

TASK ANALYSIS

Table of Contents

	Page
<u>Medical/Trauma Scene Sign-Up /Safety</u>	2
<u>Initial Patient Assessment</u>	9
<u>Focused History & Physical Exam for Trauma Patients</u>	23
<u>Focused History & Physical Examination</u> <u>for Responsive Medical Patients</u>	40
<u>History & Physical Examination</u> <u>for Unresponsive Medical Patients</u>	44
<u>Detailed Physical Examination</u>	56
<u>On-Going Patient Assessment</u>	67
<u>Oropharyngeal Airway</u>	70
<u>Bag-Valve Mask Device</u>	72
<u>Suctioning</u>	78
<u>Cervical Immobilization Device</u>	85
<u>3-4 Person Log Roll Onto A Long Spine Board</u>	89
<u>Sling & Swath</u>	93
<u>Hare Traction Splint</u>	97
<u>Kendrick Extrication Device</u>	103
<u>Kansas Short Spine Board</u>	110
<u>Pillow Splint</u>	117

Kansas Board of Emergency Medical Services

Medical/Trauma Scene Size-Up/Safety Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Evaluate the overall scene	1.1. Assess the scene for immediate/obvious hazards.	The scene's appearance creates an impression that influences the EMTs entire assessment. Evaluating the scene/situation correctly is important. For some situations, size-up is an ongoing process. As additional information is obtained or changes occur, modifications are made to the size-up of the patient and the overall situation.
	1.2. Assure the ambulance or rescue vehicle is parked in the nearest safe location.	
2. Personal Protection	2.1. Determine if it is safe to approach the victim. Consider:	To assure the EMTs and patient's safety. The EMT must be aware of possible hazards including: hazardous materials, bio-hazards and potential for violence.
	2.1.A Crash/rescue scenes.	
	2.1.B Toxic substances or low oxygen areas.	
	2.1.C Crime scenes and potential for violence.	

ACTIVITY	PROCEDURE	RATIONALE
3.If the scene is not safe, <u>do not enter</u>	2.1.D Unstable surfaces (ie, slopes, ice, water, etc). 2.1.E Other unsafe conditions. 3.1. Stand clear until the scene is secured by fire or police personnel.	Assures the safety and well-being of the rescuer. The first priority is to protect emergency responders and patients from further injury. If in doubt about scene safety, consider the scene <u>unsafe</u> .
4.Eliminate/minimize hazards	4.1. Arrange for any special equipment needed, such as: 4.1.A Turnout gear. 4.1.B Breathing apparatus (SCBA). 4.1.C Ropes, cribbing, etc. 4.1.D Any other special equipment. 4.2.Arrange for any specially trained personnel needed, such as: 4.2.A Hazardous Materials Team. 4.2.B High Angle Rescue Team.	Call for whatever personnel or equipment is necessary to affect the safe rescue of the injured person(s). The EMT should not attempt a rescue unless trained to do so.

ACTIVITY	PROCEDURE	RATIONALE
	4.2.C Power company. 4.2.D Gas company. 4.2.E Any other specialized personnel.	
5. Enter, if assured the scene is safe	5.1. Enter and continue to assess the scene.	Continue to survey the scene to form an understanding of the incident (including the mechanism of injury or nature of illness).
6. Evaluate the overall scene	6.1. Determine mechanism(s) of injury. 6.2. What was the pre-incident situation? Does that condition still exist? What was the incident or crash situation?	Helps determine the "mechanism of injury" and may affect personal and patient protection measures to be taken.
7. Evaluate the situation	7.1. What happened? Why? How many people are involved? What are their ages?	The EMT, before starting patient care, must determine the pre-incident situation. How many people are possibly involved and what possible injuries could have resulted from the trauma?

ACTIVITY	PROCEDURE	RATIONALE
8. Body substance isolation	<p data-bbox="735 219 1365 251">8.1. Use disposable gloves.</p> <p data-bbox="735 641 1365 706">8.2. Use eye protection, if necessary.</p> <p data-bbox="735 771 1365 803">8.3. Use gown, if necessary.</p> <p data-bbox="735 836 1365 868">8.4. Use mask, if necessary.</p>	<p data-bbox="1407 219 1944 609">Disposable gloves should be a standard component of emergency response equipment and should be donned by all personnel <u>before</u> initiating any emergency patient care tasks involving exposure to blood or other body fluids to which universal precautions apply. Extra pairs should always be available.</p> <p data-bbox="1407 641 1944 933">Mask, eyewear and gowns should be present on all emergency vehicles that respond to medical emergencies or victim rescues. These protective barriers should be used in accordance with the level of exposure encountered.</p> <p data-bbox="1407 966 1944 1349">Masks and eyewear should be worn together, or a face shield should be used by all personnel before any situation in which splashes of blood or other body fluids to which universal precautions apply are likely to occur. Gowns or aprons should be worn to protect clothing from splashes with blood. If</p>

ACTIVITY

PROCEDURE

RATIONALE

large splashes or quantities of blood are present or anticipated, impervious gowns or aprons should be worn.

9. Protection of the patient

9.1. Consider the patient's safety.

To protect the patient from further injury. In any EMS response, needs and hazards that may endanger the rescuer or the patient must be assessed.

9.2. Evaluate the hazards that may endanger the patient.

Extreme temperatures, rain or snow, water, fire, location of the accident and proximity to highways and cars. Severe weather can be as much of a hazard as the danger of ignition.

Other considerations include: The physical environment of the scene (terrain, vehicle, building) and the potential for hostile situations.

9.3. Consider moving the patient to a place of safety after risks have been identified and minimized or eliminated.

Any patient in a hazardous situation must be moved to a safe area before assessment and treatment may begin.

ACTIVITY	PROCEDURE	RATIONALE
10. Protect the bystanders	10.1. Consider the bystanders safety.	If appropriate, help bystanders avoid becoming a patient. Request crowd control from law enforcement or other agency, if necessary.
11. <u>Medical</u> patient considerations	11.1. Determine nature of illness from patient, family or bystanders.	Find out why EMS was activated. This helps provide valuable information to determine a course for caring for the patient(s).
	11.2. Determine the number of patients.	If there are more patients than the responding units can effectively handle, initiate the mass casualty plan.
	11.3. Determine additional help that may be required (ie, fire, rescue, ALS, law enforcement).	Do this <u>before</u> becoming involved in patient care. A rescuer is less likely to call for help when involved in patient care.
	11.4. Begin triage, if necessary.	
	11.5. Begin initial patient assessment. (See Initial Patient Assessment Task Analysis)	Implement mass casualty plan.

ACTIVITY	PROCEDURE	RATIONALE
12. <u>Trauma</u> patient considerations	12.1. Determine mechanism of injury from patient, family, bystanders or inspection of the scene.	Determine how the patient was injured. Kinematics (the forces and motion involved) must be considered at every accident scene. Proper evaluation of the kinematics involved will provide the EMT with a guide to which injury patterns to suspect, assess and manage.
	12.2. Determine total number of patients.	
	12.3 Determine additional help may be required (ie, fire, rescue, ALS or law enforcement).	
	12.4. Begin triage, if necessary.	
	12.5. Consider spinal precautions.	
	12.6. Begin initial patient assessment. (See Initial Patient Assessment Task Analysis)	

Kansas Board of Emergency Medical Services

Initial Patient Assessment Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. General impression of the patient	1.1. While approaching the scene consider the effect of environmental concerns on the patient's condition, such as:	The general impression is formed to determine priority of care and is based on the EMT-Basic's immediate assessment of the environment and the patient's chief complaint.
	1.1.A Extreme weather.	
	1.1.B Fire.	
	1.1.C Location of the accident.	
	1.1.D Other hazards.	
	1.1.E Determine if patient requires immediate movement because of hazards.	
		Any patient in a hazardous area must be moved to a safe area before assessment and treatment can begin. Evaluate how the hazards endanger the patient.
		Remember, the <u>primary</u> consideration when approaching any scene is the safety of the rescuers.

ACTIVITY	PROCEDURE	RATIONALE
2. Chief Complaint	2.1. Determine why EMS was called (ie, ask patient, family members or bystanders).	The chief complaint is the reason the patient sought help, usually stated in a word or short phrase.
3. Determine whether call is a medical or trauma	3.1. Determine whether patient is ill (medical) or injured (trauma).	Because of the nature of emergency medical care, EMS personnel often think in terms of specific illness and injury, grouping patients into general classifications such as trauma and medical cases.
	3.1.A If trauma, determine the mechanism of injury.	Assists the EMT in determining what possible injuries could have resulted from the trauma.
	3.1.B If medical, determine the nature of illness.	The EMT will concentrate on patient's complaint and history.
	3.2. Determine age and sex of the patient(s).	
4. Check for any life threatening injuries	4.1. Rapidly examine patient to see if life-threatening conditions exist. Examine for conditions such as:	The EMT must immediately recognize and manage life-threatening conditions, providing lifesaving interventions for patients in critical conditions.
	4.1.A Apnea.	
	4.1.B Pulselessness	

ACTIVITY

PROCEDURE

RATIONALE

	4.1.C Severe bleeding/hemorrhage.	
	4.1.D Any other condition that may result in loss of life.	
	4.2. If a life-threatening condition is found, treat immediately.	
5. Assess level of consciousness	5.1. Assess patient's mental status. Begin with speaking to the patient, introducing yourself as an EMT and explain that you are there to help.	The first step with any patient is to assess their level of consciousness. This can usually be accomplished by a cordial exchange with the patient.
	5.2. Spinal stabilization, if indicated.	All patients who have been injured and are unconscious must be assumed to have sustained a spinal injury. If the patient is conscious and a spinal injury is suspected, advise the patient not to move his/her head. Precautions must be taken immediately to prevent further movement and injury.

ACTIVITY

PROCEDURE

RATIONALE

5.3. Establish level of mental status (AVPU).

Change in the level of consciousness is a very important indicator of central nervous system dysfunction.

Providing these baseline evaluations help others involved in the patient's care determine whether the patient's status is improving or deteriorating.

Avoid vague terms such as stuporous or semiconscious when describing the patient's mental status.

5.3.A Is the patient Alert?

A patient who is aware of his or her name, location and the time or date is said to be alert and oriented times three. A patient who is confused or unsure of his/her name or surroundings is said to be disoriented.

5.3.B Does the patient respond to verbal stimuli?

Evaluate the patient's ability to understand and respond appropriately to verbal commands. A patient who is able to move a particular body part when requested demonstrates a level of consciousness that

ACTIVITY

PROCEDURE

RATIONALE

		is important when documenting baseline data.
	5.3.C Does the patient respond to <u>painful</u> stimuli?	This assesses the patient's ability to respond to painful stimulus with purposeful movement, such as moving away.
	5.3.D Is the patient <u>unresponsive</u> ?	The patient does not respond to any stimulation.
6. Assess the patient's airway	6.1. Assess for patency by determining if the patient can speak, noting signs of airway obstruction or respiratory insufficiency (stridor, gurgling) and by inspecting the oral cavity for foreign objects.	A patient without a patent airway will not survive.
	6.2. Responsive patient:	
	6.2.A Is the patient crying or talking? If yes, assess for adequacy of breathing.	
	6.2.B If no, open the airway. (See Activity 7)	Any condition that compromises the delivery of oxygen to body tissues is potentially life-threatening and must be managed immediately.

ACTIVITY

PROCEDURE

RATIONALE

	6.3. Unresponsive patient:	
	6.3.A Is the airway open? If yes, assess for adequacy of breathing.	Positioning is patient, age and size specific.
	6.3.B If no, open the airway. (See Activity 7)	
7. Open the Airway	7.1. For medical (non-trauma) patients perform the head-tilt, chin lift. See Section 7, Task Analysis for Manual Airway Techniques.	The primary cause of airway obstruction in an unresponsive patient is the tongue. Moving the jaw forward will lift the tongue away from the back of the throat and open the airway.
	7.2. For trauma patients, or those with unknown nature of illness, the cervical spine should be stabilized/immobilized and the jaw-thrust maneuver performed. See Section 7, Task Analysis for Manual Airway Techniques.	For patients who may have cervical spine injury, manipulation of the cervical spine should be minimal, and the head and neck should be stabilized in a neutral position.

