PRE-HOSPITAL
MEDICAL
GUIDELINES

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La Crosse Regional Pre-Hospital Guidelines

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FOREWARD

Optimal pre-hospital care results from a combination of careful patient assessment, essential pre-hospital emergency medical services, and appropriate medical consultation. The purpose of this manual is to provide guidance for ALL pre-hospital care providers and Emergency Department Physicians within the Tri-State Ambulance, Inc. and the Tri-State Regional Ambulance, Inc. EMS Systems.

The goal of these protocols is to standardize pre-hospital patient care. It is to be understood that these protocols are guidelines. These protocols are not intended to be absolute treatment doctrines, but rather guidelines which have sufficient flexibility to meet the complex challenges faced by the EMS/ALS provider in the field. Nothing contained in these protocols shall be construed to expand the Scope of Practice of any Emergency Medical Technician beyond that which is identified in Wisconsin or National Emergency Medical Services Regulations and these protocols.

These protocols have been written in adherence with nationally recognized standards including but not limited to: DOT guidelines, American Heart Association’s "Advanced Cardiac Life Support" and "Pediatric Advanced Life Support", the Wisconsin standards and practices manual, and the Wisconsin version of “Basic Trauma Life Support”. All providers will adhere to these protocols as is appropriate for medical circumstance and provider agency level.

Nothing contained within these protocols is meant to delay rapid patient transport to a receiving facility. Patient care should ideally be rendered while en-route to a definitive treatment facility.

The Spinal Immobilization protocol must be followed in the specific sequence noted. For all other treatment protocols, the letter and numerical outline format is strictly for rapid and uniform reference and does not imply or direct a mandatory sequence for patient care.

To maintain the life of a specific patient, it may be necessary, in rare instances, for the physician providing on-line medical consultation, as part of the EMS consultation system, to direct a pre-hospital provider in rendering care that is not explicitly listed within these protocols. To proceed with such an order both the telemetry physician and the provider must acknowledge and agree that the patient’s condition and extraordinary care are not addressed elsewhere within these medical protocols, and that the order is in the best interest of patient care. Additionally, the provider must feel capable, based on the instructions given by the telemetry physician, of correctly performing the directed care. Whenever such care is provided, the telemetry physician and the provider must immediately notify the Quality Assurance Office of the extraordinary care situation. All such incidents will be entered into the Quality Improvement Review process.

Occasionally a situation may arise in which a physician’s order cannot be carried out; e.g. the provider feels the administration of an ordered medication would endanger the patient, a medication is not available, or a physician’s order is outside of protocol. If this occurs, the provider must immediately notify the telemetry physician as to the reason the order cannot be carried out, and indicate on the pre-hospital care record what was ordered, the time, and the reason the order

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FORWARD CONTINUED

could not be carried out. In addition, the provider must immediately notify the Quality Assurance Office. All such incidents will be entered into the Quality Improvement Review process.

If “On-line Medical Control” cannot be obtained, the pre-hospital personnel may initiate appropriate protocols/treatment as deemed necessary. However, every attempt must be made to contact Medical Control as soon as possible.

Items in **BOLD** and *UNDERLINED* are hyperlinked to the corresponding protocol.

Items in **BOLD** designate a medication or treatment

Items in [*brackets*] and *italicized* designate treatments approved for a specific provider level. It is to be understood all treatments listed for a specific level can be used by a provider trained to a more advanced level, **but only within the scope of practice to the level of care that the agency they are responding for is licensed/certified by the respective state EMS licensing agency.**

These protocols have been developed specifically for the Tri-State Ambulance, Inc. and the Tri-State Regional Ambulance, Inc. EMS Systems and for all EMS and first response agencies for which medical direction is provided by Gundersen Health System, and represent consensus amongst the Medical Director, Quality Assurance Department, EMS Education Department, Clinical Services Coordinator and Management Team for these EMS Systems. The protocols demonstrate a commitment to a consistent approach to quality patient care.

From time to time, protocols may be added or revised upon recommendation by the parties previously listed. Additional recommendations are welcome and appreciated at any time. They may be submitted to the parties listed below for consideration.

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GENERAL PRINCIPLES OF PATIENT CARE

General Scope: A majority of the following protocols will begin with “Perform routine medical assessment”. A thorough assessment is needed for treatment of complex medical conditions. It is understood that at times the assessment will need to be interrupted to perform life saving treatment. Providers shall resume assessment as soon as they are able, after performing life-saving interventions. This shall serve as a general protocol for principles that apply to the assessment of all patients.

Applies to: All Medical Staff

Protocol:

- Universal precautions and personal protective equipment shall be utilized at all times as is appropriate for the situation.
  - PPE can include but is not limited to:
    - Fluid barrier gloves
    - Safety eye protection
    - Infection control gown
    - Infection control shoe covers
    - Infection control bouffant cap
    - Surgical mask
    - N-95 mask
- All patients shall receive a primary assessment to include, but not limited to the following:
  - Airway patency
  - Breathing (rate and quality)
  - Circulation
    - Pulse
    - Skin color, temp, and condition
    - Assess for and treat life threatening bleeding
  - Level of consciousness
- All patients shall receive a secondary assessment to include, but not limited to the following:
  - Vital signs including but not limited to:
    - Pulse
    - Blood Pressure
    - SpO₂
    - Respiratory rate and effort
  - S.A.M.P.L.E. history as possible
  - Rapid trauma and/or focused physical assessment
  - Secondary head-to-toe physical assessment
GENERAL PRINCIPLES OF PATIENT CARE CONTINUE

- All Primary and initial Secondary assessments shall be performed or supervised by the EMS provider with the most advanced level of training nationally recognized.
- All patients shall receive treatment as is appropriate per protocol and on-line medical direction.
- All patients shall be re-assessed after an intervention is performed. The success, secondary effects, and possible side-effect of said intervention evaluated.
  - i.e. if a protocol gives a medication dose such as Fentanyl 25-100 mcg Q 5 minutes; the care provider shall give the initial appropriate dose of 25-100 mcg and perform a re-assessment of the patient to include pain level, level of consciousness, and vital signs prior to giving a second dose.
  - The same principle applies to the titration of a medication. Titration is the adjustment of medication dosing until the desired endpoint is reached. The endpoint is the point at which the titration is complete as determined by an indicator.
  - i.e. titration of a Nitroglycerin drip to achieve a blood pressure of 185 systolic:
    - SBP of 185 mmHg is the endpoint
    - Starting dose if given per protocol
      - The care provider shall initiate the NTG drip per protocol.
      - The care provider shall assess vital signs.
      - The care provider shall adjust NTG drip per protocol.
      - The care provider shall assess vital signs.
      - This shall be repeated until the desired endpoint is reached or patient care is transferred.
- For pediatric patients:
  - Equipment and medications must be appropriate for the size and weight of the patient. Use of the Broselow Tape or equivalent is encouraged.
  - The developmental age of the infant/child must be considered in the communication and evaluation for treatment.
  - Treatment priorities are similar to the adult patient.
  - When appropriate, family members should remain with pediatric patients.
  - Infants and children must be properly restrained prior to and during transport.
- If a hospital declares an “Internal Disaster” or informs EMS agencies that they are on diversion, that facility is to be bypassed for ALL patients except medical patients in cardiac arrest or in whom the ability to adequately ventilate has not been established.
- Patients will be transported to the closest appropriate facility per local, state, and federal laws and guidelines.
  - If two hospitals are of similar distance and have similar capabilities/resources for the patient’s nature of illness, mechanism of injury, or clinical impression, the patient will be transported to the hospital of their preference. If the patient has no preference, the patient will be transported to the hospital providing on-line medical direction at that time.
ABNORMAL DELIVERY

General Scope: Protocol for delivering infants presenting with ominous signs.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. If Meconium staining is present:
   a. Tracheal suctioning via ETT prior to stimulation and ventilation
   b. See Neonatal Resuscitation Protocol
3. If prolapsed cord is present:
   a. Do not push cord back in, cover with sterile towel moistened with warm NS
   b. Place mother in Trendelenburg knee to chest position
   c. With gloved hand, push presenting part off cervix to decompress cord and maintain position en route to hospital
4. If infant is breech:
   a. Deliver baby to waist
   b. Rotate to face down position (The head should deliver on its own within 3 minutes)
   c. Create breathing space around baby’s face with gloved hand (middle and index finger along the baby’s face and up to its nose)
   d. Suprapubic pressure may help keep the head flexed and facilitate delivery
   e. Try to assist delivery by placing finger in baby’s mouth and gently pulling
5. If other part is presenting (arm, foot, etc):
   a. Do not pull on part
   b. Cover exposed part with sterile towel moistened with warm NS
   c. Place mother left side down
6. Multiple births:
   a. After initial delivery, tie and cut cord
   b. Proceed with subsequent deliveries
7. Rapid transport
8. Update Medical Control

APGAR SCORING:

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<th>Sign</th>
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<tr>
<td>Pulse</td>
<td>Absent</td>
<td>&lt;100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow or Irregular</td>
<td>Good Crying</td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex irritability</td>
<td>None</td>
<td>Grimace</td>
<td>Cough or sneeze</td>
</tr>
<tr>
<td>Color</td>
<td>Pale or Blue</td>
<td>Pink body/blue extremities</td>
<td>Completely pink</td>
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AIR AMBULANCE USE

General Scope: Procedure and criteria for air ambulance request.

Applies to: All Medical Staff

Protocol:

1. Routine medical and/or trauma assessment
2. Determine need for air transport
   a. See criteria below
3. Assess appropriateness of air transport for distance/terrain
   a. Air ambulance is inefficient if ground transport time is <30 minutes or 30 miles
4. Request air ambulance standby or launch through medical dispatch
5. Assure provision of a secure landing zone
   a. ALS 400 for Med-Link Air unless otherwise instructed
   b. BLS 340 for others unless otherwise instructed
6. Provide patient report to incoming air ambulance
   a. ALS 400 for Med-Link Air
   b. BLS 340 for others
7. Update dispatch and med control

2012 Trauma Field Triage Guidelines

Physiologic Criteria

1. Glasgow Coma Scale ≤13
2. SBP of <90 mmHg
3. Respiratory rate of <10 or >29 breaths per minute (<20 in infant aged <1 year), or need for ventilatory support

Anatomic Criteria

1. All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
2. Chest wall instability or deformity (e.g., flail chest)
3. Two or more proximal long-bone fractures
4. Crushed, degloved, mangled, or pulseless extremity
5. Amputation proximal to wrist or ankle
6. Pelvic fractures
7. Open or depressed skull fractures
8. Paralysis

Mechanism of Injury

1. Falls
   a. Adults: >20 feet (one story = 10 feet)
   b. Children: >10 feet or two to three times the height of the child
2. High-risk auto crash
   a. Intrusion, including roof: >12 inches occupant site; >18 inches any site
   b. Ejection (partial or complete) from automobile
   c. Death in same passenger compartment
   d. Vehicle telemetry data consistent with a high risk for injury
3. Automobile versus pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
4. Motorcycle crash >20 mph

Special Considerations

1. Older adults
   a. Risk for injury/death increases after age 55 years
   b. SBP <110 might represent shock after age 65 years
   c. Low impact mechanisms (e.g., ground-level falls) might result in severe injury
2. Children
   a. Should be triaged preferentially to pediatric capable trauma centers
3. Anticoagulants and bleeding disorders
   a. Patients with head injury are at high risk for rapid deterioration
4. Burns
   a. Without other trauma mechanism: triage to burn facility
   b. With trauma mechanism: triage to trauma center
5. Pregnancy >20 weeks
6. EMS provider judgment
AIRWAY MANAGEMENT

General Scope: Protocol for airway management

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
   a. Consider EtCO₂ monitoring if appropriate for scope of practice
2. If patient has a history of COPD
   a. Titrate SpO₂ to 90-92%
      i. If respiratory rate<30 titrate SpO₂ with nasal cannula
      ii. If respiratory rate>30 apply partial rebreather mask, goal of 100% SpO₂
   b. Use the least amount of supplemental oxygen as necessary
3. If patient does not have history of COPD
   a. Titrate SpO₂ to >94%
      i. If respiratory rate<30 titrate SpO₂ with nasal cannula
      ii. If respiratory rate>30 or SpO₂<94% apply partial rebreather mask
   b. Use the least amount of supplemental oxygen as necessary
4. If patient presents with bronchospasm
   a. See Asthma / COPD Protocol
5. For respiratory failure despite above
   a. Consider CPAP
   b. See CPAP Protocol
6. For respiratory failure despite above
   a. See Respiratory Failure Protocol

Note:

Signs of impending respiratory failure include:

- RR <8 or >35 breaths per minute
- SpO₂<85% on 100% O₂
- Hemodynamic instability
- Paradoxical respiratory efforts
- Altered mental status
- Acutely rising EtCO₂ with respiratory acidosis

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AIRWAY OBSTRUCTION

**General Scope:** Protocol for airway obstruction.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. If patient is unable to speak and is conscious
   a. Perform Heimlich maneuver until the foreign body is expelled or the victim becomes unconscious
3. If patient is unable to speak and is unconscious
   a. Perform tongue-jaw lift
   b. Use finger sweep if object is visible
   c. Attempt ventilation
   d. If obstruction persists, reposition and re-attempt ventilation
   e. Give up to five chest thrusts
   f. If obstruction persists perform CPR per ECC 2010 guidelines
      i. Repeat steps a-f until obstruction is dislodged or 5 cycles
4. [EMT-B, EMT-I, AEMT, Paramedic] If unable to ventilate attempt direct laryngoscopy and removal with Magill forceps
5. [Paramedic / Med Control] If unsuccessful in removing foreign body or relieving upper airway obstruction see Surgical Cricothyroidotomy Protocol
ALTERED MENTAL STATUS

**General Scope:** Protocol for treatment of patients who present with altered mental status

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment (with frequent rechecks every 5-10 minutes)
   a. Consider hypoxia, hypovolemia, trauma, or ingestion
   b. If suspected trauma see General Trauma Protocol
   c. If suspected overdose see Poisoning and Overdose
   d. If hypo/hypertensive see Blood Pressure Management Protocol
2. Airway support as needed, see Airway Management Protocol
4. If blood glucose <60 or >250 see Diabetic Emergency Protocol
5. [EMT/Firefighter] Give NARCAN 1-2mg IN (not to exceed 1ml per nares)
6. [EMT-I, AEMT, Paramedic] Consider NARCAN 2mg IV/1-2mg IN
7. [Paramedic] Consider THIAMINE 100mg IV/IM
8. [Paramedic] Consider intubation for GCS <8 see RSI Protocol
Amputation

General Scope: Protocol for treatment of patients who have experienced an amputation

Applies to: All Medical Staff

Protocol:

1. Perform routine trauma assessment
2. Consider tourniquet for uncontrolled bleeding
3. Consider activation of air ambulance for transport to medical center specializing in re-implantation
5. See Trauma Care Protocol
7. Irrigate amputated part with NS to remove gross contaminants (do not debride)
8. Place amputated part in sterile gauze moistened in NS
9. Place amputated part in sterile waterproof container
10. Place sealed container in iced NS or place activated cold packs around container
ANAPHYLAXIS/ALLERGIC REACTION

**General Scope:** Protocol for treatment of patients who present severe allergic reaction

**Applies to:** All Medical Staff **(optional use by EMR/EMT/AEMT service and then only with approval of medical director, documentation of additional training, and prior approval of the Operational Plan by the State EMS office)**

**Protocol:**

1. Perform routine medical assessment
   a. Remove offending agent
2. Airway support as needed, see Airway Management Protocol
3. If signs/symptoms of anaphylaxis:
   a. **EPINEPHRINE** (use with caution in elderly/patients with coronary artery disease)
      i. [**EMR/EMT**] Epi-pen or Epi-pen Jr. if available
      ii. [EMR/EMT/Paramedic] **0.3mg (1:1000) IM** (child <8y/o – 0.15mg)
      iii. [Paramedic] 0.1-0.5mg (1:10,000) IV over 5 minutes (child – 0.01mg/kg)
4. If localized reaction
   a. Ice and elevate affected area as practical
   b. [Paramedic] Consider **BENADRYL** 25-50mg IV or 50mg IM (child – 1.25mg/kg)
5. [EMT-I, AEMT, Paramedic] Establish IV/IO per Vascular Access Protocol but do not delay administration of **EPINEPHRINE**
   a. [Paramedic] **BENADRYL** 25-50mg IV or 50mg IM (child – 1.25mg/kg)
   b. [Paramedic] **SOLUMEDROL** 125mg IV
6. If SBP<90 see Blood Pressure Management Protocol
7. If bronchospasm is present:
   a. **ALBUTEROL** via nebulizer
      i. [EMT] 2.5mg
      ii. [EMT, EMT-I, AEMT, Paramedic] Consider 5.0mg
      iii. [Paramedic] Consider continuous neb (10-20mg)

**Note:**
Anaphylaxis = syndrome of severe hypersensitivity reaction characterized by cardiovascular collapse and respiratory compromise.

1. Presentation:
   a. Symptoms may begin within seconds or may be delayed up to one hour from exposure
   b. Generalized angioedema
   c. Tightening sensation in throat and chest progressing to laryngeal and bronchial spasm manifested by hoarseness, stridor and wheezing
   d. Frequently see nausea, abdominal cramps, vomiting and diarrhea
   e. Impending cardiovascular collapse presents with tachycardia and hypotension
   f. Localized redness, swelling, and/or itching alone is NOT anaphylaxis
AUTOMATIC IMPLANTABLE CARDIAC DEFIBRILLATOR (AICD) DEACTIVATION

General Scope: Protocol for deactivating AICDs. This protocol should be activated only after consulting with medical control.

