Authorization for Standing Orders

The Wilson County Emergency Management Agency (WEMA) Protocols and Standing Orders (revision 3.0 project completed May 2015) are hereby adopted to be initiated by WEMA personnel within their scope of training and licensure whenever a patient presents with injury or illness covered by these orders. When noted in the protocols where it is indicated to contact medical control/direction, the EMR, EMT, EMT-IV/AEMT, or Paramedic must receive written or verbal orders from medical control/direction before proceeding with the protocol. Other orders may be obtained from medical control/direction when the situation is not covered by the protocols or as becomes necessary as deemed by the EMR, EMT, EMT-IV/AEMT or Paramedic. In order to make future revisions or additions easier each protocol is signed individually. Unless otherwise directed the protocols within this manual may be utilized as standing orders.

These protocols may be utilized by First Responding Agencies with a Memorandum of Understanding (MOU) with Wilson County Emergency Management Agency (WEMA).

These protocols are to be used while treating a patient(s) in the care of First Responding Agency personnel and/or Wilson County Emergency Management Agency (WEMA) personnel. This includes full and part time on duty personnel, however it shall also include both full and part time personnel that may be off duty and non paid personnel that are either dispatched to first respond or arrive on the scene. Any personnel using these protocols and standing orders shall have a valid Tennessee EMS license (certification for Emergency Medical Responders) that is active without any action(s) currently sanction or exclusion.

These protocols and standing orders are valid anywhere when working under mutual aid conditions as long as assistance has been requested through the proper procedures.

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Adult Points to Remember

- The dosage of drugs administered by the endotracheal route should be 2 - 2.5 times the IV dosage. A catheter, which extends distal to the end of the ET tube, should be used as time permits. A French suction catheter works well for this. ***THIS IS THE LAST RESORT FOR MEDICATION ADMINISTRATION.***
- Vasopressin is a potent vasoconstrictor. It may be used with Epinephrine but a certain time interval must be observed. The half life of Vasopressin in the body is approximately 10 minutes.
- Elevate the extremity after bolus when given IV
- CPR is most effective when done continuously, with minimum interruption
- Consider non tracheal airway maneuvers whenever endotracheal intubation takes longer than 30 seconds.
- Administer a 20 - 50 ml fluid bolus after administering a drug IV and elevate the extremity if it is a peripheral IV. These measures will aid in rapid delivery of the medicine to the central circulation.
- **Treat the patient not the monitor!**

Basic Assessment & Management

This is a general set of treatment guidelines that should be applied with each patient encounter as required. This has been developed to alleviate clutter in each Standing Order/Protocol. Perform these measures as appropriate for each patient. This Standing Order will refer you to other orders for more detailed information. Personnel should not attempt any procedures that falls outside their scope of practice. All references made are considered adult unless otherwise noted. Pediatric doses are in a different color, bold and italics after the adult dose except the cardiac dysrhythmia/arrhythmia protocols which are listed separate due to some major differences in treatment.

STANDING ORDER:

Airway

- Assess every patient's airway. If the airway is not patent and self-maintained, intervene quickly. Utilize the appropriate airway positioning maneuver head tilt/chin lift (non trauma) and the modified jaw thrust (trauma). Airway interventions should proceed in the following order:
    - Bag valve mask ventilation using the proper size BVM and mask
    - Basic airway management (oral & nasal airways)
    - Supraglottic Airway (King LT, etc.)
    - Advanced airway management - oral or nasal intubation (Paramedic only)
    - RSI may be utilized by Paramedic's that have met the department criteria.

    Remember, the main goal for airway is to oxygenate the patient. This goal can be accomplished without an advanced airway, just remember the goal!

- Manage the airway aggressively. If airway control cannot be gained by one measure, move quickly to the next measure.
- Utilize the ResQPOD as indicated in **Procedure I - 29.1**.
- If the airway is obstructed, follow the most current American Heart Association guidelines for obstructed airway. Paramedics may utilize Magill forceps as needed.
- Below is a list of conditions that must be managed quickly and appropriately. Listed are examples and does not include every situation that may need quick and aggressive airway control.
    - Apneic patient, regardless of cause
    - Patient unable to self-maintain airway
    - Respiration's of less than 8 per minute or greater than 30 per minute with signs of hypoxia.
    - Head injury patients with altered mental status and/or pending deterioration
    - Absent gag reflex
    - Cyanosis or Sp02 of less than 85% that does not respond to a brief trial of high flow oxygen and/or drug therapy.
    - Airway burns or involvement in blast injury
    - If a patient has facial trauma assess for broken or damaged teeth rule out any airway compromise
    - Impending airway collapse secondary to anaphylaxis.
    - Hypoxia refractory to CPAP, impending respiratory failure/arrest.
    - Impending airway collapse secondary to anaphylaxis.

