MEDICAL & ENVIRONMENTAL GUIDELINES

SPEARFISH EMERGENCY AMBULANCE SERVICE, INC.

Revision; April 2016

Contents

MEDICAL ASSESSMENT

Assessment

- Complete Scene Size-Up and Initial Assessment
- Assess the history of present illness, using OPQRST.
- Consider need for ALS.
- **Responsive Patient**:
  - Assess chief complaint and signs/symptoms.
  - Obtain SAMPLE history.
  - Obtain baseline vital signs.
  - Perform physical assessment as needed.
- **Unresponsive Patient**:
  - Rule out trauma.
  - If unable to rule out trauma, immobilize cervical spine and do Trauma Assessment.
  - Rapidly assess head, neck, chest, abdomen, pelvis, extremities, and posterior of patient.
- Obtain SAMPLE history.
- Obtain baseline vital signs.

Treatment:

B	Administer O_2 as needed.
I $_{85}$	Consider IV or Saline lock
A	Consider IV or Saline lock
P	Cardiac Monitor

ABDOMINAL PAIN

Assessment

- Perform Patient Assessment.
- Obtain pertinent medical history.
  SAMPLE & OPQRST
  Check for equality of pulses (femoral - right vs. left)
  ♀ - Last menstrual period? Possibly pregnant?
- Visualize and lightly palpate the abdomen for:
  Pain: nature (crampy or constant), duration, location
  Radiation; to back, groin, chest, shoulder
  Associated symptoms; nausea, vomiting (bright red & bloody or coffee-ground), diarrhea, constipation, black or tarry stools, urinary difficulties, fever.
- Obtain and record vital signs.

If the patient shows signs of internal bleeding (ie. GI Bleed): **Establish 2 IV's** (one with fluids running and a second line with extension set and 'buffalo' cap)

Treatment:

B	Be alert for and treat for shock. NPO. Allow patient to seek position of comfort. Consider oxygen administration.
I $_{85}$ ***A***	IV NS at TKO or saline lock Cardiac Monitor If BP <90 systolic & signs of hypovolemic shock: IV NS Fluid bolus; 250–500 mL, reevaluate. Consider use of Zofran for nausea
P	Cardiac Monitor If **NO** signs of shock – may consider ***small*** dose of Fentanyl.

1. Causes of abdominal pain can rarely be determined in the field. Pain medication is seldom indicated and may change details of the physical exam necessary to diagnose the patient in the Emergency Department. The most important diagnoses to consider are those associated with catastrophic internal bleeding: ruptured aneurysm, liver or spleen injury, ectopic pregnancy, etc. Since bleeding may not be apparent, you must **THINK** of volume depletion and monitor the patient closely to recognize shock. Be **VERY CAREFULL** with pain meds.
2. Elderly patients may have significant hypovolemic shock with systolic BP above 90 mmHg.
3. Upper abdomen and lower chest pain may reflect thoracic pathology such as myocardial infarction, pulmonary injury, etc. Massive fluid resuscitation may be contraindicated.
4. If a pulsatile mass is detected – **DO NOT** allow the patient to move or sit up (assist in all movement).

AIRWAY MANAGEMENT

PROCEDURE:

- Assess respiratory rate and delivery, airway condition, level of consciousness and color.
- Open and clear the airway.
- If breathing adequately, administer oxygen as needed by cannula or mask.
- Auscultate lung sounds.
- If not breathing adequately:
  - Suction as needed
  - Consider oral or nasal airway.
  - Ventilate with oxygen and positive pressure (Bag/Valve/Mask, oxygen powered device or automatic transport ventilator)
- Reassess level of consciousness and Glasgow Coma Scale.
- Monitor pulse oximetry. Current Guidelines recommend maintaining an SpO2 level of ≥ 94%
- If not adequate, consider oral or nasal intubation or Combitube. Use $etCO_2$ detection device to confirm tube placement.
- Transport as soon as possible.

AIRWAY - OBSTRUCTED

BLS: Initiate age appropriate American Heart Association procedures for an obstructed airway.

ALS: If AHA procedures fail, attempt to visualize obstruction with laryngoscope and remove with Magill forceps.

Consider Surgical Airway, (see *Procedures Guidelines: Advanced Airway Management: Cricothyrotomy* protocol)

Contact Medical Control.

AIRWAY & OXYGEN GUIDELINE

Actions:

Oxygen added to the inspired air raises the amount of oxygen in the blood, and the amount to the tissue. Tissue hypoxia causes cell damage and death. Breathing, in most people, is regulated by small changes in the acid base balance and CO2 levels. It takes relatively large decreases in oxygen concentration to stimulate respiration.

Indications:

- Suspected hypoxia or respiratory distress from any cause.
- Acute chest or abdominal pain.
- Hypotensive states from any cause.
- Major trauma.
- All acutely ill patients
- Any suspected carbon monoxide poisoning
- Pregnancy with trauma.

Side Effects and special notes:

- Restlessness may be a sign of hypoxia.
- Nasal prongs work equally well on nose and mouth breathers, except babies.
- Non-humidified oxygen is drying to mucous membranes.
- Oxygen toxicity is not a hazard of short-term use.

Dosages:

[Low flow: 1-2 liters/min] [Moderate flow: 4-6 liters/min] [High flow: 10-15 liters/min]

Monitor pulse oximetry. Current Guidelines recommend maintaining an SpO2 level of ≥ 94%

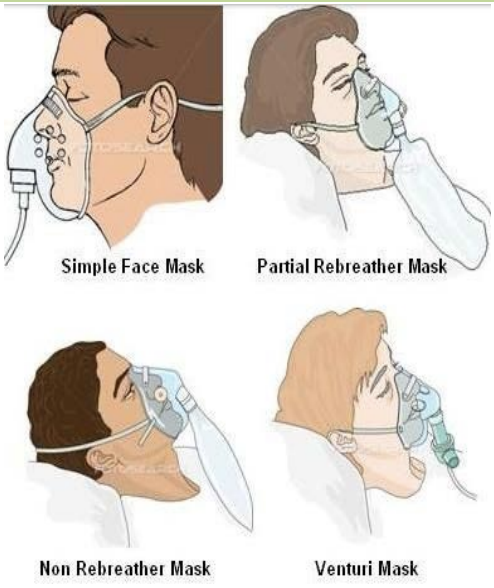
Precautions:

- If the patient is **not breathing** adequately on his own, the treatment of choice is ventilation, not just oxygen.
- A small percentage of patients with chronic lung disease breathe because they are hypoxic. Administration of oxygen may inhibit their respiratory drive.

***Do not withhold oxygen because of this possibility*.**

SUPPLEMENTAL OXYGEN: FLOW RATES AND PERCENTAGES

DEVICE	FLOW RATES	DELIVERED O_2 %
Nasal Cannula	1 L/min 2 L/min 3 L/min 4 L/min 5 L/min 6 L/min	21 – 24 % 25 – 28 % 29 – 32 % 33 – 36 % 37 – 40 % 41 – 44 %
Simple oxygen Face Mask	6 -10 L/min	35 – 60 %
Face Mask w/ O_2 reservoir (non-rebreather mask)	6 L/min 7 L/min 8 L/min 9 L/min 10 - 15 L/min	60 % 70 % 80 % 90 % 95 – 100 %
Venturi Mask	4 - 8 L/min 10 - 12 L/min	24 – 40 % 40 – 50 %



ARDS – ACUTE RESPIRATORY DISTRESS SYNDROME

Acute respiratory distress syndrome (ARDS), previously known as respiratory distress syndrome (RDS), adult respiratory distress syndrome, or shock lung, is a medical condition occurring in critically ill patients characterized by wide spread inflammation in the lungs. ARDS is not a particular disease, rather it is a clinical phenotype which may be triggered by various pathologies such as trauma, pneumonia and sepsis.

The hallmark of ARDS is diffuse injury to cells which form the alveolar barrier, surfactant dysfunction, activation of the innate immune response, and abnormal coagulation. In effect, ARDS results in impaired gas exchange within the lungs at the level of the microscopic alveoli.

The syndrome is associated with a high mortality rate between 20 and 50%. The mortality rate with ARDS varies widely based on severity, the patient's age, and the presence of other underlying medical conditions.

Assessment

- Perform Patient assessment
- Onset: acute, related to precipitating cause or event
- Associated symptoms; weakness, cough (may be non-productive), respiratory distress, abdominal or chest pain, dizziness on standing.

Obtain pertinent medical history: allergies, medications, significant medical diseases, history of recent trauma, productive cough, painful urination (UTI), fever.

Treatment:

B	Oxygen Consider CPAP. Place patient in position of comfort. Monitor Vital Signs, and level of consciousness during transport
I_{85}	IV fluid NS- Fluid challenge if hypotension is present or orthostatic VS obtained
A	Cardiac Monitor: monitor for arrhythmias
P	Positive end-expiratory pressure (PEEP) is used in mechanically ventilated patients with ARDS to improve oxygenation. If respiratory failure begins, prepare to intubate. **Assess ARDS causes**: o If pulse > 100, treat for hypovolemia according to protocol; Fluid bolus 250-500 mL o **BE CAREFULL** when administering fluid bolus' routinely – pulmonary edema may rapidly develop. Transport rapidly for definitive diagnosis and treatment.

