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Optimal prehospital care results from a combination of careful patient assessment, essential prehospital emergency medical services, and appropriate medical consultation. The purpose of this manual is to provide guidance for **ALL** prehospital care providers and emergency department physicians within the Clark County EMS System.

The **GOAL** of the manual is to **STANDARDIZE** prehospital patient care in Clark County. It is to be understood that these protocols are guidelines. Nothing contained in these protocols shall be construed to expand the scope of practice of any licensed Attendant beyond that which is identified in the Clark County Emergency Medical Services Regulations and these protocols (Appendix C).

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

The General Assessment protocols must be followed in the specific sequence noted. For all other treatment protocols, the algorithm defines the care every patient should receive, usually in the order described.

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 prehospital provider in rendering care that is not explicitly listed within these protocols, to include administering a patient’s own medications which are not part of the approved formulary. 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 Office of EMS & Trauma System (OEMSTS) of the extraordinary care situation. In addition, the provider must immediately, upon completion of the call, make available the prehospital care record and documentation specifying the nature of the deviation and the ordering physician’s name to the OEMSTS. 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 prehospital care record what was ordered, the time, and the reason the order could not be carried out. In addition, the provider must immediately notify the OEMSTS, and upon completion of the call, make available the prehospital care record to the OEMSTS. All such incidents will be entered into the Quality Improvement Review process.
Protocol Key:

- Caution / Warning / Alert
- Pediatric Treatment Consideration (for patients less than 12 years of age)
- Telemetry Contact Required
- Specific Protocol
- EMT Licensed Attendant and above may perform these steps
- AEMT Licensed Attendant and above may perform these steps
- Paramedic Licensed Attendant

Definition of a patient:

A patient is any individual that meets at least one of the following criteria:

1) A person who has a complaint or mechanism suggestive of potential illness or injury;
2) A person who has obvious evidence of illness or injury; or
3) A person identified by an informed 2nd or 3rd party caller as requiring evaluation for potential illness or injury.

Pediatric patient considerations:

For patients <18 years old, use the Pediatric Patient Destination protocol.

Pediatric treatment protocols are to be used on children who have not yet experienced puberty. Signs of puberty include chest or underarm hair on males, and any breast development in females.

These protocols have been developed specifically for the Clark County EMS System and represent consensus among all of the Clark County EMS agency medical directors and the Chief Health Officer. The protocols demonstrate a commitment to a consistent approach to quality patient care.

From time to time, protocols may be added or revised by the Chief Health Officer upon recommendation by the Medical Advisory Board (MAB). Additional recommendations are welcome and appreciated at any time. They may be submitted to the OEMSTS for consideration and referral to the Medical Advisory Board.

Southern Nevada Health District
Office of Emergency Medical Services & Trauma System
P.O. Box 3902
Las Vegas, Nevada 89127
Physical address:
280 S Decatur Blvd
Las Vegas, NV 89152
Office Hours: Mon-Fri 8:00 am to 4:30 pm

Questions may also be telephoned to EMS staff at (702) 759-1050, or visit our website at http://www.southernnevadahealthdistrict.org/ems/index.php.
Chief Health Officer: Joseph P. Iser, MD, DrPh, MSc

EMS Agency Medical Directors who serve on the Medical Advisory Board:
Dan Rollins, MD, Boulder City Fire Department
Scott Scherr, MD, Clark County Fire Department and Guardian Elite Medical Services
Jessica Leduc, MD, Henderson Fire Department
David Slattery, MD, FACEP, Las Vegas Fire & Rescue
Jarrod Johnson, MD, Mesquite Fire & Rescue
Alexander Malone, MD, North Las Vegas Fire Department
Mike Barnum, MD, American Medical Response
Jeff Davidson, MD, MedicWest Ambulance
Logan Sondrup, MD, Community Ambulance
Matt Horbal, MD, Mt. Charleston Fire Protection District

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Hospitals:
Boulder City Hospital: 901 Adams Blvd, Boulder City, NV 89005 (702) 293-4111
Centennial Hills Hospital: 6900 N Durango Dr, Las Vegas, NV 89149 (702) 629-1210
Desert Springs Hospital Medical Center: 2075 E Flamingo Blvd, Las Vegas, NV 89119 (702) 369-7772
Henderson Hospital: 1050 Galleria Drive, Henderson, NV 89011 (702) 963-7000
Mesa View Regional Hospital: 1299 Bertha Howe Ave, Mesquite, NV 89027 (702) 756-3408
Mike O’Callaghan Federal Medical Center: 4700 N Las Vegas Blvd, Las Vegas, NV 89115 702) 653-3682
MountainView Hospital: 3100 N Tenaya, Las Vegas, NV 89128 (702) 345-4270
North Vista: 1409 E Lake Mead Blvd North, Las Vegas, NV 89030 (702) 657-5512
Southern Hills Hospital: 9300 W Sunset, Las Vegas, NV 89148 (702) 880-2800
Spring Valley Hospital & Medical Center: 5400 S Rainbow, Las Vegas, NV 89118 (702) 853-3611
St Rose San Martin: 8280 W Warm Springs, Las Vegas, NV 89113 (702) 492-8600
St Rose Siena: 3001 St Rose Pkwy, Henderson, NV 89052 (702) 616-5600
Summerlin Hospital Medical Center: 657 N Town Center Dr, Las Vegas, NV 89144 (702) 233-7000
Sunrise Hospital & Medical Center: 3186 S Maryland Pkwy, Las Vegas, NV 89106 (702) 731-8000
University Medical Center: 1800 W Charleston Las Vegas, NV 89102 (702) 383-2211
Valley Hospital Medical Center: 620 Shadow Ln, Las Vegas, NV 89106 (702) 388-4000
# TERMS AND CONVENTIONS

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<tr>
<td>AED</td>
<td>Automated External Defibrillator</td>
</tr>
<tr>
<td>AMPLE</td>
<td>Allergies; Medications; Prior history; Last meal eaten; Events leading up to injury/illness</td>
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<tr>
<td>AMS</td>
<td>Altered Mental Status</td>
</tr>
<tr>
<td>ASA</td>
<td>Acetylsalicylic Acid</td>
</tr>
<tr>
<td>BG</td>
<td>Blood Glucose</td>
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<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>BVM</td>
<td>Bag-Valve-Mask</td>
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<tr>
<td>CCC</td>
<td>Continuous Cardiac Compressions</td>
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<tr>
<td>CHF</td>
<td>Congestive Heart Failure</td>
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<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
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<tr>
<td>CP</td>
<td>Chest Pain</td>
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<tr>
<td>CPR</td>
<td>Cardiopulmonary Resuscitation</td>
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<tr>
<td>CVA</td>
<td>Cardiovascular Accident</td>
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<tr>
<td>DCAP-BTLS</td>
<td>Deformities; Contusions; Abrasions; Punctures/Penetrations; Burns; Tenderness; Lacerations; Swelling</td>
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<tr>
<td>DKA</td>
<td>Diabetic Ketoacidosis</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
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<tr>
<td>ETA</td>
<td>Estimated Time of Arrival</td>
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<td>ETT</td>
<td>Endotracheal Tube</td>
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<tr>
<td>GCS</td>
<td>Glasgow Coma Scale</td>
</tr>
<tr>
<td>GU</td>
<td>Genitourinary</td>
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<tr>
<td>HEENT</td>
<td>Head, Ears, Eyes, Nose, Throat</td>
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<tr>
<td>HPI</td>
<td>History of Present Illness</td>
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<tr>
<td>HR</td>
<td>Heart Rate</td>
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<tr>
<td>ICP</td>
<td>Intracranial Pressure</td>
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<tr>
<td>IM</td>
<td>Intramuscular</td>
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<tr>
<td>IN</td>
<td>Intranasal</td>
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<tr>
<td>IO</td>
<td>Intraosseous</td>
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<tr>
<td>IV</td>
<td>Intravenous</td>
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<tr>
<td>IVP</td>
<td>Intravenous Push</td>
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<tr>
<td>IVPB</td>
<td>Intravenous Piggyback</td>
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<tr>
<td>JVD</td>
<td>Jugular Venous Distention</td>
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<tr>
<td>Acronym</td>
<td>Meaning</td>
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<tr>
<td>MAD</td>
<td>Mucosal Atomizer Device</td>
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<tr>
<td>MI</td>
<td>Myocardial Infarction</td>
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<tr>
<td>MOI</td>
<td>Mechanism of Injury</td>
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<tr>
<td>NRB</td>
<td>Non-rebreather</td>
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<tr>
<td>NS</td>
<td>Normal Saline</td>
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<tr>
<td>NV</td>
<td>Nausea/Vomiting</td>
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<tr>
<td>OEMSTS</td>
<td>Office of Emergency Medical Services &amp; Trauma System</td>
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<tr>
<td>OPQRST</td>
<td>Onset; Provokes; Quality; Radiates; Severity; Time (used in evaluating localized pain)</td>
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<tr>
<td>PCI</td>
<td>Percutaneous Coronary Intervention</td>
</tr>
<tr>
<td>PCR</td>
<td>Patient Care Record/Report</td>
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<tr>
<td>PO</td>
<td>By Mouth</td>
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<tr>
<td>PRN</td>
<td>As Needed</td>
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<tr>
<td>q</td>
<td>Every</td>
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<tr>
<td>ROSC</td>
<td>Return of Spontaneous Circulation</td>
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<tr>
<td>RR</td>
<td>Respiratory Rate</td>
</tr>
<tr>
<td>RUQ</td>
<td>Right Upper Quadrant</td>
</tr>
<tr>
<td>SAMPLE</td>
<td>Symptoms; Allergies; Medications; Prior history; Last meal eaten; Events leading up to injury/illness</td>
</tr>
<tr>
<td>SL</td>
<td>Sublingual</td>
</tr>
<tr>
<td>SOB</td>
<td>Shortness of Breath</td>
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<tr>
<td>S/P</td>
<td>Status/Post</td>
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<tr>
<td>SQ</td>
<td>Subcutaneous</td>
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<tr>
<td>S/S</td>
<td>Signs/Symptoms</td>
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<tr>
<td>SVT</td>
<td>Supraventricular Tachycardia</td>
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<tr>
<td>TCAs</td>
<td>Tricyclic Antidepressants</td>
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<tr>
<td>TFTC</td>
<td>Trauma Field Triage Criteria</td>
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<tr>
<td>TIA</td>
<td>Transient Ischemic Attack</td>
</tr>
<tr>
<td>TKO/KVO</td>
<td>To Keep Open/Keep Vein Open</td>
</tr>
<tr>
<td>VF</td>
<td>Ventricular Fibrillation</td>
</tr>
<tr>
<td>VT</td>
<td>Ventricular Tachycardia</td>
</tr>
<tr>
<td>VS</td>
<td>Vital Signs</td>
</tr>
<tr>
<td>WPW</td>
<td>Wolff-Parkinson-White Syndrome</td>
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ADULT TREATMENT PROTOCOLS
General Adult Assessment

Scene Safety / Scene Size-Up
Nature of Call / Mechanism of Injury
PPE / BSI
Bring all equipment to patient’s side

Level of Consciousness

Airway
Breathing
Circulation
Disability

Unresponsive → Check Pulse

S.T.A.R.T. Triage

None → Cardiac Arrest

Unresponsive

Signs of Compromise or Not Protecting

Inadequate or Respiratory Distress

Bleeding

Altered or Confused

Ventilation Management

Respiratory Distress

General Trauma

Altered Mental Status/ Syncope

History – HPI & AMPLE

Vital Signs & Physical Exam

Blood glucose testing as indicated

Specific treatment protocol as indicated

Cervical Stabilization as indicated

Comfort measures (splint, position of comfort)

Cardiac monitor as indicated

Vascular Access as indicated

Oxygen therapy to keep SpO₂ ≥ 94%

Pain Management as indicated

Radio Contact for all Trauma Center patients, Code 3 returns; need for telemetry physician & as per protocol

Transport per Disposition Criteria, if applicable

Transport to closest facility for:
- Airway emergencies (inability to adequately ventilate)
Pearls
- For all scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with an approved triage methodology.
- Correct life-threatening problems as identified.
- If the ability to adequately ventilate a patient cannot be established, the patient must be transported to the nearest emergency department.
- Never withhold oxygen from a patient in respiratory distress.
- Contact with online medical control should be established by radio. Telephone contact may only be used if the call is routed via a recorded phone patch through FAO at 702-382-9007.

Disposition
- Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.
- Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.
- Pediatric patients (<18 y/o for transport purposes only) shall be transported in accordance with the Pediatric Destination Protocol.
- Patients with evidence of a stroke shall be transported in accordance with the Stroke (CVA) Protocol.
- Sexual assault victims <13 y/o shall be transported to Sunrise Hospital.
- Sexual assault victims 13 y/o up to 18 y/o shall be transported to Sunrise Hospital or UMC.
- Sexual assault victims 18 y/o and older shall be transported to UMC.
- For sexual assault victims outside a 50-mile radius from the above facilities, the patient shall be transported to the nearest appropriate facility.
- Stable patients shall be transported to the hospital of their choice, if the patient has no preference the patient should be transported to the closest facility.
- For patients outside a 50 mile radius from protocol designated transport destinations, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

Waiting Room Criteria
Upon arrival in the emergency department, if transfer of care has not occurred in accordance with NRS 450B.790, any patient, excluding patients placed on a legal psychiatric hold, meeting ALL the following criteria may be placed in the hospital waiting room or other appropriate location:

1. Normal vital signs
   A. Heart rate 60 - 100
   B. Respiratory rate 10 - 20
   C. Systolic BP 100 - 180
   D. Diastolic BP 60 - 110
   E. Room air pulse oximetry >94%
   F. Alert and oriented x 4

2. Did not receive any parenteral medications during EMS transport except a single dose of analgesia and/or an anti-emetic.

3. In the judgment of the Paramedic, does not require continuous cardiac monitoring. Note: Any ECG monitoring initiated by a transferring facility may not be discontinued by EMS personnel.

4. Can maintain a sitting position without adverse impact on their medical condition.

5. Is left with a verbal report to hospital personnel.

Internal Disaster
- If a hospital declares an internal disaster, that facility is to be bypassed for all patients except patients in cardiac arrest or in whom the ability to adequately ventilate has not been established.
- Operational exceptions may be initiated in regard to transport to hospitals on internal disaster.
General Adult Trauma Assessment Protocol

General Adult Assessment

Cervical Stabilization

Glasgow Coma Score

GCS <8

Ventilation Management
BVM if O₂ sat ≤ 94%

No

Vascular Access
1L NS bolus

Yes

Oxygen Keep SpO₂ > 94%

Palpable radial pulse?

Secondary Survey

Suspected tension pneumothorax

Sucking chest wound

Control active hemorrhage

Obvious fractures

Suspected traumatic brain injury

Open wounds

Needle Thoracentesis

Apply 3-sided occlusive dressing

Hemorrhage Control Tourniquet

Immovilize fractures; assess distal pulse

Raise Head of bed 30 degrees & Capnography–ETCO₂ 35mmHg

Cover with gauze; wet trauma dressing for abdominal evisceration

Pain Management

Transport & Radio Contact to appropriate Trauma Center based on TFTC

General Adult Assessment

Cervical Stabilization

Glasgow Coma Score

GCS <8

Ventilation Management
BVM if O₂ sat ≤ 94%

No

Vascular Access
1L NS bolus

Yes

Oxygen Keep SpO₂ > 94%

Palpable radial pulse?

Secondary Survey

Suspected tension pneumothorax

Sucking chest wound

Control active hemorrhage

Obvious fractures

Suspected traumatic brain injury

Open wounds

Needle Thoracentesis

Apply 3-sided occlusive dressing

Hemorrhage Control Tourniquet

Immovilize fractures; assess distal pulse

Raise Head of bed 30 degrees & Capnography–ETCO₂ 35mmHg

Cover with gauze; wet trauma dressing for abdominal evisceration

Pain Management

Transport & Radio Contact to appropriate Trauma Center based on TFTC
**History**
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

**Signs and Symptoms**
- Pain, Swelling
- Deformity, lesions, bleeding
- AMS or unconscious
- Hypotension or shock
- Arrest

**Differential (life threatening)**
- Tension pneumothorax
- Flail chest
- Pericardial tamponade
- Open chest wound
- Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture
- HEENT (airway obstruction)
- Hypothermia

**Pearls**
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro.
- Transport destination is based on the Trauma Field Triage Criteria Protocol.
- Transport should not be delayed for procedures; ideally procedures should be performed enroute when possible.
- BVM is an acceptable method of ventilating and managing an airway if pulse oximetry can be maintained ≥90%.
- Geriatric patients should be evaluated with a high index of suspicion; occult injuries may be present and geriatric patients can decompensate quickly.
Abdominal / Flank Pain, Nausea & Vomiting Protocol

1. **General Adult Assessment**

2. **12-Lead ECG if age >35 yrs**

3. **Signs of hypovolemia?**
   - **Yes**
     - **Vascular Access**
       - 500 ml NS bolus; may repeat up to 2000 ml
   - **No**
     - **Nausea or vomiting?**
       - **Yes**
         - Consider an Anti-emetic:
           - ONDANSETRON 4.0 mg ODT/IM/IV/IO
           - DROPERIDOL 1.25 mg IM/IV/IO
           - METOCLOPRAMIDE 10 mg slow IV bolus over 1-2 minutes or IM
           - PROCHLORPERAZINE Up to 10 mg IV/IM/IO
       - **No**
         - **Consider** Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome
         - **Consider** Pain Management

4. **Continue General Adult Assessment**
### History
- Age
- Medical/surgical history
- Onset
- Quality
- Severity
- Fever
- Menstrual history

### Signs and Symptoms
- Pain location
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding/discharge
- Pregnancy

### Differential
- Liver (Hepatitis)
- Gastritis
- Gallbladder
- MI
- Pancreatitis
- Kidney stone
- Abdominal aneurysm
- Appendicitis
- Bladder/prostate disorder
- Pelvic (PID, ectopic pregnancy, ovarian cyst)
- Spleen enlargement
- Bowel obstruction
- Gastroenteritis
- Ovarian and testicular torsion

### Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Back, Extremities, Neuro.
- Neuro disorders or signs of hypoperfusion/shock in the presence of abdominal pain may indicate an aneurysm.
- Document mental status and vital signs prior to administration of anti-emetics & pain management.
- Repeat vital signs after each fluid bolus
- In patients ≥35 years old consider cardiac origin. Perform a 12-Lead ECG.
- Consider retroperitoneal palpation for kidney pain.
- Abdominal pain in women of childbearing age should be considered pregnancy until proven otherwise.
**Allergic Reaction Protocol (Revised and approved by MAB 5-1-2019)**

**General Adult Assessment**

- **Evidence of airway involvement/breathing difficulties?**
  - **Yes**
    - **EPINEPHRINE**
      - **Assist patient with own auto-injector**
      - **EPINEPHRINE 1:1000, 0.5 mg IM; may repeat q 15 min up to max 1.5 mg**
  - **No**
    - **Patient in shock?**
      - **Yes**
        - Ventilation Management
        - **ALBUTEROL**
          - **Assist patient with MDI**
          - **2.5 mg SVN; repeat as needed**
      - **No**
        - **ALBUTEROL**
          - **Assist patient with MDI**
          - **2.5 mg SVN; repeat as needed**

- **Vascular Access**
  - **DIPHENHYDRAMINE 50 mg IM/IV/IO/PO**
  - **Reassess patient q 5 min**

**Evidence of airway involvement/breathing difficulties?**

- **Yes**
  - **EPINEPHRINE**
    - **Assist patient with own auto-injector**
    - **EPINEPHRINE 1:1000, 0.5 mg IM; may repeat q 15 min up to max 1.5 mg**

**Patient in shock?**

- **Yes**
  - Ventilation Management
  - **ALBUTEROL**
    - **Assist patient with MDI**
    - **2.5 mg SVN; repeat as needed**

- **No**
  - **Cardiac monitor**
  - **IV access**
  - **500 cc NS bolus; may repeat up to 2L**

**DIPHENHYDRAMINE 50 mg IM/IV/IO/PO**

**Ventilation Management**

- **Cardiac monitor**

- **IV access**

- **500 cc NS bolus; may repeat up to 2L**

- **DIPHENHYDRAMINE 50 mg IM/IV/IO/PO**

- **Notify Receiving Hospital**

**Contraindications and Precautions**

- **PUSH DOSE EPINEPHRINE 1:100,000**
  - **5.0mcg – 10.0mcg IV/IO, may repeat**
  - **q 2-5 min to maintain SBP>90**
  - **(0.5ml - 1.0ml of 1:100,000 Solution)**

- **To Prepare: Mix Cardiac EPINEPHRINE 1:10,000 1ml PLUS 9ml Normal Saline= 10ml EPINEPHRINE 1:100,000 at 10mcg/ml**

- **Consider DOPAMINE 5-20mcg/kg/min, titrate to SBP>90**

**Additional Information**

- **ALBUTEROL 2.5 mg SVN; repeat as needed**

- **DIPHENHYDRAMINE 50 mg IM/IV/IO/PO**

- **Notify Receiving Hospital**
### History
- Onset and location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

### Signs and Symptoms
- Itching or hives
- Coughing/wheezing or respiratory distress
- Throat or chest constriction
- Difficulty swallowing
- Hypotension/shock
- Edema
- Nausea/vomiting

### Differential
- Urticarial (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration/airway obstruction
- Asthma/COPD
- CHF

### Pearls
- Recommended Exam: Mental Status, Skin, Heart, Lung.
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered in acute anaphylaxis (moderate/severe symptoms). IM Epinephrine (1:1,000) should be administered in priority before or during attempts at IV or IO access.
- Contact Medical Control for refractory anaphylaxis.
- Consider ETCO₂ monitoring.

### Severity
- **Mild** reactions involve skin rashes, itchy sensation, or hives with no respiratory involvement.
- **Moderate** reactions involve skin disorders and may include some respiratory involvement like wheezing, yet the patient still maintains good tidal volume air exchange.
- **Severe** reactions involve skin disorders, respiratory difficulty, and may include hypotension.

### Special Considerations
- Always perform ECG monitoring when administering Epinephrine.
- Consider Dopamine for hypotension refractory to administration of Epinephrine.
- Provide oxygen and airway support as needed.

### QI Metrics:
- Epinephrine given appropriately.
- Airway assessment documented.
**Altered Mental Status / Syncope**

- **General Adult Assessment**
  - **BG <60mg/dl**
    - **E** Blood glucose testing
    - **A** Vascular Access
      - **E** ORAL GLUCOSE if patient protecting airway
        - D10, 25g IV/IO; (250mL of 10% solution); may repeat x 1 in 5 min
        - GLUCAGON 1.0 mg IM for no IV access
        - Improved mental status?
          - Yes
            - Other treatment protocols as indicated
  - **BG >60mg/dl**
    - **P** Cardiac monitor
      - **A** 12-Lead ECG
      - Consider NS 500 ml IV; may repeat up to 2000 ml

- **Consider the following:**
  - Signs of stroke?
  - Signs of hypoperfusion?
  - Signs of a seizure of post-ictal state?
  - Signs of trauma or head injury?
  - Cardiac causes/known disease?
    - **A** Stroke
    - **A** Shock
    - **A** Seizure
    - **A** General Trauma
    - **A** Appropriate cardiac protocol

- **Unresponsive with respiratory depression & suspected narcotic overdose**
  - **A** NALOXONE 0.4 – 2.0 mg IN/IM/IV/IO; may repeat 2.0 mg IN/IM/IV/IO if patient slow to respond; titrate to effect; max dose 10 mg
    - **A** Poisoning/Overdose
**History**
- Known diabetic, Medic Alert tag
- Drugs or drug paraphernalia
- Report of drug use or toxic ingestion
- Past medical history
- Medications
- History of trauma
- Change in condition
- Changes in feeding or sleep habits

**Signs and Symptoms**
- Decreased mental status or lethargy
- Changes in baseline mental status
- Bizarre behavior
- Hypoglycemia
- Hyperglycemia
- Irritability

**Differential**
- Head trauma
- CNS (stroke, tumor, seizure, infection)
- Cardiac (MI, CHF)
- Hypothermia
- Infection
- Thyroid
- Shock (septic, metabolic, traumatic)
- Diabetes
- Toxicological or ingestion
- Acidosis/Alkalosis
- Environmental exposure
- Hypoxia
- Electrolyte abnormality
- Psychiatric disorder

**Pearls**
- Recommended Exam: Mental Status, HEENT, Skin, Heart, Lung, Abdomen, Back Extremities, Neuro.
- Pay careful attention to the head exam for signs of injury.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure, and protect personal safety and that of other responders.
- Do not let alcohol confuse the clinical picture; alcohol is not commonly a cause of total unresponsiveness to pain.
- If narcotic overdose or hypoglycemia is suspected, administer Narcan or Glucose prior to advanced airway procedures.
Behavioral Emergency

Scene Safety ➔ General Adult Assessment

Consider medical causes for the patient’s behavior:
1. Hypoxia
2. Intoxication / Overdose
3. Hypoglycemia / Electrolytes
4. Head Injury
5. Post-ictal State

Suspect Excited Delirium?

Threatened or acted in a way that suggests threat to self or others?

Yes ➔ Threatened to harm SELF

Consider behavioral restraints; No prone position
Consider Law Enforcement escort
Consider a flight risk

Transport

Yes ➔ Threatened to harm OTHERS

4-point restraints; hood if indicated; NO PRONE POSITION

Persistent risk ➔ MIDAZOLAM 0.1 mg/kg IN/IM/IV/IO; may repeat q 5 min at 0.05 mg/kg OR DIAZEPAM 5.0 mg IV/IO; may repeat q 5 min OR DROPERIDOL 1.25 mg IM/IV/IO followed by a saline flush or bolus; may repeat dose q 5 min

Cardiac monitor

No ➔ No threats to self or others

Transport

Consider behavioral restraints; No prone position
Consider Law Enforcement escort

Transport

Excited Delirium Syndrome

- Medical emergency—combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent behavior, insensitivity to pain, hyperthermia, and increased strength.

- Potentially life threatening, and associated with the use of physical control measures including restraints, TASER, or similar device.

- Most common in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulants.
### History
- Situational crisis
- Psychiatric illness/medications
- Injury to self or threats to others
- Medic Alert tag
- Substance abuse/overdose
- Diabetes

### Signs and Symptoms
- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal/homicidal thoughts

### Differential
- AMS differential
- Alcohol intoxication
- Toxin/substance abuse
- Medication effect or overdose
- Withdrawal syndromes
- Depression
- Bipolar
- Schizophrenia
- Anxiety disorder

### Pearls
- Law enforcement assistance should be requested on all calls involving potentially violent patients.
- Under no circumstances are patients to be transported restrained in the prone position.
- Recommended Exam: Mental Status, Skin, Heart, Lung, Neuro.
- Consider all possible medical/trauma causes for behavior.
- Do not irritate the patient with a prolonged exam.
- EMS providers are mandatory reporters in regard to suspected abuse of any vulnerable person.
- Consider ETCO₂ monitoring.

### Excited Delirium Syndrome
- Medical emergency-combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent behavior, insensitivity to pain, hyperthermia, and increased strength.
- Potentially life threatening, and associated with the use of physical control measures including restraints, TASER, or similar device.
- Most common in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulants.

### Dystonic Reaction
- Condition causing involuntary muscle movements or spasms typically of the face, neck and upper extremities.
- Typically an adverse reaction to drugs such as Haloperidol (may occur with administration).
- When recognized, administer Diphenhydramine 50 mg IM/IV/IO.