Basic Assessment & Management

Breathing:

- Assess breathing for adequacy. Observe for objective signs of hypoxia such as agitation, cyanosis, lethargy, tachypnea, etc.
- Assess the workload of breathing. Is the patient using accessory muscles of respiration, retracting, nasal flaring, or other signs of respiratory distress?
- Assess rate and quality of breathing.
- Medical patients should be placed in the position of comfort to best facilitate adequate oxygenation.
- Assess for impending respiratory failure. If the patient is threatening failure, intervene as soon as possible, including application of CPAP and/or other advanced methods within the protocol manual..
- Apply oxygen if there is any sign or complaint of dyspnea, shock, multi-system trauma, neurological insult, cardiac ischemia/infarction, or other conditions that benefit from supplemental oxygen, administer to maintain oxygen saturation above 94%.
- Use airway adjuncts and ventilations with 100% oxygen to treat hypoxia if no improvement from other methods is noted..
- Hyperventilation should be avoided unless a head injury patient displays s/s of cushing reflex {herniation syndrome} hypertension with Bradycardia.
- If a BVM is utilized to assist or ventilate a patient a nasal or oral airway should be in place to displace the tongue for better delivery of ventilations.
- Use the Autovent 2000 or 3000 when not contraindicated to deliver the best tidal and minute volume, decrease rescuer fatigue, and free a rescuer for other tasks.
- Minute volume is very important to access in patients, this is defined as tidal volume (amount of air moved with each breath) x respiratory rate = minute volume. Although the pre-hospital provider cannot access the amount of tidal volume the provider should be able to assess if it is of adequate oxygenation. If the patient has inadequate oxygenation, consider utilizing a BVM and airway adjunct.
- Always maintain an open and patent airway, if secretions, blood, emesis, etc. are noted suction the airway as needed. Maximum time is 15 seconds for adults and 10 seconds for pediatrics.
- Assist respirations as needed with bag valve mask and supplemental Oxygen therapy as necessary, or by means of an emergency respirator (AutoVent). Be mindful of the ETC02 readings when ventilating a patient. Maintain ETC02 between 35 - 45 mm Hg unless herniation.
- A brief period of hyperventilation is indicated for prolonged hypoxia and/or hypercapnia.
- If placing a Supraglottic airway the patient should be hyper-oxygenated 30 – 60 seconds prior to the procedure.
- Prior to placing an advanced airway, utilize the no DESAT procedure. This is utilizing bilateral nasal airways and nasal cannula and non-rebreather (at 15LPM on both). This should be done at least three (3) minutes prior to the attempt unless apenic.
- Utilize the End Tidal C02 (ETCO2) on the cardiac monitor to guide therapy. ETCO2 shall be utilized on patients that have an advanced airway in place.
- Routine excessive ventilation (hyperventilating) can cause vasoconstriction can be detrimental to cardiac output and patient survival.

Basic Assessment & Management

Circulation:

- Assess for quality and rate of peripheral pulses. The following is a rule of thumb for rapid blood pressure analysis. If this method is utilized to determine the BP it should be documented in the EMS narrative.
    - Carotid pulse intact: Blood pressure is greater than 60 mm Hg
    - Femoral pulse intact: Blood pressure is greater than 70 mm Hg
    - Radial pulse intact: Blood pressure is greater than 80 mm Hg
- If unable to palpate a carotid pulse in an unconscious patient, begin Cardio-Pulmonary Resuscitation by American Heart Association Standards immediately. CPR, when initiated should be continued until a spontaneous palpable pulse is obtained, an order to stop resuscitation is received from medical control/direction, or the requirements of the **"Discontinuation/Withholding of Life Support" Protocol G – 4** are met. Obvious exceptions are stopping to assess, defibrillate, or move the patient.
- Periodically confirm the effectiveness of CPR by palpating a carotid or femoral pulse (be modest and professional when assessing). If a pulse cannot be detected with compressions, evaluate the CPR technique and assess for good ventricular complexes (Paramedic only).
- Adequate chest compressions should be performed at all times. Providers should make all attempts to limit the amount of "hands off" time during CPR. "Hands off" time should be limited to 10 seconds unless necessary for movement down stairs, etc. be sure to document accordingly. Follow the most current AHA guidelines for BLS. If an AED or manual defibrillation is delivered or no shock is indicated chest compressions should be resumed immediately.
- Initiate intravenous therapy as appropriate for fluid resuscitation or medication route. IV therapy is also applied very liberally based on patient need or anticipated need. **Remember saline locks as an alternative to IV infusion**. In critical patients, remember the IO drug/fluid route.
- Determine cardiac rhythm: The EKG should be applied except on clearly stable non-cardiac, non-major trauma patients. **If the patient needs an IV or saline lock, they should receive the cardiac monitor**. Treat rhythm appropriately as outlined elsewhere in this manual.
- A central line may be utilized by paramedics that have received in-service training. This line should only be accessed if a medication must be administered; DO NOT access the central line for a TKO IV.
- Utilize the RESQPOD as indicated in "**ResQPOD" Procedure I - 29.2**
- Vascular access – Refer to **"Vascular Access" Procedure I – 31**

Basic Assessment & Management

Bleeding:

- Direct pressure should be the first option to control bleeding
- Pressure points are no longer recommended
- If major bleeding is not controlled quickly with direct pressure, consider tourniquet early
- Arterial bleeding, consider a tourniquet first
- Tourniquets are only used on the arms and legs
- Commercial tourniquets are the best option. Man made tourniquets may fail.
- Bleeding from the groin or other areas a tourniquet cannot be applied use Hemostatic agent. Refer to **"Bleeding Control" Procedure I – 3.1**
- Hemostatic agents may be used in conjunction with a tourniquet
- Severe bleeding may require two (2) tourniquets, place the 2nd above the 1st tourniquet
- Refer to **"Bleeding Control" Procedure I – 3.1**

Defibrillation/cardioversion

Wilson County EMA has all Zoll Biphasic monitor/defibrillators and AED's. Zoll uses Rectilinear Biphasic Waveform (RBW). The energy settings are different from Truncated Biphasic Waveform (TBW). Refer to the "**Electrical Therapy" Procedure I - 15**.

