Chapter 2

Adult Medical Care

Standard Medical Care Procedures

Rationale:

The majority of requests for Emergency Medical Services are nonemergent illness or injuries. The paramedic may consider many of these incidents *routine.* The citizens who request our service will not feel these are *routine.* Remember many patients **are not** good medical historians and may not be able to tell you exactly what is wrong. Good listening skills are essential in the patient interview. ***Expect the unexpected.***

Basic Life Support procedures include a primary survey which includes assessment of immediate life threatening conditions, mental status, vital signs (including palpable body temperature), and maintenance of a patent airway.

Advanced Life Support procedures include establishing an IV, intubation, administering medications, and monitoring the ECG when indicated.

Good patient care includes exercising social skills (a good bedside manner). Personnel are expected to exercise tact with patients, to focus their attention on the patient, and to walk quickly (but not run) when responding to incidents. Many patients (and peers) interpret a relaxed, slow approach to them as a noncaring attitude.

General Adult Care

Level I:

- Assess the scene for hazards.
- Note the patient's environment.
- Wear appropriate Personal Protective Equipment (PPE).
- Provide BLS support (including cervical stabilization as needed).
- Perform a primary survey and provide emergency treatment.
- Perform a secondary survey, treat, and transport.
- Administer oxygen by appropriate device.
- Monitor oxygen saturation if indicated.
- Check a glucose reading if indicated.

Level II:

- Provide ALS support (ECG, IV, Advance airway, including Capnography if indicated).
- Administer medication therapy as needed.

Abdominal Pain/GI Bleed

Rationale:

A differential diagnosis of abdominal pain can be complex. Prolonged evaluation in the field is not appropriate. Suspect a severe underlying problem. Prompt and gentle transport is required.

Assessment Checklist

- Abdominal aneurysm
- Ectopic pregnancy in a female of child bearing age
- Trauma
- Internal hemorrhage (ulcers, etc)
- Peritonitis
- Referred cardiac pain
- Acute appendicitis

Adult Care

Level I:

- Examine for distended abdomen, bowel sounds, referred pain.
- Examine for hemorrhage (unexplained tachycardia, emesis, blood stools, and rigidity).
- Test for orthostatic hypotension.
- Administer oxygen by appropriate device.
- Use Trendelenburg position if patient is hypotensive.
- Assess history of gastrointestinal problems.

Level II:

- Establish an IV, large bore if hemorrhage is suspected.
- Obtain 12-lead ECG *if cardiac etiology suspected.*
- Evaluate the need for advanced airway.
- NS fluid bolus 250mL if hypotensive
- Administer fluid with caution and establish second IV if aortic aneurysm is suspected.
- Aggressive fluid resuscitation if GI bleeding and hypotensive.
- Age greater than or equal to 16 years old. Administer Morphine Sulfate 5 mg IV PRN for pain control. May repeat 5 mg. one time.
- Consider the administration of Fentanyl for pain control; 1 mcg/kg IV/IO/IN – 1 to 2 mcg/kg IN if unable to establish an IV or IO.
- If actively vomiting, Zofran 4mg/IV/IO/IM or Oral Dissolving Troche (ODT) 4mg. Max dose of 4mg.

Level III:

- None

Agitated Patients

Rationale:

Patients with agitated delirium are very difficult to manage: High risk patients with risk management concerns can often lead to injury of EMS personnel if patients are not managed properly. Signs and symptoms include anxiety, agitation, confusion, affect change hallucinations, delusional thoughts, bizarre behavior, combative/violent, and expression of suicidal/homicidal thoughts.

Assessment Checklist

- See Altered Mental Status Assessment Checklist
- Hypoxia
- Alcohol Intoxication
- Medication Effect/Overdose
- Withdrawal Symptoms
- Depression
- Bipolar (manic depressive)
- Schizophrenia anxiety disorders

Level 1:

- Evaluate need for law enforcement
- Remove patient from stressful environment
- Administer oxygen by appropriate device
- Verbal techniques (reassurance, calm, establish rapport).
- Contact Poison Control at 1-800-282-3171 or 1-800-222-1222 if indicated
- Patients who must be restrained should not be placed prone on the stretcher, and a person must be dedicated to monitor the patient's airway

Level II:

- Ketamine 2 mg/kg IM. Maximum per dose 200 mg. May repeat times one in **5 minutes** if uncontrolled combative agitated delirium persists.
- Consider Versed – 4 mg IM. May repeat times one in 15 minutes if uncontrolled combative agitated delirium persists.
- **DO NOT ATTEMPT IV** in the combative patient with uncontrolled agitated delirium.
- Consider Versed – 2mg IV for patient restrained with conventional methods and IV access has been established without difficulty. **May repeat times two to a maximum dose of 6 mg.**

Level III:

- Call medical control if uncontrolled combative agitated delirium persists

Airway Management

Rationale:

Endotracheal intubation is the preferred method to stabilize an airway. Secure a patent airway in all patients with a decreased level of consciousness.

Assessment Checklist

- Hyperventilation
- Airway obstruction
- Cervical trauma
- Airway trauma
- Pulmonary edema
- Overdose
- Anaphylaxis
- Epiglottitis

Adult Care

Level I:

- Assess respiratory effort for rate and quality.
- Open airway (use jaw thrust if suspect cervical injury).
- Place appropriate airway device (oral, nasal, dual lumen tube, or subglottic device).
- Monitor oxygen saturation.
- Administer oxygen by appropriate device.
- Suction airway if indicated.