ASTHMA - BRONCHIAL

Assessment

- Obtain history & physical findings indicating an asthma attack
- Consider need for ALS
- Contact Medical Control
- Document any change in patient condition.

Asthma, also known as reactive airway disease, can be life threatening. Many people diagnosed with asthma have prescriptions for medications that help to dilate the respiratory passages. These medications typically come in metered-dose inhalers that are designed to deliver a pre-measured dose of medication each time the inhaler is triggered. An EMT may assist a patient in taking a dose of a meter-dose inhaler prescribed for the patient by their personal physician. **Medical Control must be contacted prior to assisting the patient with the inhaler**. Some of the more commonly prescribed metered-dose inhalers include: ***albuterol*** *(Proventil or Ventolin),* ***flunisolide*** *(Aerobid),* ***terbutaline*** *(Brethaire),* ***triamcinolone*** *(Azmacort),* ***metaproterenol*** *(Alupent or Metaprel),* ***beclomethasone*** *(Vanceril or Beclovent),* ***bitolterol*** *(Tornalate),* ***ipratropium bromide*** *(Atrovent),* ***isoproterenol*** *(Isuprel or Medihaler-Iso)*

Treatment:

B	Monitor SpO_2 saturation Oxygen Position of comfort
I_{85}	IV NS @ TKO or saline lock Consider fluid bolus 250 mL, then re-evaluate. Assist with Metered Dose Inhaler Cardiac Monitor
A	Consider: Albuterol or DuoNeb (Atrovent/Xopenex) small volume nebulizer. Consider Epinephrine if patient unable to move enough air for the neb. to work
P	Medical control contact; • If 3 Albuterol or DuoNeb are unsuccessful consider administration of Magnesium Sulfate – 2 g, Slow IV push over 1-2 minutes.

Administering a Metered Dose Inhaler

Purpose: For relief of acute bronchospasm (reversible airway obstruction) such as asthma, chronic bronchitis, emphysema, and smoke inhalation.

Actions: Increase Heart Rate. Bronchial smooth muscle relaxation.

Adverse Reactions/Side Effects: Hypertension and headache, Arrhythmia's and chest pain, palpitation, rapid heart rate, nervousness and shakiness, tremors, cough. ***Rare*****:** May produce immediate allergic reactions or bronchospasm

Precautions: Administer **ONLY** to patient for whom it is **PRESCRIBED**. Use with caution in patients with heart disease, hypertension, diabetes, and those being treated with antidepressants.

Administration: An EMT-B or Intermediate must contact Medical Control prior to assisting patient with inhaler.

- Shake inhaler to mix medication.
- Have patient exhale and then seal their lips around the end of the inhaler or spacing adapter. Try to spray just as the patient begins to inhale. Administer two inhalations with one minute between inhalations.
- Repeat assessment and vital signs, SpO_2, Lung sounds.

Further orders must come from Medical Control.

COPD – CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Presentation suggests COPD: History of COPD with wheezing, prolonged expiratory phase, decreased breath sounds, accessory muscle use.

Therapeutic Goals:

- Maximize oxygenation
- Decrease work of breathing
- Identify cardiac ischemia (Obtain 12 Lead ECG)
- Identify complications, e.g. pneumothorax

CPAP may be very helpful in severe COPD exacerbation, however these patients are at increased risk of complications of CPAP such as **hypotension and pneumothorax**. Cardiopulmonary monitoring is mandatory.

SPECIAL NOTES:

- **Correct hypoxia**: do not withhold maximum oxygen for fear of CO_2 retention
- **Consider pulmonary and non-pulmonary causes of respiratory distress:**

  Examples: pulmonary embolism, pneumonia, pulmonary edema, anaphylaxis, heart attack, pneumothorax, sepsis, metabolic acidosis (e.g.: DKA), Anxiety
- Patients with COPD are older and have comorbidities, including heart disease.
- Wheezing may be a presentation of pulmonary edema, "cardiac asthma"
- Common triggers for COPD exacerbations include: Infection, dysrhythmia (e.g.: atrial fibrillation), myocardial ischemia

Treatment:

B	Monitor SpO_2 saturation Oxygen Position of comfort CPAP
I_{85}	IV NS @ TKO or saline lock Consider fluid bolus 250 mL, then re-evaluate. Assist with Metered Dose Inhaler Cardiac Monitor
A	Consider: Albuterol or DuoNeb (Atrovent/Xopenex) small volume nebulizer. • You may consider continuous nebulizer treatments for severe respiratory distress. Consider Epinephrine if patient unable to move enough air for the neb. to work
P	Medical control contact; If 3 Albuterol/Duo nebs are unsuccessful, ***consider*** administration of Morphine (2-4 mg SLOW IV push). Prepare to intubate if patient goes into respiratory failure/arrest.

CO POISONING – CARBON MONOXIDE

General Guidelines:

Signs and Symptoms of CO exposure include:

- Headache, dizziness, coma, altered mental status, seizures, visual changes, chest pain, tachycardia, arrhythmias, dyspnea, N/V, "flu-like-illness"
- The absence of low readings of COHb is not a reliable predictor of toxicity of other fire products
- In smoke inhalation victims, consider cyanide treatment.
- The fetus of a pregnant woman is at higher risk due to the greater affinity of fetal hemoglobin to CO. With CO exposure, the pregnant woman may be asymptomatic while the fetus may be in distress.
- Cigarette smokers COHb is normally higher than non-smokers; >10% is clinically significant.

Treatment:

B	Monitor SpO_2 saturation. - Oxygen – **10-15 L / min by NRM** Position of comfort. CPAP
I_{85}	IV NS @ TKO or saline lock. Cardiac Monitor.
A	Consider: Albuterol or DuoNeb (Atrovent/Xopenex) small volume nebulizer. • You may consider continuous nebulizer treatments for severe respiratory distress. Consider Epinephrine if patient unable to move enough air for the neb. to work.
P	Medical control contact; • If 3 Albuterol **or** DuoNebs are unsuccessful, consider administration of Morphine (2-4 mg SLOW IV push) for dyspnea. Monitor cardiac rhythms. Prepare to intubate for resp. failure.

COHb	Severity	Signs and Symptoms
< 15-20 %	Mild	Headache, nausea, vomiting, dizziness, blurred vision
21-40 %	Moderate	Confusion, syncope, chest pain, dyspnea, tachycardia, tachypnea, weakness
41-59 %	Severe	Dysrhythmias, hypotension, cardiac ischemia, palpitations, respiratory arrest, pulmonary edema, seizures, coma, cardia arrest
> 60 %	Fatal	Death

ACUTE PULMONARY EDEMA

The following should be provided for all patients complaining of cardiac signs or symptoms, including but not limited to, chest pain, shortness of breath, dizziness, palpitations, indigestion or syncope.

Assessment:

Assess respiratory status – assist ventilations as necessary.

* *Be prepared to aggressively manage airway if patient is initially lethargic with severe distress and/or change in Pulse oximetry*.

Initiating **CPAP treatment is a first line treatment *IF***:

- Patients with inadequate ventilation not associated with asthma.
- Patients O2 sats below 94% unchanged by O2 via NRM
- Patients may have pulmonary edema, pneumonia, or COPD.

Treatment:

B	Oxygen. Position of comfort, reassure patient. Initiate CPAP treatment
I_{85}	Initiate IV of NS at TKO rate or saline lock. Cardiac Monitor.
A	**Admin** via SVNeb.– Albuterol **or** DuoNeb (Atrovent & Xopenex)
P	**Admin** - 0.4 mg Nitro SL every 3-5 minutes (X 3) as long as BP> 90mm/Hg systolic. Additional Nitro PRN Furosemide 40-80 mg. Morphine 2-10 mg in 2-4 mg increments.

ALTERED MENTAL STATUS / COMA / NEUROLOGICAL DEFICIT

Assessment

- Safety to rescuer: check for gases or other toxins, combativeness
- Perform Patient Assessment and Glasgow Coma Scale
- Consider need for ALS
- Assess and support ABC's, oral or nasal airway as tolerated
- Consider c-spine precautions as indicated
- Assess: breath odor, needle tracks, medical alert tag
- Assess vital signs (BP, pulse, respirations, SpO_2, pupil size & reaction)

➢ Stroke patients may be alert but unable to respond (aphasic); therefore, communicate with the patient and explain what you are doing. Avoid inappropriate comments.

➢ Although alcohol is a common cause of altered mental status, it is not commonly a cause of frank coma (i.e., total unresponsiveness to pain).

- No judgment in the field should be made concerning the importance of the presence of alcohol on any patient's breath that presents totally unresponsive to pain.

