# **UNITED STATES MARINE CORPS** FIELD MEDICAL TRAINING BATTALION Camp Lejeune, NC 28542-0042

## FMST 112

## **TCCC CARE UNDER FIRE**

### TERMINAL LEARNING OBJECTIVE

1. Given T/O weapon, supplies, and a casualty in a tactical environment, perform Tactical Combat Casualty Care to reduce the risk of further injury or death using correct interventions. (HSS-MED-2002)

#### ENABLING LEARNING OBJECTIVE

1. Without references, describe the prioritization of treating life-threatening conditions using a tactical trauma assessment sequence, within 80% accuracy, IAW current CoTCCC Guidelines, and the Pre-Hospital Trauma Life Support manual, Military Edition, Current Edition. (HSS-MED-2002g)

2. Without references, given a list, **define what is necessary to stop the burning process for casualties extricated from burning vehicles or buildings**, within 80% accuracy, IAW CoTCCC Guidelines, and the Pre-Hospital Trauma Life Support manual, Military Edition, Current Edition. (HSS-MED-2002c)

3. Without references, given a list, **define the use of limb** tourniquets in Care Under Fire, within 80% accuracy, IAW COTCCC Guidelines, and the Pre-Hospital Trauma Life Support manual, Military Edition, Current Edition. (HSSMED-2002d)

4. Without references, given a list, **identify casualty drags and carries**, within 80% accuracy, IAW CoTCCC Guidelines, and the Pre-Hospital Trauma Life Support manual, Military Edition, Current Edition. (HSS-MED-2002f)

### 1. FIRST PHASE OF TCCC

a. <u>Care Under Fire</u> - care rendered at the scene while both the Corpsman and the casualty are still under effective hostile fire. The risk of additional injuries from hostile fire at any moment is extremely high. Equipment is usually limited to what is carried by the casualty and the Corpsman. Suppression of hostile fire and moving the casualty to a safe position are major considerations at this point. If the firefight is ongoing - don't try to treat your casualty in the Kill Zone! Suppression of enemy fire and moving casualties to cover are the major concerns.

(1) The need for medical care must be weighed against the need to move to cover and to suppress hostile fire rapidly. Moving a casualty to safety must only be done if it is tactically feasible. <u>Rescuers should never move into a zeroed-in</u> position.

(2) Fire superiority is considered the best medicine since the fewer rounds coming at your Marines, the fewer injuries they will have.



Gunnery Sgt Shane attempts to pull a fatally wounded Sgt Wells to cover.



The third man on the left is Hospital Corpsman Joel Lambott, the platoon's Corpsman



Gunnery Sgt. Shane (left) is hit by enemy fire.



HN Lambott was struck in the heel just after GySgt Shane was injured. He provided life-saving care to GySgt Shane, directed his evacuation, and dressed his own injury. He stayed with the platoon and continued his duties during the operation. In this rescue attempt, the fate of the first casualty was unchanged and two additional casualties were sustained because effective enemy fire was not suppressed.

(3) The Management Care Plan for Care Under Fire begins with returning fire.

(a) <u>Return Fire and take cover</u>. Medical personal may need to assist in returning fire instead of stopping to care for casualties. Suppression of hostile fire will minimize the risk of both new casualties and additional injuries to existing casualties. The firepower contributed by medical personnel and casualties themselves may be essential to tactical fire superiority.

(b) <u>Direct/Expect the casualty to remain engaged</u> as a combatant, if they are able. Depending on the kind of wound a casualty sustains, they may still be able to fire their weapon. If a Marine is able to fight, they should continue to fight.

(c) <u>Direct the casualty to move to cover and</u> <u>apply self-aid</u>, if possible. If the casualty can move themselves to cover, this will avoid exposing others to enemy fire and will reduce the chances of the casualty sustaining additional wounds. Unresponsive casualties are unlikely to be saved and risking additional lives by exposure to fire to move the casualty is not warranted. Responsive casualties who cannot move should be moved to safety but only if it is tactically feasible.

## (f) <u>Stop life-threatening external hemorrhage if</u> tactically feasible:

-Direct casualty to control hemorrhage by selfaid if able.

-Use a CoTCCC-recommended limb tourniquet for hemorrhage that is anatomically amenable to tourniquet use.

-Apply the limb tourniquet over the uniform clearly proximal to the bleeding site(s). If the site of the life-threatening bleeding is not readily apparent, place the tourniquet "high and tight" (as proximal as possible) on the injured limb and move the casualty to cover.

## When is bleeding life-threatening?

When there is pulsing or steady bleeding from the wound.



Figure 1.

# When blood is pooling on the ground.



Figure 2.

When the overlying clothes are soaked with blood.



Figure 3.

When bandages or makeshift bandages used to cover the wound are ineffective and steadily becoming soaked with blood.



Figure 4.