Physical assessment:

- Acknowledge and investigate the chief complaint and do a Primary Assessment (ABC's)
- Perform a Secondary Assessment (Rapid Trauma Assessment or Focused Physical Exam)
- Detailed Physical Exam (usually completed during transport) head to toe assessment on all patients with significant trauma if condition and time permit. I.e. maintaining ABC's would take priority over a detailed assessment, document accordingly.
- Perform a focused exam based assessment on medical patients or minor trauma patients.
- A limited assessment may be appropriate if there is any compromise in the ABC assessment.
- Patients should receive an ALS patient assessment (if personnel available) when time and resources permit so the patient can make an informed decision on treatment and/or transport.

History

- Historical information may be very important in determining the patient's current problem.
- Obtain a SAMPLE history to assist in assessment and/or treatment.
- Medical situations should have an OPQRST assessment done.

Assess Vital Signs:

- **Blood pressure:** Critical patients should have a blood pressure taken at 5 minute intervals. Non-critical patients should have a blood pressure recorded at least every 15 minutes. Make sure to take a set of vital signs before administration of vasoactive drugs. If you are unable to meet these time guidelines for valid reasons document accordingly. If automated BP devices are utilized, the first BP MUST be done manually.
- **Pulse:** Document the presence, strength, and regularity of pulses as appropriate. Document pulses (or lack of) distal to any injury as well as for overall patient assessment.
- **Respiration:** Document the rate and quality of breathing. Any patient with a respiratory complaint should have the oxygen saturation monitor applied.
- **EKG:** Heart rate less than 60 or greater than 100, an irregular pulse, respiratory distress, cardiac compromise, stroke, and any if any medications (other than oxygen) are given. This is a broad guideline of examples and is not meant to be all inclusive. The AEMT may apply the EKG electrodes on an ALS ambulance in the physical presence of a Paramedic.
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Basic Assessment & Management

- **Twelve (12) lead EKG:** Any medical patient over the age of 60 that is placed on the cardiac monitor should have a 12 lead EKG obtained. Certain protocols list the 12 lead in the Paramedic treatment, these are mandatory in those protocols but are not limited to just those listed. Refer to the **"12 Lead EKG placement" J - 1** for details on placement of electrodes for 12 lead EKG. An exception exists if you have less than five (5) minute transport time to the receiving facility. Electrodes may be applied by AEMT/EMT-IV in the physical presence of a Paramedic (TN EMS rule).
- **Oxygen saturation:** Should be checked on all patients. It becomes a very good tool in patients with respiratory complaints, significant trauma or who is critically ill.
- **Temperature**: Should be determined as appropriate.
- **Length Based Tape: ALL** pediatric patients should be measured with a length based tape to determine equipment sizes and drug doses. This should be documented in the EPCR and relayed to the receiving Emergency Room during call in.
- **Blood glucose:** Check blood glucose level on **ALL** patients that refuses transport or an altered mental status or diabetic history.
- **End Tidal Carbon Dioxide (ETC02):** Any patient that has been intubated shall have ETC02 monitoring. These results shall be documented. The colormetric ETCO2 device shall be utilized for initial and short term determination (after 6 breaths through the ETCO2), the waveform ETCO2 from the Zoll cardiac monitor/defibrillator shall be used for any patient that is intubated. In hypoperfusion situations the device may not function well.
- **Carbon Monoxide Detector (RAD57):** Any patient suspected of CO exposure or that has vague signs and/or symptoms should have the CO detector applied to determine CO level. This should be used for **ALL** Firefighter Rehab.

Endotracheal Tube Confirmation

It is **CRITICAL** that each endotracheal tube placement be confirmed initially with the colormetric device **and** continual waveform ETC02 monitoring with the Zoll monitor. It is recognized nationally, undetected esophageal intubation is a significant morbidity/mortality risk. No one method of checking the tube is 100% reliable. If at any point you are unsure of placement, reconfirm by visualizing the placement or extubate the patient and perform the procedure again after re-oxygenation of the patient with BVM ventilation.

