CLARK COUNTY EMS SYSTEM
EMERGENCY MEDICAL CARE
PROTOCOLS

EFFECTIVE: June 1, 2017
(Replaces March 29, 2017 Version)

PO BOX 3902 – LAS VEGAS, NV 89127
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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 B).

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.
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Dale Carrison, DO, Clark County Fire Department
Tressa Naik, MD, Henderson Fire Department
David Slattery, MD, FACEP, Las Vegas Fire & Rescue
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Alexander Malone, MD, North Las Vegas Fire Department
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Special Thanks:
The OEMSTS and MAB would like to express appreciation to Dr. Kelly Morgan for her leadership and commitment to the development of this manual.

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 De Lima: 102 E Lake Mead Dr, Henderson, NV 89015 (702) 616-4600
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
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General Adult Assessment Protocol

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

S.T.A.R.T. Triage

Level of Consciousness
Airway
Breathing
Circulation
Disability

Unresponsive
Check Pulse
None
Cardiac Arrest

Signs of Compromise or Not Protecting
Inadequate or Respiratory Distress

Ventilation Management
Respiratory Distress

Bleeding

General Trauma
Altered Mental Status / Syncope

History – HPI & AMPE
Vital Signs & Physical Exam

E
Blood glucose testing as indicated
Specific treatment protocol as indicated
Cervical Stabilization as indicated
Comfort measures (splint, position of comfort)

P
Cardiac monitor as indicated

A
Vascular Access as indicated
Oxygen therapy to keep SpO₂ ≥ 94%

P
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 Placement

- A patient not on a legal psychiatric hold meeting all of the following criteria may be placed in the hospital waiting room or other appropriate location:
  - HR 60 - 100
  - RR 10 - 20
  - Systolic BP 100 - 180
  - Diastolic BP 60 - 100
  - Room air pulse oximetry >94%
  - Alert and oriented x 4
  - Did NOT receive any parenteral medication during EMS transport except a single dose of Morphine Sulfate and/or Ondansetron.
  - In the opinion of the Paramedic/EMT-P, does not require continuous ECG monitoring. Note: Any ECG monitoring initiated by a transferring facility may not be discontinued by EMS personnel.
  - Does not require IV fluids (saline lock is permissible).
  - Can maintain a sitting position without adverse effects on their medical condition.
  - A complete PCR is left/transmitted and verbal notification given 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%

GCS ≥8
E Oxygen Keep SpO₂ >94%

Palpable radial pulse?

No
Vascular Access
1L NS bolus

Yes
Vascular Access

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
Immobilize 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: Consider Acute Coronary Syndrome
   - No: Nausea or vomiting?

   - Yes: Consider an Anti-emetic:
     - ONDANSETRON 4.0 mg ODT/IM/IV
     - DROPERIDOL 1.25mg IM/IV/IO

   - No: Consider Pain Management

4. Vascular Access
   - 500 ml NS bolus; may repeat up to 2000 ml

5. Continue General Adult Assessment
<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential</th>
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<tbody>
<tr>
<td>· Age</td>
<td>· Pain location</td>
<td>· Liver (Hepatitis)</td>
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<td>· Medical/surgical</td>
<td>· Tenderness</td>
<td>· Gastritis</td>
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<td>· history</td>
<td>· Nausea</td>
<td>· Gallbladder</td>
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<td>· Onset</td>
<td>· Vomiting</td>
<td>· MI</td>
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<td>· Quality</td>
<td>· Diarrhea</td>
<td>· Pancreatitis</td>
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<td>· Dysuria</td>
<td>· Kidney stone</td>
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<td>· Fever</td>
<td>· Constipation</td>
<td>· Abdominal aneurysm</td>
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<td>· Menstrual history</td>
<td>· Vaginal bleeding/discharge</td>
<td>· Appendicitis</td>
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<td>· Pregnancy</td>
<td>· Bladder/prostate disorder</td>
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<td>· Pelvic (PID, ectopic pregnancy, ovarian cyst)</td>
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<td>· Gastroenteritis</td>
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<td>· Ovarian and testicular torsion</td>
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**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.
Acute Coronary Syndrome (Suspected) Protocol

General Adult Assessment

12-Lead ECG

**STEMI**

A Vascular Access

E Oxygen

Keep SpO₂ >94%

E ASPIRIN 324 mg PO

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

E Assist pt with own NTG as prescribed; may repeat x 3

P 0.4 mg SL; may repeat q 5 min x 3

P Pain Management for continued pain

P Consider Anti-emetic for nausea/vomiting:

ONDANSETRON 4.0 mg ODT/IM/IV

or

DROPERIDOL 1.25 mg IM/IV/IO

Transport to and Notify Receiving Hospital

**Non-Diagnostic 12-Lead**

A Vascular Access

E Oxygen

Keep SpO₂ >94%

E ASPIRIN 324 mg PO

E Nitroglycerin

Assist pt with own NTG as prescribed; may repeat x 3

P 0.4 mg SL; may repeat q 5 min x 3

P Pain Management for continued pain

P Consider Anti-emetic for nausea/vomiting:

ONDANSETRON 4.0 mg ODT/IM/IV

or

DROPERIDOL 1.25 mg IM/IV/IO

Transport to Hospital of Patient’s Choice

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
- Palliation, 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 vs medical
- Anginal vs 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)

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 or older experiencing vague jaw/chest/abdominal discomfort.
- Perform a 12-Lead ECG as quickly as practicable.

QI Metrics
- 12-Lead ECG within 5 minutes of patient contact.
- Pain reassessed after every intervention.
Allergic Reaction Protocol

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

Vascular Access
DIPHENHYDRAMINE 50 mg IM/IV

Reassess patient q 5 min

Patient in shock?

Yes

Ventilation Management
ALBUTEROL 2.5 mg SVN; repeat as needed
Cardiac monitor
IV access 500 cc NS bolus; may repeat up to 2L
DIPHENHYDRAMINE 50 mg IM/IV

No

ALBUTEROL
Assist patient with MDI
2.5 mg SVN; repeat as needed

Ventilation Management
Cardiac monitor
IV access 500 cc NS bolus; may repeat up to 2L

DIPHENHYDRAMINE 50 mg IM/IV

Notify Receiving Hospital

EPINEPHRINE 1:10,000
0.1 mg IV/IO q 1 min
Allergic Reaction Protocol

**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

**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.
- Anaphylaxis refractory to repeat doses of IM Epinephrine may require IV Epinephrine (1:10,000) administration by IV push.
- 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 Protocol

**General Adult Assessment**

- **BG <60mg/dl**
  - **E** Blood glucose testing
  - **A** Vascular Access
    - **E** ORAL GLUCOSE if patient protecting airway
    - **A** Improved mental status?
      - Yes
        - **A** Other treatment protocols as indicated
      - No
        - **P** Cardiac monitor
          - **12-Lead ECG**
          - **A** Consider NS 500 ml IV; may repeat up to 2000 ml
    - **A** Consider the following:
      - Signs of stroke?
        - **Stroke**
      - Signs of hypoperfusion?
        - **Shock**
      - Signs of a seizure of post-ictal state?
        - **Seizure**
      - Signs of trauma or head injury?
        - **General Trauma**
      - Cardiac causes/known disease?
        - **Appropriate cardiac protocol**
  - **A** GLUCAGON 1.0 mg IM for no IV access
    - **A** D10, 25g IV; (250mL of 10% solution); may repeat x 1 in 5 min
    - **A** BG >60mg/dl