When there is a traumatic amputation of an arm or leg.



Figure 5.

When there was prior bleeding, and the patient is now in shock. (unconscious, confused, pale).



Figure 6.

## (g) <u>Stop Life Threatening Extremity Hemorrhage, if</u> <u>Tactically Feasible.</u>

(1) Direct the casualty to control hemorrhage with self-aid, if able.

(2) Use a CoTCCC recommended limb tourniquet for hemorrhage that is anatomically amenable to tourniquet use.

- <u>Tourniquets</u>. Stop life-threatening external hemorrhage if tactically feasible:

- Apply the limb tourniquet over the uniform clearly proximal to the bleeding site(s). If the site of the life-threatening bleeding is not readily apparent, place the tourniquet "high and tight" (as proximal as possible) on the injured limb and move the casualty to cover.

-Early control of severe hemorrhage is critical. Immediate control of life-threatening extremity hemorrhage with a tourniquet is the only medical intervention in Care Under Fire.

-It is important for all members of the unit to have a tourniquet available at a standard location on their gear.

-All members of the unit should be taught by the Corpsmen where to carry the tourniquet and how to use it. A casualty should be able to easily reach their own tourniquet and apply it quickly. Also, a rescuer can find the casualty's own tourniquet and use it on them.

\*The need for immediate access to a tourniquet in such situations makes it clear that all personnel on combat missions should have a CoTCCC- recommended limb tourniquet readily available at a standard location on their battle gear, and be trained in its use.\*

-Casualties should be able to easily and quickly reach their *own* tourniquets.

## Apply without delay if indicated.

-Both the casualty and the Corpsman (or other rescuer) -are in grave danger while applying a tourniquet. For that reason, only wounds requiring a tourniquet are treated. All other bleeding should be ignored until the Tactical Field Care Phase.

-If one tourniquet does not control the bleeding, a second tourniquet may need to be applied just above the first one.

-Don't put a tourniquet over the knee or elbow or over a holster or cargo pocket containing bulky items.

-Immediate control of extremity hemorrhage with a tourniquet is the most important life-saving intervention in Care Under Fire and is the only medical care that should be rendered before the casualty is moved to cover.

Checking a distal pulse and marking time of application are not recommended during Care Under Fire. Simply tighten the tourniquet until the bleeding stops. Add a second tourniquet if necessary to control bleeding.

Tourniquets should be applied at the "High-and-Tight" location <u>only</u> when the bleeding site cannot be clearly identified. Otherwise, they should be placed 2-3 inches above the bleeding site.

Although not commonly used in civilian trauma care, tourniquets have been shown to save lives in combat. Multiple recent studies have confirmed the lifesaving benefit and low incidence of complications from prehospital tourniquet use in combat casualties.

## Tourniquets are most effective in saving lives if applied before the casualty has gone into shock from blood loss.

## Combat Application Tourniquet (C.A.T.)



Figure 7. CAT TQ

- <u>CAT</u> (see Figure 7)
  - US Army Institute of Surgical Research and CoTCCC recommended
  - Lightweight
  - Easy to apply and use

SOFT-T (see Figure 8)

- Special Operations Forces Tactical Tourniquet
- Also recommended by the CoTCCC
- True 1-1/2 inch constriction band
- Aluminum windlass rod
- Application remains the same, regardless of location

- May be a better choice if the casualty has large thighs and needs a tourniquet in that location.

Emergency and Military Tourniquet (EMT) (see Figure 9)

**Special Operations Forces Tourniquet- Tactical SOFT=-T** 



Figure 8. SOFT-T

**Emergency and Military Tourniquet (EMT)** 



Figure 9. EMT

#### Field Expedient Tourniquet (see Figure 10)

- If CAT is unavailable, choose a material about two inches (2'') wide.
- Material such as rope, wire and string should NOT be used because they can cut into flesh.
- Tie a strong windlass (stick) to a cravat or other strong material.
- Slide one or two rings on each side of the cravat.
- Tie the cravat around the affected limb, two to four inches above the wound, loosely. (This will allow the windlass to turn, creating circumferential pressure to stop the bleed.)
- Twist the windlass until the hemorrhage is controlled.
- Slide the ring to the windlass and secure windlass to the ring(s).

### What about those Rings???

- Examples of good rings to use: - Key chain rings
- Sport drink rings
- Boot laces tied into a ring
- Anything that is in a ring shape with the
- approximate diameter of 1-2 inches

#### Tourniquet Application during Care Under Fire f.

Life-threatening hemorrhage of an extremity is treated with a tourniquet in Care Under Fire. As discussed in the Introduction to TCCC, if tactically feasible, apply the tourniquet over the uniform clearly proximal to the bleeding site(s). If the site of the life-threatening bleeding is not readily apparent, place the tourniquet "high and tight" and as proximal as possible on the injured limb and move the casualty to cover. Time may not permit exposure of the wound and the tourniquet may have to be placed over the uniform. Although this is not the ideal application, it is necessary. Once time permits, the wound should be exposed and re-evaluated and a replacement tourniquet should be applied directly to the skin.



