

ABDOMINAL PAIN

- I. Specific Information Needed (subjective information):
 - A. Pain: nature, duration, location, radiation; onset sudden or gradual.
 - B. Associated symptoms: nausea, vomiting (bloody or coffee-ground), diarrhea, constipation, melena (tarry or bloody stool), urinary difficulties, menstrual history, fever, postural hypotension, referred shoulder pain.
 - C. History: previous trauma, abnormal ingestion, medications, known diseases, surgery.

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Abdomen: bruising, tenderness, guarding, rebound tenderness, rigidity, bowel sounds, distention, pulsating mass.
 - C. Emesis: type, amount.
 - D. Equality of peripheral pulses on suspected aneurysm.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Position of comfort. Place supine if trauma or hypotension/syncope.
 - C. NPO (nothing by mouth).
 - D. If vitals are unstable or pain is severe or mechanism of injury warrants or you suspect GI bleeding:
 1. Oxygen therapy
 - E. Monitor vitals.

- IV. Specific Precautions:
 - A. Abdominal pain may be the first warning of catastrophic internal bleeding (ruptured aneurysm, liver, spleen, ectopic pregnancy, etc.). Since the bleeding is not apparent, you must think of volume depletion and monitor patient closely to recognize early shock.
 - B. The patient's c/c of "abdominal pain" may in fact be cardiac-related. Maintain a high index of suspicion, especially if the pain is epigastric and patient is in the cardiac age group.

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ALLERGIC REACTIONS

- I. Specific Information Needed (subjective information):
 - A. Present history: when last well, onset and progression of present state; exposure to antigen (e.g., bee sting, penicillin, seafood, peanuts, etc.) and what route of exposure (e.g., orally, IM or IV).
 - B. Past history: known allergies, prior allergic reactions.
 - C. Medications.
 - D. Symptoms: itching, difficulty breathing, chest tightness, nausea, abdominal cramps, subjective airway impairment or swelling, numbness and tingling, dizziness or faintness.

- II. Specific Physical Findings (objective information):
 - A. Identify type of allergic reaction
 1. Local reactions: No systemic findings. Normal mentation and normal vital signs. Limited to the areas of sting, contact, or injection. No respiratory distress or signs of shock.
 2. Systemic reaction.
 - a. Airway problems, upper airway edema, hoarseness, bronchospasm, wheezing.
 - b. GI: Cramps, vomiting, and diarrhea.
 - c. Skin: Urticaria (hives and itching), generalized flushing, cyanosis or pallor.
 - d. Swelling of lips, eyelids, tongue, face (not due to sting at that site).
 - e. Hypotension and/or cardiovascular collapse.
 - f. Change in mental status.
 - B. Any or all of the above with a decreased blood pressure or respiratory distress would be a true anaphylactic emergency. See treatment below.

- III. Treatment for Systemic Reaction:
 - A. Assess and support ABCs. Assist ventilations as necessary.
 - B. Oxygen therapy.
 - C. Position of comfort. Attempt to lie supine with legs elevated if signs of hypoperfusion unless respiratory distress predominates.
 - D. If allergic reaction is rapidly progressing or systemic treat per shock protocol as indicated. Do not delay epinephrine if the patient is deteriorating.
 - E. Monitor vital signs closely.

ALLERGIC REACTIONS

- F.  If allergic reaction is systemic and rapidly progressing give **Epinephrine 1:1000** SQ. When possible obtain MD order to give epinephrine.
1. **Adult** by standing order, give 0.3 mg (0.3 ml of 1:1000 solution) SQ.
 2. **Pediatric** by standing order, give 0.01 mg/kg (0.01 ml/kg of 1:1000 solution) SQ. **Maximum single pediatric dose 0.2-0.3 mg.**

-OR- Epi Pen dosing chart

0.3 mg (0.3 ml)	adult
0.3 mg (0.3 ml)	over age 12 years
0.2 mg (0.2 ml)	age 4-11 years
0.1 mg (0.1 ml)	age 0-3 years

- G. If no improvement noted after first dose, Epinephrine 1:1000 may be repeated SQ every 5-10 minutes two more times by MD order (to a total of three doses).
- IV. Specific Precautions:
- A. Life-threatening allergic reaction is usually a rapidly progressing situation with onset soon after exposure to the antigen. History is an important aspect of assessment.
 - B. Airway management should be accomplished with simultaneous administration of epinephrine, if possible. Ventilation with BVM can almost always be done if necessary. Epinephrine usually works quickly.
 - C. Hives (urticaria) indicates a systemic reaction but by itself does not indicate the severity of the reaction (some patients will have hives for days; hives can also be caused by non-allergic situations [e.g.anxiety]).
 - D. Epinephrine should not be given by standing order without signs, as well as symptoms of respiratory distress and/or impending shock or cardiovascular collapse. Do not rely on history alone. Hyperventilators will occasionally think they are having an allergic reaction. Epinephrine just aggravates their anxiety.
 - E. Route of administration for epinephrine is subcutaneous.
 - F. Epinephrine comes in various packaging. **BE SURE YOU ARE GIVING EPINEPHRINE 1:1,000!**
 - G. Anxiety, tremor, palpitations, tachycardia, and headache are not uncommon with administration of Epinephrine.
 - H. Epinephrine may induce vomiting in children; it increases cardiac work and may precipitate angina or MI in susceptible individuals.
 - I. **ALL CASES IN WHICH EPINEPHRINE IS ADMINISTERED BY STANDING ORDER MUST BE REVIEWED BY A SUPERVISING PHYSICIAN OR DESIGNEE.**

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- I. Specific Information Needed (subjective information):
 - A. Time and mechanism of amputation.
 - B. Care for severed part prior to rescuer arrival.
 - C. Medications, bleeding tendencies, problems with prior surgery.
 - D. Amputation at or proximal to wrist or ankle requires trauma activation.

 - II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Excessive bleeding.
 - C. Note structural attachments in partial amputations.
 - D. Note quality or absence of distal pulses, sensation and capillary refill in partial amputation.

 - III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy, if indicated.
 - C. Control bleeding.
 - D. Care of Amputation.
 1. Patient: control bleeding with direct pressure and elevation. Cover stump with sterile dressing and lightly moisten with sterile saline. Cover with dry dressing.
 2. Severed part: wrap in sterile dressing, preserving all amputated material. Moisten cut end lightly with sterile saline; do not saturate. Place in water tight container (specimen cup, plastic bag, etc.). Place container in ice water combination if possible. Do not use salt water. Do not let ice come in direct contact with tissue. Do not freeze. Do not let the amputated part soak in fluid.
 3. Partial amputation: cover with sterile dressing; lightly moisten with normal saline and cover with dry dressing. Splint in position found unless necessary to return to anatomical position for extrication, transport or to reduce neurocirculatory compromise.

 - IV. Specific Precautions:
 - A. Time is of the greatest importance to assure viability. If the transport time will be prolonged, consider sending the amputated part ahead to be surgically prepared for reimplantation.
 - B. Do not use dry ice to preserve severed part.
 - C. Attempt to control all bleeding by direct pressure and pressure points to preserve tissues. ~~Tourniquets are used only as a last resort.~~
Treatment of an extremity with uncontrolled blood loss that is not responsive to direct pressure may require the use of a tourniquet. If a tourniquet is applied the time of application should be documented in the report and on the tourniquet. The tourniquet should be left exposed and not covered by dressings.

- D. If a tourniquet has been applied prior to your arrival and there is no evidence of exsanguination, it is appropriate to gradually release tourniquet while applying direct pressure (and pressure points as necessary). If bleeding becomes uncontrolled, reapply tourniquet.

BEHAVIORAL/PSYCHIATRIC DISORDERS

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- I. Specific Information Needed (subjective information):
 - A. History: of recent crisis, emotional trauma, bizarre or abrupt changes in behavior, suicidal ideas, alcohol/drug intoxication, toxic exposure, head injury, fever, or signs of illness.
 - B. Past history: previous psychiatric disorders, medical problems (including diabetes or seizures), or medications.

 - II. Specific Physical Findings (objective information):
 - A. Vital signs. Note pupil size, symmetry, reactivity.
 - B. Mental status.
 - C. Characteristic odor on breath.
 - D. Medical alert tags.
 - E. Signs of trauma.
 - F. Skin signs including temperature, rash.

 - III. Treatment:
 - A. Assess and support ABCs.
 - B. Attempt to establish rapport.
 - C. Restrain, if necessary. Use guidelines from Combative Patient protocol, section A.
 - D. If vital signs unstable or patient condition deteriorating or mental status alteration of undetermined cause:
 1. Oxygen therapy.
 2. Check blood glucose. If less than 60 and patient is conscious and able to maintain their airway give sugar orally. Refer to Unconscious protocol, section A.
 - E. If suicidal:
 1. Do not leave patient alone.
 2. Remove or have someone remove dangerous objects (e.g., knives, guns, pills.) Do not jeopardize yourself.
 3. Inquire specifically regarding depression, helpless or hopeless feelings, and thoughts of suicide (including plan of action).
 4. Question specifically about hallucinations or delusions and decide if patient is likely to act them out.
 - F. Use calm, quiet manner to avoid agitating patient; monitor vitals.
 - G. For a patient who is not appropriate for transport or is mentally competent and refusing transport but needs follow-up; consider contacting Lane County Mental Health at their 24 hour service number 341-6077 or CAHOOTS transport at 682-5111. CAHOOTS hours are 1300-0100.
 - H. When in doubt as to how to proceed, contact ED physician for consultation.

IV. Specific Precautions:

- A. Psychiatric patients may have an organic basis for mental disorders. If patient has altered mental status, think medical cause until proven otherwise. Beware of head injury, hypoxia, hypoglycemia, overdose, stroke.
- B. If emergency treatment is unnecessary, do as little as possible, except to reassure and provide support. Try not to violate the patient's "personal space".
- C. If the situation appears threatening, a show of force involving police may be necessary before an attempt to restrain the patient is made. Consider your own safety and limitations. Use enough back-up to be confident and forthright.
- D. Never leave a restrained patient unattended. Monitor airway. Be prepared if patient vomits.
- E. If restraints are used, their use and indications must be thoroughly documented. Use guidelines from Combative Patient protocol for the restrained patient.

BURNS

- I. Specific Information Needed (subjective information):
 - A. Time elapsed since burn.
 - B. Was the patient in a closed space with steam or smoke? For how long?
 - C. Loss of consciousness?
 - D. Accompanying explosion, toxic fumes.
 - E. Prior cardiac or pulmonary disease.

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Extent of burns: description of areas involved. See attached chart.
 - C. Depth of burns:
 1. Superficial - previously called a first-degree burn. Involves only the outer layer of skin (epidermis). The skin will appear pink to red and will be dry. There may be slight swelling, but there will be no blisters. Superficial burns are usually very painful.
 2. Partial thickness - previously referred to as second-degree burns. Involves damage to not only the epidermis but the dermis as well. The skin may appear white to red, moist and mottled. Damage to the blood vessels causes plasma and tissue fluid to collect between the layers of skin to form blisters. Partial thickness burns cause intense pain resulting from nerve-ending damage.
 3. Full thickness - previously third degree burns. Involves all of the layers of the skin and can extend beyond the subcutaneous layer into the muscle, bone, or organs below. The skin will become dry, hard, tough and leathery. In addition, the skin may appear white and waxy to dark brown or black and charred. Most full thickness burns will not be very painful because nerve endings will have been destroyed. However, in most such injuries there will be surrounding areas of partial thickness burns that may cause intense pain. (Some classifications of burns refer to burns involving muscle and bone as Fourth Degree Burns.)
 - D. Evidence of respiratory burns: soot or erythema of mouth, singed nasal hairs, cough, hoarseness, respiratory distress.
 - E. Associated trauma.
 - F. Look for signs of shock or altered level of consciousness.
 - G. Note distal CMS/pulses of burned extremities and of circumferential burns.
 - H. Note chest excursion when there are circumferential thoracic burns.