ACTIVITY	PROCEDURE	RATIONALE
8. Clear the airway	8.1. Assure the airway is clear.	All patients must have a patent airway established and maintained.
	8.2. If airway is clear: Assure continued patency.	If the airway is in danger of becoming compromised, it must be secured manually or with adjunct equipment (ie., oral or nasal airways, suction, endotracheal intubation or esophageal intubation).
	8.3. If airway is not clear: Take appropriate steps to obtain a clear airway.	In accordance with the standards established by the American Medical Association and published in the <u>Journal of the American Medical Association</u> .
9. Assess Breathing	9.1. If respirations are absent, initiate rescue breathing.	Because hypoxia is a life-threatening condition it must be corrected as soon as possible. Brain cells begin to die within the first 4-6 minutes after cessation of breathing.
	9.2. Look for chest rise and fall.	
	9.3. Listen for air exchange.	The respiratory status of a patient is assessed by evaluating the rate, depth, and symmetry of chest movement.

ACTIVITY

PROCEDURE

RATIONALE

9.4 Feel for air flow.

9.5. If breathing is adequate and the patient is responsive, oxygen may be indicated.

Adequate breathing may be defined as a lack of cyanosis, symmetrical chest wall movement and no difficulty breathing.

9.6. Determine rate of respirations:

9.6.A If respiratory rate is >24 or <8 breaths per minute, the patient should receive high flow oxygen. (15 lpm via non-rebreather mask).

Ill or injured patients with ineffective respirations need ventilatory support with high-concentration oxygen.

9.6.B If the patient is unresponsive and the breathing is adequate, open and maintain the airway and provide high concentration oxygen. (15 lpm with non-rebreather mask)

9.6.C If breathing is inadequate, open and maintain the airway, assist the patient's breathing and utilize adjuncts (positive pressure ventilation

Assisted ventilations may be synchronized with the patient's respiratory effort or interspersed as needed to maintain adequate oxygenation.

ACTIVITY

PROCEDURE

RATIONALE

via bag-valve device
or oxygen powered, flow
restricted device).
In all cases, oxygen
should be used.

10. Assess Circulation

10.1. Assess patient's pulse

Circulation is assessed
by feeling for a pulse.
Evaluate the pulse for
quality, rate and regularity.

10.1.A. In the adult patient,
pulse is assessed by
feeling for a radial
pulse.

10.1.B. In a patient one
year old or less,
palpate a brachial
pulse.

The brachial pulse is
more easily palpated
than the radial pulse
in a child or and infant.

10.2. If no radial pulse
is felt, palpate
carotid pulse.

The location of an
obtainable pulse may
indicate the patient's
systolic blood pressure.
Presence of a radial pulse
is generally believed to
indicate a systolic pressure
of 80mm Hg; femoral 70 mm Hg
and carotid 60 mm Hg in the
adult patient.

10.3. If pulseless:

10.3.A Medical patient
>12 years old,
apply the AED.
If AED is not
available, start CPR.

Start BLS and apply
AED in accordance with
local protocols.

ACTIVITY

PROCEDURE

RATIONALE

10.3.B Medical patient
<12 years old,
start CPR.

AED is not indicated
for patients <12 years
of age.

10.3.C Trauma patient,
start CPR.

The most important
determinant of the patient's
prognosis is the time until
definitive treatment is
started. As a result,
transport to the nearest
trauma care facility assumes
highest priority (ie,
load and go). After
initial stabilization
measures, transport of
the severely traumatized
victim should not be
delayed.

10.4. Look for major
bleeding.

A patient that has undergone
severe injury may have
vessels which are damaged
and the natural clotting
mechanism cannot control,
the hemorrhage. The
patient may bleed to death.

Bleeding must be
controlled. The body
cannot compensate for an
acute blood loss of more
than 10 percent of the
total blood volume.

ACTIVITY	PROCEDURE	RATIONALE
11. Assess patient's perfusion	11.1. Look at the patient's skin color by looking at the nail beds, eyes and lips.	Capillary refill should be checked only in infants and children under six years of age.
	11.1.A Normal color - pink	Adult capillary refill time may be affected by the patient's age, gender and environmental factors and should only be used as a possible indicator of circulatory status.
	11.1.B Abnormal conditions pale, cyanosis or blue-gray color, flushed or red, jaundiced or yellow.	
	11.2. Feel the patient's skin temperature.	May indicate hypoperfusion or other environmental causes.
	11.2.A Normal - warm	
	11.2.B Abnormal conditions - hot, cool, cold, clammy-cool and moist.	May indicate dehydration or shock (hypoperfusion).
	11.3. Assess amount of moisture on the skin.	
	11.3.A Normal- dry.	
	11.3.B Abnormal conditions-moist or wet.	

ACTIVITY

PROCEDURE

RATIONALE

	11.4. Assess capillary refill in infants and children <six years of age.	Capillary refill time may provide information about the infant patient's cardiovascular status.
	11.4.A Normal capillary refill is <2 seconds.	
	11.4.B Abnormal capillary refill is >2 seconds.	A filling time >2 seconds caused by shunting and capillary closure to peripheral capillary beds indicates inadequate circulation and impaired cardiovascular function.
12. Identify priority patients	12.1. Consider the following patient conditions as indicators for priority:	Unstable patients may require advanced life support measures not available in the field to the EMT. A decision must be made on critical patients where their condition can best be treated. If these conditions are observed, the EMT-B must consider immediate transport.
	12.1.A Poor general impression.	
	12.1.B Unresponsive patient, no gag or cough.	
	12.1.C Responsive, but not following commands.	
	12.1.D Difficulty breathing.	
	12.1.E Shock (hypoperfusion).	
	12.1.F Complicated childbirth.	

ACTIVITY	PROCEDURE	RATIONALE
	12.1.G Chest pain with blood pressure <100 systolic.	
	12.1.H Uncontrolled bleeding	
	12.1.1 Severe pain anywhere	
13. Consider immediate transportation of the priority (unstable) patient	13.1.If the patient is unstable, consider immediate transportation to the nearest medical facility that can effectively treat the patient's condition.	It is important for the EMT to realize that normally an unstable patient is best managed at a hospital. The most important determinant of the patient's prognosis is the elapsed time until definitive treatment is received.
14.Expedite transport of patient	14.1. Transport priority patients to the nearest care facility able to treat the patient's condition.	For the critically injured patient, the EMT may not conduct more than an initial survey. Instead, the emphasis is on rapid evaluation and transport to the hospital. This does not obviate the need for any important prehospital management. It means simply: do it faster, do it more efficiently and do it en route to the hospital.

ACTIVITY	PROCEDURE	RATIONALE
15. Consider Advanced Life Support back-up for the priority (unstable) patient	15.1.If the patient is unstable, consider having an ALS ambulance/helicopter meet you to assume patient care.	Advanced care may be needed. Potentially life threatening pulmonary complications need to be immediately treated. IV fluids may need to be initiated for those in shock.
16. Proceed to appropriate focused history and physical examination	16.1.For the trauma patient, proceed to the Focused History and Physical Exam-Trauma Patient's Task Analysis.	With trauma patients, it is important to separate those patients who require rapid assessment and critical interventions, from those patients who can be managed using components of the focused assessment.
	16.2.For the medical patient, proceed to the Focused History and Physical Exam-Medical Patients Task Analysis.	Emergency medical care for the patient is based upon assessment findings. In the history and physical exam, the EMT will concentrate on the patient's complaint and history, allowing for rapid emergency care.

Kansas Board of Emergency Medical Services

Focused History and Physical Examination for Trauma Patients Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Reconsider mechanism of injury	1.1. Determine if patient has been subjected to significant injury as demonstrated by the mechanism of injury.	
	1.2. Significant mechanisms of injury may include:	
	1.2.A Ejection from vehicle.	Most trauma patients can receive definitive care only when rapidly stabilized and transported to an appropriate medical facility.
	1.2.B Death in the same passenger compartment.	
	1.2.C Falls >20 feet.	Patients with internal bleeding, major fractures, head injury and multiple systems trauma need life- saving care that can only be provided by specially trained physicians and support staff.
	1.2.D Roll-over of the vehicle.	
	1.2.E High-speed vehicle collision.	
1.2.F Vehicle-pedestrian collision.		

ACTIVITY	PROCEDURE	RATIONALE
	1.2.G Motorcycle crash.	A patient who has suspected trauma, as indicated by the mechanism of injury, should receive a rigid cervical collar and full spine immobilization.
	1.2.H Unresponsive or altered mental status.	
	1.2.1 Penetrations of the head, chest or abdomen.	
	1.3. Hidden injuries may include those caused by:	
	1.3.A Seat belts.	If buckled, may have produced injuries. If patient had seat belt on, it does not mean they do not have injuries.
	1.3.B Airbags.	May not be effective without seat belt. Patient can hit steering wheel after deflation. Lift and look under the bag after the patient has been removed. Any visible deformation of the steering wheel should be regarded as potentially serious internal injury and, appropriate action should be taken.
2. Infant and child considerations	2.1. Significant mechanisms of injury may include:	The child's size produces a smaller target to which linear forces from fenders,

ACTIVITY	PROCEDURE	RATIONALE
	2.1.A Falls > than 10 feet.	bumpers and falls are applied. Because of diminished body fat,
	2.1.B Bicycle collision.	increased elasticity of connective tissue and close proximity of multiple organs, these forces are less well dissipated than in the adult and therefore disperse more energy to multiple organs. The skeleton of a child is incompletely calcified, contains multiple active growth centers and is therefore more resilient. It is less able to absorb the kinetic forces applied during a traumatic event and may allow significant internal derangement with apparently minor injury.
	2.1.C Vehicle in medium speed collision.	
3. Rapid trauma assessment, if indicated	3.1. Perform a rapid trauma assessment on patients with significant mechanism of injury to determine life threatening injuries. If the patient is obviously not seriously injured and there is not a significant mechanism of injury, it is not necessary to perform this rapid trauma assessment.	Trauma care is dependent upon the ability to perform a meaningful rapid assessment. Maintaining focus on priorities is the key to successful management of the multisystem trauma patient.

ACTIVITY

PROCEDURE

RATIONALE

- 3.2. Identify systemic deficits and patients with multi-system trauma. Suspect multi-system trauma with patients who exhibit:
 - 3.2.A Lowered level of consciousness.
 - 3.2.B Any period of unconsciousness.
 - 3.2.C Dyspnea.
 - 3.2.D Significant bleeding.
 - 3.2.E Shock (hypoperfusion).
 - 3.2.F Incontinence.
 - 3.2.G Significant injury of the head, face, neck, thorax, abdomen or pelvis.
 - 3.2.H Mechanism of injury which commonly produces significant internal injuries.
 - 3.2.1 Unexplained systemic findings.

ACTIVITY	PROCEDURE	RATIONALE
4. Stabilize cervical spine	4.1. Manual cervical spine immobilization	If a cervical spine injury <u>might</u> exist, it does exist until proven otherwise by appropriate radiological studies. Therefore, the patient's head must be manually protected. Any necessary movement involved in assessing and managing the patient must include continuous manual protection of the spine.
5. Reassess mental status	5.1. In the responsive patient, symptoms should be sought before and during the trauma assessment. 5.2. Determine if patient's mental status has changed from the initial assessment. (A-V-P-U)	EMT should reconsider the transport priority decision.
6. Consider requesting advanced life support unit(s)	6.1. In the event of long transport times, the EMT should consider summoning an advanced life support unit to the scene or to intercept the BLS unit en route to the hospital.	Can the situation be appropriately handled with the personnel and equipment on the scene? The exact method will be determined by the circumstances of each emergency and local resources.

ACTIVITY

PROCEDURE

RATIONALE

7. Reconsider transport decision

- 7.1. Do not delay transporting critical trauma patients.
- 7.2. Stabilize patient injuries for transport.
- 7.3. During transport, assess the patient from head to toe.
- 7.4. Administer any necessary additional care en route.
- 7.5. Continually reassess patient's condition.

Is the patient's condition deteriorating? Has level of consciousness changed? How far is the nearest appropriate facility? ALS intercept?

Conditions that did not initially appear life-threatening can become critical in minutes.

8. Expose the patient's body surfaces

- 8.1. Remove the patient's clothing without undue movement.
- 8.1.A Cut the sleeves from hand to the neck, then down the midline.

Exposing body surfaces may reveal injured areas that would otherwise go unnoticed. Remove constrictive clothing that might impair patient movement, respirations or distal circulation.

