

081-000-0044
Treat a Casualty with Burns
Status: Approved

Security Classification: U - Unclassified

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the Joint Base San Antonio, Fort Sam Houston/US Army Medical Center of Excellence (MEDCoE) foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Conditions: In an operational environment, you are required to treat a burn casualty. You have treated all other immediate life threats and are provided with a surgical airway kit, dry sterile gauze, heat reflective shield or Blizzard survival blanket, IV/IO fluids and administration kit, analgesics, a pen, and a DD Form 1380 Tactical Combat Casualty Care (TCCC) Card or electronic medical record (EMR). Some iterations of this task should be performed in MOPP 4. This task should be trained under IED Threat conditions.

Standards: Treat a casualty with burns in accordance with (IAW) TCCC Guidelines while adhering to all warnings and cautions, without error or causing further harm to the patient, using the GO/NO-GO checklist.

Special Conditions: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: None

DANGER

Do not directly touch a casualty receiving a shock. To do so will conduct the current to you--causing death to the person rendering aid.

WARNING

Electrical shock may cause the casualty to go into cardiac arrhythmia or arrest. Initiate cardiopulmonary resuscitation (CPR) as appropriate. Casualties of lightning strikes may require prolonged CPR and extended respiratory support. A chemical will burn as long as it is in contact with the skin. Do not use a hard blast of water. Extreme water pressure can add mechanical injury to the skin.

CAUTION

All body fluids should be considered potentially infectious so always observe body substance isolation (BSI) precautions by wearing gloves and eye protection as a minimal standard of protection. Do not remove clothing that is stuck to the burned area. If the clothing and skin are still hot, irrigate with copious amounts of room-temperature water or cover with a wet dressing, if available. The swelling of burns on extremities can cause a tourniquet-like effect, and the swelling of a burned throat can impair breathing.

Remarks: This task should be performed under all environmental conditions. Four or more operational variables of political, military, economic, social, information, infrastructure, physical environment, time should be present. Some iterations of this task should be performed with degraded mission command networks, degraded conditions in the electromagnetic spectrum, and/or with degraded, denied, and disrupted space operations environment (D3SOE).

Notes: 68W, Combat Medic Specialist is the proponent for this task.

Performance Steps

1. Identify the cause of the burn.

- a. Assess the scene.
- b. Question the casualty and/or bystanders.
- c. Determine if the casualty has been exposed to smoke, steam, or combustible products.
- d. Determine if the cause was open flame, hot liquid, chemicals, or electricity.
- e. Determine whether the casualty was struck by lightning.

Note: If the burn was caused by an explosion or lightning, the casualty may also have been thrown some distance from the original spot of the incident. They may, therefore, have associated internal injuries, fractures, or spinal injuries.

2. Stop the burning process.

a. Thermal burns.

(1) Have the casualty STOP, DROP, and ROLL.

- (a) Do not permit the casualty to run, as this will fan the flames.
- (b) Do not permit the casualty to stand, as the flames may be inhaled or the hair ignited.
- (c) Place the casualty on the ground or floor and roll the casualty in a blanket or in dirt, and/or splash with water.

(2) Remove all smoldering clothing and articles that retain heat, if possible.

CAUTION

Do not remove clothing that is stuck to the burned area. If the clothing and skin are still hot, irrigate with copious amounts of room-temperature water or cover with a wet dressing, if available.

(3) Cut away clothing to expose the burned area.

b. Electrical burns.

DANGER

Do not directly touch a casualty receiving a shock. To do so will conduct the current to you. This could cause death to the person rendering aid, as well.

(1) Turn off the current, if possible.

WARNING

Electrical shock may cause the casualty to go into cardiac arrhythmia or arrest. Initiate cardiopulmonary resuscitation (CPR) as appropriate. Casualties of lightning strikes may require prolonged CPR and extended respiratory support.

(2) If necessary and/or possible, remove the electrical source from the casualty.

WARNING

A chemical will burn as long as it is in contact with the skin.

c. Chemical burns.

(1) Flush the area of contact immediately with water. When flushing, be careful not to let the run off contaminate other areas of the body. Do not delay flushing to remove the casualty's clothing first.