BURNS

III. Treatment:

- A. Assess and support ABCs.
- B. Remove clothing which is smoldering or which is non-adherent to the patient. Apply moist clean towels or sheets to decrease heat to tissue. Also, by covering the burn and not allowing circulating air to stimulate exposed nerve endings, the patient's pain may be reduced.
- C. Oxygen therapy high flow; use non-rebreather mask if there is any indication of respiratory burns found during history or physical exam. Use highest oxygen delivery available in all burns involving closed space. Notify responding medic unit if patient is exhibiting signs of airway swelling (e.g. stridor). Assist ventilations if necessary.
- D. Remove rings, bracelets, and other constricting items.
- E. If burn is moderate to severe, dress wounds with dry clean dressings, or cover with burn sheet. Ice is not indicated in pre-hospital treatment of burns. Once burning is stopped, cooling is not indicated for patients with large burn areas over 10-20%. Observe for shivering and protect patient from generalized cooling. Be particularly attentive to patient with burns >20%, and the elderly and very young.
- F. Thermal burns: If more than about 20% significant burn or if patient is unstable or at high risk for complications:
 1. Treat shock as per Shock protocol.
 2. Monitor vital signs.
- G. Electrical burns:
 1. Monitor vital signs.
 2. Apply sterile dressings to entry and exit wounds.
 3. Consider spinal precautions if significant force involved or patient unconscious.
- H. Chemical burns:
 1. Flush contaminated skin and eyes with copious amounts of water.
 2. In a few instances, caution should be used with water flushing of chemical contaminants. In the case of lime (CaCO_3), brush off excess, then flush with copious amounts of water. Flushing with water or keeping wet must be continuous in phosphorous contamination.
 3. Monitor vital signs.

IV. Specific Precautions:

- A. Look for hazards at scene, particularly source of electrical hazard.
- B. Use spinal precautions if major forces involved.
- C. Suspect airway burns in any facial burns or burns received in closed place. Hoarseness may be a warning of impending obstruction. Have airway equipment prepared.
- D. Consider carbon monoxide poisoning in all closed space burns. If suspected,

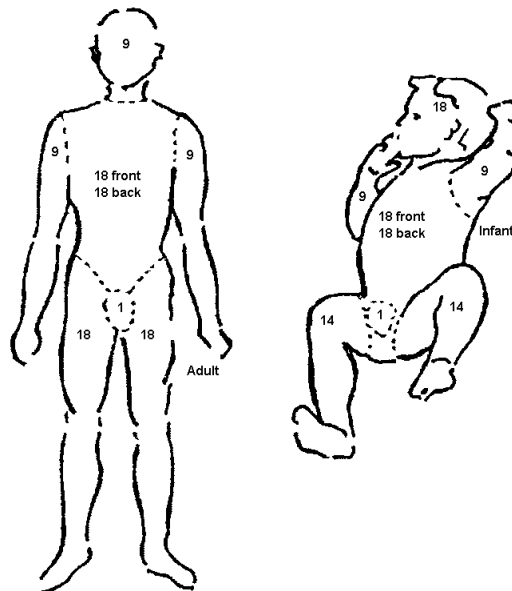
BURNS

give O₂, high flow, through non-rebreathing mask. Do not rely on pulse oximetry to give an accurate assessment of oxygenation in CO exposure. Always give high flow oxygen.

- E. Deaths in the first 24 hours after burn injury are usually due to either airway burns or fluid loss.
- F. Emphasis is placed on immediate transport of the significantly or critically burned patient. Critical burns are defined as: >20% burn, airway burns, electrical burns, <age 2, >age 55, burns to perineum or buttocks, hands or feet.
- G. Consider MI in firefighters who are burned; child abuse in pediatric burns; suicide attempt as cause for burns.
- H. Attempt to leave unbroken blisters intact.

PERCENTAGE OF BURN

RULES OF NINE



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CARDIAC ARREST

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- I. Specific Information Needed (subjective information):
 - A. History: onset, preceding symptoms.
 - B. Past history: diseases, medications.
 - C. Surroundings: evidence of drug ingestion, trauma.

 - II. Specific Physical Findings (objective information):
 - A. Absence of consciousness.
 - B. Terminal or no respirations.
 - C. Absence of pulse.

 - III. Treatment:
 - A. Initiate CPR until AED/SAD attached.
 - B. Check rhythm with AED/SAD and proceed as directed in the Cardiac Arrest Shockable Rhythm protocol.
 - C. If rhythm is not shockable continue as directed in the Cardiac Arrest Non-Shockable Rhythm protocol.
 - D. Contact M.D. or responding medic unit at earliest opportunity.

 - IV. Specific Precautions:
 - A. Cardiac arrest in trauma situations is different than other cardiac arrest situations. If the patient meets Death in the Field criteria with obvious major trauma (Introduction Section) follow that protocol; otherwise concentrate on preparing patient as a load and go with good CPR, airway management and fluid resuscitation.
 - B. Do not forget the pediatric principles:
 1. Remember that cardiac arrest in infants is usually secondary to respiratory arrest. Good attention to oxygenation is the most important factor in resuscitation.
 2. Compression: ~~over at least~~ 100/minute in an infant and ~~100 /minute~~ in a child. Start compressions if pulseless or if HR is less than 60/minute AND there are signs of poor perfusion in an infant or small child.
 3. Ventilation: 1 breath every 3 to 5 seconds for infant and child. Use compression/ventilation ratio of 30:2 (single rescuer) and 15:2 (two rescuers) for infant and child.
 4. Pediatric patients can be defibrillated using appropriately sized defibrillation pads. The Zoll pediatric pads, "pedi padz", may be used on pediatric patients from 0-33 pounds (0-15 kg). Please refer to agency specific equipment to determine the recommended weight for the pediatric defibrillation pads each agency utilizes.



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Continued from Press analyze, Non Shockable Rhythm ^a



Check pulse, if no shock indicated ^b



CPR x 2 minutes, if no pulse



Press to analyze ^a

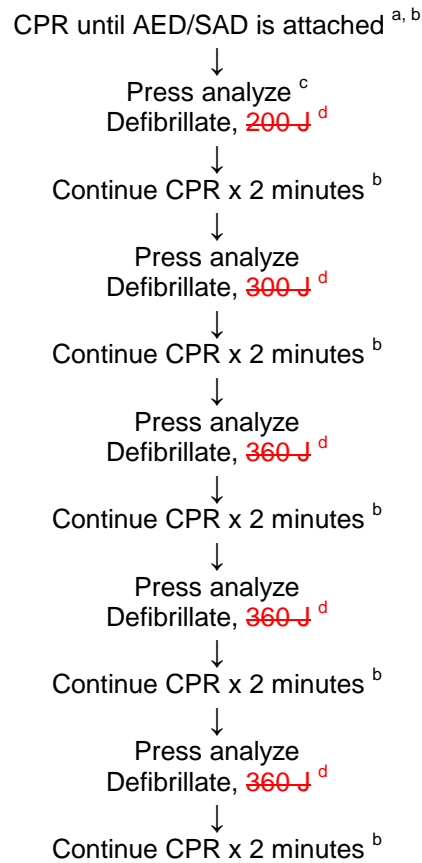
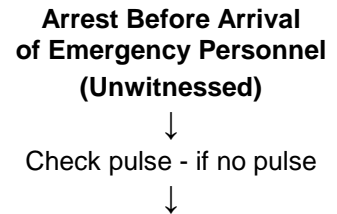
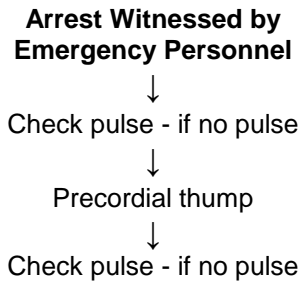
CONTACT MEDIC UNIT AT EARLIEST OPPORTUNITY

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- a. If machine charges when the "Press to analyze" button is pushed switch to Shockable Rhythm Protocol.
b. If pulse is present, check blood pressure and maintain airway and oxygenation; monitor for re-arrest.



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CARDIAC ARREST - SHOCKABLE RHYTHM



CONTACT MEDIC UNIT AT EARLIEST POSSIBLE OPPORTUNITY

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- a. The single rescuer with an AED/SAD should verify unresponsiveness, ~~open the airway (A), if not breathing, give two respirations, (B)~~ and check the pulse. ~~(C)~~ If a full cardiac arrest is confirmed, the rescuer should attach the AED/SAD and proceed with the ~~algorithm~~ instructions.
 - b. Give cycles of 30 compressions and 2 breaths.
 - c. If "no shock indicated" appears, go to Non-shockable Rhythm Protocol.
 - d. ~~Pulse check is not required after shocks.~~ Follow AED manufacturer's guidelines.

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CARDIAC CHEST PAIN

- I. Specific Information Needed (subjective information):
 - A. Pain: nature, onset duration, location, radiation, aggravation, alleviation.
 - B. Associated signs and symptoms: nausea, vomiting, diaphoresis, respiratory difficulty, palpitations, syncope, pallor.
 - C. Past history: previous cardiac or pulmonary problems, diabetes, hypertension, stroke, medications, drug allergies.

- II. Specific Physical Findings (objective information):
 - A. General appearance.
 - B. Vital signs and quality/symmetry of peripheral pulses.
 - C. Check for neck vein distention and peripheral edema.
 - D. Breath and chest sounds: "wet" sounds, crackles, wheezes, etc.
 - E. Chest wall tenderness.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy.
 - C. Reassure and place patient at rest, position of comfort.
 - D. If pain is severe, history or patient age suggests a cardiac origin to the chest pain have the AED/SAD available.
 1. Obtain 12 Lead ECG.
 - E. If the patient is not allergic, administer Aspirin 324 mg by standing order. Have the patient chew the aspirin. Field administration of aspirin may be waived if patient has taken a recent comparable dosage of 324 mg. Refer to Aspirin Protocol, section B, for special precautions and contraindications.
 1. Special Precautions
Aspirin should not be administered to:
 - a. Any individual who has an allergy to aspirin (ASA)
 - b. Any individual who presents with active bleeding.
 - F. Monitor vitals. Vital signs should be documented at least every 10 minutes.

IV. Specific Precautions:

- A. Suspicion of the acute MI is based entirely on field history. Some patients will have a completely normal EKG even though they are having an MI.
- B. Be prepared to use AED/SAD. As many as 50% of patients who develop ventricular fibrillation during an acute myocardial infarction have no warning arrhythmias.
- C. A patient can have an acute myocardial infarction with an atypical presentation including absence of chest pain. This is particularly common in elderly patients and patients with hyperglycemia.
- D. The patient can have several problems at one time. For example, a patient who has chest wall tenderness may also have an acute myocardial infarction. Do not be lulled into thinking that a burning type chest pain or chest wall tenderness rules out AMI particularly in the patient who is at risk for AMI (older patient, diabetic patient, hypertensive patient etc.).

CHEST INJURIES

- I. Specific Information Needed (subjective information):
 - A. Injury: mechanism and estimate of force involved.
 - B. Shortness of breath, pain.
 - C. Past history: medical problems and medications.

- II. Specific Physical Findings (objective information):
 - A. Respiratory distress; complaint of pain, shortness of breath, use of accessory muscles of respiration.
 - B. Vital signs and skin signs.
 - C. Pain to palpation of chest wall.
 - D. Movement of chest wall. Look for flail segment.
 - E. Chest contusions or wounds. Look for sucking chest wounds.
 - F. Breath sounds.
 - G. Subcutaneous emphysema and/or crepitus.
 - H. Hemoptysis.
 - I. Tracheal shift.
 - J. Jugular venous distention.
 - K. Increasing difficulty providing positive-pressure ventilation.
 - L. Loss of consciousness or confusion or restlessness (hypoxia?).

- III. Treatment:
 - A. Assess and support ABCs. Spine care, as indicated.
 - B. Oxygen therapy, high flow. Assist ventilation as needed.
 - C. For open chest wound: cover with occlusive dressing. Three-sided taping preferred (see diagram next page) to allow spontaneous decompression of a developing tension pneumothorax. Vaseline gauze usually works without tape.
 - D. Stabilize large flail segments with tape dressing, or hand.
 - E. Impaled objects should be left in place but stabilized.
 - F. Monitor vitals.

