HARLAN MINE RESCUE CONTEST

FIRST AID PROBLEM

2017

PROBLEM

You and your partner are part of a four man maintenance crew on the 001 MMU. Jim and Joe are using a set of cutting torches to remove a conveyor chain when you hear a loud explosion. You rush over to the #3 entry and see Jim lying on the ground. Joe tells you he is having trouble seeing and wants to know why Jim isn't talking to him. Please treat and transport these patients to the surface.

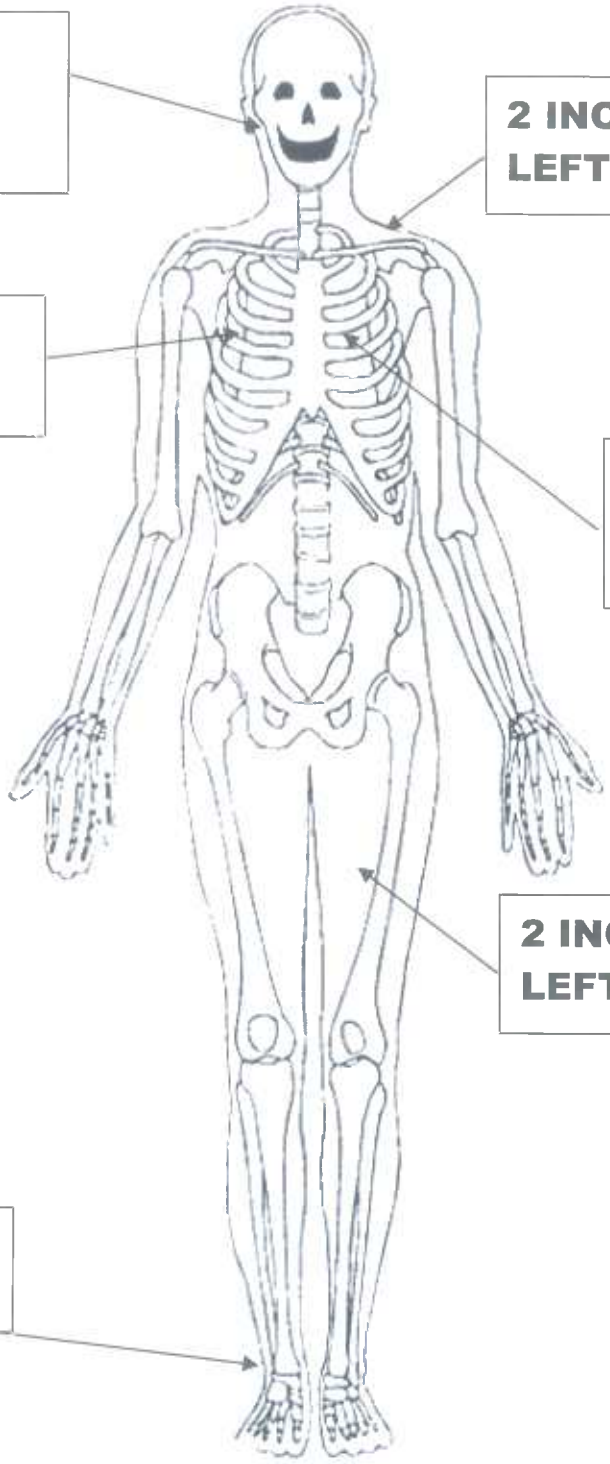
JIM

1ST DEGREE BURNS TO MOUTH AND RIGHT CHEEK

2 INCH LACERATION TO LEFT SHOULDER

SUCKING CHEST WOUND

2ND DEGREE BURNS COVERING ENTIRE CHEST



2 INCH LACERATION LEFT THIGH

FRACTURED RIGHT ANKLE

RESPIRATIONS: 8
RADIAL PULSE: ABSENT
PERFUSION: > 2 SECONDS
MENTAL STATUS: UNABLE TO FOLLOW COMMANDS

LIST OF INJURIES

JIM

1ST DEGREE BURNS TO MOUTH AND RIGHT CHEEK

SUCKING CHEST WOUND RIGHT SIDE

2 INCH LACERATION LEFT SHOULDER

2ND DEGREE BURNS COVERING ENTIRE CHEST

FRACTURED RIGHT ANKLE

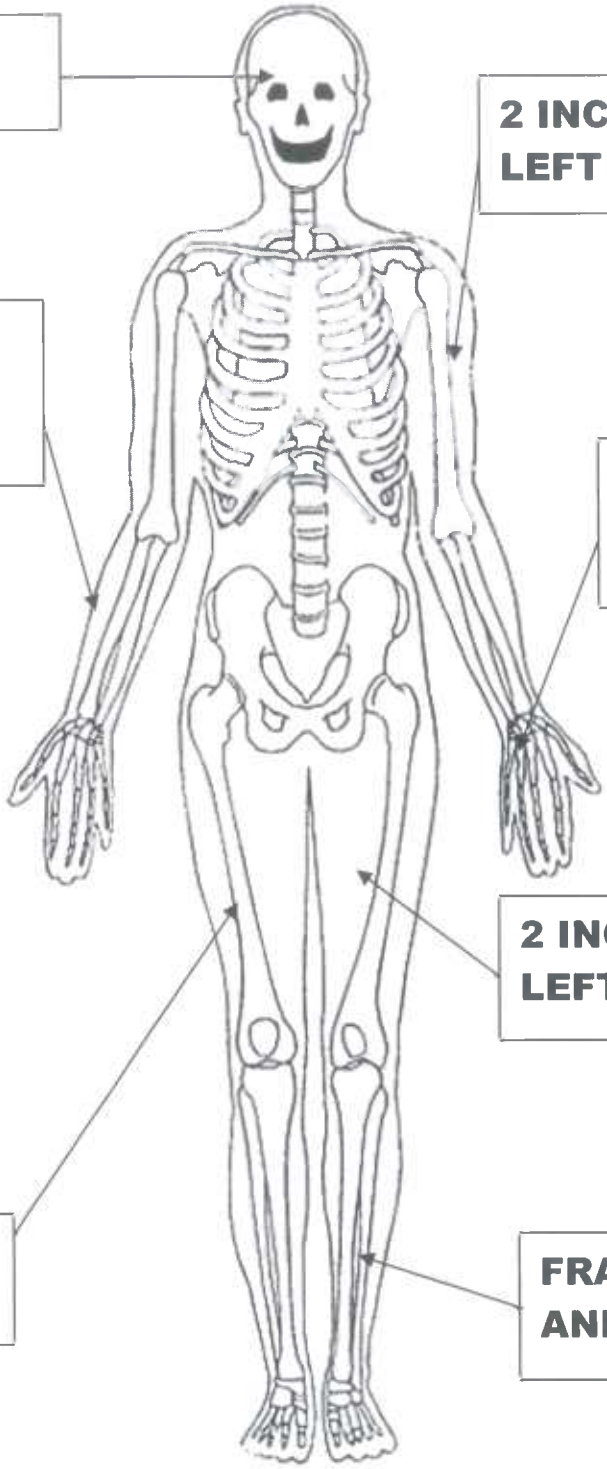
2 INCH LACERATION LEFT THIGH

Joe

FLASH BURN TO RIGHT EYE

2 INCH LACERATION TO LEFT BICEP