Note: If a solid chemical, such as lime, has been spilled on the casualty, brush it off before flushing. A dry chemical is activated by contact with water and will cause more damage to the skin.

WARNING

Do not use a hard blast of water. Extreme water pressure can add mechanical injury to the skin.

(2) Flush with cool water for 10 to 15 minutes while removing contaminated clothing or other articles.

Note: Flush longer for alkali burns because they penetrate deeper and cause more severe injury. Many chemicals have a delayed or prolonged reaction. They will continue to cause injury even though the casualty no longer feels pain.

d. White phosphorus burns.

Note: White phosphorus (WP) will stick to the skin and continue to burn until it is deprived of air. WP burns are usually multiple and deep, usually producing second and third degree burns.

(1) Deprive the WP of oxygen.

(a) Splash with a nonpetroleum liquid (such as water, mud, or urine).

(b) Submerge the entire area.

(c) Cover the affected area with a moistened cloth, if available, or mud.

(2) Remove the WP particles from the skin by brushing with a wet cloth or using forceps, stick, or knife.

WARNING

30 to 40 minutes may elapse before edema obstructs the airway and respiratory distress is noted. Always suspect an inhalation injury with a closed-space fire.

3. Maintain an open airway.

a. Check for signs and symptoms of inhalation injury.

(1) Facial burns.

(2) Singed eyebrows, eyelashes, and/or nasal hairs.

(3) Carbon deposits and/or redness in the mouth and/or oropharynx.

(4) Sooty carbon deposits in the sputum.

(5) Hoarseness, noisy inhalation, cough, or dyspnea.

b. Check for signs and symptoms of carbon monoxide poisoning.

- (1) Dizziness, nausea, and/or headache.
 - (2) Cherry-red colored skin and mucous membranes.
 - (3) Tachycardia or tachypnea.
 - (4) Respiratory distress or arrest.
 - (5) Change in mental status, especially increased confusion or lack of coordination.
- c. Administer humidified oxygen at a high flow rate.
4. Calculate the percent of body surface area (BSA) burned.
- a. Cut the casualty's clothing away from the burned areas.
 - b. Determine the percentage of BSA burned using the Rule of Nines (see Figure 1-1).

| Rule of Nines | | |
|-----------------------------|----------|-----------------------|
| 1. Head and neck | = | 9% |
| 2. Anterior trunk | = | 18% |
| 3. Posterior trunk | = | 18% |
| 4. Upper extremities | = | 18% (each 9%) |
| 5. Lower extremities | = | 36% (each 18%) |
| 6. Perineum | = | 1% |

Figure 1-1

5. Identify the degree of the burn.
- a. First degree.
 - (1) Superficial skin only.
 - (2) Red and painful, like a sunburn.
 - b. Second degree.
 - (1) Partial thickness of the skin.
 - (2) Penetrates the skin deeper than first degree.
 - (3) Blisters and pain.
 - (4) Some subcutaneous edema.
 - c. Third degree.
 - (1) Damage to or the destruction of full thickness of skin.

- (2) Involves underlying muscles, bones, or other structures.
- (3) The skin may look leathery, dry, and discolored (charred, brown, or white).
- (4) Nerve ending destruction causes a lack of pain.
- (5) Massive fluid loss.
- (6) Clotted blood vessels may be visible under the burned skin.

CAUTION

Check for entry and exit burns when treating electrical burns and lightning strikes.

The amount of injured tissue in an electrical burn is usually far more extensive than the appearance of the wound would indicate. Although the burn wounds may be small, severe damage may occur to deeper tissues. (High voltage can destroy skin and muscles to such an extent that amputation may eventually be necessary.)

- (7) Subcutaneous fat may be visible.

6. Treat casualties for shock who have second or third degree burns of 20% BSA or more.

- a. Initiate treatment for hypovolemic shock.
- b. Keep the casualty flat.
- c. Initiate an intravenous (IV) infusion.

- (1) Use Ringer's lactate, if available. Normal saline is the second fluid of choice.
- (2) If the casualty is in shock secondary to other injuries, IV may be started with Hextend.
- (3) Use an 18 gauge catheter needle.
- (4) Initiate the IVs in an unburned area, if possible.
- (5) Use large peripheral veins.