### S.A.F.E.R.
- Stabilize the situation by containing and lowering the stimuli.
- Assess and acknowledge the crisis.
- Facilitate the identification and activation of resources (chaplain, family, friends or police).
- Encourage patient to use resources and take actions in his/her best interest.
- Recovery or referral – leave patient in care of responsible person or professional, or transport to appropriate facility.
**Bradycardia**

**General Adult Assessment**

**Vascular Access**
- Cardiac monitor/12-Lead ECG

**HR <50 bpm & ANY of the following:**
1. Hypoperfusion
2. Altered mental status
3. Signs of shock

- **Observe**
- **Transport**

Yes

**ATROPINE**
- 0.5 mg IVP/IO; may repeat q 3-5 min; max dose 3.0 mg

- **Refractory**
  - **Transcutaneous Pacing**

**Failure to capture**

Consider:
- **DOPAMINE**
  - 5-10 mcg/kg/min IV/IO; titrate to SBP 90 mmHg; max dose 20 mcg/kg/min

Consider:
- **GLUCAGON**
  - 1 mg IV/IO for patients on beta blockers
  - **CALCIUM CHLORIDE**
    - 1.0 g IV/IO for patients on calcium channel blockers

**Repeat 12-Lead ECG**

**Notify Receiving Hospital**

**ECG shows STEMI**

**Acute Coronary Syndrome (Suspected)**
- Signs of hypotension, AMS, shock

- **Consider Transcutaneous Pacing**

- **Consider:**
  - **ATROPINE**
    - 0.5 mg IVP/IO; may repeat q 3-5 min; max dose 3.0 mg
History
- Past medical history
- Medications
- Pacemaker

Signs and Symptoms
- HR <60/min with hypotension, acute AMS, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Respiratory distress

Differential
- Acute myocardial infarction
- Hypoxia
- Pacemaker failure
- Hypothermia
- Sinus bradycardia
- Athletic
- Head injury (elevated ICP) or stroke
- Spinal cord lesion
- AV block
- Overdose

Pearls
- Recommended Exam: Mental Status, HEENT, Heart, Lung, Neuro.
- Bradycardia causing symptoms is typically <50/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess.
- Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount.
- Do not delay pacing while waiting for IV access.
- Hypoxemia is a common cause of bradycardia; be sure to oxygenate the patient and provide ventilatory support as needed.

QI Metrics
- High degree blocks correctly identified.
- Pacer pads on patient if Atropine given.
- Patient paced if appropriate.
**Burns**

**General Adult Assessment**

**Thermal Exposure**
- Stop the burning process with water or saline
- Remove smoldering clothing and jewelry
- Do not remove STUCK clothing

**Chemical / Electrical Exposure**
- ! Protect from hypothermia!

**Ventilation Management**
- Cover burned area with dry sterile dressing
- DO NOT USE any ice, lotion, ointment or antiseptic!

**Vascular Access**
- IVF – NS 500 ml fluid bolus if signs of hypoperfusion, OR >20% BSA burn present;
- Contact Medical Direction at Burn Center for further drip rates or additional boluses

**Cardiac monitor**

**Pain Management**

**Consider Smoke Inhalation**

**Transport to closest appropriate**
- Burn Care Center: Sunrise Hospital
- UMC Trauma Center

**Eye Involvement?**
- Continuous saline flush in affected eyes.
- Flush with water or NS for 10-15 min
- Remove jewelry, constricting items, and expose burned area
- Identify entry and exit sites, apply sterile dressings

**Vascular Access**
- IVF – NS 500 ml fluid bolus if signs of hypoperfusion, OR >20% BSA burn present;
- Contact Medical Direction at Burn Center for further drip rates or additional boluses

**P**

**Consider Smoke Inhalation**

**Transport to closest appropriate**
- Burn Care Center: Sunrise Hospital
- UMC Trauma Center

(Burns (Revised and approved by District Health Officer 9/25/2019))
Any Third degree burns
Chemical burns
• Total BSA ≥
Burns that involve the face
• Altered Mentation
Inhalation burns
Circumferential burns
• Significant Risk of Edema
• Burns in Mouth
Electrical burns including lightning injury
Burn injury with concomitant trauma

Patients meeting the following Criteria shall be transported to the closest appropriate Burn Care Center:
1. Second degree burns >10% body surface area (BSA).
2. Any Third degree burns.
3. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
4. Electrical burns including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalation burns.
8. Burn injury with concomitant trauma

Fluid Resuscitation
• Adults 13 years and above 500 ml NS bolus (Can substitute LR for NS)
• Contact Burn Center Medical Direction for additional boluses or drip rates or if it is a prolonged transport.

Early Intubation Indications
• Signs of Airway Obstruction
• Hoarseness, Stridor, Dyphagia
• Extensive Deep Facial Burns
• Signs of Respiratory Compromise
  - Accessory Muscle Use
  - Inability to Clear Secretions
  - Poor Oxygenation

Pearls (Electrical)
• Do not contact the patient until you are certain the source of the electric shock has been disconnected.
• Attempt to locate contact points, (entry wound where the AC source contacted the patient; an exit at the ground point); both sites will generally be full thickness.
• Cardiac monitor; anticipate ventricular or atrial irregularity to include V-Tach, V-Fib, heart blocks, etc.
• Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

Pearls (Chemical)
• Certain 0.9% NaCl Sol’n or Sterile Water is preferred; however if it is not readily available, do not delay; use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest, readily available water or saline solution using copious amounts of fluids.

Pearls
• Burn patients are trauma patients; evaluate for multisystem trauma.
• Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
• Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro.
• Consider early intubation with patients experiencing significant inhalation injuries.
• Potential CO exposure should be treated with 100% oxygen. (For patients in which the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
• Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling. Elevate extremity.
• Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
• Consider ETCO2 monitoring.

History
• Type of exposure (heat, gas, chemical)
• Inhalational injury
• Time of injury
• Past medical history & medications
• Other trauma
• Loss of consciousness
• Tetanus/Immunization status

Signs and Symptoms
• Burns, pain, swelling
• Dizziness
• Loss of consciousness
• Hypotension/shock
• Airway compromise/distress
• Wheezing
• Singed facial or nasal hair
• Hoarseness or voice changes

Differential
• Superficial (1st degree) – red and painful
• Partial Thickness (2nd degree) – blistering
• Full Thickness (3rd degree) – painless/charred or leathery skin
• Thermal
• Chemical
• Electrical
• Radiation
• Lightning

Charts
History
- Events leading to arrest
- Estimated down time
- Past medical history
- Medications
- Existence of terminal illness

Signs and Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential
- Medical vs. Trauma
- VF vs. Pulseless VT
- Asystole
- PEA
- Primary cardiac event vs. respiratory or drug overdose

Pearls
- For cardiac arrest patients who are pregnant, manual CPR is recommended.
- For cardiac arrest patients who are pregnant, manual displacement of the uterus to the left side is recommended.

- Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.
- Consider early IO placement if IV is difficult.
- DO NOT HYPERVENTILATE.
- Reassess and document ETT placement using auscultation and ETCO₂ capnography.
- Switch compressors every two minutes.
- Try to maintain patient modesty.
- Mechanical chest compression devices should be used if available in order to provide for consistent uninterrupted chest compressions and crew safety. As noted above, mechanical chest compression devices are not recommended for the pregnant patient.

H’s & T’s (reversible causes)
- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hypo/Hyperkalemia – Calcium Chloride, Glucose, Sodium Bicarbonate, Albuterol
- Hypothermia - Warming
- Tension pneumothorax – Needle decompression
- Tamponade, cardiac – Volume infusion
- Toxins – Agent specific antidote
- Thrombosis, pulmonary – Volume infusion
- Thrombosis, coronary – Emergent PCI
Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome

General Adult Assessment

12-Lead ECG within 5 minutes of patient contact

Non-Diagnostic 12-Lead ECG

A
Vascular Access

E
Oxygen
Keep SPO2 >94%

E
ASPIRIN
324mg PO

STEVI

Refer to STEMI (Suspected)

P

Nitroglycerin is contraindicated in any patient with hypotension, bradycardia, tachycardia (HR>100bpm) in the absence of heart failure, evidence of a right ventricular infarction, and use of erectile dysfunction medications within the last 48 hours. Caution is advised in patients with Inferior Wall STEMI and a right-sided ECG should be performed to evaluate RV infarction.

Refer to Arrhythmia and Shock Protocols as needed
<table>
<thead>
<tr>
<th><strong>History</strong></th>
<th><strong>Signs and Symptoms</strong></th>
<th><strong>Differential</strong></th>
</tr>
</thead>
</table>
| · Age  
· Medications: Viagra, Levitra, Cialis  
· Past medical history of MI, angina, diabetes  
· Allergies  
· Recent physical exertion  
· Palliation, provocation  
· Quality  
· Region, radiation, referred  
· Severity (1-10)  
· Time of onset, duration, repetition | · CP, pressure, ache, vise-like pain, tight  
· Location, substernal, epigastric, arm, jaw, neck, shoulder  
· Radiation of pain  
· Pale, diaphoresis  
· Shortness of breath  
· Nausea, vomiting, dizziness  
· Time of onset | · Trauma versus medical  
· Anginal versus MI  
· Pericarditis  
· Pulmonary embolism  
· Asthma, COPD  
· Pneumothorax  
· Aortic dissection or aneurysm  
· GE reflux or hiatal hernia  
· Esophageal spasm  
· Chest injury or pain  
· Pleural pain  
· Drug overdose (cocaine, methamphetamine) |

<table>
<thead>
<tr>
<th><strong>Pearls</strong></th>
<th><strong>QI Metrics</strong></th>
</tr>
</thead>
</table>
| · Recommended exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremities, Neuro.  
· Diabetics, geriatrics, and female patients often have atypical pain. Have a high index of suspicion.  
· Perform a 12-Lead ECG on all patients 35 years old or older experiencing vague jaw/ chest/ abdominal discomfort.  
· Perform a 12-Lead ECG within 5 minutes of patient contact.  
· The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.  
· Nitroglycerin is contraindicated in any patient with hypotension, bradycardia, or tachycardia in the absence of heart failure and evidence of a right ventricular infarction. | · 12-Lead ECG within 5 minutes of patient contact.  
· Pain reassessed after every intervention.  
· Pain control documented. |
Childbirth / Labor Protocol

General Adult Assessment

Pregnant patient with signs of impending delivery (see pearls)

Normal Presentation
- Puncture amniotic sac if not already broken
- Deliver and support the head
- Suction mouth, then nose; if meconium present, repeat several times
- Deliver upper shoulder, then lower shoulder
- Deliver remainder of the baby
- Clamp and cut umbilical cord
- If multiple births, repeat steps
- Deliver placenta

Limb Presentation
- Place patient in left lateral recumbent position
- Attempt Vascular Access

Breech Presentation
- Support baby during delivery of head
- Attempt Vascular Access

Cord Presentation
- Position patient in Trendelenburg and slightly on left side
- Wrap cord and keep it moist
- Insert gloved hand to lift baby off cord; obtain and document cord pulse

Patient hypoperfusing?

Yes
- Administer 500 ml NS; repeat as needed not to exceed 2,000 ml

No
- Continue General Patient Care

Transport to Appropriate Facility
History
- Due date
- Time contractions started/duration/frequency
- Rupture of membranes (meconium)
- Time and amount of any vaginal bleeding
- Sensation of fetal movement
- Pre-natal care
- Past medical and delivery history
- Medications
- Gravida/Para status
- High risk pregnancy

Signs and Symptoms
- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

Differential
- Abnormal presentation (breech, limb)
- Prolapsed cord
- Placenta previa
- Abruptio placenta

Pearls
- Recommended exam (of mother): Mental Status, Heart, Lungs, Abdomen, Neuro.
- Document all times (delivery, contraction duration and frequency).
- Some bleeding is normal; copious amounts of blood or free bleeding is abnormal.
- Record APGAR at one and five minutes after birth.
- APGAR of 7-10 is normal, while 4-7 requires resuscitative measures.

APGAR

<table>
<thead>
<tr>
<th>Score=0</th>
<th>Score=1</th>
<th>Score=2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity/Muscle Tone</td>
<td>Absent</td>
<td>Arms/legs flexed</td>
</tr>
<tr>
<td>Pulse</td>
<td>Absent</td>
<td>Below 100</td>
</tr>
<tr>
<td>Grimace/Reflex Irritability</td>
<td>No response</td>
<td>Grimace</td>
</tr>
<tr>
<td>Appearance/Skin Color</td>
<td>Blue-Grey, pale all over</td>
<td>Normal, except extremities</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow, irregular</td>
</tr>
</tbody>
</table>
Cold-Related Illness

General Adult Assessment

- Remove from environment
- Temperature measurement (if available)
- Remove wet clothing
- Dry/warm patient
- Passive warming measures

Hypothermia/Frost Bite

- Awake with/without altered mental status
- Respiratory distress?
  - Yes → Respiratory Distress
  - No → Active warming measures

Active warming measures

- Vascular Access
- Cardiac monitor
- NS bolus 500 ml IV/IO; repeat to effect SBP >90; maximum 2L
- General Adult Trauma Assessment
- Shock (Non-Trauma)
- Monitor and reassess

Continue General Patient Care and Transport

Localized Cold Injury

- Monitor and reassess
- General wound care
- DO NOT rub skin to warm
- DO NOT allow refreezing

Systemic Hypothermia

- Unresponsive

Shock (Non-Trauma)

- Monitor and reassess

Cardiac monitor

- Pulse present?
  - Yes
  - No → Cardiac Arrest

General Adult Trauma Assessment
**History**
- Age, very young and old
- Exposure to decreased temperatures, but may occur in normal temperatures
- Past medical history/medications
- Drug or alcohol use
- Infections/sepsis
- Time of exposure/wetness/wind chill

**Signs and Symptoms**
- AMS/coma
- Cold, clammy
- Shivering
- Extremity pain
- Bradycardia
- Hypotension or shock

**Differential**
- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

**Pearls**
- Recommended exam: Mental Status, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to cold emergencies.
- Obtain and document patient temperature.
- If temperature is unknown, treat the patient based on suspected temperature.
- Active warming includes hot packs that can be used on the armpit and groin; care should be taken not to place the packs directly on the skin.
- Warm saline IV may be used.
- Recognize the cardiac arrest resuscitation guidelines for the hypothermic patient.

**Hypothermia Categories**
- Mild 90°- 95° F (33°- 35° C)
- Moderate 82°- 90° F (28°- 32° C)
- Severe <82 degrees F (<28° C)

**Hypothermia Mechanisms**
- Radiation
- Convection
- Conduction
- Evaporation

---

Cold-Related Illness 34
Drowning

General Adult Assessment

Airway protected & ventilation adequate?

Yes

Consider Cervical Stabilization

No

Ventilation Management

Consider Cervical Stabilization

Oxygen 15L NRB

SpO₂

Capnography

ALBUTEROL

2.5 mg in 3.0 ml SVN; repeat until improvement

Consider CPAP

Consider 12-Lead ECG

Continue General Adult Assessment

CAVEATS:
1. Adequate ventilation is KEY!!!
2. For patients breathing on their own, start Oxygen 15L NRB; for patients not adequately breathing → BVM
3. Do not suction foam in airway, just bag through it initially.
4. For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 30:2 CPR (no continuous compressions).
### History
- Submersion in fluid, regardless of depth
- Possible history of trauma (dive)
- Duration of immersion
- Temperature of water or possibility of hypothermia
- Degree of water contamination

### Signs and Symptoms
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing, wheezing, rales, stridor, rhonchi
- Apnea
- Frothy/foamy sputum

### Differential
- Trauma
- Pre-existing medical condition
- Barotrauma
- Decompression illness
- Post-immersion syndrome

### Pearls
- Ensure scene safety.
- Hypothermia is often associated with submersion incidents.
- All patients should be transported for evaluation because of potential for worsening over the next several hours.

### QI Metrics
- Submit the SNHD Submersion Incident Report Form.
Epistaxis

Active bleeding from the nose?

Significant or Multi-System Trauma?

Bleeding Controlled?

Have Patient Blow Nose
Suction Active Bleeding

OXYMETAZOLINE or PHENYLEPHRINE
2 Sprays to each nostril. Followed by direct pressure

General Adult Assessment
Epistaxis

History
- Age
- Past Medical History
- Medications (HTN, Anticoagulants, aspirin, NSAIDS)
- Previous episodes of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

Signs and Symptoms
- Bleeding from nasal passages
- Pain
- Nausea
- Vomiting

Differential
- Trauma
- Infection (viral URI or Sinusitis)
- Allergic rhinitis
- Lesions (polyps, ulcers)
- Hypertension

Pearls
- Recommended exam: Mental Status, HEENT, Lungs, Neuro
- It is very difficult to quantify the amount of blood loss with epistaxis
- Bleeding may be also occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants include warfarin (Coumadin), heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), and many other over the counter headache relief powders.
- Anti-platelet agents like aspirin, clopidogrel (Plavix), aspirin/dipryridamole (Aggrenox), and ticlopidine (Ticlid) can contribute to bleeding.
Heat-Related Illness

General Adult Assessment

- Remove from environment
- Temperature measurement (if available)
- Remove tight clothing
- Passive cooling measures

Symptom Severity

**Heat Cramps**
- Normal to elevated body temp,
  weakness, muscle cramping
- PO fluids as tolerated
- Monitor and reassess

**Heat Exhaustion**
- Elevated body temp,
  cool, moist skin
  weakness, anxious tachypnea
- Active cooling measures
  - Vascular Access
  - NS bolus 500 ml IV/IO;
    repeat to effect SBP >90;
    max 2L
  - Cardiac monitor

**Heat Stroke**
- High body temp >104,
  hot, dry skin
  hypotension, AMS/coma
- Airway as indicated
  - Altered Mental Status as indicated
  - Active cooling measures
  - Vascular Access
  - NS bolus 500 ml IV/IO;
    repeat to effect SBP >90;
    max 2L
  - Cardiac monitor

Poor perfusion?

- Yes
  - Exit to appropriate
    Shock or Trauma Protocol as indicated
  - Cardiac monitor

- No
  - Monitor and reassess
  - Continue General Patient Care and Transport

Monitor and reassess

Yes

No
History
- Age, very old and young
- Exposure to increased temperatures and/or humidity
- Past medical history/medications
- Time and duration of exposure
- Poor PO intake, extreme exertion
- Fatigue and/or muscle cramping

Signs and Symptoms
- AMS/coma
- Hot, dry, or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

Differential
- Fever
- Dehydration
- Medications
- Hyperthyroidism
- DTs
- Heat cramps, heat exhaustion, heat stroke
- CNS lesions or tumors

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104°F (40°C).
- Intense shivering may occur as patient is cooled.
- Active cooling includes application of cold packs or ice (not directly on skin), fanning either by air conditioning or fanning.
- Cold Saline is not to be administered for the treatment of hyperthermia unless directed by telemetry physician.

Heat Cramps
- Consist of benign muscle cramping caused by dehydration and is not associated with an elevated temperature.

Heat Exhaustion
- Consists of dehydration, salt depletion, dizziness, fever, AMS, headache, cramping, N/V. Vital signs usually consist of tachycardia, hypotension and elevated temperature.

Heat Stroke
- Consists of dehydration, tachycardia, hypotension, temperature >104°F (40°C), and AMS.

Active Cooling Measures
- Cold packs
- Ice (do not place directly onto patient’s skin)
- Fanning
- Air Conditioning
Hyperkalemia (Suspected)

General Adult Assessment

Cardiac monitor

12-Lead ECG

ALBUTEROL
2.5 mg in 3.0 ml continuous SVN

Bradycardia, Peaked T waves, Widened QRS, or Cardiac Arrest

No

Continue to monitor

Other treatment protocols as indicated

Yes

CALCIUM CHLORIDE
1.0 g slow IVP/IO

SODIUM BICARBONATE
1.0 mEq/kg slow IVP/IO

Continue General Adult Assessment
History
- History of renal failure
- History of dialysis
- Trauma, crush injury

Signs and Symptoms
- Cardiac conduction disturbances
- Irritability
- Abdominal distension
- Nausea
- Diarrhea
- Oliguria
- Weakness

Differential
- Cardiac disease
- Renal failure
- Dialysis
- Trauma

Pearls
- Patients must have suspected hyperkalemia OR electrocardiographic findings consistent with hyperkalemia (bradycardia with widening QRS complexes) BEFORE initiating treatment.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- Hyperkalemia is defined as a potassium level higher than 5.5 mmol/L.
- Potassium of 5.5 - 6.5 mmol/L - Tall tented T waves.
- Potassium of 6.5 - 7.5 mmol/L - Loss of P waves.
- Potassium of 7.5 - 8.5 mmol/L - Widening QRS.
- Potassium of >8.5 mmol/L - QRS continues to widen, approaching sine wave.
If refractory to MAGNESIUM SULFATE, give MIDAZOLAM IN/IM/IV/IO; 0.1 mg/kg; may repeat q 5 at 0.05 mg/kg IN/IM/IV/IO
Or DIAZEPAM 5mg IV;
May Repeat q 5 Min Additional Doses Require Physician Order

Follow appropriate protocol

Transport to Appropriate Facility
### History
- Medical history
- Hypertension medication
- Prenatal care
- Prior pregnancies/births
- Previous pregnancy complications

### Signs and Symptoms
- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of the hands or face

### Differential
- Pre-eclampsia/eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion

### Pearls
- **Recommended exam:** Mental Status, Heart, Lung, Abdomen, Neuro.
- Severe headache, vision changes or RUQ pain may indicate pre-eclampsia.
- In the setting of pregnancy hypertension is defined as >140 systolic or >90 diastolic or a relative increase of 30 systolic and 20 diastolic from the patient’s normal pre-pregnancy BP.
- Maintain left lateral position.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen by a physician for evaluation.
- Postpartum Eclampsia/Pre-Eclampsia commonly presents up to 48 hours after childbirth. If symptomatic, treat as Eclampsia/Pre-Eclampsia.
- May present up to 6 weeks after childbirth, Assess for history or Pre-Eclampsia/Eclampsia during pregnancy or delivery.
Overdose/Poisoning

General Adult Assessment

Extraglottic Airway Device if Indicated

Endotracheal Intubation if Indicated

Consider Vascular Access

Consider Cardiac Monitor

Consider potential cause of signs/symptoms

Opiate OD

Cyanide

Dystonic Reaction

TCA/ASA OD

Calcium Channel Blocker OD

Beta Blocker OD

Organophosphate Toxicity

Wide QRS Bradycardic and hypotensive

Bradycardic and hypotensive

SODIUM BICARBONATE 1.0 mEq/kg IV/IO of 8.4% solution, may repeat once in 3-5 min

CALCIUM CHLORIDE 1 gm (10%) slow IV/IO

Glucagon 1.0 mg IM/IV/IO; may repeat once in 3-5 min

NALOXONE 2-4 mg intranasal

NALOXONE 2.0 mg IN/IM/IV/IO may repeat to a max dose of 10 mg

DIPHENHYDRAMINE 50 mg IV/IM/IO

Sodium bicarbonate 5.0 g IV/IO over 15 min if available

Diphenoxyhydramine 1.0 mg IM/IV/IO q 15 min as needed to decrease secretions and ventilatory resistance

GLUCAGON 1.0 mg IM/IV/IO

HYDROXOCOBALAMIN 5.0 g IV/IO over 15 min if available

Reassess and Transport as Appropriate
### History
- Ingestion or suspected ingestion of a potentially toxic agent
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

### Signs and Symptoms
- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chest pain

### Differential
- TCA overdose
- Acetaminophen OD
- Aspirin
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents, insecticides

### Pearls
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Neuro.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- Overdose or toxin patients with significant ingestion/exposure should be closely monitored and aggressively treated. Do not hesitate to contact medical control if needed.
- In the case of cyanide poisoning, altered mental status may be profound. Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.
- If patient is suspected to have narcotic overdose/hypoglycemia, administer Narcan/Glucose prior to extraglottic device/intubation.
- Poison Control: 1-800-222-1222

### Agents
- Acetaminophen: Initially normal or N/V. Tachypnea and AMS may occur later. Renal dysfunction, liver failure and/or cerebral edema may manifest.
- Depressants: Decreased HR, BP, temp and RR.
- Anticholinergic: Increased HR, increased temperature, dilated pupils and AMS changes.
- Insecticides: May include S/S of organophosphate poisoning.
- Solvents: N/V, cough, AMS.
- Stimulants: Increased HR, BP, temperature, dilated pupils, seizures, and possible violence.
- TCA: Decreased mental status, dysrhythmias, seizures, hypotension, coma, death.
Pain Management

General Adult Assessment

Appropriate treatment protocol

Comfort measures, i.e. patient positioning, splinting, ice, etc.

Vascular Access
Cardiac monitor

KETAMINE 0.2mg/kg IM/IN/IV/IO
No Repeat Dose

***NOT TO BE USED FOR CHEST PAIN/SUSPECTED ACS or STEMI protocols***

MORPHINE 0.1mg/kg IM/IV/IO; max single dose 10mg
May repeat dose q 10 min after the first until pain relieved or respiratory depression occurs

FENTANYL 1.0 mcg/kg IN/IM/IV/IO; max single dose 100 mcg
May repeat dose after 10 minutes

HYDROMORPHONE 0.01mg/kg IM/IV/IO; max single dose 1.0mg
May repeat dose after 10 minutes

For nausea/vomiting after pain medication consider:
ONDANSETRON 4.0 mg ODT/IM/IV/IO
or
DROPERIDOL 1.25 mg IM/IV/IO
or
METOCLOPRAMIDE
10 mg slow IV bolus over 1-2 minutes or IM
or
PROCHLORPERAZINE
Up to 10 mg IV/IM/IO

Contact Medical Control for additional doses

Pain Management (Revised and approved by MAB 5-1-2019)
Pearls

- Recommended exam: Respiratory Status, Mental Status, Area of pain, Neuro.
- Pain severity (1-10) is a vital sign to be recorded before and after medication administration and patient hand off.
- Monitor BP and respirations closely as sedative and pain control agents may cause hypotension and/or respiratory depression.
- Consider patient’s age, weight, clinical condition, use of drugs/alcohol, exposure to opioids when determining initial opiate dosing. Weight based dosing may provide a standard means of dosing calculation, but it does not predict response.
- Exercise care when administering opioids and benzodiazepines; this combination results in deeper anesthesia with significant risk of respiratory compromise.
- Burn patients may require more aggressive dosing.
- Administration of Droperidol can result in hypotension, QT prolongation and Torsades de Pointes.

QI Metrics

- Vital signs with O₂ sats recorded.
- Pain scale documented before and after intervention.
- Vital signs repeated after intervention.
- If considering repeat administration of pain medications, nasal cannula capnography must be utilized.
Pulmonary Edema/CHF

General Adult Assessment
Patient in position of comfort

Airway & ventilation adequate?

No

Ventilation Management

Yes

Oxygen Keep SpO₂ >94%
Vascular Access
ETCO₂ monitoring

Consider CPAP

12-Lead ECG
BP re-assessment

Hypotensive SBP <100 mmHg

Signs of cardiogenic shock?