CAUSES FOR ALTERED MENTAL STATUS

A	Acidosis / Alcohol
E	Epilepsy / Electrolytes / Encephalopathy
I	Infection
O	Overdose / Opiates
U	Uremia
T	Trauma / Tumor
I	Insulin (hypoglycemia or hyperglycemia)
P	Psychosis / Poisoning
S	Stroke / Shock

Treatment:

B	Begin high flow oxygen, be prepared to assist ventilations if necessary. If no trauma, transport patient in recovery position to protect airway Prepare for possible seizures Administer oral glucose – based on diabetic history
I_{85}	Start IV NS. Consider IV bolus of 20 cc/kg and re-evaluate. Assess blood glucose level If necessary, protect the airway with Combitube. ECG monitoring. Consider Cardiac event (Follow appropriate Cardiac protocol)
A	Assess blood glucose level; Adm D^{50} or glucagon, and thiamine as needed. Administer Narcan 0.4 - 2 mg slow IV/IN as appropriate for opiate overdose
P	Check blood glucose; treat accordingly with D50 or glucagon, and Thiamine Consider Narcan: 0.4 - 2 mg slow IV push for possible drug overdose Contact Medical Control

ANAPHYLAXIS

Assessment

- Assess vital signs (BP, pulse, respirations, SpO_2)
- Consider need for ALS
- Be alert for and treat for dyspnea.
- Be alert for and treat for shock.
- Presence of edema of tongue, mouth and/or throat, dyspnea, and/or hypoperfusion.
- Immediate transport if patient has altered mental status
- Obtain pertinent medical history
- Note the medications the patient has taken, how much, when, and response.

Special Notes:

Do not apply a tourniquet (may apply constriction band as approved by medical direction) that may be provided in patient's epinephrine kit. Consult with Medical Control if patient has applied them prior to arrival.

Mild Anaphylactic Shock

Local rash, itching over a limited area of body, flushing over a larger area of the body (more than 20%). Mild respiratory distress.

- Decontaminate
- Apply cold packs
- Transport

Severe Anaphylactic Shock

All of the above symptoms with severe respiratory and circulatory compromise.

Treatment:

B	Oxygen Consider administration of epinephrine auto-injector (See protocol for Epi-Pen in the Medical Procedures) If an insect sting, scrape stinger out with a drivers license or credit card. Do not pull stinger out. Position of comfort, reassure patient. No treatment should significantly delay transport of critical patients
I_{85}	IV NS TKO or saline lock Do not delay treatment or transport while attempting IV start.
A	**Moderate Anaphylactic Shock** Benadryl 25-50 mg IV or IM. Contact Medical Control. May consider epinephrine. May consider additional Benadryl.
P	**Severe Anaphylactic Shock** EPINEPHRINE: 0.3-0.5 mg 1:10,000 IV. If unable to establish IV and circulation still present, give 0.3-0.5 mg 1:1000 epinephrine SQ/IM/IN. Establish and maintain airway. Ventilate.

BEHAVIORAL EMERGENCIES

Assessment:

- Assess scene for safety. BEWARE OF WEAPONS. Patients may become violent.
- Consider support from Law Enforcement.
- Speak slowly, softly and identify yourself as an EMT and that you're here to help.
- Assess and treat life-threatening injuries.
- Additional assessment and treatment as situation permits.
- Check for medications, medical alert tags, and weapons.
- Obtain pertinent medical history:
  - Prescription or non-prescription drugs, alcohol.
  - Possible underlying medical cause; i.e., hypoxia, brain tumor, chemotherapy, hypoglycemia, toxic exposure.
  - Previous history of psychiatric problems, emotional trauma (PTSD), and suicidal or homicidal ideation.
- Events immediately preceding problem/incident.

Paramedic Treatment:

P	Consider - Valium 1-5 mg IV/IM - up to 10 mg. Consider Versed if Valium is ineffective or contraindicated. See also references in the following guidelines.

Objective Findings

A. Evaluate general appearance
   a. E.g.: Well groomed, disheveled, debilitated, bizarrely dressed
B. Evaluate vital signs.
   a. Is a particular toxidrome suggested, e.g.: sympathomimetic?
   b. Note medic alert tags, breath odors suggesting intoxication.
C. Determine ability to relate to reality.
   a. Does the patient know who she is, where she is, who you are and why you are there?
   b. Does the patient appear to be hallucinating or responding to internal stimuli?
   c. Note behavior. Consider known predictors of violence:
      i. Is the patient male, intoxicated, paranoid or displaying aggressive or threatening behavior or language?

Treatment:

- The SAME EMT who performs assessment should remain with patient during transport.
- Speak in a calm, quiet voice. Move slowly and explain what you are doing. Be honest, direct, and non-threatening. Attempt to establish rapport.
- Be alert for possible elopement.
- Consider organic causes of abnormal behavior (trauma, overdose, intoxication, hypoglycemia) and treat accordingly.
- If patient becomes agitated or uncooperative, withdraw and seek law enforcement help.
- If patient's behavior interferes with his / her own safety or the safety of others:
- Clear the area of family or bystanders

Apply restraints according to the *Procedures Guidelines: Restraint Protocol* - Explain to the patient why restraints are being applied.

Once restraints have been applied:

- Remain with patient at all times and continue to reassure patient
- Reassess airway and pulse distal to restraints during transport
- Do not remove until at the hospital unless they compromise patient care.
- If circulation is compromised – loosen the restraint and reassess.
- If patient has been placed in handcuffs by law enforcement an Officer MUST accompany patient to the hospital.
- Keep environment as quiet as possible; **DO NOT** use lights and sirens unless indicated by injuries.

EXCITED DELIRIUM

Excited delirium or excited delirium syndrome is only one form of potential sudden death that EMS and law enforcement officers may encounter. Other potential causes of unexpected arrest-related deaths include, but are not limited to: SUDEP (sudden unexpected death in epilepsy), sickle cell sudden death, various cardiomyopathies, drug induced arrhythmias (including those caused by alcohol and marijuana), psychiatric arrhythmias (whether due to schizophrenia or medications), and severe coronary artery disease.

NOTE:

A syndrome is an aggregate of signs and symptoms that define a medical condition. Not all persons with a certain syndrome have all the same signs and symptoms. Not all cases of a syndrome result from the same cause.

Persons with the excited delirium syndrome will have various combinations of some of the signs and symptoms listed above. The cause (etiology) of the excited delirium syndrome in any individual may be due to one or more of a number of conditions. The most common conditions are mental illness and illegal stimulant abuse (especially cocaine and methamphetamine).

Because the term "excited delirium syndrome" has not been widely used until recent years, many physicians do not recognize the term even though they may be very familiar with agitation and deaths due to drugs and other conditions. It is important to avoid the distraction of the various terms that have been applied to this syndrome. For example, what is now referred to as excited delirium or agitated delirium has also been called: Bell's mania, acute exhaustive mania, acute delirious mania, delirium grave, typhoma, acute delirium, manic-depressive exhaustion, excited catatonia, lethal catatonia, and neuroleptic malignant syndrome.

COMMON SIGNS & SYMPTOMS AND PHRASES USED

911 CALLS: Critical call phrases include, He just freaked out, just snapped, flipped out," or a person is "running around naked."

LAW ENFORCEMENT:

- Agitation, screaming, extreme fear response or panic
- Violence, assault, or aggression towards others
- Suspicion of impending death. Typical comments include, "I'm dying," "Please save me," "Don't kill me"
- Incoherence or disorganized speech. Grunting or animal sounds
- Clothing removal inappropriate for ambient temperature or complete nudity.
- Disorientation or hallucinations, Mania, paranoia, anxiety, or avoidance behavior.
- Constant motion or hyperactivity

EMS AND EMERGENCY DEPARTMENT:

- Presenting rhythm of PEA (pulseless electrical activity) or asystole can occur.
  - Also documented by "No shock advised" with automatic external defibrillator
- High core body temperature.
- Acidosis (acidic blood)
- Rhabdomyolysis (if suspect is resuscitated)
- History of chronic stimulant abuse or mental illness
- History of violence or drug related arrests, mental health histories and treatments, and drug rehabilitation interventions, etc.