Note: The presence of overlying burned skin should not deter the use of an accessible vein. The upper extremities are preferable to lower extremities.

- d. Infuse fluids for a casualty based on Rule of Tens.

Note: The objective is to determine an appropriate rate or amount of fluids to prevent hypovolemia after burn injury. Initiate fluid resuscitation as soon as IV/intraosseous (IO) access is established. Total body surface area >20% may require acute fluid resuscitation in prehospital setting.

- (1) Estimate the total body surface area (TBSA) burned to the nearest 10% (using the Rule of Nines or Rule of Palm).
- (2) Percentage TBSA (to the nearest 10%) x 10 milliliters per hour (ml/hr) for adults weighing 88-176 pounds.
 - (a) Example: 80 Kilogram (kg) male has burned approximately 30% of his body.
 - (b) $30 \text{ (TBSA\%)} \times 10 \text{ ml/hour} = 300 \text{ ml/hour}$.
- (3) For every 25 pounds above 175, increase the initial rate by 100 ml/hour. Add 100ml to IV fluid rate for each 10kg > 80kg.
 - (a) Example: A 90kg male has burned approximately 50% of his TBSA.

(b) $50 \text{ (TBSA\%)} \times 10 \text{ ml/hour} = 500 \text{ ml/hour} + 100 \text{ ml/hour} = 600 \text{ ml/hour}$.

(4) Assess the circulatory blood volume.

Note: Urine output is a reliable guide to assess circulating blood volume.

(a) Measure the casualty's urine output in cubic centimeters (cc) per hour.

(b) Adjust the IV fluid flow to maintain 30 to 50 cc of urine output per hour.

(5) Pediatrics: $3\text{mL} \times \text{TBSA} \times \text{body weight (kg)}$ gives volume for initial 24 hours. Monitor urine output with goal of 0.5 to 1 ml/kg/hr in children.

e. Parkland Formula.

(1) Give half of total volume over 1st 8 hours from time of burn.

(2) Adult: 70kg patient with 50% TBSA $2\text{mL Lactated Ringers} \times 70 \text{ kg} \times 50\% \text{ TBSA} = 7,000 \text{ mL LR}$ in 1st 24 hours. 3,500 mL (half of 7,000) is given over 1st 8 hours from time of burn. $3,500 \text{ mL} / 8 \text{ hours} = 437 \text{ mL/hr}$ over 1st 8 hours

7. Perform either an Emergency Medical Technician (EMT) Trauma Assessment or a Combat Casualty Assessment depending on the situation.

a. Measure and record the casualty's vital signs.

b. Assess the casualty for associated injuries.

c. Check the distal circulation by checking pulses in all extremities.

CAUTION

The swelling of burns on extremities can cause a tourniquet-like effect, and the swelling of a burned throat can impair breathing.

8. Remove potentially constricting items such as rings and bracelets.

9. Dress the burns.

a. Apply a dry sterile dressing to the burns.

b. Cover extensive burns with a sterile sheet, if available, or clean linen.

10. Record the treatment given on the DD Form 1380, Tactical Combat Casualty Care (TCCC) Card or Electronic Medical Record (EMR).

11. Evacuate the casualty.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score each Soldier according to the performance measures in the evaluation guide. Training instructor determines if the entire task will be trained and evaluated or parts, based on a Soldier's military occupational specialty (MOS) or assigned position and available equipment.

Evaluation Preparation: You must evaluate the Soldier on their performance of this task in an operational condition related to the actual task.

| PERFORMANCE MEASURES | GO | NO-GO | N/A |
|--|----|-------|-----|
| 1. Identified the cause of the burn. | | | |
| 2. Stopped the burning process. | | | |
| 3. Maintained an open airway, if necessary. | | | |
| 4. Calculated the percent of BSA burned. | | | |
| 5. Identified the degree of the burn. | | | |
| 6. Treated casualties for shock who had second or third degree burns of 20% BSA or more. | | | |
| 7. Performed either an EMT Trauma Assessment or a Combat Casualty Assessment depending on the situation. | | | |
| 8. Removed potentially constricting items such as rings and bracelets. | | | |
| 9. Dressed the burns. | | | |
| 10. Recorded the treatment given on the DD 1380 TCCC or EMR. | | | |
| 11. Evacuated the casualty. | | | |

