOR NEONATE/INFANT/CHILD

Cardiac Arrest – Neonate, Infant, Child



Cardiac arrest in children is most often secondary to respiratory arrest.

NEONATAL RESUSCITATION – Also consider referencing CHILDBIRTH in the PROTOCOL SECTION.



Suctioning immediately after birth should be reserved for babies with obvious obstruction or those requiring assisted ventilation.



Neonates should be resuscitated on room air only. Excess oxygen can be toxic. Reserve oxygen for neonates who continue to have low levels of oxygen as measured by a pulse oximeter. Do not rely on skin conditions.

EMT:

1. Confirm the absence of breathing.
2. If heart rate is less than 60 beats, resuscitate at a rate of **three compressions to one breath**. (3:1 ratio.)
3. Deliver compressions at a rate of **100 – 120 per minute**.

AEMT:

1. Refrain from using advanced airways if ventilation is possible with a bag valve mask.
2. Consider vascular access. I.O is recommended for ease and speed of access.
3. Consider obtaining blood glucose level, administer **dextrose 50%** as appropriate.
4. Consider narcotic respiratory depression if situation/history warrants. Consider **naloxone** pediatric dose: 0.1mg/kg up to 2mg I.V.

INFANT/CHILD RESUSCITATION:

EMT:

1. Confirm absence of pulse and breathing
2. Begin CPR using current AHA guidelines.
3. Prepare AED; if pediatric pads are unavailable consider placing adult pads on chest and back as patient size dictates.

AEMT:

1. Consider advanced airways.
2. Consider establishing venous access.
3. Treat other conditions as appropriate.

Chest Pain (non-traumatic)



Consider Acute Myocardial Infarction in patients with atypical chest pain/pressure, arm or jaw pain with no chest discomfort, unexplained respiratory distress, or syncope episode.



Cardiac compromise is one of the known conditions in which high flow oxygen can be counterproductive. Care should be taken to only administer oxygen if it is necessary due to signs/symptoms of hypoperfusion or hypoxia.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Administer **oxygen** only if patient exhibits signs of hypoperfusion or hypoxia.
3. Assess vital signs, especially blood pressure. Assist patient with their own prescribed **nitroglycerin**. One dose if systolic pressure is greater than 100. Repeat in 3-5 minutes if no relief and systolic is still over 100.
4. If patient has taken erectile dysfunction medication within 24 hours, contact medical control prior to administering **nitroglycerin**.
5. If patient does not have prescribed **nitroglycerin**, contact medical control for permission to administer, as well as directions regarding repeat doses.
6. Reassess vital signs and level of chest pain/discomfort.
7. Administer 324 mg (81mg x 4) chewable **aspirin**.
8. CONTRAINDICATIONS of **aspirin** – allergy, bleeding/anticoagulant history, ulcers.
9. Capture EKG, if equipped, for hospital use.
10. Be prepared for the potential of cardiac arrest.

AEMT:

1. Consider venous access.
2. Administer **nitroglycerin** 0.4mg SL if systolic pressure is greater than 100.
 - a. If patient has taken erectile dysfunction medication within 24 hours, contact medical control prior to administering **nitroglycerin**.
3. Repeat **nitroglycerin** every 5 minutes as needed for a total of 3 doses. Contact medical control if more than 3 doses are needed.
4. Consider advanced airways if needed.
5. Treat other conditions as appropriate.

Childbirth

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. If not actively pushing or no crowning is present, begin immediate transport. Left lateral recumbent position if possible.
3. Be prepared to stop the ambulance if delivery occurs.
4. Gather history regarding the pregnancy.
 - a. Prenatal care
 - b. Due date
 - c. Contraction timing
 - d. Bleeding
 - e. Ruptured membranes
5. If delivery begins, watch patient for vaginal bleeding, abnormal presentation, nuchal cord, meconium, crowning, eclampsia, etc. Refer to end of this section as needed.
6. Consider **oxygen**.
7. Consider the need for another ambulance if problems arise.
8. Use clean or sterile technique as much as possible.
9. Guide and control, but do not impede, delivery of the head.
10. Babies are slippery, be prepared.
11. Keep infant at level of the vagina.
12. Stimulate by drying, keep warm, wrap in blanket.
13. Once cord has stopped pulsing, clamp cord at approximately 6 and 8 inches. Cut between clamps.
14. Calculate first APGAR score (Listed at the end of this section).
 - a. **For neonatal resuscitation: see CARDIAC ARREST PROTOCOL/CPR PROCEDURE.**
 - b. Neonates should be resuscitated at a 3:1 ratio of compressions and breaths, using only room air no **oxygen**, for asphyxial arrest.
 - c. For arrest thought to be cardiac in nature, use the 15:2 ratio.
15. Calculate second APGAR score within 5 minutes.
16. Give infant to mother, allow to nurse.
17. Begin transport. Placenta delivery can be done during transport.
18. Watch patient for excess hemorrhage.
 - a. If present, massage uterus gently.
 - b. Consider ALS rendezvous.
19. Monitor vitals of both mother and infant.

AEMT

1. Consider vascular access using large bore needle, run fluid as appropriate for patient condition and blood loss.
2. Consider the need for advanced airways.
3. Treat other conditions as appropriate.



Other conditions and considerations:

Abruptio Placenta: potentially fatal to mother and infant. Aggressively treat for blood loss and shock. Rapid transport, ALS rendezvous if possible.

Breech Presentation: May require gloved fingers inserted in the vagina to form a “V” near the infants face to make way for breathing until the head delivers.

Limb Presentation: Cover with moist, sterile dressing and provide prompt transport.

Nuchal Cord: Attempt to slip over the head. If unable, consider clamping and cutting cord as necessary.

Prolapsed Cord: May require gloved fingers inserted in the vagina to form a “V” and keep pressure off the cord to allow for blood flow. Consider positioning the patient to remove pressure from the cord such as Trendelenburg or as directed by medical control.

Apgar Score:

SIGN	0 Point	1 Point	2 Points
Appearance	Blue-gray, pale all over	Normal, except extremities	Normal over entire body
Pulse	Absent	Below 100 beats/min	Above 100 beats/min
Grimace (reflex)	No response	Grimace	Pulls away, cough
Activity (muscle tone)	Absent	Arms/Legs flexed	Active movement
Respiration	Absent	Slow, irregular	Good, crying

Cold Emergencies



If possible, humidify oxygen. Warm I.V. fluids, if used.
A hypothermic heart may be unresponsive to defibrillation.
Core body temperature should be 86 degrees before attempting defibrillation.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Protect the patient from further heat loss
 - a. Remove from the cold environment
 - b. Do NOT re-expose to cold
 - c. Remove wet clothing, cover with a blanket, and keep warm
 - d. Consider applying heat packs to the neck, armpits, and groin
3. Handle the patient gently
 - a. Do NOT rub or massage extremities
 - b. Cover any frostbitten parts with dry, sterile dressings
4. Remove jewelry
5. Do not allow the patient to walk or exert themselves
6. Do not give the patient anything to eat or drink
7. Obtain vitals every 5 minutes, including body temperature

AEMT:

1. Treat other conditions as appropriate.
2. Consider establishing venous access.
 - a. Consider warming the fluids.
3. Consider the need for advanced airway devices.



Patients, especially infants, are susceptible to losing heat through the head.
Cover the head to help maintain body heat.

Congestive Heart Failure/Pulmonary Edema



Fluid buildup in the lungs occurs due to the heart being unable to function properly. Excess fluid can aggravate this condition. Use caution with I.V. fluid unless warranted by other circumstances.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Place patient in position of comfort.
3. Consider high flow **oxygen**, consider CPAP if available
 - a. See CPAP in the PROCEDURE SECTION.
4. Rapid transport

AEMT:

1. Consider establishing venous access.
2. Consider the need for advanced airway devices.
3. Treat other conditions as appropriate.