Level II:

- Establish IV.
- Monitor ECG.
- Administer a nebulizer treatment if indicated.
- Perform Rapid Sequential Induction (RSI) of anesthesia for intubation if indicated (if available).
- Intubate if indicated, oral or nasal.
- Use a dual lumen tube or subglottic device if standard endotracheal intubation is unsuccessful after two attempts.
- Use Magill forceps to remove a foreign body.
- Perform a cricothyrotomy if all other measures are unsuccessful.
- Use ET CO2 and one other airway confirmation device.

Level III

- None

Allergic Reactions

Rationale:

This condition is more common than the serious anaphylactic reaction. Allergic reactions may be treated prior to rapid transport.

Assessment Checklist

- Cardiac dysrhythmia
- Upper airway obstruction
- Lower airway constriction
- Rash, Hives, Edema, Itching
- Hypotension < 90 systolic

Adult Care

Level I

- Apply the anaphylaxis protocol if respiratory obstruction or hypotension is present.
- Administer oxygen by appropriate device.
- Place the patient in a sitting position if not hypotensive.
- Attempt to determine the source of the allergic reaction.
- Assist patient with Benadryl 25 mg. orally if available.
- Assist patient with patient's own Metered Dose Inhaler
- Poison Control #1-800-222-1222 or 1-800-282-3171.

Level II:

- Establish IV/IO
- Obtain 12 Lead ECG
- Monitor ECG.
- Evaluate the need for advanced airway.
- Administer Benadryl 0.5 mg/kg IV or IM (max 50mg).
- Administer Albuterol as indicated.
- Observe for the development of anaphylaxis and dysrhythmia

Level III:

- None

Altered Mental Status

Rationale:

Assessment of the patient's mental status is a component of the primary survey. An altered mental status could be caused by a variety of reasons and should be noted using GCS and AVPU.

Assessment Checklist

- Seizure
- Hypovolemia
- Hypoxia
- Hypoglycemia or hyperglycemia
- Trauma
- Overdose
- CVA or TIA
- Dysrhythmia
- Delirium Tremens
- Emotional disorder or pseudo-syncopal episode

Adult Care

Level I:

- Evaluate need for law enforcement.
- Administer oxygen by appropriate device.
- Contact Poison Control at 1-800-282-3171 or 1-800-222-1222 if indicated.
- Patients who must be restrained should be placed SUPINE on the stretcher, and a person must be dedicated to monitor the patient's airway.
- Check a blood glucose level.

Level II:

- Establish IV.
- Monitor ECG.
- Obtain 12 lead ECG
- Evaluate the need for advanced airway.
- If glucose level is <60 mg/dl, follow Hypoglycemia Protocol.
- Administer Narcan 2 mg IV in increments of 0.5mg, or Nasal Atomized if no IV access as needed for respiratory depression.
- Repeat as needed.

Level III:

- None

Anaphylaxis

Rationale:

Anaphylaxis is rare and life threatening. It may be mistaken for cardiac arrest by the time the EMS provider arrives. Anaphylaxis carries a high mortality rate and may become resistant to management if treatment is delayed. Exercise caution to avoid confusing anaphylaxis and an allergic reaction.

Assessment Checklist

- Dysrhythmia
- Hypoxia
- Hypotension
- Airway obstruction secondary to edema

Adult Care

Level I:

- Assess oxygen saturation.
- Assess for airway edema, stridor, and wheezing.
- Administer oxygen by appropriate device.
- Assist with administration of Epi-Pen if available. Leave Epi-Pen in place 5 seconds.
- Assist patient with Benadryl 50 mg. orally if able to swallow or liquid equivalent.

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- Administer albuterol via nebulizer mask 2.5 mg for mild distress.
- Administer epinephrine 1:1,000 0.3 ml SQ for moderate respiratory compromise.
- Administer a fluid challenge 250-500mL NS if patient is hypotensive.
- Administer epinephrine 0 .1 mg 1: 10,000 IV, repeat as needed to a maximum of 0.5 mg for extreme respiratory compromise (complete or almost complete airway obstruction), or profound hypotension.
- Administer Benadryl 0.5 mg/kg IV or IM (50 mg max).
- Administer Solu-Medrol 125 mg IV or IM
- See cardiogenic shock protocol.

Level III:

- Additional Epinephrine IV as ordered.

Asthma

Rationale:

Asthma is a common disease that may rapidly become life threatening. Most asthma patients treat themselves, but occasionally require EMS intervention. Asthmatic patients usually wait until their self-treatments fail before making an EMS request. This increases their chance of presenting in acute distress or status asthmaticus. Rapid recognition and prompt treatment is ***crucial***.

Assessment Checklist

- Allergic reaction
- Congestive heart failure
- Foreign body obstruction
- Exposure to respiratory irritants
- Pneumonia

Adult Care

Level I:

- Assess oxygen saturation.
- Assess for airway edema, stridor, and wheezing.
- Administer oxygen by appropriate device.
- Asist patient with patient's own Metered Dose Inhaler.

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- Administer Albuterol 2.5 mg and Atrovent 0.5 mg (if available) combined in a nebulizer. This may be administered (as needed) before vascular access.
- Albuterol may be repeated as needed.
- Atrovent is a single dose only.
- Consider 0.1mg 1: 10,000 Epinephrine IVP for extreme respiratory compromise.
- Administer Solu-Medrol 125 mg IV or IM.
- Apply CPAP if patient's respiratory status is not improving.