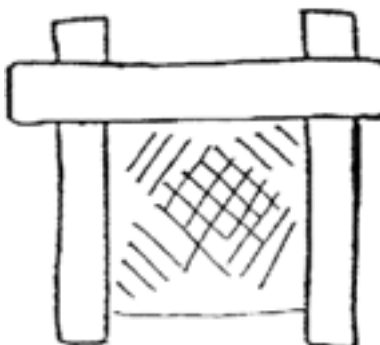
- IV. Specific Precautions:
 - A. Chest trauma is one of the situations where "stabilization in the field" is not the best treatment. Remember to consider how far you are from the nearest facility and how critical the patient is. Trauma patients are "Load and Go".

CHEST INJURIES

- B. Major trauma to the chest, including gunshot wounds, should have spine care as per spine trauma protocol.
- C. Consider medical causes of respiratory distress which have either caused trauma or been aggravated by it.
- D. Chest injuries sufficient to cause respiratory distress are commonly associated with significant blood loss. Look for hypovolemia.
- E. After sealing an open pneumothorax (sucking chest wound) the patient must be observed closely for signs of a developing tension pneumothorax. If this occurs try lifting the edge of the occlusive dressing. If the tension is not relieved in this manner the Paramedic will need to decompress with a needle.

Additional Information:

Taping for
occlusive dressing:



- I. Specific Information Needed (subjective information):
 - A. History of pregnancy(s): due date, bleeding, swelling of face or extremities, prior problems with pregnancy.
 - B. Current problems, if pain: where? regular? timing? ruptured membranes? urge to push?
 - C. Medical history: medications, medical problems, patient's age, number of prior pregnancies?

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Swelling of face or extremities.
 - C. Contraction and relaxation of uterus. Time interval from beginning of one contraction until beginning of second contraction.
 - D. Maintain privacy and examine perineum for:
 1. Vaginal bleeding or fluid: color?
 2. Crowning (check during contraction).
 3. Abnormal presentation (foot, arm, cord).

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Position on side if tolerated by patient (left side preferred). This will increase placental blood flow by preventing compression of vena cava.
 - C. If vaginal bleeding or in active labor begin oxygen therapy.
 - D. Prepare for immediate and urgent transport if any of the following: previous Cesarean section, multiple births, abnormal presenting part, excessive bleeding, shoulder dystocia, prolapsed cord. Administer high flow oxygen to mother and notify hospital immediately.
 - E. In a routine labor prepare for immediate transport unless presenting part is visible.
 - F. If delivering:
 1. Use clean or sterile technique. Wear gloves, goggles, and mask for your protection.

2. Guide and control, but do not retard or hurry delivery. Check for nuchal cord (cord around neck). If found, attempt to loosen from neck (figure A); if unable to loosen and too tight for delivery, double clamp and cut the cord.

Figure A



3. If time, suction mouth and nose with bulb syringe after head delivered. If there is evidence of meconium (green tinged fluid) this must be done as thoroughly as possible.
4. Support head during delivery and if possible assist with delivery of anterior shoulder first (figure B) and then posterior shoulder (figure C).

Figure B & C



5. After delivery, protect infant from fall and temperature loss. Clear and suction airway. Dry off and wrap in clean or sterile blanket. Keep infant level with perineum until cord clamped.
6. Check Apgar at one and five minutes after birth. If Apgar is low, begin resuscitation with oxygen and airway management. Ventilate at rate > 20/minute if HR less than 100 (no demand valve!). Begin compressions if heart rate less than 60 (give compression rate of >100/minute).
Do not wait for APGAR score if baby is compromised.
7. Cut cord between clamps in two places approximately 4-6" from infant. If infant is doing well, give to mother and allow to nurse (this aids in contracting uterus).

8. If excessive bleeding occurs postpartum: treat for hypovolemic shock, massage uterus until firm (Figure D), and put baby to breast.

Figure D



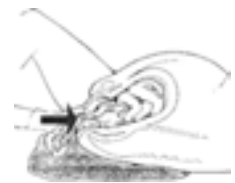
9. Prepare for transport. Do not wait for or attempt delivery of placenta. If placenta delivers spontaneously, bring to hospital.
10. Monitor vitals and blood loss.

IV. Specific Precautions:

- A. Ask patient if she feels as though she's delivering. Particularly with history of prior deliveries, most mothers will know. Subsequent deliveries are frequently faster.
- B. Stay calm. Women have been delivering babies for many years. In most cases, you will do nothing more than preside at a natural event.
- C. Babies are slippery. Hold carefully.
- D. Babies have poor temperature regulation and no clothes. Dry thoroughly, bundle and keep near mother. It will make them both feel better and mom is a good heat source. Keep baby's scalp covered.
- E. Do not pull on cord.
- F. If APGAR is very low immediately after delivery, don't wait until a one minute APGAR to begin resuscitation.
- G. It is always safe to assume that any medical or trauma condition will be complicated by pregnancy. Conversely, pregnancy will be complicated by any trauma or medical condition. The abdominal pain complained of by a pregnant woman may not be uterine contractions.

V. Additional Information:

- A. Evidence of a prolapsed cord (Figure E) should be treated by placing mother in knee-chest position (Figure F), if possible (or elevate hips in steep Trendelenburg). Insert gloved hand in vagina and push presenting part off cord (Figure G). Check cord for pulsations (and use this as a guide for further maneuvers in consultation with hospital if possible).



Figures E
G

F

- B. Breech presentations should be supported. If unable to deliver baby's head, place gloved hand in the vagina for a "V" around the baby's mouth and nose, pushing the vaginal wall away from baby's face if possible (Figure H). Notify hospital immediately and consult with MD about further maneuvers.



Figure H

- C. If evidence of shoulder dystocia (head out but baby not delivering despite repeated contractions), have mother lie flat on back and pull her knees up to chest (Figure I). If baby still does not deliver, apply suprapubic pressure (Figure J) and consult with MD about further maneuvers (be careful to apply this just above pubis and not higher on fundus).



Figures I & J

APGAR SCORE

	<u>0 Points</u>	<u>1 Point</u>	<u>2 Points</u>
A ppearance (color)	Blue, pale Ext: blue	Body: pink	Fully pink
P ulse (heart rate)	Absent	< 100	> 100
G rimace (response to suction)	No response	Some motion	Vigorous cry
A ctivity (muscle tone)	Flaccid	Some flexion	Active motion
R espiratory effort	Absent	Weak cry	Strong cry

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I. Purpose:

To prevent harm to patient and/or others.
To promptly recognize and treat Excited Delirium.

II. Indications:

- A. Patient restraints (physical and/or chemical) should be utilized only when necessary and only in situations where the patient is exhibiting behavior that the EMT believes will present a danger to patient or others.
- B. This procedure is not to be used on lucid patients who are refusing treatment unless they are placed under a police hold.
- C. This procedure does apply to patients treated under implied consent.
- D. Patients suspected of Excited Delirium should be promptly chemically restrained to avoid prolonged struggle.

III. Procedure:

A. Physical restraint procedure:

- 1. Ensure sufficient personnel are present to control the patient while restraining him/her. USE POLICE ASSISTANCE WHEN AVAILABLE.
- 2. Position patient for safe transport:
 - a. Backboard method (be prepared to log roll immediately for vomiting).
 - 1) Place patient face up on long backboard if at all possible.
 - 2) Secure all extremities to backboard (4 point restraint).
 - 3) If necessary, utilize cervical spine precautions (tape, foam blocks or CID etc) to control violent head or body movements.
 - 4) Place padding under patient's head and wherever else needed to prevent the patient from further harming him/herself or restricting circulation.
 - 5) Secure the backboard onto gurney for transport using additional straps if necessary and be prepared at all times to log roll, suction and maintain airway.
 - ~~b. Alternate method without backboard (monitor respiratory status very closely with this alternate method):~~
 - ~~1) Prone on stretcher.~~
- 3. Monitor and document reasons for applying restraints. Monitor airway status and other vital signs and neurocirculatory status distal to restraints and document every 15 minutes.

-
4. If use of chemical restraint likely, start IV (EMT I & P) of normal saline using standard tubing and large bore catheter.
- B. Chemical Restraint Procedure (EMT P only):
1. Prepare airway equipment including suction, BVM, intubation equipment, needle cricothyrotomy equipment.
 2. For extreme agitation/Excited Delirium, immediately administer Droperidol 5mg, Benadryl 50mg, and Versed 2mg IM.
 3. Start IV (EMT I & P) of normal saline using standard tubing with 14-16 gauge. Check blood glucose. If less than 60 give **Dextrose 50%** IV Push (EMT I & P) by standing order. Usual adult dose 25 Grams (50 ml). Refer to Dextrose protocol, section B.
 4. For continued agitation, consider repeat droperidol 5 mg IV/IM, not to exceed 10 mg total. Administer additional midazolam IV or IM as needed.
 5. Monitor closely for respiratory depression. Document vital signs at least every 10 minutes and monitor ECG (with QT interval noted if administering droperidol). Be prepared to treat hypotension with fluid.
 6. Document reasons for using chemical restraint.
- IV. Additional Information:
- A. Recognize and promptly treat Excited Delirium:
1. Excited Delirium is an imminently life threatening medical emergency.
 2. Characteristic behavioral components:
 - a. Abrupt onset of delirium
 - b. Confusion and bizarre behavior
 - c. Hallucinations and paranoia
 - d. Violent behavior
 - e. Super-human strength/insensitivity to pain
 3. Characteristic physical components:
 - a. Hyperthermia (undressing common, diaphoresis)
 - b. Metabolic acidosis (deep rapid respirations)
 - c. Presence/evidence of stimulant drugs, psychiatric disease
 4. Avoid worsening hyperthermia/acidosis by minimizing struggling; initiate cooling measures.
 5. Death usually due to hyperthermia, acidosis, rhabdomyolysis.
- B. Physical restraint guidelines:
1. Use the minimum restraint necessary to accomplish necessary

patient care and ensure safe transportation (soft restraints may be sufficient in some cases). If law enforcement or additional personnel are needed, call for it prior to attempting restraint procedures. Do not endanger yourself or your crew.

2. Avoid placing restraints in such a way as to preclude evaluation of the patient's medical status (airway, breathing, circulation). Consider whether placement of restraints will interfere with necessary patient care activities or will cause further harm.
3. Once placed do not remove restraints until you arrive at hospital unless there is a complication from their use.
4. If at all possible, take extra personnel on the way in to hospital to deal with problems during transport.

C. Chemical restraint guidelines:

1. Sedative agents may be used to provide a safe method of restraining the violently combative patient who presents a danger to themselves or others and to prevent the violently combative patient from further injury while secured with physical restraints. These patients may include but are not limited to:
 - a. Alcohol and/or drug intoxicated patient.
 - b. Combative head injured patient.
 - c. Acutely psychotic patient.

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- I. Specific Information (subjective information)
- A. Present history: Symptom onset and progression, antecedent symptoms (such as headaches, seizures, confusion, dysphasia, unilateral weakness, loss of consciousness), name and contact information of person who can verify history of present illness.
 - B. Past medical history: i.e. atrial fibrillation, hypertension, prior CVA, residual deficits, seizure disorder, heart disease, diabetes. Check for medic alert tag.
 - C. Medications: Anticoagulants (warfarin, heparin), anti-platelet agents (aspirin, Plavix), anti-hypertensives, insulin, oral hypoglycemics.
 - D. The new stroke patient may be a candidate for thrombolysis if the patient was known to be active with all faculties intact within 5 hours.