The following parameters must be documented on **EVERY INTUBATION**:

- Esophageal Intubation Detector (EID) - If this device is used it should be utilized prior to ventilating the patient. If not, air is forced into the stomach then it is utilized it will re-inflate giving you an incorrect response. Do not use on children under the age of five (5) or forty four (44) pounds. Refer to the **"Esophageal Intubation Detector" Procedure I - 18 and the user manual Reference J - 45.**
- Epigastric sounds {absent or present} (**this should be your first assessment after intubation**). If epigastric sounds are heard leave the ETT in place (and ventilate the patient with a BVM and mask while placing the ETT to the corner of the patients mouth), this increases your chances of successful secondary intubation.
- Bilateral breath sounds {absent or present}, if decreased or absent on left pull back on ETT. It is a good idea to check breath sounds (especially trauma patients) before intubation.
- End Tidal CO2 detector (Easycap II colormetric) Refer to **"End Tidal CO2 User Manual" J - 13 & J - 14**
- Chest rise and fall with ventilation (equal).

Basic Assessment & Management

- Endotracheal tube depth. It is important to place the endotracheal tube to the proper depth. The optimal placement of oral endotracheal tube can be best estimated by multiplying the tube size by 3. The tube depth should be measured at the front teeth. Example: If you are intubating with a 7.5 ET tube, it should be at 22.5 cm. An 8.0 ET tube should be placed at 24 cm. These are general recommendations.
- Direct visualization (if applicable). This is not always a reliable method.
- Waveform capnography shall be used on all intubated patients.
  Refer to "Capnography I - 4"

General Treatments:

- Initiate vascular access with a saline lock or IV infusion of fluid only if indicated. IO access as indicated and up to your scope of practice (AEMT & Paramedic). EZ-IO should not be utilized on neonate patients less than 3 kg.
- IO access should be gained on critical adult and pediatric patients if IV access is not readily available. IV should be attempted at least twice before the IO is attempted. Looking and determining this is acceptable. ***AEMT only in the physical presence of a Paramedic.***
- Position of comfort unless contraindicated by need for spine protection or blood pressure concerns.
- Establish contact with Medical Control/Direction when appropriate. Use 155.340 to establish contact. This ensures that verbal orders or denials are recorded for your protection. The cellular phone may be used if you are out of radio range or your primary radio is out of service.
- Initiate pain control as appropriate. Remember to start slow and titrate up when administering pain medication. Pain control is very important.
- All treatments are suggestive, the patients condition, a good patient assessment, and good clinical judgment prevail in determining the course of treatment/action for the patient.

Air Medical Transport

Air medical services are a great asset to EMS and patient care. However, we must not get tunnel vision and think this is always the best for the patient.
There are several things to consider such as

- Time of day
- Road conditions, road construction, weather, etc.
- Incident location
- ETA of medical transport to the scene
- Landing time, load time, on-scene patient care, unload time, and return trip time (total time)
- Risk/Benefit
- Scene flight versus airport (may be quicker versus finding LZ, setup, etc.)
- Patient's condition
- Any patient that has been exposed to chemicals, consider the risk of them and the crew inside the helicopter and would ground transport be safer?

Basic Assessment & Management

The EMS professional should factor all circumstances before making final decision to fly a patient. Under "normal" circumstances the EMS professional should not wait an extended time on scene awaiting air medical transport. In many cases (average) in Wilson County an ambulance could transport to a level one (1) trauma center or an appropriate facility before a helicopter could deliver the patient to the same facility.

If any potential of patient exposure to hazardous materials, ensure the patient is decontaminated prior to loading into a helicopter.

Spinal Precautions/Immobilization.

- This should go hand in hand with initial airway assessment. You can gain cervical spine control at the same time you are assessing the airway.
- Maintain a high index of suspicion for cervical related injury in trauma patients.
- If the decision is made to immobilize a patient take manual cervical immobilization immediately and maintain until the patient is secured on a backboard as described below.
- Size the cervical collar to the patient and apply appropriately. If a c-collar will not fit correctly document accordingly.
- Cervical immobilization requires a long spine board with 5 straps. The top section will cross each other across the chest (2 straps), directly below is another section to be crossed (same coverage area but it covers the hip/pelvis) and one at the lowest point of the LSB to secure the lower legs/feet. Cervical Immobilization Device (CID) blocks on each side of the head and two (2) straps to secure the CID's and head, one (1) placed across the forehead and one (1) across the chin or cervical collar. Straps may be relocated if need due to traumatic injuries, document accordingly.
- Paramedics, utilize the Selective spinal immobilization assessment to determine the need for immobilization based on the "**Selective Spinal Immobilization" Protocol G - 13**. If the patient is **NOT** immobilized all rational to support the decision shall be documented in the patient care report.
- ***Remember patients under the age of 18 or over the age of 55 are excluded from this protocol.***

Fluid Management/Medications

- If the systolic BP is less than 90 mm Hg and the patient has s/s of shock administer 20 ml/kg bolus (***peds systolic BP 70 + 2 x age in years, 20cc/kg bolus***). Repeat until BP is at least 90 mm Hg systolic or a radial pulse is present or appropriate for pediatric age. If the patient has a radial pulse they are perfusing, do not try to elevate the blood pressure excessively.
- Buretrol sets should be utilized on pediatric patients, renal failure patients, and CHF if a precise amount of IV fluid needs to be administered.
- To provide the best flow via IO line, the bag may need to be pressure infused.
- IV drips (secondary lines), make sure the main line is clamped off while the secondary medication is infusing. Once the secondary line is finished unclamp the main line and set at an appropriate rate.
- Pediatric medication doses should not exceed the standard adult dose if calculated on body weight.
- **Trauma patients** - Maintain systolic BP 80 - 90 mm Hg, bolus 20 ml/kg (adult & pediatric) as needed to maintain adequate systolic BP. Do not induce a systolic BP greater than 90 mm Hg.
- Blood tubing should utilize Normal Saline only.