Yes

DOPAMINE
5-20 mcg/kg/min; titrate to SYSTOLIC BP >100 mmHg

No

Continue General Adult Assessment

Normotensive SBP >100 mmHg

NITROGLYCERIN
0.4 mg SL; may repeat q 5 min as long as HR >60 and SYSTOLIC BP >100 mmHg

Hypertensive DBP >100 mmHg

NITROGLYCERIN
1.6 mg SL; may repeat q 5 min for DIASTOLIC BP >100 mmHg
**History**
- Congestive heart failure
- Past medical history
- Medications
- Cardiac history

**Signs and Symptoms**
- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- JVD
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypotension, shock
- Chest pain

**Differential**
- MI
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pericardial tamponade
- Toxic exposure

**Pearls**
- The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.
- Carefully monitor the patient as you administer interventions.
- Consider MI.
- Allow patient to maintain position of comfort.
- Consider dose related effects of Dopamine: 2-10 mcg/kg/min increases myocardial contractility and HR, improves BP via vasoconstriction; 10-20 mcg/kg/min causes vasoconstriction of renal, mesenteric, and peripheral blood vessels that can result in poor perfusion and renal failure.

**QI Metrics**
- Blood pressure reassessed after each nitroglycerin dose.
- ETCO₂ monitored.
Respiratory Distress Protocol

General Adult Assessment
Patient in position of comfort

Airway & ventilation adequate?

No
Ventilation Management

Yes
Vascular Access

A

Bilateral Rales or Signs of Pulmonary Edema

Pulmonary Edema/CHF

Wheezing or Bronchospasm

Stridor

Consider MAGNESIUM SULFATE
2.0 g in 50 ml NS over 10 min

P
Consider CPAP

P
Consider Allergic Reaction

ALBUTEROL
assist pt w/own MDI

E

ALBUTEROL
2.5 mg in 3.0 ml SVN; repeat until improvement

A

IPRATROPIUM
2.5 ml 0.02% sol’n SVN once; or DuoNeb 3.0 ml SVN once

P

Nebulized NS SVN

A

Continue General Adult Assessment
**History**
- Asthma, COPD, CHF, chronic bronchitis, emphysema
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

**Signs and Symptoms**
- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi
- Use of accessory muscles
- Fever, cough
- Tachycardia

**Differential**
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin

**Pearls**
- Recommended exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro.
- Pulse oximetry and end tidal continuous waveform capnography must be monitored.
- Consider MI.
- Allow the patient to assume a position of comfort.
Consider Cervical Stabilization

Patient actively seizing?

Patient have a history of seizures?

Is Patient ≥20 weeks pregnant or ≤6 weeks post partum?

Obstetrical Emergencies Protocol

Blood glucose testing

BG <60 mg/dl?

D10, 25g IV/IO; (250mL of 10% solution) may repeat x 1 in 5 min

GLUCAGON 1.0 mg IM for no IV access

Persistent (status) or recurrent seizure?

Reassess and monitor VS

Blood glucose testing

BG <60 mg/dl?

Yes

No

Yes

No

E

Ventilation Management

Cardiac monitor

Blood glucose testing

E

Vascular Access

MIDAZOLAM 0.1 mg/kg up to max 5.0 mg IM/IN/IV/IO OR DIAZEPAM 5.0 mg IM/IV/IO

No

Yes

E

Glucose test/retest

Ventilation Management

Vascular Access

Cardiac monitor

MIDAZOLAM 0.1 mg/kg up to max 5.0 mg IM/IN/IV/IO; may repeat dose at 0.05 mg/kg OR DIAZEPAM 5.0 mg IM/IV/IO

Continue General Adult Assessment

No

Yes

No

Yes
### History
- Reported or witnessed seizure activity
- Previous seizure history
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Time of seizure onset
- Number of seizures
- Alcohol use, abuse, or abrupt cessation
- Fever

### Signs and Symptoms
- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconsciousness

### Differential
- CNS trauma
- Tumor
- Metabolic, hepatic or renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Drugs, medication non-compliance
- Infection, fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia

### Pearls
- Recommended exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro.
- Benzodiazepines are effective in terminating seizures; do not delay IM/IN administration while initiating an IV.
- Status epilepticus is defined as two or more seizures successively without an intervening lucid period, or a seizure lasting over five minutes.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and oral trauma.
- Focal seizures affect only part of the body and are not usually associated with a loss of consciousness.
- Be prepared to address airway issues and support ventilations as needed.
- Consider ETCO$_2$ monitoring.
**General Adult Assessment**

- **Oxygen** Keep SpO2 >94%
- **Vascular Access**
- **Cardiac Monitoring/Capnography**

Does the patient have a **known or suspected source of infection AND TWO** of the following criteria?

- SBP <90 mmHg
- HR >90/min
- Respiratory rate >20
- Altered mental status
- Temperature > or = 100.4 F or < or = 96.8 F
- Persistent EtCO2 <25 on waveform capnography

**Facility Code Sepsis notification telemetry immediately upon recognition of patient meeting Sepsis criteria**

**Alternate appropriate treatment protocols as indicated**

**A**

- NS bolus 500 ml, reassess criteria and re-examine. May repeat x3 for SBP <90, with no rales on lung exam. Max dose 2 liters NS.

**P**

- If SBP <90 after 2 liters IVF
  - PUSH DOSE EPINEPHRINE
    - 1:100,000
  - 5.0mcg-10.0mcg IV/IO, may repeat q 2-5 min to maintain SBP >90
    - (0.5ml-1.0ml of a 1:100,000 solution)

- Consider DOPAMINE
  - 5-20 mcg/kg/min; titrate to
  - SBP >90 mmHg

**Continue General Adult Assessment**
### History
- Age (Common in elderly and very young)
- Presence and duration of fever
- Previously documented infection or illness (UTI, Pneumonia, meningitis, encephalitis, cellulitis, abscesses, etc)
- Recent surgery or invasive procedure
- Any recent hospitalization
- Immunocompromised (transplant, HIV, diabetes, cancer)
- Bedridden or immobile patients
- Prosthetic or indwelling devices
- Immunization status
- Open wounds, even minor ones

### Signs and Symptoms
- Hyper or hypothermia
- Rash and/or excessive bruising
- Chills
- Myalgia
- Markedly decreased urine output
- Altered mentation
- Delayed capillary refill
- Elevated blood glucose (unless diabetic)

### Differential
- Cardiogenic Shock
- Hypovolemic Shock
- Dehydration
- Hyperthyroidism
- Medication/drug interaction
- Non-septic infection
- Allergic reaction/anaphylaxis
- Toxicological emergency

### Pearls
- Early recognition of Sepsis allows for attentive care and early administration of antibiotics.
- Aggressive IV fluid therapy is the most important prehospital treatment for sepsis. Suspected septic patients should receive repeated fluid boluses (to a max total of 2 liters) while being checked frequently for signs of pulmonary edema, especially those patients with known history of CHF or ESRD on dialysis. STOP fluid resuscitation in the setting of pulmonary edema.
- Time NS bolus was initiated and total amount given is to be recorded and reported to hospital staff at patient hand off.
- Septic patients are especially susceptible to traumatic lung injury and ARDS. If artificial ventilation is necessary, avoid ventilating with excessive tidal volumes. If CPAP is utilized, airway pressure should be limited to 5 cmH2O.
- Attempt to identify source of infection (skin, respiratory, etc.) and relay previous treatments and related history to the ED physician and nursing staff.
- Elevated serum lactate levels are a useful marker of hypoperfusion in sepsis and often become elevated prior to the onset of hypotension. ETCO2 levels are inversely proportional to serum lactate levels.
- Disseminated intravascular Coagulation (DIC) is an ominous, late stage manifestation of sepsis characterized by frank, extensive bruising, bleeding from multiple sites, and finally tissue death.
- Conditions such as Crohn’s, psoriasis, rheumatoid arthritis and other autoimmune disorders are now being treated with medications that impair the immune system. These patients need to be considered as immunocompromised.

### QI Metrics
- Vital signs to include blood pressure, heart rate, respiratory rate, SpO2, and EtCO2 documented throughout transport.
- Vital signs before, during, and after NS administration.
- Documentation of the time NS was started and total amount given.
For patients with known adrenal insufficiency, administer patient’s own Solu-Cortef (hydrocortisone) as prescribed.

For patients with trauma-related shock:
- General Adult Assessment
  - Oxygen Keep SpO₂ > 94%
  - Vascular Access
  - Cardiac monitor/capnography
- Alternative appropriate treatment protocols as indicated

For patients with non-trauma, non-cardiogenic shock:
- NS bolus 1000 ml; may repeat x 1 with no rales on lung exam
- Consider DOPAMINE 5-20 mcg/kg/min; titrate to SBP > 90 mmHg
  - Obtain waveform capnography

For patients with cardiogenic shock:
- Appropriate arrhythmia protocol as indicated
  - 12-Lead ECG
  - Obtain waveform capnography
- NS bolus 500 ml; if no rales on lung exam, may repeat x 1

For patients with known adrenal insufficiency:
- Administer patient’s own Solu-Cortef (hydrocortisone) as prescribed

To prepare for PUSH DOSE EPINEPHRINE 1:100,000:
- Mix cardiac epinephrine 1:10,000 1ml PLUS 9ml Normal Saline=10ml EPINEPHRINE 1:100,000 at 10mcg/ml

Obtain waveform capnography

Continue General Adult Assessment
History
- Blood loss-vaginal bleeding, ectopic, GI bleeding or AAA
- Fluid loss-vomiting, diarrhea, fever
- Infection
- Cardiac tamponade
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake

Signs and Symptoms
- Restlessness, confusion
- Weakness, dizziness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

Differential
- Hypovolemic shock
- Cardiogenic shock
- Septic shock
- Neurogenic shock
- Anaphylactic shock
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolism
- Tension pneumothorax
- Medication effect or overdose
- Vasovagal
- Physiologic (pregnancy)

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Hypotension can be defined as a systolic BP of <90. This is not always reliable and should be interpreted in context and patient’s typical BP, if known. Shock may present with a normal BP initially.
- Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.
- Consider all possible causes of shock and treat per appropriate protocol.
- An ETCO2 measurement of <25 mm/hg is indicative of shock

Hypovolemic shock
- Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm, or pregnancy related bleeding

Cardiogenic shock
- Heart failure, MI, cardiomyopathy, myocardial contusion, toxins

Distributive shock
- Sepsis (consider telemetry of code sepsis to receiving facility), anaphylaxis, neurogenic, toxins

Obstructive shock
- Pericardial tamponade, pulmonary embolus, tension pneumothorax

For patients with known adrenal insufficiency, administer patient’s own Solu-Cortef (hydrocortisone) as prescribed.

Causes of Adrenal Insufficiency:
Addison’s Disease
Congenital Adrenal Hyperplasia
Long term administration of steroids
Others
Smoke Inhalation

General Adult Assessment

Oxygen 100% NRB

Ventilation Management

Cardiac monitor

Vascular Access

NS bolus 500 ml up to max 2000 ml for hypoperfusion

Other treatment protocols (Burns) as indicated

Cardiac arrest or hypotension or profound altered mental status?

Yes

HYDROXOCOBALAMIN 5.0 g IV over 15 min

No

Transport to closest appropriate Burn Care Center: Sunrise Hospital UMC Trauma Center
History
- Exposed to smoke in a structure fire
- Exposed to smoke in a vehicle fire
- Exposed to smoke from other sources, industrial, confined space, wilderness fire, etc.

Signs and Symptoms
- Facial burns
- Singed nasal hairs or facial hair
- Shortness of breath
- Facial edema
- Stridor
- Grunting respirations

Differential
- COPD
- CHF
- Toxic inhalation injury
- Caustic inhalation injury

Pearls
- Protect yourself and your crew.
- Have a high index of suspicion when treating patients at the scene of a fire.
- If the medication is not available on scene do not delay transport waiting for it.
- Carefully monitor respiratory effort and correct life threats immediately.
- Decide early on if you want to intubate as burned airways swell, making intubation difficult.
- Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.

Preparation and Administration of Hydroxocobalamin

Complete Starting Dose: 5 g

1. **Reconstitute**: Place the vial in an upright position. Add 200 mL of 0.9% Sodium Chloride Injection* to the vial using the transfer spike. **Fill to the line.**

   * 0.9% Sodium Chloride Injection is the recommended diluent (diluent not included in the kit). Lactated Ringer’s Solution and 5% Dextrose Injection have also been found to be compatible with Hydroxocobalamin.

2. **Mix**: The vial should be repeatedly inverted or rocked, **NOT** shaken, for at least 60 seconds prior to infusion.

3. **Infuse Vial**: Use vented intravenous tubing, hang and infuse over 15 minutes.
General Adult Assessment

12-Lead ECG within 5 minutes of patient contact

STEMI

Facility STEMI notification telemetry immediately upon recognition of STEMI

A Vascular Access

Oxygen
Keep SPO2 >94%

E ASPIRIN 324 mg PO

NITROGLYCERIN

Assist pt with own NTG as prescribed; may repeat X 2

0.4mg SL; may repeat q 5 min X 2

P Pain Management for continued pain

Consider anti-emetic for nausea/vomiting:
ONDANSETRON 4.0mg ODT/IM/IV/IO
or METOCLOPRAMIDE 10 mg slow IV bolus over 1-2 minutes or IM
or PROCHLORPERAZINE Up to 10 mg IV/IM/IO

Transport and re-notify receiving facility

Nitroglycerin is contraindicated in any patient with hypotension, bradycardia, tachycardia (HR>100bpm) in the absence of heart failure, evidence of a right ventricular infarction, and use of erectile dysfunction medications within the last 48 hours. Caution is advised in patients with Inferior Wall STEMI and a right-sided ECG should be performed to evaluate RV infarction.

Refer to Arrhythmia and Shock Protocols as needed
History
- Age
- Medication: Viagra, Levitra, Cialis
- Past Medical History of MI, angina, diabetes
- Allergies
- Recent Physical Exertion
- Palpitation, provocation
- Quality
- Region, radiation, referred
- Severity (1-10)
- Time of onset, duration, repetition

Signs and Symptoms
- CP, pressure, ache, vice-like pain, tight
- Location, substernal, epigastric, arm, jaw, neck, shoulder
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- Time of onset

Differential
- Trauma versus medical
- Anginal versus MI
- Pericarditis
- Pulmonary embolism
- Asthma, COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Esophageal spasm
- Chest injury or pain
- Pleural pain
- Drug overdose (cocaine, methamphetamines)

Pearls
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Diabetics, geriatrics, and female patients often have atypical pain. Have a high index of suspicion.
- Perform a 12-Lead ECG on all patients 35 years old and older experiencing vague jaw/chest/abdominal discomfort.
- Perform a 12-Lead ECG within 5 minutes of patient contact.
- The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.

QI Metrics
- 12-Lead ECG within 5 minutes of patient contact.
- Pain reassessed with every intervention.
- Pain control documented.
Stroke (CVA)

General Adult Assessment

Blood glucose testing

Document:
1. Last known normal (onset)
2. Witness with phone number

Perform and document RACE Stroke Scale Results

Findings suggestive of LVO based on RACE Score?

No RACE = 1-4
- BGL 60-400
- Rapid transport to Approved Stroke Center
- Radio Contact with Receiving Facility
- Vascular Access
- Cardiac monitor
- 12-lead ECG

Yes RACE ≥ 5
- Scene time <10 minutes
- BGL 60-400
- Rapid transport to NIR Capable Facility
- Radio Contact with Receiving Facility
- Vascular Access
- Cardiac monitor
- 12-lead ECG

RACE = 0
- Other treatment Protocols as indicated
### History
- Previous CVA, TIAs
- Previous cardiac/vascular surgery
- Associated diseases: diabetes, HTN, CAD, Atrial Fibrillation
- Medications
- History of trauma

### Signs and Symptoms
- AMS
- Weakness, paralysis
- Blindness or other sensory loss
- Aphasia, dysarthria
- Syncope
- Vertigo, dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension, hypotension

### Differential
- AMS
- TIA
- Seizure
- Hypoglycemia
- Tumor
- Trauma
- Dialysis/ Renal Failure

### Pearls
- Recommended exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro.
- Determine time of onset of symptoms or last time patient was seen normal
- Transport to an appropriate Stroke Center or Endovascular Treatment Center

### Stroke Centers
- Centennial Hills
- Desert Springs
- Henderson
- MountainView
- Southern Hills
- Spring Valley
- St Rose Siena
- St Rose San Martin
- Summerlin
- Sunrise
- UMC
- Valley

### NIR Capable Centers
- Centennial Hills
- Spring Valley
- St Rose Siena
- Sunrise
- UMC
- Valley

### QI Metrics
- Complete the RACE assessment in less than five minutes
- Time of symptom onset documented
- Blood glucose documented
- 12-Lead EKG completed
- Scene time <10 minutes
- Telemetry to receiving facility

### Rapid Arterial Occlusion Evaluation (RACE) Scale
An EMS Assessment Tool for Acute Ischemic Stroke
(Sensitivity 85%, Specificity 88%)

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Score = 0</th>
<th>Score = 1</th>
<th>Score = 2</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Palsy</td>
<td>Absent</td>
<td>Mild</td>
<td>Moderate/Severe</td>
<td></td>
</tr>
<tr>
<td>Arm Motor</td>
<td>Normal/Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td></td>
</tr>
<tr>
<td>Leg Motor</td>
<td>Normal/Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td></td>
</tr>
<tr>
<td>Head/Gaze/Deviation</td>
<td>Absent</td>
<td>Present</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Aphasia* (R/Lhemiparesis)</td>
<td>Performs Both Tasks</td>
<td>Performs 1 Task</td>
<td>Performs Neither Tasks</td>
<td></td>
</tr>
<tr>
<td>Agnosia* (R/Lhemiparesis)</td>
<td>Patient Recognizes Arm and Impairment</td>
<td>Unable to Recognize Arm or Impairment</td>
<td>Unable to Recognize BOTH Arm and Impairment</td>
<td></td>
</tr>
</tbody>
</table>

*Apasia: Ask the patient to: 1. “Close your Eyes” AND 2. “Make a Fist”
*Agnosia: Ask the patient and evaluate recognition of deficit:
  1. While showing paretic arm: “Whose arm is this?”
  2. Ask patient: “Can you lift both arms and clap?”

**If RACE Score = 5 or greater, patient may have an ischemic stroke with a large vessel occlusion**

Reference:
Natalio Pérez de la Ossa, et al. (2013). Design and Validation of a Prehospital Stroke Scale to Predict Large Arterial Occlusion: The Rapid Arterial Occlusion Evaluation Scale. Stroke, 44, 87-91. Retrieved from [http://stroke.ahajournals.org/content/44/1/87.full](http://stroke.ahajournals.org/content/44/1/87.full)
Tachycardia / Stable
(Normal Mental Status, Palpable Radial Pulse)

General Adult Assessment
- Cardiac monitor
- Vascular Access
- 12-Lead ECG

Narrow Complex ≤0.11 Sec
- Vagal Maneuvers
  - Successful?
    - Yes
    - NO
  - Administer ADENOSINE 6 mg rapid IVP/IO
    - Successful?
      - Yes
      - No
    - Administer ADENOSINE 12 mg rapid IVP/IO

Wide Complex ≥0.12 Sec
- Undifferentiated Monomorphic VT Suspected to be SVT with Aberrancy
- Regular Monomorphic VT
- Torsades de Pointes
  - AMIODARONE 150 mg in 50 cc NS over 10 min
  - MAGNESIUM SULFATE 2.0 gm IV/IO in 50 cc NS over 10 min
  - Synchronized Cardioversion
    - Consider sedation: ETOMIDATE 0.15 mg/kg IV/IO
  - Defibrillation
    - Consider sedation: ETOMIDATE 0.15 mg/kg IV/IO

Continue General Patient Care
History
- Medications (aminophylline, diet pills, thyroid supplements, decongestants, digoxin)
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

Signs and Symptoms
- Heart rate >150
- Dizziness, CP, SOB
- Diaphoresis
- CHF

Differential
- Heart disease (WPW, valvular)
- Sick sinus syndrome
- MI
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Carefully monitor patients as you treat them; stable tachycardia may convert to unstable rhythms/conditions quickly.
- Sedate patients prior to cardioversion, if time allows.
Tachycardia / Unstable
(Mental Status Changes, No Palpable Radial Pulse)

Narrow Complex ≤0.11 Sec

- Cardiac monitor
- Vascular Access

If IV established, administer ADENOSINE 12 mg rapid IVP

- P
- A

Rhythm change?

Yes

- Synchronized Cardioversion
  Consider sedation: ETOMIDATE 0.15 mg/kg IV/IO

No

- Repeat Synchronized Cardioversion; assess need for repeat sedation

Repeat Synchronized Cardioversion or defibrillate if VT not resolved; assess need for repeat sedation

Rhythm change?

Yes

AMIODARONE 150 mg in 50 cc NS over 10 min

No

Repeat defibrillation; assess need for repeat sedation

Rhythm change?

Yes

- MAGNESIUM SULFATE 2.0 gm IV/IO in 50 cc NS over 10 min

No

No

Transport

Wide Complex ≥0.12 Sec

Torsades de Pointes (Polymorphic Ventricular Tachycardia)

- Defibrillate
- Consider sedation: ETOMIDATE 0.15 mg/kg IV/IO

P rhythm change?

Yes

Rhythm change?

No

Rhythm change?

No

Yes

Repeat Synchronized Cardioversion or defibrillate if VT not resolved; assess need for repeat sedation

No

No

Transport

Monomorphic VT

- Synchronized Cardioversion
  Consider sedation: ETOMIDATE 0.15 mg/kg IV/IO

P rhythm change?

Yes

Rhythm change?

No

No

Transport

No

Yes

Continue General Adult Assessment

Transport

General Adult Assessment
History
- Medications (aminophylline, diet pills, thyroid supplements, decongestants, digoxin)
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

Signs and Symptoms
- Cardiac arrest
- Heart rate >150
- Dizziness, CP, SOB
- Diaphoresis
- CHF

Differential
- Heart disease (WPW, valvular)
- Sick sinus syndrome
- MI
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- If patient is in arrest, efforts should focus on quality chest compressions and rhythm correction.
- Administer Adenosine at a proximal IV site, rapidly followed by a saline flush.
**Target Temperature Management & Post-Resuscitation Care**

### General Adult Assessment

ROSC w/patient unresponsive to voice or pain?

**Yes**

**Patient meets following criteria:**
1. >18 years of age
2. Temp S/P ROSC >34° C (93° F)
3. No purposeful response to voice or pain
4. BG >60
5. Sustained ETCO₂ waveform monitoring in place
6. Cardiac arrest not due to trauma
7. Not pregnant

**Cardiac monitor, SPO₂, ETCO₂**

**Vascular Access x 2**

**Neuro exam**

**Expose patient; Ice packs to axilla and groin**

**COLD NS, 250 ml/hr Up to 1L**

Maintain ETCO₂ at approx 40 mmHg; DO NOT HYPERVENTILATE

**DOPAMINE 5-20 mcg/kg/min PRN; Titrate to keep SBP >90mmHg**

**Other treatment protocols as indicated**

Transport patient to approved Hypothermia Center*

**No**

**Other appropriate treatment protocols as indicated**

---

*Approved Hypothermia Centers:*
- Centennial Hills
- Desert Springs
- Henderson
- Mountain View
- St. Rose Siena
- Southern Hills
- Spring Valley
- Summerlin
- Sunrise
- UMC
- Valley
History
- Non-traumatic cardiac arrest
- Any presenting ECG rhythm

Signs and Symptoms
- Cardiac arrest
- Return of spontaneous circulation post cardiac arrest

Differential
- Continue to address rhythm specific differentials

Pearls
- Hyperventilation is to avoided in any cardiac arrest/post arrest resuscitation.
- Initial ETCO₂ may be elevated immediately post resuscitation but will normalize.
- Transport to a hypothermia center as listed is required for continued management of the post arrest patient.
Use supplemental oxygen to maintain an oxygen saturation of >94% or >90% for patients on home oxygen for chronic conditions.

**Basic Airway Maneuvers**
- Open Airway Chin Lift/Jaw Thrust
- NPA or OPA as needed
- Suction as needed

**Consider Cervical Stabilization**
**Consider Altered Mental Status/Syncope**

**Administer oxygen**
- BVM as needed

**Intervention effective?**

**Extraglottic Airway**
- Endotracheal Intubation
- ECG Monitor

For Nasotracheal Intubation Prep the Nostrils With PHENYLEPHRINE 1-2 Sprays Each or OXYMETAZOLINE 1-2 sprays each nostril and LIDOCAINE 2% Lubricant

**Consider Sedation** Administer ETOMIDATE 0.3 mg/kg IV/IO Or; KETAMINE 2 mg/kg IV/IO Or 4 mg/kg IM

Maintain Sedation Administer MIDAZOLAM 0.1 mg/kg IV/IN/IM/IO; May Repeat q 5 Minutes at 0.05 mg/kg IV/IN/IM/IO Or; DIAZEPAM 5 mg IV/IO; May Repeat Dose after 5 Minutes With Physician Order

**Extraglottic/ETT placement successful?**

**Able to ventilate without extraglottic/ETT in place?**

**Cricothyroidotomy**

**Respiratory Distress and/or Tracheostomy Tube Replacement Protocol if needed**

**Ventilation Management**
Always weigh the risks and benefits of endotracheal intubation in the field against transport. All prehospital endotracheal intubations are considered high risk. If ventilation/oxygenation is adequate, transport may be the best option. The most important airway device and the most difficult to use correctly and effectively is the Bag Valve Mask (not the laryngoscope). Few prehospital airway emergencies cannot be temporized or managed with proper BVM techniques.

**DIFFICULT AIRWAY ASSESSMENT:**

**Difficult BVM Ventilation-MOANS:** Difficult Mask seal due to facial hair, anatomy, blood or secretions/trauma; Obese or late pregnancy; Age >55; No teeth (roll gauze and place between gums and cheeks to improve seal); Stiff or increased airway pressures (asthma, COPD, obese, pregnant).

**Difficult Laryngoscopy-LEMON:** Look externally for anatomical distortions (small mandible, short neck, large tongue); Evaluate 3-3-2 Rule (Mouth open should accommodate 3 patient fingers, mandible to neck junction should accommodate 3 patient fingers, chin-neck junction to thyroid prominence should accommodate 2 patient fingers); Mallampati (difficult to assess in the field); Obstruction / Obese or late pregnancy; Neck mobility.

**Difficult Extraglottic Device Placement-RODS:** Restricted mouth opening; Obstruction / Obese or late pregnancy; Distorted or disrupted airway; Stiff or increased airway pressures (asthma, COPD, obese, pregnant).

**Nasotracheal intubation:** Otrachal intubation is the preferred choice. Procedure requires patient to have spontaneous breathing. Contraindicated in anatomically disrupted or distorted airways, increased intracranial pressure, severe facial trauma, basal skull fracture, head injury.