Cyanide Exposure



THIS MEDICATION IS NOT NORMALLY CARRIED ON THE AMBULANCE. AEMT PROVIDERS WHO ARE TRAINED MAY ADMINISTER, OR MONITOR, THIS MEDICATION IN COOPERATION WITH INDUSTRIAL SETTINGS THAT STOCK THIS MEDICATION.



Cyanide exposure can come from industrial settings, especially the many active mining operations scattered throughout the region. Cyanide is also present in smoke from residential and industrial fires. Cyanide has been used as a chemical warfare agent, and could be used in a terrorist attack. While the priority is to administer an antidote as quickly as possible, as with any chemical, EMS personnel should wear the appropriate PPE. When the patient is ready for transport be sure the patient has been decontaminated before being placed in an ambulance.

Hydroxocobalamin should be used in patients with deteriorating or severe symptoms including: AMS, headache, seizure, coma, nausea, vomiting, chest tightness, cardiovascular collapse, difficulty breathing, tachypnea (early sign), bradypnea (late sign), hypertension (late sign). When in doubt about cyanide exposure, contact **Poison Control/Medical Control**.

The principal acute care concerns are hemodynamic instability and cerebral edema. The continuous cardiac monitoring, respiratory and cardiovascular support, and neurologic evaluation these patients need is best provided in an intensive care unit. Decide for air transport to an appropriate facility as quickly as possible.

The skin of a cyanide-poisoned person can sometimes be unusually pink or cherry-red because oxygen will stay in the blood and not get into the cells. The person may also breathe very fast and have either a very fast or very slow heartbeat.

EMT:

1. Initiate plans for rapid transport and a higher-level caregiver rendezvous as soon as cyanide exposure is known or suspected.
2. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
3. Monitor and maintain respiratory and circulatory function.
4. Administer high flow **oxygen**.

AEMT:

1. Establish venous access.
2. Administer **hydroxocobalamin (Cyanokit®)**
 - a. 5 g, intravenously, as a single infusion over 15 minutes. May repeat a second 5 g dose, depending on the severity of poisoning and clinical response, for a maximum cumulative dose of 10 g. Follow package directions.
 - b. Treat other conditions as appropriate.

Diabetic Emergencies

EMT:

- 1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
- 2. Consider blood glucose level with glucometer.
 - a. If hypoglycemic and conscious, administer **oral glucose**
 - b. If hypoglycemic and unresponsive, attempt rendezvous with higher level providers.
 - c. If hyperglycemic, attempt rendezvous with higher level providers.
- 3. Consider rapid transport
- 4. Repeat doses of oral glucose may be necessary if the patient is very low or for long transport times.

AEMT:

- 1. Consider establishing venous access.
- 2. Consider IV administration of **dextrose 50%** if hypoglycemic.
 - a. If IV access is not available, consider IM **glucagon**, 1mg, may repeat in 10 minutes.
 - i. **Glucagon** is most effective when used in conjunction with **dextrose 50%**.
 - ii. If patient doesn't respond to second dose of glucagon, **dextrose 50%** must be given.
- 3. If hyperglycemic, administer fluid bolus of 20mL/kg **normal saline** for adults and pediatric patients.
- 4. If patient is exhibiting signs/symptoms of diabetic ketoacidosis administer 500 – 1000mL of fluid wide open as based on blood pressure and lung sounds, then TKO.
- 5. Consider **oxygen** if patient exhibits signs of hypoperfusion.
- 6. Consider the need for advanced airways.



DILUTED dextrose dose for children 3 months to 7 years:
Empty half the syringe of **dextrose 50%** and draw up normal saline to refill it.
This will give a concentration of **dextrose 25%**.
Newborns to 3 months old:
Put 2 mL of **dextrose 50%** in a syringe and add 8 mL of **normal saline**.
This will give a concentration of **dextrose 10%**.



Dose of **glucagon** is 0.5mg/kg for children who weigh less than 20kg.
Children over 20kg the dose is the same as for adults, 1mg.

Head Injury (Traumatic)

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Monitor level of consciousness.
3. Maintain manual C-spine immobilization until assessment can be made for the need of further immobilization. MOI alone is not enough evidence.
4. If ventilation becomes necessary, ventilate at a normal rate appropriate for the age of the patient **unless increased Intracranial Pressure (ICP) is suspected**, (see section below). Titrate **oxygen** to maintain pulse oximetry to $\geq 94\%$
 - a. Adult: Every 5-6 seconds, approximately 12/minute
 - b. Children: Every 3 seconds, approx. 20/minute
 - c. Infants: Every 2-3 seconds, approx. 25/minute

Ventilation rates for suspected increased ICP: DO NOT HYPERVENTILATE!
 Adults – 20/min, Children – 25/min, Infant – 30/min
5. Control bleeding with direct pressure unless contraindicated by skull damage. Hemostatic gauze may assist with bleeding control.
6. Calculate GCS.

	EYE OPENING		VERBAL RESPONSE		MOTOR RESPONSE
4	Spontaneous	5	Answers Appropriately	6	Follows Commands
3	Verbal Response	4	Confused	5	Localizes Pain
2	Pain Response	3	Inappropriate Response	4	Withdraws From Pain
1	None	2	Unintelligible Noises	3	Abnormal Flexion: Decorticate
		1	None	2	Abnormal Extension: Decerebrate
				1	None

7. Be prepared for nausea, vomiting, and possible seizure.
8. Rapid transport, consider ALS rendezvous including flight for severe injuries.

Signs/Symptoms of Concussion	Signs/Symptoms of Intracranial Pressure (ICP)
Headache, nausea, vomiting, dizziness, possible loss of consciousness, vacant stare, delayed verbal and motor responses, confusion, inability to focus attention, disorientation, slurred or incoherent speech, lack of coordination, inappropriate emotions, memory deficits, inability to memorize or recall (amnesia).	Decline in GCS score of two points or more whose initial score was 8 or less, asymmetric, sluggish, dilated, or nonreactive pupils, posturing or no motor response.

- In addition to the mentioned signs/symptoms of ICP, a secondary brain injury can result from hypoxia, hypotension, hypoglycemia, pressure shift of the brain including possible herniation. Do not neglect to manage these conditions.

AEMT:

1. Establish venous access.
 - a. Titrate fluid to maintain systolic pressure greater than 90.
2. Consider the need for advanced airway devices. Ventilate at rates listed above; note the difference in rates for suspected increased ICP.
3. Treat other conditions as appropriate.

Heat Emergencies/Fever



High body temperatures can cause seizures. Rapid cooling may cause vomiting. Heat emergencies may be environmental, caused by fever, or neurologic in nature.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Remove from the hot environment and place in cool environment
3. Loosen or remove clothing
4. If unresponsive, place in recovery position
5. Cool patient with water and fanning and/or cool packs to neck, armpits, and groin
6. If patient is alert, stable, and not nauseous give small sips of cool water
 - a. If patient is vomiting, transport on their side
7. For fevers, consider oral **acetaminophen** or **ibuprofen**.
 - a. Adult Dose **acetaminophen**: 325 - 650 mg every 4-6 hours.
 - b. Adult Dose **ibuprofen**: 200 – 400mg every 4-6 hours.



Pediatric dose **acetaminophen**: 10-15mg/kg.
Pediatric dose **ibuprofen**: 5mg/kg.

AEMT:

1. Consider establishing venous access.
2. Consider the need for advanced airway devices.
3. Treat other conditions as appropriate.



Treat febrile seizures in infants and children by sponging down the skin with cool water during transport. If shivering occurs, stop sponging. Consider an I.V.
Pediatric fluid bolus is 20mL/kg.

Musculoskeletal Injury



PASG/MAST: This device is no longer included in the protocols.