Supporting Reference(s):

| Step Number | Reference ID | Reference Name | Required | Primary | Source Information |
|-------------|-------------------------|---|----------|---------|--------------------|
| | DD FORM 1380 | TACTICAL COMBAT CASUALTY CARE (TCCC) CARD | Yes | No | |
| | ISBN-13: 978-1284180589 | Prehospital Trauma Life Support, Military Edition, 9th Edition | Yes | No | |
| | JTS-CPGS | Joint Trauma System Clinical Practice Guidelines | Yes | No | |
| | TCCC Guidelines 2020 | Tactical Combat Casualty Care (TCCC) Guidelines; by Joint Trauma System (JTS) Committee on Tactical Combat Casualty Care (CoTCCC) | Yes | Yes | |

TADSS :

| TADSS ID | Title | Product Type |
|----------|--|--------------|
| 08-05/C | Virtual Patient System (VPS) Intravenous (IV) Arm Simulator (MSTC) | DVC |

Equipment Items (LIN): None

Materiel Items (NSN) :

| Step ID | NSN | LIN | Title | Qty |
|---------|------------------|--------|---|-----|
| | 6545-01-530-0929 | NA4578 | Improved First Aid Kit (IFAK), Universal Color | 1 |
| | 6510-01-153-2857 | | Dressing, Burn 24 X 36 Inch | 1 |
| | 6545-01-539-6450 | NA4512 | Bag, Medical Aid, ACU: M-9 | 1 |
| | 6510-00-159-4883 | | Field Dressing, with Ties, 6.25-7.25 X 4 Inch, Sterile | 1 |
| | 6510-01-492-2275 | | Emergency Dressing, 6 Inch | 1 |
| | 6505-01-047-5383 | | Povidone-Iodine Ointment, USP, 10%, 1 Ounce (28.35 Grams) Sodium Chloride Injection, USP, 30ML Vial 25S | 1 |
| | HODYH71167 | | KERLIX FLUFFS 4.5" 6 PLY 125S | 1 |
| | 6505-01-483-5500 | | Ringer's Injection, Compound Sodium, Lactated BP, 1000ML Box 20S | 1 |
| | 6515-00-115-0032 | | Intravenous Injection Set, 7 Components, Macrodrip, 10 Drops per ML, Non-Vented | 1 |
| | 6515-00-122-6990 | | Catheter, Intravenous | 1 |
| | 6515-01-164-2758 | | Administration Set, Primary Piggyback Microdrip, with Clair Clamp | 1 |
| | 6510-01-515-7280 | | DRESSING, EMERGENCY TRAUMA | 1 |
| | 6515-00-052-1320 | | Intravenous Injection Set | 1 |
| | 6515-00-174-2283 | | Catheter and Needle Unit, Intravenous, 18 Gage X 2 Inch Catheter, 21 Gage Inch Needle | 1 |
| | 6510-00-058-3047 | | Bandage, Gauze, 4.5 Inch X 4.0 Yard Roll: Kerlix 4.5 Inch | 1 |

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training

resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card.

Safety: In a training environment, leaders must perform a risk assessment in accordance with current Risk Management Doctrine. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW current CBRN doctrine.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks : None

Knowledges :

| Knowledge ID | Knowledge Name |
|-----------------|---|
| 081-C2-68W-0457 | Knowledge of the classifications of burns. |
| 081-C2-68W-0032 | Describe the differences between first, second and third degree burns. |
| 081-C2-68W-0472 | Knowledge of the relationship between airway management and chest, burns, blunt and penetrating |

Skills :

| Skill ID | Skill Name |
|-----------------|---|
| 081-C2-68W-0135 | Assess and treat a casualty with a burn injury. |
| 081-C2-68W-0138 | Determine critical burn area. |
| 081-C2-68W-0139 | Determine degree of burn. |
| 081-C2-68W-0141 | Use the "rules of nines" to determine percentage of body surface area of a burn injury. |

ICTL Data : None