IMPALED OBJECT LEFT FOREARM



2ND DEGREE BURNS LEFT HAND AND FINGERS

2 INCH LACERATION LEFT THIGH

3RD DEGREE BURNS TO RIGHT THIGH

FRACTURED TIBIA AND FIBULA

RESPIRATIONS: 32
RADIAL PULSE: PRESENT
PERFUSION: < 2 SECONDS
MENTAL STATUS: ABLE TO FOLLOW COMMANDS SIMPLE COMMANDS

LIST OF INJURIES

JOE

FLASH BURN TO RIGHT EYE

3RD DEGREE BURNS TO RIGHT THIGH

2 INCH LACERATION LEFT THIGH

FRACTURED TIBIA AND FIBULA LEFT LEG

2 INCH LACERATION LEFT BICEP

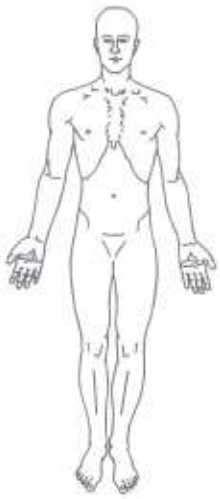
2ND DEGREE BURNS TO LEFT HAND AND FINGERS

IMPALED OBJECT LEFT FOREARM

FIELD LAYOUT

JOE

JIM



15′

RADIO

TEAMS
MATERIAL

3′

15′

INITIAL ASSESSMENT

PROCEDURES		CRITICAL SKILL
1. SCENE SIZE UP	□ □	*A. Observe area to ensure safety *B. Call for help
2. MECHANISM OF INJURY	□ □ □	*A. Determine causes of injury, if possible *B. Triage: Immediate, Delayed, Minor or Deceased. *C. Ask patient (if conscious) what happened
3. INITIAL ASSESSMENT	□ □ □	*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	□ □ □	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	□ □ □	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**.