Essential Patient History for Stroke Alerts					
Time of symptom onset: _____ (must be less than 5 hours)					
Vitals:	HR _____	Exam:	Slurred Speech	YES	NO
	BP _____		Facial Droop	YES	NO
	RR _____		Arm Drift	YES	NO
	SaO2 _____				
	CBG _____				
Has patient had any of the following?					
	Minor or improving symptoms		YES	NO	
	Current use of coumadin or other anticoagulants		YES	NO	
	History of brain hemorrhage, aneurysm, or tumor		YES	NO	
	Major surgery within past 2 weeks		YES	NO	
	Spinal tap within 24 hours		YES	NO	
	Active internal bleeding or recent trauma		YES	NO	
Inform ED MD on arrival if answer to any of the above is YES					
Name of witness or family member on scene: _____					
Contact number: _____					
TRANSPORT ALL STROKE ALERTS CODE 3					

- II. Specific Physical Findings (objective information):
- A. Neurological exam (specific exam findings to consider):
 1. Confusion or altered mental status
 2. Pupillary response
 3. Facial symmetry
 4. Slurred speech or altered speech pattern
 5. Presence of right/left hemiparesis

6. Equality of hand grips
 7. Pronator drift
 8. Equality of lower extremity strength
 9. Gait
- B. Respiratory pattern and rate
- C. Cardiovascular exam:
1. Heart rate and rhythm
 2. Hypertension
- III. Treatment:
- A. Assess and support ABCs
 - B. Oxygen therapy
 - C. Start IV (using at least 20 gauge IV catheter inserted proximal to the wrist) of normal saline or saline lock (EMT I & P) if patient has new signs and symptoms of stroke or is unstable in any way.
 - D. Monitor cardiac rhythm
 - E. Monitor vital signs
 - F. Check blood glucose.
 - G. **Transport in a supine position.**
- IV. Specific Precautions:
- A. The most important forecaster of ischemic stroke is a TIA (transient ischemic attack), a temporary episode of focal neurological dysfunction lasting < 24 hours. Patients with TIAs should be transported for evaluation and possible prophylaxis against stroke (30% of these patients will have CVAs at some point in the future). Contact medical control and speak to physician for all patient refusals, even if symptoms have resolved. Document name of physician in patient chart.
 - B. CVA patients are subject to respiratory depression and vomiting. Consider intubation and ventilate with normal tidal volumes and assist ventilations at a rate of 12 - 14 breaths/minute for adults. If capnography is available maintain end tidal CO₂ of 35. Keep patient NPO.
 - C. Protect patient from injury. Many stroke patients have lost sensation.
 - D. Life threatening dysrhythmias are an important early complication of severe stroke, particularly in intracranial hemorrhage. Furthermore, some dysrhythmias (e.g. atrial fibrillation) may reflect the cause of the stroke.
 - E. Seizures are a potential complication of acute stroke. Seizures may be unwitnessed and focal neurologic deficits may be due to seizure or postictal state.
 - F. Hypoglycemia can cause focal neurological deficits without a major alteration in consciousness and is an important consideration in a diabetic patient with apparent stroke.
 - G. Consider spinal precautions if there is evidence of trauma.

DROWNING/NEAR DROWNING

- I. Specific Information Needed (subjective information):
 - A. How long patient was submerged.
 - B. Fresh or salt water.
 - C. Diving accident? (Remember cervical spine.)
 - D. Cold or warm water.
 - E. Contaminants in water (chlorine, sewage, etc.)?
 - F. SCUBA accident.

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Neurological status: monitor on a continuing basis.
 - C. Rales or signs of pulmonary edema, respiratory distress.

- III. Treatment:
 - A. Assess and support ABCs. Spine care, if indicated.
 - B. Stabilize neck prior to removing from water if any suggestion of neck injury.
 - C. Oxygen therapy, high flow. Non-rebreather mask if patient spontaneously breathing with adequate rate and tidal volume.
 - D. Assist ventilation as needed with bag-valve mask.
 - E. AED/SAD available and used if indicated.

- IV. Specific Precautions:
 - A. Be prepared for vomiting with suction ready.
 - B. All near drownings or submersions should be transported. Even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is a common complication.
 - C. Beware of neck injuries. They often go unrecognized. Collar and backboard can be applied in the water if the patient has not yet been moved.
 - D. In cold water drowning, follow hypothermia protocols, as well. (The body's ability to respond to medication and defibrillation can be hampered by hypothermia.)
 - E. Especially with cold water drownings, patient may appear dead but still requires resuscitation efforts. (If, however, a patient has been confirmed underwater over one hour and is pulseless and apneic when removed from water, the patient may be pronounced as per "Death in the Field" criteria without use of monitor to confirm rhythm).
 - F. If it has been over 45 minutes confirmed time underwater, it is appropriate to start preparing family for likely pronouncement of "Death in the Field" if rescue takes more than one hour and patient is in cardiac arrest.

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FRACTURES AND DISLOCATIONS

- I. Specific Information Needed (subjective information):
 - A. History of trauma: mechanism of injury.
 - B. History of pathological bone disease (cancer, osteogenesis imperfecta, severe osteoporosis, demineralizing conditions such as quadriplegia or paraplegia).

- II. Specific Physical Findings (objective information):
 - A. Localized pain, tenderness.
 - B. Swelling, discoloration.
 - C. Angulation, deep lacerations, exposed bone fragments.
 - D. Crepitus.
 - E. Loss of function, limitation of motion, guarding.
 - F. Quality of distal pulses, sensation, and capillary refill.

- III. Treatment:
 - A. Assess and support ABCs. Control hemorrhage. Remove rings, bracelets, and other constricting items.
 - B. Immobilize cervical spine if appropriate.
 - C. Examine for additional injuries, evaluate, and treat if necessary, those with higher priority.
 - D. If signs of shock, follow shock protocol.
 - E. Apply sterile dressing to open fractures.
 - F. Splint. Apply axial traction (in direction of long bone, head to toe direction of body) as needed. See specific precautions for more details.
 - G. Elevate simple fractures, if possible. Apply ice or cold packs if time and extent of other injuries allow.
 - H. Monitor and document neurocirculatory status distal to site of injury. This is also known as CMS (Circulation: pulse, skin color and temperature, Motor function and Sensation).
 - I. Monitor vital signs.
 - J. Remove rings, bracelets and other constricting items on injured extremities.

- IV. Specific Precautions:
 - A. Splinting should be individualized with EMT judgement utilized. Generally, splint in the position found. However, it will sometimes be necessary to reduce into anatomical position, with axial traction applied, for extrication and/or transport or to reduce neurocirculatory compromise.

FRACTURES AND DISLOCATIONS

- B. Joint fractures, especially the elbow, are best left in position found if at all possible. These can swell rapidly and cause significant neurovascular compromise.
- C. When checking for distal neurovascular status, remember there may be several options. Removing a boot is a matter of judgement. If you suspect neurovascular compromise and the status cannot be assessed with the boot on, or you need to remove the boot to apply a splint (e.g. hitch for Hare traction) remove carefully.
- D. Some authors use the 5 Ps to assess a fracture:
 - Pain
 - Pulse
 - Pallor (and/or delayed capillary refill)
 - Paresthesia (numbness or tingling or sensation abnormality)
 - Paralysis
- E. Fractures do not necessarily lead to loss of function, e.g., impacted fractures may cause pain but little or no loss of function. Therefore it is important to treat a potential fracture as such even though the patient has no loss of motion.
- F. Extremity injuries benefit from appropriate care, but are of low priority in a multiply-injured patient. Multiple trauma patients should be "load and go" with the backboard used as an overall splinting device.
- G. Do not delay transport to start IVs in multiple trauma patient.
- H. Estimated blood loss in fractures (if adjacent organs or blood vessels are injured or the bleeding is external, the blood loss may be more severe than listed below):

FRACTURE	LITERS
Humerus	1.0-2.0
Elbow	0.5-1.5
Forearm	0.5-1.0
Rib	50 ml/rib
Pelvis	1.5-4.5
Hip	1.5-2.5
Femur	1.0-2.0
Knee	1.0-1.5
Tibia	0.5-1.5
Ankle	0.5-1.5

HEAD TRAUMA

-
- I. Specific Information Needed (subjective information):
 - A. History: mechanism of injury, estimate of force involved, change in level of consciousness since injury, amnesia prior to and/or following trauma. With motorcycle and bicycle accidents, was a helmet worn?
 - B. Past history: medical problems, medications.

 - II. Specific Physical Findings (objective information):
 - A. Vital signs (note respiratory pattern and rate) and skin signs.
 - B. Pupils (equality and reactivity).
 - C. Mental status and Glasgow Coma Score (GCS): (Refer to page 3 of this protocol for chart)
 - D. Assess for signs of cerebral herniation: an unresponsive patient WITH bilateral dilated pupils or asymmetrical pupils AND abnormal extension (decerebrate posturing) or no motor response to painful stimuli.

 - III. Treatment:
 - A. Assess and support ABC's with manual spine care until fully immobilized.
 - B. Oxygen therapy. Assist ventilations as needed.
 - C. Stop bleeding with direct pressure, if possible. If it looks like CSF, put a dressing over it and do not apply pressure unless bleeding is excessive.
 - D. As soon as possible, immobilize spine with firm collar and cervical immobilization device or KED to full spine board (refer to Spine Trauma protocol, section A.)
 - E. Prepare for immediate transport.
 - F. Frequent monitoring of vitals and level of consciousness.

 - IV. Specific Precautions:
 - A. Severe head injuries should be a "Load and Go".
 - B. Assume cervical spine injury in all patients with head trauma that appears significant or is accompanied by altered consciousness, neuro deficits, or pain or deformity to the spine.
 - C. Be alert for airway problems and/or seizure activity.
 - D. Routine hyperventilation is no longer recommended as it may increase cerebral ischemia. Ventilate at normal rate and tidal volume.
 - E. Glasgow Coma Scale (GCS) is a time honored method to assess neurological status. In general, GCS < 9 is considered an indication for ventilation (and endotracheal intubation if a Paramedic is present).
 - F. Restlessness can be a sign of hypoxia. Cerebral anoxia is the most frequent

HEAD TRAUMA

- cause of death in head injury.
- G. The most important information you provide for the Paramedic and hospital is time sequence of level of consciousness. Is the patient stable, deteriorating, or improving?
 - H. If patient with head trauma is in shock, look elsewhere for cause. Shock is probably not due to head injury. If patient has signs of shock, treat as per Shock Protocol. The shock has priority since a severe head injury with increasing intracranial pressure will not allow brain circulation if the systemic blood pressure is less than 90 systolic.
 - I. Bleeding may be stopped by direct local pressure. If the underlying skull is unstable, pressure should be applied to the periphery of the laceration over intact bone.

GLASGOW COMA SCALE

ACTIVITY	SCORE	INFANTS	CHILDREN & ADULTS
<i>EYE OPENING</i>	4 3 2 1	Spontaneous To speech To pain No response	Spontaneous To verbal stimuli To pain No response
<i>BEST VERBAL RESPONSE</i>	5 4 3 2 1	Coos, babbles Irritable, cries Cries to pain Moans to pain No response	Oriented Confused Inappropriate words Incomprehensible sounds No response
<i>BEST MOTOR RESPONSE</i>	6 5 4 3 2 1	Normal movement Withdraws to touch Withdraws from pain Abnormal flexion Abnormal extension No response	Obeys commands Localizes pain Withdraws from pain Abnormal flexion Abnormal extension No response

BEST SCORE = 15

LOWEST SCORE = 3

Under 9 = Routine hyperventilation is no longer recommended. Ventilate at normal rate and tidal volume.

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HYPERTENSIVE EMERGENCIES

- I. Specific Information Needed (subjective information):
 - A. Symptoms: headache, blurred vision, nausea or vomiting, confusion, chest pain, dyspnea. Onset and duration of symptoms.
 - B. History: recent head trauma (within last seven days); previous history of CVA or hypertension. Is patient pregnant? Taking antihypertensive medications?

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Neurological findings: coma, focal neuro deficit, nuchal rigidity (stiff neck), pupil changes, Cheyne-Stokes respirations, confusion, pulmonary edema, central neurogenic hyperventilation or other abnormal respiratory pattern, hemiparesis.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy.
 - C. Position with HOB (head of bed) up 15-20 degrees if possible.
 - D. Monitor vital signs.
 - E. Frequent monitoring of mental status.