AGITATED/COMBATIVE PATIENT

- Assess the severity of the patient's agitation and risk of immediate threat to himself or others
- Attempt to reasonably address the patient's concerns via reassurance & verbal de-escalation
- Assemble adequate personnel to safely manage and restrain the patient
- Assume the patient has a medical cause of agitation and treat reversible causes
- Should the patient not respond to reassurance, verbal de-escalation and/or treatment of reversible causes
  - Evaluate the patient for Excited Delirium Syndrome
  - S/Sx of Excited Delirium Syndrome include (does not require all S/Sx): Paranoia, disorientation, hyper-aggression, hallucination, tachycardia, increased strength, hyperthermia

	Treatment for Excited Delirium Syndrome	**Treatment for the non-excited delirium agitated patient** who remains significantly agitated and poses an immediate threat to himself or others
B	– Reassess ABC's post sedation – Administer high flow Oxygen as necessary based on patient assessment and condition – Start external cooling measures – Consider physical restraint (see physical restraint guidelines)	– Reassess ABC's post sedation – Administer high flow Oxygen as necessary based on patient assessment and condition – Start external cooling measures – Consider physical restraint (see physical restraint guidelines)
I_{85} **A**	– Start 2 large bore IVs as soon as may be safely accomplished – Administer NS bolus 1-2 L	– Start 2 large bore IVs as soon as may be safely accomplished – Administer NS as patient condition warrants
	• Consider administration of o Versed 2-5 mg IV/IO/IM/IN **OR** o Diazepam 5 mg IV/IO/IM o For continued agitation, contact medical control physician for further orders. Consider Additional: ▪ Versed 2-5 mg IV/IO/IM/IN **or** ▪ Diazepam 5 mg IV/IO/IM • Full cardiac, SpO2, EtCO2, temperature monitoring • Rapid transport	• Consider Sedation via o Versed 2-5 mg IV/IO/IM/IN **OR** o Diazepam 5 mg IV/IO/IM • For continued agitation, contact medical control physician for further orders. Consider Additional: o Versed 2-5 mg IV/IO/IM, **or** o Diazepam 5 mg IV/IO/IM • Full cardiac, SpO2, EtCO2, body temperature monitoring • Rapid transport
P	**Pediatric Sedation for Agitation** • If the patient is agitated and not amenable to reassurance, verbal de-escalation, or physical restraints, and poses an immediate threat to himself or others, Contact Medical Control Physician for orders o Versed 0.1 mg/kg IV/IO/IM, maximum dose 5 mg. **or** o Versed 0.2 mg/kg IN (if unable to obtain IV access), maximum dose 10 mg. **or** • For continued agitation, contact medical control for further orders. Consider Additional: o Versed 0.1 mg/kg IV/IO/IM, maximum dose 5 mg. **or** o Versed 0.2 mg/kg IN (if unable to obtain IV access), maximum dose 10 mg. **or** o Diazepam 0.25 mg/kg IV/IO/IM, maximum single dose 5mg	

CARDIAC ARREST - AED

Assessment:

- Alert dispatch when cardiac arrest is confirmed and request ALS
- Utilize appropriate body substance isolation
- Assess LOC and ABC's, confirm absence of pulses and respirations
- Apply Lucas CPR Device as needed

Treatment with AED (all levels):

- Establish and maintain open airway. Use OPA or NPA.
- Suction airway as needed to clear
- Ventilate initially with 100% oxygen utilizing a bag valve mask and an oral airway.
- Perform CPR until AED is available and applied to patient.
- Apply Defibrillator pads to patient's chest (may need to prep. the patients chest first)
- Turn on AED
- Stop CPR, ensure patient is motionless and all personnel are clear
- Analyze rhythm, if indicated, shock patient at 120J (Zoll).
- After shock continue CPR for two minute
- After two minute, re- analyze rhythm, if indicated, shock patient at 150J (Zoll)
- Continue CPR, secure patient to a long backboard and move patient to the ambulance and transport.
- In the ambulance (After two minute) re- analyze rhythm, if indicated, shock patient at 200J (Zoll) if indicated.
- If at any point a "No Shock Advised" message is received, check for pulse. If no pulse, continue CPR for two minute and re-analyze. If pulse is present, manage and support ABC's
- If three consecutive "No Shock Advised" messages are received, check for pulse. If no pulse, continue CPR and continue transport.
- If after a total of 9 shocks are given, contact medical control to see if further shocks are advised or if patient transport is ordered.

Treatment:

B	***See Treatment with AED to the left***
I_{85}	Hyperventilate and insert Combi-Tube as per protocol
A	Establish IV NS, set at TKO rate
P	Analyze rhythm and follow appropriate ACLS algorithm.

CEREBRAL VASCULAR ACCIDENT (CVA)

Assessment

- Perform Patient Assessment – include ***Los Angeles Pre-hospital Stroke Scale*** (see Attached)
- Symptoms depend on area of brain affected. Monitor motor, speech, and sensory centers.
- Obtain pertinent medical history:
  - SAMPLE.
  - Glasgow coma scale.
  - Pupil reaction.
  - Vital signs.
  - Neurological assessment on all four extremities.
  - Observe face for asymmetry.
- Try to determine and record when symptoms may have started.

Notes:

- While stroke patients may not be able to speak they are usually aware of their surroundings and are anxious. Talk to your patient and keep the patient informed about the treatment being rendered even if the patient is unconscious. High speed and loud sirens during transport may increase the anxiety and are rarely necessary.
- Transient Ischemic Attacks (TIAs) are temporary stroke symptoms lasting from several minutes to hours and may warn of an impending CVA. Most TIA symptoms resolve within 24 hours.
- Watch for signs of seizure activity.

Treatment:

B	Protect airway, suction secretions if needed. Oxygen Elevate head of cot, allow patient to seek position of comfort, and maintain body heat. Place in recovery position, if vomiting or having problems with secretions Protect paralyzed/weak extremities. Reassure patient continuously and transport quietly to hospital.
I_{85}	Cardiac Monitor
A	Perform glucose test IV NS TKO on unaffected extremity
P	Cardiac Monitor Alert receiving hospital early if patient meets **Stroke Alert** criteria.

LOS ANGELES STROKE SCREEN

Age over 45 years			**Y**	**N**
No prior Hx of seizures			**Y**	**N**
New onset neuro Sx (24 hrs)			**Y**	**N**
Ambulatory prior to event			**Y**	**N**
Blood Glucose between 60 - 400			**Y**	**N**
EXAM Obvious asymmetry		**Right**	**Left**	
Facial smile/grimace		Droop	Droop	
Grip	Normal	Weak	Weak	
		No grip	No grip	
Arm weakness	Normal	Drifts	Drifts	
		Falls	Falls	
Pt has **unilateral** weakness:			**Y**	**N**
If Yes to **All**-screen criteria met:			**Y**	**N**

CVA rtPA Exclusion Criteria

Onset time:	Sx **<** 4.5 hrs	**Y**	**N**
CVA/Head injury in last 3 mo.		**Y**	**N**
Prior Intracranial hemorrhage		**Y**	**N**
GI/Urinary bleed W/in 21 days		**Y**	**N**
Major surgery W/in 14 days		**Y**	**N**
Cerebral: aneurysm, neoplasm		**Y**	**N**
MI W/in last 90 days		**Y**	**N**
HPTN (sys **>**185 or diastolic **>**110)		**Y**	**N**
Sx of subarachnoid hemorrhage		**Y**	**N**




DIFFERENTIAL DIAGNOSIS OF ACUTE STROKE

Trauma (e.g., subdural hematomas)
Spinal cord, peripheral nerve disease
Meningitis/encephalopathy
Hemorrhagic stroke (e.g., subarachnoid hemorrhage, intracranial hemorrhage)
Transient ischemic events that have not resolved at presentation
Bell's palsy: facial paralysis Metabolic abnormalities (e.g., hypo-/hyperglycemia, drug overdose)
Seizures
Complex migraines
Brain abscess
Infections
Intracranial mass

DIABETIC EMERGENCIES

Assessment

- Perform Patient Assessment
- Secure and maintain airway
- Obtain pertinent medical history from patient, family, bystanders and check for medical identification device.
- How much and when was insulin, or other hypoglycemic medications, taken.
- Patient's last meal.
- Recent or current illness, heavy exercise or high stress; i.e., flu, athletic activity, accident.

Note:

It is not necessary to transport to the hospital if **ALL** the following are met:

- Patient is alert, asymptomatic and blood sugar > 80
- Able to take in solid food
- Advised to consult MD
- No other medical problems
- Other responsible person is available to observe the patient

Treatment:

B	• Protect airway and administer O_2 per NC or non-rebreather mask. If suspected hypoglycemic and level of consciousness is **not** depressed: o Administer oral glucose/other sugar • Reassess LOC and vital signs. If **depressed** level of consciousness: - Maintain airway and continue oxygen by NRB 10-15 LPM - Transport in position of comfort. If unconscious, transport patient on side in recovery position.
I_{85}	Establish NS TKO
A	Check Blood Sugar - normal values are 60-120 mg/dl
P	*Go to following guidelines*

HYPERGLYCEMIA

Hyperglycemia can be a serious problem if not treated in time. In untreated hyperglycemia, a condition called ketoacidosis could occur. Ketoacidosis develops when the body does not have enough insulin. Without insulin, the body isn't able to utilize the glucose for fuel, so the body starts to break down fats for energy.

Ketoacidosis is a life-threatening condition requiring immediate treatment.

Signs and symptoms of diabetic ketoacidosis may include:

- o Nausea / Vomiting, Dry mouth
- o Kussmaul hyperventilation: deep, rapid breathing
- o Confusion or a decreased level of consciousness
- o Dehydration due to glycosuria and osmotic diuresis
- o Acute hunger and/or thirst
- o 'Fruity' smelling breath odor
- o Impairment of cognitive function, with increased sadness/anxiety

Assessment

- Perform Patient Assessment
- Consider need for ALS
- Secure and maintain airway
- Obtain pertinent medical history from patient, family, bystanders and check for medical identification device.
- How much and when was insulin, or other hypoglycemic medications, taken.
- Patient's last meal.
- Recent or current illness, heavy exercise or high stress; i.e., flu, athletic activity, accident.