Applies to: Paramedics

Protocol:

1. Perform routine medical assessment
2. Patient must remain on cardiac monitor for duration transport.
3. If patient has an AICD that is inappropriately discharging (for a non-shockable rhythm)
   a. Place magnet directly over AICD.
   b. Tape magnet in place
   c. Document time of application, underlying rhythm, and if procedure is successful
4. If patient develops a shockable rhythm, remove the magnet
   a. If AICD does not begin working, See Cardiac Dysrhythmia Protocols
5. Update Medical Control

- This magnet will not stop a pacemaker from functioning

Keep magnet away from computers, credit cards, electronics, etc
Asthma / COPD

General Scope: Protocol for treatment of asthma and chronic obstructive pulmonary disease

Applies to: All Medical Staff **(Duo-Neb optional for EMT-Basic Service and then only with approval of medical director, documentation of additional training, and prior approval of the Operational Plan by the State EMS office)

Protocol:

1. Perform routine medical assessment
2. Begin initial treatment per Airway Management Protocol
3. If mild attack (Slight increase in respiratory rate, mild wheezes, and good skin color)
   a. Consider ALBUTEROL via nebulizer
      i. [EMT] 2.5mg
      ii. [EMT, EMT-I, AEMT, Paramedic] Consider 2.5-5.0mg
   b. [EMT-I, AEMT, Paramedic] Consider IV NS TKO
4. If moderate attack (Marked increase in respiratory rate, wheezes easily heard, and accessory muscle use)
   a. Consider ALBUTEROL via nebulizer
      i. 2.5mg
      ii. [EMT, EMT-I, AEMT, Paramedic] Consider 2.5-5.0mg
   b. [EMT-I, AEMT, Paramedic] Consider IV NS TKO
5. If severe attack (Respiratory rate more than twice normal, loud wheezes or silent chest, patient anxious, and/or gray or ashen skin color)
   a. ALBUTEROL via nebulizer
      i. 2.5mg
      ii. [EMT, EMT-I, AEMT, Paramedic] Consider 5.0mg
      iii. [Paramedic] Continuous neb
   b. [EMT-I, AEMT, Paramedic] Consider IV NS TKO
   c. [EMT-B**, EMT-I, AEMT, Paramedic] DUO-NEB nebulizer treatment
   d. [Paramedic/Med Control] SOLUMEDROL 125mg IV
      i. Pediatric dosing 1 mg/kg
   e. [Paramedic/Med Control] MAGNESIUM 2 grams IV over 15 minutes
   f. [EMT-I, AEMT, Paramedic] EPINEPHRINE (1:1000) 0.01mg/kg IM if possible allergy-induced asthma
      i. Up to 0.3mg
   g. If failure of above
      i. See Rapid Sequence Intubation Protocol
ASYSTOLE

**General Scope:** Protocol for treatment of a patient in asystolic cardiac arrest

**Applies to:** EMT-I/ Paramedic

**Protocol:**

1. Perform routine medical assessment
2. **Initiate CPR and continue throughout resuscitation with minimal interruptions**
3. Consider possible causes and treatments (H’s & T’s)
   a. Hypoxia – ventilation see [Airway Management Protocol](#)
   b. Hypoglycemia – check blood sugar
   c. Hypothermia – see [Hypothermia Protocol](#)
   d. Hyperkalemia – see [Hyperkalemia Protocol](#)
   e. Hypovolemia – consider 1000cc IV NS bolus – see [Vascular Access Protocol](#)
   f. (H+)Preexisting acidosis – Ventilations, consider [Paramedic SODIUM BICARBONATE 1 amp IV](#)
   g. (Toxins)Drug overdose – see [Poisoning and Overdose Protocol](#)
   h. Tension pneumothorax – consider [Paramedic Needle Thoracentesis](#)
   i. Tamponade (Cardiac Tamponade)
   j. Thrombosis – PE/MI
4. Confirm asystole in two leads
   a. If rhythm is unclear, see [V-Fib/Pulseless V-Tach Protocol](#)
5. Establish IV/IO per [Vascular Access Protocol](#)
6. Establish airway per [Respiratory Failure Protocol](#)
7. [Paramedic] Administer EPINEPHRINE (1:10,000) 1mg IV/IO Q 3-5 minutes
8. Update Medical Control
   a. May request termination of efforts
BRADYCARDIA

General Scope: Protocol for treatment of an adult patient with symptomatic bradycardia

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Monitor SpO₂
   a. Airway support as needed per Airway Management Protocol
3. Identify patient as having serious signs or symptoms
   a. [Basic EMT**] Obtain EKG. [EMT-I, Paramedic] review EKG if available
5. If patient is asymptomatic, observe closely
6. [Paramedic] If symptomatic 2nd or 3rd degree block or IV/IO not readily available
   a. begin TRANSCUTANEOUS PACING
      i. Consider Pain Management Protocol and/or Sedation Protocol as needed
   b. [Paramedic] Administer ATROPINE 0.5mg IV/IO Q 3-5 minutes to a max of 0.04mg/kg (adult 3mg)
   c. [Paramedic/Med Control] Consider DOPAMINE drip (200mg/250ml D₅W—800mcg/ml) Initiate infusion at 5mcg/kg/min and titrate every 5 minutes by increments of 1-5mcg/kg/min up to 20mcg/kg/min.
      a. [Paramedic/Med Control] Consider EPINEPHRINE drip (1mg/100ml D₅W or NS—10mcg/ml) Initiate IV infusion at 0.01mcg/kg/min (2 mcg/min) and titrate every 5 minutes by increments of 0.01mcg/kg/min (1 mcg/min) up to 0.1mcg/kg/min (10 mcg/min) maximum rate to achieve SBP>90
Blood Pressure Management

General Scope: Protocol for treatment of patients who present with abnormally high or low blood pressure

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Airway support as needed, see Airway Management Protocol
4. If patient is hypertensive with cardiovascular or CNS compromise:
   a. [Paramedic/Med Control] Labetalol 20mg Slow IV
      i. May repeat at 40mg every 10 minutes to a max of 300mg
   b. [Paramedic/Med Control] Consider NTG DRIP (20mg/100ml D_{5}W/ or NS—200mcg/ml)
      i. For patients <75kg, start at 10mcg/min
      ii. For patients >75kg, start at 20mcg/min
      iii. Titrate by 5-10mcg/min every 5-10 minutes to desired response
      iv. Monitor BP every 3-5 minutes
5. If SBP<90 and patient is symptomatic with no signs of fluid overload
   a. [EMT-I, AEMT] 250-500ml NS bolus up to 2-3 liters total
6. If SBP<90 and patient is symptomatic with signs of fluid overload or NS bolus unsuccessful
   a. [Paramedic] DOPAMINE drip (200mg/250ml D_{5}W—800mcg/ml) Initiate infusion at 5mcg/kg/min and titrate every 5 minutes by increments of 1-5mcg/kg/min up to 20mcg/kg/min to achieve SBP>90
7. If patient has inadequate response to fluid or dopamine infusion
   a. [Paramedic/Med Control] Consider EPINEPHRINE drip (1mg/100ml D_{5}W/NS—10mcg/ml) Initiate IV infusion at 0.01mcg/kg/min (2 mcg/min) and titrate every 5 minutes by increments of 0.01mcg/kg/min (1 mcg/min) up to 0.1mcg/kg/min (10 mcg/min) maximum rate to achieve SBP>90
8. IF hypotension (systolic BP <70) not due to hypervolemia
   a. [Critical Care] Consider Norepinephrine (levophed) drip. Initiate at 0.05 mcg/kg/min via IV pump. Increase rate 0.01-0.05 mcg/kg/min every 3-5 minutes as needed Max rate of 0.3 mcg/kg/min
   b. Note:
      1. NTG
         a. Specifically indicated in patients with acute pulmonary edema or myocardial ischemia
         b. Consider lower doses in the elderly
         c. Avoid if any history of PDE 5 inhibitor (Viagra, Levitra, Cialis) use in the past 48 hours
      2. Dopamine
         a. Dosing at <5mcg/kg/min may worsen hypotension due to dilatation of renal and GI vessels
         b. Specifically indicated in bradycardic patients that are hypotensive
      3. Epinephrine
         a. May worsen underlying ischemia, tachycardia or acidosis
         b. Increases peripheral vascular resistance

08-15-2016
BURNS

General Scope: Protocol for treatment of patients who have experienced a burn

Applies to: All Medical Staff

Protocol:

1. Perform routine trauma assessment
2. Consider activation of air ambulance for transport to medical center with a specialized burn center
3. Airway support as needed, see Airway Management Protocol
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. See Trauma Care Protocol
6. See Blood Pressure Management Protocol
7. See Pain Management Protocol (IV ONLY)
8. If burn is thermal in nature:
   a. Stop the burning process without causing hypothermia
   b. Remove clothing and jewelry (Do not pull away clothing that is stuck to burn)
   c. [EMT-I/AEMT/Paramedic] If burn is >10% BSA and ETA to hospital >15 minutes, IV NS 150ml/hr
   d. [Paramedic] Consider early intubation if signs of airway burns is present
9. If burn is chemical in nature:
   a. Remove agent as appropriate
   b. Irrigate for at least 15 minutes with NS
      i. Use 1000ml for eye irrigation
      ii. Use continuous irrigation for alkali burns
10. If burn is electrical in nature (severe high voltage injury):
    a. Once scene is safe, remove the patient from the source
    b. See Cardiac Dysrhythmia Protocols as needed
    c. [EMT-I/AEMT/Paramedic] IV NS/LR x 2 lines
       i. Run one line with 500-1000ml IV bolus
       ii. [Paramedic/Med Control] Second line with SODIUM BICARBINATE 50mEq per liter, run at 500-1000ml/hr
11. Dress burned area with dry sterile dressings (if burn BSA <10% may consider use of sterile NS dressing)
12. Consider use of burn sheet with additional clean, dry sheet and blanket to conserve body heat
13. DO NOT BREAK BLISTERS. DO NOT APPLY CREAMS, OINTMENTS OR ANTIDOTES TO BURNS
14. Update Medical Control
**General Scope:** Procedure for cancelling ambulance while en route to a call.

**Applies to:** All Medical Staff

**Protocol:**

1. When EMS is activated but a request from first responders to cancel is made, dispatch will ask responding crew to continue in a non-emergency fashion
   a. Cancellation will be at the discretion of the TSA/TSAR shift supervisor with consideration given to call circumstances, system status, and weather
2. TSA/TSAR Crew may cancel under the following conditions
   a. No physical patient exists or patient has left the scene
   b. The call or address has been determined to be false in nature
   c. The patient’s personal physician is in attendance and determines the ambulance is not needed
CEREBROVASCULAR ACCIDENT (BENCHMARK)

General Scope: Protocol for treatment of patients who present with signs or symptoms of a stroke

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment with Cincinnati Stroke Scale and time of last known well.
   a. If stroke scale is positive TSA/TSRA to notify receiving hospital within 5 minutes of being at patient side
2. Airway support as needed, see Airway Management Protocol
   a. [Paramedic] Consider intubation for GCS<8
3. Rule out hypoglycemia, hypoxia, hypovolemia, trauma, or ingestion
4. Consider special situations:
   a. See General Trauma Protocol for suspected trauma
   b. [Transport Crew] Consider contacting Medical Control for Stroke Team activation ASAP (goal of ≤ 5 minutes of arriving at patient side).
5. [EMT-I, AEMT, Paramedic] Establish IV/IO per Vascular Access Protocol (Preferred site is AC)
6. If patient is hypertensive with SBP>180 or DBP>110 consider carefully lowering blood pressure 10-15% only after discussion with Medical Control
   a. See Blood Pressure Management Protocol
7. If blood glucose <60 or >250 see Diabetic Emergency Protocol
8. [EMR] consider NARCAN 1-2mg IN for decreased LOC
9. [EMT-I, AEMT, Paramedic] Consider NARCAN 2mg IV/IN for decreased LOC
10. [Paramedic] Consider THIAMINE 100mg IV/IM

Note:
1. Vitals and Cincinnati Pre-Hospital Stroke Scale every TEN minutes.

Patient Assessment - Cincinnati Pre-hospital Stroke Scale
1. Evaluates for facial palsy, arm weakness and speech abnormalities.
2. Items are scored as either normal or abnormal.
   a. Facial droop (the patient shows teeth or smiles)
      Normal: both sides of face move equally
      Abnormal: One side of face does not move as well as the other
   b. Arm drift (the patient closes their eyes and extends both arms straight out for 10 seconds)
      Normal: both arms move the same, or both arms do not move at all
      Abnormal: one arm either does not move, or one arm drifts down compared to the other
   c. Speech (the patient repeats “The sky is blue in La Crosse”)
      Normal: the patient says correct words with no slurring of words
      Abnormal: the patient slurs words, says the wrong words, or is unable to speak
3. Signs of Herniation: Sudden decrease in level of consciousness, ipsilateral papillary dilation, contralateral hemiparesis, and decerebrate or decorticate posturing
4. Preferred IV site is AC with 18g or larger
# Stroke Benchmarks

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of stroke scale assessment for patients diagnosed with a stroke</td>
<td></td>
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<tr>
<td>Rate of BGL assessment for patients diagnosed with a stroke</td>
<td></td>
</tr>
<tr>
<td>Rate of BP assessment every 10 minutes for patients diagnosed with a stroke</td>
<td></td>
</tr>
<tr>
<td>Scene time &lt; 15 minutes for stroke alert patients</td>
<td></td>
</tr>
<tr>
<td>Rate of hospital contact for a stroke alert &lt; 10 minutes from patient side with documentation of notification</td>
<td></td>
</tr>
<tr>
<td>Response time of &lt; 10 minutes 90\textsuperscript{th}% for patients diagnosed with stroke</td>
<td></td>
</tr>
<tr>
<td>Maintenance of O2 Sat per protocol</td>
<td></td>
</tr>
<tr>
<td>% of patients with a diagnosis of stroke with a priority 2 EMD and response</td>
<td></td>
</tr>
</tbody>
</table>
CORONARY INSUFFICIENCY (BENCHMARK)

**General Scope:** Protocol for treatment of patients who present with signs or symptoms possible cardiac events. Contact Medical Control to initiate this protocol if the patient < 35 years with no previous history and a high clinical suspicion.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see [Airway Management Protocol](#)
3. Obtain and transmit a 12-Lead ECG
   a. [Paramedic] If 12-Lead is consistent with STEMI contact Medical Communications (Med Comm) to activate Cardiac Alert
5. [EMT, EMT-I, AEMT, Paramedic] Give ASPIRIN 324mg PO
6. [EMT, EMT-I, AEMT, Paramedic] Give NTG 0.4mg SL Q 3-5 minutes until pain free or NTG drip established. *(see below)*
   a. IF SBP <120 See [Blood Pressure Management Protocol](#); Do not give SL NTG
   b. [Paramedic] If SBP >100 consider NTG DRIP (20mg/100ml D5W—200mcg/ml)
      i. For patients <75kg, start at 10mcg/min
      ii. For patients >75kg, start at 20mcg/min
      iii. Titrate by 5-10mcg/min every 5-10 minutes to desired response
      iv. Monitor BP every 3-5 minutes
   c. Discontinue NTG drip if SBP<100
7. [Paramedic] If SBP>100 consider FENTANYL 25-100mcg IV for refractory pain

**Note:**

1. NTG
   a. Consider lower doses in the elderly
   b. Avoid if any history of PDE 5 inhibitor (Viagra, Levitra, Cialis) use in the past 48 hours
2. Lopressor contraindications:
   a. HR<60
   b. Heart block over 1º
   c. SBP<90
   d. CHF
3. [Paramedic] Heparin infusions established by a medical facility prior to arrival may be continued at current rate during transport
**STEMI Benchmark Checklist**

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>Aspirin administration rate for eligible patients</td>
<td></td>
</tr>
<tr>
<td>12 lead acquisition within 10 minutes of patient contact</td>
<td></td>
</tr>
<tr>
<td>Scene time of &lt;15 minutes for STEMI patient</td>
<td></td>
</tr>
<tr>
<td>Field to ED 12 lead transmit to ED</td>
<td></td>
</tr>
<tr>
<td>Notification of STEMI &gt;10 minutes prior to ED arrival</td>
<td></td>
</tr>
<tr>
<td>Chest pain management with reported relief rate</td>
<td></td>
</tr>
<tr>
<td>Chest pain patient with pre and post pain scores recorded</td>
<td></td>
</tr>
<tr>
<td>NTG administration rate for eligible patients</td>
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</tbody>
</table>
CONTINUOUS POSITIVE AIRWAY PRESSURE

**General Scope:** Procedure for CPAP

**Applies to:** All Medical Staff **(optional for EMT-Basic/EMT-I/AEMT Service and then only with approval of medical director, documentation of additional training, and prior approval of the Operational Plan by the State EMS office)**

**Protocol:**

1. Determine need (Clinical Indications):
2. Moderate to severe respiratory distress with signs and symptoms of pulmonary edema, CHF, or COPD, refractory to initial interventions, and all of the following apply:
   a. Awake and able to follow commands
   b. Over 12 years old and is able to fit the CPAP mask
   c. Has the ability to maintain an open airway
      i. **And** exhibits **two** or more of the following:
         1. A respiratory rate > 26 breaths per minute
         2. SPO2 < 92% on high flow oxygen
         3. Use of intercostal or accessory muscles during respirations
         4. Wet lung sounds
3. [EMT-I/AEMT/Paramedic] Establish IV/IO per **Vascular Access Protocol**
4. Talk patient through procedure and cautiously sedate as needed, see **Sedation Protocol**
5. Start CPAP at 5-10mmHg or pre-set level

**Note:**

1. Indications
   a. Acute pulmonary edema as a bridge device
   b. Patients already on CPAP
   c. Mild respiratory failure due to muscle fatigue
   d. COPD
2. Exclusion criteria
   a. Recurrent aspiration
   b. Large volumes of secretions
   c. Inability to protect the airway
   d. Vomiting
   e. Obstructed bowel
   f. Upper airway obstruction
   g. Uncooperative, confused or combative patient
   h. Inability to tolerate a tight mask
   i. Orofacial abnormalities which interfere with mask/face interface
   j. Untreated pneumothorax
CRUSH SYNDROME

General Scope: Protocol for treatment of patients experiencing crush syndrome. Protocol must be initiated prior to patient extrication. This protocol is also appropriate for suspension trauma.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical and trauma assessment
2. Airway support as needed, see Airway Management Protocol
3. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol (aggressive volume replacement is essential prior to extrication if possible)
   a. If SBP<90mmHg
      i. [EMT-I/AEMT/Paramedic] IV NS 2-3L bolus
   b. If SBP>90mmHg
      i. [EMT-I/AEMT/Paramedic] IV NS 1500ml bolus
4. See Trauma Care Protocol
5. Evaluate for hypothermia, see Hypothermia Protocol
6. Apply direct pressure to control external bleeding
7. Consider using a tourniquet on affected limb before extrication if possible
   a. Leave the tourniquet in place for the transport
   b. If transport >20 minutes, slowly release the tourniquet
8. Early stabilization of all extremity fractures aids in controlling blood loss
9. [Paramedic/Med Control] Consider IV NS with SODIUM BICARBINATE 50mEq per liter at 500-1000ml/hr
10. See Pain Management Protocol
DECOMPRESSION SICKNESS

General Scope: Protocol for treatment of patients with potential decompression sickness.