Level III:

- Additional Epinephrine as ordered.

Carbon Monoxide Inhalation

Rationale:

Carbon monoxide poses a threat to the patient and the rescuer. Use caution in assessing the CO inhalation patient. Normal diagnostic methods such as SaO2 and capillary refill may display false positives. This exposure interferes with oxygen exchange on the cellular level. Always consider this exposure in any kind of airway burn or smoke inhalation.

Assessment Checklist

- Hypoxia of unknown cause
- CNS disorder

Adult Care

Level I:

- Remove patient from source of exposure. Take precautions against toxic environment.
- Assess for signs including vomiting, altered mental status, seizure, flushing, cyanosis, or cherry red skin (late sign).
- Assess for symptoms including headache and tinnitus
- Administer 100% oxygen by appropriate device
- Keep patient quiet to minimize oxygen demand

Level II:

- Establish IV
- Monitor ECG
- Evaluate the need for advanced airway
- Draw blood. Cover blood tubes with a cold pack
- If wheezing, administer Albuterol 2.5 mg via nebulizer. This may be repeated as needed.
- Transport to the closet emergency department

Level III:

- None

NOTE: If smoke inhalation suspected consider use of Cyano Kit

Cerebrovascular Event (Stroke/TIA)

Rationale:

Rapid identification of possible stroke victims is essential. “Time is brain” applies to the stroke victim in the same way that “time is muscle” applies to AMI patients. Rapid identification and transportation of the stroke victim is crucial. Notifying the emergency department of a “Stroke Alert” may speed patient treatment upon arrival to the hospital.

Assessment Checklist:

- Hypoglycemia/Hyperglycemia
- Chemical exposures
- Head injuries- Any patient with an injury to the head that is showing stroke like symptoms must have the trauma ruled out first.
- CNS disorders

Level I (BLS Care):

- Monitor oxygen saturation.
- Check capillary blood glucose level.
- Provide oxygen by nasal cannula **only if pulse oximetry reads less than 92%** or chest pain, shortness of breath, or tachypnea.
- Perform focused history and physical assessment, including neurological assessment.
- Establish onset of signs/symptoms.
- Do not delay transport for detailed secondary assessment.
- •If the Cincinnati Pre-hospital Stroke Assessment is positive, you will now conduct the VAN Stroke Assessment to detect large vessel occlusions (LVO) (refer to next page for screening checklist).
- •If time of onset of symptoms is less than 3.5 hours and no contraindications to TPA (Van positive or negative): transport to a primary stroke center
- *If time of onset of symptoms is less than 3.5 hours and the pt has contraindications to tpa - Transport to Comprehensive Stroke Center or stroke center capable of providing Endovascular Therapy.
- •If time of onset of symptoms is greater than or equal to 3.5 hours but less than 6 hours AND the patient is VAN positive: Transport to Comprehensive Stroke Center or stroke center capable of providing Endovascular Therapy.
- •If time of onset of symptoms is greater than or equal to 3.5 hours but less than 6 hours AND the pt is VAN negative: transport to a primary stroke center
- •If time of onset of symptoms is greater than 6 hours, transport to Primary StrokeCenter.

In summary, the ONLY pts that are diverted away from a primary stroke center are those :

- Under 3.5 hrs with a contraindication to TPA
- > 3.5 hrs and < 6 hrs with signs or symptoms consistent with a LVO (Van +)

- **When calling a “Stroke Alert,” be sure to convey to the hospital if the patient is VAN Positive (Large Vessel Occlusion) or VAN Negative.**

- Elevate head of bed 30°.

Level II (ALS Care):

- Establish IV/IO. Start two IV lines.
- Do a blood draw for hospital if tubes available. Each tube should be labeled with patient's legal name, DOB, the date, time drawn, and Medic's last name.
- Provide continuous cardiac monitoring.
- Apply Nasal capnography.
- Evaluate the need for advanced airway *(see airway management protocol).*
- If glucose check is less than 60mg/dl, administer D50 25 GmIV/IO.
- When notifying "Brevard" of a "Stroke Alert," the paramedic shall include if the VAN assessment is positive or negative.
- Complete Stroke Alert form and have a copy available for the receiving facility.
- Air medical transport if the patient is north of the Pineda Causeway (mainland and beachside), south of Malabar Road (mainland), south of Station 64 (beachside) and west of I-95 (county- wide).

Level III (ALS Care):

- None

Thrombolytic Contraindications:

- Anticoagulants (Coumadin (Warfarin), Xarelto, Pradaxa, Eliquis, Savaysa, Lovenox, Fragmin, Heparin, Arixtra,)
- Recent Stroke (3 months)
- Recent Head Trauma (3 months)
- History of brain tumor, AVM, or aneurysm
- Active bleeding
- Recent spinal or intracranial surgery
- Worst headache with elevated blood pressure.

Stroke Screening Assessment Tool (FAST EXAM)

CINCINNATI STROKE SCALE (FAST)
(CHECK IF ABNORMAL)

[ ] F (face) FACIAL DROOP: Have patient smile or show teeth. (Look for asymmetry)
Normal: Both sides of the face move equally or not at all
Abnormal: One side of the patient's face droops

[ ] A (arm) MOTOR WEAKNESS: Arm Drift (close eyes, extend arms, palms up)
Normal: Remain extended equally, or drifts equally or does not move at all
Abnormal: One arm drifts down when compared with the other

[ ] S (speech) "You can't teach an old dog new tricks" (repeat phrase)
Normal: Phrase is repeated clearly and correctly
Abnormal: Words are slurred (dysarthria) or not expressed clearly

[ ] T TIME OF SYMPTOM ONSET:_____TIME ELAPSED_____

Destination: Onset less than 3 hours transport to facility capable of IV Thrombolytics within 3 hour window

Unconscious patients: Provide a central painful stimulus (sternal rub or pinch trapezius) to evaluate symmetry of grimace: pinch medical aspect (of each extremity) to evaluate symmetry of abduction.