ACTIVITY

PROCEDURE

RATIONALE

	8.1.B Cut trousers up the center of both legs, through the belt.	During this phase of the examination, carefully maintain the patient's body temperature by covering him/her with a blanket or a sheet after each region is examined. Respect the patient's right to privacy and remove only enough clothing to determine the presence or absence of a condition or injury.
	8.2. Cover patient with sheet or blanket to conserve body heat.	
9. Inspect and palpate, looking and feeling for injuries	9.1. Perform a rapid assessment of the patient. Examine each area with the mnemonic DCAP-BTLS in mind. This is a reminder to inspect and palpate for: 9.1.A <u>D</u> eformities. 9.1.B <u>C</u> ontusions. 9.1.C <u>A</u> brasions. 9.1.D <u>P</u> unctures/penetrations. 9.1.E <u>B</u> urns. 9.1.F <u>T</u> enderness. 9.1.G <u>L</u> acerations.	Perform a rapid head to toe examination. The mnemonic DCAP-BTLS may be used to help the EMT remember some of the possible injuries of traumatized patients. Depending on the patient's condition, this examination may be done at the scene or en route to the hospital.

ACTIVITY	PROCEDURE	RATIONALE
10. Assess the head	9.1.H <u>Swelling</u> . 10.1. Inspect and palpate the head for injuries or signs of injuries. 10.2. DCAP-BTLS	
11. Assess the neck	10.3. Palpate for crepitation. 11.1. Inspect and palpate the neck for injuries or signs of injuries. 11.1.A DCAP-BTLS. 11.1.B Jugular Vein Distension (JVD). 11.1.C Crepitation	Crepitation is the noise made by rubbing together the ends of a fractured bone. <u>Do not</u> remove cervical collar if already in place. Trauma to the neck may result in critical injuries that can endanger the patient's life. Emergency care procedures for these patients may include aggressive management to correct life-threatening airway compromise, hemorrhage control from venous or arterial bleeding and spinal immobilization.

ACTIVITY

PROCEDURE

RATIONALE

11.2. Check posterior neck.

12.3. Check anterior neck

12.3.A Stoma

12.3.B Medical Alert Tag

12.3.C Tracheal Deviation

12.3.D Edema.

12. Apply cervical collar

12.1. Apply cervical spinal
immobilization collar.

If not already done.

ACTIVITY	PROCEDURE	RATIONALE
13. Assess the chest	13.1. Inspect and palpate the chest for injuries or signs of injuries.	Following an injury to the chest, any change in respiratory sufficiency is an important sign.
	13.1.A DCAP-BTLS.	
	13.1.B Paradoxical motion.	This occurs when ribs are broken, each in at least two places, or in which there is sternal injury or separation of the ribs from the sternum, producing a free or floating segment of the chest wall that moves paradoxically (opposite) on inspiration.
		This condition decreases the efficiency of ventilations by not allowing the lung on the affected side to completely expand.
	13.1.C Crepitation.	May indicate serious chest injury.

ACTIVITY

PROCEDURE

RATIONALE

	13.2. Auscultate breath sounds in the apices, mid-clavicular line, bilaterally and at the bases, mid-axillary line, bilaterally.	Compare left side to right side.
	13.2.A Assess for presence.	Decreased or diminished breath sounds on one side may be indicative of a serious injury. Abnormal sounds may indicate significant injury.
	13.2.B Assess for absence.	
	13.2.C Assess for equality.	The breathing process should be comfortable, regular and initiated without distress.
14. Assess the abdomen	14.1 Inspect and palpate the abdomen for injuries or signs of injuries.	Abdominal trauma may be difficult to evaluate in the prehospital setting. This is due to a wide spectrum of potential injuries to multiple organs, physical findings that are sometimes lacking or exaggerated and altered levels of pain perception that occurs as a result of preexisting conditions; hypoperfusion, alcohol or drug use, head injury and other factors. A high degree of suspicion must be exercised, based on the mechanism of injury and kinematics.

ACTIVITY

PROCEDURE

RATIONALE

		<p>The abdomen should be evenly round and symmetrical. Symmetrical distension of the abdomen may result from obesity, enlarged organs, fluid or gas. Asymmetrical distension may result from hernias, tumors, bowel obstructions or enlarged abdominal organs.</p>
14.2.	<p>With the fingers of one hand close together, laid flat against the abdomen, press downward with the fingers of the other hand on top of the first hand. Depress gently and palpate each of the four quadrants.</p>	<p>Palpating the abdomen may be useful to detect the presence of fluid, air and solid masses. Employ a systematic approach, moving either from side to side or in a clockwise motion, noting any rigidity, tenderness, abnormal skin temperature or color.</p>
14.3.	<p>DCAP-BTLS.</p>	<p>Observe the patient's face for signs of pain or discomfort. Begin the assessment with a light palpation, using an even pressing motion. For patient the hands should be warm.</p>

ACTIVITY

PROCEDURE

RATIONALE

	14.3.A Firmness.	Abdominal firmness may be a sign of internal bleeding.
	14.3.B Softness.	Abdominal trauma is one of the most frequently missed injuries.
	14.3.C Distention.	
15. Assess the pelvis	15.1. Inspect and palpate the pelvis for injuries or signs of injuries.	Because the pelvis provides support and protection for multiple organ systems, there is great potential for associated injury. The most common associated injuries are those to the urinary bladder and urethra.
	15.1.A DCAP-BTLS.	
	15.2. If no pain is noted, gently compress the pelvis to determine tenderness or motion.	Pelvic fractures can produce massive internal hemorrhage, resulting in the rapid deterioration of the patient's condition.
	15.2.A Gently, but firmly press inward on the lateral wings of the pelvis.	
	15.2.B Gently, but firmly press downward on the anterior/superior iliac spines.	

ACTIVITY

PROCEDURE

RATIONALE

	15.2.C Gently press straight down with the heel of one hand on the symphysis pubis for stability.	Hemorrhage should be suspected if any evidence of instability is found.
16. Assess the extremities	16.1. Inspect and palpate all four extremities, looking for injuries or signs of injuries.	
	16.2. DCAP-BTLS.	
	16.2.A Palpate for distal pulse.	
	16.2.B Assess sensation by touching.	

ACTIVITY	PROCEDURE	RATIONALE
	16.2.C Assess motor function by asking patient to wiggle his/her fingers/toes.	Inability to move or paralysis of the extremity may indicate peripheral nerve injury.
17. Assess posterior body	17.1. Log roll patient onto his/her side using spinal precautions (See Log Roll Task Analysis).	This procedure is necessary anytime the patient is in a position that limits access to the back. If the mechanism of injury indicates a spinal injury, maintain spinal integrity during the log roll and roll the patient directly back onto a long spine board.
	17.2. Inspect and palpate the back looking for injuries or signs of injury	
	17.3. Log roll patient back to supine position onto long spine board using spinal precautions (See Log Roll Task Analysis).	
18. Assess baseline vital	18.1. Assess vital signs (see Vital Signs Task Analysis).	The depth and focus of the patient interview are based on the particular scenario, gather as much information as possible at the scene and
19. Obtain S-A-M-P-L-E history	19.1. Gather information regarding the patient's past medical history that may offer additional insight into the patient's	

ACTIVITY

PROCEDURE

RATIONALE

current problem. The mnemonic S-A-M-P-L-E is used to provide a format for questions.

during transport to the hospital. Do not delay transport of high priority patients to obtain this information.

19.1.A Determine Signs/Symptoms. What signs are being exhibited by the patient? What symptoms did the patient convey to you?

Helps gain a clear understanding of the patient's chief complaint.

19.1.B Determine Allergies to medications the patient might have experienced in the past.

Information on allergies is useful to others involved in the patient's care. If the patient is unresponsive or otherwise unable to converse, look for medical alert information and question family members.

19.1.C. Determine what medications the patient takes on a regular basis and, if so, for what reasons. Additionally, find out if the patient has been taking their medications as directed.

Medication history may provide clues to the chief complaint. The patient's medication history may not always be relevant to the present problem, but it can indicate potential problems that may be encountered during patient care.

PROCEDURE

19.1.D Determine Past medical history. Have these signs/symptoms occurred before? Has the patient been hospitalized before? Any recent surgeries? Any history of diseases?

19.1.E Determine Last meal or oral intake.

19.1.F Determine Events before the emergency. Question the patient, bystanders or both regarding actions or events that occurred before the emergency.

RATIONALE

The patient's past medical history may offer additional insight into the patient's current problem.

The time of the patient's last meal or fluid consumption is important when considering potential airway problems in a patient who loses consciousness or begins to deteriorate. This information also helps determine the appropriateness of surgery.

You may attempt to correlate any event with the beginning or progression of an illness or injury.

Kansas Board of Emergency Medical Services

Focused History and Physical Examination for Responsive Medical Patients Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Assess history of present illness	1.1. Obtain a thorough history of the patient's illness through questioning the patient, family members or others. The mnemonic O-P-Q-R-S-T may be used to provide a sequence.	The patient interview should be conducted early in the patient encounter to help gain a clear understanding of the patient's current problem. The mnemonic O-P-Q-R-S-T helps define the patient's chief complaint by focusing on the essential elements of the assessment.
	1.1.A Determine <u>O</u> nset of current complaint- When did it start?	Helps determine how long the complaint has exhibited before the patient called for assistance. This information may be essential in dealing with cases such as chest pains or cardiac related problems.
	1.1.B Determine <u>P</u> rovocation- What brought this on?	Helps determine if symptoms are associated with an activity such as strenuous exercise.
	1.1.C Determine <u>Q</u> uality-What makes the symptom better? What makes it worse?	Has the patient tried anything to ease the symptom (e.g., medication, changing position).

ACTIVITY

PROCEDURE

RATIONALE

1.1.D Determine Region- Where is the symptom? Where does it go? Is it in one spot or more than one spot?

Helps localize the patient's complaint.

1.1.E Determine Severity- On a scale of 1 to 10, with 1 being the least and 10 being the worst, ask the patient to assign a number to their pain or discomfort.

Allows the EMT to quantify the patient's pain or discomfort.

1.1.F Determine Time- How long has the patient had this symptom? When did it start? When did it end? How long did it last?

Establishes how long the patient has endured the signs/symptoms prior to EMS arrival.

2. Assess significant past medical history

2.1. Gather information on the patient's past medical history that may offer additional insight into the patient's current medical problem. The mnemonic S-A-M-P-L-E is used to provide a format for questions.

Gather as much information as possible at the scene and during transport to the hospital. Regardless of the method used to obtain medical history, a series of questions should be used to gather information.

2.1.A Determine Signs/Symptoms. What signs are being exhibited by the patient? What symptoms did the patient convey to you?

Helps gain a clear understanding of the patient's chief complaint.

ACTIVITY

PROCEDURE

RATIONALE

2.1.B Determine Allergies to medications the patient might have experienced in the past.

Information on allergies is useful to others involved in the patient's care. If the patient is unresponsive or otherwise unable to converse, look for medical alert information and question family members.

2.1.C Determine what Medications the patient takes on a regular basis and, if so, for what reasons. Additionally, find out if the patient has been taking their medications as directed.

Medication history may provide clues to the chief complaint. The patient's medication history may not always be relevant to the present problem, but it can indicate potential problems that may be encountered during patient care.

2.1.D Determine Past medical history. Have these signs/symptoms occurred before? Has the patient been hospitalized before? Any recent surgeries? Any history of disease.

The patient's past medical history may offer additional insight into the patient's current problem.

2.1.E Determine Last meal or oral intake.

The time of the patient's last meal or fluid consumption is important when considering potential airway problems in a patient who loses consciousness or begins to deteriorate. This information also helps

ACTIVITY	PROCEDURE	RATIONALE
	2.1.F Determine Events before the emergency. Question the patient, bystanders or both regarding actions or events that occurred before the emergency.	determine the appropriateness of surgery. You may attempt to correlate events with the beginning or progression of an illness or injury.
3. Perform rapid trauma assessment (if suspect injury).	3.1. If the EMT is suspicious that traumatic injury occurred relative to the medical condition of the patient, perform an assessment of the suspected area. (See Focused History and Physical Exam for Trauma Patients task analysis).	Often in medical emergencies a traumatic injury may be found that is secondary to the patients medical condition (ie, injury from the fall when a patient fainted).
4. Assess baseline vital signs	4.1. Assess blood pressure (See Vital Signs Task Analysis)	Vital signs may reveal significant disease processes.
5. Provide care for the patient	5.1. Provide emergency medical care based on the patient's signs and symptoms based on service protocols or in consultation with medical direction.	Some definitive care for medical patients can be initiated in the prehospital setting.