Applies to: All Medical Staff Protocol:

1. Perform routine medical and trauma assessment
2. Place patient on 100% O₂ via tight fitting mask if spontaneously breathing, see Airway Management Protocol
3. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
4. Evaluate for hypothermia, see Hypothermia Protocol
5. See Blood Pressure Management Protocol
7. Transport to the nearest hyperbaric chamber (consider air transport). Medical Control must call to ensure chamber is available and working and establish an accepting physician
   a. Contact:
      i. Divers’ Alert Network 919-694-8111, ask for diving emergencies
      ii. Hennepin County Medical Center
         1. 800-424-4262 ED Physician
         2. 612-873-3132 ED
         3. 612-873-7420 Hyperbaric Department
      iii. St. Lukes, Milwaukee 414-649-6577
      iv. University of IA, Iowa City
         1. 319-356-7706 (8-5)
         2. 319-356-2233 (after hours)
         3. 319-356-8220 HBO Physician
8. Update Medical Control

Note:

Definition
1. Decompression illness occurs when the gas dissolved in the body fluids separates from those fluids to form bubbles.
2. In a rapid ascent, the pressure differential between the body tissues and blood and alveoli becomes great enough to cause separation of nitrogen from the liquid phase resulting in the formation of bubbles in the tissues or blood.

A. Predisposing factors that increase the incidence of decompression illness
1. Dehydration
2. Cold temperatures
3. Obesity
4. Exercise during the dive
5. Older individuals
6. Previous joint injury
7. Previous recent dives
8. Flying after recent dive

B. Decompression illness can occur during ascent or up to 72 hours after a dive (especially if multiple dives/day)

C. Manifestations
1. Pain
   a. Limb pain
   b. Girdle pain
2. Cutaneous eg. itching, lymphedema
3. Neurological (including audio-vestibular, i.e. loss of balance)
4. Pulmonary eg. CHF, cough, dyspnea
5. Constitutional (malaise, anorexia, fatigue)
6. Hypotension
7. Barotraumas (lung, sinus, ear, dental)

D. Important information
1. Time of onset
2. Gas burden (depth-time profile): Depth of dive, dive time and number of dives
Determination of Death

General Scope: Protocol for not initiating or discontinuing CPR

Applies to: All Medical Staff

Protocol:

1. CPR must be initiated unless the following conditions exist
   a. DNR in the form of WI DNR wristband
   b. Valid POLST form with DNR orders
   c. Direct order from Medical Control Physician
   d. Triple Zero (pulseless, apneic, and asystolic) with one of the following:
      i. Decomposition
      ii. Rigor mortis
      iii. Dependent lividity
      iv. Decapitation
      v. MCI
      vi. Traumatic death with prolonged extrication with no CPR

2. Update Medical Control
3. Ensure Coroner/Medical Examiner is notified
La Crosse Regional Pre-Hospital Guidelines

DIABETIC EMERGENCY

General Scope: Protocol for treatment of patients who present with diabetic emergencies

Applies to: All Medical Staff **(Glucagon optional for EMR/EMT-Basic/AEMT/EMT-I Service and then only with approval of medical director, documentation of additional training, and prior approval of the Operational Plan by the State EMS office)

Protocol:

1. Perform routine medical assessment with blood glucose check
2. Airway support as needed, see Airway Management Protocol
3. Establish IV/IO per Vascular Access Protocol
4. If blood glucose <60
   a. Consider ORAL GLUCOSE if patient is conscious and airway is not compromised
   b. **[EMT**] GLUCAGON 1mg IM/SQ or **[EMT-I]** 2mg IN {child – 0.5mg IM/SQ or 1mg IN}
      i. First response agencies: Contact responding transport ambulance for ETA to the scene prior to glucagon administration. **Glucagon may be administered only if transport ambulance ETA is > 10 minutes**
   c. **[Paramedic] Consider THIAMINE 100mg IV/IM
   d. **[Paramedic] D$_{50}$ 12.5-25g IV {child – D$_{25}$ 1-2cc/kg}
      i. Repeat if blood glucose <60
5. If blood glucose >250
   **[EMT-I/ Paramedic] NS 500 ml bolus IV {child 20ml/kg/hr}
EMERGENCY CHILDBIRTH

General Scope: Protocol for delivering infants.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. If ominous signs see Abnormal Delivery Protocol
3. If imminent delivery:
   a. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
   b. Place mother in knee to chest position and prepare delivery equipment
   c. Have mother pant through contraction and relax between
   d. As head crowns at perineum, apply slight pressure to prevent explosive delivery
   e. As head emerges, check for cord around neck
      i. If cord is around neck and cannot be slipped overhead, clamp x 2 and cut immediately
   f. As soon as nose and mouth emerge, suction immediately before first breath
   g. If HR<100 see Neonatal Resuscitation Protocol
   h. Put baby on mother's abdomen and prevent heat loss
   i. Take APGAR scores at 1 and 5 minutes
   j. Deliver placenta (Place the cord and the placenta in a sack or container to be brought to receiving facility)
   k. Massage uterus if bleeding is brisk after delivery of the placenta
   l. If heavy bleeding present see Post-Partum Hemorrhage Protocol
4. Transport if placenta has delivered or >15 minutes have elapsed
5. Update Medical Control

APGAR SCORING:

<table>
<thead>
<tr>
<th>Sign</th>
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<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse</td>
<td>Absent</td>
<td>&lt;100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow or Irregular</td>
<td>Good Crying</td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex irritability</td>
<td>None</td>
<td>Grimace</td>
<td>Cough or sneeze</td>
</tr>
<tr>
<td>Color</td>
<td>Pale or Blue</td>
<td>Pink body/blue extremities</td>
<td>Completely pink</td>
</tr>
</tbody>
</table>
ENVENOMATION

**General Scope:** Protocol for treatment of patients with potential envenomation.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical and trauma assessment
2. History of time and type of bite (bring offending agent if safe to do so)
3. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
4. See Blood Pressure Management Protocol
5. Consider tourniquet to impede venous/lymphatic flow if patient is showing serious systemic symptoms. i.e. shock
7. Update Medical Control
EZ-IO

**General Scope:** Procedure for EZ-IO placement.  **Applies to:** EMT-Intermediate Tech / AEMT / Paramedics (**EZ-IO is optional for AEMT/EMT-IV services and only with approval of the medical director, documentation of training, and prior approval of the Operational Plan by the State EMS Office)**

**Protocol:**

1. Determine need rule out contraindications
2. Locate insertion site and clean area with antiseptic wipe
   a. Use EZ-IO AD (25 mm) if > 40 kg; EZ-IO LD (45 mm) for obese patients with excessive tissue over the insertion site; EZ-IO PD (15 mm) for 3-39 kg
   b. Tibia (pediatric and adult)
      i. Two finger widths below the patella is the tibial tuberosity
      ii. One finger width medial to the tibial tuberosity is the point of insertion
   c. Humeral head (always use the LD needle for adults)
      i. Keep arm adducted with patient’s palm on their umbilicus
      ii. Place in the greater tubercle lateral to the intertubercle groove
   d. Distal tibia
      i. Two finger widths above medial malleolar prominence
3. Prepare EZ-IO driver and needle
4. Insert EZ-IO
   a. Stabilize insertion site
   b. Position driver 90° to bone surface
   c. Push needle through the skin until it contacts bone
   d. Evaluate needle for 5mm mark
   e. Power the driver and insert needle until hub is flush or lack of resistance is felt
   f. Remove driver and stylet from the catheter
5. Confirm position and patency
   a. Flush with 10 ml NS (child<40 kg; use 5 ml NS)
   b. Ensure catheter standing at 90° and firmly seated
   c. No evidence of extravasation
   d. Connect tubing utilizing the EZ-IO right angle extension piece and begin infusion
   e. Pressure infusion may be needed
6. Secure hub utilizing EZ-IO transparent securement device
7. **[Paramedic]** If patient is conscious, administer LIDOCAINE 50mg IO for local analgesia

**Note:**

1. May be considered prior to peripheral IV attempts in the following situations:
   a. Cardiac arrest
   b. Profound hypovolemia
   c. IV access not readily available
   a. Fracture of tibia or femur; consider alternate side

**CONTRAINDICATIONS**

b. Previous knee replacement; look for vertical scars on knees

b. Infection at insertion site

d. Inability to locate landmark
GENERAL MEDICAL

General Scope: Protocol for treatment of patients with medical emergencies

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Check respirations, SpO₂, and apply oxygen, see Airway Management Protocol
3. Check pulse and apply cardiac monitor, see appropriate Cardiac Dysrhythmia Protocol
4. Check blood pressure, see Blood Pressure Management Protocol
5. Consider checking blood sugar, see Diabetic Emergency Protocol
   [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
GENERAL TRAUMA

**General Scope:** Protocol for treatment of all patients with potential traumatic injuries.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine trauma assessment
2. Consider Trauma Activation [Appendix D-1] with transport to nearest appropriate trauma center as per state trauma guidelines
3. Spinal immobilization
4. Airway support as needed, see [Airway Management Protocol]
5. [Respiratory Failure Protocol] as needed
6. See [Needle Decompression Protocol] as needed
7. Splint flail segments and apply occlusive dressing for sucking chest wound
   a. Consider intubation
8. Direct pressure for external hemorrhage
   a. Consider tourniquet for uncontrolled hemorrhage
   b. Consider hemostatic agent per [Hemostatic Agent Protocol]
   a. Avoid excessive fluid administration
   b. Goal of maintaining SBP~100mmHg
   c. See [Blood Pressure Management Protocol]
10. See [Shock Protocol]
11. Splint extremity fractures
12. Use a pelvic binder or wrap and secure a sheet around the pelvis for suspected pelvic fractures and splint lower extremity fractures
13. See [Pain Management Protocol]
Head Injury

General Scope: Protocol for treatment of all patients with potential head injuries.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical and trauma assessment
2. See General Trauma Protocol
3. Take C-Spine precautions if indicated
4. Aggressively manage the airway
   a. See Airway Management Protocol
   b. See Rapid Sequence Intubation Protocol
5. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
   a. Goal to maintain SBP>90
   b. Do not give excessive fluids
6. If no signs of herniation
   a. Maintain normal EtCO₂ of 35-45mmHg
   b. See protocols as needed
      i. Nausea, Vomiting, Vertigo Protocol
         1. [Paramedic] ZOFRAN 4-8mg IV{child <40kg - 0.1mg/kg, >40kg - 4mg}
      ii. Seizure Protocol
7. If signs of herniation are present
   a. Mildly hyperventilate patient (14-16 breaths/minute) to maintain EtCO₂ 30-35mmHg

Note:

Elevate head of bed for transport if situation allows
HEAT RELATED ILLNESS

General Scope: Protocol for treatment of all patients with potential heat related illnesses.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Remove from heat source
3. Maintain cool air flow over patient
4. If suspected Heat Exhaustion (patient alert)
   a. Administer oral fluids as tolerated / available.
   b. Place patient in Trendelenburg position if unable to take fluids
   c. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. If suspected Heat Stroke (patient with altered LOC)
   a. Airway support as needed, see Airway Management Protocol
   b. Respiratory Failure Protocol as needed
   c. See Altered Mental Status Protocol as needed (check blood sugar)
   d. Cool patient immediately
      i. Remove clothing as necessary
      ii. Cool packs to lateral chest wall, groin, axilla, carotid arteries, temples, and behind knees
      iii. Sponge with cool water or cover with wet sheet and fan the body
   e. Position patient in Fowlers position
   f. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
      i. Place cold packs around distal IV tubing
   g. [EMT-I/AEMT/Paramedic] If SBP<100mmHg, give 250-500ml IV NS bolus, see Blood Pressure Management Protocol

For seizures, see Seizure Protocol
HEMOSTATIC AGENT USE

General Scope: Procedure for use of hemostatic gauze

Applies to: All Staff (EMT-Basic/EMT-I/Paramedic)

Protocol:

1. Identify source of bleeding
   a. Place proximal tourniquet if appropriate
   b. Wipe pooled blood from wound if necessary
2. Apply hemostatic gauze, packing into wound as per manufacturer's instructions
3. Pack entire length of gauze into wound
4. Apply direct pressure for 1-3 minutes with hemostatic gauze
   a. If bleed-through occurs entire dressing must be removed before repacking
5. Apply standard dressing and bandage

Note: Specific brand of hemostatic gauze must not cause thermal reaction.
**HYPERKALEMIA**

**General Scope:** Protocol for treatment of patients who are or suspected to be hyperkalemic

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Identify as symptomatic: Patients with profound weakness or shock with peaked T-waves, history of dialysis, renal failure, severe burns/trauma/crush injury, or laboratory confirmed diagnosis of hyperkalemia
3. Airway support as needed, see [Airway Management Protocol](#)
4. Obtain 12 lead EKG
5. [EMT-I/AEMT/Paramedic] Establish IV/IO per [Vascular Access Protocol](#)
6. [Paramedic/Med Control] **Calcium Gluconate** 1 gram/10cc in 100ml D5W or NS over 10 minutes
   a. *This is the preferred treatment for pre-arrest or arrest situations*
   b. Do not mix this with sodium bicarbonate
7. [Paramedic/Med Control] **ALBUTEROL** 20mg via nebulizer
8. [Paramedic/Med Control] **SODIUM BICARBONATE** 50mEq IV over 10 minutes
   a. May repeat up to 2 total doses
   b. Avoid in dialysis and CHF patients
   c. Do not mix with calcium gluconate.
9. [Paramedic/Med Control] **LASIX** 40-80mg IV
   a. Avoid in dialysis patients

**Note:**

1. Cardiac effects (may or may not be present)
   a. 5.6-6.0mEq/L - peaked T waves due to increased repolarization
   b. 6.0-6.5mEq/L - prolonged PR & QT intervals
   c. 6.5-7.0mEq/L - diminished P waves and depressed ST segments; may result in an intracardiac block affecting in the following order: atria, AV node, ventricles
   d. 7.5-8.0mEq/L - P waves disappear, QRS complex widens, S & T waves tend to merge
   e. 10-12mEq/L - classic sine wave occurs which represents loss of P wave and wide QRS complexes.
2. Other effects
3. Skeletal muscle weakness to flaccid paralysis with preservation of diaphragm muscle function
   a. Paresthesias
   b. Respiratory depression
HYPOTHERMIA

General Scope: Protocol for treatment of all patients with potential hypothermia.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical and trauma assessment
2. If patient is responsive
   a. Remove wet clothing, cover with warm blankets, apply heat packs to axilla, groin, neck, and thorax
   b. If signs of frostbite:
      i. Protect injured part (blisters) with light sterile dressings. Avoid pressure to area
      ii. Cover affected part with warm blankets and prevent re-exposure to cold or refreezing of part
   c. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
   d. [EMT-I/AEMT/Paramedic] Give up to 2 liters of warmed NS IV
3. If patient is unresponsive
   a. Airway support as needed, see Airway Management Protocol
   b. Respiratory Failure Protocol as needed
   c. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
   d. [EMT-I/AEMT/Paramedic] Give up to 2 liters of warmed NS IV
   e. If bradycardic do not start CPR
   f. If patient is pulseless
      i. Check for pulse, respirations, and/or viable rhythm for at least 1 minute
      ii. If patient is pulseless:
         1. start CPR
         2. Follow appropriate cardiac arrest protocol
         3. Consider transport as soon as possible for rewarming

***The field resuscitation may be withheld if the victim has obvious lethal injuries or if the body is frozen so that nose and mouth are blocked by ice and chest compression is impossible.
INTER-FACILITY PRE-TRANSPORT CARE

**General Scope:** Establishment of pre-transport standards of care for all intra/inter-facility transports.

**Applies to:** All Transport Medical Staff

**Protocol:**

1. Establish contact with referring facility and patient
2. Complete “Primary Survey”
   a. Resuscitate if necessary
3. Complete “Secondary Survey”
   a. To include Vital Signs, SpO2, Cardiac Monitor
4. Assess pre-arrival diagnostics and interventions
   a. Paramedics can continue all antibiotics and electrolyte solutions. They can also transport other medications not found in the protocol with the use of **Patient Side Training Report**
   b. If you are unfamiliar with any medication please utilize the tools provided **(patient side training report, RN on scene, MD on scene, Drug Handbook located in each ambulance)** to insure you have a general understanding of the medication order, dose, and side effects.
5. Confirm correct placement and position of ETT, NGT, IV’s, Foley catheter, etc
6. Review X-rays, lab results, and EKG’s
7. Prepare to load patient, consider spinal immobilization for trauma patients
8. Update Medical Control
IFT OF INSULIN

General Scope: Protocol for the IFT transport of insulin drip initiated by sending hospital

Applies to: Paramedic/ Critical Care Paramedic

Protocol:

1. Obtain written order for rate and total volume of Insulin to be infused, confirm with RN or physician.
2. Check blood sugar levels Q15 or per sending facilities written order

Indications:

1. Elevated blood glucose
2. Diabetic ketoacidosis
3. Hyperkalemia

Precautions:

1. Administration of excessive dose may induce hypoglycemia. Glucose should be available
IFT OF PANTOPRAZOLE (PROTONIX) OR OTHER PPI

General Scope: Procedure for transporting patients with Protonixs or other PPI’s running

Applies to: Paramedics;

Protocol: Pharmacology and Actions:
Pantoprazole, Nexium and similar proton pump inhibitors. It works by decreasing the amount of acid produced by the stomach.

Indications:
1. Short term treatment of gastroesophageal reflux disease (GERD) with a history of erosive esophagitis.
2. Zollinger-Ellison syndrome or cancer in which the stomach produces too much acid.