- **Unresponsive with respiratory depression & suspected narcotic overdose**
  - **A** NALOXONE 0.4 – 2.0 mg IN/IM/IV; may repeat 2.0 mg IN/IM/IV 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
6. Excited Delirium

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

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

Yes
Threatened to harm SELF
2-point restraints; consider law enforcement escort; or 4-point restraints if needed
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; may repeat q 5 min at 0.05 mg/kg
OR
DIAZEPAM
5.0 mg IV; 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
OR
KETAMINE
2.0 mg/kg IV/IO OR 4.0 mg/kg IM
Cardiac monitor
Transport

No threats to self or others
Transport

No

Continue General Adult Assessment
### 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 Protocol

General Adult Assessment

Vascular Access
Cardiac monitor/12-Lead ECG

ECG shows STEMI

Acute Coronary Syndrome
(Suspected)

No

Observe
Transport

Yes

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

ATROPINE
0.5 mg IVP; 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; titrate to SBP 100 mmHg; max dose 20 mcg/kg/min

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

Repeat 12-Lead ECG

Notify Receiving Hospital

Responsive to ATROPINE

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

Chemical / Electrical Exposure
- 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 – NS 500 ml fluid bolus if signs of hypoperfusion, OR >10% BSA burn present;
  - If no improvement in patient condition, administer additional fluid challenges up to 2000 ml.

Pain Management
- Consider Smoke Inhalation

Transport to UMC Trauma Center for patients requiring Burn Center evaluation
Patients meeting the following Criteria shall be transported to the UMC Burn Center via the Adult or Pediatric Trauma Center:

1. Second and/or third degree burns >20% body surface area (BSA).
2. Second and/or third degree burns >10% body surface area (BSA) in patients under 10 years old or over 50 years old.
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.

Parkland Formula for Fluid Replacement:

\[4 \text{ml} \times (\text{body wt in kg}) \times (\% \text{ BSA burned}) = \text{total fluids for 24 hrs}\]

Give \(\frac{1}{2}\) in the first 8 hrs; give remainder over next 16 hrs.

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.

Burns Protocol
Cardiac Arrest (Non-Traumatic) (Adult CCC CPR)

General Adult Assessment

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

Yes

No

If witnessed by EMS or CPR in progress and patient is unresponsive with no pulse, begin Continuous Chest Compressions (CCC)

Push hard (≥2 Inches) Push fast (≥100/min)

E  Apply AED and defibrillate, if prompted

E  Insert NPA or OPA and begin BVM at 8 BPM

P  Apply cardiac monitor

If unwitnessed by EMS or no CPR in progress perform 2 min of CCC

Rhythm shockable?

Yes

No

P  VF/VT

P  Defibrillate

E  Continue CPR for 2 min

A  Vascular Access

Rhythm shockable?

Yes

No

E  Defibrillate if prompted (AED)

P  Defibrillate

E  Continue CPR for 2 min

P  EPINEPHRINE 1.0 mg IV/IO q 3-5 min; ETT Administration requires 2 to 2.5 times the dose

A  Consider Extraglottic Airway Device

A  Consider Endotracheal Intubation

Rhythm shockable?

Yes

No

E  Defibrillate if prompted (AED)

P  Defibrillate

E  Continue CPR for 2 min

P  AMIODARONE 300 mg IV/IO; may repeat one dose of 150 mg if refractory 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

Rhythm shockable?

Yes

No

P  Asystole/PEA

E  Continue CPR for 2 min

A  Vascular Access

P  EPINEPHRINE 1.0 mg IV/IO q 3-5 min; ETT Administration requires 2 to 2.5 times the dose

A  Consider Extraglottic Airway Device

A  Consider Endotracheal Intubation

Rhythm shockable?

Yes

No

E  Continue CPR for 2 min

P  Address H’s & T’s

Use VF/VT side as indicated

Refer to Termination of Resuscitation or DNR/POLST Protocol as appropriate

AT ANY TIME
Return of Spontaneous Circulation, go to Therapeutic Hypothermia & Post-Resuscitation Care Protocol

IF HYPOXIA IS THE CAUSE OF THE ARREST, EARLY VENTILATION IS RECOMMENDED
**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 ETCO\(_2\) 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

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Left uterine displacement using 1-handed technique.

Terry L. Vanden Hoek et al. Circulation. 2010;122:S829-S861
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Chest Pain Protocol

General Adult Assessment

12-Lead ECG

Non-Specific Chest Pain
- Oxygen
  - Keep SpO₂ > 94%

Suspected Aortic Dissection
- Vascular Access
- NS 500 ml bolus; may repeat up to 2000 ml for hypotension

Suspected Cardiac Origin
- Acute Coronary Syndrome (Suspected)

Non-Specific Chest Pain
- Consider Vascular Access
- Consider ALBUTEROL for constricted airways 2.5 mg SVN

Suspected Aortic Dissection
- Consider ALBUTEROL for constricted airways 2.5 mg SVN

Suspected Cardiac Origin
- Consider Pain Management

Continue General Adult Assessment
History
- Age
- Medications (Viagra/Sildenafil/Levitra, Cialis/Tadalafil)
- Past medical history (MI, angina, diabetes, post menopausal)
- Allergies
- Recent physical exertion
- Palliation/Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region/Radiation/Referred
- Time (onset/duration/repetition)

Signs and Symptoms
- CP (pressure, pain, ache, vice-like tightness)
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Pale
- Diaphoresis
- Shortness of breath
- Nausea, vomiting, dizzy
- Time of onset

Differential
- Medical vs. Trauma
- Angina vs. MI
- Pericarditis
- Pulmonary embolism
- Asthma/COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain
- Overdose (cocaine or methamphetamine)

Pearls
- Nitroglycerine is contraindicated for any patient having taken Viagra or similar medication in the past 24 hours, or 48 hours for Tadalifil, or similar.
- Nitroglycerine is contraindicated in any patient with hypotension, bradycardia or tachycardia in the absence of heart failure and evidence of a right ventricular infarction. Caution is advised in patients with inferior wall STEMI and a right sided ECG should be performed to evaluate right ventricular infarction.
- Diabetics, geriatric and female patients often present with atypical pain or only generalized complaints (have a low threshold to perform a 12-Lead ECG).

QI Metrics
- 12-Lead ECG completed within 5 minutes of patient contact.
- 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 body of baby during delivery of head
- Attempt Vascular Access

Cord Presentation
- Position patient on elbows and knees with hips elevated
- Wrap cord and keep it moist
- Insert gloved hand to lift baby off cord; obtain and document cord pulse

A Attempt Vascular Access

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.

<table>
<thead>
<tr>
<th>APGAR</th>
<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>
<td>Active movement</td>
</tr>
<tr>
<td><strong>Pulse</strong></td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
</tr>
<tr>
<td><strong>Grimace/Reflex Irritability</strong></td>
<td>No response</td>
<td>Grimace</td>
<td>Sneeze, cough, pulls away</td>
</tr>
<tr>
<td><strong>Appearance/Skin Color</strong></td>
<td>Blue-Grey, pale all over</td>
<td>Normal, except extremities</td>
<td>Normal over entire body</td>
</tr>
<tr>
<td><strong>Respiration</strong></td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
</tbody>
</table>
Drowning Protocol

General Adult Assessment

Airway protected & ventilation adequate?