Basic Assessment & Management

Assessment/indications
Each protocol list assessment/indications, a patient may exhibit some or all of these as well as others not mentioned. The patient does not have to meet each one to meet treatment criteria.

ACLS/PALS - Search for underlying cause of arrest and provide the related therapy

- Hypovolemia - fluid administration /fluid challenge (adult 20 ml/kg, ***peds 20 ml/kg bolus)***
- Hypoxia - ensure adequate ventilation by any means necessary
- Hydrogen Ions (Acidosis) - consider Sodium Bicarbonate 1-1.5 mEq/kg IV ***(peds 0.5 mEq/kg)***
- Hyperkalemia - (Known) - Sodium Bicarbonate 1 mEq/kg, may repeat @ 0.5 mEq/kg every 10 minutes ***(peds 1 mEq/kg may repeat at 0.5 mEq/kg every 10 min).*** Calcium Chloride 500 mg - 1000 mg IV ***(peds 20 mg/kg).*** DO NOT mix these two medications in the same IV line! Use a secondary line or lock.
- Hypokalemia – Cardiac arrest magnesium sulfate may be used
- Hypothermia: initiate patient re-warming, avoid chest compressions if spontaneous circulation
- Toxin: Drug overdose: Narcan 0.5 mg increments slow IV up to 4 mg ***(peds 0.1 mg/kg slow IV)***
- Tamponade (adult up to 2 liter bolus ***(peds 20 ml/kg bolus)***
- Tension pneumothorax - needle decompression
- Thrombosis (MI) – Fibrinolytic agent
- Thrombosis (PE) – Fibrinolytic agent

Narcotics

- Be aware of the potential for anaphylaxis with narcotic administration.
- Consideration to the age and general health of the patient should be given. Patients that are greater than 65 years old or are chronically debilitated will respond to less medicine. The dosage should be given slowly while watching for signs that the patient is becoming over-medicated. Start with the lower dosage; you can always give more medicine later.
- Be prepared for respiratory depression.
- In certain situations, narcotics may need to be administered prior to moving or splinting patient to provide some pain control.
- Phenergan may used to prevent nausea and vomiting and potentate the narcotics. Zofran is an excellent choice for nausea and vomiting especially in pediatrics and geriatrics without the sedative effects.
- Titrate pain management to relief of pain; you do not have to administer the full amount if desired effects are obtained.
- Multiple protocols for narcotics ***cannot*** be stacked or combined to administer a higher amount of medication.
- Monitor & document vital signs every 10 minutes (BP, HR, respiratory rate, level of consciousness, & oxygen saturation).

Basic Assessment & Management

- If the patient becomes obtunded and/or vitals deteriorate, slowly administer Narcan 0.5 mg increments slow IV up to 2 mg ***(peds 0.1 mg/kg slow IV)*** until improvement. Titrate to effect, patients can become violent if too much Narcan is administered.
- If no IV is available, the IO or IN (in some meds) route may be utilized. If acceptable for the medication give the IM or IN route may be utilized.
- Narcotics are controlled medications; refer to the policy manual for additional guidance.
- If any narcotic is given (including Tordal) the cardiac monitor **must** be applied.
- Complete all documentation as required per department policy.

Trauma

- Treat any injuries as indicated.
- Always consider **"Air Ambulance and Trauma Destination" E - 2 and "Trauma Destination 2011 Guidelines for Field Triage of Injured Patients" E - 32.**
- Always consider the need for level 1 trauma care "**Air Ambulance and Trauma Destination" Reference E - 2** in trauma patients.
- Always have a high index of suspicion.
- Trauma patients should receive spinal immobilization unless the "**Selective Spinal Immobilization" Protocol G - 13** determines otherwise.
- If immobilization is indicated but unable to be performed for any reason document well.

Refusals

Refusals should be taken very seriously. A patient assessment shall be conducted and documentation completed. The following refusal situations should be evaluated by a highest level medical provider available. If an ALS assessment is not completed it should be documented why. I.e. multiple pts, no ALS on scene, etc.

- hypoglycemic patients who have responded to treatment.
- potentially serious illness or injury
- patients less than 4 years of age
- chest pain/discomfort any age or cause
- drug overdose / intoxicated patients
- potentially head injury patients

Medication Administration

When a medication must be drawn up for administration, the provider shall only draw up the approximate amount of medication that is indicated for that patient. This will decrease the possibility of making a medication error. The provider shall also use the most appropriately sized syringe to draw up the medication. This will allow the provider to deliver a more accurate dosage. For example: If you must administer 40 mg of ketamine, you would use a 1 cc syringe. If you must administer 100 mg of ketamine, you would use a 3 cc syringe.