Precautions and Notes:
1. Can cause anaphylaxis.
2. Can cause Thrombophlebitis.
3. Can cause an increase in risk of having fractures.
4. Bleeding, blistering, burning, or discoloration of the skin, hives, infection, inflammation, itching, numbness, pain, rash, swelling, fever, stomach pain, vision problems, GI problems, blood in urin, dizziness, and tachycardia.
5. Changing the dose or stopping the infusion requires contact with medical control.
6. Dose according to the sending facilities orders.

Dosing and Administration:
Protonix:
1. Supplied as a powder containing 40 mg per vile. May be diluted in NS, D5W or LR
2. Reconstitute each vial with 10 mL of solution. For a standard infusion mix 1 vial with 80 mL for a total solution of 100 mL or 0.4mg/mL. Infusion times vary between 2 minutes and one hour. Follow the specific written orders for the patient.

Nexium:
1. 80 mg IV x1, then 8 mg/h IV x71.5h. Follow the specific written orders for the patient.
IFT OF TPA (TISSUE PLASMINOGEN ACTIVATOR)

General scope: Protocol for the IFT transport of TPA infusion

Applies to: Paramedic/CC Paramedic

Protocol:

1. Perform routine medical assessment with Cincinnati Stroke Scale, repeat stroke scale q15
2. [Sending Hospital RN] Bolus – 0.09 mg/kg (10% of total), Max 9mg via pump over a minute, USE DEDICATED LINE. NO IV fluids running with Alteplase during bolus or infusion.
3. [Sending Hospital RN] Continuous Infusion: 0.81 mg/kg (90% of total), Max 81 mg via pump over 60 minutes beginning immediately following the bolus.
4. Verify total dose given. Document total tPA dose to be administered, start and stop times; Start tPA on IVAC pump. Half set may be needed to insure no medication loss.
5. BP goal during and after TPA SBP <180 and DBP <105
6. [CC Paramedic/Paramedic/ Med control] Start with 10mg LABETALOL IV push over 1-2 minutes if BP is not within range. Re-contact Med Control for further orders if needed
7. If excess medication remains in the bag after correct amount is given do not flush primary tubing. Disconnect Alteplase tubing from the patient, then remove from the pump and discard immediately.
8. If the complete bag needs to be given in order to receive the correct dose, follow tPA administration with a NS infusion at the same rate. Make sure this is done before the pump alarms “air in line”.

Stop Infusion if:

a. Neurologic deterioration and / or new headache
b. SBP >180 or DBP > 105 – after treatment with medication. Contact Medical Control
c. Symptoms of internal bleeding. See Cerebrovascular Accident protocol
d. Nausea / Vomiting
e. Allergic reaction including: rash, itching, anaphylaxis or angioedema

Notify Medical control:

1. If infusion was stopped
2. Change in patients condition (improved or deteriorating)
3. Temp > 38.5
4. Pulse <50 or >100
5. RR <10 or >24

Notes:

1. If receiving hospital does not have a half set ready you may need to wait or leave IVAC pump.
2. Never discard TPA if you are unsure if complete dose was given. TPA has a significant cost and should never be discarded in error.
INTRANASAL MEDICATIONS


Applies to: EMT-I** / Paramedic (** Optional use by service and requires Prior Written Approval of the Operational Plan by the State EMS Office and Medical Director Approval and Documentation of Training.)

Protocol:

1. Determine MAD/Intranasal indications
2. Rule out contraindications
   a. Epistaxis
   b. Nasal trauma
   c. Nasal septal abnormalities
   d. Significant nasal congestion/discharge
3. Draw up medication not to exceed 2ml total volume
4. Attach MAD to syringe and place MAD in nostril
5. Briskly compress syringe to administer atomized medication
   a. Point outwards and upwards
   b. Do not to exceed 1ml total volume per nostril
   Medications may be repeated in 5-10 minutes as needed and indicated
**King LTS-D Airway**

**General Scope:** Procedure for placement of King Airway

**Applies to:** All Medical Staff  ***(King LTS-D airway is optional for EMR services and is only allowed with approval of the medical director, documentation of training, and prior approval of the Operational Plan by the State EMS Office)***

**Protocol:**

1. Insert simple airway and ventilate via BVM
2. Consider spinal immobilization as needed
3. Select proper airway size (See table below)
4. Test cuff inflation (with volume as listed on table) and remove air prior to insertion
5. Apply water-based lubricant to beveled distal tip and posterior tube (avoid vent openings)
6. Position head as able
   a. “Sniffing position” is ideal but neutral position is acceptable
7. Open mouth and apply chin lift (unless suspected c-spine injury)
8. Insert King rotated laterally 45-90°
9. Introduce tip into mouth and advance behind base of tongue
10. As tube passes tongue rotate back to midline
11. Advance until proximal opening of gastric access lumen is aligned with teeth or gums
12. Inflate cuff with minimum volume to seal the airway
13. Confirm proper position with auscultation and capnography
14. If unable to ventilate patient, gently and slowly pull back on King airway until proper position is confirmed.
15. Ventilate with 100% O₂
16. Reassess as needed
17. Suction as required
   a. Gastric access lumen allows insertion of up to a 18Fr gastric tube (lubricate prior to insertion)
18. [Transport Crew] Update Medical Control

<table>
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<tr>
<th>Size</th>
<th>Description</th>
<th>Color</th>
<th>Inflation</th>
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<tbody>
<tr>
<td>3</td>
<td>4-5 feet height</td>
<td>Yellow</td>
<td>45-60 ml</td>
</tr>
<tr>
<td>4</td>
<td>5-6 feet height</td>
<td>Red</td>
<td>50-70 ml</td>
</tr>
<tr>
<td>5</td>
<td>6+ feet height</td>
<td>Purple</td>
<td>60-80 ml</td>
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08-15-2016
MEDICAL PERSONNEL ON SCENE

General Scope: Protocol for dealing with extraneous medical professionals on the scene of a call

Applies to: All Medical Staff

Protocol:

1. Bystander at scene identified as medical person
2. If bystander is non-physician they may assist as crew deems appropriate, but may not direct care
3. If bystander is a physician involvement options include:
   a. Assist and/or offer suggestions while EMS act under protocol and medical control
   b. Request to talk to medical control and directly offer medical advice and assistance if medical control deems it appropriate
   c. Request to direct patient care (must meet the following criteria):
      i. Show valid state medical license unless known to crew
      ii. Contact medical control who must relinquish control to on scene physician
      iii. Physically accompany patient to hospital
      iv. Give orders which are reasonable, accurate, and within the scope of practice for the EMS crew

If orders are given that the paramedics feel to be unreasonable, medically inaccurate, and/or not within their capabilities, the paramedics DO NOT have to do that which they know by their training, skill, and experience would be detrimental to the patient.
MULTIPLE PATIENT INCIDENT

General Scope: Procedure for MCI

Applies to: All Medical Staff

Protocol:

1. Incident with 3 or more patients
2. Utilize START triage system
3. Implement ICS as appropriate
4. Notify possible receiving facilities as soon as possible
5. Identify patient by number
6. See Radio Report Outline
NARROW COMPLEX TACHYCARDIA

General Scope: Protocol for treatment of an adult patient with symptomatic narrow complex tachycardia

Applies to: EMT-I, Paramedic

Protocol:
1. Perform routine medical assessment
2. Determine cardiac rhythm and assess for stability
3. If ventricular rate is >150 beats/minute and patient is unstable:
   a. Consider sedation per Sedation Protocol
   b. [Paramedic/Med Control] Perform SYNCHRONIZED CARDIOVERSION
      i. Narrow regular rhythm cardioversion dose is 50-100J
      ii. Narrow irregular rhythm cardioversion dose is 120-200J
   c. Consider pharmacological intervention (see #5b)
4. If ventricular rate is >150 beats/minute and patient is stable (SBP>110) and rhythm is atrial fibrillation or atrial flutter
   a. [Paramedic/Med Control] DILTIAZEM 0.25mg/kg (15-20mg) IV over 2 minutes
      i. [Paramedic] After 15min, if inadequate response, consider repeat dose of 0.35mg/kg (20-25mg) IV over 2 minutes
   b. [Paramedic/Med Control] Consider AMIODARONE 150mg IV over 10 minutes
5. If ventricular rate is >150 beats/minute and patient is stable and rhythm is SVT
   a. Attempt Valsalva maneuver
   b. [Paramedic/Med Control] ADENOSINE 6mg rapid IV push
      i. [Paramedic/Med Control] Repeat at 12mg (May repeat twice)
      [Paramedic/Med Control] Consider AMIODARONE 150mg IV over 10 minutes.

Notes:
2. Diltiazem in contraindicated: A. Sick-Sinus syndrome B. 2nd or 3rd degree heart block C. WPW or short PR syndrome
4. Lopressor should be used with caution if evidence of CHF/Pulmonary edema
5. Amiodarone precautions:
   A. Hypotension secondary to vasodilation
   B. May prolong QT interval
   C. Negative inotropic effects
   D. Use with caution in renal failure; long T1/2lge
NASOGASTRIC/OROGASTRIC TUBE

General Scope: Procedure for NG Tube placement.

Applies to: Paramedics

Protocol:

1. Assessment reveals the following:
   a. Vomiting and/or abdominal pain with distended, tympanic abdomen and possible frequent high-pitched bowel sounds
   b. Distended abdomen after resuscitative efforts (air-filled stomach)
   c. Avoid in patients with significant facial and head injuries
2. If conscious see Sedation Protocol and Pain Management Protocol
3. Determine NGT size
   a. Adult: 12-18Fr
   b. Child: 8-10Fr
4. Maintain patient with head in neutral or slightly flexed position
5. Determine length of insertion (tip of nose -> earlobe -> bottom of sternum)
6. Lubricate NGT with water-based lubricant
7. Insert NGT through nose to determined length
   a. May use mouth as alternative route in intubated patients
8. Visualize mouth for coiled NGT
9. Inject air through NGT and auscultate over epigastrium
10. Tape NGT to nose and connect to low continuous suction
NAUSEA, VOMITING, VERTIGO

General Scope:  Protocol for treatment of patients who have complaints of nausea, vomiting, or vertigo

Applies to:  All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Airway support as needed, see Airway Management Protocol
3. Suction as needed
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. [Paramedic] ZOFRAN 4mg IV, repeat once if needed {child <40kg - 0.1mg/kg, >40kg - 4mg}
   a. Preferred for patients with head injury
6. [Paramedic Medical Control] VERSED .5-1mg IV for extreme cases after failure of Zofran
NEEDLE CRICOTHYROIDOTOMY

**General Scope:** Procedure for needle cricothyroidotomy. This is a last option for airway management and requires approval from medical control. Needle cricothyroidotomy is the only allowable surgical airway for children less than ten years of age.

**Applies to:** Paramedics

**Protocol:**

1. Determine need and contact medical control
2. Palpate cricothyroid membrane and clean area with antiseptic wipe
3. Puncture membrane with large bore catheter, advance caudally drawing back on syringe until air return
4. Withdraw needle and attach 3.0mm pediatric ETT adapter with BVM
5. Auscultate chest and secure device
NEEDLE THORACENTESIS

General Scope: Procedure for needle chest decompression

Applies to: Paramedics

Protocol:

1. Determine need
2. If conscious see Sedation Protocol
3. Cleanse site with antiseptic wipe
   a. 5th intercostal space mid-axillary is preferred
   b. 2nd intercostal space mid-clavicular is secondary
4. Insert 12g or 14g catheter
5. Listen for rush of air
6. Remove needle leaving catheter in place
7. Auscultate chest and secure device
NEONATAL RESUSCITATION


Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Dry and warm infant
3. Position and suction airway
4. Tactile stimulation
5. If cardiac arrest
   a. Start CPR see appropriate Pediatric Dysrhythmia Protocol
      i. Ventilate 40-60/minute
      ii. Chest compressions 100/minute
      iii. [Paramedic] INTUBATE
      iv. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
      v. [Paramedic] Give EPINEPHERINE (1:10,000) 0.01-0.03mg/kg IV/IO
      vi. [Paramedic] Consider NS 10ml/kg IV/IO bolus
      vii. [Paramedic] Consider NARCAN 0.5mg IV/IO
6. If heart rate < 100
   a. 100% FiO₂
   b. Ventilate via BVM 40-60/min
7. If HR<60
   a. Start CPR
      i. Ventilate 40-60/minute
      ii. Chest compression 100/minute
   b. Recheck: If HR<80
      i. [Paramedic] INTUBATE
      ii. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
      iii. [Paramedic] Give EPINEPHERINE (1:10,000) 0.01-0.03mg/kg IV/IO
      iv. [Paramedic] Consider NS 10ml/kg IV/IO bolus
      v. [Paramedic] Consider NARCAN 0.5mg IV/IO
8. Consider blood glucose check, see Diabetic Emergency Protocol
9. Transport, keep warm, and maintain HR>80
PAIN MANAGEMENT

General Scope: Protocol for treatment of patients who are or suspected to be experiencing pain

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Treat underlying cause of pain
3. Airway support as needed, see Airway Management Protocol
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. [EMT-Intermediate99/Med Control] or [Paramedic] FENTANYL
   a. 25-100mcg IV Q 5-10 minutes (100mcg IN Q 10 minutes) {child 1-2 mcg/kg or 2-3mcg/kg IN} Recheck vital signs between doses
   b. If reversal is required, give Narcan 1-2mg IV Q 5 minutes PRN {child 0.01mg/kg up to 0.4-0.8 mg}
6. [Paramedic/CC Paramedic/] KETAMINE 0.25mg/kg
7. [Paramedic/Med Control] Consider VERSED 1-2mg IV for isolated injury with muscle spasm
8. For transports >15 minutes all patients receiving narcotic pain management should have end tidal CO2 monitoring

Fentanyl Notes:

1. Use with caution in the elderly, small initial doses recommended
2. Hemodynamic instability: fentanyl may cause worsening of hypotension secondary to the direct action on vascular smooth muscle resulting in peripheral pooling; avoid in patients with an unstable cardiovascular status.
3. Allergies are uncommon; nausea and vomiting is less frequent than with other narcotics.
4. Skeletal and thoracic muscle rigidity occurs especially following rapid IV administration; if it occurs, assist breathing with bag-valve mask breathing. Neuromuscular blockade may be required.
5. Histamine release rarely occurs. If evident treat with [Paramedic] DIPHENHYDRAMINE 25-50 mg IV.
6. Avoid in patients with significant head injuries
   a. May cause increase ICP due to CO2 retention from induced respiratory depression
   b. May depress mental status
   c. May affect pupillary reaction and obscure the neurological exam

Use of midazolam does not block pain receptors; patients often still require pain control.
POSTPARTUM HEMORRHAGE

**General Scope:** Protocol for post-delivery hemorrhage.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see [Airway Management Protocol](#)
3. Maintain blood pressure, see [Blood Pressure Management Protocol](#)
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per [Vascular Access Protocol](#)
5. Attempt to identify cause of post-partum hemorrhage
6. Apply direct pressure to any area of genital tract trauma
7. Manually explore uterus to remove any retained products
8. Use vigorous bimanual uterine massage to promote uterine tone
La Crosse Regional Pre-Hospital Guidelines

PRE-ECLAMPSIA / ECLAMPSIA

**General Scope:** Protocol for pre-eclamptic or eclamptic patients.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see [Airway Management Protocol](#)
3. [EMT-I/AEMT/Paramedic] Establish IV/IO per [Vascular Access Protocol](#)
4. If patient is seizing:
   a. [Paramedic] Give MAGNESIUM 4 grams IV over 20 minutes
   b. [Paramedic] Give VERSED 2 mg IV Q 2 minutes
      i. See [Seizure Protocol](#)
   c. [Paramedic] Consider more MAGNESIUM
5. If patient is not seizing:
   a. Place patient in position of comfort
   b. [Paramedic] Give MAGNESIUM 4 grams IV over 20 minutes
   c. See [Blood Pressure Management Protocol](#), Nitroglycerin should not be given to a pregnant patient

**Notes:**

1. Preeclampsia: Toxic state which occurs in the last half of pregnancy or early postpartum period in which mother exhibits the following:
   a. Hypertension (SBP > 160, DBP > 90 or an increase in DBP of 15 mmHg from previous baseline)
   b. Hyperreflexia
   c. Generalized peripheral edema
   d. Proteinuria
2. Hyperreflexia and visual changes indicate imminent seizure
3. Magnesium
   a. Stop or decrease if knee jerk absent, respiratory depression occurs, or cardiac arrest
   b. Antidote is [Paramedic] CALCIUM Gluconate 1g in 100ml IV over 10 minutes
   c. Contraindicated if maternal renal disorder or history of Myasthenia Gravis
PEDIATRIC ASYSTOLE/PEA

General Scope: Protocol for treatment of a pediatric patient in asystolic cardiac arrest

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. **Initiate CPR and continue throughout resuscitation with minimal interruptions**
3. Consider possible causes and treatments
   a. Hypoxia – ventilation see Airway Management Protocol
   b. Preexisting acidosis – Ventilations, consider [Paramedic] SODIUM BICARBONATE 1 Amp IV
   c. Drug overdose – see Poisoning and Overdose Protocol
   d. Hypothermia – see Hypothermia Protocol
   e. Hyperkalemia – see Hyperkalemia Protocol
4. [Paramedic] Confirm asystole in two leads
   a. If rhythm is unclear, see Pediatric V-Fih/Pulseless V-Tach Protocol
5. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
6. Establish airway per Respiratory Failure Protocol
7. [Paramedic] Administer EPINEPHRINE (1:10,000) 0.01mg/kg IV/IO Q 3-5 minutes
8. Update Medical Control
   a. May request termination of efforts


PEDiatric BRADYcardia

General Scope: Protocol for treatment of a pediatric patient with symptomatic bradycardia

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Monitor SpO$_2$
   a. Airway support as needed per Airway Management Protocol
3. If HR<60 start CPR
4. Identify patient as having serious signs or symptoms
   a. Obtain/review EKG if available
5. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
6. [Paramedic] Administer EPINEPHRINE 0.01mg/kg (1:10,000) IV/IO Q 3-5 minutes
7. [Paramedic] Administer ATROPINE 0.02mg/kg IV/IO Q 3-5 minutes
   a. May repeat once
   b. Min: 0.1mg single dose
   c. Max: 0.5 mg single dose