This device has been proven to be an unreliable method for combating shock. Hip/pelvis injuries are best managed with a pelvic stabilization device. Leg injuries should be splinted with rigid, vacuum, air, or traction splints.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate
2. Consult BLEEDING CONTROL PROTOCOL as needed.
3. Consider RICES –
 - a) Rest
 - b) Ice
 - c) Compression
 - d) Elevation
 - e) Splinting
4. If splinting –
 - a) Confirm the presence of pulse, motor, and sensory functions. If not present, gently move limb in natural position and recheck.
 - b) If all functions present, splint, then recheck.
 - c) If functions are not present or weak, consult medical control for further direction and provide prompt transport.
5. Splinting can be performed using any splinting materials available that will immobilize the joint above and below the injury as appropriate.
6. Do not place straps or other securing devices directly over wounds if possible. Attempt to maintain access to wounds to maintain or monitor bleeding control.
7. Provide open access to fingers or toes as appropriate to monitor circulation.

AEMT:

1. Consider establishing venous access.
2. Consider the need for advanced airway devices.
3. Consider pain relief as appropriate
4. Treat other conditions as appropriate.

Overdose (containing narcotic substance)

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. If possible, identify and estimate amount of substance ingested
3. Be prepared for nausea, vomiting, and possible airway compromise.
4. Consider IN or IM **naloxone**.
 - a. Intranasal - 2mg, given 1mg/mL in each nostril. If no response in 5 minutes, give a second dose.
 - b. IM – 0.4mg – 2mg, up to 10mg for adults. If no response in 5 minutes, give a second dose.
 - c. Titrate dose to support/maintain respiratory effort. Contact medical control for instructions for further doses.



Pediatric **naloxone** dose: 0.1mg/kg up to 2mg IM, IN, or I.V.

AEMT:

1. Consider establishing venous access.
2. Consider **naloxone** slow I.V. push, 0.5mg at a time, titrate dose to maintain respiratory effort. Repeat doses to maintain respiratory effect as needed up to 10mg.
3. Consider the need for advanced airway devices.
4. Treat other conditions as appropriate.

Poisoning (Ingested)

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. If possible, identify and estimate amount of substance ingested
3. Be prepared for nausea, vomiting, and possible airway compromise.
4. Contact medical direction and/or poison control with the information
 - a. Poison Control (800) 222-1222.
 - b. Advise you are an EMT.
 - c. Follow given directions, as possible.
 - d. Note the case number given by poison control.
5. If advised, administer **activated charcoal**.
 - a. Contraindications of **activated charcoal** are petroleum, acid, or alkali ingestions
 - b. Usual adult dose is 25 - 50 grams



Pediatric dose of activated charcoal is 1gm/kg with a maximum of 25 grams. If unable to identify the substance a child has ingested, check for burns of the lips or mouth. If present, do NOT give activated charcoal.

AEMT:

1. Consider establishing venous access.
2. Consider the need for advanced airway devices.
3. Treat other conditions as appropriate.

Respiratory Distress

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Place patient in position of comfort.
3. Assess respiratory effort.
4. Assess lung sounds.
5. Consider **oxygen**.
 - a. Titrate to maintain pulse oximetry to $\geq 94\%$, if possible.
6. Assist patient with their metered dose inhaler if prescribed.
 - a. If no metered dose inhaler available, contact medical control for permission to administer **albuterol** via nebulizer.
7. Consider CPAP.
8. Consider ventilation if appropriate.
9. Rapid transport.

AEMT:

1. Consider advanced airways if needed.
2. Consider establishing venous access.
 - a. Abnormal lung sounds should not receive large amounts of fluid.
3. Consider medications:
 - a. **albuterol**– 2.5 mg in 3 mL NS. May repeat every 15 minutes for maximum three doses. Contact medical control if more doses seem warranted.
 - b. **ipratropium bromide** – 0.5mg in 0.02% solution. May be mixed with **albuterol** and administered together if **albuterol** alone provides no relief. Patient may receive two doses every 15 minutes.
4. Consider other conditions causing respiratory distress such as pneumothorax, cardiac condition, pulmonary edema, anaphylaxis, etc.
5. Treat other conditions as appropriate.

BREATH SOUNDS IN RESPIRATORY DISTRESS

Auscultation	Location	Possible diagnosis
Clear	Bilateral	MI, metabolic, pulmonary embolus, anxiety, toxin
Decreased	Bilateral	COPD
Decreased	Localized	COPD, pneumothorax, pulmonary embolus, pneumonia
Rales	Bilateral	Pulmonary edema, pneumonia
	Localized	Pneumonia, pulmonary edema
Wheezes	Bilateral	Asthma, occasionally pulmonary edema, embolus
	Localized	Foreign body, embolus, COPD
Rhonchi	Bilateral	Bronchitis, COPD

Seizure



Consider other causes of seizure: e.g. hypoxia, poisoning, alcohol, head injury, or diabetes.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. If patient is actively seizing, move hazards. Protect patients head.
3. Check for medical alert tags.
4. Gather history of the seizure if possible.
5. Assess and maintain airway.
6. Consider **oxygen**.
7. Consider placing patient in left lateral recumbent position if not alert.
8. Obtain checking blood glucose level.
9. Obtain body temperature.
10. Consider rapid transport or ALS rendezvous for patient with no previous history of seizure.

AEMT:

1. Consider establishing vascular access.
 - a. Consider **naloxone** and/or **dextrose 50%** as appropriate
2. Consider advanced airways.
3. Treat other conditions as appropriate.



Patients who have a history of seizure disorder that present with no abnormal exam or vitals, who are taking their medication, have a physician, and the seizure is not different from previous seizures may not require transport. If in doubt, consult medical direction.

Stroke/CVA



Stroke/CVA is one of the known conditions in which high flow oxygen can be counterproductive to rescue efforts. Care should be taken to only administer oxygen if it is necessary due to signs/symptoms of hypoperfusion or hypoxia.

EMT:

1. Follow INITIAL PATIENT CARE PROTOCOL.
2. Utilize the Cincinnati Stroke Scale to assess
 - a. Arm drift
 - b. Facial droop such as smile, show teeth, stick out tongue
 - c. "The sky is always blue in Cincinnati" phrase
3. Assess neurological status in all extremities.
4. Assist ventilation as appropriate, including suction.
 - a. If **oxygen** is warranted, apply nasal cannula and titrate to 90% pulse oximeter.
5. Determine when patient last appeared "normal".
6. Consider hypoglycemia.
7. Transport in lateral recumbent position to protect airway.
8. Protect extremities the patient may not have control over.
9. Rapid transport.

AEMT:

1. Consider establishing vascular access.
2. Consider advanced airways.
3. Treat other conditions as appropriate.

PROCEDURES

The following are approved for all levels unless otherwise noted. This is not an all-inclusive list. Approved procedures are listed under “Approved Procedures and Medications”.

Advanced Airway Devices*

***AEMT LEVEL ONLY**

In most cases, effective airway management can be achieved with simple adjuncts or supraglottic airways. In cases of edema (burns, anaphylaxis, and severe neck trauma) subglottic airway devices are more effective at maintaining an airway.

All advanced airway devices are reserved for unresponsive patients who are apneic with no gag reflex. Ideally, advanced airways should be placed quickly, however pulse oximetry readings ≥ 92 and successful placement take precedent over a specific amount of time.

Ventilation rates change CPR once an advanced airway is placed. Refer to CPR PROCEDURE.

For suctioning methods of advanced airways, see SUCTION PROCEDURE. (McGill forceps may be used to remove foreign bodies visualized with a laryngoscope.)

SUPRAGLOTTIC AIRWAY DEVICES

Combitube Procedure:

1. Before inserting airway, check both cuffs to ensure they hold air.
2. Lubricate the tube.
3. With patient's head in neutral position, using your non-dominant hand, insert gloved hand into the mouth and lift the jaw.
4. Insert until the teeth are between the two black lines on the device.
5. Inflate the cuffs. The larger is 100-140mL of air, the smaller is 15mL of air.
6. Ventilate through the longest tube first. Check for lung sounds and chest rise and fall.
7. If no results, ventilate the shorter tube.
8. Confirm placement with lung sounds and chest rise and fall.
9. Secure device.

Contraindications of Combitube: Patients too short for device, have esophageal disease, ingested a caustic substance, or airway burns.