- IV. Specific Precautions:
 - A. Hyperventilation not generally recommended in head injury patient. See Head Trauma protocol, section A, for additional information.
 - B. Clues to differentiate between hypertensive encephalopathy vs compensatory increased ICP (increased intracranial pressure):
 1. Hypertensive encephalopathy (general brain swelling due to hypertensive crisis) often takes a few hours or even a day or two to develop. There is no nuchal rigidity, and focal neurological deficits, if present, are often transient and migratory.
 2. Nuchal rigidity, in the presence of hypertension (and in the absence of fever and other signs of meningitis) should cause one to suspect intracerebral or subarachnoid hemorrhage. Hypertension in this setting is often compensatory and should not be treated.

HYPERTENSIVE EMERGENCIES

3. Compensatory hypertension may be part of Cushing's response (aka Cushing's triad). Cushing's response includes:
 - a. Increased systolic BP, often with widening pulse pressure.
 - b. Decreased heart rate.
 - c. Abnormal respiratory pattern.
 4. Rapid onset of symptoms (coma, hemiparesis) often indicates intracranial hemorrhage or cerebral infarction.
 5. Subdural hematoma may take several hours or days to develop, but hypertension is usually not severe and focal neurological deficits are often present.
- C. Pregnancy induced hypertension (PIH), formerly called toxemia of pregnancy, is best treated by hospital medications and sometimes C-section to empty the uterus. The patient should be prepared for immediate transport to a hospital with OB facilities. Be prepared for seizures.

HYPERTHERMIA

- I. Specific Information Needed (subjective information):
 - A. Sudden collapse or gradual development?
 - B. Exercise induced?
- II. Specific Physical Findings (objective information):
 - A. Temperature 104° F (41° C) or greater.
 - B. Skin warm, but dry (often no sweating if heat stroke).
 - C. Acute psychosis, altered mentation or seizures (most often on a hot, humid day).
- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy.
 - C. Begin cooling immediately. Cool with wet sheets or sponging. Maintain good ambient air flow. Consider ice packs to axilla.
 - D. Check blood glucose. If less than 60 and patient is conscious and can maintain their airway administer oral glucose by standing order.
 - E. Monitor vitals.
 - F. Prepare for immediate transport.
- IV. Specific Precautions:
 - A. Heat stroke is a medical emergency. Differentiate from heat cramps (abdominal or leg) or heat exhaustion (hypovolemia or gradual onset), but be aware that heat exhaustion can progress to heat stroke.
 - B. Heat stroke is accompanied by changes in mental status and may lead to seizures.
 - C. Wet sheets over patient without good air flow will tend to increase temperature. Water must evaporate to cool.
 - D. Definitive cooling will need hospital treatment, but early cooling improves chance of good outcome. Prepare for transport as soon as cooling is initiated.

Reference Chart to Compare Celsius to Fahrenheit Temperatures

CELSIUS (Centigrade) and FAHRENHEIT TEMPERATURES	
Centigrade (Celsius)	Fahrenheit
0	32
30.0	86.0
32.2	90.0
34.0	93.0
35.0	95.0
36.0	96.8
36.5	97.7
37.0	98.6
37.5	99.5
38.0	100.4
38.5	101.3
39.0	102.2
39.5	103.1
40.0	104.0
40.5	104.9
41.0	105.8
41.5	106.7
42.0	107.6

HYPOGLYCEMIA

- I. Specific Information Needed (subjective information):
 - A. Onset: sudden or gradual? When was patient last well?
 - B. History: of recent stress, either emotional or physical; last meal, presence/absence of hunger or thirst.
 - C. Past history: diabetes mellitus; last insulin (time/amount), oral hypoglycemics, overdose, stroke.

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Breath odor.
 - C. Mental status.
 - D. Skin: color, temperature, hydration.
 - E. Signs of adrenalin effect: diaphoresis, tachycardia, tremor, seizures.
 - F. Medical alert tag.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen Therapy as indicated.
 - C. Check blood glucose. If less than 60 (also less than 60 in newborn):
 1. Administer glucose solution orally if patient is awake and able to protect airway.
 - D. If patient is an insulin dependent diabetic who refuses transport after treatment and has had a full return to consciousness, have patient sign a refusal. Document repeat chemstrip and vital signs, mental status and absence of other complaints. Recommend that patient eat a meal and contact his/her personal MD to report the incident.
 - E. **If patient is on oral hypoglycemic medication, every effort should be made to transport, including physician consult if needed.**


- IV. Specific Precautions:
 - A. The diabetic will frequently know what is needed. LISTEN TO THE PATIENT.
 - B. Hypoglycemia can present as: seizures, coma, behavior problems, intoxication, confusion or stroke-like picture with focal deficits (particularly in elderly patients.) Todd's Paralysis.
 - C. Patients who are elderly or who have been hypoglycemic for prolonged periods of time may be slower to awaken.

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HYPOTHERMIA/COLD INJURIES

- I. Specific Information Needed (subjective information):
 - A. Length of exposure? Dry vs immersion? Any drugs including alcohol?

- II. Specific Physical Findings (objective information):
 - A. Apnea - If suspected breathing is not obvious, put metal under nostrils for 30-45 seconds (looking for condensation to document respiratory exchange).
 - B. Pulse - palpate carotid pulse for 30-45 seconds (bradycardia is common).
 - C. Mental Status - determine verbal and motor responsiveness (**GCS Score**).
 - E. Shivering.

- III. Treatment of Severe Generalized Hypothermia:
 - A. ABCs. Start CPR if pulseless.
 -  B. Oxygen, warmed if possible. Assist ventilations as needed.
 - C. Analyze with AED/SAD if patient is in cardiac arrest. If in shockable rhythm (VF/pulseless VT) deliver up to 1 shock. If suspected severe hypothermia, use Hypothermia Algorithm (last page of this protocol). If unsure whether severe hypothermia use regular Cardiac Arrest Algorithms.

- IV. Specific Precautions with Severe Generalized Hypothermia:
 - A. Handle patient who has profound hypothermia, and is in an organized cardiac rhythm, gently to avoid dysrhythmias (remember that V Fib can occur at core temperature less than 86 degrees fahrenheit). Many physical manipulations including intubation, external pacing etc. have been reported to precipitate VF. However when specifically and urgently indicated, such procedures should not be withheld.
 - B. Bradycardia may be physiologic in severe hypothermia and usual bradycardia treatment is usually not indicated unless bradycardia persists after rewarming.
 - C. The hypothermic heart may be unresponsive to cardioactive drugs, pacemaker stimulation and defibrillation. Drug metabolism is reduced. Administered medications, including Epinephrine and Lidocaine, can accumulate to toxic levels if used repeatedly in the severely hypothermic patient. Active core rewarming techniques at the hospital are the primary therapeutic modality in hypothermic patients in cardiac arrest or unconscious with a slow heart rate.
 - D. Consider other protocols as appropriate (i.e. altered mental status). Hypothermia may be a complication of hypoglycemia and vice versa.
 - E. Suspect "urban" hypothermia in situations with elderly patients or poverty and drug or alcohol use.
 - F. Patients are generally not pronounced dead until warmed.
 - G. Consult with ED about further therapies or direction of care when unclear about degree of hypothermia.

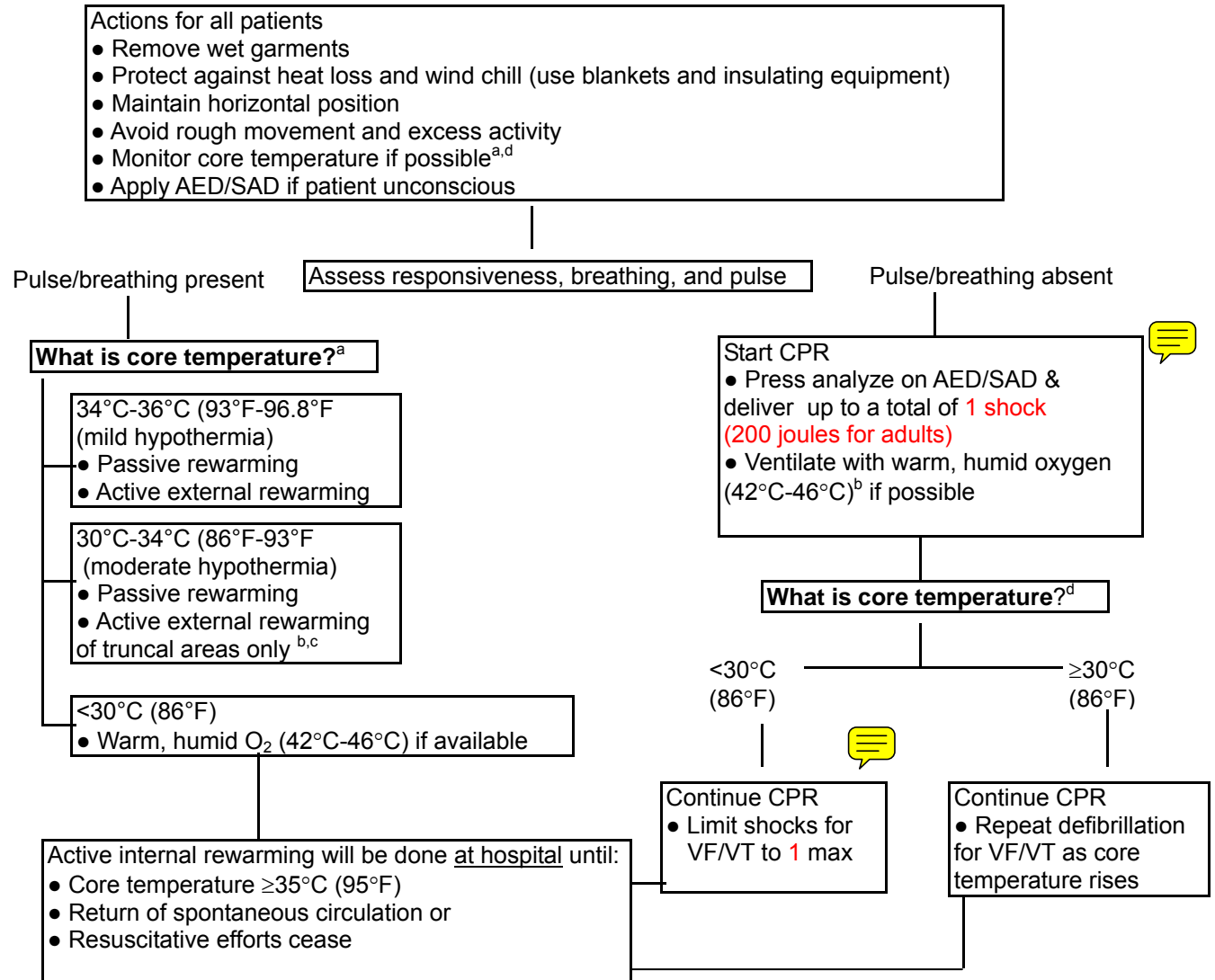
- V. General Information for Severe Generalized Hypothermia:
- A. Severe accidental hypothermia is currently defined in ACLS guidelines as core temperature below 30° C (86° F). Realize that most thermometers (except veterinary types) do not register below 94° F (34° C).
 - B. Shivering occurs between 90-98° F (32-37°C), but is absent or minimal below this, so it can be a useful guide to the degree of hypothermia.
 - C. The heart is most likely to fibrillate below 86° F (30°C). It may not convert readily until the patient's temperature is above 86° F and acidosis is corrected.
- VI. Treatment of Local (frostbite) Hypothermia:
- A. Protect the injured areas from pressure, trauma, friction. Remove all covering from injured parts. Do not rub. Do not break blisters.
 - B. Do not allow the patient to ambulate or use nicotine products.
 - C. Do not allow limb to thaw if there is a chance that limb may refreeze before evacuation is complete.
 - D. Maintain core temperature by keeping patient warm with blankets, warm fluids, etc.
 - E. Transport.
 - F. When severe hypothermia and frostbite coexist, treat the patient as for generalized hypothermia.