[Paramedic] Consider Tran-cutaneous Pacing (rate at 100-120)
 Pediatric Tachycardia with Adequate Perfusion

General Scope: Protocol for treatment of a pediatric patient with tachycardia

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. [Paramedic] Determine cardiac rhythm and assess for stability/significant tachycardia
   a. HR > 180 for ages 1-8 years
   b. HR > 220 for ages newborn – 1 year
4. If QRS ≥ 0.09 seconds:
   a. [Paramedic] Evaluate rhythm
   b. If likely ventricular tachycardia:
      i. [Paramedic/Med Control] AMIODARONE 5mg/kg IV over 20 minutes
      ii. [Paramedic] Perform SYNCHRONIZED CARDIOVERSION 0.5-1 J/kg
   c. If likely SVT with aberrancy:
      i. [Paramedic/Med Control] ADENOSINE 0.1mg/kg rapid IV push
         1. [Paramedic/Med Control] Repeat at 0.2mg/kg (May repeat twice)
5. If QRS ≤ 0.09 seconds:
   a. [Paramedic] Evaluate rhythm
   b. If likely SVT:
      i. [Paramedic/Med Control] ADENOSINE 0.1mg/kg rapid IV push
         1. [Paramedic/Med Control] Repeat at 0.2mg/kg (May repeat twice)
   c. If likely Sinus Tachycardia:
      i. Search for and treat causes
PEDIATRIC TACHYCARDIA WITH POOR PERFUSION

General Scope: Protocol for treatment of a pediatric patient with symptomatic tachycardia

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. [Paramedic] Determine cardiac rhythm and assess for stability/significant tachycardia
   a. HR >180 for ages 1-8 years
   b. HR >220 for ages newborn – 1 year
4. If QRS ≥ 0.09 seconds and cardiopulmonary compromise:
   a. Consider sedation per Sedation Protocol
   b. [Paramedic] Perform SYNCHRONIZED CARDIOVERSION 0.5-1 J/kg
5. If QRS ≥ 0.09 seconds and no cardiopulmonary compromise:
   a. [Paramedic/Med Control] ADENOSINE 0.1mg/kg rapid IV push
      i. [Paramedic/Med Control] Repeat at 0.2mg/kg (May repeat twice)
   b. [Paramedic/Med Control] AMIODARONE 5mg/kg IV over 20 minutes
   c. [Paramedic] Perform SYNCHRONIZED CARDIOVERSION 0.5-1 J/kg
6. If QRS ≤ 0.09 seconds:
   a. [Paramedic] Evaluate rhythm
   b. If SVT:
      i. Attempt Vagal maneuvers, do not delay further treatment
      ii. [Paramedic/Med Control] ADENOSINE 0.1mg/kg rapid IV push
         1. [Paramedic/Med Control] Repeat at 0.2mg/kg (May repeat twice)
      iii. [Paramedic/Med Control] AMIODARONE 5mg/kg IV over 20 minutes
      iv. [Paramedic] Perform SYNCHRONIZED CARDIOVERSION 0.5-1 J/kg
   c. If Sinus Tachycardia
      i. Search for and treat cause
PEDiATRIC VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

**General Scope:** Protocol for treatment of a pediatric patient presenting with ventricular fibrillation or pulseless ventricular tachycardia in cardiac arrest

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Initiate CPR and continue throughout resuscitation with minimal interruptions
3. Apply defibrillator or AED
   a. Defibrillate at 2J/kg
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. Establish airway per Respiratory Failure Protocol
6. [Paramedic] Administer EPINEPHRINE (1:10,000) 0.01mg/kg IV/IO Q 3-5 minutes
7. [Paramedic] Defibrillate at 4J/kg
   a. Any time a shockable rhythm is present at pulse check
8. [Paramedic] Administer AMIODARONE 5mg/kg IV/IO
   a. [Paramedic] May repeat 5mg/kg IV/IO up to two times
9. If pulse is returned see Post Arrest Protocol
POISONING AND OVERDOSE

General Scope: Protocol for treatment of patients who have been exposed to a toxic substance or have experienced an accidental or intentional overdose. While utilizing this protocol, safety of all personnel is of primary concern. Law enforcement personnel should be requested for all overdose patients.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
   a. Special consideration given to time of exposure
2. Airway support as needed, see Airway Management Protocol
3. Check blood pressure. See Blood Pressure Management Protocol
4. Aggressively assess of Level of Consciousness throughout patient care
5. Determine type of toxic agent
6. If agent is on skin and can possibly be dermally absorbed
   a. Remove clothing
   b. Brush any remaining toxic agent off skin
   c. Flush affected areas with water for a minimum of 15 minutes prior to transport
7. If agent has been inhaled
   a. Remove patient from environment
   b. Remove clothing
   c. Provide high concentration oxygen, see Airway Management Protocol
   d. If bronchospasm present see Asthma / COPD Protocol
8. If ingested
   a. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
      i. [EMT/Firefighter] Give NARCAN 1-2mg IN (not to exceed 1ml per nares)
      ii. [EMT-I/AEMT/Paramedic] Give NARCAN 1-2mg IV/1-2mgIN Q 5 minutes
           PRN {child 0.01mg/kg up to 0.4-0.8mg}
   b. If agent is potentially a narcotic and patient exhibiting toxicity (Respiratory depression/compromise, SBP<90, decreased LOC)
      i. [EMT/Firefighter] Give NARCAN 1-2mg IN (not to exceed 1ml per nares)
      ii. [EMT-I/AEMT/Paramedic] Give NARCAN 1-2mg IV/1-2mgIN Q 5 minutes
           PRN {child 0.01mg/kg up to 0.4-0.8mg}
   c. If agent is a Tricyclic Antidepressant and patient exhibiting toxicity (HR>120, SBP<90, decreased LOC, or widening of QRS)

[Paramedic] Give SODIUM BICARBINATE 50mEq followed by 50mEq in 1000 ml NS over 1 hour
POST ARREST (ROSC) (BENCHMARK)

General Scope: Protocol for treatment of a patient who has regained a pulse following cardiac resuscitation.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. [EMT-I, AEMT, Paramedic] Establish IV/IO per Vascular Access Protocol if not previously initiated
3. Establish airway per Respiratory Failure Protocol
4. [EMT-I, AEMT, Paramedic] Monitor EtCO$_2$
   a. Target range is 30-35mmHg with RR<12
   b. **DO NOT HYPERVENTILATE**
5. [Paramedic] If patient received >2 minutes of CPR place NG per Nasogastric Tube Protocol
6. Continuous monitoring of vital signs
7. If patient remains hypotensive see Blood Pressure Management Protocol
8. If patient has significant cardiac dysrhythmia see appropriate protocol
9. If patient has bradycardia see Bradycardia Protocol
10. Obtain and transmit a 12-Lead ECG to the receiving facility
11. Update Medical Control

If arrest reoccurs revert to appropriate protocol and/or last successful treatment
## ROSC Benchmarks

<table>
<thead>
<tr>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with EMS arrival within county contract minutes 90\textsuperscript{th} %</td>
</tr>
<tr>
<td>Field ROSC with 12 lead acquired</td>
</tr>
<tr>
<td>Compliance with medical protocols/ MD orders</td>
</tr>
<tr>
<td>Field ROSC with transport to a STEMI center</td>
</tr>
</tbody>
</table>
PULMONARY EDEMA

General Scope: Protocol for management of patients with suspected pulmonary edema

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Position patient in upright sitting position
3. See Airway Management Protocol
4. If respiratory arrest is imminent
   a. see Respiratory Failure Protocol
   b. Add PEEP 8-10mmHg
5. If moderate to severe respiratory distress
   a. [EMT-B**, EMT-I**, AEMT**, Paramedic] Start CPAP at 5-10mmHg
   b. [Paramedic/ Med Control] see Sedation Protocol as needed
6. [EMT-I, AEMT, Paramedic] IV NS TKO
7. If SBP<90 mmHg
   a. See Blood Pressure Management Protocol
8. If SBP>120 mm Hg
   a. [EMT-I, AEMT, Paramedic] NTG 0.4mg SL Q 3-5 minutes
   b. [Paramedic] NTG DRIP If BP >100 (20mg/100ml D5W or NS—200mcg/ml)
      i. For patients <75kg, start at 10 mcg/min
      ii. For patients >75kg, start at 20 mcg/min
      iii. Titrate by 5-10mcg/min every 5-10 minutes to desired response
      iv. Monitor BP every 3-5 minutes
   c. [Paramedic] LASIX 40-80mg IV

Note:
Cardiogenic Pulmonary Edema (CPE)

2. Conditions associated with CPE
   a. LV failure from acute MI, cardiomyopathies and valvular heart disease
   b. Volume overload
2. Clinical features of CPE include:
   a. Cough
   b. Diaphoresis
   c. Dyspnea
   d. Fatigue
   e. Wheezing
   f. Pink tinged frothy sputum

Avoid use of NTG if any history of PDE 5 inhibitor (Viagra, Levitra, Cialis) use in the past 48 hours
PULSELESS ELECTRICAL ACTIVITY

General Scope: Protocol for treatment of a patient presenting with PEA in cardiac arrest

Applies to: EMT-I and Paramedic

Protocol:

1. Perform routine medical assessment
2. Initiate CPR and continue throughout resuscitation with minimal interruptions
3. Consider possible causes and treatments (H's & T's)
   a. Hypoxia – ventilation see Airway Management Protocol
   b. Hypoglycemia – check blood sugar
   c. Hypothermia – see Hypothermia Protocol
   d. Hyperkalemia – see Hyperkalemia Protocol
   e. Hypovolemia – consider 1000cc IV NS bolus – see Vascular Access Protocol
   f. (H+)Preexisting acidosis – Ventilations, consider [Paramedic] SODIUM BICARBONATE 1 amp IV
   g. (Toxins)Drug overdose – see Poisoning and Overdose Protocol
   h. Tension pneumothorax – consider [Paramedic] Needle Thoracentesis
   i. Tamponade (Cardiac Tamponade)
   j. Thrombosis – PE/MI
5. Establish airway per Respiratory Failure Protocol
6. [Paramedic] Administer EPINEPHRINE (1:10,000) 1mg IV/IO Q 3-5 minutes
RADIO REPORT OUTLINE

General Scope: To Provide a general guideline for EMS to hospital patient report.

Applies to: All Transport Medical Staff

Protocol:

1. Identify service, unit number, radio frequency, and personnel (if applicable)
2. Identify level of care being provided
3. Communicate patient’s age, sex, and level of consciousness
4. Communicate severity of condition
   a. Include applicable activation of specialized services (trauma, cardiac, stroke)
5. Communicate patient’s chief complaint and/or primary impression
6. Communicate history of injury/illness and pertinent past medical history
7. Relate pertinent assessment and finding
8. Communicate any treatment initiated
   a. EMS staff can request orders from on-line medical control at this time, but it is often more expedient to initiate a request for orders prior to giving patient report
9. Give estimated time of arrival
Rapid Sequence Intubation (Benchmark)

General Scope: Procedure for rapid sequence intubation. This procedure may only be initiated when two paramedics are at patient side.

Applies to: Paramedics

Protocol:

1. Ventilate and oxygenate with BVM for >3 breaths
2. High flow O2 via nasal cannula for apneic oxygenation.
3. Have equipment ready and available
   a. See RSI Equipment Check list
4. Pre-treat pediatric patients with ATROPINE 0.01-0.02mg/kg IV
   i. Minimum 0.1mg
   ii. Maximum 0.5mg
5. Induce with KETAMINE 1-2mg/kg IV
6. Neuromuscular blockade with ZEMURON 1mg /kg IV max of 100mg (~20 min duration)
7. Intubate patient with supple jaw
8. Confirm placement with auscultation and capnography
9. Monitor EtCO₂, SpO₂, and secure ETT
10. Re-sedate with VERSED 0.05mg/kg and treat patient for Pain management.
11. Only re-paralyze with ZEMURON 0.2mg/kg if sedation and pain management fails.

Note:

1. LEMON law: assess indicators of a difficult airway
   a. Look externally (obesity, retracted mandible, beard, abnormal dentition, etc.)
   b. Evaluate the 3-2-2 rule (mouth opening, chin to hyoid and mandible to thyroid)
   c. Mallampati classification (how much of the posterior pharynx is able to be seen)
   d. Obstruction (epiglottitis, tumor, trauma, abscess, etc.)
   e. Neck mobility (c-spine immobilization, arthritis, previous stabilization)
2. Pediatric airway differences:
   a. The larynx is located more anteriorly and cephalad
   b. The epiglottis is shorter and u-shaped (vs. flat in the adult)
   c. The tongue is relatively large while obviously the larynx and trachea are much smaller in the pediatric patient compared to the adult
   d. Be careful not to hyperextend the neck, as the trachea is very pliable and can collapse during intubation
   e. Straight laryngoscope blades are recommended in neonates and infants while either straight or curved can be used in older children
3. Use of midazolam and rocuronium do not block pain receptors; patients often still require pain control.
RSI CHECKLIST

☐ Assesses airway for difficulty. (LEMON / Malampati)
### Peri-oxygenates w/ NRB or BVM.

- Perform neurologic exam before paralytics are administered.

- Prepare suction. (Yankauer within reach [under shoulder], turn on, check canister and lid)

- Prepare bag-valve mask. (Attached to oxygen, mask is ALWAYS present, PEEP valve attached)

- Ensure IV access. (Patent, appropriate size/location, fluid administration)

- Ensures proper positioning. (Sniffing position: ear to sternal notch/face parallel to ceiling)

- Performs rapid sequence induction.

- Places basic airway adjunct. (Nasopharyngeal airway or oropharyngeal airway)

- Performs apneic oxygenation.

- Lubricate endotracheal tube, stylette, and blade.

- Performs endotracheal intubation without significant change in clinical status.

- Retains necessary equipment in case of problem. (Syringe, BVM mask, laryngoscope)

- Confirms placement with epigastric sounds, lung sounds, and waveform capnography.

- Secures device using commercial device or properly placed tape.

- Provides sedation and pain management as needed. Re-paralyze if necessary.

- Re-assesses through completion of patient contact. (Vital signs and interventions)

---

**RSI BENCHMARK**

08-15-2016
# Refusal of Treatment or Transport

**General Scope:** Procedure for releasing a patient from care on scene

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation of patients weight</td>
<td></td>
</tr>
<tr>
<td>Appropriate EMD (P1 response)</td>
<td></td>
</tr>
<tr>
<td>3 or less intubation attempts</td>
<td></td>
</tr>
<tr>
<td>ET outcome %</td>
<td></td>
</tr>
<tr>
<td>ET success rate %</td>
<td></td>
</tr>
<tr>
<td>Advanced airway outcome</td>
<td></td>
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<tr>
<td>ETCO2 confirmation</td>
<td></td>
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<tr>
<td>EKG strips attached to chart</td>
<td></td>
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<tr>
<td>Vitals q 10 minutes</td>
<td></td>
</tr>
<tr>
<td>Preoxygenation protocol prior to RSI</td>
<td></td>
</tr>
<tr>
<td>Sedation when not contraindicated</td>
<td></td>
</tr>
</tbody>
</table>

08-15-2016
Applies to: All Transport Staff

Protocol:

1. Determine mental status and extent of illness and/or injury
2. If patient is deemed to have altered LOC or impaired decision making capability
   a. If possible treat/transport under implied consent
3. If patient has medical/legal decision making capability and the following criteria are met:
   a. Patient is alert and oriented
   b. No evidence of head injury
   c. Patient is an adult, emancipated minor, or if patient is a minor and parent/guardian
      has been contacted or is on scene and declines/refuses transport of patient when all
      of the other criteria are met
   d. Patient is not impaired by drugs or alcohol
   e. Patient is not suffering from significant psychiatric illness
   f. Patient refuses treatment/transport
4. Contact medical control if:
   a. Declaration of death
   b. Termination of resuscitation
   c. The provider feels assistance is needed from medical control physician.

*Warn patient of risk of non-treatment/non-transport and document appropriately

** A patient that requested service should be offered transport.
RESPIRATORY FAILURE

General Scope: Protocol for treatment of a patient in respiratory failure

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. See Airway Management Protocol as needed
3. Observe for signs/symptoms of respiratory failure
   a. Failure to oxygenate and/or ventilate, severe respiratory fatigue, inability to successfully use CPAP, or otherwise noted to be in clinical respiratory failure
4. [Paramedic] Assess expected success of intubation
5. Have rescue airway available
6. [Paramedic] If endotracheal intubation success likely
   a. See Rapid Sequence Intubation Protocol
      i. If less likely success, consider RSI without Zemuron
7. If failed intubation (3 unsuccessful attempts by skilled providers)
   a. Consider BVM
   b. Consider King Airway
   c. [Paramedic/Med Control] Consider Surgical Cricothyroidotomy Protocol

Note:

Signs of impending respiratory failure include:

- RR <8 or >35 breaths per minute
- SpO₂<85% on 100% O₂
- Hemodynamic instability
- Paradoxical respiratory efforts
- Altered mental status
- Acutely rising EtCO₂ with respiratory acidosis
La Crosse Regional Pre-Hospital Guidelines

RESTRAINT USE

General Scope: Procedure for restraint of a combative patient

Applies to: All Medical Staff

Protocol:

1. Routine medical and/or trauma assessment
2. Determine need (patient is danger to themselves or others)
3. Rule out hypoglycemia, hypoxia, hypovolemia, etc.
4. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
5. Choose appropriate restraint or combination of restraints
6. Physical
   a. Secure patient to cot by use of four point soft Velcro/Neoprene restraints
   b. Assess to ensure airway patency
   c. Assure adequate distal circulation of all extremities
7. Chemical
   a. [Paramedic] Consider VERSED IV/IM/IN
      i. 1-5mg IV
      ii. 0.3-0.5mg/kg IN to a max of 10 mg
      iii. 5-10mg IM
      iv. {child 0.05mg/kg IV or 0.2mg/kg IN}
   b. [Paramedic/Med Control] Consider VERSED drip (5mg/100ml D5W or NS=0.05mg/ml) 0.15mg/kg/hr IV
   c. [Paramedic/Med Control] GEODON 10-20mg IM
      i. Use with extreme caution in the elderly
      ii. Postural hypotension can result, patients receiving GEODON should remain supine
8. Document:
   a. Reason for restraint
   b. Method used
   c. Frequent vital signs including SpO2 and LOC
9. Update Medical Control

FOR ANY PATIENT TRANSPORTED IN HANDCUFFS, LAW ENFORCEMENT SHOULD ACCOMPANY PATIENT IN THE AMBULANCE WHEN POSSIBLE

08-15-2016
SCENE REHABILITATION

General Scope: Protocol for rehabilitation of rescue personnel when requested to a standby

Applies to: All Medical Staff

Protocol:

1. Assign rehab area
2. Encourage removal of all PPE including bunker pants pushed down to boots
3. Rest, active cooling, and oral hydration
4. Immediate transport if any of the following criteria is met:
   a. Chest pain
   b. Shortness of breath
   c. Arrhythmia other than sinus tachycardia
   d. Syncope, confusion, or disorientation
   e. Grossly abnormal vital signs
   f. Vomiting or inability to maintain oral intake
   g. Request for transport
5. If pulse is >85% max for age
   a. Have person stand for 2 minutes and observe for symptoms
   b. Perform orthostatic vital signs
   c. If HR increase >20 or SBP drop >20
      i. [EMT-I/AEMT/Paramedic] IV rehydration up to 2 L NS
      ii. Release but not allowed to return to scene duties
6. If any of the following is met the patient must take mandatory rest, rehydration, and re-evaluation. Will require transport if no improvement within 30 minutes
   a. SBP 200 or DBP >100
   b. RR<8 or >40
   c. Temp>101°F
   d. SpO₂ <91%
7. If none of the above is met the patient may return to full duty
   Firefighters should report to rehab after 45 minutes or two (2) thirty minute air bottles
SEDATION

**General Scope:** Protocol for treatment of patients who require sedation in the prehospital setting. All patients who receive sedation should have continuous monitoring of vital signs including cardiac monitoring.