Jim is an immediate patient!
Joe is a delayed patient!

Team will have to perform Rapid Assessment on Jim and transport first.

SUCKING CHEST WOUND

PROCEDURES		CRITICAL SKILL
1. EXPOSE WOUND	□	*A. Expose entire wound
2. SEAL WOUND AND CONTROL BLEEDING	□	*A. Place occlusive dressing over wound (If occlusive dressing is not available use gloved hand)
	□	B. Apply direct pressure as needed to stop the bleeding
3. APPLY AN OCCLUSIVE DRESSING	□	A. Keep patient calm and quiet
	□	*B. Explain to the patient what you are doing
	□	*C. Ensure dressing is large enough not to be sucked into the wound (two inches beyond edges of wound)
	□	D. Affix dressing with tape
	□	*E. Seal on three sides
	□	*F. Monitor patient closely for increasing difficulty breathing
	□	*G. Transport as soon as possible
	□	H. Keep patient positioned on the injured side unless other injuries prohibit
	□	*I. Reassess wound to ensure bleeding control
		*J. Assess level of consciousness(AVPU), respiratory status and patient response

PATIENT ASSESSMENT

PROCEDURES		CRITICAL SKILL
1. HEAD	□	*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

1st degree burns to mouth and right cheek

2. NECK	□ □	*A. Check the neck for DOTS *B. Inspect for medical ID

2 inch laceration to left shoulder

3. CHEST	□ □ □	*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

2nd degree burns covering entire chest

Envelope #1

Jim has stopped breathing and does not have a pulse!

TWO-RESCUER CPR WITH AED (WITH SPINAL INJURY - MANIKIN ONLY)

PROCEDURES		CRITICAL SKILL
1. RESCUER 1 - ESTABLISH UNRESPONSIVENESS	□ □ □ □ □	A. Tap or gently shake shoulders *B. "Are you OK?" C. Determine unconsciousness without compromising 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	□	A. Look for absence of breathing (no chest rise and fall) or gasping, which are not considered adequate (within 10 seconds)
3. RESCUER 1 – CHECK FOR CAROTID PULSE	□ □ □ □	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 second *C. Absence of pulse *D. Immediately start CPR if no pulse
4. RESCUER 1 - POSITION FOR COMPRESSIONS	□ □ □	A. Locate the compression point on the breastbone between the nipples B. Place the heel of one hand on sternum the compression point and the other hand on top of the first so hands are parallel C. Do not rest fingers on the chest Keep heel of your hand on chest during and between compressions
5. RESCUER 1 - DELIVER CARDIAC COMPRESSION	□ □ □ □	A. Give 30 compressions B. Compressions are at the rate of 100 to 120 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. RESCUER 2 - ESTABLISH AIRWAY	□ □	A. Kneel at the patient's head B. Correctly execute jaw thrust maneuver

7. RESCUER 2 - VENTILATIONS BETWEEN COMPRESSIONS	□ □ □ □	A. Rescuer 1 should place the barrier device (pocket mask/Shield with one way valve) on manikin (OPTION 1: When spinal injury is present, Rescuer No. 2 can hold barrier device on manikin after Rescuer No. 1 correctly places device over the mouth and nose (OPTION 2: Rescuer 1 can place the device on the manikin each time patient is ventilated B. Rescuer 2 Gives 2 breaths 1 second each C. Each breath - minimum of .8 (through .7 liter line on new manikins) 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.)
8. CONTINUE CPR FOR TIME STATED IN PROBLEM	□ □ □ □ □ □	A. Provide 5 cycles of 30 chest compressions and 2 rescue breaths B. To check pulse, stop chest compressions for no more than 10 seconds after the first set of CPR C. Rescuer at patient's head maintains airway and checks for adequate breathing or coughing D. The rescuer giving compressions shall feel for a carotid pulse E. If no signs of circulation are detected, continue chest compressions and breaths and check for signs of circulation after each set 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
9. SECOND RESCUER ARRIVES WITH AED (DURING FIFTH SET OF COMPRESSIONS)	□ □ □	A. First rescuer continues compressions while second rescuer turns on AED and applies pads. B. RESCUERS SWITCH-First rescuer clears victim, allowing AED to analyze. (Judges shall provide an envelope indicating a shockable or non-shockable rhythm) A. If AED indicates a shockable rhythm, first rescuer clears victim again and delivers shock.
10. RESUME HIGH-QUALITY CPR	□ □	A. Second rescuer gives 30 compressions immediately after shock delivery (2 cycles). B. First rescuer successfully delivers 2 breaths.

