

**2007
NATIONAL CONTEST
FIRST AID
PROBLEM NO. 1**

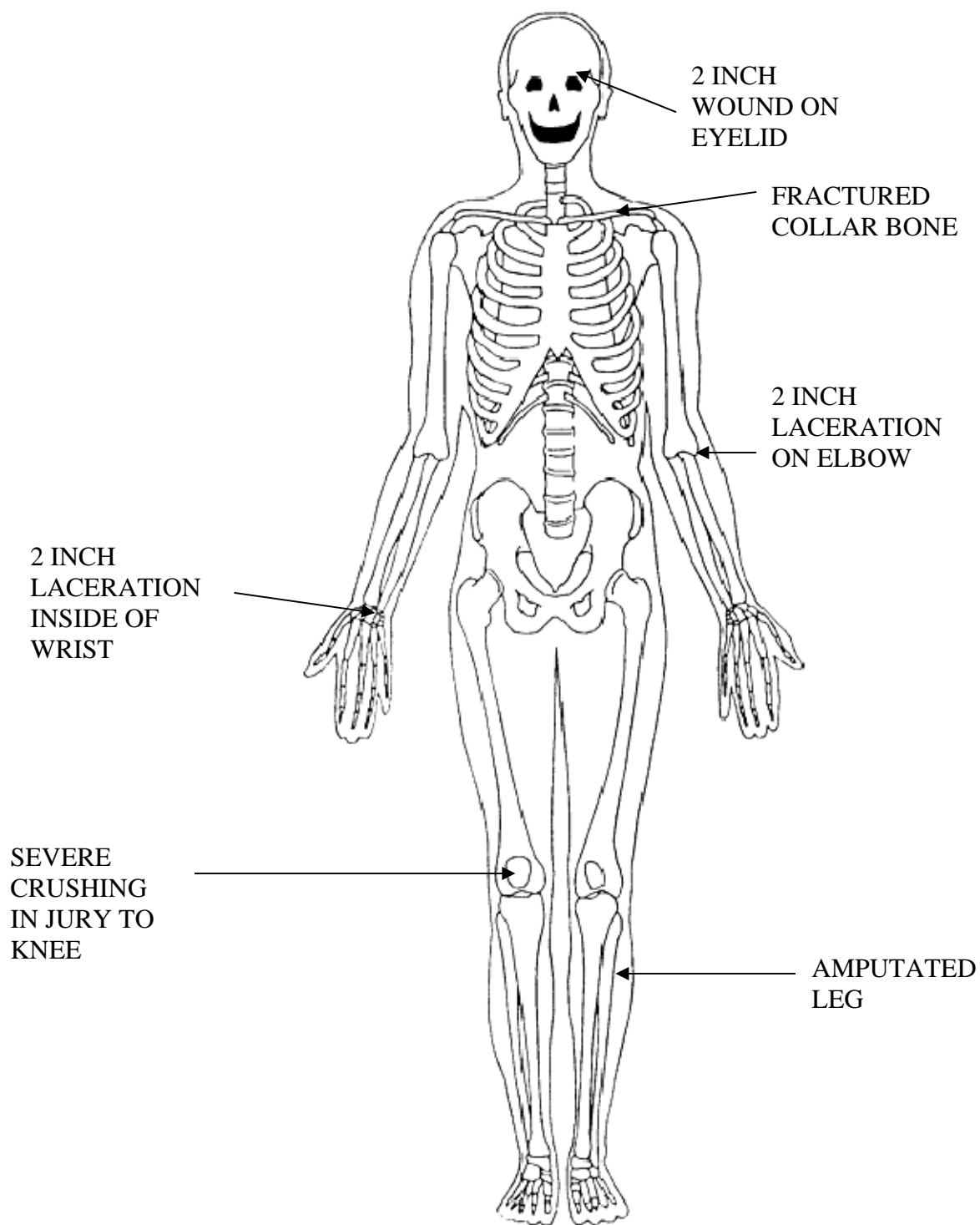


Your crew arrives on the section at approximately 0715 hours this morning. Coal run is normal and you are cleaning the feeder area at approximately 0930 when you stop to take a break. You are located in 3 left cross cut in the belt entry. You see a shuttle car approach the feeder across from your location. Jack Olinski, the off-side shuttle car operator, exits the car and stands looking outby. He observes someone on the phone outby the feeder. Next you notice a ram car approaching from inby. Before you can flag Jack, the ram car bucket hits him, at the top of his boots from behind. You see him fall back into the ram car bucket conscious but incoherent. Jim Webb, the ram car operator, sensing something wrong, pulls back approximately fifteen feet.

You jump and run to the off-side shuttle car operator. You are the first person to reach him. He has life-threatening bleeding from both legs. Scene is safe.

It is approximately 20 minutes to the surface from the section.

Please treat and transport your patient to the surface.



NOTE: CPR ENVELOPE TO BE GIVEN WHEN TEAM STARTS TRANSPORTATION TO SURFACE.

LIST OF INJURIES:

- 1. LIFE-THREATENING BLEEDING BOTH LEGS**
- 2. SEVERED LEFT LEG (17 inches above the heel)**
- 3. CRUSHED RIGHT LEG JUST BELOW THE KNEE (leg is barely attached)**
- 4. 2 INCH LACERATION LEFT EYE LID**
- 5. 2 INCH LACERATION LEFT ELBOW**
- 6. 2 INCH LACERATION RIGHT WRIST (INSIDE)**
- 7. FRACTURED LEFT COLLAR BONE**

JUDGES NOTE:

THE TEAM SECONDARY SHALL BE HELD OUTSIDE THE WORKING AREA UNTIL THE PRIMARY REACHES THE PATIENT. NEXT THE BYSTANDER IS SENT IN TO HELP. ONLY SECONDS SHOULD SEPARATE THE PRIMARY, SECONDARY AND THE BYSTANDER.

PATIENT ASSESSMENT

PROCEDURES	CRITICAL SKILL
1. SCENE SIZE UP	<ul style="list-style-type: none"><input type="checkbox"/> A. Observe area to ensure safety<input type="checkbox"/> B. Call for help
2. MECHANISM OF INJURY	<ul style="list-style-type: none"><input type="checkbox"/> A. Determine causes of injury, if possible<input type="checkbox"/> B. Ask patient (if conscious) what happened
3. INITIAL ASSESSMENT	<ul style="list-style-type: none"><input type="checkbox"/> A. Verbalize general impression of the patient(s)<input type="checkbox"/> B. Determine responsiveness/level of consciousness (AVPU) Alert, Verbal, Painful, Unresponsive<input type="checkbox"/> C. Determine chief complaint/apparent life threats
4. ASSESS AIRWAY AND BREATHING	<ul style="list-style-type: none"><input type="checkbox"/> A. Correctly execute head-tilt/chin-lift or jaw thrust maneuver, depending on the presence of cervical spine (neck) injuries<input type="checkbox"/> B. Look, listen, and feel for breathing (3-5 seconds)<input type="checkbox"/> C. If present, treat sucking chest wound
5. ASSESS FOR IMMEDIATE LIFE THREATENING CONDITIONS	<ul style="list-style-type: none"><input type="checkbox"/> A. Check for presence of a carotid pulse (5-10 seconds)<input type="checkbox"/> B. If present, control life threatening bleeding

NOTE: BOOTS ARE ON THE PATIENT AND PANTS ARE STILL ATTACHED.