**Pearls**

- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (ETCO₂) is mandatory for the monitoring of all patients with an ET tube.
- If an effective airway is being maintained by BVM and/or basic airway adjuncts (e.g. nasopharyngeal airway) with continuous pulse oximetry values of ≥90% or values expected based on pathophysiologic condition with otherwise reassuring vital signs (e.g. pulse oximetry of 85% with otherwise normal vitals in a post-drowning patient), it is acceptable to continue with basic airway measures instead of using an extraglottic airway device or intubation. Consider CPAP as indicated by protocol and patient condition.
- For the purposes of this protocol, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
- An intubation attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- An appropriate ventilatory rate is one that maintains an ETCO₂ of 35 - 45. Avoid hyperventilation.
- Paramedics should use an extraglottic airway device if oral-tracheal intubation is unsuccessful.
- Maintain C-spine stabilization for patients with suspected spinal injury.
- Cricoid pressure and BURP maneuver may assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients, if time allows.
- It is important to secure the endotracheal tube well.
PEDIATRIC TREATMENT PROTOCOLS

(for patients under 12 years of age)
General Pediatric Assessment

Scene Safety / Scene Size-Up
Nature of Call / Mechanism of Injury
PPE / BSI
Bring all equipment to patient’s side, including Broselow Tape

S.T.A.R.T. Triage

Level of Consciousness
- Airway
- Breathing
- Circulation
- Disability

Unresponsive → Check Pulse
None or <60 → Cardiac Arrest

- Signs of compromise or not protecting → Ventilation Management
- Inadequate or respiratory distress → Respiratory Distress
- Bleeding → Hemorrhage Control Tourniquet
- Altered or confused → Altered Mental Status/Syncope

History – HPI & AMPLE
- Vital Signs & Physical Exam
- Blood glucose testing as indicated
- Specific treatment protocol as indicated
- Cervical Stabilization as indicated
- Comfort measures (splint, position of comfort)
- Cardiac monitor as indicated
- Vascular Access as indicated
- Oxygen therapy to keep SpO₂ >94%
- Pain Management as indicated

Radio Contact for all pediatric patients.

Transport to closest facility for:
- Airway emergencies (inability to adequately ventilate)

Transport per Pediatric Destination Criteria
Pearls
- For all scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with an approved triage methodology.
- Correct life-threatening problems as identified.
- If the ability to adequately ventilate a patient cannot be established, the patient must be transported to the nearest emergency department.
- Never withhold oxygen from a patient in respiratory distress.
- Contact with online medical control should be established by radio. Telephone contact may only be used if the call is routed via a recorded phone patch through the FAO at 702-382-9007.

Disposition
- Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.
- Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.
- Pediatric patients (<18 y/o for transport purposes only) shall be transported in accordance with the Pediatric Destination Protocol.
- Patients with evidence of a stroke shall be transported in accordance with the Stroke Protocol.
- Sexual assault victims <13 y/o shall be transported to Sunrise Hospital.
- Sexual assault victims 13 y/o up to 18 y/o shall be transported to Sunrise Hospital or UMC.
- Sexual assault victims 18 y/o and older shall be transported to UMC.
- For sexual assault victims outside a 50-mile radius from the above facilities, the patient shall be transported to the nearest appropriate facility.
- Stable patients shall be transported to the hospital of their choice; if the patient has no preference, the patient should be transported to the closest facility.

Internal Disaster
- If a hospital declares an internal disaster, that facility is to be bypassed for all patients except patients in cardiac arrest, or in whom the ability to adequately ventilate has not been established.
- Operational exceptions may be initiated in regard to transport to hospitals on internal disaster.
General Pediatric Trauma Assessment Protocol

General Pediatric Assessment

Cervical Stabilization

Glasgow Coma Score

GCS < 8

Ventilation Management
BVM if O₂ sat ≤ 94%

GCS ≥ 8

Oxygen Keep SpO₂ > 94%

Palpable radial pulse?

No

Vascular Access
NS 20 ml/kg bolus

Yes

A

Vascular Access

Suspected tension pneumothorax

Sucking chest wound

Control active hemorrhage

Obvious fractures

Suspected traumatic brain injury

Open wounds

B

Secondary Survey

Needle Thoracentesis

Apply 3-sided occlusive dressing

Hemorrhage Control Tourniquet

Immovilize fractures; assess distal pulse

Raise Head of bed 30 degrees & Capnography–ETCO₂ 35mmHg

Cover with gauze; wet trauma dressing for abdominal evisceration

E

P

Pain Management

Transport & Radio Contact to appropriate trauma center based on TFTC
### History
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

### Signs and Symptoms
- Pain, Swelling
- Deformity, lesions, bleeding
- AMS or unconscious
- Hypotension or shock
- Arrest

### Differential (Life threatening)
- Tension pneumothorax
- Flail chest
- Pericardial tamponade
- Open chest wound
- Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture
- HEENT (airway obstruction)
- Hypothermia

### Pearls
- Recommended exam: Mental Status, Skin, HEENT, Heart Lung, Abdomen, Extremities, Back, Neuro.
- Transport destination is based on the Trauma Field Triage Criteria Protocol.
- Transport should not be delayed for procedures; ideally procedures should be performed enroute when possible.
- BVM is an acceptable method of ventilating and managing an airway if pulse oximetry can be maintained ≥90%.
- Pediatric patients should be evaluated with a high index of suspicion; occult injuries may be present and pediatric patients can decompensate quickly.
Pediatric Abdominal Pain, Nausea & Vomiting

General Pediatric Assessment

Hypovolemia or witnessed vomiting?

Yes

Vascular Access

NS 20 ml/kg IV; may repeat up to 60 ml/kg

No

Subjective nausea or vomiting?

Yes

ONDANSETRON 0.15 mg/kg ODT/IM/IV/IO up to max dose 4.0 mg**

OR

If 8 years of age or older

METOCLOPROMIDE 5mg slow IV/IO bolus over 1-2 minutes or IM

No

Reassess

Transport to Pediatric Facility

**Round up to nearest ½ pill

(Revised and approved by MAB 5-1-2019)
History
- Age
- Medical/surgical history
- Onset
- Quality
- Severity
- Fever

Signs and Symptoms
- Pain location
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation

Differential
- Liver (Hepatitis)
- Gastritis
- Pancreatitis
- Kidney stone
- Appendicitis
- Bladder
- Bowel obstruction
- Gastroenteritis

Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Back, Extremities, Neuro.
- Document mental status and vital signs prior to administration of anti-emetics & pain management.
- Repeat vital signs after each fluid bolus.
- Consider retroperitoneal palpation for kidney pain.
- Pediatric fluid bolus is 20 ml/kg; may repeat to a maximum of 60 ml/kg.
- If there is suspicion that the patient is in DKA, do not exceed 20 ml/kg NS.
- Morphine is not recommended in children for abdominal pain.
- Consider cardiac and ETCO₂ monitoring.
Pediatric Allergic Reaction

General Pediatric Assessment

Evidence of airway involvement/breathing difficulties?

No

Vascular Access

A DIPHENHYDRAMINE
1.0 mg/kg IM/IV; max 50 mg
DIPHENHYDRAMINE PO
Less than 6 years: 12.5 mg PO
6 to 12 years: 25 mg PO
> 12 years: 50 mg PO

A Reassess patient q 5 min

Yes

EPINEPHRINE

E Assist patient with own auto-injector

E EPINEPHRINE 1:1000, 0.01 mg/kg IM; max single dose 0.5 mg; may repeat q 5 min up to max 1.5 mg

A DIPHENHYDRAMINE
1.0 mg/kg IM/IV; max 50 mg
DIPHENHYDRAMINE PO
Less than 6 years: 12.5 mg PO
6 to 12 years: 25 mg PO
> 12 years: 50 mg PO

A Continue General Pediatric Assessment

ALBUTEROL

E Assist patient with MDI

A 2.5 mg SVN; repeat as needed

Ventilation Management

Cardiac monitor

IV access
20 ml/kg NS bolus; may repeat up to 60 ml/kg

DIPHENHYDRAMINE
1.0 mg/kg IM/IV; max 50 mg
DIPHENHYDRAMINE PO
Less than 6 years: 12.5 mg PO
6 to 12 years: 25 mg PO
> 12 years: 50 mg PO

Continue General Pediatric Assessment
### History
- Onset and location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

### Signs and Symptoms
- Itching or hives
- Coughing/wheezeing or respiratory distress
- Throat or chest constriction
- Difficulty swallowing
- Hypotension/shock
- Edema
- Nausea/vomiting

### Differential
- Urticarial (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration/airway obstruction
- Asthma/COPD
- CHF

### Pearls
- Recommended Exam: Mental Status, Skin, Heart, Lung.
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered in acute anaphylaxis (moderate/severe symptoms). IM Epinephrine (1:1,000) should be administered in priority before or during attempts at IV or IO access.
- Contact Medical Control for refractory anaphylaxis.

### Severity
- **Mild** reactions involve skin rashes, itchy sensation or hives with no respiratory involvement.
- **Moderate** reactions involve skin disorders and may include some respiratory involvement like wheezing, yet the patient still maintains good tidal volume air exchange.
- **Severe** reactions involve skin disorders, respiratory difficulty, and may include hypotension.

### Special Considerations
- Always perform ECG monitoring when administering Epinephrine.
- Consider Dopamine for hypotension refractory to administration of Epinephrine.
- Provide oxygen and airway support as needed.

### QI Metrics
- Epinephrine given appropriately.
- Airway assessment documented.
Pediatric Altered Mental Status

**General Pediatric Assessment**

- BG <60 mg/dl
- BG <40 mg/dl in newborn

**Blood glucose testing**

- BG >60 mg/dl

**Vascular Access**

- ORAL GLUCOSE if patient protecting airway
- D10, 5ml/kg IV max single dose 25 gm
- GLUCAGON 0.5 mg IM (<20 kg); 1.0 mg IM (>20 kg) for no IV access

**Improved mental status?**

- Yes
  - Other treatment protocols as indicated

**No**

- BG <60 mg/dl
  - Consider NS 20 ml/kg IV; may repeat up to 60 ml/kg; if BG >250, then 10 ml/kg bolus

**Cardiac monitor**

- 12-Lead ECG

**Consider the Following:**

- Evidence of a seizure of post-ictal state?
  - Seizure

- Signs of hypoperfusion?
  - Shock

- Signs of trauma or head injury?
  - General Trauma

**If unresponsive, with respiratory depression & suspected narcotic overdose**

- NALOXONE 0.1 mg/kg IN/IM/IV; may repeat if patient slow to respond; titrate to effect; max single dose 2.0 mg; total dose 10 mg

**Treat hypoglycemia and suspected narcotic overdose before using advanced airways!!**

**Continue General Pediatric Assessment**
### History
- Past medical history
- Medications
- Recent illness
- Irritability
- Lethargy
- Changes in feeding/sleeping
- Diabetes
- Potential ingestion
- Trauma

### Signs and Symptoms
- Decrease in mentation
- Change in baseline mentation
- Decrease in blood sugar
- Cool, diaphoretic skin
- Increase in blood sugar
- Warm, dry, skin; fruity breath
- Kussmaul respirations, signs of dehydration

### Differential
- Hypoxia
- CNS (trauma, stroke, seizure, infection)
- Thyroid (hyper/hypo)
- Shock (septic-infection, metabolic, traumatic)
- Diabetes (hyper/hypoglycemia)
- Toxicological
- Acidosis/Alkalosis
- Environmental exposure
- Electrolyte abnormalities
- Psychiatric disorder

### Pearls
- Recommended Exam: Mental Status, HEENT, Skin, Heart, Lung, Abdomen, Back, Extremities and Neuro.
- Pay careful attention to the head exam for signs of injury.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety and that of other responders.
- Consider alcohol, prescription drugs, illicit drugs and over the counter preparations as possible etiology.
- If narcotic overdose or hypoglycemia is suspected, administer Narcan or Glucose prior to advanced airway procedures.
- Narcan is not recommended in the newly born.
Pediatric Behavioral Emergency

Consider medical causes for the patient’s behavior:
1. Hypoxia
2. Intoxication / Overdose
3. Hypoglycemia / Electrolytes
4. Head Injury
5. Post-ictal State

Implement the S.A.F.E.R. model

Threatened or acted in a way that suggests threat to self or others

Yes

Consider Benzodiazepine IM

2-point restraints; consider law enforcement escort; or 4-point restraints if needed

Transport to a Pediatric Facility

No

Transport to a Pediatric Facility as appropriate
History
- Situational crisis
- Psychiatric illness/medications
- Injury to self or threat to others
- Medic Alert tag
- Substance abuse/overdose
- Diabetes

Signs and Symptoms
- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal/homicidal thoughts

Differential
- Altered mental status differential
- Alcohol intoxication
- Toxin/substance abuse
- Medication effect or overdose
- Withdrawal syndromes
- Depression
- Bipolar
- Schizophrenia
- Anxiety disorder

Pearls
- Midazolam is **NOT** recommended for use in children for behavioral emergencies.
- Law enforcement assistance should be requested on all calls involving potentially violent patients.
- Under no circumstances are patients to be transported restrained in the prone position.
- Recommended Exam: Mental Status, Skin, Heart, Lung, Neuro.
- Consider all possible medical/trauma causes for behavior.
- Do not irritate the patient with a prolonged exam.
- EMS providers are mandatory reporters in regard to suspected abuse of any vulnerable person.
- Consider cardiac and ETCO₂ monitoring.

Dystonic Reaction
- Condition causing involuntary muscle movements or spasms typically of the face, neck and upper extremities.
- Typically an adverse reaction to drugs such as Haloperidol (may occur with administration).
- When recognized, administer Diphenhydramine 1 mg/kg up to 50 mg IM/IV.

S.A.F.E.R.
- Stabilize the situation by containing and lowering the stimuli.
- Assess and acknowledge the crisis.
- Facilitate the identification and activation of resources (chaplain, family, friends or police).
- Encourage patient to use resources and take actions in his/her best interest.
- Recovery or referral – leave patient in care of responsible person or professional, or transport to appropriate facility.
Pediatric Bradycardia

General Pediatric Assessment

Ventilation Management

Bradycardia causing hypotension, altered mental status, poor perfusion or shock?

No

Identify underlying cause

E Blood glucose testing
A Consider Vascular Access
P Cardiac monitor
Consider Overdose/Poisoning

Monitor, Reassess, Transport to Pediatric Facility

Yes

Identify underlying cause

E Blood glucose testing
A Vascular Access
P Cardiac monitor

HR < 60 bpm?

Yes

CPR

E EPINEPHRINE 1:10,000 0.01 mg/kg IV/IO (max. 1 mg); repeat q 3-5 min

A EPINEPHRINE 1:1000 0.1 mg/kg via ETT (max 1.0 mg); repeat q 3-5 min

P ATROPINE 0.02 mg/kg IV/IO (min dose 0.1 mg; max 0.5 mg) may repeat once after 5 min

P ATROPINE 0.02 mg/kg IV/IO (min dose 0.1 mg, max 0.5 mg); may repeat q 5 min x 1

Consider Transcutaneous Pacing

No

NS bolus 20 ml/kg; may repeat up to 60 ml/kg

P Cardiac Arrest

P Pulseless

Reassess

Notify Receiving Hospital

Notify Receiving Hospital

No
### History
- Respiratory insufficiency
- Past medical history
- Medications
- Pacemaker

### Signs and Symptoms
- HR <60/min with hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Respiratory distress

### Differential
- Hypoxia
- Hypothermia
- Sinus bradycardia
- Athletic
- Head injury (elevated ICP)
- Spinal cord lesion
- Overdose

### Pearls
- Pediatric pacing is by Telemetry Physician order only.
- Recommended Exam: Mental Status, HEENT, Heart, Lung, Neuro.
- Bradycardia causing symptoms is typically <50/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic; otherwise, monitor and reassess.
- Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount.
- Hypoxemia is a common cause of bradycardia; be sure to oxygenate the patient and provide ventilatory support as needed.
Pediatric Burns

General Pediatric Assessment

Thermal Exposure

Stop the burning process with water or saline
Remove smoldering clothing and jewelry
Do not remove STUCK clothing

Ventilation Management

Cover burned area with dry sterile dressing
DO NOT USE any ice, lotion, ointment or antiseptic!

Vascular Access

IVF – Age 13 and older 500 ml NS fluid bolus
Age 6-12 250 ml NS fluid bolus
Age 5 years or less 125 ml fluid bolus if signs of hypoperfusion, OR >20% BSA burn present;
Contact Medical Direction at Burn Center for further drip rates or additional boluses

Cardiac monitor

Eye Involvement?
Continuous saline flush in affected eyes.
Flush with water or NS for 10-15 min
Remove jewelry, constricting items, and expose burned area
Identify entry and exit sites, apply sterile dressings

Vascular Access

IVF – Age 13 and older 500 ml NS fluid bolus
Age 6-12 250 ml NS fluid bolus
Age 5 years or less 125 ml fluid bolus if signs of hypoperfusion, OR >20% BSA burn present;
Contact Medical Direction at Burn Center for further drip rates or additional boluses

Cardiac monitor

Pain Management

Consider Smoke Inhalation

Transport to closest appropriate
Burn Care Center
Sunrise Hospital
UMC Pediatric ED
**History**
- Type of exposure (heat, gas, chemical)
- Inhalational injury
- Time of injury
- Past medical history & medications
- Other trauma
- Loss of consciousness
- Tetanus/immunization status

**Burns in Mouth**
- Burns with concomitant trauma
- Chemical burns

**Signs and Symptoms**
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- Wheezing
- Singed facial or nasal hair
- Hoarseness or voice changes

**Differential**
- Superficial (1st degree) – red and painful
- Partial Thickness (2nd degree) – blistering
- Full Thickness (3rd degree) – painless/charred or leathery skin
- Thermal
- Chemical
- Electrical
- Radiation
- Lightning

**Pearls**
- Burn patients are trauma patients; evaluate for multisystem trauma.
- Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro.
- Consider early intubation with patients experiencing significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen. (For patients in which the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling. Elevate extremity.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Consider ETCO₂ monitoring.
- Evaluate the possibility of child abuse with children and burn injuries

**Pearls (Electrical)**
- Do not contact the patient until you are certain the source of the electric shock has been disconnected.
- Attempt to locate contact points, (entry wound where the AC source contacted the patient; an exit at the ground point); both sites will generally be full thickness.
- Cardiac monitor; anticipate ventricular or atrial irregularity to include V-Tach, V-Fib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

**Pearls (Chemical)**
- Certainly 0.9% NaCl Sol’n or Sterile Water is preferred; however if it is not readily available, do not delay; use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest, readily available water or saline solution using copious amounts of fluids.

**Patients meeting the following Criteria shall be transported to the closest appropriate Burn Care Center:**
1. Second degree burns >10% body surface area (BSA).
2. Any Third degree burns.
3. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
4. Electrical burns including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalation burns.
8. Burn injury with concomitant trauma

**Early Intubation Indications**
- Signs of Airway Obstruction
- Hoarseness, Stridor, Dysphagia
- Extensive Deep Facial Burns
- Signs of Respiratory Compromise
  - Accessory Muscle Use
  - Inability to Clear Secretions
  - Poor Oxygenation

**Fluid Resuscitation**
- 13 years and above 500 ml NS bolus
- 6-12 years 250 ml NS bolus
- 5 years or less 125 ml NS bolus
- Contact Burn Center Medical Direction for additional boluses or drip rates or if it is a prolonged transport.
- NS can be substituted with LR if available.

**Note:** Each arm totals 9 percent (front of arm 4½ percent, back of arm 4½ percent)
Pediatric Cardiac Arrest Non-Traumatic

General Pediatric Assessment

Refer to Termination of Resuscitation or DNR Protocol as Appropriate

Meets Criteria for Prehospital Death Determination or DNR/POLST present?

IF HYPOXIA IS THE CAUSE OF THE ARREST, EARLY VENTILATION IS RECOMMENDED

Begin Age Appropriate CPR
Push Hard (1.5 Inches Infant 2 Inches in Children) Push Fast (100-120/min)

Apply AED and Defib if Prompted
Apply Cardiac Monitor

Rhythm Shockable?

VF/VT

Defibrillate at 2 J/kg

Continue CPR for 2 Minutes

IV Access

IO Access

Rhythm Shockable?

Defibrillate at 4 J/kg Not To Exceed Adult Dose

Continue CPR for 2 Minutes

EPINEPHRINE 0.01 mg/kg 1:10,000 IV/IO or 0.1 mg/kg 1:1,000 ETT Every 3-5 Minutes

Consider Extraglottic Airway

Consider ETT

Rhythm Shockable?

Defibrillate if Prompted(AED)

Defibrillate at 4 J/kg Not To Exceed Adult Dose

Continue CPR for 2 Minutes

AMIODARONE 5 mg/kg IV/IO May Repeat Once After 5th Shock Address H’s & T’s

Use Asystole/PEA Side as Indicated

Check Pulse if Organized Rhythm

If Patient Remains Unresponsive to Resuscitation Efforts Consider Termination of Resuscitation Protocol

Asystole/PEA

Continue CPR for 2 Minutes

IV Access

IO Access

EPINEPHRINE 0.01 mg/kg 1:10,000 IV/IO or 0.1 mg/kg 1:1,000 ETT Every 3-5 Minutes

Consider Extraglottic Airway

Consider ETT

Rhythm Shockable?

Use VF/VT Side as Indicated

Yes

If Patient Remains Unresponsive to Resuscitation Efforts Consider Termination of Resuscitation Protocol

No

Address H’s & T’s

The diagram outlines the general pediatric assessment and decision-making process for pediatric cardiac arrest non-traumatic cases, including criteria for shockable rhythms, non-shockable rhythms, and interventions such as CPR, defibrillation, and medication administration.
History
- Events leading to arrest
- Estimated down time
- Past medical history
- Medications
- Existence of terminal illness

Signs and Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential
- Medical vs. Trauma
- VF vs. Pulseless VT
- Asystole
- PEA
- Primary cardiac event vs. respiratory or drug overdose

Pearls
- Respiratory failure resulting in cardiac arrest should be addressed as it is identified.
- Efforts should be directed at high quality chest compressions with limited interruptions and early defibrillation when indicated.
- Consider early IO placement if IV is difficult.
- DO NOT HYPERVENTILATE.
- Reassess and document ETT placement using auscultation and ETCO₂ capnography.
- Switch compressors every two minutes.
- Try to maintain patient modesty.
- Mechanical chest compression devices should be used if available and appropriate for patient age/size in order to provide for consistent uninterrupted chest compressions and crew safety.
- Adult paddles/pads may be used on children weighing greater than 15kg.

H’s & T’s (reversible causes)
- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hypo/Hyperkalemia – Calcium Chloride, Glucose, Sodium Bicarbonate, Albuterol
- Hypothermia – Warming
- Hypoglycemia – Glucose
- Tension pneumothorax – Needle decompression
- Tamponade, cardiac – Volume infusion
- Toxins – Agent specific antidote
- Thrombosis, pulmonary – Volume infusion
- Thrombosis, coronary – Emergent PCI
Pediatric Cold-Related Illness

General Pediatric Assessment
- Remove from environment
- Temperature measurement (if available)
- Remove wet clothing
- Dry/warm patient
- Passive warming measures

Hypothermia/Frost Bite
- Awake with/without altered mental status
  - Yes: Respiratory distress?
    - Yes: Respiratory Distress
    - No: Continue General Patient Care and Transport
  - No: Monitor and reassess

Localized cold injury
- Monitor and reassess
- General wound care
- DO NOT rub skin to warm
- DO NOT allow refreezing

Systemic hypothermia
- Unresponsive
  - Pulse present?
    - Yes: Cardiac Arrest
    - No: Monitor and reassess

Active warming measures
- Vascular Access
- Cardiac monitor
- NS bolus 20 ml/kg IV/IO; repeat to age appropriate effect
- SBP ≥70 + 2 x Age max 60 ml/kg
- General Pediatric Trauma Assessment
- Pediatric Shock (Non-Trauma)
- Monitor and reassess

Continue General Patient Care and Transport
### History
- Age, very young and old
- Exposure to decreased temperatures, but may occur in normal temperatures
- Past medical history/medications
- Drug or alcohol use
- Infections/sepsis
- Time of exposure/wetness/wind chill

### Signs and Symptoms
- AMS/coma
- Cold, clammy
- Shivering
- Extremity pain
- Bradycardia
- Hypotension or shock

### Differential
- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

### Pearls
- Recommended exam: Mental Status, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to cold emergencies.
- Obtain and document patient temperature.
- If temperature is unknown, treat the patient based on suspected temperature.
- Hot packs can be used on the armpit and groin; care should be taken not to place the packs directly on the skin.

### Hypothermia Categories
- Mild 90°- 95° F (33°- 35° C)
- Moderate 82°- 90° F (28°- 32° C)
- Severe <82° F (<28° C)

### Hypothermia Mechanisms
- Radiation
- Convection
- Conduction
- Evaporation
Pediatric Drowning

General Pediatric Assessment

Airway protected & ventilation adequate?

No

Ventilation Management
Consider Cervical Stabilization

Yes

Consider Cervical Stabilization

Oxygen 15L NRB
SpO$_2$
Capnography

ALBUTEROL
2.5 mg in 3.0 ml SVN; repeat until improvement

Consider 12-Lead ECG

Continue General Pediatric Assessment

CAVEATS:
1. Adequate ventilation is KEY!!!
2. For patients breathing on own, start oxygen 15L NRB; for patients not adequately breathing → BVM
3. Do not suction foam in airway, just bag through it initially.
4. For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 15:2 CPR (no continuous compressions)
### History
- Submersion in liquid regardless of depth
- Possible history of trauma (dive)
- Duration of immersion
- Temperature of water or possibility of hypothermia
- Degree of water contamination

### Signs and Symptoms
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing, wheezing, rales, stridor, rhonchi
- Apnea
- Frothy/foamy sputum

### Differential
- Trauma
- Pre-existing medical condition
- Barotrauma
- Decompression illness
- Post-immersion syndrome

### Pearls
- Ensure scene safety.
- Hypothermia is often associated with submersion incidents.
- All patients should be transported for evaluation because of potential for worsening over the next several hours.

### QI Metrics
- Complete and submit the SNHD Submersion Incident Report Form.
Pediatric Epistaxis

Active bleeding from the nose?

Compress nose with Direct pressure
Tilt head forward
Position of comfort

Significant or Multi-System Trauma?

Bleeding Controlled?

Would the patient tolerate nasal spray administration?

Have patient blow nose Suction active bleeding
OXYMETAZOLINE
Or
PHENYLEPHRINE
2 Sprays to each nostril. Followed by direct pressure

General Pediatric Trauma Assessment

General Pediatric Assessment
Oxymetazoline (Afrin) and Phenylephrine (Neosynephrine) should be avoided if child cannot follow instructions to blow their nose, or are unable to tolerate the administration of a nasal medication.

Pearls
- Recommended exam: Mental Status, HEENT, Lungs, Neuro
- History should include any clotting disorders such as Hemophilia or Von Willebrand disease, as these can contribute to bleeding.
- Non-accidental trauma as well as foreign body should be considered in pediatric patients with epistaxis.
- It is very difficult to quantify the amount of blood loss with epistaxis.
- Bleeding may be also occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Detailed medication history should be obtained to assess for any NSAIDS, Antiplatelet agents or Anticoagulant medications that may contribute to bleeding.
Pediatric Heat-Related Illness

General Pediatric Assessment
- Remove from environment
- Temperature measurement (if available)
- Remove tight clothing
- Passive cooling measures

Symptom Severity

Heat Cramps
- Normal to elevated body temp, weakness, muscle cramping
- PO fluids as tolerated
- Monitor and reassess

Heat Exhaustion
- Elevated body temp, cool, moist skin
- Weakness, anxious tachypnea
- Active cooling measures
  - Vascular Access
  - NS bolus: 20 ml/kg IV/IO; repeat to effect age appropriate SBP ≥70 + 2 x Age; max 60 mL/kg
  - Cardiac monitor
- Poor perfusion?
  - Yes
    - Exit to appropriate Shock or Trauma Protocol as indicated
  - No
    - Monitor and reassess

Heat Stroke
- High body temp >104 f, hot, dry skin
- Hypotension, altered mental status/coma
- Active cooling measures
  - Vascular Access
  - NS bolus: 20 ml/kg IV/IO; repeat to effect age appropriate SBP ≥70 + 2 x Age; max 60 mL/kg
  - Cardiac monitor
- Poor perfusion?
  - Yes
    - Continue General Patient Care and Transport
  - No
    - No Exit to appropriate Shock or Trauma Protocol as indicated
History
- Age, very old and young
- Exposures to increased temperatures and/or humidity
- Past medical history/medications
- Time and duration of exposure
- Poor PO intake, extreme exertion
- Fatigue and/or muscle cramping

Signs and Symptoms
- AMS/coma
- Hot, dry, or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

Differential
- Fever
- Dehydration
- Medications
- Hyperthyroidism
- DTs
- Heat cramps, heat exhaustion, heat stroke
- CNS lesions or tumors

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104° F (40° C).
- Intense shivering may occur as patient is cooled.
- Active cooling includes application of cold packs or ice (not directly on skin), fanning either by air conditioning or fanning.
- Cold Saline is not to be administered for the treatment of hyperthermia unless directed by telemetry physician.