Envelope #2

AED states *"SHOCK ADVISED"*

This envelope is given during step 9 of skill sheet.

11. CHANGING RESCUERS	□	A. Change of rescuers shall be made in 5 seconds or less and will be completed as outlined in problem. Team must switch every 5 cycles in less than 5 seconds.
12. CHECK FOR RETURN OF PULSE	□ □	A. A final pulse check will be required at the end of the last set of CPR (within 10 seconds) *B. "Patient has a pulse."

Envelope #3

Perform 2 sets of 2 person CPR and then Jim will be breathing and have a pulse!

This envelope is given at step 11 of skill sheet.

Resume rapid assessment!

4. ABDOMEN	□		*A. Check abdomen (stomach) for DOTS
5. PELVIS	□ □		*A. Check pelvis for DOTS *B. Inspect pelvis for injury by touch (Visually inspect and verbally state inspection of crotch and buttocks areas)
6. LEGS	L □ □ □ □ □	R □ □ □ □ □	*A. Check each leg for DOTS B. Inspect legs for injury by touch C. Unresponsive: Check legs for paralysis (pinch inner side of leg on calf) *D. Responsive: Check legs for motion; places hand on bottom of each foot and states "Can you push against my hand?" *E. Check for medical ID bracelet

Fractured right ankle

2 inch laceration left thigh

7. ARMS	L □ □ □ □ □	R □ □ □ □ □	*A. Check each arm for DOTS B. Inspect arms for injury by touch C. Unresponsive: Check arms for paralysis (pinch inner side of wrist) *D. Responsive: Check arms for motion (in a conscious patient; team places fingers in each hand of patient and states "Can you squeeze my fingers?" *E. Check for medical ID bracelet
8. BACK SURFACES	□		*A. Check back for DOTS

Team should prepare Jim for transport

IMMOBILIZATION - LONG SPINE BOARD (Backboard)

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

SHOCK

PROCEDURES		CRITICAL SKILL
1. CHECK FOR SIGNS AND SYMPTOMS OF SHOCK	□ □ □	*A. Check for pale (or bluish) skin (in victim with dark skin examine inside of mouth and nailbeds for bluish coloration. *B. Check for cool, clammy skin *C. Check for weakness
2. TREATMENT	□ □ □ □	A. Keep victim lying down 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) C. Elevate according to injury *D. Reassure and calm the patient

Option 2: Lay the patient flat, face up. This is the supine position, used for patients with a spinal injury and patients who have serious injuries to the extremities that have not been supported. If the patient is placed in this position, you must constantly be prepared for vomiting.

Envelope #4

A 2 man personnel carrier is available to transport 1 patient to the surface.

Jim should be transported and team will start assessment and treatment of Joe!

INITIAL ASSESSMENT

PROCEDURES		CRITICAL SKILL
1. SCENE SIZE UP	□ □	*A. Observe area to ensure safety *B. Call for help
2. MECHANISM OF INJURY	□ □ □	*A. Determine causes of injury, if possible *B. Triage: Immediate, Delayed, Minor or Deceased. *C. Ask patient (if conscious) what happened
3. INITIAL ASSESSMENT	□ □ □	*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	□ □ □	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	□ □ □	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**.

Team will have to perform regular Assessment on Joe and treat all injuries!

PATIENT ASSESSMENT

PROCEDURES		CRITICAL SKILL
1. HEAD	☐	*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

Flash burn to right eye

(Since this an injury to one eye team will be required to cover both eyes)

BURNS

PROCEDURES		CRITICAL SKILLS
1. DETERMINE BURN TYPE	□	*A. Determine type D. Thermal E. Chemical F. Electrical
2. DETERMINE BODY SURFACE AREA	□	*A. Determine Body Surface Area (BSA) using rule of nines
3. BURN CARE (All Types)	□ □ □ □ □ □ □ □	*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. CARE FOR CHEMICAL BURNS	□ □ □ □ □ □	A. Protect yourself from exposure to hazardous materials B. Wear gloves, eye protection, and respiratory protection *C. Brush off dry powders *D. Consider flushing with large amounts of water *E. Continue flushing the contaminated area if applicable *F. Use caution not to contaminate uninjured areas when flushing or brushing
5. CARE FOR ELECTRICAL BURNS	□ □ □ □ □	*A. Ensure safety before removing patient from the electrical source *B. If the patient is still in contact with the electrical source or you are unsure, do not approach or touch the patient, contact power company *C. Monitor the patient closely for respiratory and cardiac arrest D. Treat the soft tissue injuries associated with the burn *E. Look for both an entrance and exit wound
6. REASSESS	□	*A. Reassess level of consciousness (AVPU), respiratory status, and patient response

Multiple burns will be treated as per procedures listed in patient assessment.