**LIFE THREATENING BLEEDING BOTH LEGS;
PATIENT SHALL BE LAID DOWN
IMMEDIATELY**

**DIRECT PRESSURE ON RIGHT LEG WILL
CONTROL BLEEDING**

**A TOURNIQUET WILL BE NEEDED FOR THE
LEFT LEG TO CONTROL BLEEDING**

**NOTE: APPLICATION OF DIRECT PRESSURE
WITH GLOVED HAND SHALL BE DONE TO
BOTH LEGS.**

RIGHT LEG:

LIFE-THREATENING BLEEDING

PROCEDURES

CRITICAL SKILL

1. DIRECT PRESSURE AND ELEVATION	<ul style="list-style-type: none"><input type="checkbox"/> A. Expose the wound.<input type="checkbox"/> B. Clear the wound surface<input type="checkbox"/> C. Apply direct pressure with a gloved hand ADVISE TEAM THAT BLEEDING HAS BEEN CONTROLLED ON RIGHT LEG ONLY<input type="checkbox"/> D. Apply a dressing to wound (cover entire wound) and continue to apply direct pressure.<input type="checkbox"/> E. Bandage dressing in place after bleeding has been controlled<input type="checkbox"/> F. Reassure patient<input type="checkbox"/> G. Treat for shock
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LEFT LEG:

LIFE-THREATENING BLEEDING

PROCEDURES	CRITICAL SKILL
1. DIRECT PRESSURE AND ELEVATION	<ul style="list-style-type: none"><input type="checkbox"/> A. Expose the wound.<input type="checkbox"/> B. Clear the wound surface<input type="checkbox"/> C. Apply direct pressure with a gloved hand<input type="checkbox"/> D. Apply a dressing to wound (cover entire wound) and continue to apply direct pressure<input type="checkbox"/> E. Elevate the extremity except when spinal injury exists<input type="checkbox"/> F. Bandage dressing in place after bleeding has been controlled<input type="checkbox"/> G. Reassure patient<input type="checkbox"/> H. Treat for shock
2. IF NOTIFIED THAT BLEEDING IS NOT CONTROLLED, PRESSURE POINTS SHALL BE UTILIZED	<ul style="list-style-type: none"><input type="checkbox"/> A. Apply pressure to appropriate pressure point and notify judge verbally that bleeding is controlled (Apply pressure to blood vessels leading to area – in arm, press just below armpit; in leg, press against groin where thigh and trunk join.)<input type="checkbox"/> B. Bandage dressing in place after bleeding has been controlled<input type="checkbox"/> C. Reassure patient<input type="checkbox"/> D. Treat for shock

External Bleeding

To Control: 1st: direct pressure
2nd: elevation & direct pressure
3rd: pressure point
Last Resort: Tourniquet

TOURNIQUET

PROCEDURES	CRITICAL SKILL
1. DETERMINE NEED FOR USING TOURNIQUET	<p>If these conditions are met, a tourniquet may be the only alternative:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A. Direct pressure has not been successful in stopping bleeding <input type="checkbox"/> B. Elevation of wound above heart has not been successful in stopping of bleeding <input type="checkbox"/> C. Compression of pressure point has not been successful in stopping of bleeding.
1. SELECT APPROPRIATE MATERIALS	<ul style="list-style-type: none"> <input type="checkbox"/> A. Select a band that will be between 3-4 inches in width and can be wrapped six or eight layers deep for improvised tourniquet or select factory tourniquet.
3. APPLY BAND	<ul style="list-style-type: none"> <input type="checkbox"/> A. Wrap band around the extremity proximal to the wound (one inch above but not on a joint) <input type="checkbox"/> B. Tie one knot in the bandage <input type="checkbox"/> C. Place a stick or pencil on top of the knot and tie the ends of the bandage over the stick in a square knot
4. APPLY PRESSURE WITH TOURNIQUET	<ul style="list-style-type: none"> <input type="checkbox"/> A. Twist the stick until the bleeding is controlled, secure the stick in position ADVISE TEAM BLEEDING HAS BEEN CONTROLLED <input type="checkbox"/> B. Do not cover the tourniquet <input type="checkbox"/> C. Notify other medical personnel caring for the patient
5. MARK PATIENT APPROPRIATELY	<ul style="list-style-type: none"> <input type="checkbox"/> A. Mark a piece of tape on the patient's forehead "TQ" and time applied
6. REASSESS	<ul style="list-style-type: none"> <input type="checkbox"/> A. Assess level of consciousness, respiratory status, and patient response