Ventilation Management
- Consider Cervical Stabilization

Yes

Consider Cervical Stabilization

No

Ventilation Management

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).

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
**History**
- Submersion in water, 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.

**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).

**QI Metrics**
- Submit the SNHD Submersion Incident Report Form.
Hyperkalemia (Suspected) Protocol

This protocol is for patients with chronic kidney disease with suspected hyperkalemia.

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

SODIUM BICARBONATE
1.0 mEq/kg slow IVP

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 (crush syndrome, chronic renal failure) **AND** electrocardiographic findings consistent with hyperkalemia (bradycardia with widening QRS complexes) **AND** hemodynamic instability **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.
**Hyperthermia/Environmental Illness Protocol**

**General Adult Assessment**

1. Remove from environment
2. Temperature measurement (if available)
3. Remove tight clothing
4. 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
  - Monitor and reassess

- No
  - Continue General Patient Care and Transport

**Hyperthermia/Environmental Illness**

**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
  - Monitor and reassess

- No
  - Continue General Patient Care and Transport
### 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.

### 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.
Hypothermia/Environmental 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

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

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

Shock (Trauma)

Monitor and reassess

Continue General Patient Care and Transport

Hypothermia/Environmental Illness Protocol
**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
General Adult Assessment

Pregnant patient exhibiting pre-eclampsia?
- Yes → MAGNESIUM SULFATE 2.0 gm in 50 cc NS over 10 min → Transport to Appropriate Facility
- No

Pregnant patient exhibiting seizures?
- Yes → MAGNESIUM SULFATE 4.0 gm in 50 cc NS over 20 min → Transport to Appropriate Facility
- No

Follow appropriate protocol

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

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.
Overdose/Poisoning

General Adult Assessment

If ingestion occurred within one hour of EMS arrival, Administer Activated Charcoal 50 gm PO

Extralottic 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

Optimal Dose OD
NALOXONE 2.0 mg IN/IM/IV; may repeat to a max dose of 10 mg

BENADRYL 50 mg IV/IM

HYDROXOCOBALAMIN 5.0 g IV over 15 min if available

1.0 mEq/kg of 8.4% solution SODIUM BICARBONATE IV

CALCIUM CHLORIDE 1 gm (10%) slow IV

ATROPINE 2.0 mg IV q 15 min as needed to decrease secretions and ventilatory resistance

GLUCAGON 1.0 mg IM/IV; 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
- 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 Protocol

General Adult Assessment

Appropriate treatment protocol

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

Vascular Access

Cardiac monitor

Ketamine 0.2mg/kg IN/IV/IO
No Repeat Dose

MORPHINE 0.1mg/kg IM/IV; 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; max single dose 100 mcg
May repeat dose after 10 minutes

HYDROMORPHONE 0.01mg/kg IM/IV;
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
or
DROPERIDOL 1.25 mg IM/IV/IO

Contact Medical Control for additional doses
**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)

**Pears**
- 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 care when administering opiates 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 Protocol

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

Normotensive SBP >100 mmHg

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

Continue General Adult Assessment

Hypertensive DBP >100 mmHg

NITROGLYCERIN
1.6 mg SL; may repeat q 5 min for DIASTOLIC BP >100 mmHg

Continue General Adult Assessment
**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**
- Avoid administering Nitroglycerin to any patient who has used Viagra or Levitra in the past 24 hours, avoid administering nitroglycerin to any patient who has used Cialis in the past 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.
- CPAP used appropriately.
- ETCO₂ monitored.
Respiratory Distress Protocol

General Adult Assessment
- Patient in position of comfort

Airway & ventilation adequate?
- Yes
  - Vascular Access
  - Consider Magnesium Sulfate 2.0 g in 50 ml NS over 10 min
  - Consider CPAP
  - Consider Ipratropium 2.5 ml 0.02% sol’n SVN once; or DuoNeb 3.0 ml SVN once

- No
  - Ventilation Management

Bilateral Rales or Signs of Pulmonary Edema
- Pulmonary Edema/CHF

Wheezing or Bronchospasm
- ALBUTEROL 2.5 mg in 3.0 ml SVN; repeat until improvement
- IPRATROPIUM 2.5 ml 0.02% sol’n SVN once; or DuoNeb 3.0 ml SVN once
- Consider CPAP

Stridor
- Consider Nebulized NS SVN

Continue General Adult Assessment

Consider Allergic Reaction
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.
### 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
- 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 ETCO₂ monitoring.
Shock Protocol

General Adult Assessment

E Oxygen Keep SpO₂ >94%
A Vascular Access
P Cardiac monitor/capnography

Alternative appropriate treatment protocols as indicated

Trauma-related

General Trauma

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

Non-trauma, Non-cardiogenic

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

Cardiogenic

Appropriate arrhythmia protocol as indicated

12-Lead ECG

NS bolus 500 ml; if no rales on lung exam, may repeat x 1

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

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 embolis
- 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.

**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

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**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 Protocol

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Revised 4/1/2015

General Adult Assessment

**E**
Oxygen 100% NRB

**P**
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

**P**
HYDROXOCOBALAMIN 5.0 g IV over 15 min

No

Transport to UMC Trauma
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.
**Stroke (CVA) Protocol**

1. **General Adult Assessment**
   - Cardiac monitor
   - 12-Lead ECG
   - Blood glucose testing

2. **Vascular Access**

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

   Perform and document Cincinnati Stroke Scale (CSS)

4. **Findings suggestive of a stroke based on CSS?**
   - Yes
     - If symptom onset < 6hrs → rapid transport to approved Stroke Center*
     - Radio Contact with Receiving Facility
   - No
     - *Approved Stroke Centers:
       - Centennial Hills
       - Desert Springs
       - MountainView
       - Southern Hills
       - Spring Valley
       - St. Rose San Martin
       - St. Rose De Lima
       - St. Rose Siena
       - Summerlin
       - Sunrise
       - UMC
       - Valley
     - 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 a Stroke Center.

Stroke centers
• Centennial Hills
• Desert Springs
• MountainView
• Southern Hills
• Spring Valley
• St. Rose de Lima
• St. Rose San Martin
• St. Rose Siena
• Summerlin
• Sunrise
• UMC
• Valley

QI Metrics
• Cincinnati Stroke Scale completed.
• Time of symptom onset documented.
• Blood glucose documented.
• 12 lead ECG completed.
• Scene time <10 min.

QI Metrics:
1. Cincinnati Stroke Scale and time of symptom onset documented
2. Blood Glucose documented
3. 12-Lead ECG done
4. Scene time <10 min

Facial Droop
• Normal: Both sides of face move equally
• Abnormal: One side of face does not move at all

Arm Drift
• Normal: Both arms move equally well, or not at all.
• Abnormal: One arm drifts compared to the other.