Kansas Board of Emergency Medical Services

History and Physical Examination for Unresponsive Medical Patients Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Rapid trauma assessment	1.1. Perform a rapid trauma assessment on patients with significant mechanism of injury to determine life threatening injuries. (See Focused History and Physical Examination for Trauma Patients task analysis.	Trauma care is dependent upon the ability to perform a meaningful rapid assessment. Maintaining focus on priorities is the key to successful management of the multisystem trauma patient. If a significant mechanism of injury is not present, or the patient is obviously stable, it is not necessary to perform this rapid trauma assessment.
2. Stabilize cervical spine	2.1. Manual cervical spine immobilization.	If a cervical spine injury <u>might</u> exist, it does exist until proven otherwise by appropriate radiological studies. Therefore, the patient's head must be manually protected. Any necessary movement involved in assessing and managing the patient must include continuous manual protection of the spine.

ACTIVITY	PROCEDURE	RATIONALE
3. Expose the patient's body surfaces.	3.1. Remove the patients clothing without undue movement. (See Focused History and Physical Examination for Trauma Patients Task Analysis).	Exposing body surfaces may reveal injured areas that would otherwise go unnoticed. Remove
4. Inspect and palpate, looking and feeling for injuries	4.1. Perform a rapid assessment of the patient. Examine each area with the mnemonic DCAP-BTLS in mind. This is a reminder to inspect and palpate for:	Perform a rapid head to toe examination. The mnemonic DCAP-BTLS may be used to help the EMT remember some of the possible injuries to be aware of in the trauma patient.
	4.1.A <u>D</u> eformities.	
	4.1.B <u>C</u> ontusions.	Depending on the patient's condition, this examination may be done at the scene or en route to the hospital.
	4.1.C <u>A</u> brasions.	
	4.1.D <u>P</u> unctures/penetrations.	
	4.1.E <u>B</u> urns.	
	4.1.F <u>T</u> enderness.	
	4.1.G <u>L</u> acerations.	
	4.1.H <u>S</u> welling.	

ACTIVITY	PROCEDURE	RATIONALE
5. Assess the head	5.1. Inspect and palpate the head for injuries or signs of injuries.	Head trauma is the leading cause of trauma death. Thirty percent of patients with head trauma have at least one other significant injury to another system. All patients that have experienced trauma above the level of the clavicles should be assumed to have a cervical spine injury. Crepitation is the noise made by rubbing together the ends of a fractured bone.
	5.2. DCAP-BTLS.	
	5.3. Inspect and palpate for crepitation.	
6. Assess the neck	6.1. Inspect and palpate the neck for injuries or Signs of injuries.	Do <u>not</u> remove cervical collar if already in place.
	6.1.A DCAP-BTLS.	Trauma to the neck may result in critical injuries that can endanger the patient's life. Emergency care procedures for these patients may include aggressive management to correct life-threatening airway compromise, hemorrhage control from venous or arterial bleeding and spinal immobilization.
	6.1.B Jugular Vein Distension (JVD).	
	6.1.C Crepitation.	

ACTIVITY

PROCEDURE

RATIONALE

	6.2. Check posterior neck.	If possible, look for obvious injury and/or deformity. Any tenderness in the posterior neck should be regarded as a cervical spine injury. The higher the injury to the spinal cord, the greater loss of function. A cervical cord injury above the level of C-3 results in respiratory arrest. Cord injury to C-5 or C-6 may result in diaphragmatic breathing.
	6.3. Check anterior neck.	Soft tissue wounds to the neck may produce severe
	6.3.A Stoma.	bleeding and swelling and may result in an airway
	6.3.B Medical Alert Tag.	obstruction. Impaled objects should <u>not</u> be removed. Any
	6.3.C Tracheal Deviation.	crushing to the anterior neck may fracture the larynx and/or
	6.3.D Edema.	trachea. Presence of a medical alert tag may/will give information either of a chronic disease illness and/or allergy.
7. Apply cervical collar	7.1. Apply cervical spinal immobilization collar.	If not already done.

ACTIVITY	PROCEDURE	RATIONALE
8. Assess the chest	8.1. Inspect and palpate the chest for injuries or signs of injuries.	Following an injury to the chest, any change in respiratory sufficiency is an important sign.
	8.1.A DCAP-BTLS.	This occurs when the condition in which several ribs are broken, each in at least two places, or in which there is sternal fracture or separation of the ribs from the sternum, producing a free or floating segment of the chest wall that moves paradoxically (opposite) of inspiration.
	8.1.B Paradoxical motion.	This condition decreases the efficiency of ventilations by not allowing the lung on the affected side to completely expand.
	8.1.C Crepitation.	May indicate serious chest injury.

ACTIVITY

PROCEDURE

RATIONALE

8.2. Auscultate breath sounds in the apices, mid-clavicular line, bilaterally and at the bases, mid-axillary line, bilaterally.

Compare left side to right side.

Decreased or diminished breath sounds on one side may be indicative of a serious injury. Abnormal sounds may indicate significant injury.

8.2.A Assess for presence.

8.2.B Assess for absence.

8.2.C Assess for equality.

The breathing process should be comfortable, regular and initiated without distress.

9. Assess the abdomen

9.1. Inspect and palpate the abdomen for injuries or signs of injuries.

Abdominal trauma may be difficult to evaluate in the prehospital setting. This is due to a wide spectrum of potential injuries to multiple organs, physical findings that are sometimes lacking or exaggerated and altered levels of pain perception that occurs as a result of preexisting conditions; hypoperfusion, alcohol or drug use, head injury and other factors. A high degree of suspicion must be exercised based on the mechanism of injury and kinematics.

ACTIVITY

PROCEDURE

RATIONALE

9.2. With the fingers of one hand close together, laid flat against the abdomen, press downward with the fingers of the other hand. Depress gently and palpate each of the four quadrants.

The abdomen should be evenly round and symmetrical. Symmetrical distension of the abdomen may result from obesity, enlarged organs, fluid or gas. Asymmetrical distension may result from hernias, tumors, bowel obstructions or enlarged abdominal organs.

Visible palpations in the upper abdomen may be normal in thin adults, but marked pulsations may indicate an abdominal aortic aneurysm.

ACTIVITY

PROCEDURE

RATIONALE

9.3. DCAP-BTLS.

9.3.A Firmness.

Abdominal firmness may be a sign of internal bleeding. Abdominal trauma is one of the most frequently missed injuries.

9.3.B Softness.

9.3.C Distention.

10. Assess the pelvis

10.1. Inspect and palpate the pelvis for injuries or signs of injuries.

Because the pelvis provides support and protection for multiple organ systems, there is great potential for associated injury. The most common associated injuries are those to the urinary bladder and urethra.

10.1.A DCAP-BTLS.

10.2. If no pain is noted, gently compress the pelvis to determine tenderness or motion.

Pelvic fractures can produce massive internal hemorrhage, resulting in the rapid deterioration of the patient's condition.

10.2.A Gently, but firmly press inward on the lateral wings of the pelvis.

ACTIVITY	PROCEDURE	RATIONALE
	10.2.B Gently, but firmly press downward on the anterior/superior iliac spines.	
	10.2.C Gently press straight down with the heel of one hand on the symphysis pubis for stability.	Hemorrhage should be suspected if any evidence of instability is found.
11. Assess the extremities	11.1. Inspect and palpate all four extremities, looking for injuries or signs of injuries.	Observing the position of an extremity can give clues to possible injuries. Always compare an injured extremity to an uninjured extremity.
	11.2. DCAP-BTLS.	
	11.2.A Palpate for distal pulse.	Presence of distal pulse would indicate circulation to the extremity is intact. A pulseless extremity may indicate absence of circulation distal to an injury.
	11.2.B Assess sensation by touching.	The patient's ability to sense light touch distal to an injury site an absence of numbness and/or tingling is a good indication the nerve supply remains intact. Sensory changes of this nature may indicate changes in nerve function.

ACTIVITY	PROCEDURE	RATIONALE
	11.2.C Assess motor function by asking patient to wiggle his/her fingers/toes.	Inability to move or paralysis of the extremity may indicate peripheral nerve injury.
12. Assess posterior body	12.1. Log roll patient onto his/her side using spinal precautions. (See Log Roll Task Analysis).	
	12.2. Inspect and palpate the back looking for injuries or signs of injury.	This procedure is necessary anytime the patient is in a position that limits access to the back. If the mechanism of injury indicates a spinal injury, maintain spinal integrity during the log roll and roll the patient directly back onto a long spine board.
	12.3. Log roll patient back to supine position onto long spine board using spinal precautions. (See Log Roll Task Analysis).	
	12.4. Position patient to protect airway.	If trauma has been ruled out you may position the patient on their side. If trauma has not been ruled out, the airway must closely be monitored.
13. Assess baseline vital signs.	13.1. Assess vital signs (See Vital Signs Task Analysis).	

ACTIVITY

PROCEDURE

RATIONALE

14. Obtain S-A-M-P-L-E history

14.1. Gather information regarding the patient's past medical history that may offer additional insight into the current problem. The mnemonic S-A-M-P-L-E is used to provide a format for questions.

The depth and focus of the patient interview are based on the particular scenario, Gather as much information as possible at the Scene and during transport to the hospital. Do not delay transport of high priority patients when obtaining this information.

14.1.A Determine Signs/Symptoms.
What signs are being exhibited by the patient? What symptoms did the patient convey to you?

Helps gain a clear understanding of the patient's chief complaint.

14.1.B Determine Allergies to medications the patient might have experienced in the past.

Information on allergies is useful to others involved in the patient's care. If the patient is unresponsive or otherwise unable to converse, look for medical alert information and question family members.

Medication history may provide clues to the chief complaint. The patient's medication history may not always be relevant to the present problem, but it can indicate potential problems that may be encountered during patient care.

PROCEDURE

RATIONALE

14.1.D Determine Past medical history. Have these signs/symptoms occurred before? Has the patient been hospitalized before? Any recent surgeries? Any history of diseases?

The patient's past medical history may offer additional insight into the patient's current problem.

14.1.E Determine Last meal or oral intake.

The time of the patient's last meal or fluid consumption is important when considering potential airway problems in a patient who loses consciousness or begins to deteriorate. This information also helps determine the appropriateness of surgery.

14.1.F Determine Events before the emergency. Question the patient, bystanders or both regarding actions or events that occurred before the emergency.

You may attempt to correlate any event with the beginning or progression of an illness or injury.

Kansas Board of Emergency Medical Services

Detailed Physical Examination Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Perform a detailed physical examination of the patient to gather additional information	1.1. Perform a thorough, methodical assessment of the patient. Examine each area with the mnemonic DCAP-BTLS in mind. This is a reminder to inspect and palpate for:	Perform a rapid head to toe examination. The mnemonic DCAP-BTLS may be used to help the EMT remember some of the possible injuries to be aware of in the trauma patient.
	1.1.A <u>D</u> eformities.	
	1.1.B <u>C</u> ontusions.	
	1.1.C <u>A</u> brasions.	
	1.1.D <u>P</u> unctures/penetrations.	Depending on the patient's condition, this examination may be done at the scene or enroute to the hospital.
	1.1.E <u>B</u> urns.	
	1.1.F <u>T</u> enderness.	
	1.1.G <u>L</u> acerations.	
	1.1.H <u>S</u> welling.	

ACTIVITY	PROCEDURE	RATIONALE
2. Assess the head	2.1. Inspect and palpate the head for injuries.	Head trauma is the leading cause of trauma death. Thirty percent of patients with head trauma have at least one other significant injury to another system. All patients that have experienced trauma above the level of the clavicles should be assumed to have a cervical spine injury.
	2.2. DCAP-BTLS.	
	2.3. Inspect and palpate for crepitation.	
3. Assess the face	3.1. Inspect and palpate the face for injuries.	Because of the rich vascular supply, soft tissue injuries of the face often appear to be quite serious. With the exception of compromised upper airway and significant bleeding, damage to the tissues of the facial area are seldom life threatening. Depending on the mechanism of injury, facial trauma may range from minor cuts and abrasions to more serious injuries involving extensive soft tissue lacerations and avulsions.
	3.2. DCAP-BTLS.	

ACTIVITY

PROCEDURE

RATIONALE

4. Assess the eyes

- 4.1. Inspect and palpate for injuries.
- 4.2. DCAP-BTLS.
 - 4.2.A Discoloration.
 - 4.2.B Unequal pupils.
 - 4.2.C Foreign bodies.
 - 4.2.D Blood in anterior chamber.