Heat Cramps
- Consist of benign muscle cramping caused by dehydration and is not associated with an elevated temperature.

Heat Exhaustion
- Consists of dehydration, salt depletion, dizziness, fever, AMS, headache, cramping, N/V. Vital signs usually consist of tachycardia, hypotension and elevated temperature.

Heat Stroke
- Consists of dehydration, tachycardia, hypotension, temperature >104° F (40° C) and AMS.

Active Cooling Measures
- Cold packs
- Ice (do not place directly on the skin)
- Fanning
- Air conditioning
Neonatal Resuscitation

Assist mother with delivery as needed

Obstetrical Emergency

Term gestation? Breathing or crying? Good tone?

Yes

Assure open airway Dry baby

General Pediatric Assessment

Yes

No

Warm, open airway Dry, stimulate baby

No

Labored breathing or persistent cyanosis?

Yes

Ventilation Management w/ BVM

SpO₂ monitoring

Cardiac monitor

HR <100, gasping, or apnea?

Yes

Ventilation Management

Oxygen, keep SpO₂ >94%

Maintain warmth Monitor and reassess

No

HR <100?

Yes

CPR 3:1 ratio

Vascular Access

EPINEPHRINE 1:10,000; 0.01 mg/kg IV/IO q 3-5 min as needed for HR <60

No

HR <100?

No

Yes

EPINEPHRINE 1:10,000; 0.01 mg/kg IV/IO q 3-5 min as needed for HR <60

Transport per Pediatric Destination Protocol; Radio Contact to receiving facility

Caveats:
- Deep airway suctioning is no longer recommended
- Traditional CPR 3:1 ratio is standard for newborns
- Most newborns requiring resuscitation will respond to BVM, compressions and Epi; for those that don’t, consider hypovolemia, pneumothorax, and/or hypoglycemia (BG <40)
**History**
- Due date
- Time contractions started/duration/frequency
- Rupture of membranes (meconium)
- Time and amount of any vaginal bleeding
- Sensation of fetal movement
- Prenatal care
- Past medical and delivery history
- Medications
- Gravida/Para Status
- High risk pregnancy

**Signs and Symptoms**
- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

**Differential**
- Abnormal presentation (breech, limb)
- Prolapsed cord
- Placenta previa
- Abruptio placenta

**Pears**
- Recommended Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Lungs, Abdomen, Neuro.
- Document all times (delivery, contraction, duration, frequency).
- Some bleeding is normal; copious amounts of blood or free bleeding is abnormal.
- Record APGAR at one and five minutes after birth.
- APGAR of 7-10 is normal, while 4-7 require resuscitative measures
- Transport mother and infant together whenever possible.

**APGAR**

<table>
<thead>
<tr>
<th>Score=0</th>
<th>Score=1</th>
<th>Score=2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity/Muscle Tone</strong></td>
<td>Absent</td>
<td>Arms/legs flexed</td>
</tr>
<tr>
<td><strong>Pulse</strong></td>
<td>Absent</td>
<td>Below 100</td>
</tr>
<tr>
<td><strong>Grimace/Reflex Irritability</strong></td>
<td>No response</td>
<td>Grimace</td>
</tr>
<tr>
<td><strong>Appearance/Skin Color</strong></td>
<td>Blue-Grey, pale all over</td>
<td>Normal, except extremities</td>
</tr>
<tr>
<td><strong>Respiration</strong></td>
<td>Absent</td>
<td>Slow, irregular</td>
</tr>
</tbody>
</table>

**Caveats:**
- Deep airway suctioning no longer recommended.
- Traditional CPR 3:1 ratio is standard for newborns.
- Most newborns requiring resuscitation will respond to BVM, compressions and Epinephrine; for those that don’t, consider hypovolemia, pneumothorax, and/or hypoglycemia (BG <40).
Pediatric Overdose / Poisoning

General Pediatric Assessment

Endotracheal Intubation if indicated

Consider Vascular Access
Consider cardiac monitor

Consider potential cause of signs/symptoms

Opiate OD
Cyanide
Dystonic Reaction
TCA/ASA OD
Calcium Channel Blocker OD
Beta Blocker OD
Organophosphate Toxicity

Cyanide

DIPhenhydRAMINE 1.0 mg/kg IM/IV; max dose 50 mg

Wide QRS

Bradycardic and Hypotensive
Bradycardic and Hypotensive

1.0 mEq/kg of 8.4% solution SODIUM BICARBONATE IV/IO; use 4.2% for neonate
20 mg/kg CALCIUM CHLORIDE (10%) slow IV/IO

Cyanide

HYDROXOCOBALAMIN
See Pediatric Smoke Inhalation Protocol for dosing

Cyanide

NALOXONE 0.1 mg/kg IN/IV/IM may repeat to a max dose of 10 mg

NALOXONE 2-4 mg Intranasal

NALOXONE 0.1 mg/kg IM/IV/IM

ATROPINE 0.02 mg/kg IV/IO q 15 min as needed to decrease secretions and ventilatory resistance; min dose 0.1 mg

GLUCAGON 0.5 mg IV/IM/IO; may repeat once in 3-5 min

Reassess and Transport as Appropriate
### History
- Ingestion or suspected ingestion of a potentially toxic agent
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

### Signs and Symptoms
- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chest pain

### Differential
- TCA overdose
- Acetaminophen OD
- Aspirin
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents, insecticides

### Pearls
- Pediatric patients should be evaluated by a physician if an overdose/poisoning is suspected regardless of agent, amount or time.
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Neuro.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- Overdose or toxin patients with significant ingestion/exposure should be closely monitored and aggressively treated. Do not hesitate to contact medical control if needed.
- In the case of cyanide poisoning, altered mental status may be profound. Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.
- Poison Control: 1-800-222-1222

### Agents
- Acetaminophen: Initially normal or N/V. Tachypnea and AMS may occur later. Renal dysfunction, liver failure and/or cerebral edema may manifest.
- Depressants: Decreased HR, BP, temp and RR.
- Anticholinergic: Increased HR, increased temp, dilated pupils and mental status changes.
- Insecticides: May include S/S of organophosphate poisoning.
- Solvents: N/V, cough, AMS.
- Stimulants: Increased HR, BP, temp, dilated pupils, seizures and possible violence.
- TCA: Decreased mental status, dysrhythmias, seizures, hypotension, coma, death.
Vascular Access

Cardiac monitor

Comfort measures, i.e. patient positioning, splinting, ice, etc.

Appropriate treatment protocol

General Pediatric Assessment

For severe pain, consider:

**MORPHINE** 0.1 mg/kg IM/IV/IO
- Maximum single dose: 10 mg

**FENTANYL** 1.0 mcg/kg IN/IM/IV/IO; maximum single dose: 100 mcg
- Additional FENTANYL doses require a physician order

**ONDANSETRON** 0.15 mg/kg ODT/IM/IV/IO
- up to max dose: 4.0 mg**
- If 8 years of age or older
**METOCLOPROMIDE** 5 mg slow IV/IO bolus over 1-2 minutes or IM

Contact Medical Control for additional doses

**Round up to nearest ½ pill**

Continue General Pediatric Assessment
## History
- Age
- Location, duration
- Severity (1-10)
- Past medical history
- Pregnancy status
- Drug allergies and medications

## Signs and Symptoms
- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

## Differential
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural, respiratory
- Neurogenic
- Renal (colic)

### Pearls
- Recommended exam: Respiratory Status, Mental Status, Area of pain, Neuro.
- Pain severity (1-10) is a vital sign to be recorded before and after medication administration and patient hand off.
- Monitor BP and respirations closely as sedative and pain control agents may cause hypotension and or respiratory depression.
- Consider patient’s age, weight, clinical condition, use of drugs/alcohol, exposure to opiates when determining initial opiate dosing. Weight based dosing may provide a standard means of dosing calculation but it does not predict response.
- Exercise caution when administering opiates and benzodiazepines; this combination results in deeper anesthesia with significant risk of respiratory compromise.
- Burn patients may require more aggressive dosing.

### QI Metrics
- Vital signs with O$_2$ sats documented.
- Pain scale documented before and after each intervention.
- Repeat vital signs after each intervention.
Pediatric Respiratory Distress

General Pediatric Assessment
Patient in position of comfort

Airway & ventilation adequate?

No

Ventilation Management

Yes

Wheezing or Bronchospasm

ALBUTEROL assist patient w/own MDI

ALBUTEROL 2.5 mg in 3.0 ml SVN; repeat until improvement

PT >2 y/o with history of wheezing IPRATROPIUM 2.5 ml 0.02% solution SVN once; or DuoNeb 3.0 ml SVN once

Consider Vascular Access

Stridor

Nebulized NS SVN

Provide comfort measures

Consider Vascular Access

For suspected Croup, EPINEPHRINE 1:1000 3-5 mg SVN, if SpO₂ <94%

Consider Allergic Reaction

Continue General Pediatric Assessment
<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>Shortness of breath</td>
<td>Asthma</td>
</tr>
<tr>
<td>Home treatment (oxygen, nebulizers)</td>
<td>Pursed lip breathing</td>
<td>Anaphylaxis</td>
</tr>
<tr>
<td>Medication</td>
<td>Decreased ability to speak</td>
<td>Aspiration</td>
</tr>
<tr>
<td>Toxic exposure</td>
<td>Increased respiratory rate and effort</td>
<td>Pleural effusion</td>
</tr>
<tr>
<td></td>
<td>Wheezing, rhonchi</td>
<td>Pneumonia</td>
</tr>
<tr>
<td></td>
<td>Use of accessory muscles</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td></td>
<td>Fever, cough</td>
<td>Pericardial tamponade (trauma)</td>
</tr>
<tr>
<td></td>
<td>Tachycardia</td>
<td>Hyperventilation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhaled toxin</td>
</tr>
</tbody>
</table>

**Pearls**
- Be prepared to assist ventilations as needed.
- Recommended exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro.
- Pulse oximetry and end tidal continuous waveform capnography must be monitored.
- Consider MI.
- Allow the patient to assume a position of comfort.
**General Pediatric Assessment**

- **Patient febrile?**
  - Yes: **Cool the patient**
  - No: **Patient actively seizing?**

**Patient actively seizing?**
- Yes: **Blood glucose testing**
- No: **Patient have a history of seizures?**
  - Yes: **Blood glucose testing**
  - No: **Reassess and monitor VS**

**Patient have a history of seizures?**
- Yes: **Cool the patient**
- No: **Blood glucose testing**

**Blood glucose testing**
- BG < 60 mg/dl:
  - Yes: **D10, 5ml/kg IV max single dose 250ml**
  - No: **BG < 60 mg/dl?**

**Persistent (status) or recurrent seizure?**
- Yes: **Blood glucose testing**
- No: **Reassess and monitor VS**

**Ventilation Management**
- Cardiac monitor
  - MIDAZOLAM 0.1 mg/kg, IN/IM/IV/IO; max dose 5.0 mg
  - OR DIAZEPAM 0.1 mg/kg IM/IV/IO/PR; max dose 5.0 mg

**Vascular Access**

**Cardiac monitor**

**MIDAZOLAM 0.1 mg/kg, IN/IM/IV/IO; max dose 5.0 mg**
**DIAZEPAM 0.1 mg/kg IM/IV/IO/PR; max dose 5.0 mg**

**Continue General Pediatric Assessment**
### History
- Reported or witnessed seizure activity
- Previous seizure history
- Seizure medications
- History of trauma
- History of diabetes
- Time of seizure onset
- Number of seizures
- Alcohol use, abuse or abrupt cessation
- Fever

### Signs and Symptoms
- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconsciousness

### Differential
- CNS trauma
- Tumor
- Metabolic, hepatic or renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Drugs, medications non-compliance
- Infection, fever
- Alcohol withdrawal
- Hyperthermia
- Hypothermia

### Pearls
- Recommended exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro.
- Benzodiazepines are effective in terminating seizures; do not delay IM/IN administration while initiating an IV.
- Status epilepticus is defined as two or more seizures successively without an intervening lucid period, or a seizure lasting over five minutes.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and oral trauma.
- Focal seizures affect only part of the body and are not usually associated with a loss of consciousness.
- Be prepared to address airway issues and support ventilations as needed.
- Consider cardiac and ETCO2 monitoring.
Pediatric Shock

General Pediatric Assessment

- Cardiac monitor/Capnography
- Oxygen 15L NRB
- Vascular Access

Alternative appropriate treatment protocols as indicated

Trauma-related

Non-Trauma related

NS bolus 20 ml/kg; may repeat x 2 with no rales on lung exam

Blood glucose testing

- BG <60 mg/dl
- BG <40 mg/dl in newborn

- ORAL GLUCOSE if patient protecting airway
- D10, 1 ml/kg IV max single dose 250 ml
- GLUCAGON
  - 0.5 mg IM (<20 kg)
  - 1.0 mg IM (>20 kg) for no IV access

BG normal

- NS bolus 10 ml/kg for hypotension; may repeat x 2

BG >250 mg/dl

Consider DOPAMINE 5-20 mcg/kg/min; titrate to SBP >70 mmHg + 2 x Age

Continue General Pediatric Assessment

Estimated Minimum Systolic BP Calculation (Age in Years x 2) + 70

BP calculation applies up to age 10 years

For patients with known adrenal insufficiency, administer patient’s own Solu-Cortef (hydrocortisone) as prescribed

General Trauma

BG normal

NS bolus 20 ml/kg; may repeat x 2 with no rales on lung exam

Blood glucose testing

- BG <60 mg/dl
- BG <40 mg/dl in newborn

- ORAL GLUCOSE if patient protecting airway
- D10, 1 ml/kg IV max single dose 250 ml
- GLUCAGON
  - 0.5 mg IM (<20 kg)
  - 1.0 mg IM (>20 kg) for no IV access

BG normal

- NS bolus 10 ml/kg for hypotension; may repeat x 2

BG >250 mg/dl

Consider DOPAMINE 5-20 mcg/kg/min; titrate to SBP >70 mmHg + 2 x Age

Continue General Pediatric Assessment

Pediatric Shock (Revised and approved by MAB 5-1-2019)
**History**
- Blood loss- vaginal bleeding, ectopic, GI bleeding or AAA
- Fluid loss- vomiting, diarrhea, fever
- Infection
- Cardiac tamponade
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake

**Signs and Symptoms**
- Restlessness, confusion
- Weakness, dizziness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

**Differential**
- Hypovolemic shock
- Cardiogenic shock
- Septic shock
- Neurogenic shock
- Anaphylactic shock
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolism
- Tension pneumothorax
- Medication effect or overdose
- Vasovagal

---

### For patients with known adrenal insufficiency, administer patient’s own Solu-Cortef (hydrocortisone) as prescribed.

**Causes of Adrenal Insufficiency:**
- Addison’s Disease
- Congenital Adrenal Hyperplasia
- Long term administration of steroids
- Others

### Pearls
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Hypotension can be defined as a systolic < Estimated Minimum Systolic. This is not always reliable and should be interpreted in context and patient’s typical BP, if known. Shock may present with a normal BP initially.
- Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.
- Consider all possible causes of shock and treat per appropriate protocol.

---

**Hypovolemic shock**
- Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm or pregnancy-related bleeding

**Cardiogenic shock**
- Heart failure, MI, cardiomyopathy, myocardial contusion, toxins

**Distributive shock**
- Sepsis, anaphylaxis, neurogenic, toxins

**Obstructive shock**
- Pericardial tamponade, pulmonary embolus, tension pneumothorax
Pediatric Smoke Inhalation

General Pediatric Assessment

E
Oxygen Keep SpO₂ >94%

Ventilation Management

P
Cardiac monitor

A
Vascular Access

NS bolus, 20 ml/kg up to 60 ml/kg for hypoperfusion

Other treatment protocols as indicated (Burns)

Yes
HYDROXOCOBALAMIN
Reference dosing chart in Pearls

Cardiac arrest or hypotension or profound altered mental status?

No
Transport to closest appropriate
Burn Care Center
Sunrise Hospital
UMC Trauma Center

Pediatric Smoke Inhalation (Revised and approved by District Health Officer 9/25/2019)
History
- Exposed to smoke in a structure fire
- Exposed to smoke in a vehicle fire
- Exposed to smoke from other sources, industrial, confined space, wilderness fire etc.

Signs and Symptoms
- Facial burns
- Singed nasal hairs or facial hair
- Shortness of breath
- Facial edema
- Stridor
- Grunting respirations

Differential
- COPD
- CHF
- Toxic inhalation injury
- Caustic inhalation injury

Pearls
- Protect yourself and your crew.
- Have a high index of suspicion when treating patients at the scene of a fire.
- If the medication is not available on scene do not delay transport waiting for it.
- Carefully monitor respiratory effort and correct life threats immediately.
- Decide early on if you want to intubate as burned airways swell making intubation difficult.
- Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.

Pediatric Smoke Inhalation

Pediatric Cyanokit Instructions and Dosing

1. Reconstitute Cyanokit vial per the instructions. The new vial concentration will be 25mg/ml.
2. See chart below to find the appropriate reconstituted dose.

<table>
<thead>
<tr>
<th>APPROXIMATE AGE</th>
<th>NB–1 m</th>
<th>2 m</th>
<th>4–6 m</th>
<th>8–10 m</th>
<th>1–1.5 y</th>
<th>2–2.5 y</th>
<th>3–3.5 y</th>
<th>4–5 y</th>
<th>5.5–7 y</th>
<th>7.5–8 y</th>
<th>8.5–10 y</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT IN KGS</td>
<td>3–4 kg</td>
<td>5 kg</td>
<td>6–7 kg</td>
<td>8–9 kg</td>
<td>10–11 kg</td>
<td>12–14 kg</td>
<td>15–18 kg</td>
<td>19–22 kg</td>
<td>24–28 kg</td>
<td>30–32 kg</td>
<td>34–36 kg</td>
</tr>
<tr>
<td>RECONSTITUTED SYRINGE AMOUNT</td>
<td>10 ml</td>
<td>15 ml</td>
<td>20 ml</td>
<td>25 ml</td>
<td>30 ml</td>
<td>40 ml</td>
<td>50 ml</td>
<td>60 ml</td>
<td>75 ml</td>
<td>85 ml</td>
<td>100 ml</td>
</tr>
<tr>
<td>TOTAL DOSAGE OF MEDICATION</td>
<td>250mg</td>
<td>375mg</td>
<td>500mg</td>
<td>625mg</td>
<td>750mg</td>
<td>1000mg</td>
<td>1250mg</td>
<td>1500mg</td>
<td>1875mg</td>
<td>2125mg</td>
<td>2500mg</td>
</tr>
<tr>
<td>gtts / sec</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

3. Withdraw and waste the equivalent volume of Normal Saline from the bag size indicated.
4. Draw the appropriate dose from the vial referencing the chart, using the appropriate syringe size.
5. Inject the reconstituted medication into the appropriate sized bag of Normal Saline, below the Chart.
6. Spike the bag with 15 gtts/ml IV tubing.
7. Piggyback line into an IV/IO line and Infuse over ~15 minutes using the gtts/second noted above.
Pediatric Tachycardia / Stable
(Normal Mental Status, Palpable Radial Pulse)

Narrow Complex \( \leq 0.11 \text{ Sec} \)
- Vagal Maneuvers
  - Successful?
    - Yes
    - AMIODARONE
      - 5 mg/kg in 50 cc NS over 20 min
    - No
      - ADENOSINE
        - 0.2 mg/kg rapid IV/IO push not to exceed 12 mg
      - Successful?
        - Yes
        - Synchronized Cardioversion
          - start at 0.5 to 1 J/kg; may use 2 J/kg if unsuccessful; Consider sedation ETOMIDATE
            - 0.15 mg/kg IV/IO
          - No
        - MAGNESIUM SULFATE
          - 25 mg/kg IV/IO in 50 cc NS over 10 min
      - No
        - Continue General Patient Care

Wide Complex \( \geq 0.12 \text{ Sec} \)
- Vascular Access
- 12-Lead ECG
- Cardiac monitor
- General Pediatric Assessment
  - Undifferentiated Monomorphic VT
    - Suspected to be SVT with Aberrancy
    - Regular Monomorphic VT
    - Torsades de Pointes (Polymorphic Ventricular Tachycardia)
  - Synchronized Cardioversion
    - start at 0.5 to 1 J/kg; may use 2 J/kg if unsuccessful; Consider sedation ETOMIDATE
      - 0.15 mg/kg IV/IO
  - MAGNESIUM SULFATE
    - 25 mg/kg IV/IO in 50 cc NS over 10 min
  - Continue General Patient Care

Continue General Patient Care
History
- Medications
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

Signs and Symptoms
- Heart rate ≥ 180 in children
- Heart rate ≥ 220 in infants
- Dizziness, CP, SOB
- Diaphoresis

Differential
- Heart disease (WPW, valvular)
- Sick sinus syndrome
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

Pearls
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Carefully monitor patients as you treat them; stable tachycardias may convert to unstable rhythms/conditions quickly.
- Sedate patients prior to cardioversion, if time allows.
- The most common tachyarrythmia in children is sinus.
Pediatric Tachycardia / Unstable
(Mental Status Changes, No Palpable Radial Pulse)

- **Narrow Complex ≤0.11 Sec**
  - Cardiac monitor
  - Vascular Access
  - If IV established, administer ADENOSINE 0.2 mg/kg rapid IV/IO push not to exceed 12 mg
  - Rhythm change?
    - No
    - Yes
      - Synchronized Cardioversion start at 0.5 to 1 J/kg; may use 2 J/kg if unsuccessful; Consider sedation ETOMIDATE 0.15 mg/kg IV/IO
  - No Rhythm change?
    - Transport
  - Yes Rhythm change?
    - Transport

- **Wide Complex ≥0.12 Sec**
  - Torsades de Pointes (Polymorphic V-Tach)
    - Defibrillate at 2 J/kg increasing to 4 J/kg; Consider sedation ETOMIDATE 0.15 mg/kg IV/IO
    - Rhythm change?
      - Yes
        - AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min
      - No Rhythm change?
        - Repeat Synchronized Cardioversion or defibrillate if VT not resolved; assess need for repeat sedation; repeat AMIODARONE
        - No
          - Transport
        - Yes
          - AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min

- **Monomorphic VT**
  - Synchronized Cardioversion Start at 0.5 to 1 J/kg; may use 2 J/kg if unsuccessful; or defibrillate at 2 J/kg increasing to 4 J/kg; Consider sedation ETOMIDATE 0.15 mg/kg IV/IO
  - Rhythm change?
    - Yes
      - AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min
    - No
      - Transport
      - No Rhythm change?
        - AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min
        - No
          - Transport
      - Yes Rhythm change?
        - AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min

- **General Pediatric Assessment**
  - Cardiac monitor
  - Vascular Access

- **Transport**
  - No General Patient Care
  - Yes

- **Continue General Patient Care**
<table>
<thead>
<tr>
<th>History</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet (caffeine)</td>
<td>Drugs (cocaine, methamphetamines)</td>
</tr>
<tr>
<td>Past medical history</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>Cardiac Arrest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate ≥ 180 in children</td>
<td></td>
</tr>
<tr>
<td>Heart rate ≥ 220 in infants</td>
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<td>Dizziness, CP, SOB</td>
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<td></td>
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<tr>
<td>Hypoxia</td>
<td></td>
</tr>
<tr>
<td>Hypovolemia</td>
<td></td>
</tr>
<tr>
<td>Drug effect, overdose</td>
<td></td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td></td>
</tr>
</tbody>
</table>

**Pearls**
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- If patient is in arrest, efforts should focus on quality chest compressions and rhythm correction.
- Administer Adenosine at a proximal IV site, rapidly followed by a saline flush.
- The most common tachyarrhythmia in children is sinus.
Use supplemental oxygen to maintain an oxygen saturation of >94%; >90% for patients on home oxygen for chronic conditions.

Basic Airway Maneuvers
- Open airway, Chin lift/Jaw thrust
- NPA or OPA as needed
- Suction as needed

Consider Cervical Stabilization
Consider Altered Mental Status/Syncope

Administer oxygen
BVM as needed

Intervention effective?

Extraglottic Airway
Endotracheal Intubation
ECG Monitor

Consider Sedation Administer MIDAZOLAM 0.1 mg/kg IV/IN/IO Titrated to Effect. Maximum Single Dose: 5 mg. Must be Given Slowly Over 3-5 Minutes. Additional Doses by Physician Order Only.
Or; KETAMINE 2 mg/kg IV/IO Or 4 mg/kg IM

Maintain Sedation Administer DIAZEPAM 0.2 mg/kg IV/IO. Maximum dose 5 mg. May Repeat After 5 Minutes with Physician Order. Or;
DIAZEPAM 0.5 mg/kg PR via #5 or #8 French feeding tube, Maximum Dose 20 mg

Extraglottic/ETT placement successful?

Able to ventilate without extraglottic/ETT in place?

Cricothyroidotomy

Continue Care and Transport as Appropriate
Pearls

- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (ETCO₂) is mandatory for the monitoring of all patients with an ET tube.
- If an effective airway is being maintained by BVM and/or basic airway adjuncts (e.g. nasopharyngeal airway) with continuous pulse oximetry values of ≥90%, or values expected based on pathophysiologic condition with otherwise reassuring vital signs (e.g. pulse oximetry of 85% with otherwise normal vitals in a post drowning patient), it is acceptable to continue with basic airway measures instead of using an extraglottic airway device or intubation.
- For the purposes of this protocol, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
- An Intubation Attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- An appropriate ventilatory rate is one that maintains an ETCO₂ of 35 - 45. Avoid hyperventilation.
- Paramedics should use an extraglottic airway device if oral-tracheal intubation is unsuccessful.
- Maintain C-spine stabilization for patients with suspected spinal injury.
- Cricoid pressure and BURP maneuver may assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients if time allows.
- It is important to secure the endotracheal tube well.
OPERATIONS
PROTOCOLS
1. Telemetry contact shall be established:
   A. For all time sensitive or life threatening condition transports.
   B. For any medical emergency in which the EMS provider’s judgment suggests consultation with a telemetry physician is necessary.
   C. For all trauma patients going to a trauma center.
   D. When telemetry contact is required per protocol.