Speech
• Normal: Uses correct words without slurring.
• Abnormal: No speech, or slurred or inappropriate words.
Tachycardia / Stable
(Normal Mental Status, Palpable Radial Pulse)

Narrow Complex ≤0.11 Sec

P Vagal Maneuvers

Successful? → Yes

P Administer ADENOSINE 6 mg rapid IVP

Successful? → Yes

P Administer ADENOSINE 12 mg rapid IVP

Successful? → No

Wide Complex ≥0.12 Sec

P Cardiac monitor

P Vascular Access

P 12-Lead ECG

P Undifferentiated Monomorphic VT Suspected to be SVT with Aberrancy

Regular Monomorphic VT

Successful? → Yes

AMIODARONE 150 mg in 50 cc NS over 10 min

Successful? → No

P Consider sedation: ETOMIDATE 0.15 mg/kg IV

Torsades de Pointes

Successful? → Yes

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

Successful? → No

Synchronized Cardioversion

Defibrillation Consider sedation: ETOMIDATE 0.15 mg/kg IV

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 Protocol

(Mental Status Changes, No Palpable Radial Pulse)

Narrow Complex ≤0.11 Sec

If IV established, administer Adenosine 12 mg rapid IVP

Rhythm change?

Yes

Synchronized Cardioversion
Consider sedation: ETOMIDATE 0.15 mg/kg IV

Rhythm change?

Yes

Repeat Synchronized Cardioversion; assess need for repeat sedation

Rhythm change?

Yes

Continue General Adult Assessment

No

Transport

No

Wide Complex ≥0.12 Sec

Torsades de Pointes

Defibrillate
Consider sedation: ETOMIDATE .15 mg/kg IV

Rhythm change?

Yes

AMIODARONE 150 mg in 50 cc NS over 10 min

Rhythm change?

No

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

Rhythm change?

No

Repeat defibrillation; assess need for repeat sedation

No

Transport

General Adult Assessment

Cardiac monitor

Vascular Access

Mental Status Changes

No Palpable Radial Pulse

Rhythm change?

No

Synchronized Cardioversion
Consider sedation: ETOMIDATE 0.15 mg/kg IV

Rhythm change?

No

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

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

Rhythm change?

No

Continue General Adult Assessment

Transport

Repeat defibrillation; assess need for repeat sedation

No

Transport

Rhythm change?

No

Transport

Transport
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

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

12-Lead ECG

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 ETCO$_2$ waveform monitoring in place
6. Cardiac arrest not due to trauma
7. Not pregnant

Yes

Cardiac monitor, SPO$_2$, ETCO$_2$

Vascular Access x 2

Neuro exam

No

Other appropriate treatment protocols as indicated

Yes

Expose patient; Ice packs to axilla and groin

COLD NS, 250 ml/hr Up to 1L

Maintain ETCO$_2$ at approx 40 mmHG; DO NOT HYPERVENTILATE

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

No

Other treatment protocols as indicated

Transport patient to approved Hypothermia Center*

* Approved Hypothermia Centers:
   Century Hills
   Desert Springs
   MountainView Hospital
   St. Rose De Lima
   St. Rose Siena
   Southern Hills
   Spring Valley
   Summerlin
   Sunrise
   UMC
   Valley
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<tbody>
<tr>
<td>Non-traumatic cardiac arrest</td>
<td>Cardiac arrest</td>
<td>Continue to address rhythm specific</td>
</tr>
<tr>
<td>Any presenting ECG rhythm</td>
<td>Return of spontaneous circulation post cardiac arrest</td>
<td>differentials</td>
</tr>
</tbody>
</table>

**Pearls**
- Hyperventilation is to be avoided in any cardiac arrest/post arrest resuscitation.
- Initial ETCO$_2$ 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 PHENLEPHRINE 1-2 Sprays Each, and LIDOCAINE 2% Lubricant

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

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

Extraglottic/ETT placement successful?

Yes

Able to ventilate without extraglottic/ETT in place?

Yes

No

Cricothyroidotomy

Continue Care and Transport as Appropriate
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:** Orotracheal 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.
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

Unresponsive

Check Pulse
Signs of compromise or not protecting

Inadequate or respiratory distress

Ventilation Management

None or <60

Cardiac Arrest

Altered or confused

Ventilation Management

Respiratory Distress

Hemorrhage Control

Tourniquet

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**

1. **General Pediatric Assessment**
   - **Cervical Stabilization**

2. **Glasgow Coma Score**
   - **GCS <8**
   - **E** Ventilation Management
     - BVM if O₂ sat ≤94%
   - **GCS ≥8**
   - **E** Oxygen Keep SpO₂ >94%

3. **Palpable radial pulse?**
   - **No**
     - **A** Vascular Access
       - NS 20 ml/kg bolus
   - **Yes**
     - **A** Vascular Access

4. **Secondary Survey**

5. **Suspected tension pneumothorax**
   - **Needle Thoracentesis**
     - **E** Apply 3-sided occlusive dressing
     - **E** Hemorrhage Control Tourniquet
     - **E** Immobilize fractures; assess distal pulse
     - **E** Raise Head of bed 30 degrees & Capnography–ETCO₂ 35mmHg
     - **E** Cover with gauze; wet trauma dressing for abdominal evisceration

6. **Sucking chest wound**

7. **Control active hemorrhage**

8. **Obvious fractures**

9. **Suspected traumatic brain injury**

10. **Open wounds**

11. **Pain Management**

12. **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

A

Vascular Access

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

No

ONDANSETRON

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

Subjective nausea or vomiting?

Yes

P

ONDANSETRON

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

No

Reassess

Transport to Pediatric Facility

**Round up to nearest ½ pill
### 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 Protocol

**General Pediatric Assessment**

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

- **Yes**
  - **EPINEPHRINE**
    - **E** Assist patient with own auto-injector
    - **A** Epinephrine 1:1000, 0.01 mg/kg IM; max single dose 0.3 mg; may repeat q 15 min up to max 0.9 mg

- **Yes** Patient in shock?
  - **No**
    - **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**
  - **Yes**
    - **DIPHENHYDRAMINE**
      - **1.0 mg/kg IM/IV; max 50 mg**

- **No** Reassess patient q 5 min

**Vascular Access**

- **A** Diphenhydramine 1.0 mg/kg IM/IV; max 50 mg

**Ventilation Management**

- **ALBUTEROL**
  - **E** Assist patient with MDI
  - **A** 2.5 mg SVN; repeat as needed

- **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**

- **EPINEPHRINE**
  - **1:10,000**
  - **0.01 mg/kg IV/IO**

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/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.
- Anaphylaxis refractory to repeat doses of IM Epinephrine may require IV Epinephrine (1:10,000) administration by IV push or Epinephrine infusion.
- 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**
  - **E** Blood glucose testing
  - **BG <40 mg/dl in newborn**
  - **A** Vascular Access

- **BG >60 mg/dl**
  - **P** Cardiac monitor

  **A**
  - **12-Lead ECG**
  - **Consider NS 20 ml/kg IV; may repeat up to 60 ml/kg; if BG >250, then 10 ml/kg bolus**

**Consider the Following:**

- Evidence of a seizure of post-ictal state?
- Signs of hypoperfusion?
- Signs of trauma or head injury?

**Seizure**

**Shock**

**General Trauma**

**Overdose/Poisoning**

**Other treatment protocols as indicated**

**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.
Scene Safety

General Pediatric Assessment

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 ETCO$_2$ 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.
### 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 – NS 20 ml/kg fluid bolus if signs of hypoperfusion, OR >10% BSA burn present.
If no improvement in patient condition, administer additional fluid challenges up to 60 ml/kg.