Although facial bones can withstand tremendous forces from energy impact, facial fractures are common after blunt trauma.

Few eye injuries are truly urgent, however all victims of ocular trauma should be evaluated by a physician. If serious eye injury that may require specialized care is suspected, medical control should be advised as soon as possible so that services will be available when the patient arrives in the emergency department. Pupil size, equality and reactivity to light may indicate neurological dysfunction or hypoperfusion.

5. Assess the nose

Any fluid escaping from the ears and nose should be examined to see if it contains cerebrospinal fluid.

ACTIVITY	PROCEDURE	RATIONALE
6. Assess the ears	6.1. Inspect and palpate for injuries. 6.2. DCAP-BTLS. 6.2.A Drainage. 6.2.B Bleeding.	
7. Assess the mouth	7.1. Inspect and palpate for injuries. 7.2. DCAP-BTLS. 7.2.A Teeth. 7.2.B Obstructions. 7.2.C Swollen or lacerated tongue. 7.2.D Odors. 7.2.E Discoloration.	The most common types of dental trauma involves fractures and avulsions of the anterior teeth. If a tooth is fractured, the oral cavity should be carefully searched for tooth fragments. Removal of the fragments reduces the risk of aspiration and obstruction of the airway.
8. Assess the neck	8.1. Inspect and palpate the neck for injuries or signs of injuries. 8.2.A DCAP-BTLS 8.2.B Jugular Vein Distension (JVD)	<u>Do not</u> remove cervical collar if already in place. Trauma to the neck may result in critical injuries that can endanger the patient's life. Emergency

ACTIVITY

PROCEDURE

RATIONALE

8.2.C Crepitation

care procedures for these patients may include aggressive management to correct life-threatening airway compromise, hemorrhage control from venous or arterial bleeding and spinal immobilization. Soft tissue wounds to the neck may produce severe bleeding and swelling and may result in an airway obstruction. Impaled objects should not be removed. Any crushing to the anterior neck may fracture the larynx and/or trachea.

8.3. Assess posterior neck

If possible, look for obvious injury and/or deformity. Any tenderness in the posterior neck should be regarded as a cervical spine injury. The higher the injury to the spinal cord, the greater loss of function. A cervical cord injury above the level of C-3 results in respiratory arrest. Cord injury to C-5 or C-6 may result in diaphragmatic breathing.

ACTIVITY

8. Assess the chest

PROCEDURE

9.1. Inspect and palpate the chest for injuries.

9.1.A DCAP-BTLS.

9.1.B Paradoxical motion.

9.1.C Crepitation.

9.2. Auscultate breath sounds in the apices, mid-clavicular line, bilaterally and at the bases, mid-axillary line bilaterally.

RATIONALE

Following an injury to the chest, any change in respiratory sufficiency is an important sign.

A sign of flail chest the condition in which several ribs are broken, each in at least two places, or in which there is sternal fracture or separation of the ribs from the sternum, producing a free or floating segment of the chest wall that moves paradoxically (opposite) on inspiration.

Flail chest decreases the efficiency of ventilations by not allowing the lung on the affected side to completely expand.

May indicate severe illness or injury.

Compare left side to right side. Decreased or diminished breath sounds on one side may be indicative of a serious injury.

ACTIVITY

PROCEDURE

RATIONALE

	9.2.A Assess for presence	Fluid heard in the lower lobes of the lungs is a sign of pulmonary edema.
	9.2.B Assess for absence	
	9.2.C Assess for equality	The breathing process should be comfortable, regular and initiated without distress.
10. Assess the abdomen	10.1. Inspect and palpate the abdomen for injuries or signs of injuries.	Abdominal trauma may be difficult to evaluate in the prehospital setting. This is due to a wide spectrum of potential injuries to multiple organs, physical findings that are sometimes lacking or exaggerated and altered levels of pain perception that occurs as a result or preexisting conditions; shock, alcohol or drug use, head injury and other factors. A high degree of suspicion must be exercised based on the mechanism of injury and kinematics.
	10.2 DCAP-BTLS	
	10.2A Firmness	
	10.2B Softness	
	10.2C Distension	
		Suspicion for injury and/or illness should be based on mechanism of injury, physical signs and/or past medical history. Abdominal firmness may be

ACTIVITY

PROCEDURE

RATIONALE

a sign of internal bleeding. Abdominal trauma is one of the most frequently missed injuries.

The abdomen should be evenly round and symmetrical. Symmetrical distension of the abdomen may result from obesity, enlarged organs, fluid or gas. Asymmetrical distension may result from hernias, tumors, bowel obstructions or enlarged abdominal organs.

With the fingers of one hand close together, laid flat against the abdomen, press downward with the fingers of the other hand. Depress gently and palpate each of the four quadrants.

Visible palpations in the upper abdomen may be normal in thin adults, but marked pulsations may indicate an abdominal aortic aneurysm.

Palpating the abdomen may be useful to detect the presence of fluid, air and solid masses. Employ a

ACTIVITY

PROCEDURE

RATIONALE

systematic approach, moving either from side to side or in a clockwise motion, noting any rigidity, tenderness, abnormal skin temperature or color.

Observe the patient's face for signs of pain or discomfort. Begin the assessment with a light palpation, using an even pressing motion. For patient comfort the hands should be warm.

11. Assess the pelvis

11.1. Inspect and palpate the pelvis for injuries.

Because the pelvis provides support and protection for multiple organ systems, there is great potential for associated injury. The most common associated injuries are those to the urinary bladder and urethra.

11.2. DCAP-BTLS

11.3.A If no pain is noted, gently compress the pelvis to determine tenderness or

Pelvic fractures can produce massive internal hemorrhage, resulting in the rapid deterioration of the patients condition.

11.3.B Gently, but firmly press inward on the lateral wings of the pelvis.

ACTIVITY

PROCEDURE

RATIONALE

	11.3.C Gently, but firmly press downward on the anterior/superior iliac spines.	
	11.3.D Gently press straight down with the heel of one hand on the symphysis pubis for stability.	Hemorrhage should be suspected if any evidence of instability is found.
12. Assess the extremities	12.1. Inspect and palpate all four extremities, looking for injuries.	Observing the position of an extremity can give clues to possible fractures or dislocations. Always compare an injured extremity to an uninjured extremity.
	12.2. DCAP-BTLS.	
	12.2.A Palpate for distal pulse.	Presence of distal pulse would indicate circulation to the extremity is intact. A pulseless extremity may indicate absence of circulation distal to an injury.
	12.2.B Assess sensation by touching.	The patient's ability to sense light touch distal to an injury site and absence of numbness and/or tingling, is a good indication the nerve supply remains intact. Sensory changes of this nature may indicate changes in nerve

ACTIVITY	PROCEDURE	RATIONALE
		function.
	12.2.C Assess motor function by asking patient to wiggle his/her fingers/toes.	Inability to move, or paralysis of the extremity, may indicate peripheral nerve injury.
13. Assess posterior body	13.1. Log roll patient onto his/her side using spinal precautions (See Log Roll Task Analysis).	This procedure is necessary anytime the patient is in a position that limits access to the back. If the mechanism of injury indicates a spinal injury, maintain spinal integrity during the log roll.
	13.2. DCAP-BTLS	
	13.3. Log roll patient back to supine position onto long spine board using spinal precautions. (See Log Roll Task Analysis).	
14. Assess baseline vital signs	14.1. Assess vital signs (See Vital Signs Task Analysis).	Vital signs may reveal a significant illness or injury or show a patient trend.

Kansas Board of Emergency Medical Services

On-Going Patient Assessment Task Analysis

ACTIVITY	PROCEDURE	RATIONALE
1. Reassess level of consciousness	1.1. Reassess patient mental status (See Initial Patient Assessment Task Analysis).	<p>In order to assure appropriate care, the EMT must re-evaluate the patient frequently. Update medical direction about significant changes in the patient's condition. Rapid changes such as deteriorating vital signs, blood loss and airway compromise may alter the priorities of patient care activities.</p> <p>A stable patient should be re-evaluated, and the results recorded, every fifteen minutes. An unstable patient should be re-evaluated, and the results recorded, every five minutes.</p>
2. Maintain open airway	2.1. Reassess airway patency (See Initial Patient Assessment Task Analysis).	<p>A patient without a patent airway will not survive.</p> <p>Because hypoxia is a life-threatening condition, it must be corrected as soon as possible.</p>

ACTIVITY	PROCEDURE	RATIONALE
4. Reassess circulation	4.1. Reassess patient's pulse (See Initial Patient Assessment Task Analysis).	Circulation is assessed by feeling for a pulse. Evaluate the pulse for quality, rate and regularity.
5. Monitor skin color and temperature	5.1. Reassess patient's skin color and temperature (See Initial Patient Assessment Task Analysis).	May provide additional information regarding the patient's cardiovascular status.
6. Re-establish patient priorities	6.1. Reassess patient to determine if priority status has changed (See Initial Patient Assessment Task Analysis).	If patient status has deteriorated to an unstable condition, formulate and implement appropriate treatment and notify medical control of the situation.
7. Reassess and record vital signs	7.1. Reassess blood pressure, pulse, respirations, skin color, skin temperature, skin moisture and pupils (See Vital Signs Task Analysis).	Note any significant changes in patient vital signs.
8. Repeat appropriate focused assessment regarding patient complaint or injuries	8.1. Repeat appropriate parts of Focused History and Physical Examination.	Determine if patient condition has worsened, remained stable or improved and determine if different treatment is indicated.

ACTIVITY	PROCEDURE	RATIONALE
9. Assure adequacy of oxygen delivery/artificial ventilation	9.1. Determine if the patient is being adequately oxygenated (See Initial Patient Assessment Task Analysis).	Ill or injured patients with ineffective respirations need ventilatory support with high concentration oxygen.
10. Assure management of bleeding	10.1. If bleeding was discovered during the initial assessment, confirm that it is now under control.	Bleeding must be controlled.
11. Assure adequacy of other interventions	11.1. Examine any other intervention initiated to assure they continue to be effective.	Any intervention started in the field or en route to the hospital should be monitored and regulated to compensate for any changes in the patient's condition.

OROPHARYNGEAL AIRWAY

ACTIVITY

1. Measure the airway.

PROCEDURE

1.1.A Place the flange of the airway at the corner of the patient's mouth.

1.1.B Place the tip of the other end of the airway at or behind the angle of the jaw or:

1.2.A Place the flange of the airway at the corner of the mouth.

1.2.B Place the tip of the other end of the airway at the tip of the earlobe.

2. Open the patient's mouth.

2.1. Cross finger technique (see Section 7, Manual Airway Techniques Task Analysis).

2.2. Tongue Jaw-lift (See Section 7, manual Airway Techniques Task Analysis).

3. Insert the airway.

3.1.A Insert the tip of the airway towards the roof of the mouth until contact is made with the posterior pharyngeal wall (soft palate).

3.1.B Rotate 180 degrees or:

RATIONALE

When measuring for proper size, the airway should follow the natural contour of the oropharynx.

Open the mouth with or without head-tilt, as patient condition dictates. If there is any suspicion of a spinal injury the head-tilt is contraindicated.

Improper insertion can result in an airway obstruction by the tongue producing ineffective ventilation. Damage to the roof of the mouth, teeth and pharynx can result from improper

ACTIVITY

PROCEDURE

RATIONALE

	3.2.A Insert the tip of the airway towards the cheek.	insertion technique. The oropharyngeal airway can induce laryngospasms if the airway is too long or placed too deep into the oropharynx.
	3.2.B When contact is made with the posterior pharyngeal wall (soft palate).	
	3.2.C Inferiorly rotate 90 degrees.	
	3.3. Insertion is complete when the flange rests on the patients lips and the airway is patent.	After the airway insertion is complete, look, listen, and feel for adequate air exchange.
4. Removal of airway.	4.1. Grasp the flange of the airway.	
	4.2. Pull the airway out following the natural curvature of the oropharynx.	If a gag reflex is present, remove the airway immediately and clear the airway of any foreign material present to prevent aspiration. If the patient has a gag reflex but cannot maintain an open airway consider using a nasopharyngeal airway. Other indications to remove the airway are Just prior to insertion of the esophageal obturator airway or endotracheal intubation.