King Airway Procedure:

1. Choose appropriate sized device based on patient height.
2. Before inserting airway, check both cuffs to ensure they hold air.
3. Lubricate the tube.
4. With patient's head in neutral position, using your non-dominant hand, insert gloved hand into the mouth and lift the jaw.
5. Insert the tip into the corner of the mouth, while rotating the device advance until it's behind the base of the tongue and blue line faces the patient's chin.

6. Continue to advance until the connector base is aligned with patient's teeth.
7. Inflate cuff with recommended amount of air. (Varies based on size of device)
8. Ventilate and confirm placement.
9. Secure device.
10. For suction of the King device, see SUCTION in the PROCEDURE SECTION.

Contraindications of King Airway: Patients too short for device, have esophageal disease, ingested a caustic substance, or airway burns.

Cervical/Spinal Motion Restriction

Motion Restriction Criteria

If the patient exhibits any of the following, motion restriction is indicated. If findings are negative for all criteria, no restriction is necessary.

- Altered level of alertness and orientation
- Midline pain, tenderness, or deformity of the spine.
- Neurological deficits (pulse, motor, sensory) in any extremity not previously present.
- Evidence of drugs/alcohol use.
- Painful, distracting injuries.



Patient's found in motor vehicles may self-extricate and be assisted to a soft stretcher and secured for transport. Patients unable to self-extricate should be removed with an appropriate extrication method for the situation.



Motion restrictions are contraindicated for: cardiac arrest patients, injuries in which a collar could compromise assessment, airway management, bleeding control, and/or penetrating trauma wounds to the head or neck. Mechanism of injury, by itself, is not an indication to apply cervical spine stabilization.

If patient has positive findings to any of the above guidelines or is unresponsive:

1. Follow INITIAL PATIENT CARE PROTOCOL as appropriate.
2. Assess for pulse, motor, and sensory functions in all extremities.
3. Assess for priapism.
4. Place c-collar on patient.
5. Spinal injuries in the cervical and thoracic regions may impede breathing. Be prepared to assist breathing.
6. Move and secure patient to soft stretcher in a position of comfort.
7. Reassess pulse, motor, and sensory functions in all extremities, also for priapism.
8. Watch for signs of respiratory distress.
9. Children may be restricted in car seats that have a back section if seat is not damaged. A commercial pediatric stabilization device may be used, but not if doing so causes excess movement or they fight against it.

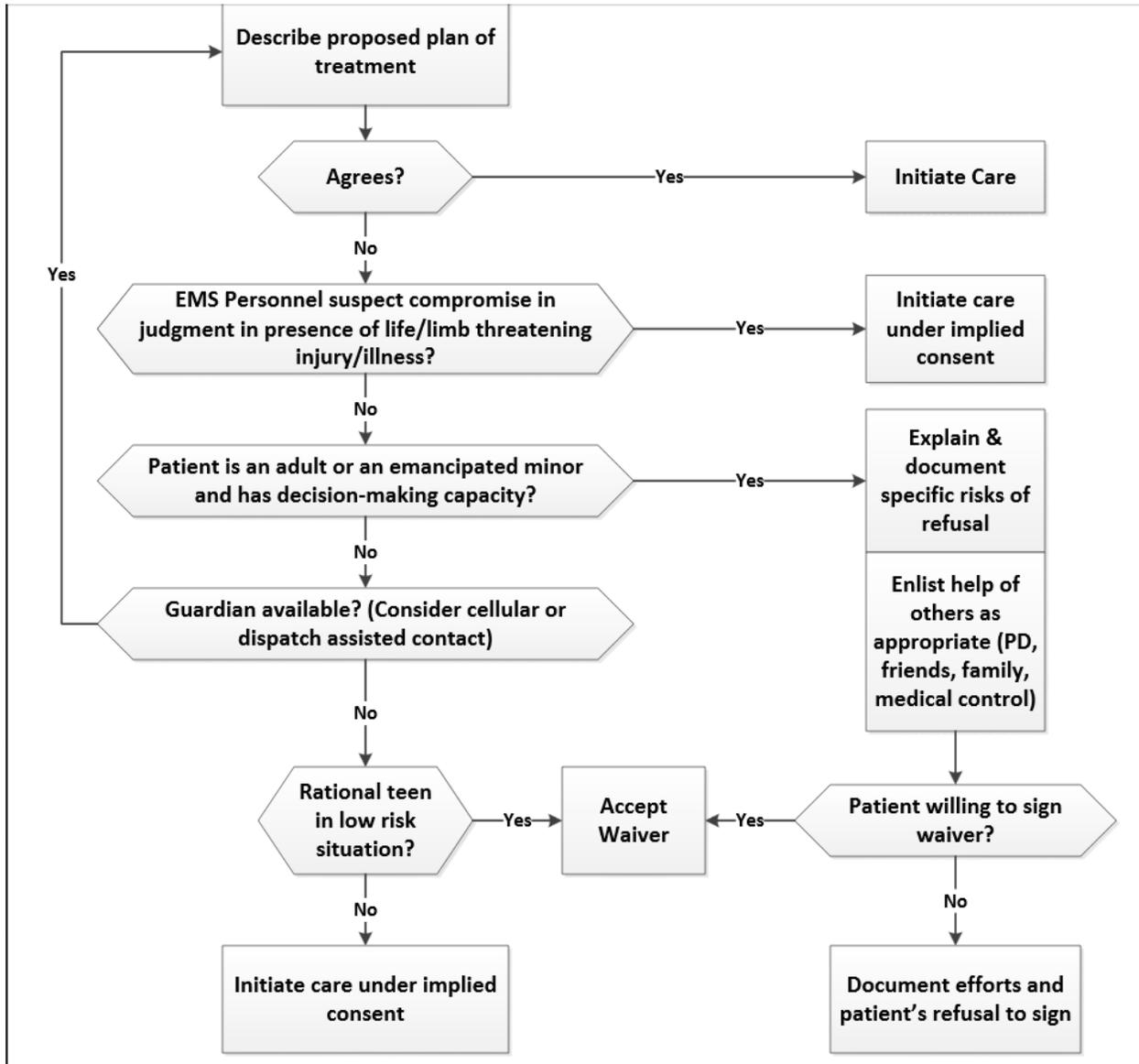


Backboards are indicated for extrication and patient movement devices. Patients are not to be transported on backboards unless removing them would cause a delay in transport or treatment of life threats. Tape, head straps, wedges, etc are not recommended.

Consent



When in doubt regarding any decisions of treatment or transport contact medical control



CPAP – Continuous positive airway pressure

For crews who are equipped and trained.

Indications:

This procedure may be performed on any patient 18 years old or older in CHF, respiratory distress with bronchospasm, and pneumonia, who has TWO of the following:

1. Retractions or accessory muscle use
2. Respiratory rate >25 per minute
3. SpO₂ ≤ 94%

Contraindications:

1. Apnea
2. Vomiting or active GI bleed
3. Major chest trauma/suspected pneumothorax
4. Altered mental status
5. Hypotension

Use device per manufacturer instructions.