Treatment:

B	• Protect airway and administer O_2 per NC or non-rebreather mask. If suspected hyperglycemia and level of consciousness is **not** depressed: • Reassess LOC and vital signs. If **depressed** level of consciousness: Maintain airway and continue oxygen by NRB 10-15 LPM Transport in position of comfort. If unconscious, transport patient on side in recovery position.
I_{85}	Establish NS – administer fluid bolus of 250-500 mL to dilute the sugar level.
A	Check Blood Sugar - normal values are 60-120 mg/dl Reassess LOC, blood sugar & Vital Signs.
P	*Follow above guidelines*

HYPOGLYCEMIA

Assessment

- Perform Patient Assessment
- Consider need for ALS
- Secure and maintain airway
- Obtain pertinent medical history from patient, family, bystanders and check for medical identification device:
- How much and when was insulin, or other hypoglycemic medications, taken.
- Patient's last meal.
- Recent or current illness, heavy exercise or high stress; i.e., flu, athletic activity, accident.

Insta-Glucose

Medication Names: oral glucose. Trade: Glucose, Insta-Glucose.

Indications: Patients with an altered mental status and a known history of diabetes mellitus.

Contraindications: Unconsciousness, Unable to swallow, Known diabetic who has not taken insulin for a number of days.

Dosage: One tube or as directed on the package.

Administration: Assure the patient has signs and symptoms of altered mental status and a known history of diabetes.
Assure the patient is conscious, can swallow, and maintain airway.
Administer glucose. Place gel on a tongue depressor and smear between cheek and gum **OR h**ave the patient self-administer between cheek and gum. If the patient loses consciousness or has a seizure, remove tongue depressor from mouth.

Side Effects: None - when given properly. May be aspirated by a patient without a gag reflex.

Treatment:

B	• Protect airway and administer O_2 per NC or non-rebreather mask. If suspected hypoglycemic and level of consciousness is **not** depressed: • Admin oral glucose or other oral sugar • Reassess LOC and vital signs. If depressed level of consciousness: • Transport in position of comfort. If unconscious, transport patient on side in recovery position.
I_{85}	Establish NS TKO Check Blood Sugar - normal values are 60-120 mg/dl
A	If blood sugar is below 50 mg/dl; • Consider 50 ml Dextrose 50% IV push • Consider glucagon 1mg IM/IN (adult) Reassess LOC, blood sugar & vital signs. Administer Thiamine ***prior*** to dextrose
P	*Follow above guidelines*

HYPERTENSIVE EMERGENCIES

Assessment:

- Perform Patient assessment
- Obtain history and physical findings consistent with a hypertensive emergency: **
  - Myocardial ischemia with hypertension
  - Aortic dissection with hypertension
  - Pulmonary edema with hypertension
  - Hypertensive intracranial hemorrhage
  - Toxemia
  - Hypertensive encephalopathy

** **Note:**

A hypertensive crisis is characterized by a rapid increase in diastolic blood pressure (usually >130mmHg) accompanied by restlessness, severe headache, blurred vision, nausea and vomiting.

Treatment:

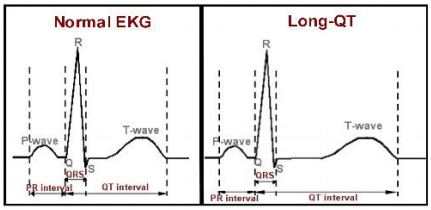
B	• Maintain airway and administer oxygen by nasal cannula or mask Place patient in position of comfort. Transport without delay
I_{85}	Start IV NS TKO
A	Monitor Cardiac rhythm
P	Administer Nitroglycerin 0.4mg SL, up to 3 doses, 3-5 min apart. Monitor BP between each dose. **EXCEPT** with increased Intracranial Pressure or Suspected increased ICP. Monitor for signs of CVA. Monitor LOC

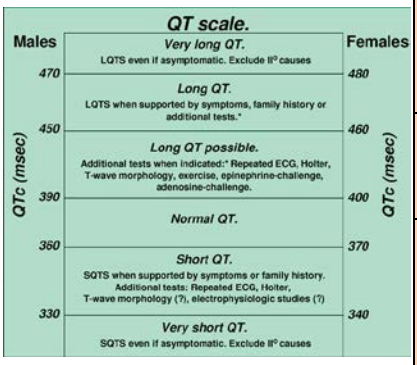
NAUSEA / VOMITING

Assessment

- Perform Patient Assessment
- Secure and maintain airway.
- Place in position to protect airway. Suction PRN

Caution: Use of Zofran with QT elongation may lead to torsade de pointes *(see Cardiac Guidelines: Long QT Syndrome)*





Treatment:	
B	Protect airway and administer O_2 per NC or non-rebreather mask. Transport as soon as possible
I_{85}	If signs or symptoms of dehydration or hypotension, start IV NS at 20 cc/kg/hr Consider Cardiac Monitor
A	Consider administration of Zofran
P	Consider Cardiac Monitor Consider administration of Zofran

OVERDOSE

Assessment:

- Perform Patient Assessment
- Gather History from bystanders and the scene.

CALL POISON CONTROL:

800-222-1222

Treatment:	
B	Maintain airway, ventilate if necessary O_2 by NC or Non-rebreather Mask.
I_{85}	Contact Medical Control Start IV NS. Infuse at 20 cc/kg/hr Consider Cardiac Monitor
A	Perform glucose test Administer Narcan up to 0.4 - 2 mg (if indicated – for suspected opioid overdose)
P	Contact Medical Control - consider: Additional Narcan (if indicated) Consider: Sodium Bicarbonate for tricyclic overdose. Transport as soon as possible.

POISONING

Assessment

- PROTECT YOURSELF FROM POSSIBLE EXPOSURE – If necessary call Fire Department or HAZ-MAT response team to contain the toxin or for decontamination.
- Perform Patient Assessment.
- Be alert for and treat respiratory difficulty.
- Be alert for and treat shock.
- Be alert for and treat seizures.
- Identify time of exposure, contaminant, and quantity.
- If possible, take empty containers to hospital.
- Obtain pertinent history.
- Contact Poison Control Center and treat as directed.

Treatment:

B	See BLS Treatment to the left
I_{85}	Secure airway with Combi-tube if necessary IV NS titrate to B/P of ≥ 90mmHg Cardiac monitor.
A	Secure airway with Combi-tube if necessary IV NS titrate to B/P of ≥ 90mmHg Consider: epinephrine for anaphylaxis Cardiac monitor.
P	Cardiac monitor. Secure airway with ET tube if necessary Be alert for and treat shock. Consider: - Epinephrine: anaphylaxis - Atropine: organophosphate poisons Be alert for and treat seizures per protocol.

BLS - Treatment

Ingested Poison: Identify substance and quantity ingested.
Place patient in recovery position. Vomiting is common.
Be prepared for suctioning
If unable to identify – take a sample with you to the hospital (if sample is possibly toxic – double bag and seal it in plastic bags)

Inhaled Poison: Remove patient to fresh air. Place in recovery position. Administer O_2 by non-rebreather mask at 10-15 LPM.
Assist ventilations as needed with 100% O_2 via bag-valve-mask.
Identify substance inhaled and duration of exposure. Be alert for and treat respiratory difficulty. Be alert for and treat shock.
Be alert for and treat seizures.

Poison on Skin; Remove contaminated clothing and flood skin with water for 10 minutes; wash with soap and water, then rinse.

Dry powder, brush off before washing. Identify contaminant.

Poison in Eye: Flood eye(s) with lukewarm water continuously for at least 15 minutes. Have patient blink frequently during irrigation. Identify contaminant.

Injected Poison (Stings, Poisonous Snakebites, Etc.): BE ALERT for dyspnea. Check for medical identification device and ask about history of allergies. Try to identify source of injected poison, and check for marks, rashes, or welts.

- Transport immediately. Consider constricting band and/or sterile suction.

CALL POISON CONTROL:

800-222-1222

POISONING - CYANIDE (AC) & CYANOGEN CHLORIDE (CK) – BLOOD AGENT

Acute Poisoning

Cyanide poisoning is a form of histotoxic hypoxia because the cells are unable to use oxygen. Acute hydrogen cyanide poisoning can result from inhalation of fumes from burning polymer products that use nitrile in their production, such as polyurethane, or vinyl. It can also be caused by breakdown of nitroprusside into nitric oxide and cyanide during treatment of hypertensive crises.

If cyanide is inhaled it causes a coma with seizures, apnea, and cardiac arrest, with death following in a matter of seconds. At lower doses, loss of consciousness may be preceded by general weakness, giddiness, headaches, vertigo, confusion, and perceived difficulty in breathing. At the first stages of unconsciousness, breathing is often sufficient or even rapid, although the state of the victim progresses towards a deep coma, sometimes accompanied by pulmonary edema, and finally cardiac arrest. A cherry red skin color that changes to dark may be present as the result of increased venous hemoglobin oxygen saturation. A fatal dose for humans can be as low as 1.5 mg/kg body weight.