SEE ALGORITHM ON LAST PAGE OF THIS PROTOCOL FOR ACLS
RECOMMENDATIONS ON TREATMENT OF GENERAL HYPOTHERMIA.

Reference Chart to Compare Celsius to Fahrenheit Temperatures

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37.0	98.6
37.5	99.5
38.0	100.4
38.5	101.3
39.0	102.2
39.5	103.1
40.0	104.0
40.5	104.9
41.0	105.8
41.5	106.7
42.0	107.6

Algorithm for Treatment of Severe Hypothermia



^a If unable to accurately assess core temperature in patient who is not in cardiac arrest, use shivering as a rough clinical guideline. If the patient is shivering, the hypothermia is mild to moderate.

^b Many experts think these interventions should be done only in-hospital though practices vary.

^c Methods of active external rewarming include hot water bottles, heating pads, radiant heat sources. Take measures to prevent burning patient. Truncal areas include neck, armpits, and groin.

^d **If unable to accurately assess core temperature in arrested patient and unsure whether this patient is severely hypothermic, use routine Cardiac Arrest guidelines.**

POISONING AND OVERDOSE

- I. Specific Information Needed (subjective information):
 - A. Type of ingestion: what, when, and how much was ingested? Gather the container, sample of emesis, and everything questionable in the area with the patient for the Paramedic who will take it to the hospital. Look for multiple patients with same signs and symptoms.
 - B. Reason for ingestion: screen for child neglect, suicidal problems.
 - C. Past history: medications, diseases, psychiatric history, drug abuse.
 - D. Action taken by bystanders: induced emesis? "Antidote" given?

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Level of consciousness.
 - C. Breath odor.
 - D. Neurologic status.
 - E. Vomitus.
 - F. Needle marks or tracks.
 - G. Gag reflex.

- III. Treatment:
 - A. External contamination:
 - 1. Protect medical personnel
 - 2. Remove contaminated clothing.
 - 3. Flush contaminated skin and eyes with copious amounts of water.

 - B. Internal ingestion:
 - 1. Assess and support ABCs.
 - 2. Oxygen therapy as needed. Assist ventilations and hyperventilate as indicated.
 - 3. Monitor and document vital signs frequently.
 - 4. Have AED/SAD available if patient is unconscious or unstable or has ingested any of the following: antidepressant, phenothiazine, cardiac or vasoactive drug.
 - 5. Check blood glucose. If less than 60, and patient is conscious and can maintain airway give oral glucose by standing order.

6. Treat hypotension, as indicated.
7. Consider administration of activated charcoal in conscious, alert patients, if the ingestion occurred within the past six hours. Obtain order for Charcoal from MD. Refer to Charcoal protocol, section B.
 - a. Activated charcoal doses
 - Adult: 1 Gram/kg or 10 Grams/1 Gram of poison
 - Pediatric: same as adult

IV. Specific Precautions:

- A. Inhalation poisoning is particularly dangerous to rescuers. Recognize an environment with continuing contamination and extricate rapidly by properly trained and equipped personnel.
- B. If possible, contact receiving hospital or poison control so they can obtain information for you on toxicity, symptoms, treatment, etc. **ORDER FOR CHARCOAL MUST BE OBTAINED FROM MD AT RECEIVING HOSPITAL.** If necessary you can ask the responding Paramedic to consult with MD regarding the order for you.
- C. Charcoal is indicated in many poisoning and overdose situations if patient has none of the listed contraindications.
- D. Do not try to neutralize acids with strong alkalis. Do not try to neutralize alkalis with acids.
- E. Signs of organophosphate poisoning include **S.L.U.D.G.E.** If this is recognized protect yourselves.
 - S**alivation
 - L**acrimation
 - U**rination
 - D**efecation
 - G**I cramping
 - E**mesisBradycardia and pulmonary edema are also common.
- F. Poison/Overdose information:

McKENZIE-WILLAMETTE – 541-726-4470

RIVERBEND - 541-222-6929

OREGON POISON CENTER - 1-800-222-1222

TOXIDROME TABLE

Toxidrome	Examples	Treatment	Clinical Features
Sympathomimetic	Cocaine Methamphetamine Ecstasy	Midazolam	Agitation Diaphoresis Hypertension Hyperthermia Dilated pupils Tachycardia
Opioid	Heroin Hydromorphone Methadone Oxycodone	Naloxone	Depressed Mental Status Hypoventilation Constricted pupils
Cholinergic (Anti-cholinesterase)	Pesticides <ul style="list-style-type: none"> • Carbamates • Organophosphates Nerve agents	Atropine Pralidoxime	Muscarinic* Nicotinic** Central***
Sedative-Hypnotic	Barbiturates Benzodiazepines GHB		Depressed Mental Status Hypotension Hypothermia
Cardiotoxic Drugs	Beta-blockers	Glucagon	Bradycardia
	Calcium Channel Blockers	Calcium	Conduction abnormalities
	Digoxin Toxicity****	Digibind (ED)	Hypotension
Anticholinergic	Atropine Jimson Weed Scopolamine Diphenhydramine	Physostigmine (ED)	Delirium Hyperthermia Tachycardia Warm Dry Skin
Extrapyramidal Symptoms (EPS)	Antipsychotic (haloperidol, droperidol, phenothiazines)	Diphenhydramine	Torticollis Laryngospasm Oculogyric crisis
Sodium Channel Blockade	Tricyclic Antidepressants Anti-arrhythmics <ul style="list-style-type: none"> • Type IA agents (quinidine, procainamide) • Type IC agents (flecainide, propafenone) 	Sodium Bicarbonate	Altered Mental Status Hypotension Seizures Wide-Complex Tachycardia

***Muscarinic:**

- Diarrhea
- Urination
- Miosis – Pupil constriction
- Bradycardia, Bronchospasm, Bronchorrhea
- Emesis
- Lacrimation
- Salivation, Secretions, Sweating

****Nicotinic:**

- Mydriasis – Pupil dilatation
- Tachycardia
- Weakness
- Hypertension, Hyperglycemia
- Fasciculations

*****Central:**

- Confusion
- Convulsions
- Coma

******Digoxin Toxicity**

- Consider/treat hyperkalemia, if indicated

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RESPIRATORY DISTRESS

- I. Specific Information Needed (subjective information):
 - A. History: acute insult or injury, sudden onset or slow deterioration.
 - B. Past history: chronic lung or heart problems (diagnosis?), medications, home oxygen, past allergic reactions, recent surgery.
 - C. Associated symptoms: chest pain, paresthesia (numbness, tingling) of mouth or hands, itching or hives.

- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Level of consciousness.
 - C. Evidence of possible hypoxia (drowsiness, confusion, irrational behavior, poor cooperation, restlessness).
 - D. Cyanosis.
 - E. Evidence of upper airway obstruction: hoarseness, bucking (extreme increase in respiratory effort), drooling, coughing, inspiratory stridor, irrational behavior, poor cooperation.
 - F. Breath sounds: clear, wet, wheezing, symmetrical, labored. Abnormality on inspiration or expiration?
 - G. Signs of congestive heart failure: distended neck veins when upright, "wet lung" sounds, peripheral edema.
 - H. Hives, airway edema.
 - I. Evidence of trauma.

- III. Treatment:
 - A. Assess and support ABCs including opening airway, suctioning etc.
 - B. Put patient in upright position or position of comfort unless other findings or mechanism of injury contraindicate this.
 - C. Oxygen therapy: flow as necessary for patient comfort and clinical status. Use O₂, low flow (1-2 L/min) if patient history of COPD obtained and condition not emergent. If patient has air hunger or shows signs/symptoms of hypoxia use high flow O₂. If ventilations are inadequate, assist with bag valve mask (refer to Oxygen Therapy protocol, section C).
 - D. Identify and treat upper airway obstruction, if present.
 1. Complete obstruction due to foreign body, use AHA standards for obstructed airway.
 2. Partial (croup, epiglottitis, anaphylaxis, foreign body):
 - a. O₂, high flow (10-15 L/min). Avoid agitating patient.
 - b. Consider anaphylaxis; if identified, treat per Allergic Reaction protocol, section A.
 - c. Consider croup or epiglottitis particularly in young children (minimize handling and do not look down throat when epiglottitis is suspected).
 - d. Prepare to assist ventilation if respiratory failure develops.

RESPIRATORY DISTRESS

- E. Consider treatment for specific problem if field diagnosis can be made by history and physical findings. (See breath sounds chart at end of this protocol for clues derived from breath sounds).
1. If symmetrical "wet lung" sound present (pulmonary edema):
 - a. Oxygen therapy, high flow; assist ventilations as needed.
 - b. Sit patient upright; dangle legs if possible.
 - c. Consider CPAP – Refer to CPAP protocol, Section C.
 - d. Monitor vital signs.
 - e. Suction as needed.
 2. If wheezing is present (asthma and other reactive airway diseases; e.g. smoke inhalation) and no indication of severe allergic reaction:
 - a. Oxygen therapy.
 - b. Monitor vital signs.
 3. If suspected systemic allergic reaction, use Allergic Reaction protocol, section A. Consider the need for Epinephrine 1:1,000.
 4. If asymmetrical breath sounds noted or history of significant trauma, evaluate for signs of developing tension pneumothorax.
 - a. Oxygen therapy, high flow.
 - b. Prepare for rapid transport.
 - c. Monitor vital signs.
 - d. Trauma activation if appropriate (refer to Trauma Activation Protocol – Section C).
 5. If sudden onset respiratory distress with a history suggestive of pulmonary embolus (recent surgery, prolonged immobilization, recent fractures, pregnancy and childbirth, swollen leg or other evidence of deep vein thrombosis etc.):
 - a. Oxygen therapy, high flow.
 - b. Prepare for rapid transport.
 - c. Monitor vital signs.
 - d. DO NOT ambulate patient.

BREATH SOUND PATTERNS IN RESPIRATORY DISTRESS *

<u>Characteristics</u>	<u>Possible Diagnosis</u>
Clear, symmetric	Hyperventilation, MI, metabolic acidosis (e.g. hyperglycemia or aspirin OD), pulmonary embolus
Wet (crackles), symmetric	Pulmonary edema, extensive pneumonia
Clear, asymmetric or absent on one side	Pneumothorax, hemothorax, pulmonary embolus, COPD
Wet (crackles), asymmetric	Pneumonia
Wheezing, asymmetric	Foreign body, pulmonary embolus, COPD
Wheezing, symmetric	Asthma, allergic reaction, CHF
Stridor	Upper airway foreign body or swelling (croup, epiglottitis, peritonsillar abscess, allergic reaction, trauma to neck, thermal injury, caustics)
Snoring	Tongue or soft tissue obstruction

* These are meant to be rough guidelines only; to be used as a tool when attempting to determine differential information while selecting treatment.

RESPIRATORY DISTRESS

IV. Specific Precautions:

- A. If you are unable to differentiate the cause of the respiratory distress, the proper course is to administer oxygen, and prepare for transport. When in doubt and the patient is in severe distress, discuss your alternatives with the ED physician at the receiving hospital.
- B. Wheezing in older persons is frequently due to pulmonary edema/CHF. Asthma and COPD also commonly have wheezing as part of the picture. Consider also pulmonary embolus. Your patient may make the wrong diagnosis. Remember that all wheezes are not allergic reactions and some situations will be disastrous if epinephrine is administered.
- C. Children with croup, epiglottitis, or laryngeal edema may have respiratory arrest due to exhaustion or spasm. You will most likely still be able to ventilate with pocket mask or bag/valve/mask technique. If you suspect croup or epiglottitis do NOT look down the throat trying to visualize the problem.
- D. Don't overdiagnose "hyperventilation" in the field. Your patient could have pulmonary embolus, DKA or other serious problem. Give him/her the benefit of the doubt. Treatment with oxygen will not harm the hyperventilator and it will protect you from underestimating the problem.
- E. Use common sense with the patient in respiratory distress. If the pathophysiology will be worsened by ambulating the patient, avoid walking the patient if at all possible. If the patient has a complaint of shortness of breath, or appears to be in respiratory distress, put the patient on high flow oxygen; there are rare exceptions in which oxygen may aggravate a problem but these are so rare that they are not worth mentioning here.
- F. Asthmatic patients can 'trap air' and may need slower ventilations and a prolonged expiratory time.
- G. In head injured patients, assure adequate ventilations, but do not hyperventilate. Ventilate at normal tidal volumes and assist ventilations at a rate of 12-14 breaths/minute for adults.
- H. A distended abdomen, from blood or more commonly ascites, can prevent effective diaphragmatic movement and cause dyspnea.
- I. Severe anemia which has been gradual in progression (often due to cancer or medications) can produce a compensatory increase in respiratory rate, exercise intolerance and shortness of breath.