2. For patients who meet Trauma Field Triage Criteria, telemetry reports shall include:
   A. ETA
   B. Patient age
   C. Gender
   D. Mechanism of injury
   E. Ambulatory at scene
   F. Suspected injuries
   G. Vital signs
   H. Airway status
   I. Neurologic status
   J. An incident identifier if multiple patients are involved (e.g. fire department command code “Main Street Command”)

3. Notify/meet with the receiving facility prior to transfer of care with suspected need for Contact Isolation Preparation
   A. State the general type of agent involved (insect, chemical, biological, radiation, nuclear, explosive)
   B. State the type of agent if known.
   C. If unknown state the general type with patient symptoms. Example – “Unknown chemical substance causing respiratory distress with secretions.

4. For all other patients, telemetry reports shall include, at a minimum:
   A. Attendant/vehicle identification
   B. Nature of call: INFORMATION ONLY or REQUEST FOR PHYSICIAN ORDERS
   C. Patient information (i.e. number, age, sex)
   D. Patient condition (i.e. stable, full arrest)
   E. History
      1) Basic problem or chief complaint
      2) Pertinent associated symptoms
      3) Time since onset
      4) Past history, if pertinent
   F. Objective findings
      1) General status of patient
      2) Level of responsiveness
      3) Vital signs
      4) Pertinent localized findings
      5) Working impression of patient’s problem
   G. Treatment
      1) In progress
      2) Requests for drugs or procedures
   H. Estimated time of arrival, including any special circumstances that may cause a delay in transport.
   I. For patients meeting “Code White” or “Code STEMI” criteria, a preliminary telemetry report should be made to notify the receiving facility of the type of activation, and an estimated arrival time. An “Information Only” telemetry should follow once transport has been initiated.
Telemetry contact should be established by radio. Telephone contact may only be used if the call is recorded via a phone patch through the FAO at 702-382-9007.

5. Notification of transport shall be provided to the receiving hospital for ALL other calls.
   A. Notification can be completed via:
      1) Radio
      2) Telephone
      3) EMSystenm
   B. Notification reports shall include:
      1) Patient age
      2) Chief complaint
      3) Type of bed required (monitored/unmonitored)
      4) Unit number
      5) ETA

6. Providers will relay assessment findings and treatment provided to the individual(s) assuming responsibility for the patient(s).
7. Patient confidentiality must be maintained at all times.
8. All patients should be treated with dignity and respect in a calm and reassuring manner.
1. All patients with absent vital signs who do not have conclusive signs of death (refer to Prehospital Death Determination protocol) shall be treated with life-resuscitating measures unless EMS personnel are presented with a valid Do-Not-Resuscitate (DNR)/Physician Order for Life-Sustaining Treatment (POLST) Identification/Order.

   A. A valid DNR Identification is a form, wallet card, or medallion issued by the Southern Nevada Health District, Nevada Division of Public and Behavioral Health, or an identification issued by another state indicating a person’s desire and qualification to have life-resuscitating treatment withheld.

   B. A valid DNR Order is a written directive issued by a physician licensed in this state that life-resuscitating treatment is not to be administered to a qualified patient. The term also includes a valid Do-Not-Resuscitate order issued under the laws of another state.

   C. A valid POLST form signed by a physician that records the wishes of the patient and directs a healthcare provider regarding the provision of life-resuscitating treatment and life-sustaining treatment.

   Note: Verbal instructions from friends or family members DO NOT constitute a valid DNR/POLST.

2. In preparation for, or during a inter-facility transfer, a valid DNR Order/POLST in the qualified patient’s medical record shall be honored in accordance with this protocol.

3. If the EMS provider is presented with a DNR/POLST Order or Identification, he shall attempt to verify the validity of the Order or Identification by confirming the patient’s name, age, and condition of identification.

4. The DNR/POLST Order or Identification shall be determined INVALID if at any time the patient indicates that he/she wishes to receive life-resuscitating treatment. The EMS provider shall document the presence of the DNR/POLST Order or Identification, and how the patient indicated that he/she wanted the Order or Identification to be revoked. EMS personnel shall relay this information to any subsequent medical providers, including but not limited to, flight crews and staff at the receiving medical facility.

5. Once the DNR/POLST Order or Identification is determined to be valid and has not been revoked by the patient, the emergency care provider shall provide ONLY supportive care and withhold life-resuscitating treatment.

6. Faxed, copied or electronic versions of the DNR Identification/POLST are legal and valid.

Supportive Care:
- Suction the airway
- Administer oxygen
- Position for comfort
- Splint
- Control bleeding
- Provide pain medication (ALS only)
- Provide emotional support
- Contact hospice, home health agency, attending physician or hospital as appropriate
- Be attentive of any actions the patient may take to revoke his authorization to withhold life-resuscitating treatment
Withhold Life-Resuscitating Treatment:
   CPR and its components including:
       Chest compressions
       Defibrillation
       Cardioversion
       Assisted ventilation
       Airway intubation
       Administration of cardiotonic drugs

6. EMS personnel will document on the PCR the presence of the DNR/POLST Order or Identification. Documentation should include the patient’s name, and the physician's name and identification number, which are found on the DNR/POLST Order or Identification.

7. An EMS provider who is unwilling or unable to comply with the DNR protocol shall take all reasonable measures to transfer a patient with a DNR/POLST Order or Identification to another provider or facility in which the DNR/POLST protocol may be followed.
A Patient Care Record (PCR) will be completed for each incident/patient encounter, in accordance with current EMS Regulations. A patient is any individual that, upon contact with an EMS system, has any of the following:

A. A complaint or mechanism suggestive of potential illness or injury.
B. Obvious evidence of illness or injury.
C. An individual or informed 2nd/3rd party caller requests evaluation for potential illness or injury.

PCRs shall include no less than the following information:

A. Patient’s name, address, age, and sex;
B. Date and location of call;
C. Time of dispatch, arrival at scene, departure from scene, and arrival at hospital;
D. Mechanism of injury—chief complaint;
E. Medication(s) used by patient and allergies;
F. Pertinent patient history, including current medication(s) and allergies;
G. Signs and symptoms identified during patient assessment, and changes;
H. Care and treatment given at scene and during transport;
I. Patient destination;
J. Name of attendant(s);
K. If care is provided as authorized by protocol;
L. File Attachments: The associated monitor file must be uploaded and attached to the PCR if the monitor was used for any of the following purposes:

1) Assessing and/or monitoring the cardiac rhythm;
2) Obtaining a 12-lead electrocardiogram (ECG)
3) Providing electrical therapy; cardioversion, defibrillation, and/or pacing
4) Monitoring End-Tidal Carbon Dioxide (ETCo2) levels and/or waveform of an intubated patient

M. In cases of trauma, the patient’s trauma score, TFTC status, and any injury mitigation devices shall be documented, i.e. car seats, seat belts, air bags, helmets, etc.;

N. At least one full set of vital signs;
   1) Blood pressure
   2) Heart rate
   3) Respiratory rate
   4) Temperature as indicated
   5) Oxygen saturation
   6) Reassessment after interventions, i.e. pain score after medications;
   7) Any complications or other relevant information.

Any agency that provides patient care activities prior to the arrival of the transporting agency shall provide the transporting agency with, at a minimum, a verbal report reflecting those activities. This verbal report must be documented in the transporting agency’s PCR.
Active hostile incident

Assailants detained and scene immediately safe?

Yes

Evacuate patients to the triage/treatment area

While in the triage/treatment area care shall be provided as directed in the Clark County EMS System Emergency Medical Care Protocols as resources permit

Depending on patient load and acuity request additional resources as needed for transport, including the use of alternate transportation methods.

Disposition of patients will be directed through ICS taking into consideration protocol and available acute care resources

No

- If trained and properly equipped as per the Southern Nevada Fire Operations Policy 11, respond with law enforcement as a rescue task force to sort patients for removal to the cold zone.
- Provide treatment for immediate life threats.
- Tag patients as indicated in agency policy.

For the purpose of this manual, an active hostile incident can be defined as any location where persons are under assault by whatever method and teams comprised of police and fire department personnel are needed to immediately enter the warm zone to provide initial treatment for life threatening injuries and to complete patient “sift and sort” procedures.

Active hostile incident scenes represent challenges in regard to the provision of emergency care. Specific adherence to the Clark County EMS System Emergency Medical Care Protocols may not be feasible in these austere environments. Therefore, the Southern Nevada Health District authorizes brief and limited departures from protocol.

When acting in a rescue task force licensed providers may perform needle decompression, basic airway maneuvers or apply a tourniquet to complete or partial amputations regardless of observed exsanguination.
1. Ambulance attendants should only transfer a patient whose therapy required during the transfer lies within the ambulance attendant’s capabilities, unless capable personnel accompany the patient.

A. Ambulance attendants are authorized to administer or monitor all medications listed on the official drug inventory as appropriate for their level of licensure and as per protocol.

B. AEMT and Paramedic ambulance attendants are authorized to administer or monitor any crystalloid IV solution during transport.

C. Arterial lines should be discontinued unless appropriate personnel from the initiating facility accompany the patient.

D. Heparin locks/implantable catheters with/without reservoirs may be closed off and left in place. If they are to be used during transport, then an IV drip should be established if tolerated by the patient.

E. IV pump systems should be discontinued unless capable personnel accompany the patient.

F. Orogastric or nasogastric tubes may be left in place and should either be closed off or left to suction per order of the transferring physician.

G. Orthopedic devices may be left in place at the ambulance attendant’s discretion as to ability to properly transport the patient with existing device(s) in place.

H. Trained personnel authorized to operate the apparatus should accompany any patient requiring mechanical ventilation during transport. If the patient will require manual ventilatory assistance, then at least two persons shall be available to attend to the patient.

2. Prior to the transfer, the transferring physician is responsible for notifying the receiving physician of the following:
   1) Reason for transfer
   2) Patient condition
   3) Estimated time of arrival

3. The transferring physician must provide the ambulance attendants with the name of the receiving facility and receiving physician, copies of any available diagnostic tests, X-rays, medical records, copy of code status, DNR, POLST, or advanced directive paperwork as applicable, any isolation precaution information, and the EMTALA form prior to releasing the patient.

4. Any agency that provides patient care activities prior to the arrival of the transporting agency shall provide the transporting agency with, at a minimum, a verbal report reflecting those activities. This verbal report must be documented in the transporting agency’s PCR.
Pediatric patients (<18 years of age) shall be transported in accordance with the following criteria:

1. Pediatric patients (including psychiatric patients) shall be transported, based on the preference of the parent or legal guardian, to one of the following facilities:
   A. St. Rose Dominican – Siena Campus
   B. Summerlin Hospital Medical Center
   C. Sunrise Hospital & Medical Center
   D. University Medical Center

2. If the parent or legal guardian does not have a preference, the patient shall be transported to the closest of the above facilities.

3. If, in the judgment of prehospital personnel, the transport time to one of the above facilities would be detrimental to a critically ill/unstable pediatric patient, the patient should be transported to the closest Emergency Department.

4. The patient may be transported to a non-designated facility:
   A. At the request of the parent or legal guardian, and if the child is deemed stable by the EMS provider; or
   B. The incident is greater than 50 miles from the closest pediatric facility; and
   C. The receiving facility and physician are contacted and agree to accept the patient.

5. Pediatric sexual assault victims shall be transported as follows:
   A. Victims <13 years of age shall be transported to Sunrise Hospital and Medical Center.
   B. Victims 13 years of age and up to 18 years of age shall be transported to either Sunrise Hospital & Medical Center or University Medical Center.
   C. For sexual assault victims outside a 50-mile radius from the above facilities, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.
For all emergency scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with the START/SMART triage methodology.

1. Patients who appear to have expired will not be resuscitated or transported by Clark County EMS personnel if any of the following obvious signs of death are present:
   A. Body decomposition
   B. Decapitation
   C. Transection of thorax (hemicorpectomy)
   D. Incineration
   E. Functional separation from the body of the heart, brain, or lungs

OR if ALL (5) presumptive signs of death AND AT LEAST one (1) conclusive sign of death are identified.

The (5) presumptive signs of death that MUST be present are:
1) Unresponsiveness
2) Apnea
3) Pulselessness
4) Fixed, dilated pupils
5) For Non-Traumatic Arrests Asystole in at least 2 (two) leads or a no shock advised prompt from an AED

Conclusive signs of death include:
1) Dependent lividity
2) Rigor mortis

2. If there is any question regarding patient viability, to include potential hypothermia, resuscitation will be initiated.

3. Once it has been determined that the patient has expired and resuscitation will not be attempted:
   A) Immediately notify the appropriate authority;
   B) DO NOT leave a body unattended. You may be excused once a responsible person (i.e. Coroner’s investigator, police, security, or family member) is present;
   C) DO NOT remove any property from the body or the scene for any purpose;
   D) NEVER transport/move a body without permission from the Coroner’s office except for assessment or its protection.

If the body is in the public view and cannot be isolated, screened, or blocked from view, and is creating an unsafe situation with citizens/family, the body can be covered with a clean, STERILE BURN SHEET obtained from the EMS vehicle.
1. A person who is suspected to be intoxicated and has no other emergent need should be transported to an approved alcohol and drug abuse facility rather than a hospital’s emergency department IF the patient meets ALL of the following criteria:

   A. Patient is able to stand with minimal assistance of one or two people.
   B. Vitals as follows:
         Diastolic: 60 – 100
      2. Pulse Rate: 60 – 120
      3. Respiratory Rate: 12 – 22
      4. Blood Glucose between 60 – 250
      5. Glasgow Coma Score > 14
      6. SPO2 >94% or 90% if smoker
      7. No acute medical complications
      8. No signs of trauma
      9. No suspected head injury
      10. Approval of the physician or medical staff upon assessment prior to transport to an alternative facility. Contact with the facility needs to be routed via recorded phone patch through FAO at 702-382-9007

   All of the above parameters must be met and the patient must be clinically stable.

2. If there is ANY doubt about whether the person is in need of emergency medical care, the person should be transported to a receiving emergency facility.

   * Approved Public Intoxication Facilities:
     WestCare
     Crossroads of Southern Nevada (CRSN)
When EMS or hospital personnel wish to have an incident involving patient care reviewed within the Clark County EMS system, the following steps shall be taken:

1. The person requesting a review of an incident should contact the designated representative of the agency/hospital involved to initiate the process. If after gathering appropriate information and discussing the incident both parties are satisfied a problem does not exist, nothing further needs to be done.

2. If either party would like to pursue an investigation of the incident, the “Southern Nevada Health District EMS Incident Report” should be completed and a copy should be forwarded to the OEMSTS.

3. Upon receipt of the “Southern Nevada Health District EMS Incident Report” OEMSTS staff will review the case, gather information from the agencies/hospitals involved, and evaluate the need for further investigation. The agency/hospital may be asked to conduct an internal investigation, involving their medical director when appropriate, and provide a summary of their findings to the OEMSTS.

4. The personnel involved in the incident may be interviewed by the EMS medical director or his designee and their agency/hospital medical director to gather additional information.

5. Upon completion of the investigation, a report will be prepared and given to the agency/hospital representatives involved. Direct communication between the agency/hospital and complainant is recommended with a brief written summary of actions taken provided to the OEMSTS.

6. A quarterly aggregate summary of the incidents reviewed by the OEMSTS will be prepared and reported at the Quality Improvement Directors and Medical Advisory Board meetings.

7. All documentation and correspondence regarding this quality improvement activity; to monitor, review, evaluate, and report on the necessity, quality, and level of care provided a patient is confidential pursuant to NRS 49.117 – NRS 49.123, NRS 49.265, NRS 450B.810 and NRS 629.061.
1. Licensed EMS personnel are not obligated to continue resuscitation efforts that have been started by other persons at the scene if the patient meets the criteria listed in the Prehospital Death Determination protocol. This includes telephone CPR initiated by Emergency Medical Dispatchers.

2. Resuscitation should be terminated/not initiated if a valid DNR/POLST or physician written order is provided without telemetry contact.

3. Resuscitation started in the field may be discontinued only by a telemetry physician order when the following conditions have been met:
   A. For medical arrest:
      The patient remains in persistent asystole or agonal rhythm after twenty (20) minutes of appropriate Paramedic resuscitation, to include:
      1) CPR
      2) Effective ventilation with 100% oxygenation
      3) Administration of appropriate ACLS medications
   B. For traumatic arrest:
      1) Open airway with basic life support measures
      2) Provide CPR and effective ventilations with 100% oxygenation for two (2) minutes
      3) Perform bilateral needle thoracentesis if tension pneumothorax suspected
      4) Confirm no organized rhythm or a PEA <40.

C. The patient develops, or is found to have one of the following conclusive signs of death at any point during the resuscitative effort:
   1) Lividity
   2) Rigor mortis

4. When resuscitation has been terminated in the field, all medical interventions shall be left in place.

5. If possible, do not leave a body unattended. Once a responsible person (i.e. Coroner’s investigator, police, security, or family member) is present at the scene, you may be excused.

6. NEVER transport/move a body without permission from the Coroner’s office, except for assessment or its protection.

If the body is in the public view and cannot be isolated, screened, or blocked from view, and is creating an unsafe situation with citizens/family, the body can be covered with a clean, STERILE BURN SHEET obtained from the EMS vehicle.
1. Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.

2. Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.

3. Pediatric patients (<18 years of age for transport purposes ONLY) shall be transported in accordance with the Pediatric Destination Protocol.

4. Patients with evidence of an acute cerebrovascular accident shall be transported in accordance with the Stroke Protocol.

5. Sexual assault victims shall be transported as follows:
   A. Victims <13 years of age shall be transported to Sunrise Hospital & Medical Center.
   B. Victims 13 years of age and up to 18 years of age shall be transported to either Sunrise Hospital & Medical Center or University Medical Center.
   C. Victims 18 years of age and older shall be transported to University Medical Center.
   D. For sexual assault victims outside a 50-mile radius from the above facilities, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

6. All patients in cardiac arrest or in whom the ability to adequately ventilate cannot be established should be transported to the closest facility.

7. Stable patients should be transported to the hospital of their choice. If the patient does not have a preference, the patient should be transported to the closest appropriate facility.

8. If a hospital declares an Internal Disaster, that facility is to be bypassed for ALL patients except patients in cardiac arrest, or in whom the ability to adequately ventilate has not been established.

9. For patients outside a 50 mile radius from protocol designated transport destinations, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

Remote Outpatient Emergency Department Alternate Destination Criteria

1. Patients who require a medical or psychiatric evaluation and do not have evidence of any potentially life-threatening illness or injury at the time of transport may be transported to a remote outpatient emergency department if;

2. The patient has normal vital signs, unless accepted by the remote outpatient emergency department, telemetry contact is made, and;

3. The patient does not meet any of the following exclusions criteria:
   A. Violent or uncooperative patients
   B. Obstetric patients > 20 weeks gestation
   C. Any patient in need of time-critical intervention that can be provided only at a hospital-based emergency department. For example, but not limited to STEMI, Stroke, or ACS.
   D. Any condition covered by another destination directive:

Normal Vital Signs:
   - Heart Rate 60-100
   - Respiratory Rate 10-20
   - Systolic BP 100-180
   - Diastolic BP 60-110
   - Room air pulse oximetry >94%
   - Alert and oriented X4

4. Alternate transportation and destination decisions should be consistent with medical necessity and with consideration for patient preference when the patient’s condition allows.
Trauma Field Triage Criteria

A licensee providing emergency medical care to a patient at the scene of an injury shall use the following procedures to identify and care for patients with traumas:

1. **Step 1 – Measure vital signs and level of consciousness.** If the patient’s:
   A. Glasgow Coma Scale is 13 or less;
   B. Systolic blood pressure is less than 90 mmHg; or
   C. Respiratory rate is less than 10 or greater than 29 breaths per minute (less than 20 in infant aged less than 1 year), or is in need of ventilatory support

   the adult patient **MUST** be transported to a Level 1 or 2 center for the treatment of trauma in accordance with the catchment area designated. The pediatric patient **MUST** be transported to a pediatric center for the treatment of trauma.

2. **Step 2 – Assess anatomy of injury.** If the patient has:
   A. Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee;
   B. Chest wall instability or deformity (e.g. flail chest);
   C. Two or more proximal long-bone fractures;
   D. Crushed, degloved, mangled, or pulseless extremity;
   E. Amputation proximal to wrist or ankle;
   F. Pelvis fractures;
   G. Open or depressed skull fractures; or
   H. Paralysis

   the adult patient **MUST** be transported to a Level 1 or 2 center for the treatment of trauma in accordance with the catchment area designated. The pediatric patient **MUST** be transported to a pediatric center for the treatment of trauma.

3. **Step 3 – Assess mechanism of injury and evidence of high-energy impact, which may include:**
   A. Falls
      1) Adults: greater than 20 feet (one story is equal to 10 feet)
      2) Children: greater than 10 feet or two times the height of the child
   B. High-risk auto crash
      1) Motor vehicle was traveling at a speed of at least 40 miles per hour immediately before the collision occurred;
      2) Intrusion, including roof: greater than 12 inches occupant site; greater than 18 inches any site;
      3) Ejection (partial or complete) from automobile;
      4) Motor vehicle rolled over with unrestrained occupant(s);
      5) Death in same passenger compartment
   C. Motorcycle crash greater than 20 mph
   D. Auto vs pedestrian/bicyclist thrown, run over, or with significant (greater than 20 mph) impact

The patient **MUST** be transported to a Level 1, 2, or 3 center for the treatment of trauma in accordance with the catchment area designated. For patients who are injured outside a 50-mile radius from a trauma center, the licensee providing emergency medical care shall call and consider transport to the nearest receiving facility.
4. Step 4 – Assess special patients
   A. Older adults
      1) Risk of injury/death increases after age 55 years
      2) SBP less than 110 mmHg might represent shock after age 65 years
      3) Low impact mechanisms (e.g. ground level falls) might result in severe injury
   B. Children should be triaged preferentially to a trauma center.
   C. Anticoagulants and bleeding disorders: Patients with head injury are at high risk for rapid deterioration.
   D. Burns
      1) Without other trauma mechanisms: transport in accordance with the Burns protocol
      2) With trauma mechanism: follow appropriate catchment guidelines for trauma. Trauma patients with burns falling into St Rose Siena catchment area will be transported to Sunrise Hospital.
   E. Pregnancy greater than 20 weeks
   F. EMS provider judgment

The patient MUST be transported to a Level 1, 2, or 3 center for the treatment of trauma in accordance with the catchment area designated. For patients who are injured outside a 50-mile radius from a trauma center, the licensee providing emergency medical care shall call and consider transport to the nearest receiving facility.

The person licensed to provide emergency medical care at the scene of an injury shall transport a patient to a designated center for the treatment of trauma based on the following guidelines:

St. Rose Dominican Hospital - Siena Campus (Level 3 Trauma Center) Catchment Area

All trauma calls that meet Step 3 or in the provider’s judgment meet Step 4 of the Trauma Field Triage Criteria Protocol and occur within the City of Henderson or the geographical area bordered by Interstate 15 to the west and Sunset road to the north, and the county line to the east, are to be transported to St. Rose Dominican Hospital – Siena Campus and the medical directions for the treatment of the patient must originate at that center;

Sunrise Hospital & Medical Center (Level 2 Trauma Center) Catchment Area

All adult trauma calls and pediatric Step 3 trauma calls that meet the Trauma Field Triage Criteria Protocol and occur within the geographical area bordered by Paradise Road to the west, Sahara Avenue to the north, Sunset Road to the south, and the county line to the east, are to be transported to Sunrise Hospital & Medical Center and the medical directions for the treatment of the patient must originate at that center;

In addition, adult trauma calls that meet Step 1 or 2 of the Trauma Field Triage Criteria Protocol and occur within the St. Rose Dominican Hospital – Siena Campus Catchment Area, City of Henderson, or the geographical area bordered by Paradise Road to the west continuing along that portion where it becomes Maryland Parkway, Sunset Road to the north, and the county line to the east, are to be transported to Sunrise Hospital & Medical Center and the medical directions for the treatment of the patient must originate at that center.

University Medical Center (Level 1 Trauma Center and Pediatric Level 2 Trauma Center) Catchment Area

All trauma calls that meet the Trauma Field Triage Criteria and occur within any other area of Clark County are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.

All pediatric Step 1 and Step 2 trauma calls that occur within Clark County are to be transported to University Medical Center/Trauma and medical directions for the treatment of the patient must originate at that center.

In addition, adult trauma calls that meet Step 1 or 2 of the Trauma Field Triage Criteria Protocol and occur in the geographical area bordered by Paradise road to the east, Sunset Road to the north, Interstate 15 to the west, and the county line to the south, are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.
All trauma calls that meet the Trauma Field Triage Criteria Protocol, regardless of location, that are transported by air ambulance are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.

EXCEPTIONS:

1. Nothing contained within these guidelines precludes transport to any trauma facility if, in the provider’s judgment, time to transport to the designated center would be unduly prolonged due to traffic and/or weather conditions and might jeopardize the patient’s condition.

2. Additionally, nothing contained within these guidelines precludes transport to the closest facility if, in the provider’s judgment, an ability to adequately ventilate the patient might result in increased patient mortality.
Upon arrival in the emergency department, if transfer of care has not occurred in accordance with NRS 450B.790, any patient, excluding patients placed on a legal psychiatric hold, meeting ALL the following criteria may be placed in the hospital waiting room or other appropriate location:

1. Normal vital signs
   A. Heart rate 60 - 100
   B. Respiratory rate 10 - 20
   C. Systolic BP 100 - 180
   D. Diastolic BP 60 - 110
   E. Room air pulse oximetry >94%
   F. Alert and oriented x 4

2. Did not receive any parenteral medications during EMS transport except a single dose of analgesia and/or an anti-emetic.

3. In the judgment of the Paramedic, does not require continuous cardiac monitoring. Note: Any ECG monitoring initiated by a transferring facility may not be discontinued by EMS personnel.

4. Can maintain a sitting position without adverse impact on their medical condition.

5. Is left with a verbal report to hospital personnel.
PROCEDURES
PROTOCOLS
Cervical Stabilization

LEVEL: EMT/AEMT/Paramedic

Cervical stabilization is indicated in any patient who meets the indications (A-E) below:

**Indications:**
This procedure may be performed on any patient with potential for spinal injury based upon the following (NEXUS) criteria:
- A. Midline cervical spinal tenderness
- B. Focal neurologic deficit
- C. Altered mental status
- D. Evidence of drug and/or alcohol intoxication
- E. Any painful, distracting injury

**Contraindications:**
Cervical stabilization is NOT performed in the following conditions:
- A. Penetrating trauma to the head and/or neck and no evidence of spinal injury
- B. Injuries where placement of the collar might compromise patient assessment, airway management, ventilation and/or hemorrhage control
- C. Patients in cardiac arrest

**Key procedural considerations:**
- A. If (A-E) above are ALL NEGATIVE, cervical stabilization is not required.
- B. If required, cervical stabilization is the placement of an approved, properly-sized cervical collar before the patient is moved.
- C. Tape, head straps, wedges, and head and/or neck support devices are not recommended.
- D. Patients found in motor vehicles should be asked if they are able to exit the motor vehicle on their own. If so, they should be assisted to a soft stretcher and secured for transport. Patients unable to exit the vehicle on their own accord should be removed by the appropriate extrication method.
- E. Once on the stretcher, the patient may be moved to a semi-Fowler’s or high-Fowler’s position for comfort.
- F. If a backboard is used for extrication or movement, the patient should be immediately moved to a soft mattress, if possible.
- G. In special situations, alternate stabilization devices (e.g. vacuum mattress, KED, etc. may be used as indicated).
- H. Pediatric patients may be stabilized in an approved car seat or with a commercial pediatric stabilization device.
Continuous Positive Airway Pressure (CPAP)

Indications:
This procedure may be performed on any patient 18 years old or older in CHF, Respiratory Distress with Bronchospasm, and pneumonia, who has TWO of the following:
   A. Retractions or accessory muscle use
   B. Respiratory rate >25 per minute
   C. SpO₂ ≤94%

Contraindications:
A. Apnea
B. Vomiting or active GI bleed
C. Major trauma/pneumothorax
D. Altered Mental Status

Key procedural considerations:
   A. Assess patient and document VS, SpO₂ and ETCO₂ prior to applying oxygen.
   B. Select the appropriate size face mask for the patient.
   C. Inform patient about procedure process.
   D. Gradually increase the flow rate, slowly reaching the desired CPAP pressure.
   E. Secure face mask onto patient face using the head harness.
   F. Check the mask and tubing for leaks.
   G. Reassess patient and document every five minutes.
   H. If patient develops any of the contraindications or requires definitive airway control, discontinue CPAP and provide necessary airway control.
Indications:
This procedure may be performed on any patient experiencing:
A. Ventricular fibrillation
B. Pulseless ventricular tachycardia
C. Torsades de Pointes

Contraindications: None

Key procedural considerations:
A. The initial and subsequent attempts shall be at the energy level(s) suggested by the device manufacturer and/or the agency’s medical director.
B. Defibrillation should be immediately provided in an arrest WITNESSED by EMS personnel. In an arrest that is UNWITNESSED by EMS personnel, two minutes of CPR should be provided prior to defibrillation.
C. Patients with automatic implantable cardioverter-defibrillators (AICD) will need external defibrillation if the AICD is ineffective.
D. If defibrillation is needed on a patient with a permanent implanted pacemaker, the defibrillator paddles or self adhesive electrodes should be placed at least one inch from the pulse generator of the pacemaker.