Assessment

- Safety to rescuer: check for gases or other toxins.
- Perform Patient Assessment.
- Call for ALS
- Assess and support ABC's

Treatment:

B	Begin high flow oxygen @ 15LPM via non-rebreather mask; be prepared to assist ventilations if necessary. If no trauma, transport patient in recovery position to protect airway Prepare for possible seizures
I_{85}	Start IV NS - TKO.
A	ECG monitoring
P	Carefully monitor Airway and cardiac function. Treat symptoms as they present. Oxygen is the primary treatment of choice without a Cyanide Antidote Kit.

CYANIDE ANTIDOTE KIT

Actions: *sodium nitrite and amyl nitrite:* Reacts with hemoglobin to form methemoglobin, an oxidized form of hemoglobin incapable of oxygen transport but with high affinity for cyanide. Cyanide preferentially binds to methemoglobin over cytochrome a3, forming the nontoxic cyanomethemoglobin. Vasodilation has also been cited to account for at least part of the therapeutic effect of amyl nitrite and sodium nitrite

sodium thiosulfate: Primary route of endogenous cyanide detoxification is by enzymatic transulfuration to thiocyanate (SCN-), which is relatively nontoxic and readily excreted in the urine. Thought to serve as a sulfur donor in the reaction catalyzed by the enzyme rhodanese, thus enhancing the endogenous detoxification of cyanide

Indications: Indicated for the treatment of known or suspected cyanide poisoning. If clinical suspicion of cyanide poisoning is high, administration should be given without delay. The expert advice of a regional poison control center may be obtained by calling 1-800-222-1222. Consider Medical Control consultation prior to administration.

Contraindications: None.

Side Effects: Precipitation of methemoglobinemia, Worsening hypoxia, Hypotension (sodium nitrite), ADR's of nitrite Rx above include hypotension, tachycardia, HA, severe methemoglobinemia

Dosage:

Adult Dosage & Administration:

1. amyl nitrite inhalant: 0.3mL (12 ampules)
2. sodium nitrite: 300mg/10mL (2 ampules)
3. sodium thiosulfate injection: 12.5g/50mL (2 vials)
   a. Crush 0.3 mL ampule of amyl nitrite q1min and inhale vapor for 15-30 seconds until IV sodium nitrite infusion available
   b. Following infusion of 300 mg or 10 mg/kg IV sodium nitrate, over 2-5 minutes
   c. inject 12.5 g sodium thiosulfate IV over 10 minutes PRN; may repeat both injections at 1/2 original dose

Pediatric Dosage & Administration:

1. amyl nitrite inhalant: 0.3mL (12 ampules)
2. sodium nitrite: 300mg/10mL (2 ampules)
3. sodium thiosulfate injection: 12.5g/50mL (2 vials)
    1. Administer amyl nitrite as in adults; crush 0.3 mL ampule of amyl nitrite q1min and inhale vapor for 15-30 seconds until IV sodium nitrite infusion available
    2. Follow amyl nitrite administration with sodium nitrate 10 mg/kg (0.33 mL/kg or 6-8 mL/sq.meter of 3% solution; not to exceed 10 mL)
    3. Inject sodium thiosulfate IV 7 g/sq.meter over 10 minutes; not to exceed 12.5 g; may repeat both injections at 1/2 original dose

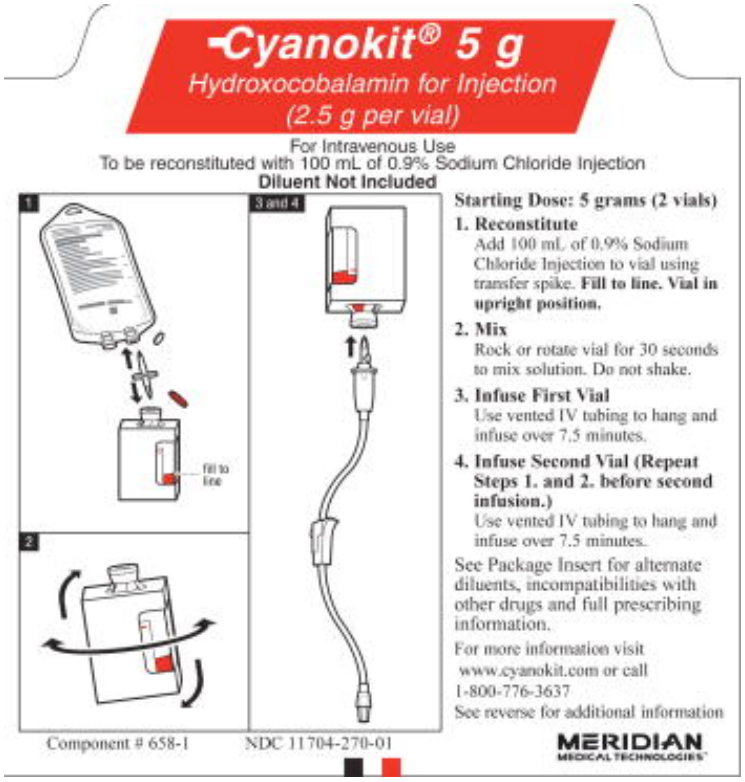
Precautions: Both Sodium Nitrite and Amyl Nitrite in excessive doses induce dangerous methemoglobinemia and can cause death. The amounts found in a single Cyanide Antidote Package are not excessive for an adult. The doses for children should be calculated on a surface area or on a weight basis with the dosage adjusted so that excessive methemoglobin is not formed.

If signs of excessive methemoglobinemia develop (i.e., blue skin and mucous membranes, vomiting, shock, and coma), 1% methylene blue solution should be given intravenously. A total dose of 1 to 2 mg/kg of body weight should be administered over a period of 5 to 10 minutes and should be repeated in 1 hour if necessary. In addition, oxygen inhalation and transfusion of whole fresh blood should be considered.

How Supplied: sodium thiosulfate injection: 12.5g/50mL (2 vials) / sodium nitrite: 300mg/10mL (2 ampules) / amyl nitrite inhalant: 0.3mL (12 ampules)

The Cyanide Antidote Kit is ONLY available at Spearfish Regional & Lead/Deadwood Hospital Pharmacy.

1. One 250-mL glass vial containing 5 g of lyophilized hydroxocobalamin for injection
2. 1 Sterile transfer spike
3. 1 Sterile intravenous infusion set
4. 1 Quick-use reference guide
5. 1 Package insert



"RAVE" DRUGS

Drug	Side Effects	Treatment	Caution
Cocaine [stimulant/anesthetic] **AKA** – "coke", "snow", "flake", "crack"	H/A, N&V, agitation, tachycardia, chest pain, Arrhythmias, vasoconstriction, HPTN, AMI, Seizures, hyperthermia, vertigo, euphoria, paranoia, vomiting, tremors, dilated pupils, coma, paralysis, bradycardia, death. APE can occur with IV use.	ABC's, Oxygen, IV, Consider: Valium for seizures, Lidocaine for PVC's, and NTG for AMI.	Protect yourself from the violent pt.
Ecstasy/MDMA [stimulant] **AKA** – "XTC" "X" "love drug" "MDMA" "Empathy"	Euphoria, hallucinations, agitation, teeth grinding, nausea, hyperthermia, sweating, HPTN, tachycardia, renal/heart failure, dilated pupils, seizures, coma, APE, CVA, electrolyte imbalance	ABC's, Oxygen, Vitals, EKG, IV, Cool the pt. if hyperthermic, ETT as needed, Valium for seizures	DO NOT give beta blockers.
GHB [Depressant] (gamma hydroxyl buterate) **AKA** – "G" "easy lay" "liquid X" "cherry meth"	Euphoria, sedation, dizziness, myoclonic jerking, N&V, H/A, coma, bradycardia, apnea	ABC's, manage the Airway, ventilate	A common "date rape" drug
Hallucinogens [Alters perception] **AKA** – LSD, psilocybin mushrooms	Anxiety, hallucinations, panic, disorientation, N&V	Calm and reassure the patient. Be supportive.	Watch for violent & unexpected behavior
Ketamine (*Ketalar*) [dissociative anesthetic] **AKA** – "Special K" "Vitamin K" "horse tranquilizer"	Nystagmus, hallucinations, sedation, babbling, tachycardia, respiratory depression, N&V, egocentrism, paranoia, increased salivation, coma, seizures	ABC's, protect the Airway, Monitor VS, Oxygen	
Methamphetamine [CNS stimulant] **AKA** – speed, meth, crystal, crystal meth, glass, shards, ice, and tic	hyperactivity, dilated pupils, flushed / pale/ dry skin, acne, sweating, dry mouth and teeth grinding (leading to "meth mouth"), headache, irregular heartbeat (usually as accelerated heartbeat or slowed heartbeat), rapid breathing, high blood pressure, low blood pressure, fever, diarrhea, constipation, blurred vision, dizziness, twitching, numbness, tremors	ABC's, calm the patient, monitor VS, Valium may be used for hyperactivity and may prevent seizures. *CONSIDER: Versed if Valium ineffective.*	Watch for violent & unexpected behavior
PCP –Phencyclidine [tranquilizer] **AKA** – "Peace Pill" "angel dust" " horse tranquilizer"	Nystagmus, disorientation, HPTN, hallucinations, catatonia, sedation, paralysis, stupor, mania, tachycardia, dilated pupils, status epilepticus	ABC's, Oxygen, VS, IV, EKG	Protect yourself against violent patient. Examine pt for trauma which may have occurred due to anesthetic effects of PCP
Rohypnol (*flunitrazepam)* [benzodiazepine] **AKA** – "roofies" "Mexican Valium" "row-shay"	Anterograde amnesia, hypotension, sedation, dizziness, confusion, coma.	ABC's, manage airway, Ventilate, monitor VS; MD may consider Flumazenil IV.	A "date rape" drug.