Medication Error Reporting

As diligent as everyone attempts to be mistakes can and will occur. In the event providers make a medication error they shall immediately notify the receiving health care provider, medical control, and / or poison control. Once the providers are finished with the call and they have transferred patient care, they should immediately contact the Compliance Officer or the EMS Chief respectively. If the provider discovers the medication error at a time after the call they should contact the administrators listed above to report the incident and receive further instructions. The provider shall also coordinate with the Compliance Officer and the EMS Chief on contacting and reporting the medication error to any local, regional, state, or government entities that are required by policy and / or law.

Advanced EMT (AEMT)

All approved skills will be listed here as well as in some protocols specifically to follow the same format as previous protocol versions.

Qualifications

a. Must have a current Tennessee AEMT license, a copy shall be on file with the Training Division Chief.
b. Must be checked off on all AEMT skills by WEMA, regardless of where and when the class was taken.
c. Narcan can be administered by the AEMT via IV, IN, IM, or IO for adult and pediatric patients.
d. Pediatric and Adult EZ-IO's are approved. You MUST be checked off by WEMA approved instructors. This check off includes starting a successful IO in the humeral head, tibial plateau and medical malleolus in a skills evaluation. ***ANY IO MUST BE DONE IN THE PHYSICAL PRESENCE OF A PARAMEDIC.***

During the state EMS transition from EMT-IV to AEMT, all EMT-IV's may still utilize the version three (3) protocols. Only AEMT is listed throughout the protocols, however the EMT-IV may utilize all the skills under AEMT ***except the use of Narcan and EZ-IO.*** EMT-IV license will expire in Tennessee on December 31, 2016.

Definitions

1. **Standing order** – Preapproved protocols (treatment options) that **may** be initiated without prior contact with medical control that has been approved by the WEMA medical director.

2. **Protocol** - List of treatment options that **require** you to contact Medical Direction/Control **prior** to initiation.

3. **Medical Director** - The physician who has ultimate responsibility for the patient care aspects of the EMS system.

4. **Unstable (symptomatic)** - indicates that one or more of the following are present:
   a.) chest pain
   b.) dyspnea
   c.) hypotension (systolic B/P less than 90 mm Hg in a 70 kg patient or greater)
   d.) signs and symptoms of congestive heart failure or pulmonary edema
   e.) signs and symptoms of a myocardial infarction
   f.) signs of inadequate perfusion
   g.) altered level of consciousness

5. **Stable (asymptomatic)** - Indicates that the patient has no or very mild signs and symptoms associated with the current history of illness or trauma.

6. **Emergency Medical Responder (EMR)** – Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the service Medical Director to perform lifesaving interventions while awaiting additional EMS response. May also assist higher level personnel at scene and during transport under medical direction and within their scope of practice

7. **Emergency Medical Technician (EMT)** - Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide basic emergency care according to the Standard of Care and Standing Orders and Protocols.

8. **Advanced Emergency Medical Technician (AEMT)** - Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide limited advanced emergency care according to the Standard of Care and Standing Orders and Protocols.

9. **Paramedic** - Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide basic and advanced emergency patient care according to the EMS Standing Orders and Protocols.

10. **Transfer of Care** - Properly maintaining the continuity of care through appropriate verbal and or written communication of patient care aspects to an equal or higher appropriate medical authority.

11. **Higher Medical Authority** - Any medical personnel that possesses a current medical license or certificate recognized by the State of Tennessee with a higher level of medical training than the one possessed by EMS personnel.

12. **Medical Control/Direction** – The instructions and advice provided by a physician, and the orders by a physician that define the treatment of the patient. To access Medical Control/Direction, contact the Emergency Department physician on duty of the patient's destination. If unable to make contact, contact UMC for Medical Control/Direction.