BAG-VALVE-MASK DEVICE

ACTIVITY	PROCEDURE	RATIONALE
1. Assemble the equipment.	1.1 Varies according to brand. Refer to manufacturers directions for assembly.	The mask that is used in conjunction with the bag valve device should be transparent to allow visualization of vomitus and/or secretions.
	1.2. An oxygen collection reservoir is encouraged.	Using an oxygen collection reservoir will allow a higher inspired oxygen concentration ($F_i O_2$) to be administered with the bag-valve mask.
2. Apply supplemental oxygen.	2.1. Connect oxygen tubing to the nipple on the flow meter.	Oxygen tubing allows for transportation of the oxygen from the tank to the delivery device.
	2.2. Connect oxygen tubing to the oxygen inlet port on the bag-valve-mask.	
	2.3. Open the oxygen tank (see section 11, Oxygen Administration Task Analysis).	Opening the oxygen tank allows flow of oxygen from the tank.
	2.4. Adjust the oxygen flow meter to the desired liter flow.	A flow rate of 15 L/M should be used when using a bag-valve mask.

ACTIVITY	PROCEDURE	RATIONALE
3. Position the mask.	<p>3.1. Work from the top of the patient's head.</p> <p>3.2. Place the pointed end of the mask over the bridge of the patient's nose.</p> <p>3.3. The base of the mask should fit between the lower lip and chin.</p>	<p>Prior to using the bag-valve-mask it is recommended that an oropharyngeal airway be inserted to help maintain an open airway. The mask should fit snugly over the bridge of the nose and in the groove between the lower lip and the chin.</p>
4. Establish a face to mask seal.	<p>4.1. Place your thumb above the bag-valve connection port on the mask. Use your thumb to hold the mask snugly against the bridge of the nose, thereby, creating a seal.</p> <p>4.2. Place your index finger below the bag-valve connection port of the mask.</p> <p>4.3. Place your remaining fingers under the patient's mandible and bring the patient's chin up to the mask.</p> <p>4.4. Extension of the patient's head and/or the jaw -lift maneuver must be maintained throughout the procedure.</p>	<p>Using the thumb and index finger to hold down the mask and other fingers to pull up the mandible, will aid in making a face to mask seal.</p> <p>When ventilating the patient, air should not leak out around the mask. Face to mask seal must be maintained to achieve proper ventilatory volume.</p> <p>Extension of the head helps to prevent and/or reduce the incidence of gastric distention and maintain an open airway. Extension of the head in patient's with a suspected spinal injury is contraindicated. Maintain the jaw-lift-manuever only</p>

ACTIVITY

PROCEDURE

RATIONALE

5. Begin ventilations.

- 5.1. Grasp the bag with your free hand
- 5.2. Squeeze the bag, deflating it completely.
- 5.3. You may choose to compress the bag against your knee.
- 5.4. If additional personnel are available, have one EMT maintain a face to mask seal while the other EMT manipulates the bag.

In the bag-valve-mask device the self inflating bag has a volume of 1200-1600 ML in the adult model. The pediatric model has a capacity of 500-700 ML and the infant model has a capacity of 150-240 ML. The advantages of using the bag-valve-mask device and/or mouth to mask over mouth to mouth are preventing direct patient contact, reducing the possibility of cross contamination and the ability to deliver enriched oxygen mixtures. However, the bag-valve-mask usually does not generate the tidal volumes possible with mouth to mouth or mouth to mask ventilation. Gastric distention is a complication of all three techniques.

ACTIVITY

PRODECURE

5.5. Ventilate as patient condition dictates.

RATIONALE

A non-breathing adult patient should be ventilated at least once every 5 seconds, non-breathing child once every 4 seconds, non-breathing infant once every three seconds. A patient with spontaneous breathing at a rate of 12 for adult, 15 for child, 20 for infant or less should be assisted with ventilations. Deflation of the bag should occur simultaneously as the patient inhales. For head injuries with signs and symptoms of increased intracranial pressure, hyperoxygenation of the patient, at a rate of 24-30 breaths per minute will aid in blowing of carbon dioxide and providing oxygen to hypoperfused cells. Increasing the oxygen delivered and reducing the carbon dioxide build up within the body will help to decrease intracranial swelling.

ACTIVITY

PROCEDURE

RATIONALE

In cases of carbon monoxide poisoning, it is essential to attempt to replace the carbon monoxide with oxygen in the hemoglobin because carbon monoxide combines with the hemoglobin of the blood more readily than oxygen does. In pediatric patients cardiac arrest is nearly always secondary to hypoxia.

6. Assess ventilatory statue.

6.1. Observe the patient for chest rise.

Chest rise with ventilation is a sign of adequate ventilation.

6.2. Feel for increased resistance when squeezing the bag.

Gastric distention decreases the capacity of the lungs and increases the tendency toward vomiting. Increased resistance to ventilations may talso be an indication of 'a possible pneumothorax and/or hemothorax or tongue obstructing the airway.

6.3. Observe for widening abdominal girth.

ACTIVITY

PROCEDURE

RATIONALE

6.4. Observe for vomiting (See section 14, Suctioning Task Analysis).

Vomiting is an end result of gastric distention. If vomiting occurs the patient's airway must be cleared immediately.

REFERENCES: 1, 2, 3, 4, 5, 8, 10, 12, 18, 21, 27, 30

SUCTIONING

ACTIVITY	PROCEDURE	RATIONALE
1. Turn the patient onto his/her side.	1.1. Log roll technique. (See section 17, Log Roll to Long Spine Board Task Analysis)	Turn the patient onto his/her side with the head down to facilitate drainage of blood, vomitus, or other secretions out of the patients mouth rather than down the throat. If mechanism of injury indicates a possible spinal injury, maintain and protect spinal integrity.
2. Open the patients mouth if necessary.	2.1. Crossed-finger technique. 2.2. Tongue-jaw-lift.	See manual airway techniques.
3. Finger sweep if necessary.	3.1. Use the gloved index finger of other hand to sweep the mouth.	Facilitates clearing the airway of foreign material that may be too large to be handled by the suction equipment. Never let the obtaining of equipment delay patient care. The airway must be cleared immediately to prevent aspiration.

ACTIVITY	PROCEDURE	RATIONALE
4. Select appropriate suction tip.	4.1. Rigid (tonsil) tip.	This tip is preferred for suctioning the pharynx. It is less likely to become clogged and the rounded tip is less likely to be traumatic to the soft tissue.
	4.2. Flexible catheters.	A variety of sizes are available and may be tolerated better by a conscious or semi-conscious patient. Suctioning a patient with clenched teeth can also be accomplished easier with this type of tip because it can be placed along the teeth back into the mouth of nasally. The various sizes accommodate suctioning the pharynx of children, nasopharynx in adults, and stomas.
5. Measure the tip.		Measuring the tip prevents the suction tip from being placed too deep into the pharynx causing soft tissue damage. In a conscious or semi-conscious patient this could stimulate vomiting.

ACTIVITY

PROCEDURE

RATIONALE

6. Insert the tip with suction not applied. (General rule for all suction techniques)

Prevents suction tip from attaching to the soft tissue when inserting the tip. The tonsil tip should be inserted with its convex side along the roof of the mouth until the pharynx has been reached.

7. Perform oropharyngeal suctioning.

- 7.1 Apply suction.
 - a. Pharynx.
 - b. Dependent buccal area.

The suction tip must be continuously moved to prevent the catheter from attaching to the soft tissue. Try to limit suctioning to 15 sec. A complication of suctioning is hypoxia: After the airway is cleared supplemental oxygen must be administered to help prevent or counteract hypoxia. Severe head injuries that cause open fractures to the base and floor of the skull may expose brain tissue directly into the airway. If you are suctioning the back of the throat of a patient with a severe head injury, look for exposed brain tissue or open wounds in the throat and suction the mouth only.

NOTE: Do not use this procedure in cases of severe head injuries that cause open fractures to the base and floor of the skull. Brain tissue may be exposed directly into the naso/oropharynx. Suction the mouth only.

ACTIVITY	PROCEDURE	RATIONALE
8. Nasopharyngeal suctioning.	8.1. Measure the tip the same way as for a Nasopharyngeal Airway.	See section 9, Nasopharyngeal Task Analysis.
	8.2. Moisten tip with water or a water soluble lubricant.	A flexible tip must be used for this type of suctioning. Select one small enough to fit into the nostril. A rigid tip is too large to be inserted into the nostril and would cause extensive damage to the nasal mucosa. Moistening and/or apply a water soluble lubricant to the tip lubricates the catheter for easier insertion.
	8.3. Insert the tip gently through one of the nostrils using a slight downward slant to the back of the throat with suction not applied.	Application of suction while inserting the tip into the pharynx increases the risk of damage to the pharyngeal mucosa. This procedure can be done with a nasal airway in place.

ACTIVITY

PROCEDURE

RATIONALE

8.4. Apply suction intermittently.

Suction until the airway is clear. Try to limit suctioning to no more than 15 seconds and administer supplemental oxygen to counteract or prevent hypoxia. Intermittent suctioning and rotating of the catheter between the thumb and forefinger prevents injury to the lining of the pharynx.

Laryngectomy suctioning.

9.1. Remove all coverings

Allows for visualization and access to stoma.

9.2. Clear the stoma of any foreign matter.

The airway must be cleared to prevent aspiration.

9.3. This is a sterile procedure. Every precaution should be taken to keep the suction catheter tip sterile.

A sterile surface becomes contaminated as soon as the sterile surface comes in contact with anything surface or object, considered not sterile. Sterile objects may touch other sterile objects and remain sterile. If you are unsure about the sterility of an object, consider it contaminated.

ACTIVITY

PROCEDURE

RATIONALE

9.4. Moisten tip with sterile water and/or apply a water soluble lubricant.

A flexible tip must also be used for this type of suctioning. Select one small enough to get through the stoma. A rigid tip is too large to be inserted and would cause extensive soft tissue damage. Moistening and/or application of a water soluble lubricant to the tip lubricates it for easier insertion.

9.5. Insert tip gently. Approximately 2 to 3 inches through the stoma.

9.6. Apply intermittent suctioning as the tip is slowly withdrawn.

Suction until the airway is clear. Try to limit suctioning to no more than 15 seconds. Administer supplemental oxygen to counteract or prevent hypoxia. Intermittent suctioning and rotating of the tip between the thumb and forefinger prevents injury to the soft tissue of the lower airways.

ACTIVITY	PROCEDURE	RATIONALE
10. Flush tip and tubing with water as needed.	10.1. Place suction tip in water with suction applied and flush the catheter and tubing as necessary.	To prevent clogging of the tubing after suctioning is accomplished, flush all emesis from tip and tubing into collection bottles. This contains the emesis for easier disposal and infection control.

REFERENCES: 1, 2, 4, 5, 12, 15, 28

CERVICAL IMMOBILIZATION DEVICE

ACTIVITY	PROCEDURE	RATIONALE
1. Recognize need for cervical collar.	1.1. Assess for mechanism of injury and signs and symptoms of the patient.	All patients who have been injured and are unconscious must be assumed to have sustained a spinal injury. Suspect a spinal injury in any case involving a car accident, fall from a great height, or other high velocity accident.
2. Establish and maintain the head and neck in an in-line neutral position.	2.1. Place your palms on each side of the patient's head.	At no time should the head and neck be twisted or excessively flexed or extended.
	2.2. Place the patient's head in a neutral position and maintain that position until the patient is fully immobilized on a spine board.	Take every precaution against converting a spinal injury into cord damage. Advise the conscious patient not to move the head. <u>If the patient complains when you attempt to position the head, do not persist. Immobilize the head in the position found.</u>

ACTIVITY

PROCEDURE

RATIONALE

3. Assess the neck.

3.1. See section 3, Primary Assessment Task Analysis.

4. Select appropriate collar.

4.1. Measure the collar to assure appropriate size. This is dependant on which type of cervical collar you are using. See manufacturer's recommendations for the type you will be using.

Application of the appropriately sized cervical collar will insure the patient's head will remain in the neutral position. If the collar is too small, it will not immobilize the head unless it is applied too tightly. If it is too large, it may cause extension of the patient's head.

5. Prepare for application of the cervical collar.

5.1. Maintain the patient's head in neutral position.

Remember that a cervical collar, like most splints, require two rescuers to apply it. One to immobilize manually and the other for application of the device.

5.2. Remove the patient's jewelry if necessary.

Remove any object that may cause pressure when the collar is applied.

5.3. Hold patient's hair out of the way.

5.4. Loosen the patient's clothing if necessary.

Loosen the clothing around the neck to facilitate placement of the collar beneath the clothing.