Stroke Severity Assessment Tool (VAN Exam)

Time of on set: < 3 hr, > 3 hr or unknown

Is ARM weakness present?

☐ Yes Continue the VAN exam

☐ No. Patient is VAN negative. Stop VAN Exam.

	Yes	No
Visual Disturbance?		
Aphasia?		
Neglect?		

If patient has **any degree of weakness PLUS any one of the below:**
Visual Disturbance (Assess field cut by testing both sides, 2 fingers right, 1 left)
Aphasia (Inability to speak or understand. Repeat and name 2 objects, close eyes, make fist)
Neglect (Forced gaze to one side or ignoring one side, touching both sides)
This is likely a large artery clot (cortical symptoms) = VAN Positive

FLORIDA EMERGENCY MEDICAL SERVICES
STROKE-TRIAGE ASSESSMENT TOOL

DATE & TIMES

Date:	Dispatch Time:	EMS Arrival Time:	EMS Departure Time:	ED Arrival Time:

BASIC DATA

Patient Name		Age _ _ Gender _____
Witness(es) Name		Witness(es) Phone (Cell Phone #, Home #, Work #)
Last Time Known To Be at Baseline Neuro Status		☐Unknown ☐Wake Up
Blood Glucose Level		

Stroke Scale

Stroke Screening Tool

☐ Im**B**alance ☐ **E**yes (Loss/Double Vision) ☐ **F**acial Droop ☐ **A**rm and/or Leg Drift ☐ Abnormal **S**peech Scale used: ☐ CPSS ☐LAPSS ☐BE-FAST Other:_____

Stroke Severity Tools [Predictive of Large Vessel Occlusion (LVO)]

☐ LAMS ☐ RACE ☐ C-STAT ☐ FAST-ED ☐VAN

☐ Other:_____ _____ Numerical score:_____ ____ Cortical signs (circle): Y N

(Gaze, Aphasia and/or Neglect)

STROKE ALERT CRITERIA

OF THE FOLLOWING CRITERIA, **IF ANSWER IS YES TO ALL, *CALL STROKE ALERT***	**YES**	**NO**
1. Onset <24 hours including unknown onset and wake up stroke?		
2. Any abnormal focal neurological findings on stroke scale and/or neurological exam?		
3. Absence of head trauma causing deficits?		
4. No return to baseline after hypoglycemic treatment?		

Additional Stroke Alert Criteria: IF ANY ABNORMAL, CALL STROKE ALERT		**✓ *IF ABNORMAL***
Suspicion of head bleed (SAH/ICH)	• Sudden worst-ever headache • Sudden & unexplained decreased level of consciousness • Consider when: onset of symptoms after activity, nausea/vomiting, neck stiffness, acute onset GCS<15 and/or significantly elevated blood pressure	

STROKE TRIAGE CRITERIA

FOR ALL STROKE ALERTS: TRANSPORT EMERGENTLY to closest appropriate stroke center. (If multiple stroke center destinations exist, consideration should be made for triage to the highest-level stroke center, not exceeding an **additional transport time of approximately 20 minutes.**)

CSC/TSC Priority Criteria: If any of the following items are checked **TRANSPORT EMERGENTLY to a CSC/TSC** if available within approximately **45 to 60 minutes**.

1. Onset > 3.5 and < 24 hours, including wake up stroke and unknown onset stroke	
2. High Suspicion of Major Stroke / LVO on Stroke Severity Scale (i.e. +Cortical signs)	
3. High suspicion of SAH/ICH	
4. IV Lytic Contraindications (e.g. blood thinners, recent surgery, prior head bleed etc.)	

BE-FAST = Balance Eyes Face Arm Speech Time CSC = Comprehensive Stroke Center
CPSS = Cincinnati Pre-Hospital Stroke Severity scale
FAST-ED = Field Assessment Stroke Triage for Emergency Destination GCS = Glasgow Coma Scale
LAMS = Los Angeles Motor Scale VAN = Vision Aphasia Neglect
LAPSS = Los Angeles Pre-Hospital Stroke Score LVO = Large Vessel Occlusion
PSC = Primary Stroke Center
RACE = Rapid Arterial Occlusion Evaluation TSC= Thrombectomy Capable Stroke Center ASRH = Acute Stroke Ready Hospital

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Cerebrovascular Event: Subarachnoid Hemorrhage
(Stroke Alert with Hemorrhage)

Rationale:

Of the 800,000 strokes annually in the US, 56,000 of these are subarachnoid hemorrhages (SAH). The average age for SAH is <55 and the mortality rate is 50%. 15% of these patients die before reaching the hospital. SAH is bleeding around the brain as the result of a partial or complete rupture in a cerebral vessel (aneurysm). The standard of care for treating this time critical brain hemorrhage is rapid transport to a hospital that provides interventional neurological care. Classic symptoms are acute onset of "the worst headache of my life" with transient loss of consciousness, neck pain and often times, high blood pressure. These symptoms commonly follow exertion. Patients taking anticoagulation medications are at a higher risk of SAH. The SAH Stroke Alert protocol below is based on the Ottawa SAH rule.