Initial attempt at pediatric defibrillation shall be at 2 J/kg. If unsuccessful, defibrillation should be attempted at 4 J/kg and continue at 4 J/kg until conversion occurs. Adult paddles/pads may be used in children weighing more than 15 kg.
Indications:
This procedure may be performed on any patient experiencing:
A. Ventricular tachycardia with inadequate perfusion
B. Supraventricular tachycardia with inadequate perfusion
C. Ventricular tachycardia with adequate perfusion, but refractory to drug therapy

Contraindications: None

The patient MUST be on a cardiac monitor and SHOULD have Vascular Access

Adjunctive therapy:
In the conscious patient with a systolic blood pressure of >90 mmHg consider:

Sedation: Etomidate 0.15 mg/kg IV/IO or;
Midazolam 0.1 mg/kg IN/IM/IV/IO. May repeat every five minutes at 0.05 mg/kg IN/IM/IV/IO or;
Diazepam 5 mg IV/IO. May repeat after five minutes with physician order.

Analgesia: Morphine Sulfate up to 0.1 mg/kg slow IV/IO to a maximum single dose of 10 mg. May repeat every 10 minutes until pain is relieved or respiratory/mental status depression occurs or;
Fentanyl up to 1.0 mcg/kg IN/IM/IV/IO to a maximum single dose of 100 mcg. May repeat dose after 10 minutes with physician order or;
Hydromorphone up to 1.0 mg IV/IO. May repeat dose after ten minutes with physician order or;
Ketamine 0.2 mg/kg IM/IV/IN/IO no repeat dose.

Contraindications: None

Key procedural considerations:
A. Biphasic device: The initial and subsequent attempts shall be at the energy level(s) suggested by the device manufacturer and/or the agency’s medical director.

B. Monophasic device:
   1. Ventricular dysrhythmias: 100 J escalating to 200, 300, and 360
   2. Supraventricular dysrhythmias: 50 J with subsequent attempts at 100 J

Initial attempt at pediatric cardioversion shall be at 0.5 J/kg.
If unsuccessful, cardioversion should be attempted at 2 J/kg.
Adult paddle/pads may be used in children weighing more than 15 kg.
Indications:

This procedure may be performed on any patient experiencing:

A. Hemodynamically unstable bradycardia
B. Unstable clinical condition that is likely because of bradycardia
C. For pacing readiness (i.e. standby mode) in the setting of MI with
   bradycardia, second degree type II AV block, third degree AV block,
   new left or right alternating BBB or bifascicular block
D. Overdrive pacing of tachycardias refractory to drug therapy or
   electrical cardioversion

Contraindications: None

Adjunctive therapy:

In the conscious patient with a systolic blood pressure of >90mmHg consider:

Sedation: Etomidate 0.15 mg/kg IV/IO or;

Midazolam 0.1 mg/kg IN/IM/IV/IO. May repeat every five minutes
at 0.05 mg/kg IN/IM/IV/IO or;

Diazepam 5 mg IV/IO. May repeat after five minutes with
physician order.

Analgesia: Morphine Sulfate up to 0.1 mg/kg slow IV/IO to a maximum single
dose of 10 mg. May repeat every 10 minutes until pain is relieved
or respiratory/mental status depression occurs or;

Fentanyl up to 1.0 mcg/kg IN/IM/IV/IO to a maximum single dose
of 100 mcg. May repeat dose after 10 minutes with physician
order or;

Hydromorphone up to 1.0 mg IV/IO. May repeat dose after
ten minutes with physician order or;

Ketamine 0.2 mg/kg IM/IV/IN/IO no repeat dose.

Key procedural considerations:

A. Apply pacing pads, begin pacing at a rate of 60 beats per minute at the
   lowest available current.
B. Increase current by 20 milliamp increments until electrical capture.
C. In the event of electrical capture and no pulses, continue pacing
   and CPR.

Pediatric pacing is by telemetry physician order only
Endotracheal Intubation

**Indications:**
This procedure may be performed on any patient in whom attempts at basic airway and ventilatory support are unsuccessful AND who has at least one of the following:

A. Hypoxia  
B. Respiratory arrest/failure  
C. Inability to maintain airway patency

**Contraindications:**

**Absolute Contraindications:** None

**Relative Contraindications:**
A. Presence of gag reflex  
B. Suspected narcotic overdose/hypoglycemia prior to administration or Naloxone/Glucose 50%

**Adjunctive Therapy:**
If patient is 12 years of age or greater, administer Etomidate 0.3 mg/kg IV/IO for induction.
If patient is less than 12 years of age, administer Midazolam 0.1 mg/kg IV/IN/IO titrated to effect. Maximum single dose: 5 mg. Must be given slowly over a period of 3-5 minutes. Additional pediatric doses by telemetry physician order only.

Ketamine can be used for all patients for induction: 2.0 mg/kg IV/IO or 4.0 mg/kg IM.

Maintain patient sedation.
A. Midazolam 0.1 mg/kg IV/IN may repeat every 5 minutes at 0.05mg/KG IV/IN/IM  
   OR  
B. Ketamine 2mg/KG IV or 4mg/kg IM; contact medical control for additional doses

**Check and prepare the endotracheal airway device prior to insertion**

**Key procedural considerations:**
A. Position head properly.  
B. Insert blade while displacing tongue and elevate mandible with laryngoscope.  
C. Introduce ET tube and advance to proper depth.  
D. Inflate cuff to proper pressure and disconnect syringe.  
E. Ventilate patient and confirm proper placement.  
F. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.  
G. Secure device or confirm that the device remains properly secured.
Nasotracheal Intubation:
Contraindications:
   A. Apnea or near-apnea
   B. Suspected basilar skull, nasal, or midface fractures
   C. Coumadin anticoagulation therapy or hemostatic disorders
   D. Upper neck hematomas
   E. Should NOT be attempted in children

Adjunctive Therapy:
Prep the nostrils with:
1) Phenylephrine 2-3 drops (or 1-2 sprays in each nostril),
or
   Oxymetazoline 2 sprays in each nostril.

   and

2) Lidocaine 2% lubricant.

Check and prepare the endotracheal airway device prior to insertion

Key procedural considerations:
   A. Position patient semi-Fowler, sitting or supine.
   B. Insert lubricated ET tube into dilated nostril and advance straight back (posteriorly).
   C. Listen to end ET tube for sounds of patient’s breathing.
   D. During inhalation, smoothly advance tube through glottic opening.
   E. Inflate cuff to proper pressure and disconnect syringe.
   F. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.
   G. Secure device or confirm that the device remains properly secured.
Indications:

This procedure may be performed on any patient in which attempts at basic airway and ventilatory support are unsuccessful AND who has at least one of the following:

A. Hypoxia
B. Respiratory arrest/failure
C. Obtundation
D. Failed endotracheal intubation

Contraindications:

A. Gag reflex
B. History of esophageal trauma, or known esophageal disease
C. Recent ingestion of a caustic substance
D. Tracheostomy or laryngectomy
E. Suspected foreign body obstruction

Key procedural considerations:

A. Pre-oxygenate the patient.
B. Position the patient’s head in a neutral or slightly flexed position if no suspected spinal injury (if a spine injury is suspected, maintain a neutral, in-line head position).
C. Perform a tongue-jaw lift.
D. Insert device to proper depth. NEVER force. If device does not advance, readjust the insertion.
E. Secure device in the patient (inflatable cuff(s) with proper volume(s) and immediately remove syringe).
F. Ventilate patient and confirm proper ventilation (correct lumen and proper insertion depth) by auscultation bilaterally over lungs and over epigastrium.
G. Adjust ventilation as necessary (ventilate through additional lumen or slightly withdraw tube until ventilation is optimized).
H. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.
I. Secure device or confirm that the device remains properly secured.
Inclusion Criteria:
A. Coded and dispatched using MPDS as an Alpha or Omega category
B. Patient age ≥ 18 ≤ 65
C. Full assessment performed by first response
D. Patient deemed to have decision making capacity
E. Normal vital signs including SPO$_2$
F. Patient has a phone, ability and willingness to call 9-1-1 if their condition worsens
G. In the opinion of the AEMT/paramedic and the patient it is safe to release until an ambulance arrives

Exclusion Criteria:
A. Abnormal vital signs including SPO$_2$
B. Pregnancy
C. Any high risk complaints/symptoms
   a. Chest pain
   b. Signs/symptoms of possible stroke
   c. Allergic reaction
   d. Shortness of breath
   e. Abdominal pain/flank pain above umbilicus age >35
   f. Syncope, near syncope, dizziness
   g. Seizure
   h. History or sign of head trauma
   i. Active bleeding
   j. Threat to self or others
   k. Overdose or ingestional error
   l. Patients meets Trauma Field Triage Criteria
D. No SNHD EMS Protocol indication for obtaining EKG or placing the patient on a cardiac monitor

**EMS patient care record must be completed within four hours of clearing the call**

The Field Response Low-Risk Alpha Evaluate and Release Form must be completed and a copy left with the patient for inclusion in the secondary responder’s patient care report.
Indications:
This procedure may be performed on any patient that has bleeding from an extremity than can not be controlled by direct pressure.

Contraindications: None

Key procedural considerations:
A. Apply tourniquet proximal to the bleeding site.
B. Absolute contraindication: Bleeding has stopped
C. If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first.
D. Record the time of tourniquet application, on the patient, that is clearly visible.
Indications:

This procedure may be performed on any patient that requires the administration of a medication.

Key procedural considerations (GENERAL):

A. Inquire about allergies and previous medication reactions
B. Check and recheck medication
C. Solution clarity and expiration date
D. Right drug
   Right patient
   Right dose
   Right time
   Right route
   Right documentation
E. Dispose of syringe and other material in proper container

Intravenous and Intraosseous Bolus Medications

Key procedural considerations:

A. Identify and cleanse injection site closest to the patient
B. Administer correct dose at proper push rate
C. Turn IV on and adjust drip rate to TKO/KVO

Intramuscular and Subcutaneous Drug Administration

Key procedural considerations:

A. Needle should be 20 gauge or smaller
B. Locate administration site
   Deltoid muscle
   Vastus lateralis (lateral thigh) muscle
   Ventrogluteal or dorsogluteal muscles (buttocks)

<table>
<thead>
<tr>
<th>IM</th>
<th>SQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull skin tight</td>
<td>Pinch to lift skin slightly</td>
</tr>
<tr>
<td>Insert needle at a 90° angle to the skin</td>
<td>Insert needle at a 45° angle to the skin</td>
</tr>
<tr>
<td>Advance into muscle layer</td>
<td>Advance into subcutaneous layer</td>
</tr>
</tbody>
</table>
Indications:
This procedure may be performed on any patient that requires the administration of a medication.

Key procedural considerations (GENERAL):
A. Inquire about allergies and previous medication reactions
B. Check and recheck medication
C. Solution clarity and expiration date
D. Right drug
   Right patient
   Right dose
   Right time
   Right route
   Right documentation
E. Dispose of syringe and other material in proper container

Mucosal Atomizer Device (MAD) Administration
Medications: Fentanyl, Ketamine, Midazolam, Naloxone Hydrochloride

Key procedural considerations:
A. Using the free hand, hold the crown of the head stable.
B. Place the tip of the MAD snugly against the nostril, aiming slightly up and outward (toward the top of the ear).
C. Briskly compress the syringe to deliver half the medication into the nostril.
D. Move the device over to the opposite nostril and administer the remaining medication.

Intravenous and Intraosseous Bolus Medications
Key procedural considerations:
A. Identify and cleanse injection site closest to the patient
B. Administer correct dose at proper push rate
C. Turn IV on and adjust drip rate to TKO/KVO
Indications:
This procedure may be performed on any patient with:
A. Total airway obstruction by any BLS or ALS procedures, OR
B. Inability to be adequately ventilate with any provider level emergency care procedures prior to the attempt.

Contraindications:
A. Inability to identify landmarks (cricothyroid membrane)
B. Underlying anatomical abnormality (tumor)
C. Tracheal transection
D. Acute laryngeal disease due to infection or trauma

Key procedural considerations:
A. Position patient supine (if possible), hyperextending the head.
B. Locate cricothyroid membrane and clean site thoroughly.
C. Stabilize cricoid and thyroid cartilages with one hand.
D. Insert needle/catheter at a 45° angle; gently aspirate with attached syringe while inserting.
E. When syringe is able to aspirate air, stop advancing needle.
F. Continue to advance catheter downward and withdraw needle.
G. Ventilate the patient allowing an inspiratory/expiratory ratio of 1:3.
H. Secure the device and auscultate lung fields.
I. Apply a 3-way stopcock to the end of the hose assembly when utilizing a Transtracheal Jet Insufflator.

- Pediatric needle cricothyroidotomy is by Telemetry Physician order only.
- You MUST use a 14 gauge over-the-needle catheter attached to a 10 cc syringe or commercial cricothyroidotomy device.
Indications:

This procedure may be performed on any patient who has evidence of a tension pneumothorax, demonstrated by the presence of:

- Progressive respiratory distress and/or increased resistance to bagging, AND
- Unilateral diminished/absent breath sounds, associated with:
  - A. Tracheal deviation, or
  - B. Jugular venous distension, or
  - C. Signs of shock, low BP with chest trauma present

Contraindications: None

Needle Thoracentesis is permitted in pediatric patients.

Key procedural considerations:

A. Primary site is the 2nd intercostal space mid-clavicular line of the affected side.
B. Alternate location is the 4th-5th intercostal space in the mid-axillary line of the affected side.
C. Use a site specific, appropriate length needle to decompress the chest.
D. Prep site with iodine and/or alcohol.
E. Place tip of needle on top of appropriate rib and insert over top of rib into intercostal space.
F. Advance catheter and remove needle.
G. Secure catheter and consider attaching a flutter valve assembly.
Tracheostomy Tube Replacement

Indications:
This procedure may be performed on any patient that has a TRACHEOSTOMY TUBE and WHO HAS:
A. Hypoxia
B. Respiratory arrest/failure
C. Obtundation
D. Secretions unable to be cleared by suctioning

Contraindications: None

Key procedural considerations:
A. If the patient or family has a replacement tube available, it may be used. If a replacement tube is not available, an endotracheal tube of a similar outer diameter may be used.
B. Premoisten the tube with water soluble lubricant.
C. Extend the neck and, if necessary, place a roll between the patient’s shoulder blades to aid in visualizing the stoma.
D. If the tube cannot be placed easily, withdraw the tube; administer oxygen and positive pressure ventilation. NEVER force the tube.
E. Secure the device to the patient.
F. If the tube cannot be easily placed, a suction catheter may be used as a guide.
**Indications:**

This procedure may be performed on any patient with an isolated midshaft femur fracture.

**Contraindications:**

A. Pelvic fracture or instability
B. Knee, lower leg, or ankle instability

**Key procedural considerations:**

A. Assess motor, sensory, and circulatory function in the involved extremity.
B. Apply traction splint per the manufacturer’s guidelines.
C. Initiate mechanical traction to match manual traction.
D. Reassess motor, sensory, and circulatory function in the involved extremity.
E. Exercise care when applying traction not to reintroduce bone ends into the body.
## Vagal Maneuvers

**LEVEL:** Paramedic

### Indications:
This procedure may be performed on any patient who is experiencing Supraventricular Tachycardia with adequate perfusion.

### Contraindications:
None

### Key procedural considerations:

A. Approved methods include:
   1. Valsalva maneuver
   2. Head-down tilt with deep inspiration
   3. Activation of the “diving reflex” by facial immersion in ice water (unless ischemic heart disease is present)
   4. Carotid massage (only on patients under 40 years of age)

B. In infants and young children, the most effective vagal maneuver is the application of ice to the face. IV access is not mandatory prior to vagal maneuvers in children.

The patient *MUST* be attached to a cardiac monitor and *MUST* have vascular access prior to performing the procedure.

The patient **MUST** be attached to a cardiac monitor and **MUST** have vascular access prior to performing the procedure.
Vascular Access

Indications for Peripheral Vascular Access:
This procedure may be performed on any patient whenever there is a potential need for:
A. Intravenous drug administration
B. Need to administer IV fluids for volume expansion

Contraindications: None

Key procedural considerations:
A. Saline locks may be used when appropriate and flushed with a 3 cc bolus of NS as needed.
B. Extension tubing should be used on all IV lines.

Indications for Intraosseous Access (Paramedic for Adult and Peds, AEMT for Adult Only)
Critically ill or injured patient who requires IV drugs/fluids and in whom a peripheral line cannot be immediately established.

Contraindications:
A. Placement in, or distal to a fractured bone.
B. Previous significant orthopedic procedure at the site; prosthetic limb or joint; IO catheter use in past 48 hours of the target bone.
C. Infection at the area of insertion.
D. Absence of adequate anatomical landmarks.

Paramedic may administer lidocaine 1% or 2% preservative-free for anesthetic in a patient responsive to pain.
1) Prime IO extension tubing set with lidocaine (EZ IO, EZ Connect priming volume is 1ml)
2) Slowly infuse lidocaine 40mg (PEDIATRIC dose: 0.5 mg/kg not to exceed 40 mg) IO over 120 seconds.
3) Allow lidocaine to dwell in IO space for 60 seconds.
4) Flush IO with 5-10 ml normal saline.
5) Slowly administer an additional dose of lidocaine IO (20mg) over 60 seconds.
6) Consider systemic pain medication for patients not responding to IO lidocaine.

Key procedural considerations: Only 1 (one) attempt is permitted per extremity.

Indications for Use of Previously Established Central Line Access:
This procedure may be performed on any critically ill or injured patient who requires IV drugs or IV fluids AND in whom a peripheral line cannot be established.

Contraindications: Inability to freely aspirate blood out of the catheter.

Key procedural considerations: Central line access (Implantable Ports, Port-A-Caths, Medports)
A. May only be used if the device has already been accessed and IV fluid set-up has been established and running.
B. These devices require special needles (non-coring type) for access. The device may be damaged if standard jumper (conventional) needles are used to access the ports.
ACETYLSALICYLIC ACID (Aspirin)

CLASS
Nonsteroidal anti-inflammatory (NSAID)

ACTION
Platelet inhibition

DOSE
Adult
324 mg PO (81 mg tablets x 4)

Pediatric
Not recommended for use

ROUTE
PO (chew and swallow)

CONTRAINDICATIONS
Allergy to Aspirin

ADVERSE REACTIONS
None

RELATED PROTOCOLS
Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome, Chest Pain, STEMI (Suspected)

ADENOSINE (Adenocard)

CLASS
Antiarrhythmic

ACTION
Slows conduction through the AV Node and can interrupt re-entry pathways

DOSE
Adult
6-12 mg, rapid IV/IO push

Pediatric
0.1 - 0.2 mg/kg, rapid IV/IO push, not to exceed 12 mg

ROUTE
Rapid IV/IO

CONTRAINDICATIONS
Second or third-degree AV block or sick sinus syndrome (unless patient with a functional artificial pacemaker); atrial flutter; atrial fibrillation
Repeat doses of Adenosine are not indicated if the dysrhythmia reoccurs after conversion
Alternate pharmacological therapy may be necessary

ADVERSE REACTIONS
Facial flushing; headache; sweating; palpitations; chest pain

RELATED PROTOCOLS
Tachycardia/Stable, Tachycardia/Unstable, Pediatric Tachycardia/Stable, Pediatric Tachycardia/Unstable
**ALBUTEROL (Proventil)**

**CLASS**
Sympathomimetic

**ACTION**
Bronchodilator

**DOSE**
- Adult
  - 2.5 mg in 3.0 ml SVN; repeat until improvement
- Pediatric
  - 2.5 mg in 3.0 ml SVN; repeat until improvement

**ROUTE**
Inhalation by oxygen nebulization

**CONTRAINDICATIONS**
- Hypersensitivity to the drug

**ADVERSE REACTIONS**
- Tachycardia; palpitations; anxiousness; headache

**RELATED PROTOCOLS**
- Allergic Reaction, Drowning, Hyperkalemia, Respiratory Distress, Pediatric Allergic Reaction,
  Pediatric Drowning, Pediatric Respiratory Distress

**AMIODARONE (Cordarone)**

**CLASS**
Antiarrhythmic

**ACTION**
Suppresses ventricular ectopy; increases ventricular fibrillation threshold

**DOSE**
- Adult
  - 300 mg IV/IO; may repeat one dose of 150 mg if refractory after 5th shock
- Pediatric
  - 5 mg/kg IV/IO; may repeat once after 5th shock

**ROUTE**
IV/IO

**CONTRAINDICATIONS**
- Hypersensitivity to the drug; cardiogenic shock; high grade AV block; marked sinus bradycardia, or bradycardia with ventricular escape beats

**ADVERSE REACTIONS**
- Seizures; respiratory depression; dizziness; restlessness; confusion; tinnitus; blurred vision; numbness; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting

**RELATED PROTOCOLS**
- Cardiac Arrest, Tachycardia/Stable, Tachycardia/Unstable, Cardiac Arrest Pediatric, Pediatric Tachycardia/Stable,
  Pediatric Tachycardia/Unstable
ATROPINE SULFATE

CLASS
Parasympathetic blocker

ACTION
Cholinergic blocking agent; increases rate of SA node discharge; increases conduction through AV node

DOSE
Adult
See specific protocol

Pediatric
See specific protocol

ROUTE
IV/IO

CONTRAINDICATIONS
None

ADVERSE REACTIONS
None

RELATED PROTOCOLS
Bradycardia, Overdose/Poisoning, Pediatric Bradycardia, Pediatric Overdose/Poisoning

BRONCHODILATOR METERED DOSE INHALER

CLASS
Sympathomimetic

ACTION
Bronchodilator

DOSE
Adult
Assist the patient in administering his or her own Bronchodilator Metered Dose Inhaler exactly as prescribed.

Pediatric
Assist the patient in administering his or her own Bronchodilator Metered Dose Inhaler exactly as prescribed.

ROUTE
Inhalation

CONTRAINDICATIONS
Hypersensitivity to the drug

ADVERSE REACTIONS
Tachycardia; palpitations; anxiousness; headache

RELATED PROTOCOLS
Respiratory Distress, Pediatric Respiratory
CALCIUM CHLORIDE

CLASS
  Electrolyte

ACTION
  Increases myocardial contractility; increases myocardial excitability; decreases heart rate

DOSE
  Adult
    1.0 gm (10% solution) slow IV/IO push
  Pediatric
    20 mg/kg (0.2 ml/kg of 10% solution) slow IV/IO push

ROUTE
  Slow IV/IO

CONTRAINDICATIONS
  Patients receiving digitalis

ADVERSE REACTIONS
  None

RELATED PROTOCOLS
  Bradycardia, Hyperkalemia, Overdose/Poisoning, Pediatric Overdose/Poisoning

DIAZEPAM (Valium)

CLASS
  Antianxiety/Anticonvulsant

ACTION
  CNS Depressant

DOSE
  Adult
    5.0 mg IV/IM/IO may repeat titrating to effect
  Pediatric
    0.1 or 0.2 mg/kg IV/IM/IO; maximum dose of 10 mg
    0.5 mg/kg PR via #5 or 8 French feeding tube; maximum dose of 20 mg

ROUTE
  IV/IM/IO/PR

CONTRAINDICATIONS
  Hypersensitivity; hypotension

ADVERSE REACTIONS
  Respiratory depression; CNS depression; nausea; vomiting

RELATED PROTOCOLS
  Behavioral Emergency, Obstetrical Emergency, Seizure, Ventilation Management, Pediatric Seizure,
  Pediatric Ventilation Management, Electrical Therapy/ Transcutaneous Pacing
**DIPHENHYDRAMINE HYDROCHLORIDE (Benadryl)**

**CLASS**
Antihistamine

**ACTION**
Blocks histamine receptors; has some sedative effects; anticholinergic

**DOSE**
- **Adult**
  - 50 mg IM/IV/IO/PO
- **Pediatric**
  - 1.0 mg/kg IM/IV/IO, max. 50 mg
  - PO doses: less than 6 years=12.5mg PO; 6 to 12 years=25 mg PO; greater than 12 years= 50mg PO

**ROUTE**
- IV/IO or deep IM, PO

**CONTRAINDICATIONS**
Hypersensitivity to the drug

**ADVERSE REACTIONS**
- Sedation; palpitations; decreased blood pressure; headache; dries (thickens) bronchial secretions;
- blurred vision

**RELATED PROTOCOLS**
- Allergic Reaction, Pediatric Allergic Reaction

**DOPAMINE HYDROCHLORIDE (Intropin)**

**CLASS**
Sympathomimetic

**ACTION**
Positive inotrope with dose-related vascular effects

**DOSE**
- **Adult**
  - 5-20 mcg/kg/min; titrate to SBP >90mmHg
- **Pediatric**
  - 5-20 mcg/kg/min; titrate to SBP >70mmHg + 2 x age

**ROUTE**
- IV/IO by continuous infusion

**CONTRAINDICATIONS**
Hypovolemic shock

**ADVERSE REACTIONS**
- Ventricular tachycardia; ectopic beats; nausea; vomiting; dyspnea; hypertension and extreme
  vasoconstriction may occur with high infusion rates; hypotension may occur with low infusion rates

**RELATED PROTOCOLS**
- Bradycardia, Pulmonary Edema/CHF, Shock, Target Temperature Management & Post Resuscitation, Pediatric Shock
**DROPERIDOL (Inapsine)**

**CLASS**

Antiemetic

**ACTION**

Lowers incidence of nausea and vomiting

**DOSE**

**Adult**

1.25 mg IM/IV/IO followed by a saline flush or bolus; may repeat the dose after 5 minutes

**Pediatric**

Not indicated in patients under 12 years old

**ROUTE**

IM/IV/IO

**CONTRAINDICATIONS**

*Droperidol (Inapsine) is contraindicated for patients having Suspected STEMI and Chest Pain.*

- Hypotensive patients
- Respiratory depression
- Hypersensitivity to Inapsine
- Known prolonged QT interval

**ADVERSE REACTIONS**

- EPS; syncope; cardiac dysrhythmias

**RELATED PROTOCOLS**

Abdominal/Flank Pain Nausea Vomiting, Behavioral Emergency, Pain Management

(Revised and MAB approved 12-05-2018)

**EPINEPHRINE**

**CLASS**

Sympathomimetic

**ACTION**

Bronchodilation; positive chronotrope; positive inotrope

**DOSE**

**Adult**

See specific protocol

**Pediatric**

See specific protocol

**ROUTE**

IM/IV/IO/ETT/SVN

**CONTRAINDICATIONS**

- Underlying cardiovascular disease/angina; hypertension; pregnancy; patient over 40 years of age
- Hyperthyroidism

**ADVERSE REACTIONS**

- Palpitation due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease present; elevation of blood pressure; headache; anxiousness

**RELATED PROTOCOLS**

Allergic Reaction, Cardiac Arrest, Pediatric Allergic Reaction, Pediatric Bradycardia, Cardiac Arrest Non-Traumatic, Pediatric, Neonatal Resuscitation, Pediatric Respiratory Distress
**EPINEPHRINE AUTO-INJECTOR**

**CLASS**
- Sympathomimetic

**ACTION**
- Bronchodilation; positive chronotrope; positive inotrope

**DOSE**
- **Adult**
  - Assist patient with his or her own Epinephrine auto-injector
- **Pediatric**
  - Assist patient with his or her own Epinephrine auto-injector

**ROUTE**
- IM

**CONTRAINDICATIONS**
- Underlying cardiovascular disease / angina; hypertension; pregnancy; patient over 40 years of age; hyperthyroidism

**ADVERSE REACTIONS**
- Palpitation due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease present; elevation of blood pressure; headache; anxiousness

**RELATED PROTOCOLS**
- Allergic Reaction, Pediatric Allergic Reaction

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**ETOMIDATE (Amidate)**

**CLASS**
- Sedative / Hypnotic

**ACTION**
- CNS depressant

**DOSE**
- **Adult**
  - **Induction** 0.3 mg/kg IV/O; **Sedation** 0.15 mg/kg IV/O
- **Pediatric**
  - **Sedation** 0.15 mg/kg IV/O

**ROUTE**
- IV/O

**CONTRAINDICATIONS**
- Known hypersensitivity to the drug

**ADVERSE REACTIONS**
- Pain; transient skeletal movements; nausea; vomiting; hypoventilation; hypotension

**RELATED PROTOCOLS**
- Tachycardia Stable, Tachycardia Unstable, Ventilation Management, Pediatric Tachycardia Stable, Pediatric Tachycardia Unstable, Electrical Therapy/ Synchronized Cardioversion, Electrical Therapy/ Transcutaneous Pacing, Endotracheal Intubation
**FENTANYL CITRATE**

**CLASS**
Analgesic

**ACTION**
CNS Depressant

**DOSE**
Adult
Up to 1.0 mcg/kg IN/IM/IV/IO, to a maximum single dose of 100 mcg. May repeat dose after 10 minutes. Additional doses require physician order.