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

Cardiac monitor

Pain Management

Transport to UMC Pediatric ED for patients requiring Burn Center evaluation

Chemical/Electrical Exposure

Protect from hypothermia!

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

Cardiac monitor

Pain Management

Consider Smoke Inhalation

Pediatric Burns Protocol
**History**
- Type of exposure (heat, gas, chemical)
- Inhalational injury
- Time of injury
- Past medical history & medications
- Other trauma
- Loss of consciousness
- Tetanus/immunization status

**Parkland Formula for Fluid Replacement**

\[
\text{Fluids for 24 hours} = (\text{BSA burned} \times 4 \times \text{body wt in kg}) + (\% \text{BSA burned} \times \text{body wt in kg})
\]

**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.
- Early intubation is required when the patient experiences 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.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.
- Consider ETCO2 monitoring.

**Patients meeting the following criteria shall be transported to the UMC Burn Center via the Adult or Pediatric Trauma Center:**
1. Second and/or third degree burns >20% body surface area (BSA).
2. Second and/or third degree burns >10% body surface area (BSA) in patients under 10 years old or over 50 years old.
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.

**Parkland Formula for Fluid Replacement:**

\[
4 \text{ ml x (body wt in kg) x (\% BSA burned)} = \text{total fluids for 24 hrs}
\]

Give \(\frac{2}{3}\) in the first 8 hrs; give remainder over next 16 hrs.

**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.
Cardiac Arrest Pediatric

General Pediatric Assessment

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/min)

Refer to Termination of Resuscitation or DNR Protocol as Appropriate

YES

Apply AED and Defib if Prompted

Apply Cardiac Monitor

NO

Rhythm Shockable?

YES

Defibrillate at 2 J/kg

NO

Continue CPR for 2 Minutes

IV Access

IO Access

Rhythm Shockable?

YES

Defibrillate if Prompted (AED)

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

NO

Asystole/PEA

Contiue 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?

YES

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

Check Pulse if Organized Rhythm

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

NO

Use Asystole/PEA Side as Indicated

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/min)

Refer to Termination of Resuscitation or DNR Protocol as Appropriate

YES

Apply AED and Defib if Prompted

Apply Cardiac Monitor

NO

Rhythm Shockable?

YES

Defibrillate at 2 J/kg

NO

Continue CPR for 2 Minutes

IV Access

IO Access

Consider Extraglottic Airway

Consider ETT

Rhythm Shockable?

YES

Defibrillate if Prompted (AED)

Defibrillate at 4 J/kg Not To Exceed Adult Dose

Continue CPR for 2 Minutes

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NO

Use Asystole/PEA Side as Indicated

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/min)

Refer to Termination of Resuscitation or DNR Protocol as Appropriate

YES

Apply AED and Defib if Prompted

Apply Cardiac Monitor

NO

Rhythm Shockable?

YES

Defibrillate at 2 J/kg

NO

Continue CPR for 2 Minutes

IV Access

IO Access

Consider Extraglottic Airway

Consider ETT

Rhythm Shockable?

YES

Defibrillate if Prompted (AED)

Defibrillate at 4 J/kg Not To Exceed Adult Dose

Continue CPR for 2 Minutes

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NO

Use Asystole/PEA Side as Indicated

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/min)

Refer to Termination of Resuscitation or DNR Protocol as Appropriate

YES

Apply AED and Defib if Prompted

Apply Cardiac Monitor

NO

Rhythm Shockable?

YES

Defibrillate at 2 J/kg

NO

Continue CPR for 2 Minutes

IV Access

IO Access

Consider Extraglottic Airway

Consider ETT

Rhythm Shockable?

YES

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

Check Pulse if Organized Rhythm

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

NO

Use Asystole/PEA Side as Indicated
### 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 ETCO$_2$ 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
- Tension pneumothorax – Needle decompression
- Tamponade, cardiac – Volume infusion
- Toxins – Agent specific antidote
- Thrombosis, pulmonary – Volume infusion
- Thrombosis, coronary – Emergent PCI
Pediatric Drowning Protocol

1. General Pediatric Assessment
2. Airway protected & ventilation adequate?
   - Yes: Consider Cervical Stabilization
   - No: Ventilation Management
     - Consider Cervical Stabilization

   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)

   Continue General Pediatric Assessment
### History
- Submersion in water 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.

### 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)

### QI Metrics
- Complete and submit the SNHD Submersion Incident Report Form.
Pediatric Environmental Illness / Hyperthermia Protocol

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

Continue General Patient Care and Transport

Heat Stroke
High body temp >104 f hot, dry skin hypotension, altered mental status/coma

Ventilation Management as indicated

Altered Mental Status/Syncope as indicated

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

No

Yes

No
**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.

**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.
Pediatric Environmental Illness / Hypothermia Protocol

General Pediatric Assessment

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

Hypothermia/Frost Bite

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

- Systemic hypothermia
  - Awake with/without altered mental status
    - Respiratory distress?
      - Yes: Respiratory Distress
      - No: Continue General Pediatric Trauma Assessment

Injury/Exposure

- Unresponsive
  - Pulse present?
    - Yes: Cardiac Arrest
    - No: Continue General Pediatric Trauma Assessment

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
Neonatal Resuscitation

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

### Pearls
- 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</th>
<th>Activity/Muscle Tone</th>
<th>Pulse</th>
<th>Grimace/Reflex Irritability</th>
<th>Appearance/Skin Color</th>
<th>Respiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score=0</td>
<td>Absent</td>
<td>Absent</td>
<td>No response</td>
<td>Blue-Grey, pale all over</td>
<td>Absent</td>
</tr>
<tr>
<td>Score=1</td>
<td>Arms/legs flexed</td>
<td>Below 100</td>
<td>Grimace</td>
<td>Normal, except extremities</td>
<td>Slow, irregular</td>
</tr>
<tr>
<td>Score=2</td>
<td>Active Movement</td>
<td>Above 100</td>
<td>Sneeze, cough, pulls away</td>
<td>Normal over entire body</td>
<td>Good, crying</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 Protocol

**General Pediatric Assessment**

- If ingestion occurred within one hour of EMS arrival, administer ACTIVATED CHARCOAL 1.0 gm/kg PO; min dose 10 gm; max dose 50 gm

**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

**Opiate OD**
- NALOXONE 0.1 mg/kg IN/IM/IV; may repeat to a max dose of 10 mg

**Cyanide**
- BENADRYL 1.0 mg/kg IM/IV; max dose 50 mg

**Dystonic Reaction**
- HYDROXOCOBALAMIN 70 mg/kg over 15 minutes if available

**TCA/ASA OD**
- 1.0 mEq/kg of 8.4% solution SODIUM BICARBONATE IV; use 4.2% for neonate

**Calcium Channel Blocker OD**
- 20 mg/kg CALCIUM CHLORIDE (10%) slow IV

**Beta Blocker OD**
- GLUCAGON 0.5 mg IV/IM; may repeat once in 3-5 min

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

**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
- Chestpain

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
- Do not use Activated Charcoal if altered mental status, caustic, hydrocarbon or heavy metal ingestion.