Assessment Checklist:

- Anticoagulation Therapy
- Neck Pain
- Hypoglycemia
- Seizure
- Altered Mental Status
- Syncope
- Hypertension

Criteria for Stroke Alert with Hemorrhage must include all of the following:

1. **Age >40 years**
2. **"Thunderclap" headache (peak intensity immediately)**
3. **Symptoms of neck pain or stiffness**
4. **Witnessed loss of consciousness**
5. **Onset during exertion**
6. **On exam, limited neck flexion with pain and stiffness**
7. **Plus one of the following:**
    - **GCS < 12**
    - **Seizure at onset**
    - **SBP >180 mmHg**
    - **Nausea and vomiting**

Then Stroke Alert with hemorrhage and transport to Comprehensive Stroke Center or stroke center capable of providing Endovascular Therapy.

Level I (BLS Care):

- Monitor oxygen saturation.
- Check capillary blood glucose level.

Cerebrovascular Event: Subarachnoid Hemorrhage (cont)
(Stroke Alert with Hemorrhage)

Level I (BLS Care):

- Provide oxygen by nasal cannula **only if pulse oximetry reads less than 92%** or chest pain, shortness of breath, or tachypnea.
- Perform focused history and physical assessment, including neurological assessment.
- Establish onset of signs/symptoms.
- Do not delay transport for detailed secondary assessment.

Level II (ALS care):

- If Stroke Alert Criteria met, call a "**Stroke Alert with hemorrhage**"
- Treat nausea/vomiting with ondansetron 4 mg IV/PO
- Establish **TWO** IVs/IOs.
- Provide continuous cardiac monitoring.
- Apply Nasal capnography.
- Evaluate the need for advanced airway *(see airway management protocol).*
- If glucose check is less than 60mg/dl, administer D50 25 Gm IV/IO.
- Notify "Brevard" of a **Stroke Alert with hemorrhage**.
- Complete Stroke Alert form and have a copy available for the transport unit.

Level III (ALS care):

- None

Childbirth Emergencies

Rationale:

Childbirth is a normal process. Abnormal presentations may require rapid intervention. Most serious hazards of delivery are treatable through prompt intervention.

Assessment Checklist

Be aware for the following complications: shock, abnormal presentation – breech, limb, or prolapsed cord, placenta previa, abruption placenta, spontaneous abortion (miscarriage), uterine rupture, and fetal distress related to drug or alcohol abuse.

Adult Care

Level I:

Mother

- Administer oxygen by appropriate device.
- Be prepared to manage shock.
- Identify gravida, para, contraction timing and duration, prenatal care or lack of it, past or known complications, medication or drug use, and last menstrual period.
- If the patient is hypotensive, consider placing the patient on her left side.
- Deliver the baby as indicated (crowning present).
- Manage complications as needed.
- Administer uterine massage after delivery. Put baby to breast.

Baby

- Suction and maintain a patent airway.
- Administer oxygen by appropriate device.
- Dry and keep the baby warm.
- Perform APGAR scoring at one minute and five minute intervals post delivery.
- Observe the airway for meconium and fluids
- Glucose reading if APGAR < 9

Level II:

- Meconium suctioning if indicated.
- Establish IV at T.K.O. rate. Fluid challenge if hypotension not corrected by BLS treatment
- Monitor ECG.
- Evaluate the need for advanced airway.

Level III:

- Contact Medical Control for any unusual complication and presentations.

Chronic Obstructive Pulmonary Disease

Rationale:

Patients frequently present with C.O.P.D. Proper management may shorten the patient's hospital stay and distress. Treatment is directed at increasing oxygen delivery without decompensating the patient's respiratory drive.

Assessment Checklist

- Pulmonary edema
- Pneumonia
- Pneumothorax
- Status Asthmaticus

Adult Care

Level I:

- Assess respiratory status and effort.
- Administer oxygen by appropriate device.
- Interview patient regarding history of respiratory infection, productive cough, ventilator use, and hospitalizations.
- Place the patient in a position of comfort

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- Administer Albuterol 2.5 mg and Atrovent 0.5 mg (if available) combined in a nebulizer. You may administer nebulized drugs prior to vascular access.
- Repeat Albuterol as needed.
- Atrovent is a single dose only.
- Administer Solu-Medrol 125 mg IVP (if available).
- Apply CPAP if the patient is not improving with Albuterol and oxygen.

Level III:

- None

Diabetic Emergencies (Hyperglycemia)

Rationale:

The hyperglycemia patient may suffer from severe dehydration and hyperosmolar coma. Hyperglycemic emergencies have a slow onset of symptoms. The hypoglycemic and hyperglycemic patient may both suffer a decreased level of consciousness. Both conditions may be life threatening.

Assessment Checklist

- Sepsis
- Hypoglycemia
- Cerebrovascular event
- CNS disorder

Adult Care

Level I:

- Assess for Kussmaul respirations.
- Administer oxygen by appropriate device.
- Inquire of the conscious patient about polyuria, polydipsia, and polyphagia.
- Check a blood glucose level.

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- IV Normal Saline rapid infusion if patient is dehydrated (250 ml. bolus followed by 1 liter/hour drip).

Level III:

- None

Diabetic Emergencies (Hypoglycemia)

Rationale:

Acute hypoglycemia (or insulin shock) may very quickly cause brain damage and must be rapidly treated. Patients who are treated for insulin shock frequently recover consciousness rapidly and refuse transportation. Do not delay treatment because of this possibility. Hypoglycemic emergencies have a rapid onset.