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see *Airway Management Protocol*
3. Consider hypoxia or hypovolemia
4. If patient is combative, maintain adequate restraints, see *Restraint Protocol*
   a. Consider *Tranzport Spit Hood* if needed
5. **[EMT-I/AEMT/Paramedic]** Establish IV/IO per *Vascular Access Protocol* if possible
6. **[Paramedic]** **VERSED**
   i. 1-5mg IV
   ii. 5-10mg IM
   iii. {child 0.05mg/kg IV or 0.2mg/kg IN}
   b. **[Paramedic/Med Control]** **GEODON** 10-20mg IM
   i. Use with extreme caution in the elderly
   ii. Postural hypotension can result, patients receiving GEODON should remain supine
   c. **[Paramedic/CCParamedic Med Control]** **KETAMINE** 1-2mg/kg IV

   Note: TSRA staff contact Medical Control for sedation of any patient with respiratory distress.


SEIZURE

**General Scope:** Protocol for treatment of patients who are or suspected to be experiencing seizures

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see [Airway Management Protocol](#)
3. Consider pregnancy, see [Pre-Eclampsia / Eclampsia Protocol](#)
4. Rule out hypoglycemia, trauma, infection, hypoxia, withdrawal, or toxins
   a. If glucometer < 60 or > 250 see [Diabetic Emergency Protocol](#)
   b. See [Altered Mental Status Protocol](#)
   c. [Paramedic] Consider THIAMINE 100 mg IV/IM for adults with history of alcoholism, hyperemesis, cancer, gravidarum, or unknown seizure history
5. If actively seizing:
   a. [EMT-I/AEMT/Paramedic] Establish IV/IO per [Vascular Access Protocol](#)
   b. [Paramedic] VERSED
      i. 2mg IV Q 2 minutes until seizure stops
      ii. 0.2mg/kg IM
      iii. {child 0.1mg/kg IV or 0.2mg/kg IM} 2mg max single dose
6. If seizure has resolved and patient is postictal
   a. [EMT-I/AEMT/Paramedic] Establish IV/IO per [Vascular Access Protocol](#)
   b. If patient is febrile, remove clothing and cool, but avoid shivering
SHOCK

General Scope: Protocol for management of shock in all patients

Applies to: All Medical Staff

Protocol:

1. Control obvious hemorrhage
2. Position patient supine when possible
3. [EMT-I/AEMT/Paramedic] Establish IV/10 per Vascular Access Protocol
   a. 2 access points if evidence of Class II or greater shock
   b. Initial fluid challenge with NS with a SBP goal of ≥ 80 in trauma patients (permissive hypotension except in patients with significant head injuries), ≥ 90 in medical patients
4. [Paramedic/Medical Control] For hemorrhagic shock: Tranexamic acid (TXA) 1g in 100ml D5W IV over 10 minutes (faster may result in hypotension); use a filter needle to draw up
   a. Follow by an infusion of 1g in 500ml NS over 8 hours (at receiving facility)
   b. Indications: Evidence of acute blood loss—Class II or greater
   c. Administration as soon as possible but no later than 3 hours after initial injury
   d. Exclusions:
      i. Patients < 16
      ii. Known time of injury greater than 3 hours or unknown time
      iii. DIC
      iv. Recent history of thrombosis or thromboembolism (DVT, PE, embolic stroke).
5. If evidence of anaphylaxis, see Anaphylaxis/Allergic Reaction Protocol
6. Shock Classifications

<table>
<thead>
<tr>
<th></th>
<th>CLASS I</th>
<th>CLASS II</th>
<th>CLASS III</th>
<th>CLASS IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Loss (mL)</td>
<td>Up to 750</td>
<td>750-1500</td>
<td>1500-2000</td>
<td>&gt;2000</td>
</tr>
<tr>
<td>Blood Loss (%BV)</td>
<td>Up to 15%</td>
<td>15-30%</td>
<td>30-40%</td>
<td>&gt;40%</td>
</tr>
<tr>
<td>Pulse Rate</td>
<td>&lt;100</td>
<td>&gt;100</td>
<td>&gt;120</td>
<td>&gt;140</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>Normal</td>
<td>Normal</td>
<td>Decreased</td>
<td>Decreased</td>
</tr>
<tr>
<td>Pulse Pressure (mmHg)</td>
<td>Normal or increased</td>
<td>Decreased</td>
<td>Decreased</td>
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</tr>
<tr>
<td>Respiratory Rate</td>
<td>14-20</td>
<td>20-30</td>
<td>30-40</td>
<td>&gt;35</td>
</tr>
<tr>
<td>Urine Output (mL/hr)</td>
<td>&gt;30</td>
<td>20-30</td>
<td>5-15</td>
<td>Negligible</td>
</tr>
<tr>
<td>CNS/Mental Status</td>
<td>Slightly anxious</td>
<td>Mildly anxious</td>
<td>Anxious and confused</td>
<td>Confused and lethargic</td>
</tr>
<tr>
<td>Fluid Replacement (3:1)</td>
<td>Crystalloid</td>
<td>Crystalloid</td>
<td>Crystalloid and blood</td>
<td>Crystalloid and blood</td>
</tr>
</tbody>
</table>
SELECTIVE SPINAL PRECAUTIONS; C-SPINE CLEARANCE

General Scope: Criteria to exclude patients selectively from spinal precautions when a low index of suspicion of injury and reassuring assessment is present.

Applies to: Paramedic/Transport Ambulance

Protocol:

1. Perform routine trauma assessment while cervical spine is manually immobilized
2. [Paramedic] Determine if patient meets any of the following Spinal Precautions criteria
   a. Altered level of consciousness? If YES see spinal precautions protocol
   b. Neuro Exam: Does the patient have any focal deficit? If YES see spinal precautions protocol
   c. Spinal Exam: Point tenderness over the spinous process(es) or pain during Range of motion exam? If YES see spinal precautions protocol
   d. >65 y/o or <5 y/o with significant mechanism of Injury? If YES see spinal precautions protocol
   e. Evidence of impairment by drugs/alcohol? If YES see spinal precautions protocol
   f. Painful distracting injuries? If YES see spinal precautions protocol
3. [Paramedic] If the answer is NO to all the above, spinal precautions may be deferred
   a. All deferred spinal precautions shall have the criteria above documented on the patient care report. When in doubt always refer to spinal precautions protocol

Pearls
You should not assume a walking patient has a clear C-Spine

Consider precautions in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.

The decision to NOT implement spinal precautions in a patient is the responsibility of the paramedic solely.

In very old and very young, a normal exam may not be sufficient to rule out spinal injury.

Range of motion should NOT be assessed if patient has midline spinal tenderness. Patient’s range of motion should not be assisted. The patient should touch his chin to his chest, extend his neck (look up), and turn his head from side to side (shoulder to shoulder) without spinal pain.
La Crosse Regional Pre-Hospital Guidelines

SPINAL PRECAUTIONS FOR TRANSPORT AMBULANCE

**General Scope:** Transport Ambulance Protocol for spinal precautions

**Applies to:** All Medical staff:

**Protocol:**

- a. Explain the procedure to the patient
- b. Assess CMS
- c. Measure and place cervical collar while maintaining in-line stabilization of the C-spine by a second provider.
- d. If cervical collar does not fit due to obesity or physical abnormality, attempt stabilization with blanket roll
- e. If patient is supine or prone place the patient on a long spine board/scoop by the safest method available (i.e. log-roll, lift, etc.). For the patient in a vehicle or seated position or otherwise unable to be placed prone or supine, and the patient condition does not allow them to self-extricate to adjacent cot (i.e. other injury, pain, altered level of consciousness), place him or her on a backboard/scoop by the safest method available that allows maintenance of in-line spinal stability.
- f. Secure the patient with straps.
- g. Once extricated and moved, patients should be taken off the backboard or scoop stretcher if possible, and be placed directly on the ambulance stretcher. It is acceptable to leave a patient on a backboard for transport (transports < 5min, or life threatening patient condition), but every effort should be made to secure the patient to the stretcher and not the backboard/scoop during transport.
- h. When long spine board is not utilized, spinal precautions in at-risk patients is paramount. These include cervical collar, securing to stretcher, minimal movement/transfers and maintenance of in-line spine stabilization during necessary movement/transfers. This includes the elderly or those with body or spine habitus preventing them from lying flat.

**Note:**

Spinal precautions may be achieved by many appropriate methods. In addition, some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard devices and C-collars. Never force a patient into a non-neutral position to immobilize him or her. Manual stabilization may be required during transport. Special situations such as athletes in full shoulder pads and helmet may remain immobilized with helmet and pads in place.

Patients with penetrating traumatic injuries should only be immobilized if a focal neurological deficit is noted on physical exam.

08-15-2016
Spinal Examination

**General Scope:** This procedure details the spinal examination process and must be used in conjunction with the spinal precautions clearance protocol.

**Applies to:** Paramedic/Transport Ambulance

**Protocol:**

a. Explain to the patient the actions you are going to take. Ask the patient to immediately report any pain, and to answer questions with a “yes” or “no” rather than shaking the head

b. With the patient’s spine supported to limit movement, begin palpation at the base of the skull at the midline of the spine

c. Palpate the vertebrae individually from the base of the skull to the bottom of the sacrum

d. On palpation of each vertebral body, look for evidence of pain and ask the patient if they are experiencing pain. If evidence of pain along the spinal column is encountered, the patient should be immobilized

e. If the capable patient is found to be pain free, ask the patient to turn their head first to one side (so that the chin is pointing toward the shoulder on the same side as the head is rotating) then, if pain free, to the other. If there is evidence of pain the patient should be immobilized

f. With the head rotated back to its normal position, ask the patient to flex and extend their neck. If there is evidence of pain the patient use [spinal precautions protocol](#)
SPINAL PRECAUTIONS FOR NON-TRANSPORT EMT/EMR

General Scope: Protocol for spinal precautions for agencies that have spinal precautions training but do not transport.

Applies to: Non-Transport EMT/EMR

Protocol:

- g. Explain the procedure to the patient
- h. Asses CMS
- i. Measure and place cervical collar while maintaining in-line stabilization of the C-spine by a second provider.
- j. If cervical collar does not fit due to obesity or physical abnormality, attempt stabilization with blanket roll
- k. If patient does not need to be moved do not place patient on longboard/scoop and await transport ambulance arrival.
- l. If patient does require movement proceed to next step.
- m. If indicated, place the patient on a long spine board with the log-roll technique if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place him or her on a backboard by the safest method available that allows maintenance of in-line spinal stability.
- n. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.

Note:

Spinal precautions may be achieved by many appropriate methods. In addition, some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard devices and C-collars. Never force a patient into a non-neutral position to immobilize him or her. Manual stabilization may be required during transport. Special situations such as athletes in full shoulder pads and helmet may remain immobilized with helmet and pads in place.

Patients with penetrating traumatic injuries should only be immobilized if a focal neurological deficit is noted on physical exam.
SPIT HOOD

General Scope: Protocol for use of protective hoods. This protocol should be used for patients whom are combative and/or aggressive, and purposely attempting to spit on providers or other public safety personnel. Spitting carries potential risk of disease transmission. Use of a protective hood minimizes said risk.

Applies to: All Medical Staff

Protocol:

1. Use of one-piece surgical mask or oxygen mask is preferred for minimizing risk of disease transmission by patients whom are purposely spitting.
2. CONDITIONS FOR USE
   a. DO NOT USE unless patient is under control and restrained.
   b. DO NOT USE on anyone that is vomiting, having difficulty breathing, or is bleeding profusely from the area around the mouth or nose.
   c. Patient must be under constant visual supervision and should never be left unattended.
   d. Remove patient’s jewelry and eyewear before application.
   e. If there is difficulty applying due to large size head, discontinue use.
   f. Conditions for use should be constantly monitored during patient encounter.
3. PROCEDURE FOR USE
   a. Open and remove the Tranzport Hood
   b. Place the Tranzport hood over the head of the person with the mesh fabric positioned just below the eyes to allow the person to see.
   c. For the best fit, place the center elastic under the nose and over the ears. For better protection, the elastic may be placed above the nostrils.
   d. Carefully push the plastic Secure-Lock Tab down toward the top of the head while holding the top of the mesh fabric. This should take the slack out of the top and help secure the Tranzport Hood in position.
      i. ** DO NOT push so tightly as to be uncomfortable or impair the vision of the wearer.
   e. See manufacturer instructions included in packaging for visual representation of procedure for use.
   f. Patient should be transported in either left or right lateral position.
   g. CONTINUOUSLY monitor patient’s airway, respiratory status, and pulse oximetry.
   h. IMMEDIATELY remove surgical mask, oxygen mask, or Tranzport Hood if any question of airway patency or potential compromise.
SURGICAL CRICOTHYROIDOTOMY

General Scope: Procedure for surgical cricothyroidotomy. This is a last option for airway management and requires approval from medical control. Surgical cricothyroidotomy is contraindicated in patients < 10 years old.

Applies to: Paramedics

Protocol:

1. Determine need and contact medical control
2. Attempt to provide optimal O₂ saturation prior to starting
3. Palpate cricothyroid membrane and clean area with antiseptic wipe
4. Make midline incision with #15 scalpel over cricothyroid membrane
5. Insert Sklar hook and provide upward and caudal traction
6. Use scalpel to open transversely into trachea keeping blade near or against Sklar hook
7. Introduce 6.0 mm ETT perpendicular to the trachea rotating as advanced
   a. Inflate with 5-10ml air
8. Auscultate chest and secure device
SUSTAINED VENTRICULAR TACHYCARDIA / WIDE COMPLEX TACHYCARDIA

General Scope: Protocol for treatment of a patient in presenting in a wide or ventricular tachycardic rhythm

Applies to: EMT-I and Paramedic

Protocol:
1. Perform routine medical assessment
3. If patient is hemodynamically unstable
   a. [Paramedic] Consider sedation per Sedation Protocol
   b. [Paramedic] SYNCHRONIZED CARDIOVERSION starting at 100
      i. [Paramedic] If successful begin AMIODARONE drip (1 amp [150 mg] in 100 D₅W or NS=1.5mg/ml) at 1mg/min IV (40cc/hr =1mg/min)
      ii. [Paramedic] If unsuccessful consult Medical Control
4. If patient is hemodynamically stable
   a. [Paramedic/Med Control] If rhythm is regular and monomorphic consider ADENOSINE 6 mg IV
      i. [Paramedic/Med Control] Repeat at 12mg (may repeat twice)
   b. [Paramedic] Administer AMIODARONE 150 mg IV over 10 minutes
      i. [Paramedic] If successful begin AMIODARONE drip (1 amp [150 mg] in 100 D₅W or NS=1.5mg/ml) at 1mg/min IV (40cc/hr =1mg/min)
      ii. [Paramedic] If unsuccessful consider cardioversion (see #3)
5. [Paramedic/Med Control] Consider MAGNESIUM 2 grams (2g in 100ml D₅W or NS) IV over 1-2 minutes for Torsades de pointes Update Medical Control

Note:

Amiodarone Precautions
- Hypotension secondary to vasodilatation
- May prolong QT interval
- Negative inotropic effects
- Use with caution in renal failure; long T₁/₂ life
TERMINATION OF RESUSCITATION

General Scope: Procedure for terminating resuscitation efforts in cardiac arrest

Applies to: All Medical Staff

Protocol:

1. Except in conditions in [Determination of Death Protocol], CPR is to be initiated and maintained until one of the following occurs
   a. Resuscitation efforts have been transferred to other persons of at least equal skill and training
   b. Effective ROSC and ventilation have been restored
   c. The rescuers are physically unable to continue efforts
   d. Medical Control orders efforts to stop
      i. If transport has been initiated, efforts must continue until patient care has been turned over to the receiving hospital
2. Update Medical Control
THORACIC/ABDOMINAL AORTIC ANEURYSM

**General Scope:** Protocol for treatment of patients who present with signs and symptoms consistent with that of an aortic aneurysm

**Applies to:** All Medical Staff

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see Airway Management Protocol
3. [EMT-I, AEMT, Paramedic] Establish IV/IO per Vascular Access Protocol (Two large bore lines if possible)
4. Treat pain per Pain Management Protocol
5. If patient SBP >130:
   a. [Paramedic/Med Control] Labetalol 20mg Slow IV
   i. May repeat at 40mg every 10 minutes to a max of 300mg
   b. [Paramedic/Med Control] NTG DRIP (20mg/100ml D5W or NS—200mcg/ml)
      i. For patients <75kg, start at 10mcg/min
      ii. For patients >75kg, start at 20mcg/min
      iii. Titrate by 5-10mcg/min every 5-10 minutes to SBP ~110
      iv. Monitor BP every 3-5 minutes
6. If patient SBP <90
   a. [EMT-I, AEMT, Paramedic] 250-500ml NS bolus up to 2-3 liters total
   b. [Paramedic] If failure response to fluid bolus, consider DOPAMINE drip (200mg/250ml D5W—800mcg/ml) Initiate infusion at 5mcg/kg/min and titrate every 5 minutes by increments of 1-5mcg/kg/min up to 20mcg/kg/min.

