

KENTUCKY STATE MINE RESCUE CONTEST



FIRST AID PROBLEM

2015

YOU AND YOUR PARTNER ARE MEMBERS OF THE MINE RESCUE TEAM EXPLORING THE 3 EAST MAIN INTAKE AFTER AN EXPLOSION OCCURRED AT THE WILDCAT #4 MINE AND HAVE LOCATED RON, THE WEEKLY EXAMINER. THE CAPTAIN INFORMS YOU AND YOUR PARTNER TO HELP THIS VICTIM WHILE THEY LOOK FOR OTHER SURVIVORS. THE COMMAND CENTER HAS BEEN NOTIFIED AND INFORMS YOU THAT TRANSPORTATION IS DELAYED BUT THEY WILL GET SOMETHING TO YOU AS SOON AS POSSIBLE. YOUR SPOTTER INDICATES 20.8% O₂, 1.1% CH₄ AND 8 PPM CO. YOU HAVE IMMEDIATE ACCESS TO A FULLY STOCKED FIRST AID KIT EXCEPT FOR AN AED DUE TO THE RISK OF ENCOUNTERING AN EXPLOSIVE MIXTURE OF MINE GASES. PLEASE HELP RON.

**YOUR PARTNER JUST COLLAPSED,
IS NOT BREATHING AND DOES
NOT HAVE A PULSE!**

**AFTER COMPLETING 1 SET OF 1
PERSON CPR THE BACKUP MINE
RESCUE TEAM HAS ARRIVED AND
ASSUMED ALL PATIENT CARE!**

**TRICKLE OF
BLOOD IN LEFT
EAR**

**1 INCH ABRASION
ON RIGHT CHEEK**

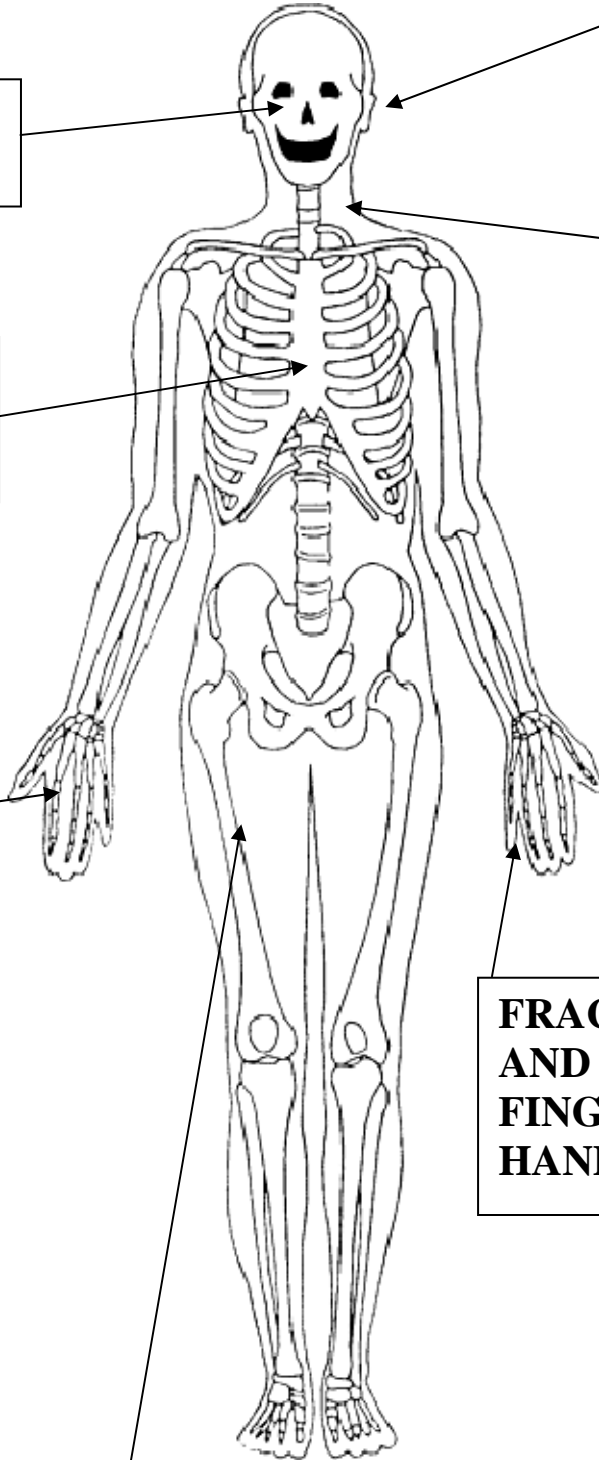
**PUNCTURE
WOUND LEFT SIDE
OF NECK**

**1ST DEGREE BURN
IN CENTER OF
CHEST**

**2 INCH ABRASION
OF RIGHT PALM**

**FRACTURED RING
AND PINKIE
FINGER OF LEFT
HAND**

**RESPIRATIONS: 12 AND SHALLOW
PULSE: RAPID AND WEAK
PERFUSION: > 2 SECONDS
MENTAL STATUS: UNABLE TO
FOLLOW COMMANDS**



LIST OF INJURIES

TRICKLE OF BLOOD IN LEFT EAR

1 INCH ABRASION ON RIGHT CHEEK

PUNCTURE WOUND LEFT SIDE OF THE NECK

1ST DEGREE BURN IN CENTER OF CHEST

2 INCH ABRASION OF RIGHT PALM

**FRACTURED RING AND PINKIE FINGER OF
LEFT HAND**

INITIAL ASSESSMENT

PROCEDURES	CRITICAL SKILL	
1. SCENE SIZE UP	<input type="checkbox"/> <input type="checkbox"/>	*A. Observe area to ensure safety *B. Call for help
2. MECHANISM OF INJURY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	*A. Determine causes of injury, if possible *B. Triage: Immediate, Delayed, Minor or Deceased. *C. Ask patient (if conscious) what happened