Corrective measures for hypoglycemia are highly successful. The patient's mental condition may deteriorate and seizure activity or coma may develop. Some patients become agitated, develop psychotic behavior or cerebrovascular event like symptoms such as hemiplegia, paresthesia or cranial nerve palsy. Always suspect hypoglycemia in any patient with an unexplained altered mental status.

Assessment Checklist

- Overdose and substance abuse, including alcohol
- CNS disorder
- Hypothermia
- Cerebrovascular event
- Sepsis

Adult Care

Level I:

- Assess for last insulin injection and food intake.
- Administer oxygen by appropriate device.
- Assist administering oral glucose, gel or paste if conscious.
- Check a blood glucose level.
- Assist administering oral glucose, gel, or paste if the patient is conscious, able to control own airway, and glucose is below 60.

Level II:

- Establish IV.
- Monitor ECG.
- D10 100ml or 250ml IV/IO if glucose is < 60 mg. Infuse until mental status returns to baseline.
- If unable to establish IV and glucose < 60 mg / dl, administer Glucagon 1 mg IM or SQ (if available).

Level III

- None.

Environmental Cold Emergencies

Rationale:

Cold related emergencies are possible. These situations often involve water. The wide range of temperatures between day and night can cause problems for the unprepared. Use of alcohol and various drugs can affect how a patient reacts to cold. The elderly and young are also particularly susceptible to hypothermia.

Assessment Checklist

- Overdose and substance abuse, including alcohol
- Hyperglycemia / hypoglycemia
- Head trauma
- CNS disorder
- Cerebrovascular event

Adult Care

Level I:

- Assess for shivering, lethargy, muscle stiffness, mental status changes, discoloration of skin, and numbness.
- Remove wet clothing and protect patient against heat loss and wind chill.
- Place patient in horizontal position avoiding rough movement and excess activity.
- Completely dry patient and cover with insulated blankets.
- Administer oxygen by appropriate device.

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- Warm IV fluids with hot packs.

Level III:

- None.

Environmental Heat Emergencies

Rationale:

Cooling the patient suffering a heat emergency protects the body and CNS from possible permanent damage. Careful evaluation and a good history of the event are essential. Be aware that some people are more sensitive to heat than others, with the elderly and pediatric patient being the most. When evaluating these patients, assess the patient's environmental conditions.

Assessment Checklist

- Heat cramps, heat exhaustion, heat stroke
- Hyperglycemia / hypoglycemia
- Head trauma
- CNS disorder
- Cerebrovascular event
- Malignant hypothermia

Adult Care

Level I:

- Move patient to cool environment and remove clothing.
- Place the heat exhaustion patient in a supine position with feet elevated.
- Place the heat stroke patient in semi-reclining position (with head elevated 15-30 degrees' if normotensive).
- Sponge with cool water or cover with a wet sheet and fan the patient.
- Apply cold packs to lateral chest wall, groin, axilla, carotid arteries, temples and behind knees if rapid cooling is required.
- Administer oxygen by appropriate device.

Level II:

- Establish IV.
- Monitor ECG.
- Evaluate the need for advanced airway.
- If systolic BP < 90 mm Hg, administer fluid boluses in increments of 250 ml, to titrate systolic BP of > 90 mm Hg.

Level III:

- None

Hypertensive Emergencies

Rationale:

Hypertensive emergencies not treated can lead to other severe conditions including myocardial infarction, pulmonary edema, and inter-cranial hemorrhage. Aggressive treatment may worsen these conditions. Aggressive treatment should be reserved for management in the Emergency Department. Prehospital treatment is directed to the underlying cause and symptoms, i.e. chest pain or shortness of breath. **Hypertensive emergencies occur when systolic pressure >220 mm / Hg and / or a diastolic pressure >120 mm / Hg with signs and symptoms of neurological compromise, chest pain, or shortness of breath.**

Assessment Checklist

- Emotional stress
- Cerebrovascular event
- Pain
- Drug overdose
- Myocardial infarction or angina

Adult Care

Level I:

- Perform focused history and physical assessment including neurological assessment.
- Administer oxygen by appropriate device.
- Attempt to reduce patient anxiety.

Level II:

- Establish IV.
- Obtain 12-lead ECG.
- Evaluate the need for advanced airway.
- See Chest Pain protocol.
- If neurological changes, see Cerebrovascular protocol.

Level III:

- None.

Overdose

Rationale:

Not all cases of poisoning or overdose are life threatening when the Fire Rescue Team arrives. Use calm management and be prepared for a violent interaction with the patient. Take protective measures and use law enforcement to assist as needed.

Assessment Checklist

- Seizure
- Hypoxia
- Hypoglycemia or hyperglycemia
- CVA or TIA
- Dysrhythmia
- Delirium Tremens
- Emotional disorder or pseudo-syncopal episode

Adult Care

Level I:

- Secure all possible sources of the overdose and transport them to the hospital with the patient.
- Remain particularly alert to early signs of airway compromise and hypoglycemia.
- Administer oxygen by appropriate device.
- Monitor for rapid changes in condition and behavior.
- Patients who must be restrained should be placed SUPINE on the stretcher, and a person must be dedicated to monitor the patient's airway.
- Contact Poison Control at 1-800-282-3171 or 1-800-222-1222.
- Check a blood glucose level.
- If unresponsive, and opioid OD is suspected, administer Narcan 2.0 mg. via MAD (Mucosal Atomization Device) in increments of 0.5 mg.