**Note:**

Patient assessment

1. History:
   a. Thoracic:
      i. Relatively sudden onset
      ii. Severe "tearing" chest pain with possible radiation to back
   b. Abdominal:
      i. Intermittent or constant abdominal pain commonly localized to left middle or lower quadrant
      ii. Back pain and flank pain are the next most common symptoms
2. Physical exam:
   a. Possible hypotension
   b. Pulse discrepancy side-to-side or upper versus lower extremities
   c. Pulsatile abdominal or groin mass with or without a bruit
TRAUMA IN PREGNANCY

General Scope: Protocol for treatment of all potentially pregnant patients with potential trauma.

Applies to: All Medical Staff

Protocol:

1. Perform routine medical and trauma assessment
2. See General Trauma Protocol
3. Position patient on left side unless a spinal injury is suspected (minimize uterine compression on the inferior vena cava)
4. If patient is immobilized on a long back board:
   a. Tilt backboard to left side
   b. Elevate right buttock and push uterus to the left
5. [EMT-I/AEMT/Paramedic] Establish IV/IO per Vascular Access Protocol
6. Maintain blood pressure, see Blood Pressure Management Protocol
   a. SBP & DBP is 5-15mmHg less starting in second trimester
   b. HR is 15-20 BPM more during third trimester
   c. Shock is not always obvious in the pregnant patient (Because of an increase in circulating blood volume during pregnancy, the pregnant female will show signs of hypovolemia later in their course)
TREATMENT OF THE TERMINALLY ILL PATIENT

General Scope: Procedure for dealing with terminally ill patients

Applies to: All Medical Staff

Protocol:

1. If called to the scene of a terminally ill patient before death:
2. Follow POLST form
3. Initiate low-flow O₂
4. [Paramedic] Apply cardiac monitor
5. Make patient comfortable, see Pain Management Protocol
6. Reassure family members that are present
7. When patient becomes pulseless, apneic, and asystolic proceed as with Triple Zero, see Determination of Death Protocol
8. Update Medical Control
VASCULAR ACCESS

General Scope: Procedure for vascular access.

Applies to: Intermediate Technicians, AEMT**, Paramedics

** Optional use by service and requires Prior Written Approval of the Operational Plan by the State EMS Office and Medical Director Approval and Documentation of Training.

Protocol:

1. [EMT-I/AEMT/Paramedic] Establish peripheral IV
   a. 2 IV’s if indicated and possible
   b. 16g or larger if indicated and possible
      i. Trauma activations
      ii. Cardiac arrest
      iii. GI bleed
      iv. Hypovolemia

2. [EMT-I/AEMT**/Paramedic] If unsuccessful, consider EZ-IO or [Paramedic] external jugular IV
   a. [Paramedic] Consider external jugular IV (patient age>6)
      i. Place patient supine or head down
      ii. Locate vein
      iii. Cleanse area with antiseptic wipe
      iv. Make venipuncture midway between angle of jaw and mid-clavicular line
      v. Confirm placement
      vi. Attach IV tubing and secure to patient’s neck
   b. Consider EZ-IO, see EZ-IO Protocol

3. [Paramedic] If EZ-IO failure, attempt manual IO
   a. Support leg with knee slightly raised
   b. Cleanse area with antiseptic wipe
   c. Inset needle through skin at 90° angle on tibial plateau
   d. Insert needle into bone marrow cavity with twisting motion
   e. Upon loss of resistance remove stylet, aspirate, then attach IV
   f. Secure needle
VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

General Scope: Protocol for treatment of a patient presenting with ventricular fibrillation or Pulseless ventricular tachycardia in cardiac arrest

Applies to: All Medical Staff

Protocol:

1. Perform routine medical assessment
2. Initiate CPR and continue throughout resuscitation with minimal interruptions
   a. [Paramedic] May administer precordial thump if witnessed arrest
3. Apply defibrillator or AED
   a. Defibrillate at 150J
   b. Repeat defibrillation (consider escalating energy) every 2 minutes with medications administered as listed below
5. Establish airway per Respiratory Failure Protocol
6. [Paramedic] Administer EPINEPHRINE (1:10,000) 1mg IV/IO Q 3-5 minutes
7. [Paramedic] Administer AMIODARONE 300mg IV/IO
   a. [Paramedic] May repeat with 150mg IV/IO
8. [Paramedic/Med Control] Consider MAGNESIUM 2 grams (2g in 100ml D$_5$W or NS) IV over 1-2 minutes for Torsades de pointes
9. [Paramedic/Med Control] Consider SODIUM BICARBINATE 50mEq IV/IO if patient is severely acidotic
10. If pulse is returned see Post Arrest Protocol

APPENDIX A-1: NITROGLYCERINE Drip

08-15-2016
**General Scope:** Drip rate and pump set-up charts

**Applies to:** Paramedics

<table>
<thead>
<tr>
<th>Nitroglycerine Drip</th>
</tr>
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<tbody>
<tr>
<td><strong>Pre-mixed Drip</strong></td>
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<tr>
<td><em>Pump Set</em></td>
</tr>
<tr>
<td>2 ml/hr</td>
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<tr>
<td>3 ml/hr</td>
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<tr>
<td>4 ml/hr</td>
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<td>48 ml/hr</td>
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<tr>
<td>54 ml/hr</td>
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<tr>
<td>60 ml/hr</td>
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**APPENDIX A-2: EPINEPHRINE DRIP**

**General Scope:** Drip rate and pump set-up charts.

**Applies to:** Paramedics

<table>
<thead>
<tr>
<th>Weight (KG)</th>
<th>Dose mcg/min</th>
<th>Pump rate ml/hr</th>
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<tr>
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APPENDIX A-3: DOPAMINE DRIP

General Scope: Drip rate and pump set-up charts

Applies to: Paramedics

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<th>Pump Setting</th>
<th>40 mcg/kg/min</th>
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APPENDIX A-4: POST ARREST ANTI-ARRHYTHMIC DRIPS

General Scope: Drip rate and pump set-up charts

Applies to: Paramedics

### Post-conversion Lidocaine Drip

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<thead>
<tr>
<th>Premixed 4mg/ml</th>
<th>Pump Set</th>
<th>Rate</th>
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<td>15 ml/hr</td>
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### Post-conversion Amiodarone Drip

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<th>150mg Amiodarone in 100ml D5W or NS</th>
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<tbody>
<tr>
<td></td>
<td>40 ml/hr</td>
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</table>
APPENDIX B-1: CHEST TUBE MONITORING

**General Scope:** Chest tube monitoring. ** Paramedics may monitor and troubleshoot chest tubes.**

**Optional use by Paramedic service and requires Prior Written Approval of the Operational Plan by the State EMS office and Medical Director Approval and Documentation of additional training)

**Applies to:** Paramedics and Critical Care Paramedics

**Indications:** Chest tubes are indicated for pneumothorax, hemothorax and pleural empyema.

**Protocol:**

1. Routine Trauma and/or Medical Assessment.
2. Assure that the chest tube(s) is securely fastened to the patient.
3. Check chest tube(s) for patency and proper function prior to transport.
4. Assure that the long flexible tubing is securely fastened to the container that acts as a drainage device, water seal and suction control device. Assure that the tubing is free of kinks.
5. Make note of the fluid and blood levels in the drainage and water seal compartments.
6. Obtain orders as to the water seal level.
7. When suction is used, assure that there is bubbling in the suction control chamber. (if not, check the suction unit).
8. If the water seal fails to stop bubbling after the lung is reinflated or later begins to bubble:
   a. Momentarily clamp the flexible tubing near the chest. If the bubbles quit emanating from the tube while it is clamped, then the problem is either a persistent air leak in the patient's lung or the chest tube is not sealed at the chest wall.
   b. Never leave the clamp on for more than a few seconds.
   c. Evaluate the insertion site.
   d. Apply occlusive dressings to the site.
   e. Evaluate the patient for distress.
   f. Consult physician immediately if needed.
   g. If the bubbling does not cease during the clamping of the proximal end, then suspect a leak at a connection site in the tubing or the tubing itself.
      i. Check all connections and secure with tape.
      ii. Seal the leak with occlusive dressing and tape or replace the tubing. When replacing the tubing, remember to clamp the distal end of the chest tube to avoid the formation of a pneumothorax.
9. If water seal device becomes damaged, a temporary water seal can be accomplished by putting flexible tubing into a bottle of sterile saline. Keep this device and tubing below chest level.
10. To clear clots from the tubing, squeeze the proximal end of the tubing with one hand and with the other below, squeeze the tube, stripping the material down the tube toward the drainage container.
11. Consult with the physician/staff for the best patient positioning.
12. If the chest tube is not functioning and a tension pneumothorax is suspected, perform a needle decompression of the affected side.
APPENDIX B-2: VENTILATOR / BiPAP USE

General Scope: Protocol and criteria for transport ventilator and BiPAP use.

Applies to: All Critical Care Staff

Protocol:

1. VENTILATOR SETTINGS
   a. If time allows during response, turn on ventilator connected to test lung.
   b. Mode: Set at Assist Control or SIMV (SIMV V is the most common setting)
   c. Go to Powerup setting. Change to Powerup with user 1. Go to Save Setting and save user 1 settings. This should allow the vent to turn on with your recent settings. Note: This will only save the most basic settings, such as Mode, Vt and I:E ratio. This will not save high and low pressure alarm setting or Trigger level settings.
   d. Turn Vent off until patient side.
   e. Turn vent on
   f. Set High and Low pressure alarms to desired setting.
   g. Press menu button.
   h. Adjust trigger level to desired setting
   i. Adjust Contrast to desired setting
   j. Initial tidal volume: 7-10 cc/kg IDEAL BODY weight with a maximum of 800cc; consider decreasing to 6-8 cc/kg in patients with reactive airways disease and increasing PEEP requirements.
   k. FiO2 100% or adjust FiO2 to maintain SaO2 at >95%
   l. PEEP: 5 cm. Titrate in increments of 2 cm (max of 10 cm) every 15 minutes to increase oxygenation saturations where other measures (sedation, paralysis) have failed and SBP is >90mmHg.
   m. RR: 8-10
      i. If attempting to decrease intracranial pressure [ICP] hyperventilate keeping pEtCO2 between 30-35. Start at a rate of 10 and increase or decrease rate in increments of 2 to obtain desired EtCO2
      ii. If RR 16-20, use no PEEP
   n. Be aware of pneumothorax risk (especially with traumatic chest injuries)
   o. Maintain EtCO2 between 35-40 for most patients; 30-35 if evidence of lateralizing signs
   p. Pressure alarm: monitor patient’s inspiratory pressure and set at 10 cm above Peak Inspiratory Pressure
   q. Increase sensitivity slowly if ventilator doesn’t capture inspiratory effort
   r. Monitor I:E ratio and maintain at a minimum of 1:2 if patient is prone to air-trapping

2. VENTILATION OPTIONS WITH PERMANENT TRACHEOSTOMY
   a. Metal cannula, fenestrated (cuffless) or button device: replace with 6-7F ETT, whichever can be placed with the least effort/trauma
   b. Non-fenestrated cuffed trach: insert inner cannula and inflate balloon; if no inner cannula available, go to 2A.
APPENDIX B-2: VENTILATOR / BiPAP USE (CONTINUED)

3. NPPV (BiPAP)
   a. NPPV delivers CPAP but also senses when an inspiratory effort is being made and delivers a higher pressure during inspiration. This positive pressure wave during inspirations unloads the diaphragm decreasing the work of breathing.
   b. There is an increased number of MIs in patients on NPPV compared to CPAP; recommended that CPAP be attempted first. If NPPV is used, watch for evidence of hypotension.
   c. Indications
      i. Recent and rapid worsening of dyspnea
      ii. Respiratory rate > 30
      iii. pH < 7.28
      iv. PaCO2 > 50mmHg
      v. Hypoxemia
         1. Pneumonia
         2. Fluid overload
      vi. CHF
      vii. Moderate to severe respiratory failure
      viii. Post-op patients with rising EtCO2 levels
      ix. COPD patients with acute-on-chronic ventilatory failure
   d. Exclusion criteria
      i. Recurrent aspiration
      ii. Large volumes of secretions
      iii. Inability to protect the airway
      iv. Vomiting
      v. Obstructed bowel
      vi. Upper airway obstruction
      vii. Uncooperative, confused or combative patient
      viii. ARDS
      ix. Inability to tolerate a tight mask
      x. Orofacial abnormalities which interfere with mask/face interface
      xi. Hemodynamic instability
      xii. Untreated pneumothorax

4. Settings for Impact Ventilator BiPAP.
   a. Preset alarms and settings by turning the unit on: let the vent start in default mode.
   b. Select CPAP under the mode menu. Then change PPV to NPPV in the upper right hand corner of the mode menu. Always make sure to use the green check mark when changing a setting.
   c. If the BiPAP setting are unknown start with 10 over 5. This is done by setting the PEEP at 5 and the pressure support to 5. Remember pressure support is found in the secondary PIP menu. This is achieved by pressing and holding the PIP menu button for greater than 5 seconds.
   d. Pressure support of 5 and PEEP of 5 is equal to BiPAP of 10/5
   e. Use a standard resuscitation mask with blue elbow and the head strap when providing BiPAP with the Impact ventilator.
   f. If improvement in ventilation and oxygenation is not achieved, discontinue NPPV and consider tracheal intubation
APPENDIX B-2: VENTILATOR / BiPAP USE (CONTINUED)

5. Pediatric recommendations
   a. Less than 1 year of age
      i. Assist control pressure ventilation mode
      ii. PIP 15 (increase pressure only if needed to get normal chest rise)
      iii. Inspiratory time 0.7 seconds
      iv. Rate of 15 (increase by increments of 5 to maintain EtCO₂ between 40-50)
      v. PEEP of 4.
      vi. FiO₂ to maintain sats > 95%
      vii. Monitor TV
   b. Greater than 1 year of age
      i. Assist control volume mode
      ii. Start with default Pediatric settings
      iii. Change to Volume Mode; calculate 10 ml/kg TV
      iv. Inspiratory time 0.7 seconds
      v. Rate of 15 (increase by increments of 5 to maintain EtCO₂ between 40-50)
      vi. PEEP of 4
      vii. FiO₂ to maintain sats > 95%
      viii. Monitor TV

6. Initial settings for specific scenarios
   a. Severely brain injured i.e. localizing signs such as dilated pupil and posturing
      i. Assist control
      ii. RR 8-12
      iii. TV 6-10cc/kg ideal body weight with a maximum of 1000cc
      iv. PEEP 5 cm
      v. FiO₂ 100% or adjust FiO₂ to maintain SaO₂ at >95%
   b. Depressed respiratory drive, e.g., intoxicated or overdose patient
      i. Assist control or SIMV
      ii. RR 6-15
      iii. TV 6-10 cc/kg ideal body weight with a maximum of 1000cc
      iv. PEEP 5 cm
      v. FiO₂ 100% or adjust FiO₂ to maintain SaO₂ at >95%
   c. Acute bronchospasm
      i. Assist control
      ii. RR 8-10
      iii. TV 6-8 cc/kg ideal body weight with a maximum of 1000cc
      iv. PEEP 5 cm
      v. FiO₂ 100% or adjust FiO₂ to maintain SaO₂ at >95%
      vi. May need to increase peak flow setting to 50-80 lpm
   d. Multilobar disease, e.g., pneumonia, pulmonary edema/ARDS, extensive disease patterns
      i. Assist control
      ii. RR 10-20
      iii. TV 6-8 cc/kg ideal body weight with a maximum of 1000cc
      iv. PEEP 5 cm with titration to maintain oxygen saturations
      v. FiO₂ 100% or adjust FiO₂ to maintain SaO₂ at >95%
      vi. Set inspiratory flow rate above patient demand, usually greater than 80 lpm
APPENDIX B-3: BLOOD TRANSFUSION & CONTINUATION MONITORING

General Scope: Protocol and criteria for transport infusion of blood product. All blood products to be infused must be initiated by the transferring facility. This protocol does not allow CCEMT-paramedics or Paramedics to initiate infusion of blood products. Critical Care Paramedics may infuse a second bag of blood product so long as the infusion was begun at the transferring facility. Paramedics may monitor a transfusion of blood product during transport, but may not initiate transfusion or hang a second bag of blood product.

Applies to: Paramedics

Protocol:

1. Obtain written order for rate and total volume of blood product to be infused, confirm with RN or physician
2. Confirm with RN or physician that name on patient’s wristband matches the name on the infusing blood. The patient must have a wristband, no exceptions.
3. Vital signs (including body temperature) must be recorded pre-transport and q10 minutes during transport
4. If the patient develops any sign of allergy/sensitivity reaction, including; chills, fever, chest pain, flank pain, hives, wheezing, urticaria, or the patient shows signs of shock; the following actions should be taken immediately:
   a. Infusion of blood product must be immediately stopped, disconnected, and all tubing and product saved for delivery to the receiving facility.
   b. IV NS initiated
   c. See Blood Pressure Management Protocol
   d. See Anaphylaxis Protocol
   e. Hemolytic reactions (fever, chills, chest pain, flank pain, and/or shock) may require administration of diuretics in addition to fluid administration. Contact Medical Control if a hemolytic reaction is suspected.
5. Written orders must accompany patient and be included in the patient care report.
APPENDIX B-4: ARTERIAL LINE, CENTRAL LINE, AND CVP MONITORING

General Scope: Protocol and criteria for accessing central lines, and monitoring arterial lines and central venous pressure.