ACTIVITY

PROCEDURE

RATIONALE

6. Apply the collar.

6.1 Soft foam collar. Fasten in the back.

6.1A. Ease the bottom of the collar toward the neck so that it rests on the clavicles.

6.1B. Using both your hands gently ease the collar around the patient's neck.

6.1C. Fasten the velcro to secure the collar.

6.2. Side fastening collar. (Philadelphia type)

6.2A. Slide the back piece in place.

6.2B. Fit the top along occipital region.

6.2C. The lower edge should rest along the top of the shoulders.

6.2D. Slide the front piece of the collar in place. Angle it toward the chin so that the top of the collar rests on the edge of the jaw.

6.2E. Ease the bottom of the collar toward the neck so that it rests on the clavicles.

6.2F. Gently ease the collar into place.

ACTIVITY

PROCEDURE

RATIONALE

	6.2G. Secure the velcro on both sides.	The front portion of the c-collar should overlap the back to facilitate a large area of velcro available for securing the halves together.
6.3. One piece collars fastening on the side.	6.3A. Slide the back into place as described in step 6.2B & 6.2C. 6.3B. Slide the front piece into place as described in 6.2D, E, and F.	
6.4. Secure the collar by bringing the back velcro piece into place along the front of the collar.		
7. Maintain manual stabilization of the head.		Manual stabilization of the head should be maintained until the patient has been secured onto a spine board. Secure the head to the spine board after securing the body so that any movement during strapping will not cause movement in the neck.

3-4 PERSON LOG ROLL

ONTO A LONG SPINE BOARD

ACTIVITY	PROCEDURE	RATIONALE
1. Maintain cervical stabilization (see Cervical Immobilization Device).	1.1. EMT #1 maintains stabilization of the head.	Cervical stabilization must be maintained throughout the entire procedure until the patient has been secured to a spinal immobilization device.
2. Perform a neurovascular assessment.	2.1. See section 15, Neurovascular Assessment Task Analysis.	
3. Apply Cervical Immobilization Device(if not already applied).	3.1. See Cervical Immobilization Device Task Analysis.	
4. Place extremities in anatomical long bone position if possible.	4.1. Place legs extended in normal manner. 4.2A. Place arms extended by the patients side or 4.2.B Place the patient's forearms across their chest.	Placing the extremities into anatomical position helps the body to act as a splint for itself and facilitates a more effective log roll.
5. Positioning of other rescuers.	5.1. EMT #2 should be positioned at the mid-chest area of the patient. 5.2. EMT #3 should be positioned on the same side of the patient as #2 by the patient's thighs.	

ACTIVITY	PROCEDURE	RATIONALE
6. Coordination of the log roll.	<p>5.3. EMT #2 and EMT #3 reach across the patient and grasp at the shoulder, hip, and lower leg at mid-calf.</p> <p>6.1. EMT #1 assures everyone is ready to roll the patient.</p> <p>6.2. EMT #1 gives verbal command to roll on the the count of three.</p>	<p>Positioning the hands on the far side of the patient increases the leverage for the rescuers during the roll. Coordination of any movement of a patient that is suspected of having a spinal injury will minimize the movement of the spine, It requires constant communication between the rescuers, themselves and the patient.</p>
7. Roll the patient onto his/her side.	<p>7.1. EMT #1 carefully keeps the head and neck in the neutral position.</p> <p>7.2. EMT #2 & #3 roll the patient toward them onto his side.</p>	<p>Weight control is best achieved through a smooth coordinated pull. The rescuers should use their body weight, shoulder and back muscles and concentrate on the heavier portions of the patients body. Care should be taken to prevent any twisting motion of the patient. The head, neck, shoulders, and pelvis should be kept in line during the roll.</p>
8. Examine the back. (see section 5, Secondary Task Analysis)	<p>8.1. EMT #2 (or #4 if available examines the back for injuries.)</p>	

ACTIVITY

PROCEDURE

RATIONALE

9. Positioning the Long Spine Board.

9.1. EMT #4, if available, if not EMT #2 positions the Long Spine Board next to the patient.

9.2. If a fourth EMT is available, the board can be held at a 35-40 degree angle. If only three EMT's are available the board should be left flat.

The Long Spine Board should be positioned by the patient prior to the log roll and slid into place while the patient is on his side. The patient can rest against the rescuers thighs to facilitate positioning the board. Again prevent any twisting movement of the patient and assure in line maintenance of the spine.

10. Roll the patient back onto the board.

10.1. EMT #1 coordinates the move the same as in step 6.

10.2. Roll the patient as a unit back onto the spine board.

Positioning the patient onto the center of the board may be necessary after a log roll maneuver. The move is coordinated in the same manner as step 6. Care should be taken to maintain in line position of the spine.

11. Secure the torso to the board.

11.1. EMT #1 remains at the head of the patient to maintain in-line stabilization of the head until the entire body has been immobilized on the board.

11.2. EMT #2 and/or #3 secures the torso to the board.

11.3. Straps should be placed and secured across the chest, hips, and lower extremities.

Manual stabilization of the head should be maintained until patient's torso has been secured onto a long spine board. This helps to prevent any movement of the neck during the securing of the body to the board.

ACTIVITY	PROCEDURE	RATIONALE
12. Secure the head to the board.	<p>12.1. EMT #2 or #3 places blanket roll, commercial head immobilizer, or sandbags next to the sides of the head.</p> <p>12.2. Using either 2" tape, cravats or head strap across the forehead, secure the head to the board.</p> <p>12.3. Place 2nd strap and/or tape across the C-collar.</p>	<p>Using both straps provides better immobilization of the cervical spine. Never place a strap across the chin because it could interfere with control and/or maintenance of the airway.</p>
13. Reassess Neurovascular status.	13.1. See section 15, Neurovascular Assessment.	

REFERENCES: 1, 2, 3, 4, 5, 8, 10, 18, 27

SLING AND SWATH

ACTIVITY	PROCEDURE	RATIONALE
1. Expose the fracture site.	1.1. Remove or cut away clothing.	Visualization of the fracture site identifies deformity, open wounds, exposed bone ends, bleeding, etc.
	1.2. Remove jewelry (rings, watches, bracelets, etc.)	Remove anything that could possibly become constrictive if swelling in the extremity increases.
2. Evaluate Neurovascular status.	2.1 See section 15, Neurovascular Task Analysis.	Identifies any neurovascular deficit initially.
3. Cover open wounds.	3.1. Apply sterile dressings to open wounds.	Applying sterile dressings to open soft tissue wounds helps to control bleeding and prevent further contamination.
4. Control hemorrhage.	4.1. Apply direct pressure.	The first priority in the management of open wounds is to control hemorrhage.
	4.2. Apply a compression dressing.	
5. Support the fracture site.	5.1. Stabilize the injured extremity at the fracture site if necessary.	Stabilizing the injured limb helps to prevent any unnecessary movement of the injured extremity and prevent further injury. The patient may already be stabilizing the upper extremity in position of comfort.

ACTIVITY

6. Position the sling.

PROCEDURE

- 6.1. Place the base of the triangle bandage along the frontal axis of the patient's body.
- 6.2. Thread one end behind the injured extremity so that it is placed across the patient's chest.
- 6.3. Extend the upper end approximately 8-10 inches beyond the patient's shoulder on the uninjured side.
- 6.4. Slightly elevate the forearm toward the opposite shoulder. The hand of the injured extremity should be positioned at or above the level of the heart and the hand should be included in the sling with the fingers exposed to allow assessment of neurovascular status.
- 6.5. Bring the lower end of the triangular bandage up over the forearm and across the injured side.
- 6.6. Extend the end approximately 8-10 inches beyond the shoulder.

RATIONALE

The principal effect of the sling is to support the weight of the upper extremity and relieve the downward pull of gravity on the forearm.

ACTIVITY

PROCEDURE

RATIONALE

6.7. Tie the ends into a square knot on the uninjured shoulder side.

The knot of the sling should be tied to one side of the neck for patient comfort. Padding can also be applied under the site of the knot.

6.8. The apex can be pinned with a safety pin or twisted and tied into a single knot.

7. Prepare the swathe.

7.1 Fold a triangular bandage into a 3-4 inch cravat.

8. Apply the swathe.

8.1. Wrap the cravat around the injured arm and the sling. Be sure to include the hand and wrist of the injured arm under the swathe.

The swathe is used to bind the arm to the chest wall to provide added stability for the injured extremity and the chest wall. Including the hand and wrist of the injured arm under the swathe will help to secure the arm to the body and increase the effectiveness of the splint. A pillow may be placed to aid in comfort and act as padding. The swathe should not be placed directly over the fracture site. The swath should not incorporate the unaffected arm.

8.2. Tie a square not in the ends.

ACTIVITY

PROCEDURE

RATIONALE

9. Reassess Neurovascular status.

9.1. See section 15, Neurovascular Assessment Task Analysis.

Identifies any changes in neurovascular status.

HARE TRACTION SPLINT

ACTIVITY	PROCEDURE	RATIONALE
1. Expose fracture site.	1.1. Cut away clothing	Allows for observation of the fracture site to identify open fractures, protruding bone ends, open wounds, and hemorrhage. Also provides access for application of sterile dressings and hemorrhage control.
2. Remove shoes.	2.1. Cut the shoe and sock off of the injured extremity, if necessary.	Allows access to the feet for evaluation of distal neurovascular function.
3. Evaluate Neurovascular status.	3.1. See section 15, Neurovascular Assessment Task Analysis.	
4. Stabilize the leg (*manual traction can be applied now. See step 8).	4.1. Support the injured extremity at the suspected fracture site if necessary.	Helps prevent any unnecessary movement of the injured leg and prevent further injury.
5. Prepare the splint.	5.1. Position the splint next to the patient's uninjured leg.	Using the uninjured leg helps assure accurate measurement of the device. The injured extremity may be shortened or severely deformed due to the fracture. It also reduces the chances of accidentally bumping the injured extremity.

ACTIVITY

PROCEDURE

RATIONALE

5.2. Palpate ischial tuberosity of the uninjured leg.

The ischial tuberosity is the proximal landmark for the splint.

5.3. Place padded end of splint (ischial pad) at the level of the ischial tuberosity on the uninjured site.

6. Adjust the length of the splint approximately 12" beyond the heel.

6.1. Loosen the collett sleeve locking devices by turning in the direction indicated on the splint.

Prepares the splint for application and adequate length for applying traction.

6.2. Adjust the length of the splint so that the distal end extends approximately 12" beyond the heel of the patient's foot.

6.3. Tighten the collett sleeve locking devices by turning in the direction indicated on the splint.

6.4. Extend traction strap fully.

7. Open and adjust the 4 velcro support straps.

7.1. One at the proximal end of the splint.

7.2. One above the knee.

7.3. One below the knee.

7.4. One above the ankle.

The leg support straps should be applied so as to have one above and one below the fracture site if possible.

ACTIVITY

8. Apply manual traction (*manual traction can be applied at step 4).

PROCEDURE

- 8.1A. Grasp the proximal/posterior portion of the calf with the hand most lateral from the patient.
- 8.1B. With the hand closest to the patient, grasp the injured leg just superior to the ankle or
- 8.2A. Slide the ankle hitch under the injured leg, while supporting the fracture site.
- 8.2B. Place the lower edge of the urethane sponge so that it is even with the bottom edge of the heel.
- 8.2C. Wrap the straps securely around the ankle.
- 8.2D. Grasp the ankle with your most lateral hand.
- 8.2E. Grasp the "D" ring straps with the other hand.
- 8.3. Exert gentle but steady longitudinal traction.
- 8.4. Support the fracture site and elevate the extremity enough to allow the placement of the splint.

RATIONALE

When applying manual traction, grasp firmly so that once the traction pull is applied it will not be released until the limb is fully splinted. The application of traction helps to alleviate pain, and minimize further soft tissue damage caused by the muscle spasms that can occur.

The ankle hitch can be applied and traction pulled from the foot. Manual traction can be applied at step 4 as stabilization of the leg and maintained until mechanical traction is applied. This strap must be applied securely to prevent it from slipping out of place.