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.
Pediatric Pain Management Protocol

General Pediatric Assessment

Appropriate treatment protocol

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

Vascular Access

Cardiac monitor

For severe pain consider:
- UP TO:
  - MORPHINE 0.1 mg/kg IM/IV; max single dose 10 mg
  - FENTANYL 1.0 mcg/kg IN/IM/IV; max single dose 100 mcg

Additional FENTANYL doses require a physician order

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

Contact Medical Control for additional doses

Continue General Pediatric Assessment

**Round up to nearest ½ pill
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 O₂ sats documented.
- Pain scale documented before and after each intervention.
- Repeat vital signs after each intervention.
Pediatric Respiratory Distress Protocol

General Pediatric Assessment
Patient in position of comfort

Airway & ventilation adequate?

Yes

Ventilation Management

Wheezing or Bronchospasm

E
ALBUTEROL
assist patient w/own MDI
A
ALBUTEROL
2.5 mg in 3.0 ml SVN; repeat until improvement
P
PT >2 y/o with history of wheezing
IPRATROPIUM
2.5 ml 0.02% solution SVN once; or
DuoNeb 3.0 ml SVN once

Yes

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

No

Continue General Pediatric Assessment
History
- Asthma
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

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

Differential
- Asthma
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pneumothorax
- Pericardial tamponade (trauma)
- Hyperventilation
- Inhaled toxin

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.
Pediatric Seizure Protocol

Genera Pediatric Assessment

Patient febrile?
- Yes → Cool the patient
- No

Patient actively seizing?
- Yes
  - Patient have a history of seizures?
    - Yes → Blood glucose testing
    - No
  - No → Blood glucose testing
- No

BG < 60 mg/dl?
- Yes → D10, 5 ml/kg IV max single dose 250 ml
- No → Reassess and monitor VS

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

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

Blood glucose testing

Continue General Pediatric Assessment

Pediatric Seizure Protocol
Revised 4/1/2015
### 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 Protocol

General Pediatric Assessment

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

Prerequisites:
- 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.

Traffic Light System:
- Green (E) indicates acute care fundamentals
- Amber (A) indicates supportive care
- Red (P) indicates advanced support care

Alternative appropriate treatment protocols as indicated

Non-Trauma related

Blood glucose testing

- BG <60mg/dl
- BG <40mg/dl in newborn
- BG normal
- BG >250mg/dl

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

BG <60mg/dl

- ORAL GLUCOSE if patient protecting airway
  - D10, 1ml/kg IV max single dose 250ml

- GLUCAGON
  - 0.5 mg IM (<20 kg); 1.0 mg IM (>20kg) for no IV access

BG <40mg/dl in newborn

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

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

Traffic Light System:
- Green (E) indicates acute care fundamentals
- Amber (A) indicates supportive care
- Red (P) indicates advanced support care

Estimated Minimum Systolic BP Calculation

- BP calculation applies up to age 10 years

General Trauma

BP calculation applies up to age 10 years

Traffic Light System:
- Green (E) indicates acute care fundamentals
- Amber (A) indicates supportive care
- Red (P) indicates advanced support care

Oxygen 15L NRB

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

Traffic Light System:
- Green (E) indicates acute care fundamentals
- Amber (A) indicates supportive care
- Red (P) indicates advanced support care

NS bolus

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

Consider DOPAMINE

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

Pediatric Shock Protocol

104 Revised 4/1/2015
<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Blood loss-vaginal bleeding, ectopic, GI bleeding or AAA&lt;br&gt;- Fluid loss-vomiting, diarrhea, fever&lt;br&gt;- Infection&lt;br&gt;- Cardiac tamponade&lt;br&gt;- Medications&lt;br&gt;- Allergic reaction&lt;br&gt;- Pregnancy&lt;br&gt;- History of poor oral intake</td>
<td>- Restlessness, confusion&lt;br&gt;- Weakness, dizziness&lt;br&gt;- Weak rapid pulse&lt;br&gt;- Pale, cool, clammy skin&lt;br&gt;- Delayed capillary refill&lt;br&gt;- Hypotension&lt;br&gt;- Coffee-ground emesis&lt;br&gt;- Tarry stools</td>
<td>- Hypovolemic shock&lt;br&gt;- Cardiogenic shock&lt;br&gt;- Septic shock&lt;br&gt;- Neurogenic shock&lt;br&gt;- Anaphylactic shock&lt;br&gt;- Ectopic pregnancy&lt;br&gt;- Dysrhythmias&lt;br&gt;- Pulmonary embolism&lt;br&gt;- Tension pneumothorax&lt;br&gt;- Medication effect or overdose&lt;br&gt;- Vasovagal</td>
</tr>
</tbody>
</table>

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 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.

**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 Protocol

1. General Pediatric Assessment

2. Oxygen Keep SpO₂ > 94%

3. Ventilation Management

4. Cardiac monitor

5. Vascular Access

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

6. Other treatment protocols as indicated (Burns)

7. Cardiac arrest or hypotension or profound altered mental status?

   a. Yes: HYDROXOCOBALAMIN 70mg/kg IV over 15 min

   b. No: Transport to UMC Trauma
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 70 mg/kg over **15 minutes**.
Pediatric Tachycardia / Stable
(Normal Mental Status, Palpable Radial Pulse)

Narrow Complex ≤0.11 Sec

Vagal Maneuvers

Successful?

No

ADENOSINE
0.1 mg/kg rapid IV push not to exceed 6 mg

Successful?

No

ADENOSINE
0.2 mg/kg rapid IV push not to exceed 12 mg

Successful?

Yes

AMIODARONE
5 mg/kg in 50 cc NS over 20 min

No

Yes

Continue General Patient Care

Regular Monomorphic VT

Successful?

Yes

MAGNESIUM SULFATE
25 mg/kg IV in 50 cc NS over 10 min

Torsades de Pointes

No

Synchronous Cardioversion
start at 0.5 to 1 J/kg; may use 2 J/kg if unsuccessful; Consider sedation ETOMIDATE
0.15 mg/kg IV

Continue General Patient Care

Wide Complex ≥0.12 Sec

Cardiac monitor

Vascular Access

12-Lead ECG

General Pediatric Assessment
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 tachyarrhythmia in children is sinus.
Pediatric Tachycardia / Unstable
(Mental Status Changes, No Palpable Radial Pulse)

Narrow Complex ≤0.11 Sec

If IV established, administer ADENOSINE 0.2 mg/kg rapid IV push not to exceed 12 mg

Rhythm change?

No

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

Yes

Rhythm change?

No

Transport

Continue General Patient Care

Wide Complex ≥0.12 Sec

Torsades de Pointes

Defibrillate at 2 J/kg increasing to 4 J/kg; Consider sedation ETOMIDATE 0.15 mg/kg IV

Rhythm change?

Yes

Rhythm change?

No

No

Transport

Continue General Patient Care

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

Rhythm change?

Yes

AMIODARONE 5.0 mg/kg in 50 cc NS over 20 min

Rhythm change?

No

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

Rhythm change?