Applies to: All Critical Care Staff

Protocol:

Arterial Line Monitoring

1. Ensure the pressure bag is pressurized to 300 mm Hg
2. Use steps 3-6 if using arterial line to measure arterial blood pressure
3. With the transducer connected to the monitor, select arterial monitor, and perform a transducer check by fast flushing the line. As you do this, you should see a change in the waveform. This is called a square wave test.
4. Zero the transducer and monitor
   a. Place the transducer at the phlebostatic axis of the patient.
   b. Close the line off to patient and open to air.
   c. Press zero on the monitor.
   d. To monitor pressure, close the port off to air and open to patient.
5. Connect the catheter and fast flush to clear the catheter of blood.
6. Check for good waveform.

Central Line Access

1. To access the line first clamp off the hub line you intend to use.
   a. It’s important to clamp off the line to prevent air from being sucked in to the line and blood stream.
   b. Any of the hub lines can be used, they all go to the same place and work the same way.
2. Once you have the line clamped off, expose the end of the hub (it may have a cap or be taped over) clean it well with an alcohol prep and put an INT hub on it.
3. With the INT hub in place, unclamp the tubing and let the INT hub seal out air.
4. Clean the INT hub and attach an empty 10 cc syringe to the INT hub
   a. Aspirate about 5ml of blood and heparin to confirm the line is in place,
      i. There should be no resistance to aspiration.
   b. discard the syringe and contents as biohazard waste.
5. Attach a saline flush syringe to INT hub and flush it gently.
6. Attach a flushed 60 drop set (or blood set if you think you need volume replacement) and saline bag and run it into the line at a TKO rate.
7. Use the y-sites on the IV tubing to give meds as needed; make sure to clean the y-site correctly and flush with the saline IV line after each med.
Continuous Venous Pressure Monitoring:

1. Assemble A-line set up as per arterial line monitoring system or Swan-Ganz multi-lumen monitoring system instructions.
2. Make sure there are no air bubbles in the system.
3. Connect pressurized tubing to central venous catheter.
4. Zero and calibrate transducer system.
5. Validate waveform on monitor. Obtain 'mean' pressure reading.
APPENDIX B-5: PICC LINE USAGE

General Scope: Protocol and criteria for accessing and using PICC lines

Applies to: Paramedic

Protocol:

1. May administer medications through previously placed PICC lines when no other option is available, under direct on-line medical control or standing orders.
   a. Maintenance of sterility is of significant importance.
   b. Sterile technique must be maintained if new medications are being initiated through PICC line.
   c. Flush medication with 10ml NS using at least a 10cc syringe.
      i. Syringes smaller than 10cc can exert excessive pressure on PICC lines.
   d. Maintain dressing at PICC site.
APPENDIX B-6: TRANSVENOUS PACEMAKER

**General Scope:** Protocol and criteria for transporting a patient with a transvenous pacemaker

**Applies to:** All Critical Care Staff

**Protocol:**

1. Locate pacemaker generator
2. Ensure battery is fresh
3. Identify each wire set as atrial or ventricular
   a. Epicardial ventricular wires exit from the left side of the chest
   b. Atrial wires exit from the right side of the chest generally
4. Attach wires to the appropriate sites
5. Power on the pulse generator
6. Set rate based on need and physician orders
   a. Surgical: 90-110 BPM
   b. Medical: 70-90 BPM
   c. Cardiac Arrest: 80 BPM
7. Set amperage
   a. Nonurgent: 10mA
   b. Emergent: 15-20mA
8. Set the sensitivity
   a. Start at 2-5mV
   b. If failure occurs turn sensitivity DOWN
   c. If pacer is sensing beats not present turn sensitivity UP
9. Observe patient for response
10. Secure all wires, connections, and pacemaker in a safe location
APPENDIX B-7: FOLEY CATHETER INSERTION

**General Scope:** Protocol and criteria for foley catheter insertion

**Applies to:** All Critical Care Staff

**Protocol:**

1. Gather equipment.
2. Explain procedure to the patient.
3. Assist patient into supine position with legs spread and feet together.
4. Open catheterization kit and catheter.
5. Prepare sterile field, apply sterile gloves.
6. Check balloon for patency.
7. Generously coat the distal portion (2-5 cm) of the catheter with lubricant.
8. Apply sterile drape.
9. If female, separate labia using non-dominant hand. If male, hold the penis with the non-dominant hand. Maintain hand position until preparing to inflate balloon.
10. Using dominant hand to handle forceps, cleanse peri-urethral mucosa with cleansing solution. Cleanse anterior to posterior, inner to outer, one swipe per swab, discard swab away from sterile field.
11. Pick up catheter with gloved (and still sterile) dominant hand. Hold end of catheter loosely coiled in palm of dominant hand.
12. In the male, lift the penis to a position perpendicular to patient's body and apply light upward traction (with non-dominant hand).
13. Identify the urinary meatus and gently insert until 1 to 2 inches beyond where urine is noted.
14. Inflate balloon, using correct amount of sterile liquid (usually 10 cc but check actual balloon size).
15. Gently pull catheter until inflation balloon is snug against bladder neck.
16. Connect catheter to drainage system.
17. Secure catheter to abdomen or thigh, without tension on tubing.
18. Place drainage bag below level of bladder.
19. Evaluate catheter function and amount, color, odor, and quality of urine.
20. Remove gloves, dispose of equipment appropriately, wash hands.
APPENDIX D-1: TRAUMA ACTIVATION GUIDELINES

General Scope: Guidelines/Criteria for activation of trauma teams

Applies to: All Medical Staff

Gundersen Tri-State Ambulance Activation:

Red:
- Traumatic arrest: active or history of
- Intubated and/or Respiratory compromise/Obstruction
  - Stridor or grunting in children
- Systolic blood pressure at any time:
  - Adult: <90mmHg
  - Pediatric: <60mmHg (0-6 months)
  - <70mmHg (6 months-5 yrs)
  - <80mmHg (over 5 yrs)
- Penetrating injury to head, neck, chest, abdomen or extremity with pulsatile bleeding
- Blood transfer in ED or PTA
- Crushed, de-gloved or mangled proximal to wrist or ankle
- Amputation complete/partial above wrist or ankle
- Evisceration
- GCS ≤ 8 with mechanism attributed to trauma, including isolated hanging, traumatic asphyxia, or cold water drowning with signs of life
- Flail chest
- Unstable Pelvis
- Severe hypothermia (core body temp < 28 degrees C)
- Physician's discretion

Yellow:
- Two or more suspected long bone fractures involving the femur/humerus
- Open or depressed skull fracture
- New onset paralysis
- GCS < 14
- Extrication > 20 minutes
- Combination of trauma with burns
- Burns
  - Adult: >20% TBSA or involving face or airway
  - Pediatric: >15% TBSA
- Transport of trauma patient by Aeromedical crew
- Ejection from enclosed vehicle
- Falls greater than 20 feet for adults, greater than 15 for pediatric
- Auto-pedestrian / auto-bicycle with speeds > 20mph
- High-voltage electrocution
- Moderate hypothermia (core body temp 28-32.2 degrees C)
- Physician's discretion

Trauma Consult
- Death in same vehicle
- Rollover
- High speed accident (>40mph)
  - Intrusion > 12 inches into passenger compartment
  - Major auto deformity > 20 inches
- Motorcycle, ATV, bicycle crash > 20 mph or ejection from bike
- Co-morbidity: COPD, DM, CAD, CRF, etc
- Pregnancy
- Age < 5 or > 60
- Three or more patients requiring spinal precautions
- Bleeding disorder or anticoagulants
- Suspect alcohol or drug intoxication
- EMT "High index of suspicion"
- Immunosuppressed/dcompromised

08-15-2016
APPENDIX D-1: TRAUMA ACTIVATION GUIDELINES - CONTINUED

Trauma Destination Determination Guidelines

To clarify where Tri-State Ambulance should transport trauma patients, please consider the following recommendations:

- Trauma patients who meet the following criteria should be transported to a Level 1 or 2 trauma center.
  - All patients who meet Tri-State Ambulance Red criteria or have:
    - Two or more suspected long bone fractures
    - Open or depresses skull fracture
    - New onset paralysis
    - GCS less than 14
  - Per the State of Wisconsin and CDC Guidelines, when in doubt, transport to a level 1 or 2 trauma center.
- Trauma patients who do not meet the above criteria may be transported to a level 3 or 4 center.

Notes:

- If the patient is not ventilating or cannot be ventilated, transport to the closest appropriate hospital or request ALS/Air Medical intercept for RSI/definitive airway management
- According to federal and state trauma guidelines, level 1 and 2 trauma centers are clinically equivalent
- Patients who meet Red or the four designated Yellow Tri-State Ambulance trauma criteria and are requesting to be transported to a non-level 1 or 2 trauma center, should be advised that based on their injuries, state and federal guidelines recommend they go to the highest level trauma center in the region. Transport to non-level 1 or 2 trauma center may then continue if the patient still wishes not go to the highest level and the facility accepts the patient.
APPENDIX D-2: STROKE ACTIVATION GUIDELINES

General Scope: Guidelines/Criteria for activation of stroke teams

Applies to: All Staff

- Find out the patient’s last known “well” time from most reliable source
- Get and report a blood sugar reading
- Get and report blood pressure status
- Are they taking an oral anticoagulant/“blood thinner” [Coumadin, Dabigatran (Pradaxa), Rivaroxaban, (Xarelto)]?
- (Stroke) Alert the hospital that you are bringing a potential stroke in progress
- Identify & report any “Yes” answers regarding IV tPA

Report “Yes” answers regarding IV tPA Exclusion

- Do they have history of previous intracranial hemorrhage?
- Have they Received Heparin in past 48 hrs?
- Do they have a history of myocardial infarction within past 3 months?
- Do they have a history of major surgery in past 14 days?
- Do they have a history of head trauma or stroke in past 3 months?
- Do they have a history of GI or urinary hemorrhage in past 21 days?
APPENDIX B-8: SEDATION CRITICAL CARE

General Scope: Protocol for treatment of patients who require sedation during critical care transports. All patients who receive sedation should have continuous monitoring of vital signs including cardiac monitoring.

Applies to: Critical Care Paramedics

Protocol:

1. Perform routine medical assessment
2. Airway support as needed, see Airway Management Protocol
3. Consider hypoxia or hypovolemia
4. If patient is combative, maintain adequate restraints, see Restraint Protocol
5. Establish IV/IO per Vascular Access Protocol if possible
6. For routine sedation see Sedation Protocol
7. If patient is intubated:
   a. PROPOFOL
      i. 5-50mcg/kg/min. If greater than 50mcg is required contact medical control. Absolute maximum dose is 80mcg/kg/min
      ii. May increase 5mcg/kg/min every 5 minutes based on required sedation
      iii. Bolus dosing 10-20 mg IVP slowly to quickly increase depth of sedation for patients not at risk for hypotension
8. If patient is not intubated:
   a. ATIVAN
      i. IV 1-2mg
      ii. IM 1-4mg
      iii. {Child: 0.05mg/kg IV}
   b. DIAZEPAM:
      i. IV 2-10mg may repeat q 15 minutes as needed
   c. HALOPERIDOL:
      i. IV 2.5-5mg, may repeat in 30 minutes
      ii. IM 5mg q 1-8 hours as needed
**APPENDIX B-9: SEIZURE CRITICAL CARE**

**General Scope:** Protocol for treatment of patients who require seizure care during critical care transports. All patients who receive sedation should have continuous monitoring of vital signs including cardiac monitoring.

**Applies to:** Critical Care Paramedics

**Protocol:**

1. Perform routine medical assessment
2. Airway support as needed, see [Airway Management Protocol](#)
3. Rule out hypoglycemia, trauma, infection, hypoxia, withdrawal, or toxins
   a. If glucometer < 60 or > 250 see [Diabetic Emergency Protocol](#)
   b. See [Altered Mental Status Protocol](#)
   c. Consider **THIAMINE** 100 mg IV/IM for adults with history of alcoholism, hyperemesis, cancer, gravidarum, or unknown seizure history
4. If actively seizing:
   a. Establish IV/IO per [Vascular Access Protocol](#)
   b. **VERSED**
      i. 2mg IV Q 2 minutes until seizure stops
      ii. 0.2mg/kg IN
      iii. 0.2mg/kg IM
      iv. {child 0.1mg/kg IV or 0.2mg/kg IM} 2mg max single dose
   c. **ATIVAN**
      i. IV 1-2 mg q 5-10 minutes up to 4mg
      ii. IM 1-2mg q 10 minutes up to 4mg
      iii. {Child: 0.1mg/kg IV over 2 minutes, may repeat at 0.05mg/kg}
5. If seizure has resolved and patient is post-ictal
   a. Establish IV/IO per [Vascular Access Protocol](#)
   b. If patient is febrile, remove clothing and cool, but avoid shivering
   c. Following seizure cessation **FOSPHENYTOIN** 15-18 PE(phenytoin equivalent) mg/kg IV

**Notes:**

- Dilute ATIVAN with equal amount NaCl prior to IV administration
- FOSPHENYTOIN is contraindicated in patients with bradycardia or 2nd or 3rd degree heart block.
PARAMEDIC MEDICATIONS

General Scope: The following medications are the medications that have been state approved to be transported by Tri-State ambulance at the Paramedic level. Medications may be transported (added) using the Patient Side Training Report.

<table>
<thead>
<tr>
<th># / A - D</th>
<th>E - N</th>
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<tbody>
<tr>
<td>0.45% sodium chloride (½ NS)</td>
<td>Enalaprilat</td>
<td>Octreotide (SandoSTATIN)</td>
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<tr>
<td>5% dextrose in 0.45% NaCl (D_2½ NS)</td>
<td>Epinephrine</td>
<td>Ondansetron (Zofran)</td>
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<tr>
<td>5% dextrose in LR</td>
<td>Esmolol</td>
<td>Oxygen</td>
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<td>5% dextrose in water (D_3W)</td>
<td>Etomidate (Amidate)</td>
<td>Oxytocin (Pitocin)</td>
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<td>Abciximab (Reopro)</td>
<td>Famotidine (Pepcid)</td>
<td>Pancuronium (Pavulon)</td>
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<td>Acetaminophen (Tylenol)</td>
<td>Fentanyl (Sublimaze)</td>
<td>Pantoprazole (Protonix)</td>
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<td>Acetylcysteine (Mucomyst)</td>
<td>Flumazenil (Romazicon)</td>
<td>Phenergan (Promethazine)</td>
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<td>Activated charcoal</td>
<td>Furosemide (Lasix)</td>
<td>Phenytoin (Dilantin)</td>
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<td>Adenosine (Adenocard)</td>
<td>Glucagon</td>
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<td>Aggrastat (Tirofiban)</td>
<td>Glucose</td>
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<td>Albuterol</td>
<td>Haloperidol (Haldol)</td>
<td>Procainamide</td>
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<td>Alteplase (Activase)</td>
<td>Heparin</td>
<td>Prochlorperazine (Compazine)</td>
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<td>Amiodarone (Cordarone)</td>
<td>Hydromorphone (Dilaudid)</td>
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<td>Antibiotics (if hung by facility)</td>
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<td>Argatroban</td>
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<td>Ketamine (Ketalar)</td>
<td>Retreplase (Retavase)</td>
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<td>Atropine</td>
<td>Ketorolac (Toradol)</td>
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<td>Blood</td>
<td>Labatelol</td>
<td>Sodium bicarbonate</td>
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<td>Blood products</td>
<td>Lactated Ringer’s</td>
<td>Succinylcholine (Anectine)</td>
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<td>Calcium chloride</td>
<td>Levalbuterol (Xopenex)</td>
<td>Terbutaline (Brethine)</td>
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<td>Ticagrelor (Brilinta)</td>
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<td>Thiamine</td>
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<td>Clonazepam (Klonopin)</td>
<td>Magnesium sulfate</td>
<td>Toradol</td>
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<tr>
<td>Clopidogrel (Plavix) - oral only</td>
<td>Mannitol (Osmiotrol)</td>
<td>TPA(tissue plasminogen activator)</td>
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<td>Cyanide antidote package (Cyanokit)</td>
<td>Methylprednisolone (Solu-medrol)</td>
<td>TPN (total parental nutrition)</td>
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<td>Amyl nitrate</td>
<td>Metcloproamide (Reglan)</td>
<td>Tranexamic acid (TXA)</td>
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<td>Sodium nitrate</td>
<td>Metoprolol (Lopressor)</td>
<td>Vasopressin (Pitressin)</td>
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<td>Sodium thiosulfate</td>
<td>Midazolam (Versed)</td>
<td>Vasotec</td>
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<tr>
<td>Dexamethasone (Decadron)</td>
<td>Morphine</td>
<td>Vecuronium (Norcuron)</td>
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<td>Dextrose (50%, 25%, 10%)</td>
<td>Nalbuphine (Nubain)</td>
<td>Ziprasidone (Geodon)</td>
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<td>Diazepam (Valium)</td>
<td>Naloxone (Narcan)</td>
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<td>Diltiazem (Cardizem)</td>
<td>Nicardipine</td>
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<td>Diphenhydramine (Benadryl)</td>
<td>Nifedipine (Procardia)</td>
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<td>Divalproex sodium (Depakote)</td>
<td>Nitroglycerin</td>
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<td>Dobutamine</td>
<td>Nitrous oxide</td>
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</tr>
<tr>
<td>Dopamine</td>
<td>Norepinephrine (Levophed)</td>
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<tr>
<td>Droperidal (Inapsine)</td>
<td>Normal saline (0.9% sodium chloride)</td>
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CRITICAL CARE PARAMEDIC MEDICATIONS

General Scope: Along with all medications included on the Paramedic medication list, the following medications are the medications that have been state approved to be transported by Tri-State ambulance at the Critical Care Paramedic level. Medications may be transported (added) using the Patient Side Training Report.

**Critical Care**

- Azithromycin (Zithromax)
- Sodium Chloride
- Clonidine
- HCL (Catapres, Dixaril)
- Eptifibatide (Integrilin)
- Gentamicin sulfate
- Nalbuphine (Nuban)
- Nitroprusside (Nipride)
- Propofol (Diprivan)
# Levophed Dose Chart 4mg/250cc D5W

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<th>Dose in mcg/kg/min</th>
<th>Weight in Kilograms</th>
<th>Milliliters per hour</th>
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08-15-2016

La Crosse Regional Pre-Hospital Guidelines