ACTIVITY	PROCEDURE	RATIONALE
9. Position the splint.	9.1. Place the splint under the injured leg from the foot toward the ischial tuberosity. 9.2. Raise and lock the support stand. 9.3. Palpate the ischial tuberosity and place the ischial pad against it.	When mechanical traction is applied to the foot through the ankle hitch, a force is exerted by the upper end of the splint against the ischial tuberosity to produce counter-traction. Therefore, the splint must be placed securely against the ischial tuberosity.
10. Secure splint to the leg.	10.1. Attach the ischial strap.	Padding this area is optional. Padding may provide some protection to the groin area. In a male patient be sure the genitals are out of the way.
11. Apply ankle hitch if not already done.	11.1. Slide the ankle hitch under the injured leg. 11.2. Place the lower edge of urethane sponge so that it is even with the bottom edge of the heel.	

ACTIVITY

PROCEDURE

RATIONALE

11.3. Wrap the straps securely around the ankle.

11.4. Grasp the "D" ring straps.

12. Apply mechanical traction.

12.1. Place the "S" hook on the traction strap into the "D" rings on the ankle strap.

12.2. Turn the ratchet mechanism to tighten the traction strap.

12.3. Apply only enough traction to maintain limb alignment and alleviate some of the patient's pain.

Communication between the rescuer and the patient is essential throughout all procedures. As the rescuer is applying mechanical traction, ask the patient about relief from pain and comfort.

Mechanical traction can generate excessive amount of force and cause further damage to the extremity.

13. Apply support straps.

13.1. Secure the top strap above the fracture site.

13.2. Secure one below the knee.

13.3. Secure the bottom strap above the ankle.

DO NOT SECURE ANY STRAPS DIRECTLY OVER THE FRACTURE SITE. If any strap cannot be applied above the fracture site, leave it in place to support the fracture site. The support straps secure the leg to the splint and provide support to the fracture site.

ACTIVITY

PROCEDURE

RATIONALE

14. Reassess neurovascular status.

14.1. See section 15, Neurovascular Assessment Task Analysis.

Reassessing the circulation and the nerve function after manipulation of the injured extremity identifies any change in any of these functions.

KENDRICK EXTRICATION DEVICE

ACTIVITY	PROCEDURE	RATIONALE
1. Establish and maintain manual stabilization of the head.	1.1. Place palms on each side of the patient's head. 1.2. Place the head in a neutral position. 1.3. Maintain that position.	Suspect a spinal injury in any patient that has been involved in any type of high velocity accident, i.e. car accident, fall from a great height ect. The head and neck should not be twisted, flexed or extended. Take every precaution against converting a spinal injury into cord damage. Advise the patient not to move his/ her head. <u>If the patient complains of pain when you attempt to position the head, immobilize the head and neck in the position it is found.</u>
2. Assess Neurovascular Status.	2.1. See section 15, Neurovascular Assessment Task Analysis.	Initial assessment of neurovascular status will identify any deficit prior to splinting and establishes baseline data.
3. Apply cervical collar.	3.1. See section 16, Cervical Immobilization Task Analysis.	Manual stabilization of the head should be maintained until the torso and head are secured to the immobilization device.

ACTIVITY

PROCEDURE

RATIONALE

4. Prepare the splint.

4.1. Take the device out of the storage case.

4.2. Open the splint so that the smooth side will be next to the patient.

4.3. The leg straps can be removed and reattached to the back of the splint prior to placement of the device.

5. Position the device behind the patient.

5.1 Place and center the device behind the patient with minimum movement.

Placement of the device should be accomplished with minimal movement of the patient. It may be necessary to move the patient slightly forward to facilitate placement of the device. Caution must be taken to prevent any excessive movement of the patient. This move must be coordinated between all rescues and support of the head, neck and torso maintained. If there is access to the patient's back without compromising spinal integrity assessment of the back should be performed prior to placement of the device.

ACTIVITY

PROCEDURE

RATIONALE

	5.2. Release the leg straps (if not already done).	
	5.3. Wrap the chest supports around the torso.	
	5.4. Lift the device snugly up into the axilla.	This device is designed so that the weight of the patient is borne in the axilla when the patient is moved.
6. Secure the chest.	6.1. Fasten and tighten the middle chest strap.	Securing the torso to the board prior to securing the head to the board prevents possible movement of the head and neck.
	6.2. Fasten and tighten the bottom chest strap.	
	6.3. It is optional to fasten the top chest strap but only loosely.	Leaving the top chest strap unsecured or fastened loosely until just prior to moving the patient increases the comfort of the patient.
7. Position and secure leg straps.	7.1. Slide the leg straps under the patient's legs.	When placing and securing the leg straps, avoid discomfort or injury to the patient.

ACTIVITY

PROCEDURE

RATIONALE

	7.2. Pull the end up between the legs.	
	7.3A Secure the leg straps to the same side or	If a groin injury is suspected, the straps may be secured to the same side. The use of the leg straps in cases of severe femur fracture is not recommended by the manufacturer.
	7.3B Secure the leg straps to the opposite side.	
8. Fill any existing space behind the head, neck, and shoulders with padding.	8.1. Visualize the space between the head and the board.	Visualization will help to determine how much space will need to be filled or if any adjustment in the board position will be necessary. Feeling for any space between the device and the head may be necessary to identify any hidden space. Hair can cover hidden space and be deceptive.

ACTIVITY

PROCEDURE

RATIONALE

8.2. Slide the padding in from either side.

Any soft material can be used as padding; i.e. cravats, towels, bandaging, soft c-collars, the adjust-a-pad that is provided with the device. Remember that the purpose of padding is to prevent flexion or extension of the head and/or neck. Gently slide the padding into the space from either side. This prevents stuffing the padding behind the head and it is easier to maintain the head in the neutral position.

9. Secure the device to the head.

9.1. Coordination between rescuers during the application of the head flaps and restraints should be similar to the application of the c-collar (See section 16, Cervical Immobilization Device Task Analysis).

Flexion or extension of the head should not occur during this procedure. Coordination between rescuers provide maximum stabilization of the head and neck. After proper application, the head flaps will prevent lateral motion of the head and neck.

9.2. Wrap the head flaps around the patient's head.

ACTIVITY

PROCEDURE

RATIONALE

If immobilization of the head and neck in position found is desired, fold the head flaps inward and splint the head and neck as indicated by patient position.

10. Attach the forehead restraint.

10.1. Placement of the restraint on the forehead should be just superior to the eyebrows.

When applying the forehead restraint, move hair out of the forehead to prevent slippage of the strap. Placement superior to the eyebrows will help to anchor the restraint on the ridge of the orbits.

11. Attach c-collar restraint.

11.1. Place the restraint over the cervical immobilization device.

This restraint enhances immobilization. Placement of the lower restraint should not interfere with airway maintenance, therefore, it is not recommended to be placed over the chin. It should not be applied so tight that it is constricting to the patient.

ACTIVITY

PROCEDURE

RATIONALE

12. Apply and/or secure the top chest strap.

13. Readjust all straps as necessary.

13.1. Check all the straps for security and tightness.

Assures the security of the splint.

14. Reassess Neurovascular Status.

Reassessment of the neurovascular status after the application will identify if any change has occurred from the original evaluation. When moving the patient onto a full spinal immobilization device, use the strategically placed handles to facilitate movement. Remember that all moves should be coordinated and care should be taken to prevent any excessive movement of the patient.

KANSAS SHORT SPINE BOARD

ACTIVITY

PROCEDURE

RATIONALE

1. Establish and maintain manual stabilization of the head.

1.1. Place your palms on each side of the patient's head.

1.2. Place the head in a neutral position.

1.3. Maintain that position.

Suspect a spinal injury in any patient that has been involved in any type of high velocity accident, i.e. car accident, fall from a great height etc. The head and neck should not be twisted, flexed or extended. Take every precaution against converting a spinal injury into cord damage. Advise the patient not to move his/her head. If the patient complains of pain when you attempt to position the head, immobilize the head in the position it is found.

2. Assess Neurovascular status.

2.1. See section 15, Neurovascular Assessment Task Analysis.

Initial assessment of neurovascular status will identify any deficit prior to splinting and establishes baseline data.

ACTIVITY	PROCEDURE	RATIONALE
3. Apply cervical collar.	3.1. See Cervical Immobilization Device Task Analysis.	Manual stabilization of the head should be maintained until the torso and head are secured to the immobilization device.
4. Prepare the splint.	4.1. Remove the head pieces and restraints.	The head pieces and straps may be stored on the board and must be removed prior to insertion of the board behind the patient.
	4.2. Loosen the straps from the board.	Loosening the straps from the front of the board facilitates easier application of the board to the patient.
	4.3. Velcro the lower pelvic straps together.	
5. Position the board behind the patient.	5.1. Angle the device so that the top of the board is placed behind the patient first.	

ACTIVITY

PROCEDURE

RATIONALE

5.2. Slide and center the device into place behind the patient.

Placement of the device should be accomplished with minimal movement of the patient. It may be necessary to move the patient slightly forward to facilitate placement of the device. This move must be coordinated between all rescuers and support of the head, neck and torso must be maintained throughout the move. If there is access to the patient's back without compromising spinal integrity, assessment of the back should be performed prior to placement of the device.

6. Secure the board to the chest.

6.1. Fasten the chest strap.

Fasten the chest strap tight enough to secure the board into place, but not so tight as to impair respirations.

7. Secure pelvis to the board.

7.1. Slide the lower pelvic strap under either of the patient's legs.

If the patient has suffered an injury to one leg slide the straps under the uninjured leg.

ACTIVITY

PROCEDURE

RATIONALE

7.2. Maneuver the lower pelvic straps so they are centered between the legs and buttocks.

7.3. Velcro the upper pelvic straps to the appropriate lower pelvic straps.

Padding of the groin is optional when securing the straps in the groin area. Avoid discomfort or injury to the patient. Securing these straps provide lateral and vertical stability. This device is designed so that the weight of patient is borne in the pelvic region when the patient is moved. These straps must be applied securely.

8. Identify existing space between the head and the board.

8.1. Visualize the space between the head, neck, shoulders and the board.

Visualization will help to determine how much space will need to be filled or if any adjustment in board position will be necessary. Feeling for any space between the device and the head may be necessary to identify any hidden space. Hair can cover hidden space and be deceptive.

ACTIVITY	PROCEDURE	RATIONALE
9. Fill any existing space behind the head, neck, and shoulders with padding.	9.1. Slide the padding in from either side.	Any soft material can be used as padding; i.e. cravats, towels, bandaging, soft collars, etc. The purpose of padding is to prevent flexion or extension of the head and/or neck when securing the head to the board. The head must remain in the neutral position. Exception to this is when the head and neck are splinted in the position found.
10. Place the head supports.	10.1. Coordination between rescuers during the application of the head supports and restraints should be similar to the application of the c-collar (see section 16, Cervical Immobilization Device Task Analysis).	

10.2. Place a head support against each side of the patient's head, one at a time.

Coordination between the resuers is essential to provide maximum stabilization of the head and neck. This should be continued throughout the procedure. Placement of the head support helps to prevent any lateral movement of the head and neck.

10.3. The bottom of the head support should rest on the patient's shoulders.

Placement of the head supports onto the patient's shoulders provides stability for the supports.

10.4. Secure the velcro on the head support to the velcro attachment on the board.

Securing the velcro attachments helps to prevent the head supports from slipping.

11. Secure the head to the device.

11.1. Attach forehead restraint.

See section 22, Kendrick Extrication Device Task Analysis.

ACTIVITY

PROCEDURE

RATIONALE

	11.2. Attach cervical collar restraint.	
12. Readjust all straps as necessary.	12.1. Check all straps for security and tightness.	Assures the security of the splint.
13. Reassess Neurovascular statue.		Reassessment of the neurovascular status after the application of the device will identify if any change has occurred from the original evaluation.

REFERENCES: 1, 2, 4, 5, 24, 27

PILLOW SPLINT

ACTIVITY	PROCEDURE	RATIONALE
1. Expose the fracture site.	1.1. Remove or cut away clothing and/or shoes and socks.	Visualization of the fracture site identifies deformity, open wounds, exposed bone ends, bleeding, etc. Also it provides access for application of sterile dressings and hemorrhage control. Removing the shoes allows access to the feet to enable evaluation of distal neurovascular function. Remove anything that could possibly become constrictive if swelling in the extremity increases.
2. Evaluate Neurovascular status.	2.1. See section 15, Neuro-vascular Assessment Task Analysis.	Identifies any Neuro-vascular deficit initially.
3. Cover open wounds.	3.1. Apply sterile dressings to open wounds.	Applying sterile dressings to open soft tissue wounds.
4. Control hemorrhage.	4.1. Apply direct pressure. 4.2. Apply a compression dressing.	The first priority in the management of open wounds is to control hemorrhage.