Amputations

<ul style="list-style-type: none"> <input type="checkbox"/> 1. Wrap in slightly moistened sterile dressing <input type="checkbox"/> 2. Place in plastic bag or wrap in plastic <input type="checkbox"/> 3. Keep part cool avoid freezing <input type="checkbox"/> 4. Do not place in water or direct contact with ice <input type="checkbox"/> 5. Transport with patient <input type="checkbox"/> 6. Label with patients name

PATIENT ASSESSMENT CONTINUED

6. DETERMINE PRIORITY OF PATIENT	<ul style="list-style-type: none"><input type="checkbox"/> A. Teams must make statement to judge, "Will transport as soon as possible"<input type="checkbox"/> B. Teams must make statement to judge, "Removing clothing, exposing and cleaning wound surface(s)"
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TEAMS WILL STATE LOAD AND GO

Teams are required to do a rapid trauma assessment.

7. DETAILED PHYSICAL EXAMINATION ASSESS: (a) HEAD	<p>ENVIRONMENTAL AND MEDICAL EMERGENCIES CAN BE TREATED ANY TIME DURING DETAILED PHYSICAL EXAMINATION</p> <ul style="list-style-type: none"><input type="checkbox"/> A. Check head for DOTS: Deformities, Open wounds, Tenderness and Swelling<input type="checkbox"/> B. Check and touch the scalp<input type="checkbox"/> C. Check the face<input type="checkbox"/> D. Check the ears for, bleeding, or clear fluids<input type="checkbox"/> E. Check the eyes for any discoloration, unequal pupils, reaction to light, foreign objects and bleeding.<input type="checkbox"/> F. Check the nose for any bleeding or drainage<input type="checkbox"/> G. Check the mouth for loose or broken teeth, foreign objects, swelling or injury of tongue, unusual breath odor, discoloration
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2 INCH LACERATION TO EYE LID

NO TREATMENT REQUIRED

PATIENT ASSESSMENT CONTINUED

(b) NECK	<ul style="list-style-type: none"><input type="checkbox"/> A. Check the neck for DOTS<input type="checkbox"/> B. Inspect for medical ID
(c) CHEST	<ul style="list-style-type: none"><input type="checkbox"/> A. Check chest area for DOTS<input type="checkbox"/> B. Feel chest for equal breathing movement on both sides<input type="checkbox"/> C. Feel chest for inward movement in the rib areas during inhalations

FRACTURED LEFT COLLAR BONE

NO TREATMENT REQUIRED

PATIENT ASSESSMENT CONTINUED

(d) ABDOMEN	<input type="checkbox"/> A. Check abdomen (stomach) for DOTS
(e) PELVIS	<input type="checkbox"/> A. Check pelvis for DOTS <input type="checkbox"/> B. Inspect pelvis for injury by touch (Verbally state inspection of crotch and buttock areas)
(f) LEGS	<input type="checkbox"/> A. Check each leg for DOTS <input type="checkbox"/> B. Inspect legs for injury by touch <input type="checkbox"/> C. Check legs for paralysis (pinch inner side of leg on calf) <input type="checkbox"/> D. Check legs for motion (in a conscious patient; team places hand on bottom of each foot and states "Can you push against my hand?") <input type="checkbox"/> E. Check for medical ID bracelet

**SEVERE CRUSHING INJURY TO RIGHT LEG
JUST BELOW THE KNEE; FRACTURED TIBIA
AND FIBULA**

NO TREATMENT REQUIRED

**AMPUTATED LEFT LEG 17 INCHES ABOVE
THE HEEL**

NO TREATMENT REQUIRED

PATIENT ASSESSMENT CONTINUED

(g) ARMS	<ul style="list-style-type: none"><input type="checkbox"/> A. Check each arm for DOTS<input type="checkbox"/> B. Inspect arms for injury by touch<input type="checkbox"/> C. Check arms for paralysis (pinch inner side of wrist)<input type="checkbox"/> D. Check arms for motion (in a conscious patient; team places fingers in each hand of patient and states "Can you squeeze my fingers?")<input type="checkbox"/> E. Check for medical ID bracelet
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2 INCH LACERATION INSIDE RIGHT WRIST