SEIZURES


- I. Specific Information Needed (subjective information):
 - A. Seizure history: onset, time interval, previous seizures, type of seizure. Ask witness: What exactly did the patient do and what color did patient's skin turn?
 - B. Medical history: especially head trauma, diabetes, headaches, drugs, alcohol, medications, pregnancy, fever or signs of systemic infection, history of febrile seizures in children under age 5 years, epilepsy.
 - C. If new onset seizure and patient is in third trimester of pregnancy, or within two weeks post delivery, consider eclampsia as possible cause of seizure.


- II. Specific Physical Findings (objective information):
 - A. Vital signs.
 - B. Seizure activity. Are there any focal or lateralizing signs?
 - C. Level of consciousness.
 - D. Head and mouth trauma.
 - E. Incontinence of stool or urine.
 - F. Skin signs (look for rashes, too).
 - G. Focal neurological signs (localized area of deficit or seizure activity).
 - H. Headache.

- III. Treatment:
 - A. Assess and support ABCs; nasopharyngeal (NPA) airways may be useful. **NOTE:** Do not force anything between the teeth.
 - B. Oxygen therapy, as needed.
 - C. Suction as needed.
 - D. Lateral recumbent (side lying) position if possible (but maintain spinal precautions if appropriate).
 - E. Monitor airway and vital signs closely.
 - F. If patient is febrile remove clothing and consider cooling with tepid sponging until temperature is down to 101 F. Do not cool to the point of shivering, as the body activity will actually increase in temperature.
 - G. If patient is a confirmed epileptic and is now alert and refuses transport, document vital signs and absence of other complaints. Inquire about anticonvulsant medication status (is patient out, does he/she have means of obtaining more?) If patient is not alert and a responsible guardian is present to supervise the patient, the responsible guardian can sign the refusal.

- IV. Specific Precautions:
- A. Move hazardous material away from patient. Restrain the patient only if needed to prevent injury. Protect patient's head.
 - B. Trauma to tongue is unlikely to cause serious problems, but trauma to teeth may. Attempts to force an airway into a patient's mouth can completely obstruct patient's airway.
 - C. Seizures have many serious causes. Although the most common cause of seizures in the child under age 5 years is febrile seizures and the most likely cause in the adult is undermedication of anticonvulsant medication for epilepsy, it is essential to consider more serious causes of a seizure including infections, increased intracranial pressure, meningitis, alcoholic DTs, poisoning and overdose, metabolic disorders including blood sugar derangements (particularly hypoglycemia), hypoxia etc.
 - D. Seizures in patients over the age of 50 are frequently caused by arrhythmias.
 - E. Do not forget to check for pulse once a seizure terminates. Seizure activity may be the first sign of cerebral hypoxia from cardiac arrest!
 - F. All seizures in children under six months should be strongly encouraged for transport. Because of the potential life-threatening problems in infants, particularly infections, and the fact that young infants have less predictable responses to serious illness, the young infant should be thoroughly evaluated by a physician.

Shock is defined as a state of inadequate cellular perfusion and inadequate oxygen delivery for existing metabolic demands. If the tissue hypoxia continues for a prolonged period, the tissues and organs may suffer irreparable damage even if the patient is initially resuscitated. Clinical manifestations differ according to the underlying cause and the compensatory mechanisms that have occurred.

- I. All forms of hypotension and shock result from one or more of the following three mechanisms (volume, pump or rate problems):
 - A. Volume problems:
 1. Absolute:
 - a. Hypovolemic shock: loss of circulating blood volume. This may be due to direct hemorrhage or through loss of fluids from severe vomiting, diarrhea, burns, peritonitis, uncontrolled diabetes, and/or inadequate intake and heat illness etc.
 2. Relative:
 - a. Vasodilation or redistribution
 - 1) Allergic or Anaphylactic shock
 - 2) CNS or spinal cord injury (classic neurogenic)
 - 3) Third space loss
 - 4) Sepsis
 - 5) Drugs that alter vascular tone
 - B. Pump problems:
 1. Primary cardiogenic shock or pump failure from acute myocardial infarction, cardiomyopathies, valve dysfunction etc.
 2. Secondary pump problem from pulmonary embolus, cardiac tamponade or drugs that alter cardiac function.
 - C. Rate problems:
 1. Too fast 
 2. Too slow
- II. Specific Information Needed (subjective information):
 - A. Onset: sudden or gradual, precipitating cause or event.
 - B. Associated symptoms: itching, peripheral or facial edema, thirst, weakness, hives, trouble breathing, chest pain, dizziness on standing, abdominal pain.
 - C. History: allergies, medications, bloody vomitus or stools, significant medical diseases, trauma.

- III. Specific Physical Findings (objective information):
- A. Mental status: apathy, confusion, restlessness, mania.
 - B. Vital signs: pulse usually greater than 120 (or occasionally less than 60), BP less than 90 systolic.
 - C. Skin: usually cool, clammy and pale (may be warm in early sepsis, flushed in allergic reaction, with rash in sepsis or allergic reaction).
 - D. Signs of trauma (including evidence of blunt injury.)
 - E. Signs of pump failure (cardiogenic shock): jugular venous distention in upright position, wet lung sounds, peripheral edema (indicates chronic pump failure.)
- IV. Treatment:
-  A. Assess and support ABCs. Spine care if indicated.
 - B. Oxygen therapy, high flow; assist ventilations as needed.
 - C. Control hemorrhage, if present. Place patient in supine position
 - D. Take measures to avoid heat loss.
 - E. Transport immediately.
 - F. Monitor vital signs and level of consciousness during transport.
- V. Precautions:
- A. Consider tension pneumothorax as a cause or contributing factor
 - B. Avoid hyperventilation in intubated patients.

- I. Differential Features:
 - A. Common causes of hypovolemic shock: Blunt or penetrating trauma to chest, abdomen, pelvis, major peripheral vessels; burns; dehydration caused by vomiting, diarrhea, inadequate intake, uncontrolled diabetes, fever; blood loss caused by GI bleeding, vaginal bleeding, ruptured ectopic pregnancy.
 - B. Specific Information needed (subjective information):
 - 1. History of trauma or burns.
 - 2. History of vomiting or diarrhea or tarry stools.
 - 3. History of diabetes.
 - 4. Fever.
 - 5. Abdominal pain or back pain.
 - C. Specific Physical Findings (objective information):
 - 1. Thirst, weakness, confusion, agitation.
 - 2. Frank hypotension and tachycardia.
 - 3. Orthostatic symptoms and changes (pulse rate increases more than 20 beats/min or systolic BP drops more than 15 mm Hg when patient changes position from lying to sitting or standing).
 - 4. Peripheral vasoconstriction, pallor, diaphoresis.
 - 5. Signs of specific trauma: bruising, burns etc.

- III. Specific Precautions for Hypovolemic Shock:
 - A. Vital signs in hypovolemic shock can be very misleading. Particularly in young, previously healthy adults, the pulse and blood pressure may remain normal until the patient deteriorates. In older patients, medication or Cardiovascular disease may prevent increase in HR.
 - B. Definitive treatment of acute hypovolemic shock from blood loss requires blood replacement. IV fluid therapy can be life saving, but must not delay transport to the hospital for definitive and operative care.

-
- I. Differential Features:
- A. Common causes of cardiogenic shock or pump failure: myocardial infarction, cardiomyopathies, myocarditis, valve problems, drugs that affect myocardial function, pulmonary embolus, cardiac tamponade etc.
 - B. Specific Information needed (subjective information):
 - 1. Chest pain or other symptoms suggestive of AMI.
 - 2. Recent or past history of structural problems such as artificial valves, cardiomyopathies (enlarged heart), myocarditis or other heart infections, myocardial infarction.
 - 3. Medications, allergies, possible overdose.
 - 4. Onset gradual or sudden.
 - 5. Any clues that would point to hypovolemia.
 - C. Specific Physical Findings (objective information):
 - 1. Mental status: apathy, confusion, agitation
 - 2. Hypotension and evidence of poor perfusion (usually cool, clammy.)
 - 3. Signs of pump failure: jugular venous distention in upright position, wet lung sounds.
 - 4. Evidence of MI or dysrhythmia.
 - 5. Evidence of tension pneumothorax: respiratory distress, decreased breath sounds.
- II. Specific Treatment for Cardiogenic Shock:
- A. Evaluate and treat dysrhythmias per protocol (EMT-P). Remember that shock itself can be a cause of dysrhythmias.
 - B. Consider tension pneumothorax as a cause and treat accordingly.



- I. Differential Features:
 - A. Common causes of neurogenic shock: spinal cord trauma, head injury, overdoses.
 - B. Specific Information Needed (subjective information):
 1. History of trauma.
 2. History of overdose.
 - C. Specific Physical Findings (objective information):
 1. Signs of hypovolemia without peripheral vasoconstriction ("warm shock"). Normal heart rate is common finding (as opposed to usual tachycardia in shock).
 2. Signs of spinal cord injury (neuro deficit, diaphragmatic breathing, priapism).


- II. Specific Precautions for Neurogenic Shock:
 - A. Neurogenic shock, if caused by spinal cord injury, is usually self limited. Relative hypovolemia is caused by dilation of the vascular bed. ~~It responds readily to leg elevation or addition of fluids to fill the increased vascular space. Initiate fluid resuscitation if indicated.~~
 - B. In spinal injuries, consider concealed blood loss if shock is pronounced. Injury above the level of T-8 removes tenderness, rigidity, and guarding as clues to abdominal injury. Chest and pelvis bleeding are alternative sources of concealed bleeding. Consider concealed bleeding as source of shock and treat as needed by Hypovolemic Shock protocol.
 - C. Monitor ventilatory status closely. Cervical spine injured patients may have decreased tidal volume that requires assisted ventilations.


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SPINE TRAUMA

-
- I. Specific Information Needed (subjective information):
 - A. Mechanism of injury and force involved.
 - B. Past medical problems and medications.