**Pediatric**
1.0 mcg/kg IN/IM/IV/IO, to a maximum single dose of 100 mcg. Additional doses require physician order.

**ROUTE**
IN/IM/IV/IO

**CONTRAINDICATIONS**
Known hypersensitivity; patients less than two years old

**ADVERSE REACTIONS**
Respiratory depression; rapid infusion may produce “stiff chest syndrome”

**RELATED PROTOCOLS**
Pain Management, Pediatric Pain Management, Electrical Therapy/ Synchronized Cardioversion, Electrical Therapy/ Transcutaneous Pacing

**GLUCAGON**

**CLASS**
Insulin antagonist

**ACTION**
Reverses the effects of hypoglycemia

**DOSE**
Adult
See specific protocol

**Pediatric**
See specific protocol

**ROUTE**
IV/IM/IO

**CONTRAINDICATIONS**
None

**ADVERSE REACTIONS**
Nausea; vomiting

**RELATED PROTOCOLS**
Altered Mental Status/Syncope, Bradycardia, Overdose/Poisoning, Seizure, Pediatric Altered Mental Status, Pediatric Overdose/Poisoning, Pediatric Seizure, Pediatric Shock
**GLUCOSE**

**CLASS**
Carbohydrate

**ACTION**
Quick infusion of sugar into blood for metabolism

**DOSE ORAL GLUCOSE**

**Adult**
15 gm Glucose between the gum and cheek, if gag reflex is present.

**Pediatric**
Up to 15 gm Glucose between the gum and cheek, if gag reflex is present and as tolerated.

**DOSE D10 (10% Dextrose in 250 ml NS)**

**Adult**
25 gm IV/IO may repeat x1 in 5 minutes

**Pediatric**
5ml/kg IV/IO max dose 250 ml

**ROUTE**
IV/IO drip or PO

**CONTRAINDICATIONS**
None

**ADVERSE REACTIONS**
None

**RELATED PROTOCOLS**
Altered Mental Status/Syncope, Seizure, Pediatric Altered Mental Status, Pediatric Seizure, Pediatric Shock

**HYDROMORPHONE (Dilaudid)**

**CLASS**
Analgesic

**ACTION**
CNS Depressant

**DOSE**

**Adult**
Up to 1.0 mg IM/IV/IO may repeat after 10 minutes. Additional doses require physician order.

**Pediatric**
Not for use in children under 12 years old

**ROUTE**
IM/IV/IO

**CONTRAINDICATIONS**
Known hypersensitivity; intolerance to opiate analgesics

**ADVERSE REACTIONS**
Respiratory depression

**RELATED PROTOCOLS**
Pain Management, Electrical Therapy/Transcutaneous Pacing
HYDROXOCOBALAMIN

CLASS
Detoxifying agent

ACTION
Competitively binds to cyanide ions

DOSE
Adult
5.0 g IV over 15 minutes

Pediatric
See specific protocol

ROUTE
IV/IO

CONTRAINDICATIONS
None

ADVERSE REACTIONS
None

RELATED PROTOCOLS
Overdose/Poisoning, Smoke Inhalation, Pediatric Overdose/Poisoning, Pediatric Smoke Inhalation

IPRATROPIUM BROMIDE (Atrovent)

CLASS
Anticholinergic

ACTION
Appears to inhibit vagally mediated reflexes

DOSE
Adult
2.5 ml of 0.02% solution

Pediatric
2.5 ml of 0.02% solution

ROUTE
Inhalation by oxygen nebulization

CONTRAINDICATIONS
Hypersensitivity to Ipratropium

ADVERSE REACTIONS
Headache; nausea

RELATED PROTOCOLS
Respiratory Distress, Pediatric Respiratory Distress
**IPRATROPIUM BROMIDE and ALBUTEROL SULFATE (Duoneb)**

**CLASS**
Anticholinergic/Sympathomimetic

**ACTION**
Appears to inhibit vagally mediated reflexes and acts as a bronchodilator

**DOSE**
- **Adult**
  - 3.0 ml
- **Pediatric**
  - 3.0 ml

**ROUTE**
Inhalation by oxygen nebulization

**CONTRAINDICATIONS**
Hypersensitivity to either of the base medications

**ADVERSE REACTIONS**
Tachycardia; palpitations; anxiousness; headache; nausea

**RELATED PROTOCOLS**
Respiratory Distress, Pediatric Respiratory Distress

**KETAMINE (Ketalar)**

**CLASS**
General anesthetic/Induction agent

**ACTION**
CNS depressant

**DOSE**
- **Adult**
  - See specific protocols

**ROUTE**
IM/IV/IO

**CONTRAINDICATIONS**
Known hypersensitivity; systolic over 180 mmHg; acute CVA; head trauma

**ADVERSE REACTIONS**
Respiratory depression

**RELATED PROTOCOLS**
Behavioral Emergency, Pain Management, Ventilation Management, Pediatric Ventilation Management
**LIDOCAINE (Xylocaine) 1% or 2% Injection**

**CLASS**
Anesthetic

**ACTION**
Produces anesthesia by interfering with nervous system transmission

**DOSE**
See specific protocol

**ROUTE**
Intraosseous

**CONTRAINdications**
Hypersensitivity to the drug

**ADVERSE REACTIONS**
Seizures; respiratory depression; dizziness; restlessness; confusion; tinnitus; blurred vision; numbness; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting

**RELATED PROTOCOLS**
Vascular Access

(Revised and approved by MAB 12-05-2018)

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**LIDOCAINE (Xylocaine) 2% LUBRICANT**

**CLASS**
Topical anesthetic

**ACTION**
Produces anesthesia by interfering with nervous system transmission

**ROUTE**
Topical use only

**CONTRAINdications**
Hypersensitivity to the drug

**ADVERSE REACTIONS**
Seizures; respiratory depression; dizziness; restlessness; confusion; tinnitus; blurred vision; numbness; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting

**RELATED PROTOCOLS**
Ventilation Management, Endotracheal Intubation
MAGNESIUM SULFATE

CLASS
Electrolyte

ACTION
Membrane stabilization; raises seizure threshold

DOSE
Adult
2.0 gm in 50 cc NS over 10 minutes IV/IO

Pediatric
25 mg/kg in 50 cc NS over 10 minutes IV/IO

ROUTE
Medical: Mixed in 50 cc NS IV piggyback
Cardiac: Slow IVP

CONTRAINDICATIONS
Hypersensitivity to the drug; high degree heart block; renal failure

ADVERSE REACTIONS
Hypotension; asystole; respiratory depression; weakness

RELATED PROTOCOLS
Obstetrical Emergency, Respiratory Distress, Tachycardia/Stable, Tachycardia/Unstable, Pediatric Tachycardia/Stable, Pediatric Tachycardia/Unstable

Metoclopramide (Reglan)

CLASS
Antiemetic

ACTION
Dopamine agonist that works by blocking the CNS vomiting chemoreceptor trigger zone (CRT)

DOSE
Adult
10 mg slow IV/IO bolus over 1-2 minutes or IM

Pediatric AGES 8-12 years
5 mg slow IV/IO bolus over 1-2 minutes or IM

ROUTE
IV/IO/IM

CONTRAINDICATIONS
Known hypersensitivity

ADVERSE REACTIONS
Restlessness, hyperactivity, anxiety, sedation, increased GI motility, use with caution in suspected bowel obstruction. Extra-pyramidal reactions have been noted hours to days after treatment, usually presenting as spasm of the muscles of the tongue, face, neck and back.

RELATED PROTOCOLS
Abdominal/Flank Pain, Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome, Pain Management, STEMI (Suspected), Pediatric Abdominal Pain, Pediatric Pain Management

SPECIAL Consideration: This medication is photo-sensitive and must be protected from light.

(Revised and MAB approved 05-01-2019)
**MIDAZOLAM (Versed)**

**CLASS**
Anxiolytic

**ACTION**
CNS depressant

**DOSE**

**Adult**
0.1 mg/kg IN/IM/IV/IO; may repeat after 5 minutes at 0.05 mg/kg IN/IM/IV

**Pediatric**
If patient is less than 12 yrs of age, 0.1 mg/kg IN/IV/IO/IM, titrated to effect, max single dose 5.0 mg; must be given slowly over a period of 3-5 minutes; additional doses by telemetry physician order only.

**ROUTE**
Slow IVP, PR/IN/IM/IO

**CONTRAINDICATIONS**
Hypersensitivity to the drug; hypotension; clinical signs of shock

**ADVERSE REACTIONS**
CNS depression; hypotension, respiratory depression

**RELATED PROTOCOLS**
Behavioral Emergency, Obstetrical Emergency, Seizure, Ventilation Management, Pediatric Seizure, Pediatric Ventilation Management, Electrical Therapy/Transcutaneous Pacing, Endotracheal Intubation

**MORPHINE SULFATE**

**CLASS**
Narcotic

**ACTION**
CNS depressant

**DOSE**

**Adult**
0.1 mg/kg IM, slow IV/IO, to a max single dose of 10 mg; may repeat at 10 minute intervals until pain is relieved or respiratory/mental status depression occur.

**Pediatric**
0.1 mg/kg IM, slow IV/IO, to a max single dose of 10 mg. Additional doses by telemetry physician order only.

**ROUTE**
IM, Slow IVP/IO

**CONTRAINDICATIONS**
Hypersensitivity to opiates; head injuries; chest or abdominal injury; clinical signs of shock

**ADVERSE REACTIONS**
Respiratory depression; nausea; vomiting; bradycardia; orthostatic hypotension; altered level of consciousness

**RELATED PROTOCOLS**
Pain Management, Pediatric Pain Management, Electrical Therapy/Transcutaneous Pacing
NALOXONE HYDROCHLORIDE (Narcan)

CLASS
Narcotic antagonist

ACTION
Reverses effects of narcotics

DOSE
Adult
See specific protocol

Pediatric
See specific protocol

ROUTE
IN/IM/IV/IO

CONTRAINDICATIONS
Patients with a history of hypersensitivity to the drug; intubated patients; the newly born during initial resuscitation

ADVERSE REACTIONS
Rapid administration causes projectile vomiting

RELATED PROTOCOLS
Altered Mental Status/Syncope, Overdose/Poisoning, Pediatric Altered Mental Status, Pediatric Overdose/Poisoning

NITROGLYCERIN

CLASS
Vasodilator

ACTION
Dilates systemic arteries and veins; reduces both preload and afterload

DOSE
Adult
See specific protocol

Pediatric
See specific protocol

ROUTE
Sublingual spray or tablet

CONTRAINDICATIONS
Hypotension (do not administer if systolic pressure below 100 mmHg unless ordered by a physician); Use of erectile dysfunction medications within the last 48 hours; Patients with demonstrated hypersensitivity to nitrates or nitrites

ADVERSE REACTIONS
Hypotension

RELATED PROTOCOLS
Acute Coronary Syndrome, Pulmonary Edema/CHF
ONDANSETRON HYDROCHLORIDE (Zofran)

CLASS
Selective serotonin blocking agent

ACTION
Antiemetic

DOSE
Adult
4.0 mg ODT/IM/IV/IO

Pediatric
0.15 mg/kg ODT up to a max dose of 4 mg (round up to the nearest ½ pill)

ROUTE
Slow IV/IO/IM/ODT

CONTRAINDICATIONS
Patients with a known hypersensitivity to the drug

ADVERSE REACTIONS
Headache; chest pain; dizziness; hypotension

RELATED PROTOCOLS
Abdominal/Flank Pain, Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome, Pain Management, Pediatric STEMI (Suspected), Pediatric Abdominal Pain, Pediatric Pain Management

OXYMETAZOLINE (Afrin) 0.05% Spray

CLASS
Sympathomimetic

ACTION
Direct local vasoconstriction

DOSE
Adult
2 sprays to each nostril

Pediatric
If patient can follow instructions and seems tolerant of administration, 2 sprays per nostril.

ROUTE
IN

CONTRAINDICATIONS
Monoamine Oxidase inhibitor (MAOI) use within 14 days

ADVERSE REACTIONS
None

RELATED PROTOCOLS
Epistaxis, Pediatric Epistaxis, Endotracheal Intubation

(Revised and approved by MAB 12-05-2018)
**PHENYLEPHRINE (Neo-Synephrine)**

**CLASS**
- Sympathomimetic

**ACTION**
- Direct local vasoconstriction

**DOSE**

**Adult**
- 2-3 drops or 1-2 sprays in each nostril, and Lidocaine 2% lubricant

**Pediatric**
- Not recommended for use

**ROUTE**
- IN

**CONTRAINDICATIONS**
- Ventricular tachycardia; severe coronary artery disease; head injured patients with altered mental status

**ADVERSE REACTIONS**
- None

**RELATED PROTOCOLS**
- Endotracheal Intubation, Epistaxis, Pediatric Epistaxis

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**Prochlorperazine (Compazine)**

**CLASS**
- Antiemetic

**ACTION**
- Dopamine agonist with antiemetic actions

**DOSE**

**Adult**
- Up to 10mg IV/IO or IM.

**Pediatric**
- Not recommended

**ROUTE**
- IV/IO/IM

**CONTRAINDICATIONS**
- Known hypersensitivity

**ADVERSE REACTIONS**
- Possible dystonic reactions

**RELATED PROTOCOLS**
- Abdominal/Flank Pain, Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome, Pain Management, STEMI (Suspected)

(Added to formulary and approved by MAB 5-01-2019)
**SODIUM BICARBONATE**

**CLASS**
Alkalinizing agent

**ACTION**
Increases blood pH

**DOSE**

Adult

1.0 mEq/kg; 50mEq/50 ml (8.4% solution) IV/IO

**Pediatric**

1.0 ml/kg; 50mEq/50 ml (8.4% solution) IV/IO (use 4.2% solution for neonatal patients)

**ROUTE**

IV/IO

**CONTRAINDICATIONS**

Alkalotic states; respiratory acidosis

**ADVERSE REACTIONS**

None

**RELATED PROTOCOLS**

Hyperkalemia, Overdose/Poisoning, Pediatric Overdose/Poisoning

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**Solu-Cortef (Hydrocortisone Sodium Succinate)**

**CLASS**
Corticosteroid

**ACTION**
Anti-inflammatory, replaces absent glucocorticoids, suppresses immune response

**DOSE**

Adult

As prescribed (usual dose 100mg)

**Pediatric**

As prescribed (usual dose 2 mg/kg to a max of 100 mg)

**ROUTE**

IM or Slow IV/IO over 30 seconds

**CONTRAINDICATIONS**

Systemic fungal infections, hypersensitivity to the drug

**ADVERSE REACTIONS**

ECG changes, hypertension, headache

**USING THE ACT-O-VIAL**

Press down on plastic activator to force diluent into the lower compartment and gently agitate to effect solution

Remove plastic tab covering center of stopper and swab top of stopper with a suitable antiseptic

Insert needle through center of plunger-stopper until tip is just visible. Invert vial and withdraw the required dose.

**RELATED PROTOCOLS**

Shock, Pediatric Shock
First Response Low-Risk Alpha Evaluate and Release Form (example)

Incident #: 
EMS Agency: 
Patient Name: 
Date of Birth: 
Address: 
Phone #: 
Responding Ambulance Service: AMR MW Community Ambulance
Medical Priority Dispatch System Code: 
Time of Patient Contact: 
Patient Complaint(s): 

Primary Survey Complete 
Secondary Survey Complete 

Vital Signs: HR _____ RR______ BP _______ SPO2______ BG (as applicable)______

General Impression:

Confirm the following:

Normal vital signs 
Time last taken:
Patient does not meet Trauma Field Triage Criteria
No indication for an ECG or cardiac monitoring per SNHD Emergency Medical Care Protocols
Patient is not a threat to self or others

Patient denies AND no evidence or suspicion of the following:

Pregnancy 
Head trauma 
Chest pain 
Active bleeding 
Seizure 
Stroke 
Allergic reaction 
Shortness of breath 
Syncope, near syncope, or dizziness 
Overdose or ingestional error 
Abdominal pain/flank pain above the Umbilicus if >35 years of age

Inclusion Criteria:

Call coded and dispatched using MPDS, Alpha or Omega category
Patient between 18 and 65 years of age
Patient has decision making capacity
Patient has a phone to call 9-1-1 if their condition worsens

We have assessed and examined you and have determined your condition as NOT THREATENING TO LIFE/LIMB. With your permission, we will return to service so we may be available in the case of another emergency. An ambulance is continuing to respond. If your condition worsens in any way, call 9-1-1.

I consent to waiting for the ambulance and understand that I can call 9-1-1 if I get worse in any way.

Patient signature 
Provider signature
SAMPLE
RELEASE OF MEDICAL ASSISTANCE

1. I (or my guardian) have been informed of the reason I should go to the hospital for further emergency care.

2. I (or my guardian) have been informed that only an initial evaluation has been rendered to me and have been advised that I seek the advice of a physician as soon as possible.

3. I (or my guardian) have been informed of the potential consequences and/or complications that may result in my (or my guardian’s) refusal to go to the hospital for further emergency care.

4. I (or my guardian), the undersigned, have been advised that emergency medical care on my/the patient’s behalf is necessary, and that refusal of recommended care and transport to a hospital facility may result in death, or imperil my/the patient’s health by increasing the opportunity for consequences or complications. Nevertheless, and understanding all of the above, I (or my guardian), refuse to:

☐ accept emergency medical care
☐ accept transport to a hospital facility
☐ accept transport to _____________ Hospital as directed by Southern Nevada EMS protocols, but request transport to _____________ Hospital; and

assume all risks and consequences resulting from my (or my guardian’s) decision, and release Clark County provider agencies, and all personnel directly or indirectly involved in my care from any and all liability resulting from my (or my guardian’s) refusal. I have had the opportunity to ask all of the questions I feel necessary to provide this informed refusal.

5. The reason for this refusal is as follows: (to be completed by patient/guardian) __________________________________________

______________________________

Patient’s Name:

DOB:

Patient’s Address:

Patient’s Phone Number:

Signature (Patient/Guardian):

Witness:

Witness:

Date: Time: Incident #:

Refused to Sign (Patient/Guardian):

Telemetry Physician: Hospital:

APP-A1
Sample Algorithm, Release of Medical Assistance

1. For all patients refusing transport who meet Trauma Field Triage Criteria protocol, contact a trauma center.
2. EMS personnel may make telemetry contact for further guidance at any time.
Scope of Practice

Southern Nevada Health District
Office of Emergency Medical Services & Trauma System
Authorized Medication List

The following is the formulary used by EMS agencies in Clark County. Licensed EMS providers working in the EMS System for a permitted agency are authorized, within their level of certification and training, to administer medications as directed by the written treatment protocols.

<table>
<thead>
<tr>
<th>Medications</th>
<th>EMT</th>
<th>AEMT</th>
<th>Paramedic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylsalicylic Acid</td>
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<tr>
<td>Adenosine</td>
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<td>Albuterol</td>
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<td>Amiodarone</td>
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<tr>
<td>Atropine Sulfate</td>
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<td>Bronchodilator Metered Dose Inhaler</td>
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<tr>
<td>Calcium Chloride</td>
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<tr>
<td>Diazepam</td>
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<tr>
<td>Diphenhydramine Hydrochloride</td>
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<td>Dopamine Hydrochloride</td>
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<td>Droperidol</td>
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<td>Epinephrine</td>
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<td>Epinephrine Autoinjector</td>
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<td>Etomidate</td>
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<td>Fentanyl Citrate</td>
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<td>Hydroxocobalamin</td>
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<td>Ipratropium Bromide</td>
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<td>Ipratropium Bromide &amp; Albuterol Sulfate</td>
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<td>Ketamine</td>
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<td>Magnesium Sulfate</td>
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<td>Metoclopramide</td>
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<td>Solu-Cortef</td>
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</tbody>
</table>
**Scope of Practice**

Southern Nevada Health District  
Office of Emergency Medical Services & Trauma System  
Authorized Skills List

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<td>12-Lead ECG Interpretation</td>
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<td>3-Lead ECG Interpretation</td>
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<td>Airway Suction</td>
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<td>Capnometry (Color Change Device)</td>
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<td>Capnometry (Continuous Waveform)</td>
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<td>Carotid Massage</td>
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<td>Synchronized Cardioversion</td>
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<td>Targeted Temperature Management</td>
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<td>Tracheostomy Tube Replacement</td>
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**C2**
### Monthly Update

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<td>Boulder City Hospital</td>
<td>901 Adams Blvd, Boulder City, NV 89005 (702) 294-5751</td>
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<td>Summerlin Medical Center</td>
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<td>University Medical Center</td>
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<td>Valley Hospital</td>
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**S A E v a l u a t i o n**

- **Level I**: Patients > 18 y/o
- **Level II**: Patients < 13 y/o
- **Level III**: Patients < 13 y/o
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<tr>
<th>Hospital Name</th>
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<th>Remote Outpatient ED</th>
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<td>Crossroads of Southern Nevada</td>
<td>2121 W. Charleston</td>
<td>(702) 382-7746</td>
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<td>Dignity Blue Diamond</td>
<td>4855 Blue Diamond</td>
<td>(702)216-7305</td>
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<td>Dignity North Las Vegas</td>
<td>1550 W. Craig</td>
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<td>Dignity Sahara</td>
<td>4980 W. Sahara</td>
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<td>Dignity West Flamingo</td>
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<td>Elite Medical Center</td>
<td>150 E Harmon</td>
<td>(702) 216-7335</td>
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<td>ER at Alliante</td>
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<td>(702)962-5100</td>
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<td>ER at Blue Diamond</td>
<td>9217 S. Cimarron Rd. Las Vegas, NV 89113</td>
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<td>ER at Green Valley Ranch</td>
<td>2581 St Rose Parkway</td>
<td>(702) 780-2700</td>
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<td>St Rose De Lima</td>
<td>102 E Lake Mead Pkwy Henderson, NV 89015</td>
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<td>Westcare</td>
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Communications to ER at VHS can be performed via zone - varies (Hospital 2) on channel - 12 (NEW HOSP 2) via the EMS FLEETMAP.

Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (NEW HOSP 2) via the CCFD FLEETMAP.

Communications to Elite Medical FED are NOT available at this time via the EMS FLEETMAP.

Communications to ER at VHS can be performed via zone - 8 (Green Valley) via the EMS FLEETMAP.

Communications to DETOX LOC can be performed via zone - 11 (NEW HOSP 1) via the EMS FLEETMAP.

Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (NEW HOSP 2) via the ALL OTHER FIRE DEPTS FLEETMAP.

Communications to Elite Medical FED are NOT available at this time via the EMS FLEETMAP.

Communications to SR MICRO can be performed via zone - 13 (Hospital 2) on channel - 12 (NEW HOSP 1) via the EMS FLEETMAP.

Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (NEW HOSP 2) via the ALL OTHER FIRE DEPTS FLEETMAP.

Communications to Elite Medical FED are NOT available at this time via the EMS FLEETMAP.

Communications to Detox LOC can be performed via zone - 6 (ER at VHS) via the EMS FLEETMAP.

Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (NEW HOSP 2) via the ALL OTHER FIRE DEPTS FLEETMAP.

Communications to Elite Medical FED are NOT available at this time via the EMS FLEETMAP.

Communications to Detox LOC can be performed via zone - varies (Hospital 2) on channel - 11 (NEW HOSP 1) via the EMS FLEETMAP.

Communications to SR MICRO can be performed via zone - 13 (Hospital 2) on channel - 12 (NEW HOSP 1) via the EMS FLEETMAP.

Communications to ER at VHS can be performed via zone - varies (Hospital 2) on channel - 12 (NEW HOSP 1) via the EMS FLEETMAP.
Appendix E

Mass Casualty Incident

Licensed EMS providers who are on duty for a permitted agency may operate within their scope of practice at a receiving facility during a Mass Casualty Incident if that incident is classified as a Level 3, Level 2, Level 1, Extreme MCI or Hostile MCI as defined by the Fire Alarm Office Standard Operating Procedure, M-1 dated 5/09/2016 if requested by an authorized agent of the receiving facility. Further, if the licensed EMS provider is requested through the Incident Commander or Designee to assist with Mass Casualty Incident (as defined above) related patient surge at a hospital to provide triage expertise or act as a liaison with the EMS system they may do so with consideration being made to EMS system needs, status and relevant law.

Revised and approved by MAB 12-05-2018