Level II:

- Establish IV.
- Monitor ECG and 12 lead EKG.
- If glucose is < 60 mg / dl, follow Hypoglycemia Protocol.
- If unresponsive and / or respirations are compromised, administer Narcan 2 mg IV in increments of 0.5mg.
- May repeat as needed for Methadone or Darvocet overdose. If moderately obtunded, incremental doses of 0.5 mg may be prudent since immediate narcotic withdrawal syndromes may be precipitated. Some agents such as Propoxyphene/ Darvon may require higher doses of Narcan (up to 10 mg) to reverse narcotic effects.
- If IV access is not available and patient meets above criteria, administer Narcan 2mg via nasal atomizer.

Level III:

- None

Pain Management

Rationale:

Pain Management is an important part of patient care. Some patients, either by a medical condition or traumatic injury, require pre-hospital management of their pain to improve a medical condition and/or decrease anxiety. This protocol should be used with discretion or receiving physician direction. **Pregnant patients 32 weeks or greater in gestation or in active labor should not receive medications for pain control.**

Assessment Checklist:

- Various causes of acute pain

Level I:

- Immobilize, elevate and apply ice to injured area.
- Place patient in position of comfort
- Administer oxygen by appropriate device.
- Evaluate the possible use of other medication and/or alcohol during interview.

Level II:

- Establish IV.
- Monitor EKG
- Age greater than or equal to 16 years old. Administer Morphine Sulfate 5 mg IV PRN for pain control. May repeat 5 mg. one time.
- OR Fentanyl (if available) PRN for pain management up to 1 mcg /kg IV/IO/IM or 1-2 mcg/kg IN if unable to establish and IV/IO, titrated to effect.

Level III:

- Administration of Morphine Sulfate beyond 10 mg.

Poisoning

Rationale:

Poisonings by substances other than medications can present with a variety of symptoms. Sometimes the victim will present with a different chief complaint and be unaware of being poisoned. The rescuer must perform a careful and complete interview. **Poisonings may include pesticides, petroleum, and cleaning solvents, either by ingestion, inhalation, or absorbed.**

The rescuer must be alert to the possible need to manage the scene and the patient as a hazardous materials exposure and to prevent contamination of the rescuers and the apparatus.

Assessment Checklist

- Seizure
- Hypoxia
- Hypoglycemia or hyperglycemia
- CVA or TIA
- Dysrhythmia
- Delirium Tremens
- Emotional disorder or pseudo-syncopal episode

Adult Care

Level I:

- Remove the victim from the source (rescuer should wear appropriate PPE).
- Decontaminate the victim as needed.
- Assess for SLUDGEM syndrome.
- Administer oxygen by appropriate device.
- Suction if indicated.
- Do not use a helicopter to transport any hazardous materials exposure patient.
- Contact Poison Control at 1-800-282-3171 or 1-800-222-1222.

Level II:

- Establish an IV of normal saline at a T.K.O. rate.
- For the organophosphate or carbamate poisoning victim, administer Atropine 2 mg at 5 min. intervals until symptoms are controlled.

Level III:

- Haz-Mat Protocols as ordered by Medical Control.

Seizure Disorder

Rationale:

Termination of seizures protects patients from hypoxia that can cause brain injury. Frequently the rescue team never witnesses the seizure activity. This makes careful information gathering and observation important.

Assessment Checklist

- Drug ingestion or alcohol withdrawal
- Cerebrovascular event
- Hypoglycemia
- Febrile illness
- Eclamptic pregnancy
- Trauma

Adult Care

Level I:

- Passively protect the patient from self-injury.
- Administer oxygen by appropriate device.
- If the patient was not protected from injury during the activity, immobilize the patient's spine.
- Check a blood glucose level.

Level II:

- Establish IV.
- Monitor ECG.
- If blood sugar is < 60 mg / dl, follow Hypoglycemia Protocol.
- Administer Versed IV in 2 mg increments. Maximum dose 5 mg.
- If actively seizing upon presentation, consider nasal or IM Versed 1-2mg while attempting IV access.
- Consider RSI for airway maintenance in status epileptics.

Level III:

- If seizure is eclampsia related, then administer magnesium sulfate 2 Gm IV (Use caution to dilute before administration)

Sepsis / Sepsis Alert

Rationale:

Sepsis is a rapidly progressing, life threatening condition due to systemic infection. Severe sepsis must be recognized early and treated aggressively to prevent progression to shock and death. Sepsis may be identified when the following markers of the Systemic Inflammatory Response Syndrome (SIRS) are present in a patient with:

1. Suspected Infection
2. Temperature > 38° C (100.4° F) OR < 36° C (96.8° F
3. Respiratory Rate > 20 breaths/min
4. Herat Rate > 90 beats/min

In addition to physiologic markers of SIRS, severe sepsis may cause hypoxia and inadequate organ perfusion, resulting in severe metabolic acidosis marked by elevated blood lactate levels and decreased ETCO2 levels (measured by capnography). Sepsis is a bacterial (occasionally viral) infection spreading into the blood stream, causing fever. Severe sepsis and septic shock are a result of unchecked bacterial growth causing vasodilation with an associated decrease in end organ perfusion. Decreased mental status, hypoxia with respiratory failure, renal insufficiency, and/or severe hypotension (distributive shock) requires large amounts of IV fluid infusion and vasopressor agents to decrease rapid morbidity and mortality.
The purpose of a Sepsis Alert is to provide pre-arrival Emergency Department notification in order to facilitate rapid assessment and treatment of a suspected severe sepsis patient.