2. NECK	□ □	*A. Check the neck for DOTS *B. Inspect for medical ID
3. CHEST	□ □ □	*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
4. ABDOMEN	□	*A. Check abdomen (stomach) for DOTS
5. PELVIS	□ □	*A. Check pelvis for DOTS *B. Inspect pelvis for injury by touch (Visually inspect and verbally state inspection of crotch and buttocks areas)
6. LEGS	L □ □ □ □ □ R □ □ □ □ □	*A. Check each leg for DOTS B. Inspect legs for injury by touch C. Unresponsive: Check legs for paralysis (pinch inner side of leg on calf) *D. Responsive: Check legs for motion; places hand on bottom of each foot and states "Can you push against my hand?" *E. Check for medical ID bracelet

3rd degree burns to right thigh

2 inch laceration left thigh

Fractured tibia and fibula left leg

TEAM MUST COMPLETE EXAMINATION OF LEFT LEG PRIOR TO STARTING TREATMENT. THEY MUST TAKE SUPPORT OF THE FRACTURE AND MAINTAIN SUPPORT UNTIL SPLINTING IS COMPLETED. RULE 15

BURNS

PROCEDURES		CRITICAL SKILLS
1. DETERMINE BURN TYPE	□	*A. Determine type D. Thermal E. Chemical F. Electrical
2. DETERMINE BODY SURFACE AREA	□	*A. Determine Body Surface Area (BSA) using rule of nines
3. BURN CARE (All Types)	□ □ □ □ □ □ □ □	*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. CARE FOR CHEMICAL BURNS	□ □ □ □ □ □	A. Protect yourself from exposure to hazardous materials B. Wear gloves, eye protection, and respiratory protection *C. Brush off dry powders *D. Consider flushing with large amounts of water *E. Continue flushing the contaminated area if applicable *F. Use caution not to contaminate uninjured areas when flushing or brushing
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6. REASSESS	□	*A. Reassess level of consciousness (AVPU), respiratory status, and patient response

Multiple burns will be treated as per procedures listed in patient assessment.

SPLINTING (RIGID OR SOFT) PELVIC GIRDLE, THIGH, KNEE, AND LOWER LEG

PROCEDURE		CRITICAL SKILL
1. DETERMINE NEED FOR SPLINTING	□ □	*A. Assess for: B. Pain C. Swelling D. Deformity E.. Determine if splinting is warranted
2. APPLY MANUAL STABILIZATION	□	A. Support affected limb and limit movement a. Do not attempt to reduce dislocations
3. SELECT APPROPRIATE SPLINT	□ □	A. Select appropriate splinting method depending on position of extremity and materials available B. Select appropriate padding material
4. PREPARE FOR SPLINTING	□ □ □ □ □	A. Remove or cut away clothing as needed *B. Assess distal circulation, sensation, and motor function C. Cover any open wounds with sterile dressing and bandage D. Measure splint E. Pad around splint for patient comfort

5. SPLINT	□	A. Maintain support while splinting
	□	Living Splint:
	□	A. Immobilize the site of the injury
		B. Carefully place a pillow or folded blanket between the patients knees/legs
	□	C. Bind the legs together with wide straps or cravats
	□	D. Carefully place patient on long spine board
	□	E. Secure the patient to the long spine board (if primary splint)
	□	*F. Reassess distal circulation, sensation, and motor function
	□	Padded Board Splint:
	□	G. Splint with two long padded splinting boards (one should be long enough to extend from the patient's armpit to beyond the foot. The other should extend from the groin to beyond the foot.) (Lower leg requires boards to extend from knee to below the foot.)
	□	H. Cushion with padding in the armpit and groin and all voids created at the ankle and knee
	□	I. Secure the splinting boards with straps and cravats
	□	J. Carefully place the patient on long spine board
	□	K. Secure the patient to the long spine board (if primary splint)
	□	*F. Reassess distal circulation, sensation, and motor function
	□	Other Splints:
		A. Immobilize the site of the injury
		B. Pad as needed
		C. Secure to splint distal to proximal
		D. Carefully place patient on long spine board
		E. Secure the patient to the long spine board (if primary splint)
		*F. Reassess distal circulation, sensation, and motor function
6. REASSESS	□	*A. Assess patient response and level of comfort