Procedure considerations:

1. Assess patient and document vital signs, SpO₂ and ETCO₂ (when available) prior to applying **oxygen**.
2. Select the appropriate size face mask for the patient.
3. Inform patient about procedure process.
4. Gradually increase the flow rate, slowly reaching the desired CPAP pressure.
 - a. This is generally 5-10cm/H₂O. Follow device instructions.
5. Secure face mask onto patient face using the head harness.
6. Check the mask and tubing for leaks.
7. Reassess patient and document every five minutes.
8. If patient develops any of the contraindications or requires definitive airway control, discontinue CPAP and provide necessary airway control

CPR 2015 American Heart Assoc. Guidelines

Summary of High-Quality CPR Components for BLS Providers

Component	Adults and Adolescents	Children (Age 1 Year to Puberty)	Infants (Age Less Than 1 Year, Excluding Newborns)
Scene safety	Make sure the environment is safe for rescuers and victim		
Recognition of cardiac arrest	Check for responsiveness No breathing or only gasping (ie, no normal breathing) No definite pulse felt within 10 seconds (Breathing and pulse check can be performed simultaneously in less than 10 seconds)		
Activation of emergency response system	If you are alone with no mobile phone, leave the victim to activate the emergency response system and get the AED before beginning CPR Otherwise, send someone and begin CPR immediately; use the AED as soon as it is available	Witnessed collapse Follow steps for adults and adolescents on the left Unwitnessed collapse Give 2 minutes of CPR Leave the victim to activate the emergency response system and get the AED Return to the child or infant and resume CPR; use the AED as soon as it is available	
Compression-ventilation ratio without advanced airway	1 or 2 rescuers 30:2	1 rescuer 30:2 2 or more rescuers 15:2	
Compression-ventilation ratio with advanced airway	Continuous compressions at a rate of 100-120/min Give 1 breath every 6 seconds (10 breaths/min)		
Compression rate	100-120/min		
Compression depth	At least 2 inches (5 cm)*	At least one third AP diameter of chest About 2 inches (5 cm)	At least one third AP diameter of chest About 1½ inches (4 cm)
Hand placement	2 hands on the lower half of the breastbone (sternum)	2 hands or 1 hand (optional for very small child) on the lower half of the breastbone (sternum)	1 rescuer 2 fingers in the center of the chest, just below the nipple line 2 or more rescuers 2 thumb-encircling hands in the center of the chest, just below the nipple line
Chest recoil	Allow full recoil of chest after each compression; do not lean on the chest after each compression		
Minimizing interruptions	Limit interruptions in chest compressions to less than 10 seconds		

*Compression depth should be no more than 2.4 inches (6 cm).

Abbreviations: AED, automated external defibrillator; AP, anteroposterior; CPR, cardiopulmonary resuscitation.

Medication Administration

Before administering any medication, all personnel will confirm the following:

1. Right patient
2. Right medication
3. Right dose
4. Right route
5. Right time including expiration date
6. Right documentation

If further information is necessary regarding medications, please see the FORMULARY SECTION.

Physical Restraint

Indications for physical restraint:

1. Patients needing to be transported for medical care, but are refusing transport or care, and are not competent to refuse.
2. A person that appears to be mentally ill, and because of such mental illness, appears to be an imminent danger to others or to themselves.
3. Patients that have verbally stated their intent to attempt suicide or made some actual attempt to harm themselves, and who are not cooperating with your efforts to transport by ambulance.
4. Inform medical control as soon as possible, consult for questionable situations.

Precautions:

1. Any attempt at restraint involves risk to patient and responders. Do not attempt to restrain a patient without adequate assistance.
2. Physical restraints are a last resort. Attempt verbal persuasion first.
3. A patient that is alert, oriented, aware of his condition, and capable of understanding the consequences of his refusal is entitled to refuse treatment. He may not be restrained and treated against his will. (Review CONSENT PROCEDURE.)
4. If there is potential for vomiting (e.g., intoxicants, withdrawal states), consider restraining in a lateral position to decrease risk of aspiration.

Procedure:

1. Determine that patient requires ambulance transport AND that patient lacks decision-making capacity, OR that there is a basis for law enforcement or mental health hold.
2. Assign at least one person to each limb. A fifth person can coordinate the procedure.
3. Inform the patient of your need to restrain him. Explain the procedure to the patient.
4. Restrain arms and legs. Avoid body restraints as they may result in strangulation.
5. Check restraints frequently thereafter to ensure no injury to extremities.
6. NRB masks (with adequate **oxygen**/air supply) may be useful to control spitting or biting.
7. Once in restraints -- do not leave the patient at any time.
8. Remove restrains only with sufficient personnel available to control patient -- generally, only in the hospital.
9. Document indication for restraints, type of restraints, monitoring during transport, and condition on arrival at emergency department



Do NOT overlook medical causes that may contribute to the patient to being combative. Thorough assessment is of the utmost importance.

Shock Management

This procedure assumes the patient has a pulse and breathing. If not present, follow CARDIAC ARREST PROTOCOL. This protocol does not contain procedures for individual conditions that may be found. Provide assessment and treatment as appropriate for all conditions found.

EMT:

1. Support airway and breathing.
 - a. Oxygenate and ventilate as appropriate to patient signs and symptoms, pulse oximetry of $\geq 94\%$, and capnography (if equipped)
 - b. Use airway adjuncts as needed
2. Immediately treat potential life threats.
 - a. Control bleeding. If not controllable with direct pressure, use tourniquets on extremities, hemostatic gauze where direct pressure or tourniquets are not practical.
 - b. Assess pulse, skin, cap refill. Note qualities (strong/weak, fast/slow, regular/irregular, color, temperature, moisture, etc)
3. Note level of consciousness
 - a. Is patient oriented to person, place, time, and event?
 - b. Calculate Glasgow Coma Scale

Eye Opening		Verbal Response		Motor Response	
4	Spontaneous	5	Answers Appropriately	6	Follows Commands
3	Verbal Response	4	Confused	5	Localizes Pain
2	Pain Response	3	Inappropriate Response	4	Withdraws From Pain
1	None	2	Unintelligible Noises	3	Abnormal Flexion: Decorticate
		1	None	2	Abnormal Extension: Decerebrate
				1	None

4. Place patient in the supine position, if not previously done, and does not interfere with maintaining airway/breathing. Shock position and Trendelenburg are **no longer recommended**.
5. Maintain body temperature as close to normal as possible. Do not overheat the patient.

AEMT LEVEL PROVIDERS:

IV Considerations: Use saline lock, warm fluid whenever possible.

Hemorrhage IV Considerations: Patients with significant controlled external hemorrhage can be managed with rapid bolus of **lactated ringers**, 1-2 liters.

Patients with suspected internal hemorrhage in the chest, abdomen, pelvis, or multiple locations of blood loss should be given **lactated ringers**, titrated to maintain a systolic blood pressure range of 80-90. "Permissive hypotension" is meant to body without interrupting the clotting process.

IV Considerations for head and/or spine injury: Administer **lactated ringers** to maintain systolic blood pressure above 90.

Suction



The most important consideration when using suction is creating a clear airway. It does no good to withdraw suction based on time limits while foreign material is still present in the airway when using ventilation techniques. Suctioning should be done as thoroughly as possible in as short amount of time as possible to avoid complications.

1. Assemble all necessary equipment, including extra PPE such as goggles or face shield.
2. Test suction and ensure adequate vacuum pressure.
3. Measure the catheter from the corner of the patient's mouth to the tip of the earlobe.
4. Ensure the patient is properly oxygenated.
5. Insert the catheter and suction as you withdraw.
6. If solid material is too large to suction, roll the patient to their side and clear the mouth with your gloved finger.
7. If material is accumulating as fast as you can suction, you may need to alternate suctioning and ventilation.

Suction King LTS-D:

1. Suction and ventilation can take place simultaneously. Nasogastric tube up to 18 french may be used.
2. Measure from patient's nose, to ear, to umbilicus.
3. Gently insert suction catheter until meeting resistance or measured length.
4. Suction with the intent to clear stomach contents.



AEMT level

McGill forceps may be used to remove foreign objects visualized with a laryngoscope.

Traction Splint

Indications:

Performed on any patient with a closed midshaft femur fracture to

1. Stabilize the fracture to prevent excess movement.
2. Align the limb sufficiently to allow it to be placed in a splint.
3. Avoid potential neurovascular compromise.
4. Don't delay transport of a critical patient. This can be done in the ambulance.

Contraindications:

1. Pelvic fracture or instability
2. Knee, lower leg, or ankle instability

Procedure considerations:

1. Check for pulse, motor, and sensory functions.
2. Stabilize the leg by placing a hand behind the knee.
3. Have a second person stabilize the leg under the injury.
4. Using the least amount of force necessary, apply manual traction until the limb is in an approximately "normal" position.
5. Maintain manual traction until the mechanical traction device can be applied.
6. Mechanical traction should be applied to equal 10% of the patient's weight, not to exceed 15 pounds of traction, unless extenuating circumstances are present.
7. Recheck for pulse, motor, and sensory functions.