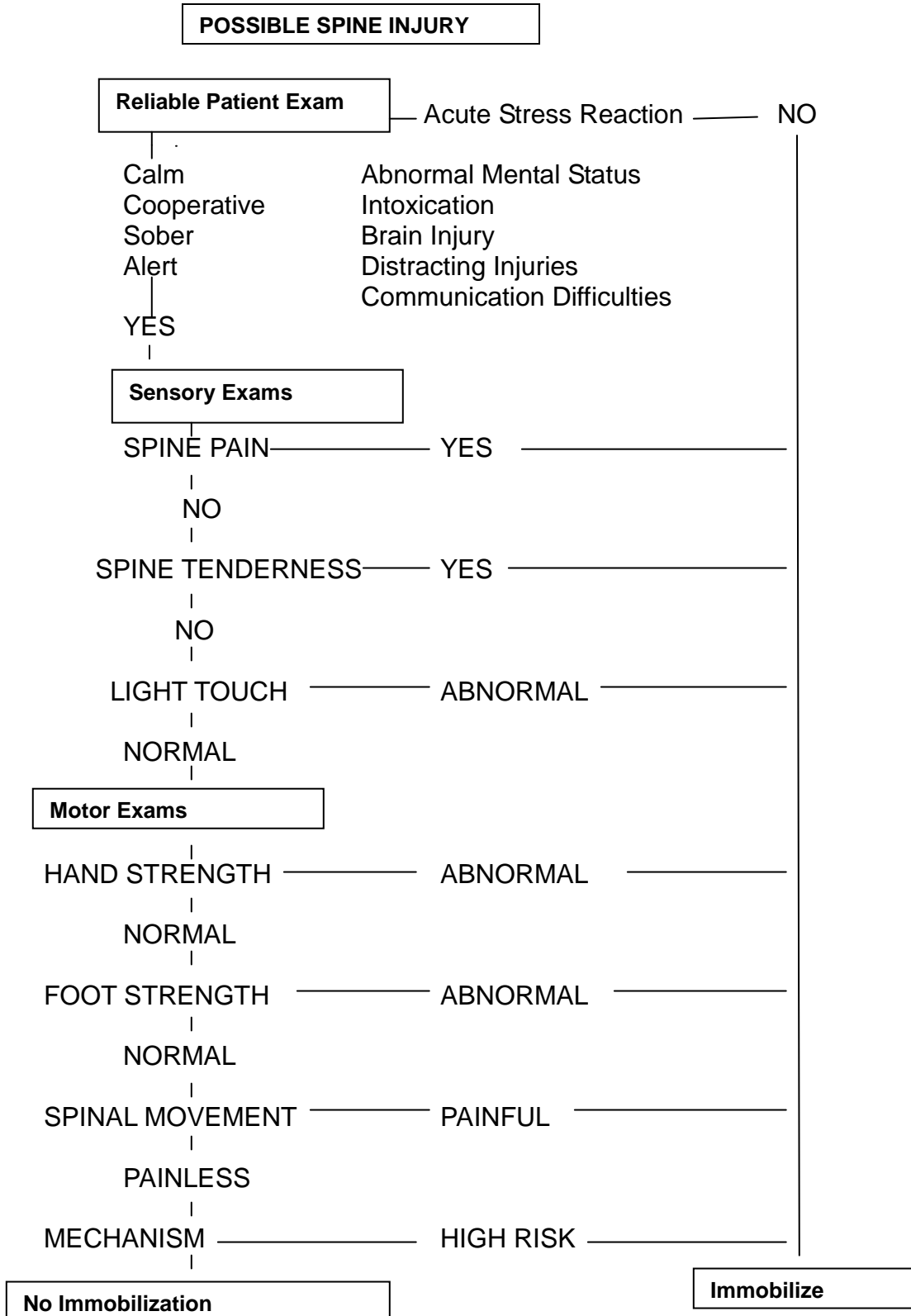
 - II. Specific Physical Findings (objective information):
 - A. Significant injury above clavicles.
 - B. Significant multiple trauma.
 - C. Prior or present altered mental status.
 - D. Paralysis, weakness, numbness or tingling.
 - E. Pain of the spine with or without movement.
 - F. Point tenderness, deformity, or guarding of the spine.

 - III. Treatment:
 - A. Assess and support ABCs with manual spine care until fully immobilized.
 - B. Oxygen therapy; assist ventilations as needed.
 - C. As soon as possible, immobilize cervical spine.
 -  Full c-spine immobilization involves head immobilization or KED on to full spine board.
 - D. Immobilize thoracic and lumbosacral spine with spine board (or other firm surface); patient's entire body should be securely immobilized by straps affixed directly to the long board. Move patient as little as possible and always move as a unit.
 - E. Monitor vitals and transport.

 - IV. Specific Precautions:
 - A. Be prepared to tip patient or entire board on side if patient vomits (patient must be secured to spine board so that patient may be turned as a unit). EMT should be aware that additional help may be necessary to turn patient and manage airway while maintaining C-spine integrity.
 - ~~B. Neurogenic shock is likely with significant spinal cord injury. Raise foot of backboard to increase systolic pressure to greater than 90 mmHg. (This technique will also allow abdominal viscera to push against diaphragm; ventilations must be monitored.) Follow Shock protocol, section A.~~
 -  ~~C. B.~~ Neurologic deficits make evaluation of other injuries very difficult. Think of internal bleeding if shock is severe. Injury above the level of T-8 removes tenderness, rigidity, and guarding as clues to abdominal injury.
 - ~~D. C.~~ If patient has sustained high level cord injury, he/she may be breathing solely by using the diaphragm. You can see this by watching chest. Trendelenberg positioning should be used very cautiously, if at all, with close attention to respiratory status.
 - ~~E. D.~~ Respiratory problems are common and need to be more carefully handled with potential spine injury. Use of nasopharyngeal airways is encouraged.

-
- ~~F. E.~~ Chin straps that could compromise the airway should be removed after the patient is immobilized to the long board. Leg straps which may compromise C-spine immobilization and/or comfort should be loosened.
 - ~~G. F.~~ Some patients require firm padding behind the head to assure standard neutral anatomic position.
 - ~~H. G.~~ In the severely traumatized patient requiring immediate life saving intervention and rapid transport, rigid C-collar, continuous manual in-line support during rapid extrication onto a long spine board and transport may be substituted for more time consuming methods.
 - ~~I. H.~~ Airway problems, respiratory difficulty, and shock are common in the traumatized patient. Alternate techniques for performing airway procedures should be used in spinal injury patients
 - ~~J. I.~~ If any immobilization techniques cause an increase in pain or neurologic deficit, the patient should be immobilized in position found or position of greatest comfort.
 - ~~K. J.~~ Geriatric patients (over 55) should cause a higher index of suspicion for the EMT due to physiologic aging changes; the EMT's awareness of the need to provide for C-spine immobilization should be more acute in these patients.
 - ~~L. K.~~ Despite the mechanism of injury, full cervical spine precautions may not be warranted if the patient exhibits no symptoms, no physical findings and there are no confounding circumstances such as drugs or alcohol. An example of this situation is: A serious MVA with an alert and oriented patient who is ambulatory at the scene of the accident denying tenderness, pain, or other symptoms and upon exam no physical findings are noted.

SPINE TRAUMA



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SYNCOPE

- I. Specific Information Needed (subjective information):
 - A. History of the event: onset, duration, seizure activity, precipitating factors; was the patient sitting, standing or lying; pregnant?
 - B. Past history: medications, diseases, prior syncope, ectopic pregnancy.
 - C. Associated symptoms: vertigo, nausea, chest or abdominal pain, palpitations, vomiting (bloody or coffee ground), melena (blood in stool).

- II. Specific Physical Findings (objective information):
 - A. Vital signs and skin signs.
 - B. Level of consciousness.
 - C. Neurological status.
 - D. Signs of trauma.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy, as indicated.
 - C. Position of comfort. Do not sit patient up prematurely.
 - D. If vital signs unstable, or etiology of syncope is unknown:
 - 1. Treat as per Shock protocol, section A if indicated.
 - 2. Monitor vital signs.
 - 3. Have AED/SAD available.

- IV. Specific Precautions:
 - A. Frequently syncope is vasovagal, not cardiac. If this is so, the patient is typically bradycardic and a recumbent position should be sufficient to restore vital signs and level of consciousness to normal.
 - B. Syncope while in a recumbent position is often cardiac.
 - C. Syncope of recent onset in middle aged or elderly patients is often cardiac and deserves special concern. Be prepared to use AED/SAD if patient becomes unconscious, particularly in a patient in the cardiac age group or with cardiac risk factors or who has been having cardiac signs and symptoms.
 - D. Concealed GI bleeding or abdominal hemorrhage may also present with syncope.
 - E. Think about aneurysm in patients over age 50 with back or abdominal pain and syncope.

SYNCOPE

- F. Syncope by definition is a transient state of unconsciousness from which the patient has recovered. If the patient is still unconscious, the treatment should be as in the Unconscious protocol or Shock protocol, both in section A.
- G. Patients over the age of 40 with syncope, even though apparently normal, should be encouraged to be transported.
- H. Postural vital signs should be checked and documented on a patient who is refusing transport after a syncopal episode. Check BP and pulse lying flat and then sit up or stand and immediately check BP and pulse again. If BP or pulse changes more than 15-20 the patient should be advised and strongly encouraged to be transported by medic unit.

UNKNOWN UNCONSCIOUS

- I. Specific Information Needed:
 - A. Present history: when last well, onset and progression of present state; antecedent symptoms, such as headaches, seizures, fever. Look for trauma clues.
 - B. Past history: previous medical (e.g., epilepsy, diabetes, hypertension) or psychiatric problems.
 - C. Medications: use and/or abuse.
 - D. Surroundings: check for pill bottles, syringes, etc., and bring with patient. Note odor in house.

- II. Specific Physical Findings (objective information):
 - A. Check surroundings closely for:
 - 1. Safety to rescuer.
 - 2. Pill bottles, syringes, etc. (bring with patient if possible)
 - 3. Note odor in house.
 - B. Vital signs.
 - C. Level of consciousness and neurological status.
 - D. Signs of trauma to head and body.
 - E. Odor to breath.
 - F. Needle tracks.
 - G. Medical alert tag.
 - H. Skin color and temperature.
 - I. Rash.
 - J. Pupils.
 - K. Facial or extremity asymmetry.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy, high flow: assist ventilations as needed. Refer to Oxygen Therapy protocol in section C.
 - C. Transport in lateral recumbent (side lying) position (if trauma suspected, give full spine care).
 - D. Monitor vitals and mental status during transport.

- IV. Specific Precautions:
 - A. Be particularly attentive to airway. Difficulty with secretions, vomiting, and inadequate tidal volume are common.
 - B. Hypoglycemia may present a focal neurologic deficit or coma (stroke-like picture) in elderly persons.

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VAGINAL BLEEDING

- I. Specific Information Needed:
 - A. Symptoms: cramping, clots of tissue passed, dizziness, weakness, thirst, number of pads used.
 - B. Present history: duration, amount, last menstrual period (normal?), birth control method. If pregnant: due date. If post-partum: time and place of delivery, current medications.
 - C. Past history: bleeding problems, pregnancies, medications, allergies.

- II. Specific Physical Findings:
 - A. Vital signs and orthostatic changes.
 - B. Evidence of blood loss, clots, or tissue fragments. (Bring tissue to ER.) Note color of blood.
 - C. Other signs of hypovolemic shock: vasoconstriction, sweating, altered mental status, tachycardia, hypotension.
 - D. Fever.

- III. Treatment:
 - A. Assess and support ABCs.
 - B. Oxygen therapy, high flow.
 - C. If BP less than 90, pulse tachycardic or signs of poor perfusion, and patient is post-partum (usually within 24 hours):
 - a. Massage uterus. Have mother nurse infant to aid in uterine contraction.
 - D. Monitor vital signs and prepare for transport.
 - E. If patient is in her 3rd trimester of pregnancy position on her side (left if possible).

- IV. Specific Precautions:
 - A. Amount of vaginal bleeding is difficult to estimate. Visual estimates from sheets and towels can be misleading. Try to get an estimate of number of saturated pads in previous 6 hours. Discrete inspection of the perineum may be useful to determine if clots or tissues are being passed. **DIGITAL VAGINAL EXAM IN THE FIELD IS NOT INDICATED**, especially in 3rd trimester when placenta previa is a possibility.
 - B. Patients in shock from vaginal bleeding should be treated as with any patient with hypovolemic shock.
 - C. Always consider complications of pregnancy, including placenta previa or placental abruption as a cause of vaginal bleeding particularly in the 3rd

VAGINAL BLEEDING

- trimester.
- D. Ectopic (tubal) pregnancy can cause some vaginal bleeding but most of the blood will leak into the abdominal cavity and will not be seen externally. Ectopic pregnancy usually occurs in the first trimester of pregnancy and is a life threatening surgical emergency.
 - E. Significant vaginal bleeding during the first trimester is most often due to miscarriage.
 - F. Dysfunctional uterine bleeding in the older female at the end or past child bearing age can cause serious blood loss.