3. INITIAL ASSESSMENT	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	*A. Verbalize general impression of the patient(s) *B. Determine responsiveness/level of consciousness (AVPU) Alert, Verbal, Painful, Unresponsive *C. Determine chief complaint/apparent life threat
4. ASSESS AIRWAY AND BREATHING	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Correctly execute head-tilt/chin-lift or jaw thrust maneuver, depending on the presence of cervical spine (neck) injuries B. Look for absence of breathing (no chest rise and fall) or gasping, which are not considered adequate (within 10 seconds) C. If present, treat sucking chest wound
5. ASSESS FOR CIRCULATION	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Check for presence of a carotid pulse (5-10 seconds) B. If present, control life threatening bleeding C. Start treatment for all other life threatening injuries/conditions (reference Rule 2).

IMMEDIATE: Rapid Patient Assessment treating all life threats Load and Go. If the treatment interrupts the rapid trauma assessment, the **assessment** will be completed at the end of the **treatment**.

RON IS AN IMMEDIATE PATIENT BUT UNDER RULE 14 TRANSPORTATION IS DELAYED SO TEAM WILL HAVE TO TREAT ALL INJURIES.

TEAM MAY DO RAPID ASSESSMENT FIRST AND THEN TREAT. ANYTIME THEY ASK TRANSPORTATION IS NOT AVAILABLE!!!

PATIENT ASSESSMENT

PROCEDURES

CRITICAL SKILL

<p>1. HEAD</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>*A. Check head for DOTS: Deformities, Open wounds, Tenderness and Swelling *B. Check and touch the scalp *C. Check the face *D. Check the ears for bleeding or clear fluids *E. Check the eyes for any discoloration, unequal pupils, reaction to light, foreign objects and bleeding *F. Check the nose for any bleeding or drainage *G. Check the mouth for loose or broken teeth, foreign objects, swelling or injury of tongue, unusual breath odor and discoloration</p>
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**1 INCH ABRASION ON RIGHT CHEEK
 NO TREATMENT REQUIRED**