If the patient strongly resists the traction or it causes even more severe pain, splint the limb in the deformed position and provide rapid transport. Frequently monitor for pulse, motor, and sensory functions.

Triage



Due to the rural nature of Nye County consider additional resources as early as possible for disaster situations.

START Triage stands for Simple Triage And Rapid Treat. It assesses respiratory status, pulse, neurologic status and ability to walk.

GREEN: Patients who are able to walk to a designated location

YELLOW: Patients who have serious but not life threatening injuries, transport is delayed

RED: Treatable life-threatening injuries requiring immediate transport

BLACK: Those with fatal injuries or dead

1. Any patients who can walk are given directions for a designated location for treatment.
2. Assessment then begins with non-walking patients.
3. Assess respiratory status
 - a. If no breathing
 - i. Position airway, if patient does not breathe triage as black.
 - ii. If breathing begins, tag as red and place in recovery position.
 - b. If breathing
 - i. Make quick estimate of breathing rate
 1. Faster than 30 or slower than 10 is red.
 2. 10-29 move to next assessment step.
4. Assess for bilateral radial pulses
 - a. If absent, triage as red.
 - b. If present, go to next step.
5. Assess neurological status by having patient follow simple commands
 - a. If unresponsive, or unable to follow commands, triage as red.
 - b. If patient who can comply triage as yellow.

JUMPSTART Triage is intended for patients younger than 8 years or weigh less than 100 pounds

1. Identify walking wounded. Infants not developed enough to walk or special needs children should be taken to a treatment area for secondary triage.
2. For remaining patients, assess breathing.
 - a. If no breathing, assess pulse.
 - i. If no pulse, triage as black.
 - ii. If pulse, open airway.
 1. If no breathing, give five rescue breaths and reassess. If no breathing triage as black.

3. Assess respiration rate
 - a. Fewer than 15 or more than 45 triage as red
 - b. If 15-45 continue to next step
4. Assess for distal pulse, this does not have to be the brachial pulse. Use what you are comfortable with.
 - a. If distal pulse is absent, triage as red.
 - b. If present, continue to next step
5. Assess neurological status. Because of developmental differences in infants and children their responses will vary.
 - a. Unresponsive, posturing, incomprehensible sounds, or unable to localize pain, triage as red.
 - b. Responds to pain by localizing or withdrawing from it, or is alert, triage as yellow.

Special Considerations:

1. Disruptive or hysterical patients may need to be an immediate transport priority, even if not severely injured, to free up rescuers.
2. Any rescuer who becomes ill or injured becomes an immediate priority.
3. HazMat or Terrorist scenes may require transport delays to allow for decontamination.
 - a. Multiple areas of triage and decon may be necessary.
4. While it may seem practical to send all priority patients to the nearest hospital this may overwhelm their capabilities. Consider distributing patients of varying severities to the same hospital and send the priority patients to several different facilities as possible.

Vascular Access – IV, IO*

*AEMT LEVEL ONLY

Venous access may be achieved on scene or while en route to the hospital, whichever is most appropriate for overall patient condition without causing unnecessary transport delay.

1. Access can be achieved using:
 - a. Saline lock – for stable patients not requiring fluid
 - b. **Normal Saline** or **Lactated Ringer** solution(s)
 - c. Preexisting venous port during life-threatening emergency if other access is unobtainable– as long as blood can be freely aspirated from the port.
2. Fluid administration:
 - a. TKO – slow drip for fluids.
 - b. Wide open – for large amounts of fluid delivery.
 - c. Fluid challenge – consider bolus 20cc/kg or bolus of 500mL wide open.
 - d. Maintain rate as ordered by medical control.
3. If vital signs indicate hypovolemia, consider initial fluid challenge of 500 mL NS or 20cc/kg. If patient's condition does not improve, administer additional challenges as needed, not to exceed 2,000 mL, unless other conditions exist that limits fluid amounts. Attempt to maintain a systolic blood pressure of at least 90.
4. Medication delivery should be followed by 10-20mL flush or bolus.



Fluid challenge for pediatric patients: 20cc/kg. May repeat as clinically indicated to a maximum of 60 mL/kg

Contraindications for IV access: none

Intraosseous access is for life threatening conditions when I.V. access is unobtainable after three attempts, or access needs to be established within 90 seconds, in both adult and pediatric patients. IO devices may only be inserted into the proximal tibia. Any fluid or medication that can be used with an IV can be used with an IO. Only one attempt may be made per leg.

Contraindications: Placement in, or distal to, fractured tibia, previous IO within 24 hours, previous orthopedic procedures near the insertion site, infection at site, inability to locate landmarks or excessive tissue.

1. Access should only be achieved on adult and pediatric patients using the EZ-IO drill or other mechanically assisted device such as a Jamshidi ® needle.
2. If the patient is still responsive, 2% of preservative-free lidocaine without epinephrine may be used. See **LIDOCAINE** in the FORMULARY SECTION.

FORMULARY

acetaminophen (Tylenol[®])

Provider level: EMT and AEMT

Class of drug:

Analgesic, Antipyretic

Indications:

Fever

Pain from mild to moderate injury

Contraindications:

Known sensitivity to the drug, hepatic failure or impairment

Possible side effects:

Nausea, vomiting, abdominal pain, rash

Drug interactions:

Phenothiazines - may produce hypothermia

Phenobarbital - increase hepatic toxicity

How supplied:

325mg tablet, caplet

Oral suspension

Administration:

ADULT: 325 - 650 mg every 4-6 hours

PEDIATRIC: 10-15 mg/kg orally

Special notes:

acetaminophen use in the scope of practice is intended for fever control.

acetylsalicylic acid/aspirin

Provider level: EMT and AEMT

Classification:

Antiplatelet

Indications:

Unstable angina, acute myocardial infarction, chest pain of possible cardiac nature

Contraindications: known drug sensitivity, GI bleeding, active ulcer disease, hemorrhagic stroke, bleeding disorders, children with flulike symptoms

Possible side effects:

Stomach irritation, heartburn or indigestion, nausea or vomiting, allergic reaction

How Supplied:

81 mg chewable tablet

Administration:

324mg **acetylsalicylic acid** in the form of four (4) 81mg chewable **aspirin** PO, if the patient is able to swallow voluntarily and has a patent airway

Special Notes:

Acetylsalicylic acid is not to be given for analgesic purposes such as headaches or orthopedic injuries.

Some asthmatics are sensitive to **aspirin** products. Ingestion of **aspirin** can worsen or precipitate an asthma attack in these individuals.

If the patient states they have already taken their own **aspirin** confirm the product they took is **aspirin** and not **Tylenol**[®], **Advil**[®] etc.

Aspirin is commonly abbreviated as **ASA**

activated charcoal (Actidose[®])

Provider level: EMT and AEMT

Class of drug:

Gastrointestinal Adsorbent

Indications:

Activated charcoal is used in the treatment of certain cases of poisoning and overdose in the alert patient.

Contraindications:

Acid, alkali, or petroleum ingestion
GI obstruction

Possible side effects:

May indirectly induce nausea or vomiting
May cause constipation or mild, transient diarrhea

Drug interaction:

Contact medical control before giving for an **acetaminophen** overdose. Charcoal interferes with the function of N-Acetylcysteine, an antidote for **acetaminophen**.
Milk products decreases effectiveness

Administration:

ADULT: 1gm/kg, usually 25-50 grams PO.
PEDIATRIC: 1gm/kg PO

Special notes:

Patients must be capable of following instructions and protecting their airway.
When possible contact **Poison Control (800) 222-1222** for directions before administering.

albuterol (Proventil[®], Ventolin[®])

Provider level: EMT (with medical control contact) and AEMT

Classification:

Bronchial dilator

Indications:

Albuterol is indicated as a bronchodilator for asthma, and for reversible bronchospasm associated with bronchitis and emphysema (COPD), and anaphylaxis.