NO TREATMENT REQUIRED

2 INCH LACERATION LEFT ELBOW

NO TREATMENT REQUIRED

PATIENT ASSESSMENT CONTINUED

(h) BACK SURFACES	<input type="checkbox"/> A. Check back for DOTS
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PATIENT TO BE SECURED TO BACK BOARD

IMMOBILIZATION - LONG SPINE BOARD (Backboard)

PROCEDURE	CRITICAL SKILL
1. MOVE THE PATIENT ONTO THE LONG SPINE BOARD	<input type="checkbox"/> A. One First Aid Provider at the head must maintain in-line immobilization of the head and spine <input type="checkbox"/> B. First Aid Provider at the head directs the movement of the patient <input type="checkbox"/> C. Other First Aid Provider control movement of the rest of body <input type="checkbox"/> D. Other First Aid Provider position themselves on same side <input type="checkbox"/> E. Upon command of First Aid Provider at the head, roll patient onto side toward First Aid Providers <input type="checkbox"/> F. Quickly assess posterior body, if not already done <input type="checkbox"/> G. Place long spine board next to the patient with top of board beyond top of head <input type="checkbox"/> H. Place patient onto the board at command of the First Aid Provider at head while holding in-line immobilization using methods to limit spinal movement <input type="checkbox"/> I. Slide patient into proper position using smooth coordinated moves keeping spine in alignment
2. PAD VOIDS BETWEEN PATIENT AND LONG SPINE BOARD	<input type="checkbox"/> A. Select and use appropriate padding <input type="checkbox"/> B. Place padding as needed under the head <input type="checkbox"/> C. Place padding as needed under torso
3. IMMOBILIZE BODY TO THE LONG SPINE BOARD	<input type="checkbox"/> A. Strap and secure body to board ensuring spinal immobilization, beginning at shoulder and working toward feet
4. IMMOBILIZE HEAD TO THE LONG SPINE BOARD	<input type="checkbox"/> A. Using head set or place rolled towels on each side of head <input type="checkbox"/> B. Tape and/or strap head securely to board, ensuring cervical spine immobilization
5. REASSESS	<input type="checkbox"/> A. Reassess PMS (Pulse, Motor, Sensory) <input type="checkbox"/> B. Assess patient response and level of comfort

SHOCK

PROCEDURE	CRITICAL SKILL
1. CHECK FOR SIGNS AND SYMPTOMS OF SHOCK	<ul style="list-style-type: none"><input type="checkbox"/> A. Check for pale (or bluish) skin (in victim with dark skin examine inside of mouth and nailbeds for bluish coloration.<input type="checkbox"/> B. Check for cool, clammy skin<input type="checkbox"/> C. Check for weakness
2. TREATMENT	<ul style="list-style-type: none"><input type="checkbox"/> A. Keep victim lying down<input type="checkbox"/> B. Cover with blanket to prevent loss of body heat and place a blanket under the patient. (Do not try to place blanket under patient with possible spinal injuries)<input type="checkbox"/> C. Elevate according to injury<input type="checkbox"/> D. Reassure and calm the patient

ENVELOPE No.1 (GIVEN WHEN TEAM STARTS FOR OUTSIDE)

PATIENT IS NOT BREATHING AND DOES NOT HAVE A PULSE.

ENVLOPE No. 2 (GIVEN WHEN TEAMS GOES TO MANIKIN)

COMPLETE 5 SETS OF CPR AND YOUR PATIENT IS BREATHING AND HAS A PULSE.