**TRICKLE OF BLOOD IN LEFT EAR
 NO TREATMENT REQUIRED**

<p>2. NECK</p>	<input type="checkbox"/> <input type="checkbox"/>	<p>*A. Check the neck for DOTS *B. Inspect for medical ID</p>
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PUNCTURE WOUND LEFT SIDE OF THE NECK

DRESSINGS AND BANDAGING - OPEN WOUNDS

PROCEDURES

CRITICAL SKILL

<p>1. EMERGENCY CARE</p>	<input type="checkbox"/>	<p>*A. Control bleeding</p>
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FOR AN OPEN WOUND	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	*B. Prevent further contamination *C. Bandage dressing in place after bleeding has been controlled *D. Keep patient lying still
2. APPLY DRESSING	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Use sterile dressing B. Cover entire wound C. Control bleeding D. Do not remove dressing
3. APPLY BANDAGE	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Do not bandage too tightly. B. Do not bandage too loosely. C. Do not leave loose ends. D. Cover all edges of dressing. E. Do not cover tips of fingers and toes, unless they are injured. F. Bandage from the bottom of the limb to the top (distal to proximal) if applicable.

Open Neck Wound (Serious or Life Threatening)

- *1. Gloved hand over wound
- *2. **Occlusive dressing over wound- 2 inches larger than wound site**
3. Gauze dressing over occlusive
4. Place roller gauze beside site and wrap around figure 8 under opposite arm

CONTINUE PATIENT ASSESSMENT

3. CHEST	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	*A. Check chest area for DOTS *B. Feel chest for equal breathing movement on both sides *C. Feel chest for inward movement in the rib areas during inhalations
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1ST DEGREE BURN IN CENTER OF CHEST

BURNS

PROCEDURES		CRITICAL SKILLS
1. DETERMINE BURN TYPE	<input type="checkbox"/>	*A. Determine type <ul style="list-style-type: none"> ▪ Thermal ▪ Chemical ▪ Electrical
2. DETERMINE BODY SURFACE AREA	<input type="checkbox"/>	*A. Determine Body Surface Area (BSA) using rule of nines
3. BURN CARE (All Types)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	*A. Remove patient from source of burn and prevent further contamination *B. Consider the type of burn and stopping the burning process initially with water or saline if appropriate *C. Remove jewelry *D. Continually monitor the airway for evidence of closure *E. Cover the burned area with a dry sterile dressing *F. Do not use any type of ointment, lotion or antiseptic *G. Do not break blisters *H. Ensure patient does not get hypothermic
4. REASSESS	<input type="checkbox"/>	*A. Reassess level of consciousness (AVPU), respiratory status, and patient response

CONTINUE PATIENT ASSESSMENT

4. ABDOMEN	L <input type="checkbox"/>	R <input type="checkbox"/>	*A. Check abdomen (stomach) for DOTS
5. PELVIS	<input type="checkbox"/>	<input type="checkbox"/>	* A. Check each arm for DOTS * B. Inspect arms for injury by touch * C. Inspect pelvis for injury by touch (Visually inspect and verbally state inspection of crotch and buttocks areas) C. Unresponsive: Check arms for paralysis (pinch inner side of wrist)
7. ARMS	L <input type="checkbox"/>	R <input type="checkbox"/>	*D. Responsive: Check arms for motion (in a conscious patient, each place fingers in each hand of patient)
6. LEGS	<input type="checkbox"/>	<input type="checkbox"/>	* A. Check each leg for DOTS * B. Inspect legs for injury by touch * C. Check for medical ID bracelet *E. Unresponsive: Check legs for paralysis (pinch inner side of leg on calf)
	<input type="checkbox"/>	<input type="checkbox"/>	*D. Responsive: Check legs for motion; places hand on bottom of each foot and states "Can you push against my hand?"
	<input type="checkbox"/>	<input type="checkbox"/>	*E. Check for medical ID bracelet