**Figure 10. Improvised Tourniquets** 

## Steps to apply a tourniquet using the **ONE Handed**

## Application:

1. Insert the injured limb through the loop in the band and position tourniquet 2-3" above the bleeding site. If the most proximal bleeding site is not readily identifiable, place the tourniquet as high as possible on the limb.

(See figure 11)

2. Pull band **TIGHTLY** and fasten it back on itself all the way around the limb, but not over the rod clips. Band should be tight enough that tips of three (3) fingers cannot



be slid between the band and the limb. If the tips of three (3) fingers slide under band, retighten and re-secure. (see figure 12/13)



Figure 12/13. Application of CAT

3. Twist the rod until bleeding has stopped. (see Figure 14/15)



Figure 14/15. Application of CAT

5. Route the band over the rod and between the clips. Secure with the gray securing strap. (see figure 16)



Figure 16. Application of CAT

Steps to apply a tourniquet using the TWO Handed Application:

1. Route the band around the limb, pass the red tip through the slit of the buckle, and position tourniquet 2-3" above the bleeding site. If the most proximal bleeding site is not readily identifiable, place the tourniquet as high as possible on the limb. (see Figure 17)



Figure 17. Application of CAT

2. Pull band TIGHTLY and fasten it back on itself all the way around the limb, but not over the rod clips. Band should be tight enough that tips of three (3) fingers cannot be slid between the band and the limb. If the tips of three (3) fingers slide under band, retighten and re-secure. (see Figure 18)





Figure 18. Application of CAT

3. Twist the rod until bleeding has stopped. (see Figure 19)

 Snap the rod inside a clip to lock it in place.
(see Figure 20)

Reassess.



Figure 20. Application of CAT



Figure 19. Application of CAT

5. Route the band over the rod and between the clips. Secure with the gray securing strap.



Figure 21. Application of CAT

\*<u>It is not recommended to Check a distal pulse or mark the time</u> <u>during Care Under Fire</u>.

(h) Airway management is generally best deferred until the Tactical Field Care phase.

2. **CASUALTY MOVEMENT**. If you must move a casualty during Care Under Fire, there are many things to consider. First, determine the potential risk to rescuers. Where is fire coming from? Is it direct or indirect? Also, consider your assets. What can rescuers provide in the way of covering fire, screening, shielding, and rescue equipment (if any)? Make sure everyone understands their role in the rescue and which movement technique will be used. It is also helpful if the casualty knows the plan so they can assist as much as possible. You should also know the location of the nearest cover. How far will the casualty need to be moved? Additionally, it's important to consider the weight of the casualty as it compares to the rescuer. You won't get far with one rescuer if the casualty requires two rescuers due to his size and weight. If it's possible to recover the casualty's weapons during the move, do so. When moving a casualty, there are certain moves, or "carries" that are recommended. There are advantages and disadvantages to each kind of carry.

#### a. TYPES OF CARRIES

#### (1) One person drag without a line.

-Advantages: There is no equipment required. Just grab the casualty by the loop on the flak, if possible. During this move, only one rescuer is exposed to hostile fire.

-Disadvantages: This carry may be slow and it is not an optimal body position to sustain for very long.

#### (2) Two person drag without a line.

-Advantages: This move is much faster than the one person drag.

-Disadvantages: Unfortunately, this move exposes two rescuers to hostile fire.

(b) Two person drag with lines.

-Advantages: You can shoot while dragging. This move is much faster to cover and it is much easier than dragging without lines.

-Disadvantages: The two person drag with lines also exposes two rescuers to hostile fire.

(c) SEAL Team Three Carry.

-Advantages: May be useful in situations where drags do not work well. It's also less painful for the casualty than dragging.

-Disadvantages: It may be slower than dragging and may be more difficult, especially with an unconscious casualty. Unfortunately, this move also exposes two rescuers to hostile fire.

(e) Hawes Carry.

-Advantages: This carry requires only one rescuer and may be useful in situations where a drag is not a good option. It's much better than the outdated fireman's carry.

-Disadvantages: It's hard to accomplish with the rescuer's and casualty's gear in place. It's also difficult when the casualty is bigger than the rescuer. It's often much slower than dragging and it creates a high profile for both casualty and rescuer, which exposes them both to hostile fire.

### REFERENCE(S):

Committee on Tactical Combat Casualty Care Guidelines CoTCCC guidelines Joint Trauma Systems DODI 6040.47 Medical Readiness Training DoDI 1322.24 Pre-hospital Trauma Life Support, Military Edition, Current Edition Deployedmedicine.com