General Points to Remember

- For each and every call, the first directives are scene safety and Body Substance Isolation (BSI) precautions.
- The cardiac monitor/defibrillator or AED **SHALL** be carried to the patient on high probability of cardiac arrest calls. Rapid defibrillation of ventricular tachycardia and ventricular fibrillation is the treatment of choice in witnessed cardiac arrest and cardiac arrest where CPR is being performed correctly and this is crucial to patient survival. Some examples (but not limited to) of calls that require you to bring the monitor to the patient are suspected AMI, chest pain, altered level of consciousness, cardiac arrest, or "person down". If you are away from the unit and the patient is found to be pulseless, one crew member should begin CPR and the other should retrieve the cardiac monitor/defibrillator or AED. If the patient has been in cardiac arrest without CPR or ineffective CPR for greater than 5 minutes, CPR should be performed for 2 minutes before a shock is delivered (if appropriate) or the AED is allowed to analyze. AED's pads should be attached to analyze just prior to the 2 minute interval to achieve this goal, the unit will not go past the point of "connect electrodes" until they are physically attached to the patient's chest. Effective CPR and minimum hands off time are essential to give the patient the greatest chance of survival.
- Cold water drowning is addressed differently than routine cardiac arrest. Contact with medical control/direction should be made early on to direct treatment. Remember that no one is dead until they are warm and dead.
- Treat the patient not the monitor.
- Only ALS calls, the Paramedic will be in charge and will be responsible for all of the actions and or activities as it relates to the Ambulance. On the scene of an emergency, the Paramedic will be responsible for patient care. The EMR, EMT or AEMT will act within their scope of practice to any request for patient care or maintenance of the unit as directed by the Paramedic.
- It is the responsibility of the most qualified crew member to ensure transmission of all aspects of the patient assessment and care to the responding Emergency Unit or Medical Control/Direction.
- When reporting a disposition to Medical Control/Direction or the responding unit, provide the following minimum information:
  1. Patient's age and chief complaint.
  2. Is patient stable (define) or unstable (define), including complete V/S & LOC
  3. Interventions performed.
  4. Provide other Information as requested.
- Stable indicates that the patient has no or very mild signs and symptoms associated with the current problem and is unlikely to deteriorate.
- For any drug administration or procedures outside these Protocols but within the scope of practice for any provider must receive authorization from Medical Control/Direction. Paramedic's en-route to the scene are not authorized to issue medication orders.
- RSI cannot be utilized unless the Paramedic has been approved and is in good standing within the department. They must be current on skills evaluation.
- The senior person riding on the ambulance has the ultimate responsibility to ensure that all patient care records and reports are properly completed.
- Airway maintenance appropriate for the patient's condition indicates any airway maneuver, adjunct, or insertions of tubes that provide a patent airway.

General Points to Remember (Continued)

- Although the Protocol procedures have a numerical order, it may be necessary to change the sequence order or even omit a procedure due to patient condition, the availability of assistance, or equipment. Document your reason for any deviations from protocol.
- EMS personnel are expected to perform their duties in accordance with local, state and federal guidelines in accordance with the State of Tennessee statutes and rules of Tennessee Emergency Medical Services.
- Each patient care contact will be documented as completely and accurately as possible as soon as possible after the patient encounter. A verbal report will be given to the emergency department personnel prior to departing from the health care facility to ensure continuity of care. All reports shall be transmitted to the receiving Emergency Room ASAP but no greater than 24 hours to comply with the State EMS rule.
- In potential crime scenes, any movement of the body, clothing, or immediate surroundings should be documented and the on scene law enforcement officer notified of such.
- Supportive care indicates any emotional and/or physical care including oxygen therapy, repositioning patient, comfort measures and patient family education.
- All patients should be transported to the most appropriate facility according to the patient or family request or to the facility that has the level of care commensurate with the patient's condition. Certain medical emergencies may require transport to a facility with specialized capability.
- All medical personnel will work within their scope of practice dependent on available equipment.
- Pulse Oximeter should be utilized for all patients complaining of respiratory distress or chest pain (regardless of source).
- The use of a cervical collar (non trauma) after insertion of an advanced airway is recommended to reduce the chance of accidental removal/misplacement. This is in addition to the tube securing devices currently in use.
- If a change in cardiac rhythm occurs, provide all treatment and intervention as appropriate for the new rhythm. **DO NOT** interrupt CPR cycle to assess.
- Upon arrival at the receiving hospital, all treatment(s) initiated in the field will be continued until patient care has been assumed by hospital personnel.
- For external Jugular IVs attempted by Paramedics, IV catheters should be 18 gauge or larger diameter based on the patient. This may only be attempted once per patient.

General Points to Remember (Continued)

- Narcan, Atropine, Vasopressin, Epinephrine, & Lidocaine (NAVEL) may all be administered endotracheally if IV/IO access has not been achieved. **THIS IS A LAST RESORT!**
- CPR is continued throughout all the pulseless rhythms unless prevented by defibrillation, movement, or accessibility of the patient. Assess adequacy frequently, this can be done by checking for a pulse while performing CPR and ETC02.
- Standing Orders/Protocols assume that the condition being treated is persistent.
- Refer to the Drug Reference section for directions on how to mix drips. While several of these are not standard mixes, they give you a means to mix drips that minimizes the amount of drug required.
- No section of these orders may be interpreted as authorization to practice beyond your level of licensure and/or scope of practice/training.
- When using Hands Free "combo pads" put the monitor in the Pads mode if you intend to monitor through the pads. Remember to switch back to lead 2 if decide to monitor using the electrodes after reading through the pads.
- In pacing or synchronized cardioversion mode **remember to hook up the 4 lead EKG** on the patient in addition to the combo pads, if this is not done the monitor will not show a rhythm.
- These Standing Orders are designed to optimize patient care and minimize the need to contact medical control/direction prior to treatment. If you initiate an order, follow through with that order until:
    - The condition resolves and further treatment is not necessary.
    - The condition changes, necessitating treatment by another Standing Order (i.e. ventricular fibrillation changes to asystole etc.)
    - A stop treatment criteria exists (i.e. blood pressure falls below 100 mmHg while giving Nitroglycerine, chest pain is resolved, etc.)
    - Arrival at the receiving facility precludes further treatment.
    - Online medical control/direction authorizes deviation from Standing Order.
- If it is necessary to deviate from a standing order, document the reason in the patient care report.
- Any drug or fluid that may be administered by the intravenous route may also be administered by the Intraosseous route.
- These protocols/standing orders are written taking into consideration all the equipment, medications, and supplies utilized by Wilson County EMA. It is understood and acceptable that individuals (EMT, AEMT & Paramedics) may fulfill the capacity of first responders on duty, off duty and/or in their personal vehicle. It is understood in these cases the first responder may not have access to all equipment, medications, supplies and staffing to comply with each Standing Order or Protocol. In instances where a treatment is called for in the Standing Orders that are not available due to lack of equipment the first responder should document appropriately. For example most individuals do not have an AED in their personal vehicle; therefore they could not perform that action as required in the protocol.
- This manual cannot cover each and every situation that may be encountered; generally basic assessment & management will cover most situations. If you are in a situation and need guidance contact medical control/direction.
- The protocols in this manual are based off the AHA 2010 guidelines.