**2 INCH ABRASION OF RIGHT PALM
NO TREATMENT REQUIRED**

FRACTURED RING AND PINKIE FINGER OF LEFT HAND

SPLINTING (RIGID) UPPER EXTREMITY FRACTURES AND DISLOCATIONS

PROCEDURES	CRITICAL SKILL
1. CARE FOR FRACTURE	<input type="checkbox"/> <ul style="list-style-type: none"> *A. Check for distal circulation, sensation, and motor function <ul style="list-style-type: none"> ▪ Do not attempt to reduce dislocations (if applies)
2. IMMOBILIZING FRACTURE	<input type="checkbox"/> A. Selection of appropriate rigid splint of proper length <input type="checkbox"/> B. Support affected limb and limit movement <input type="checkbox"/> C. Apply appropriate padded rigid splint against injured extremity <input type="checkbox"/> D. Place appropriate roller bandage in hand to ensure the position of function <input type="checkbox"/> E. Secure splint to patient with roller bandage, handkerchiefs, cravats, or cloth strips <input type="checkbox"/> F. Apply wrap distal to proximal <input type="checkbox"/> *G. Reassess distal circulation, sensation, and motor

		function
3. SECURING WITH SLING	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Place sling over chest and under arm B. Hold or stabilize arm C. Triangle should extend behind elbow on injured side D. Pull sling around neck and tie on uninjured side E. Pad at the neck (except when C-Collar is present) F. Secure excess material at elbow G. Fingertips should be exposed *H. Reassess distal circulation, sensation, and motor function
4. SECURING SLING WITH SWATHE	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Use triangle cravat or factory swathe B. Swathe is tied around chest and injured arm *C. Reassess distal circulation, sensation, and motor function

FINGER/FINGERS

Immobilize Fracture

1. Tape injured finger to an adjacent uninjured finger; or

8. BACK SURFACES	<input type="checkbox"/>	*A. Check back for DOTS
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2. Tape injured finger to a tongue depressor, aluminum splint, or pen and pencil
3. Secure with sling and swathe

CONTINUE PATIENT ASSESSMENT

IMMOBILIZATION - LONG SPINE BOARD (Backboard)

PROCEDURES

CRITICAL SKILL

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

GIVE TEAM ENVELOPE #1

MAKE SURE YOU GIVE THE

ENVELOPE TO THE #2 MAN AND NOT THE CAPTAIN!!!

YOUR PARTNER JUST COLLAPSED, IS NOT BREATHING AND DOES NOT HAVE A PULSE!

AFTER COMPLETING 1 SET OF 1 PERSON CPR THE BACKUP MINE RESCUE TEAM HAS ARRIVED AND ASSUMED ALL PATIENT CARE!

DISCOUNT TEAM IF #2 MAN FAILS TO CHANGE GLOVES BETWEEN CONTACT WITH DIFFERENT PATIENTS! RULE 20

ONE-PERSON CPR (MANIKIN ONLY)

PROCEDURES		CRITICAL SKILL
1. RESCUER 1 - ESTABLISH UNRESPONSIVENESS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Tap or gently shake shoulders *B. "Are you OK?" C. Determine unconsciousness without compromising

	<input type="checkbox"/> <input type="checkbox"/>	cervical spine (neck) injury *D. "Call for help" *E. "Get AED" (Note: If AED is used, follow local protocol)
2. RESCUER 1 - MONITOR PATIENT FOR BREATHING	<input type="checkbox"/>	A. Look for absence of breathing (no chest rise and fall) or gasping breaths, which are not considered adequate (within 10 seconds)
3. RESCUER 1 - CHECK FOR CAROTID PULSE	<input type="checkbox"/> <input type="checkbox"/> <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 B. Check for presence of carotid pulse for 5 to 10 Seconds *C. Absence of pulse
4. POSITION FOR COMPRESSIONS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Locate the compression point on the breastbone between the nipples B. Place the heel of one hand on the compression point and the other hand on top of the first so hands are parallel C. Do not intentionally rest fingers on the chest D. Keep heel of your hand on chest during and between compressions
5. DELIVER CARDIAC COMPRESSION	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A. Give 30 compressions B. Compressions are at the rate of at least 100 per minute (30 compressions delivered within 18 seconds) C. Down stroke for compression must be on or through compression line D. Return to baseline on upstroke of compression
6. ESTABLISH AIRWAY	<input type="checkbox"/> <input type="checkbox"/>	A. Kneel at the patient's side near the head B. Correctly execute head-tilt/ chin-lift or jaw thrust maneuver depending on the presence of cervical spine injuries