Contraindications:

Known drug sensitivity, cardiac dysrhythmias with tachycardia

Possible side effects:

Restlessness, dizziness, palpitations, tachycardia, dysrhythmia, tremors

Precautions:

Use with caution in patients who have a history of cardiovascular disorders such as hypertension, coronary artery disease, congestive heart failure, or hyperthyroidism. May lower seizure threshold in susceptible patients. If it appears the patient is getting worse discontinue the treatment and contact medical control.

How Supplied:

Patient's own MDI

3 mL of premixed 0.083% solution (2.5 mg)

Administration:

ADULTS AND CHILDREN (2 years and older) - Administer one premix solution by nebulizer
May repeat or even administer as a continuous nebulization during transport if necessary.

INFANTS OR CHILDREN (under 2 years) - Administer half of the premixed solution diluted with an additional 2 mL of saline. May repeat or even administer as a continuous nebulization during transport if necessary.

diphenhydramine (Benadryl[®])

Provider level: EMT (PO), AEMT (IV, IM)

Classification:

Antihistamine

Indications:

Moderate to severe allergic reaction, anaphylaxis

Contraindications:

Known drug sensitivity, during acute asthma attack, glaucoma, newborns and nursing mothers

Possible side effects:

Drowsiness or excitability, disturbed coordination, hypotension, palpitations, tachycardia, bradycardia, thickened bronchial secretions, dry mouth and throat

Precautions:

Alcohol or other depressants may increase depressant effects

How Supplied:

50mg/mL prefilled syringe or vial

Administration:

ADULT: 10-50mg, **EMT** - PO, **AEMT** - slow IV push or deep IM

PEDIATRIC: 1-2mg/kg, **EMT** - PO, **AEMT** - slow IV push or deep IM

Special Notes:

Use cautiously in patients with central nervous system depression

epinephrine

Provider level: EMT (auto-inj – patient’s own or IM with medical control permission) AEMT (IM, IV)

Classification:

Sympathomimetic

Indications:

Severe allergic reaction, anaphylaxis, status asthmaticus

Auto-injector and **1:1000** IM - Allergic reaction or status asthmaticus

1:10,000 IV– Anaphylactic shock

Contraindications:

Known drug sensitivity, hypovolemic shock, myocardial ischemia, pulmonary edema, hypertension, hypothermia

Possible side effects:

Headache, nausea and vomiting, restlessness, weakness, dysrhythmias, hypertension, tachycardia, tremors, dyspnea

Precautions:

Due to peripheral vasoconstriction, should be used with caution in patients with poor peripheral circulation

How Supplied:

Auto-injector: 0.15mg/mL and 0.3mg/mL

1:1000 – 1mg/mL ampule or vial

1:10,000 – 1mg in 10mL prefilled syringe

Administration:

Auto injector - ADULT: 0.3mg/mL, **PEDIATRIC:** 0.15mg/mL

1:1000: ADULT – 0.3 to 0.5mg IM, **PEDIATRIC** – 0.01mg/kg (0.01mL.kg) max of 0.3 IM

AEMT only -

1:10,000: ADULT – 0.5-1mL slow IV/IO push over 5 minutes, **PEDIATRIC** – 0.01mg/kg slow IV/IO

Special Notes:

May increase myocardial oxygen demand resulting in angina pectoris

glucagon (GlucaGen[®])

Provider level: AEMT

Classification:

Hormone

Indications:

Hypoglycemia

Contraindications:

Known drug sensitivity

Possible side effects:

Tachycardia, hypotension, nausea and vomiting, urticaria

Precautions:

Glucagon should not be considered a first-line choice for hypoglycemia. Intravenous glucose must be administered if patient does not respond to second dose of **glucagon**.

How Supplied:

Glucagon and solution: 1mg of white powder and 1mL of diluting solution

Administration:

ADULT: 0.5 – 1mg IM every 7-10 mins.

PEDIATRIC: weight over 20kg, 0.5 – 1mg IM

Special Notes:

May cause nausea and vomiting, as well as hyperglycemia

Glucose/dextrose 50%

Provider level: EMT – oral **glucose**, AEMT – **dextrose 50%**

Classification:

Carbohydrate

Indications:

Hypoglycemia, suspected or measured blood glucose less than 60mg/dl
Altered mental state in a known diabetic that might be caused by hypoglycemia
Coma, seizure, or cardiac arrest of unknown origin

Contraindications:

Known drug sensitivity, intracranial hemorrhage, increased intracranial pressure, known or suspected stroke with no hypoglycemia

Possible side effects:

Hyperglycemia, pain or burning at IV site

Precautions:

Dextrose 50% can cause necrosis of tissue. IV should be secure and free return of blood into the syringe or tubing should be checked 2-3 times during administration.

How Supplied:

Glucose gel– prefilled tube

Dextrose 50%: 25 Gm in 50 mL pre-filled syringe.

Administration:

Oral glucose – If patient can swallow and protect own airway, place glucose on patients finger or tongue depressor and place between cheek and gum. One tube equals one dose.

Dextrose 50% – AEMT

ADULT: 12.5-25 gm slow IV push into secure vein if patient unable to tolerate **oral glucose**.

PEDIATRIC: 2 mL/kg of **25% dextrose** IV push. **NEONATE:** 5 mL/kg of **10% dextrose** IV push.

See DIABETIC EMERGENCIES PROTOCOL for dilution instructions for pediatric doses.

Special Notes:

Effect may be delayed in elderly people with poor circulation or patients who have been hypoglycemic for a prolonged period. Older patients with CVA or stroke may be made worse. Unfortunately, these stroke-like presentations can be the result of hypoglycemia. It is important to test blood glucose levels prior to the administration of **dextrose 50%**. When a situation is unclear contact medical control.

hydroxocobalamin (Cyanokit[®]) (Cyanide Antidote[®])

Provider level: AEMT

Classification:

Vitamin

Indications:

Confirmed or suspected cyanide exposure

Contraindications:

Known drug sensitivity

Possible side effects:

Hypertension, headache, rash, nausea, injection site reactions, and allergic reaction

Precautions:

If used in combination with any other IV medications, they must be administered in separate lines.

How Supplied:

(Cyanokit[®]) – 5g hydroxocobalamin powder - After reconstitution using sodium chloride 0.9% vial contains 25mg/mL.

Administration:

5g by IV over 15 minutes

Special Notes:

Significant increases in blood pressure may occur following administration.

ibuprofen (Motrin[®]) (Advil[®])

Provider level: EMT and AEMT

Classification:

Nonsteroidal anti-inflammatory drug (NSAID), antipyretic, analgesic

Indications:

Fever - if patient is already taking **acetaminophen** or **acetaminophen** is not well tolerated.
Pain from mild to moderate injury with no bleeding

Contraindications:

Known drug sensitivity, **aspirin** sensitivity, pregnancy, severe renal disease, ulcer, GI bleed, ingestion of alcohol

Possible side effects:

Headache, drowsiness, anxiety, nausea, vomiting, diarrhea, increased bleeding time, rash

Precautions:

Should not be given to those who chronically use this medication, ingest alcohol, or have experienced significant trauma

How Supplied:

200mg tablet, caplet, liquid gel capsule
Oral suspension

Administration:

ADULT: 200-400mg PO

PEDIATRIC: 6 months to 12 years, 5mg/kg PO

Special Notes:

Aspirin may trigger asthma symptoms.

ipratropium bromide (Atrovent[®])

Provider level: AEMT

Classification:

Anticholinergic/ bronchodilator

Indications:

Persistent bronchospasm

Contraindications:

Known drug sensitivity, atropine sensitivity, soy or peanut allergy

Possible side effects:

Nausea and vomiting, cramps, cough, worsening symptoms, headache, tachycardia, dry mouth, blurred vision, anxiety

Precautions:

Use with caution in patients with urinary retention

How Supplied:

2.5mL of premixed 0.02% solution (0.5mg)

Administration:

0.5mg of solution nebulized, may be mixed with **albuterol**

Special Notes:

Significant side effects must always be weighed against the therapeutic effect.