Yes

No

Transport

Continue General Patient Care

General Pediatric Assessment
Cardiac monitor
Vascular Access

P
A

Pediatric Tachycardia / Unstable Protocol
### History
- Medications
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

### Signs and Symptoms
- Cardiac Arrest
- 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.
- 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 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 Or 4 mg/kg IM

Maintain Sedation: Administer DIAZEPAM 0.2 mg/kg IV. 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?**

Yes

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

Yes

**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 postdrowning 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 Code 3 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. Patient age
   B. Gender
   C. Mechanism of injury
   D. Ambulatory at scene
   E. Suspected injuries
   F. Vital signs
   G. Airway status
   H. Neurologic status
   I. ETA
   J. An incident identifier if multiple patients are involved (e.g. fire department command code “Main Street Command”)

3. 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.

4. 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) EMSystem
   B. Notification reports shall include:
      1) Patient age
      2) Chief complaint
      3) Type of bed required (monitored/unmonitored)
      4) Unit number
      5) ETA

5. Providers will relay assessment findings and treatment provided to the individual(s) assuming responsibility for the patient(s).

6. Patient confidentiality must be maintained at all times.

7. 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 an 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.
1. 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.

2. 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. In cases involving cardiac monitoring, a copy of the ECG strip identifying all rhythm changes shall be included as part of the PCR;
   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 as indicated
      6) Reassessment after interventions, i.e. pain score after medications;
      7) Any complications or other relevant information.

3. 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 will be provided as directed in the Clark County EMS System Emergency Medical Care Protocols

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 Force Protection Team 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 force protection team licensed providers may perform needle decompression, basic airway maneuvers or apply a tourniquet to complete or partial amputations regardless of observed exsanguination.

• Patients who are moved to the triage/treatment area will be treated in accordance with the Clark County EMS System Emergency Medical Care Protocols.
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/EMT-I and Paramedic/EMT-P 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

   OR if ALL four (4) presumptive signs of death AND AT LEAST one (1) conclusive sign of death are identified.

   The four (4) presumptive signs of death that MUST be present are: Conclusive signs of death include:
   1) Unresponsiveness 1) Dependent lividity of any degree
   2) Apnea 2) Rigor mortis
   3) Pulselessness 3) Massive trauma to the head, neck
   4) Fixed, dilated pupils or chest with visible organ destruction

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

     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.
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. Resuscitation that is started in the field by licensed EMS personnel CANNOT be discontinued without a physician order. 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 started in the field may be discontinued only by physician order when the following conditions have been met:
   A. For medical arrest:
      The patient remains in persistent asystole or agonal rhythm and has capnography <10 after twenty (20) minutes of appropriate Paramedic/EMT-P 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 effective ventilation with 100% oxygenation for two (2) minutes
      3) Perform bilateral needle thoracentesis if tension pneumothorax suspected
   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 of any degree
      2) Rigor mortis of any degree

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

4. 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.

5. 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, 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:
      Trauma Field Triage Criteria Heart Rate 60-100
      Stroke Protocol Respiratory Rate 10-20
      Burns Protocol Systolic BP 100-180
      Pediatric Destination Protocol Diastolic BP 60-100
      Sexual Assault Victims Room air pulse oximetry >94%
      Cardiac Arrest 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.
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 patient or system considerations, such as:
   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: transport to UMC Trauma/Burn Center
   E. Pregnancy greater than 20 weeks
   F. EMS provider judgment

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 - 100
   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 a narcotic and/or an anti-emetic.

3. In the judgment of the Paramedic/EMT-P, 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. Backboards are only indicated for extrication and patient movement. Patients are not to be transported on backboards (unless movement off the backboard would delay immediate transport of patients with life-threatening injuries or acute spinal injuries).
D. Tape, head straps, wedges, and head and/or neck support devices are not recommended.
E. 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.
F. Once on the stretcher, the patient may be moved to a semi-Fowler’s or high-Fowler’s position for comfort.
G. If a backboard is used for extrication or movement, the patient should be immediately moved to a soft mattress, if possible.
H. In special situations, alternate stabilization devices (e.g. vacuum mattress, KED, etc. may be used as indicated).
I. Pediatric patients may be stabilized in an approved car seat or with a commercial pediatric stabilization device.
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

Use device per manufacturer instructions

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.
LEVEL: Paramedic

Indications:
This procedure may be performed on any patient experiencing:
A. Ventricular fibrillation
B. Pulseless ventricular tachycardia
C. Torsades de Pointes

Contraindications: None

Use device per manufacturer instructions

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

Adjunctive therapy:
Consider sedation prior to defibrillation in the awake patient, administer Etomidate 0.15 mg/kg IV.

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

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

**Analgesia:** Morphine Sulfate up to 0.1 mg/kg slow IV 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 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. May repeat dose after ten minutes with physician order.

**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
**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

**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 for induction.

If patient is less than 12 years of age, administer Midazolam 0.1 mg/kg IV/IN 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 or 4.0 mg/kg IM.

Maintain patient sedation. Administer Midazolam 0.1 mg/kg IV/IN. May repeat every five minutes at .05 mg/kg IV/IN/IM.

**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.
ENDOTRACHEAL INTUBATION (Cont.)

LEVEL: Paramedic

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 Phenylephrine 2-3 drops or 1-2 sprays in each nostril, and Lidocaine 2% lubricant.

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 (inflate 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.
LEVEL: Paramedic/AEMT

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 SPO₂
F. Patient has a phone, ability and willingness to call 9-1-1 if their condition worsens
G. In the opinion of the paramedic and the patient it is safe to release until an ambulance arrives

Exclusion Criteria:
A. Abnormal vital signs including SPO₂
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 that cannot 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>
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</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>
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MEDICATION ADMINISTRATION (Cont.)

LEVEL: EMT/AEMT/Paramedic (based on medication)

Mucosal Atomizer Device (MAD) Administration
Medications: Fentanyl, 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 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
NEEDLE CRICOTHYROIDOTOMY

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 2\textsuperscript{nd} intercostal space mid-clavicular line of the affected side.
- B. Alternate location is the 4\textsuperscript{th}-5\textsuperscript{th} 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 closed 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.
### 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.**
VASCULAR ACCESS

LEVEL: AEMT/Paramedic

Vascular access attempts should not unnecessarily delay transport: attempts should be completed en route. All attempts are to be documented on the PCR.

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):
This procedure may be performed on any patient who requires IV drugs or IV fluids AND who is:
A. Unconscious and unresponsive; and
B. Peripheral line cannot be immediately established.