7. VENTILATIONS BETWEEN COMPRESSIONS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>A. Place barrier device (pocket mask / shield with one way valve) on manikin</p> <p>B. Give 2 breaths 1 second each</p> <p>C. Each breath - minimum of .8 (through .7 liter line on new manikins)</p> <p>D. Complete breaths and return to compressions in less than 10 seconds (This will be measured from the end of last down stroke to the start of the first down stroke of the next cycle.)</p>
8. CONTINUE CPR FOR TIME STATED IN PROBLEM	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>A. Provide 5 cycles of 30 chest compressions and 2 rescue breaths</p> <p>B. To check for pulse, stop chest compressions for no more than 10 seconds after the first set of CPR</p> <p>C. Rescuer opens airway and checks for adequate breathing or coughing</p> <p>D. Rescuer checks for a carotid pulse</p> <p>E. If no signs of circulation are detected, continue chest compressions and breaths and check for signs of circulation after each set</p> <p>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 down stroke to the start of the first down stroke of the next cycle)</p>
9. CHECK FOR RETURN OF PULSE	<input type="checkbox"/> <input type="checkbox"/>	<p>A. After providing required CPR (outlined in problem), check for return of pulse (within 10 seconds)</p> <p>*B. "Patient has a pulse."</p>

#2 MAN SHOULD CLEAN THE FIELD AND STOP THE CLOCK!

TEAM NAME _____ **WORKING ORDER** _____

Circle the correct answer

1. **Characteristics of a pulse include:**
 - a. Rate, depth, and ease.
 - b. Rate, strength, and rhythm.
 - c. Rate, depth, and strength.
 - d. Rate, ease, and quality.

2. **The pressure inside the arteries each time the heart contracts is referred to as the ____ pressure.**
 - a. Diastolic
 - b. Pulse
 - c. Systolic
 - d. Mean

3. **The respiratory control center located deep within the brain primarily monitors the level of ____ to maintain proper respiratory rate and volume.**
 - a. Carbon dioxide.
 - b. Carbon monoxide.
 - c. Oxygen.
 - d. Glucose.

4. **When providing care for an open injury to the external ear:**
 - a. Pack the ear canal.
 - b. Use a cotton swab to clear the ear canal.
 - c. Wash out the ear canal.
 - d. Apply dressings and bandage in place.

5. **Which one of the following statements about critical incident stress is MOST accurate?**
 - a. It is rarely caused by a single incident.
 - b. It can be the result of many incidents over a long period of time.
 - c. It affects all people the same way.
 - d. It can always be avoided with proper preparation.

6. **The ____ cavity contains the liver and part of the large intestine.**
 - a. Pelvic
 - b. abdominal
 - c. thoracic
 - d. cranial

7. **Which one of the following best describes the oxygen consumption of a normally functioning human being?**
 - a. The body requires a constant supply of oxygen at 79%.
 - b. The human body needs a minimum of 10% oxygen to survive.
 - c. The body exhales an average of 21% carbon dioxide with each breath.
 - d. The average exhalation contains an oxygen concentration of between 10% and 16%.

8. **The myocardium receives its blood supply from:**
 - a. coronary arteries.
 - b. myocardial arteries.
 - c. the conduction pathway.
 - d. the aorta.

9. **Once a seizure has ended, the patient is said to be in the ____ state.**
 - a. REM
 - b. postictal
 - c. syncopal
 - d. recovery

10. **The best way to approach a hazardous scene is to:**
 - a. do only what you feel comfortable doing.
 - b. wear protective gear only if needed.
 - c. Make safety your first consideration before entering.
 - d. Get as close as possible to assess the scene.