IV Fluids - normal saline, lactated ringers

Provider level: AEMT

Classification:

Isotonic volume expander, electrolyte replacement

Indications:

Fluid replacement, medication administration

Normal Saline – dehydration, diabetic ketoacidosis, neurogenic shock

Lactated Ringers – Hypovolemic shock, burns

Contraindications:

normal saline – congestive heart failure (may easily induce overload)

lactated ringers – congestive heart failure, renal failure

Possible side effects:

Rare in therapeutic dosages

Precautions:

Certain medication will complicate a line when using **lactated ringers** solution. When administering meds, a Y site must be used and flushed with 10-20mL of NS before and after each drug administration.

How Supplied:

Saline flush prefilled syringe

1000mL bag

Administration:

TKO – slow drip for fluids.

Wide open – for large amounts of fluid delivery

Fluid challenge – consider bolus 20cc/kg or bolus of 500mL wide open

As directed by medical control

Special Notes:

Lactated ringers contain sodium, potassium, and calcium, as well as lactate which can act as a buffer to neutralize acidity caused by some conditions/shock.

Blood pressure measurements are useful but not the only determination regarding fluid replacement. Some patients with hypertension need fluid, i.e. diabetic ketoacidosis. Monitor all vital signs, including lung sounds and respiratory effort when fluids are being administered.

ketorolac (Toradol[®])

Provider level: AEMT

Classification:

Nonsteroidal anti inflammatory drug

Indications:

Moderate to severe pain

Contraindications:

Known sensitivity to drug, allergies to **aspirin** or other nonsteroidal anti-inflammatory drugs, bleeding disorders, renal failure, active peptic ulcer disease

Possible side effects:

Anaphylaxis from hypersensitivity, edema, sedation, bleeding disorders, rash, nausea, headache

Precautions:

Use with caution and reduce dose for elderly patients.

How Supplied:

30mg/mL, 2mL vial

Administration:

Adults only: IM - 60mg for patients <65 years old, 30mg for patients >65 years old, have renal impairment or weigh less than 50kg

IV – 30mg for patients <65 years old, 15 mg for patients >65 years old, have renal impairment or weigh less than 50kg. **IN** – Patients weighing 50kg or more, 30mg. 50kg or less, 15 mg

Special Notes:

lidocaine 2% (Xylocaine®)

Provider level: AEMT

Classification:

Local anesthetic

Indications:

For conscious patients needing IO access for fluid or medication delivery

Contraindications:

Known drug sensitivity

Possible side effects:

Local area numbness, tachycardia, dysrhythmia, hypotension, cardiac arrest and pain at injection site

Precautions:

How Supplied:

2% preservative-free lidocaine without epinephrine
20mg/mL prefilled syringe

Administration:

ADULT: 20mg introduced into the intraosseous space over 60-120 seconds, followed by 10 mL normal saline flush. Another 20mg bolus may be introduced every 15-30 minutes as needed. DO NOT administer great than 3mg/kg/24hours.

PEDIATRIC: Dose is 0.5mg/kg as a bolus, flush should be 0.5cc/kg of normal saline.

If patient is in severe pain, contact medical control for further instructions.

Special Notes:

Half life is approximately 90 minutes

Pregnancy class B

naloxone (Narcan[®])

Provider level: EMT – IN, IM AEMT - IV

Classification:

Opioid antagonist

Indications:

Opioid induced central nervous system and respiratory depression

Contraindications:

Known drug sensitivity

Possible side effects:

Tachycardia, hypertension, dysrhythmias, nausea and vomiting, diaphoresis, blurred vision, opiate withdrawal,

Precautions:

May induce withdrawal symptoms in narcotic dependent patients

How Supplied:

1mg/mL, 2mL vial or prefilled syringe

Administration:

Titrate dose to maintain respiratory effort. May need to repeat to maintain respiratory effect.

ADULT: EMT – IN: 1mg per nostril total 2mg, IM: 0.4mg – 2mg up to 10mg. **AEMT -** 0.5mg at a time, slow IV push.

PEDIATRIC: 0.1mg/kg up to 2mg I.V. or IN

Special Notes:

Use smaller doses when administering to narcotic addicts. **naloxone** may not reverse hypotension. Rare anaphylactic reactions have been reported.

nitroglycerin (Nitrostat[®]) (Nitrolingual[®])

Provider level: EMT (may assist with patient's medication or administer after permission from medical control) and AEMT

Classification:

Vasodilator

Indications:

Chest pain, suspected AMI

Contraindications:

Known drug sensitivity, hypotension <100 systolic, head injury, bradycardia <50, cerebral hemorrhage

Possible side effects:

Headache, tachycardia, hypotension, nausea and vomiting, postural syncope, diaphoresis, flushing

Precautions:

Ensure patient has not had erectile dysfunction drugs within the past 24 hours. Ideally patients with systolic pressures in the lower 100's should have an IV line placed before administering, especially multiple doses.

How Supplied:

0.4mg tablet

0.4mg metered spray

Administration:

Sublingual dose repeated in 5 minute intervals, maximum 3 doses. Contact medical control if more doses are needed.

Special Notes:

nitroglycerin decomposes when exposed to light and must be kept in airtight containers.

nitrous oxide (Nitronox[®])

Provider level: AEMT

Classification:

Analgesic

Indications:

Moderate to severe pain

Contraindications:

Known drug sensitivity, altered level of consciousness, head injury, pneumothorax, inability to follow instructions, decompression sickness, undiagnosed abdominal pain, bowel obstruction, abdominal distension, hypotension, shock, COPD, pregnancy

Possible side effects:

Dizziness, apnea, cyanosis, nausea and vomiting

Precautions:

Invert cylinder several times before use. Patients can become momentarily unconscious but will reverse with a few breaths of room air or **oxygen**.

How Supplied:

50/50 mix **nitrous oxide/oxygen**

Administration:

Instruct the patient to inhale with the mask or mouthpiece as needed

Special Notes:

Patient must hold mask/mouthpiece and self-administer

ondansetron (Zofran[®])

Provider level: AEMT

Classification:

Antiemetic

Indications:

Nausea, vomiting

Contraindications:

Known drug sensitivity, liver disease, GI obstruction

Possible side effects:

EKG irregularities (rare), hiccups, pruritus, flushing, chills, headache, dizziness, drowsiness, shivering, hypoxia, non-voluntary movements

Precautions:

Tablets should be gently removed from foil, not pushed through the package

How Supplied:

4mg tablet or dissolving wafer
2mg/mL vial or prefilled syringe

Administration:

Adults only: 4mg ODT, dissolving tablet under tongue. 2-4mg IV slow push over 2-5 minutes followed by 20mg saline flush, 2mg-4mg IM in well developed muscle.

Special Notes:

If not given as a slow push, may induce nausea/vomiting.

Oxygen

Provider level: EMT and AEMT

Classification:

Atmospheric gas

Indications:

Confirmed or suspected hypoxia, oxygen saturation <94%, ischemic chest pain, respiratory insufficiency, confirmed or suspected carbon monoxide poisoning, other causes of decreased tissue oxygenation

Contraindications:

Over-oxygenation is a possibility that comes with its own set of complications. When **oxygen** is warranted, consider the ideal method of delivery and amount.

Possible side effects:

High concentrations may cause decreased level of consciousness or respiratory depression in patients with chronic carbon dioxide retention.

Precautions:

Oxygen supports combustion

How Supplied:

Compressed gas cylinder

Administration:

After initial evaluation and stabilization evaluate delivery methods to maintain oxygen saturation ≥ 94

High concentration: 10-15 LPM via non-rebreathing mask

Low concentration: 1-6 LPM via nasal cannula

Blow-by method as appropriate.

Special Notes:

Oxygen should not be withheld in the hypo perfused or hypoxic patient.

Acknowledgement of Receiving Protocol

I verify that I have received the protocol document and agree to follow the guidelines. I also agree that if I do not administer patient care appropriately I may be dismissed from Nye County Emergency Medical Service Division.

Printed Name

Date

Signature

Date