Abbreviations

APE – Acute Pulmonary Edema
AMI – Acute Myocardial Infarction
ETT – Endotracheal Intubation
H/A – Head Ache
HPTN – Hypertension
N&V – Nausea & Vomiting

SEPSIS

Sepsis is a life-threatening condition that arises when the body's response to infection injures its own tissues and organs. Common signs and symptoms include fever, increased heart rate, increased breathing rate, and confusion. There may also be symptoms related to a specific infection, such as a cough with pneumonia, or painful urination with a kidney infection. In the very young, old, and people with a weakened immune system, there may be no symptoms of a specific infection and the body temperature may be low or normal rather than high. **Severe sepsis** is sepsis causing poor organ function or insufficient blood flow. Insufficient blood flow may be evident by low blood pressure, high blood lactate, or low urine output. Septic shock is low blood pressure due to sepsis that does not improve after reasonable amounts of intravenous fluids are given.

Assessment

- Perform Patient assessment
- **Onset**: gradual, related to precipitating cause or event
- **Symptoms**: Distributive shock, infection (look for suspected source), cardiovascular changes, tachycardia, Petechiae, blood oozing from mucous membranes, respiratory alkalosis, ARDS, peripheral edema, thirst, weakness, respiratory distress, abdominal or chest pain, dizziness on standing.
- Obtain pertinent **medical history**: allergies, medications, significant medical diseases, history of recent trauma, productive cough, painful urination (UTI), fever.
- **Vital signs**: pulse >90; Septic Shock = BP < 90 systolic; Resp. Rate >20; FEVER (>100.4 F)
- **Mental status**: confusion, restlessness, combativeness

Treatment:

B	Oxygen by mask (10-15 L/min). Cover patient to avoid excessive heat loss. Place patient in shock position. Place patient in position of comfort for Cardiogenic Shock. Monitor Vital Signs, and level of consciousness during transport
I_{85} **A**	IV fluid NS- Fluid challenge if hypotension is present or orthostatic VS obtained Assess blood glucose levels Cardiac Monitor: monitor for arrhythmias
P	Assess Sepsis causes: o If pulse > 90, treat for hypovolemia according to protocol o Consider Dopamine if no trauma or major bleeding is suspected If no evidence of Cardiogenic causes; institute general treatment measures: o Place patient in shock position; Fluid bolus 250-500 mL – reassess Transport rapidly for definitive diagnosis and treatment.

Specific precautions:

- ❖ Shock in a septic patient may be caused by Hypovolemia; however, contact should be made with medical control to administer fluid boluses. Treatment with antibiotics and vasopressors is the best treatment.
- ❖ Mixed forms of shock are treated as Hypovolemia, but the other factors contributing to the low perfusion should be considered. Neurogenic shock is caused by relative Hypovolemia as blood vessels lose tone.

SEIZURE

Assessment

- Perform Patient Assessment.
- Obtain pertinent medical history.
- Medical alert tag, known seizure disorder.
- Medications, what and when last taken.
- Alcohol or drug intake.
- Recent trauma.
- Note fever, particularly in children under 5 years old.
- Note number and duration of seizures
- Protect patient from injury

Treatment:

B	**During Seizure** o DO NOT attempt to put anything into patient's mouth. o Protect patient from injury during seizure. Remove hazards. Avoid physical restraint unless absolutely necessary. o Maintain patient's dignity by removing bystanders from scene and covering patient if necessary. o Nasopharyngeal airways may be useful during seizures. Use with caution, however, as nose bleeds are common if placed during seizure. **After Seizure** o Administer high flow oxygen and assist ventilations if necessary. o Treat injuries per specific protocols. o Reassure patient by telling them what happened, where they are, and who you are. o Place patient in recovery position and have suction ready. o Transport in a quiet, non-stimulating environment. Lights and sirens may precipitate additional seizure activity and should be used only if necessitated by injuries.
I_{85} **A**	Start IV NS TKO Check blood glucose level; If glucose < 60 mg/dL, give $D_{50}W$ Consider Glucagon if IV not attainable Remember Thiamine prior to D_{50}
P	Administer Valium 2-10mg IV/IM - May consider Versed if valium is ineffective If no vascular access, administer Valium rectally at 2 ½ times the IV dose (0.5 mg/kg in children). Monitor blood pressure and be prepared to assist ventilations as necessary. If still seizing, contact medical control. MD may consider repeating Valium. Transport as soon as possible

SHOCK: MEDICAL

Assessment

- Perform Patient assessment
- Onset: gradual or sudden; related to precipitating cause or event
- Associated symptoms; itching, peripheral or facial edema, thirst, weakness, respiratory distress, abdominal or chest pain, dizziness on standing
- Obtain pertinent medical history: allergies, medications, bloody vomitus or stools, significant medical diseases, history of recent trauma, last menstrual period, vaginal bleeding, fever
- Vital signs: pulse > 120 (occasionally < 50); BP < 90 systolic; Pulse oximetry
- Mental status: apathy, confusion, restlessness, combativeness
- Signs of trauma; Protect C-Spine as necessary
- Signs of Cardiogenic shock: jugular venous distention in upright position, rales, peripheral edema, hypotension

Specific precautions:

- Shock in a cardiac patient may be caused by Hypovolemia; however, contact should be made with medical control to administer fluid boluses.
- Mixed forms of shock are treated as Hypovolemia, but the other factors contributing to the low perfusion should be considered. Neurogenic shock is caused by relative Hypovolemia as blood vessels lose tone, either from spinal cord trauma, drug overdose, or sepsis. Cardiac depressant factors can also be involved. Anaphylaxis is a mixed form of shock with hypovolemic, neurogenic, and cardiac depressant components. Epinephrine is used in addition to fluid loading.
- Cardiogenic shock from various causes is difficult to treat even in a hospital setting. Rapid transport is recommended.

Treatment:

B	o Oxygen o Cover patient to avoid excessive heat loss. Do not bundle o Place patient in shock position. Place patient in position of comfort for Cardiogenic Shock. o Monitor Vital Signs, and level of consciousness during transport
I_{85} **A**	IV fluid NS- Fluid challenge if hypotension is present or orthostatic VS obtained - Cardiac Monitor: monitor for arrhythmias
P	Assess Cardiogenic causes: o If pulse > 150, treat tachyarrhythmia according to protocol o If pulse < 60, treat bradyarrhythmia according to protocol If distended neck veins, chest pain, dyspnea, or other evidence of cardiac causes: o Be prepared to assist ventilations or initiate CPR o Evaluate for possible tension pneumothorax. Treat as appropriate o Consider Dopamine if **NO** trauma or major bleeding is suspected If no evidence of Cardiogenic causes, institute general treatment measures: o Place patient in shock position; Fluid bolus 250-500 mL – reassess o Transport rapidly for definitive diagnosis and treatment

SHOCK: MEDICAL CAUSES

Mechanism/Causes	Differential/Symptoms	Mechanism/Causes	Differential/Symptoms
Dehydration: Vomiting, Diarrhea	Suggestive illness	Arrhythmia	Palpitations
Diabetes w/ hyperglycemia	Diabetes; acute illness, increased urine/blood loss, thirst, fever	Pericardial tamponade	Chest area cancer, blunt or penetrating trauma
Ectopic Pregnancy	Female, 12-50 years, abdominal pain	Sepsis symptoms	Fever, elderly, urinary symptoms
GI Bleed	Vomitus: black or red stool	Pulmonary embolus	Sudden respiratory distress
Ruptured Abdominal aneurysm	Severe back/abdominal pain, age, history of hypertension	Tension pneumothorax	Respiratory distress, COPD, trauma
Vaginal bleeding	Suggestive history, miscarriage, abortion or delivery	Myocardial failure	Chest pain, history of congestive failure
Intra-abdominal bleeding	Minor trauma, abdominal pain, back or shoulder pain	Anaphylaxis	Dyspnea, itching, mouth swelling, dizziness, exposure to allergen

SYNCOPE

Assessment

- Perform Patient assessment
- Obtain pertinent medical history.
- Pulse oximetry
- Protect C-Spine if fallen
- Consider all other causes

Treatment:

B	Oxygen by cannula (2-6 L/min) or mask (10-15 L/min). Position of comfort, reassure patient.
I_{85}	IV fluid NS- Fluid challenge if hypotension is present or orthostatic VS obtained Cardiac Monitor.
A	Altered mental status: Consider hypoglycemia (follow appropriate protocol) Consider drug overdose (follow appropriate protocol)
P	Acquire 12-Lead – evaluate for arrhythmias, QT Syndrome, CVA/TIA Cardiac Monitor

ENVIRONMENTAL EMERGENCIES

BITES AND STINGS

Assessment

- Perform Patient Assessment.
- Type of animal or insect: time of exposure.
- Symptoms: Local – pain, stinging
- Symptoms: Generalized – dizziness, weakness, itching, trouble breathing, muscle cramps
- History of previous exposures – allergic reactions
- Be alert for and treat for shock.
- Identification of spider, bee, marine animal if possible
- Local signs: erythema, swelling, heat in area of bite
- Systemic signs: hives, wheezing, respiratory distress, abnormal vital signs

Specific Precautions:

For all types of bites and stings, the goal of prehospital care is to prevent further inoculation and to treat allergic reactions.