TW0 RESCUER CPR (NO SPINAL INJURY - MANIKIN ONLY)

PROCEDURES	CRITICAL SKILL
1. RESCUER 1 ESTABLISH UNRESPONSIVENESS	<input type="checkbox"/> A. Tap or gently shake shoulders <input type="checkbox"/> B. Shout, "Are you OK?" <input type="checkbox"/> C. Determine unconsciousness without compromising cervical spine (neck) injury <input type="checkbox"/> D. Say aloud, "Call for help"
2. RESCUER 1 - ESTABLISH AIRWAY	<input type="checkbox"/> A. Kneel at the patient's side near the head <input type="checkbox"/> B. Correctly execute head-tilt/chin-lift maneuver
3. RESCUER 1 - MONITOR PATIENT FOR BREATHING	<input type="checkbox"/> A. Look, listen, and feel for breathing (3-5 seconds)
4. RESCUER 1 - VENTILATE PATIENT	<input type="checkbox"/> A. Place barrier device (pocket mask/shield with one-way valve) on manikin <input type="checkbox"/> B. Give 2 breaths 1 second each <input type="checkbox"/> C. Each breath - minimum of .8 (through .7 liter line on new manikins)
5. RESCUER 1 - CHECK FOR CAROTID PULSE	<input type="checkbox"/> A. Correctly locate the carotid pulse - on the side of the rescuer, locate the patient's windpipe with your index and middle fingers and slide your fingers in the groove between the windpipe and the muscle in the neck <input type="checkbox"/> B. Check for presence of carotid pulse for 5 to 10 seconds <input type="checkbox"/> C. Verbalize absence of pulse
2. RESCUER 2 - POSITION FOR COMPRESSIONS	<input type="checkbox"/> A. Locate the compression point on the breastbone between the nipples <input type="checkbox"/> B. Place the heel of one hand on the compression point and the other hand on top of the first so hands are parallel <input type="checkbox"/> C. Do not rest fingers on the chest Keep heel of your hand on chest during and between compressions

<p>7. RESCUER 2 - DELIVER CARDIAC COMPRESSION</p>	<ul style="list-style-type: none"> <input type="checkbox"/> A. Give 30 compressions <input type="checkbox"/> B. Compressions are at the rate of 100 per minute (30 compressions delivered within 23 seconds) <input type="checkbox"/> C. Downstroke for compression must be on or between compression lines <input type="checkbox"/> D. Return to baseline on upstroke of compression
<p>8. RESCUER 1 - VENTILATIONS BETWEEN COMPRESSIONS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> A. Give 2 breaths 1 second each <input type="checkbox"/> B. Each breath - minimum of .8 (through .7 liter line on new manikins) <input type="checkbox"/> C. Complete breaths and return to compressions in 4-7 seconds (This will be measured from the end of last downstroke to the start of the first downstroke of the next cycle.)
<p>9. CONTINUE CPR FOR TIME STATED IN PROBLEM</p>	<ul style="list-style-type: none"> <input type="checkbox"/> A. Provide 5 cycles of 30 chest compressions and 2 rescue breaths <input type="checkbox"/> B. To check for pulse, stop chest compressions for 5-10 seconds after the first set of CPR <input type="checkbox"/> C. Rescuer at patient's head maintains airway and looks, listens, and feels for adequate breathing or coughing <input type="checkbox"/> D. The rescuer at the patient's head shall feel for a carotid pulse <input type="checkbox"/> E. If no signs of circulation are detected, continue chest compressions and breaths and check for signs of circulation every three minutes <input type="checkbox"/> F. A maximum of 10 seconds will be allowed to complete ventilations and required pulse checks between sets (this will be measured from the end of the last downstroke to the start of the first downstroke of the next cycle)
<p>10. CHANGING RESCUERS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> A. Change of rescuers shall be made in 5 seconds or less and will be completed as outlined in the problem. Team must switch every 5 cycles in less than 5 seconds.
<p>11. CHECK FOR RETURN OF PULSE</p>	<ul style="list-style-type: none"> <input type="checkbox"/> A. After providing required CPR (outlined in problem), check for return of pulse (within 10 seconds) <input type="checkbox"/> B. State "Patient has a pulse."

**EMS PROVIDERS ARE ON SITE AND WILL
TAKE YOUR PATIENT.**