Contraindications: Placement in, or distal to a fractured bone

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.
FORMULARY
**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**
Acute Coronary Syndrome

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**ACTIVATED CHARCOAL**

**CLASS**
Adsorbent

**ACTION**
Inhibits gastrointestinal absorption of toxic substances

**DOSE**
- **Adult**
  
  50 gm PO
- **Pediatric**
  
  1.0 gm/kg PO; min. dose 10 gm; max. dose 50 gm

**ROUTE**
PO

**CONTRAINDICATIONS**
- Altered mental status; ingestion of acids, alkalis or petroleum distillates; inability to swallow;
- previous administration of an emetic

**ADVERSE REACTIONS**
Nausea; vomiting

**RELATED PROTOCOLS**
Overdose/Poisoning, Pediatric Overdose/Poisoning
**ADENOSINE (Adenocard)**

**CLASS**
Antiarrhythmic

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

**DOSE**
- Adult: 6-12 mg, rapid IV push
- Pediatric: 0.2 mg/kg, rapid IV push, not to exceed 12 mg

**ROUTE**
Rapid IVP

**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, Chest Pain, 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

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 IVP

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/IO may repeat titrating to effect
- **Pediatric**
  0.1 or 0.2 mg/kg IV/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/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
- **Pediatric**
  1.0 mg/kg IM/IV, max. 50 mg

**ROUTE**
IV or deep IM

**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 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**
Patients with acute AMI; hypotensive patients; respiratory depression; hypersensitivity to Inapsine; known prolonged QT interval

**ADVERSE REACTIONS**
EPS; syncope; cardiac dysrhythmias

**RELATED PROTOCOLS**
Abdominal/Flank Pain, Acute Coronary Syndrome, Behavioral Emergency, Pain Management
## EPINEPHRINE

**CLASS**
Sympathomimetic

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

**DOSE**
- **Adult**
  - See specific protocol

- **Pediatric**
  - See specific protocol

**ROUTE**
IM/IV/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

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## 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
ETOMIDATE (Amidate)

CLASS
Sedative / Hypnotic

ACTION
CNS depressant

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

ROUTE
IV

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, 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
- Up to 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/Transcutaneous Pacing
**GLUCAGON**

**CLASS**
Insulin antagonist

**ACTION**
Reverses the effects of hypoglycemia

**DOSE**
**Adult**
1.0 mg IM for no IV access

**Pediatric**
See specific protocol

**ROUTE**
IV/IM

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

**Pediatric**
Up 25 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 may repeat x1 in 5 minutes

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

**ROUTE**
Slow IVP, IV 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
70 mg/kg IV over 15 minutes

ROUTE
IVPB

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

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**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 if 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**  
- 0.2 mg/kg IV/IO/IN  
- 2.0 mg/kg IV/IO  
- 4.0 mg/kg IM  
**Pediatric**  
- 2.0 mg/kg IV/IO  
- 4.0 mg/kg IM

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

**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

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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

MIDAZOLAM (Versed)

CLASS
Anxiolytic

ACTION
CNS depressant

DOSE
Adult
0.1 mg/kg IN/IM/IV; 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, 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

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, 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, to a max single dose of 10 mg. Additional doses by telemetry physician order only.

ROUTE
IM, Slow IVP

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
0.4 - 2.0 mg IN/IM/IV; may repeat 2.0 mg IN/IM/IV if patient slow to respond; titrate to effect; max dose 10 mg.

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

ROUTE
IN/IM/IV

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 Viagra (Sildenafil) or similar medication within the past 24 hours or 48 hours for Tadalafil (Cialis); 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

Pediatric
0.15 mg/kg ODT up to a max dose of 4 mg (round up to the nearest ½ pill)

ROUTE
Slow IVP/IM/ODT

CONTRAINDICATIONS
Patients with a known hypersensitivity to the drug

ADVERSE REACTIONS
Headache; chest pain; dizziness; hypotension

RELATED PROTOCOLS
Abdominal/Flank Pain, Acute Coronary Syndrome, Pain Management, Pediatric Abdominal Pain,

Pediatric Pain Management
**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

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**SODIUM BICARBONATE**

**CLASS**
Alkalinizing agent

**ACTION**
Increases blood pH

**DOSE**
Adult
1.0 mEq/kg; 50mEq/50 ml (8.4% solution) IV

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
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
Gently agitate to effect solution
Remove plastic tab covering center of stopper
Swab top of stopper with a suitable antiseptic
Insert needle squarely 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 investigational 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) ________________________________

<table>
<thead>
<tr>
<th>Patient’s Name:</th>
<th>DOB:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Address:</td>
<td></td>
</tr>
<tr>
<td>Patient’s Phone Number:</td>
<td></td>
</tr>
<tr>
<td>Signature (Patient/Guardian):</td>
<td></td>
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<tr>
<td>Witness:</td>
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<tr>
<td>Witness:</td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td>Time:</td>
</tr>
<tr>
<td>Refused to Sign (Patient/Guardian):</td>
<td></td>
</tr>
<tr>
<td>Telemetry Physician:</td>
<td>Hospital:</td>
</tr>
</tbody>
</table>

APP-A1
SAMPLE ALGORITHM, RELEASE OF MEDICAL ASSISTANCE

Describe proposed plan of treatment

Agrees?

Yes → Initiate Care

No → EMS Personnel suspect compromise in judgment in presence of life/limb threatening injury/illness?

Yes → Initiate care under implied consent

No → Patient is an adult or an emancipated minor and has decision-making capacity?

Yes → Explain & document specific risks of refusal

No → Guardian available? (Consider cellular or dispatch assisted contact)

Yes → Enlist help of others as appropriate (PD, friends, family, medical control)

No → Rational teen in low risk situation?

Yes → Accept Waiver

No → Initiate care under implied consent

Patient willing to sign waiver?

Yes → Accept Waiver

No → Document efforts and patient’s refusal to sign

Note:
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.
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>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Adenosine</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Albuterol</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Amiodarone</td>
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<td></td>
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<tr>
<td>Atropine Sulfate</td>
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<td></td>
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<tr>
<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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<tr>
<td>Dopamine Hydrochloride</td>
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<tr>
<td>Droperidol</td>
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<tr>
<td>Epinephrine</td>
<td>X</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>Glucagon</td>
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<td>Glucose - Oral</td>
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<td>Glucose Sterile Injectable</td>
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<tr>
<td>Hydromorphone</td>
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<tr>
<td>Hydroxocobalamin</td>
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<tr>
<td>Ipratropium Bromide</td>
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<td>Ipratropium Bromide &amp; Albuterol Sulfate</td>
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<tr>
<td>Ketamine</td>
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<tr>
<td>Lidocaine 2% Lubricant</td>
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<td>Magnesium Sulfate</td>
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<td>Midazolam</td>
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<td>Morphine Sulfate</td>
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<td>Naloxone Hydrochloride</td>
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<td>Nitroglycerin</td>
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<td>Ondansetron Hydrochloride</td>
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<tr>
<td>Phenylephrine</td>
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<tr>
<td>Sodium Bicarbonate</td>
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<tr>
<td>Solu-Cortef</td>
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</tr>
</tbody>
</table>
The following are the authorized skills used by EMS providers 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 perform the skills as directed by the written treatment protocols.

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<tr>
<th>Skills</th>
<th>EMT</th>
<th>AEMT</th>
<th>Paramedic</th>
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</thead>
<tbody>
<tr>
<td>12-Lead ECG Interpretation</td>
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<tr>
<td>3-Lead ECG Interpretation</td>
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<tr>
<td>Airway Adjunct - NPA</td>
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<tr>
<td>Airway Adjunct - OPA/NPA</td>
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<tr>
<td>Airway Suction</td>
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<tr>
<td>Capnometry (Color Change Device)</td>
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<tr>
<td>Capnometry (Continuous Waveform)</td>
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<tr>
<td>Carotid Massage</td>
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<td>Cervical Stabilization</td>
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<td>CPAP</td>
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<td>CPR</td>
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<td>Defibrillation - AED</td>
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<td>Defibrillation - Manual</td>
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<td>Endotracheal Intubation - Nasal</td>
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<td>Endotracheal Intubation - Oral</td>
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<tr>
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