Allergy kits consist of injectable epinephrine and oral antihistamine, and are prescribed for persons with known systemic allergic reactions.

Time since envenomation is important. Anaphylaxis rarely develops more than 60 minutes after inoculation.

Patients with history of generalized reactions should be considered at high risk for anaphylaxis.

Treatment:

B	**Spiders / Snakes:** Protect injured areas from pressure, trauma, and friction. Do not allow patient to ambulate unless absolutely necessary. Ice for comfort. Transport for observation if systemic signs and symptoms are present. **Bees / Wasps** Remove stinger by scraping with a straight edge. Do not squeeze venom sac. Observe patient for signs of systemic allergic reaction. Transport rapidly if needed. Treat anaphylaxis per protocol.
I_{85}	Establish venous access. Cardiac Monitor
A	Consider Epinephrine for anaphylaxis
P	Cardiac Monitor

COLD EMERGENCIES

Assessment

- Perform Patient Assessment.
- Be alert for and treat for shock.
- Because breathing and pulse rates may be slower and more difficult to feel, assess for a minimum of 30 to 45 seconds.
- Frostbite

BLS - Treatment

- Protect injured areas from pressure, trauma, and friction.
- Remove all coverings from injured areas, but DO NOT RUB OR BREAK BLISTERS. Cover with dry sterile dressings.
- Do not allow patient to ambulate unless absolutely necessary.
- Do not allow limb to thaw if there is a chance that the limb might refreeze before evacuation is completed.
- Maintain core temperature with blankets.
- Re-warming frostbitten area should be left for a hospital setting.

Specific Precautions:

HYPOTHERMIA:

Shivering does not occur below 90° degrees F. Below this the patient may not even feel cold, and occasionally will even undress and appear vasodilated.

The heart is most likely to fibrillate below 85-88° degrees F. Defibrillation should be attempted once, but prolonged CPR may be necessary until the temperature is above this level.

ALS drugs should be used sparingly, since peripheral vasoconstriction may prevent entry into central circulation until temperature is restored. At that time, a large bolus of unwanted drugs may be infused into the heart.

Bradycardia is normal and should not be treated.

If patient has organized monitor rhythm, CPR is currently felt to be unnecessary. In general, even very slow rates are probably sufficient for metabolic demands. CPR is indicated for asystole and ventricular fibrillation.

Hypothermia

Hypothermia generally develops in one of three settings:

Cold water immersion - Cold weather exposure

Subacute cold stress in persons with impaired thermoregulatory function.

Hypothermic patients can be graded into three categories.

Moderate – conscious, mentally alert with intact shivering mechanism. Temperature is usually 94-86 degrees F.

Severe- patients with depressed LOC or coma, which often display some degree of rigidity. Temperature is usually <86 degrees F.

Arrested- patients in cardiopulmonary arrest. Body temperature is usually below 80 degrees F.

B	**HANDLE WITH CARE!** Rough handling might precipitate cardiac arrest. If cardiac arrest develops, treat as normothermic patient. O2 by mask and/or ventilate PRN. Remove cold/wet clothing & replace with blankets. Initiate active re-warming with hot packs Cover patient with warm blankets during transport. All patients should be transported expeditiously but gently.
I_{85}	Establish IV NS
A	Cardiac Monitor
P	Cardiac Monitor For the patients in arrest from hypothermia Treat dysrhythmias as per protocol if temperature is raised to >84°F. BLS - **only** on patients who's temperature is below 84°F.

Patients who appear dead after prolonged exposure to cold air or water should not be pronounced "dead" until they have been rewarmed. Full recovery from hypothermia with undetectable vital signs, severe bradycardia, and even periods of cardiac arrest has been reported.

Rewarming should be accomplished with careful monitoring in a hospital setting, whenever possible. Consider other reasons for altered mental status.

Signs and Symptoms of Hypothermia			Temperature Conversions
Mild	**Moderate**	**Severe**	28* C = 82.4* F
32-35* C	28-32* C	< 28* C	32-29* C = 89.6 - 84.2* F
Slurred speech	Deteriorating responsiveness	Unresponsiveness	33-35* C = 91.4 - 95* F
Mild un-coordination	Cyanosis	Dilated, fixed pupils	36.1* C = 97* F
Shivering	Edema	Ventricular dysrhythmia	37* C = 98.6* F
Decreased judgment	Muscle rigidity, no shivering, Decreased respiratory rate, Bradycardia	Respiratory Arrest	38.3* C = 101* F
			*F=[(*C X 9) / 5] + 32
			*C = [(*F - 32) X 5] / 9

FROSTBITE:

Thawing is extremely painful and should be done under controlled conditions, preferably in the hospital. Careful monitoring, pain medications, prolonged rewarming, and sterile handling are required.

It is clear that partial rewarming, or rewarming followed by refreezing, is far more injurious to tissues than delay in rewarming or walking on a frozen extremity to reach help. Do not rewarm prematurely. Indications for field rewarming are almost nonexistent.

Warming with heaters and stoves, rubbing with snow, drinking alcohol and other methods of stimulating the circulation are dangerous and should not be used.

Wind Speed (mph)	What the Thermometer Reads (degrees F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	WHAT IT EQUALS IN ITS EFFECT ON EXPOSED FLESH											
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
	Little danger of freezing if properly clothed				Danger of freezing Exposed flesh			Great danger of freezing Exposed flesh				

Wind-Chill Index

Weather in the backcountry may change suddenly, affecting the conduct of the rescue and threatening the lives of the rescuers. You must be able to adapt the materials available – clothing, blankets, and patient packaging equipment – to provide a comfortable environment for the patient based on weather and transport conditions. If you are not prepared for the environment you risk being severely injured which will also take you away from patient care.

Dehydration

Due to a number of reasons, many rescuers suffer from dehydration during warm and cold weather. Cold weather causes a feeling of decreased thirst and, therefore, less water intake. You must maintain fluid intake for your patient and yourself to avoid dehydration.

HEAT EMERGENCIES

Assessment

- Perform Patient Assessment
- Remove from the environment
- Obtain core temperature if possible

Heat Exhaustion/Cramps Treatment: BLS

Support ABC's. Obtain core temperature if possible.

Rapidly cool to a temperature of 102 degrees Fahrenheit or less (not to go below 99° F). Cool with water or saline, including head. Direct the patient compartment fan over the patient to promote evaporation.

Transport as soon as possible

Heat stroke is a medical emergency. It is distinguished by altered level of consciousness. Sweating may still be present, especially in exercise-induced heat stroke. The other persons at risk for heat stroke are the elderly and persons on medications, which impair the body's ability to regulate heat. Do not let cooling in the field delay your transport.

Heat Stroke - Treatment:

B	Remove from the environment Apply cold packs to the groin and axillary areas. Continue cooling en route by sprinkling patient with water. Transport as soon as possible.
I_{85}	Establish venous access. Start IV; give 500cc bolus NS, then 20cc/kg/hr
A	Cardiac Monitor
P	Cardiac Monitor Valium 5-10 mg IV/IM for seizures

DROWNING / NEAR-DROWNING

Assessment

- Perform Rapid Trauma Assessment using spinal precautions.
- If patient is hypothermic, respiratory and pulse rates may be slower and more difficult to feel. Check for a minimum of 30 to 45 seconds.
- Be alert for and treat for shock.
- Note and record:
  - Cleanliness of the water,
  - Length of submersion,
  - Age and general health of the victim,
  - Water temperature (be alert for hypothermia)

Diving accident? Water depth? Vital signs and neurologic status.

Lung exam: rales or signs of pulmonary edema, respiratory distress.

NOTES:

- Gastric distension and vomiting are common in near drowning. ***Be prepared!***
- Victims in cold water (below 68°F) can sometimes be resuscitated after 30 minutes or more in cardiac arrest.
- A near drowning victim can develop secondary complications (such as pulmonary edema) and die up to 72 hours after the incident. (15% of deaths are due to secondary complications.)

Treatment:

B	Protect yourself. If trained to do so, rescue the victim from the water (ventilation can take place in the water). If patient was diving or fell, observe cervical spine precautions. Perform CPR, if needed, as you would for any patient in cardiac arrest. If patient has spontaneous respirations, administer O_2 by non-rebreather mask at 10-15 LPM; ventilate and suction as needed. Control any profuse bleeding. Transport ALL near drowning victims to the hospital.
I_{85}	Establish IV NS Protect airway with Combitube if necessary.
A	Cardiac Monitor
P	Secure airway if necessary Consider placement of NG Tube Cardiac Monitor