Assessment Checklist:

1. **Sepsis Alert Criteria**

   Temperature > 38° C (100.4° F) OR < 36° C (96.8° F) AND one of the following:
   - ETCO2 ≤ 25 mmHg or POCT lactic Acid > 2.0
   - Hypotension, SBP < 90mmHg and MAP < 65mmHg
   - Decreased level of consciousness (especially in the elderly)

2. Suspected infection:
   - Decreased/altered level of consciousness
   - Immunocompromised, diabetics, patients on long term steroids
   - Indwelling catheters
   - Surgery in the last 6 weeks

Level I (BLS Care):

- Administer oxygen by appropriate device to maintain an O2 sat above 95%.
- Check capillary blood glucose level.
- Record the patient's temperature

Sepsis / Sepsis Alert (cont)

Level II (ALS care):

- Full ALS assessment and treatment.
- Initiate a Sepsis Alert to the receiving hospital through dispatch. Provide them with the patient's age, sex, ETA, temperature, blood pressure if hypotensive, and ETCO2.
- Do a blood draw for hospital if tubes available. Each tube should be labeled with patient's legal name, DOB, the date, time drawn, and Medic's last name.
- Establish a large bore IV or IO. NORMAL SALINE: 1 liter, regardless of blood pressure. Assess lung sounds every 500cc. Total amount of IVF should not exceed 2000 ml (500ml if hemodialysis or CHF patient). If an IO is established the humeral head is preferred site.
- Establish a secondary large bore IV.
- Continuous cardiac monitoring.
- Obtain point of care testing lactic acid level (if available) and report with the sepsis alert.
- Apply nasal capnography and report with sepsis alert.
- Evaluate the need for advanced airway (see ***airway management protocol***).
- If intubated, sedate with Versed IV 1-2 mg.
- Obtain a 12 lead ECG.
- If systolic BP remains < 90 mmHg after or MAP <65 mmHg after a 2000ml fluid bolus, administer vasopressor agents.
- Norepinephrine 8-16mcg/min or Dopamine 5-10mcg/min if available titrated to maintain systolic BP > 100 mmHg.

Level III (ALS Care):

- Call medical control before administering additional fluid boluses or vasopressor agents if hemodialysis or congestive heart failure patient.

Sickle Cell Anemia

Rationale:

Sickle Cell Anemia interferes with the normal delivery of oxygen at the cellular level and may require emergency intervention.

Assessment Checklist

- History of Sickle Cell Anemia
- Priapism
- Acute myocardial infarction / angina
- Unexplained pain

Adult Care

Level I:

- Assess the patient for large muscle mass pain, chest pain, and severe dyspnea.
- Administer oxygen by appropriate device.
- Keep patient as quiet as possible to minimize oxygen demand.

Level II:

- Establish IV.
- Obtain 12-lead ECG.
- Administer a fluid bolus of 250 ml and continue IV at a TKO rate.
- Administer Albuterol 2.5 mg by nebulizer for the wheezing patient. Repeat as needed.
- Refer to the Chest Pain Protocol for any symptoms, chief complaint, or 12-lead ECG evaluation that suggests AMI.

Level III:

- Contact Medical Control for pain management.

Syncope

Rationale:

Patient presentation with sign, symptoms, or history of unexplained and brief (seconds) loss of consciousness which does not appear to be related to overdose, CVA or other causes which might be treated under a specific protocol. Unexplained syncope may be the first clue of a serious underlying condition, especially in instances of pulmonary embolism and dysrhythimias. Syncope could be caused by a variety of reasons and should be assessed using GCS and AVPU.

Assessment Checklist

- Dysrhythimias
- GI Bleed
- Ectopic Pregnancy
- Hypoglycemia or hyperglycemia
- Trauma (if associated or questionable fall with syncope)
- Hypotension
- Overdose
- CVA or TIA
- Delirium Tremens
- Emotional disorder

Adult Care

Level I:

- Spinal immobilization if associated or questionable fall with syncope
- Administer oxygen by appropriate device.
- Vital Signs – Orthostatic BP
- Place Patient in Trendelenberg position
- If patient is pregnant place in left lateral recumbent position
- Check a blood glucose level.

Level II:

- Consider IV Normal Saline KVO or Saline Lock
- Monitor and obtain 12 Lead ECG

Level III:

None

NOTE: If patient presents or has S/S of blood glucose < 60, cardiac issues, stroke, seizures, hypotension, nausea/vomiting, diarrhea or altered mental status. Go to appropriate protocol.

Vomiting

Rationale:

By disrupting the stimulus to vomit, and reducing nausea, we can make the patient more comfortable during transport. As well, we can reduce the chance of aspiration due to excessive vomiting, and increase the effectiveness of pain management medications administered pre-hospital.

Assessment Checklist

- Vomiting caused by chemotherapy, narcotic pain medication, infectious disease, chest pain or other etiologies.
- Be sure to treat the primary signs/symptoms such as chest pain, hypotension, dyspnea, etc., prior to treating emesis.

Adult Care

Level I:

- Place the patient in a position of comfort.
- Administer oxygen by appropriate device.

Level II:

- Establish IV.
- Monitor ECG.
- Administer Ondansetron (Zofran) 4mg IV or ODT, may repeat x 1 dose in 2-5 minutes, if needed.

Level III:

- None