Pediatric Points to Remember

- A neonate is considered less than one (1) month of age.
- An infant is considered one (1) month old to one (1) year old.
- A child is older than one (1) but not reached puberty. American Heart Association defines as breast development in females and underarm hair in males.
- Bradycardia is considered to be due to hypoxia and treated aggressively until proven otherwise.
- Remember in an ***arrest situation, to use the pediatric length bases tape***. This will provide a good approximation of the proper equipment, medication dosages and decrease the potential for dosage errors. Refer to the **"Pediatric Resuscitation Drug Chart" H - 13**.
- Remember that few pediatric arrests are primary cardiac events. Most stem from respiratory/airway problems, dehydration/metabolic imbalances or hypothermia. Ensure that a child that arrests or is pending arrest is well oxygenated, well hydrated, and warm. Prognosis is extremely poor for a child that arrests.
- Treat children aggressively before they arrest.
- ***Never administer a calcium channel blocker*** to a pediatric patient unless directed to do so by medical control/direction.
- Refer to the "**Pediatric Drug Mixtures" H - 12** to mix pediatric drips.
- Utilize the Dose Medic Drug Dosing Guide to minimize drug dosage errors.
- To determine the lowest systolic BP - 70 mm Hg plus (age in years x 2). For example 4 year old – 70 + (4 x 2 = 8) + 8 = 78 mm Hg)
- Reference materials are recommended in pediatric calls due to the low call volume.
- ETT size can also be determined by 1.) diameter of the patients pinky finger 2.) 16 + (age in years) divided by 4, example 4 year old (16 + 4 = 20 divided by 4 = 5, a 5.0 ETT is recommended).
- Pediatric ET tubes may be cuffed or un-cuffed, uncuffed should not leak if the correct size tube is utilized it will seal without a cuff (bulb). When utilizing a cuffed tube, the amount of air should only be enough to seal the airway.
- Reference material and shortcut equations are general recommendations; they may always be the "exact" size, etc. If a 5.0 ETT is recommended remember to have additional sizes available and always ensure it is the best based on your post procedure patient assessment.
- Pediatric IV tips – 1. Cut the tourniquet's width 2. Insertion may be done bevel down in neonates and infants for a better response.
- Pediatric patient's are not "little adults".
- Make an extra effort to make a good visual assessment of the pediatric patient, especially the respiratory efforts and overall behavior prior to interaction due to increasing the stress of the patient.
- In infants a "toe to head" patient assessment should be done to potentially decrease the stress on the patient.
- EZ-IO should not be utilized in patients less than 3 kg.

Reference Page

The following materials were utilized in development/revision of the Wilson County Emergency Management Agency protocols.

- American Heart Association Advanced Cardiac Life Support (ACLS) 2010 edition
- American Heart Association Basic Life Support (BLS) 2010 edition
- American Heart Association Pediatric Advanced Life Support (PALS) 2010 edition
- American Heart Association and American Academy of Pediatrics – Neonatal Resuscitation 4th Edition
- American Academy of Orthopedic Surgeons – Calculations for Medication Administration Paramedic
- American Academy of Orthopedic Surgeons – Pharmacology Applications Paramedic
- Brady - Essentials of Paramedic Care 2nd Edition
- Brady - International Trauma Life Support (ITLS) 7th Edition
- Brady – Pre-Hospital Emergency Pharmacology 6th Edition
- Journal Of Emergency Medical Services (JEMS)
- National Association of Emergency Medical Technicians (NAEMT) – Pre-Hospital Trauma Life Support Military Edition (PHTLS) 8th Edition
- Pearson/Prentice Hall Pre-Hospital Emergency Pharmacology 6th edition
- Putnam County TN EMS
- Robertson County TN EMS
- Rutherford County TN EMS
- Sumner County TN EMS
- Montgomery County TN EMS
- Nashville TN Fire Department
- Wake County North Carolina EMS

Version History

Version 1.0 (October 2008) was the initial rewrite of protocols. Any revisions before the 2nd review would be version 1.1, 1.2, etc.

Version 2.0 (September 2011) was the total review of protocols. Any revisions/additions before the 3rd review would be version 2.1, 2.2, etc.

Version 3.0 (May 2015) was a total review of protocols. Any revisions/additions before the 4th review would be version 3.1, 3.2, etc.