U.S. DEPARTMENT OF HOMELAND SECURITY

FEDERAL LAW ENFORCEMENT TRAINING CENTERS

PHYSICAL TECHNIQUES DIVISION

PHYSICAL TECHNIQUES

STUDENT TEXT

TACTICAL MEDICAL

8016 **MAY/23**

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LESSON PLAN SYLLABUS

COURSE TITLE: TACTICAL MEDICAL
COURSE NUMBER: 8016
COURSE DATE: MAY/23

Program	Option	EPOs Covered
ASTITP, ASTTP	A	1, 2
BTMITP	B	1, 2, 3, 4
DHSOIG_CTR, DHSOIG_TSR	C	1, 2, 3, 4
CBP_CMSP, CBP_CMSPBT, DACID_SARTP, DCIS_DSEP, DCIS_SARTP, DHS_SATR, FDA_SATP, IG_ISTP, IRSC_UOFIT, NASA_OIG_IS, NMFS_IS, PSOTP	D	1, 2, 3, 4
TMFR	E	1, 2, 3, 4
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CITP, UPTP	G	1, 2, 3, 4
CBP_OBT, ICE_ERO-BIETP	H	1, 2, 3, 4
DCIS_DRP	I	1, 2, 3, 4
TIGTA_AIT, TIGTA_SAA, USMP_IS	J	1, 2, 3
LMPT	K	1, 2, 3, 4
USACID_SARTP	L	1, 2, 3, 4
CBP_ASBT	M	1, 2, 3, 4

Program	Option	EPOs Covered
DCIS_SATP, DOJOIG_IS	N	1, 2, 3, 4
OSSTP	O	1, 2, 3, 4
ICE_ERO-DFOTP	P	1, 2
DCIS_UOFIRTP, USDA_APHIS_STP	Q	1, 2, 3, 4
USCIS_FDNS_FOBTP	R	1, 2

DESCRIPTION:

The Law Enforcement Officer or Operator will gain knowledge and skills necessary to prevent the loss of their life or the life of another while in a tactical environment. The skills will address treating life threatening injuries with limited equipment, lack of medically trained personnel and prolonged time to evacuation.

TERMINAL PERFORMANCE OBJECTIVE:

Given a tactical mission, the student will assess and recognize a life threatening injury, provide effective treatment and extricate the casualty from a hostile fire scenario in a manner that ensures maintaining cover and effectively utilizing tactical movement strategies.

ENABLING PERFORMANCE OBJECTIVES:

EPO 1:	PTD-00008	Define and/or conduct medical assessments to include available resources.
EPO 2:	PTD-00076	Apply and/or present techniques to control life threatening bleeding during Care Under Fire.
EPO 3:	PTD-00173	Perform and/or present techniques to treat life threatening and non life threatening injuries during tactical field care.
EPO 4:	PTD-00028	Demonstrate and/or present lifting, moving and extricating

victims from a tactical or hostile environment during Tactical Evacuation Care.

STUDENT SPECIAL REQUIREMENTS:

1. Students will be required to participate in training exercises that will be physically strenuous. Students must be medically cleared to participate in all phases of physical activity. This activity includes participation in various types of simulation training that requires the student to possess good mobility and be free from any existing medical condition. Students that are either fully or partially restricted will not be allowed to participate.

METHOD OF EVALUATION:

Practical Exercise

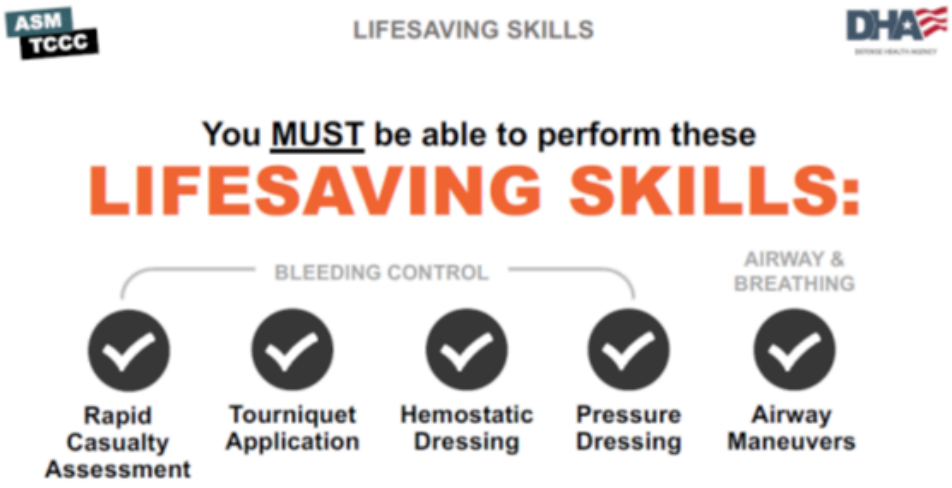
Follow approved Practical Exercise Scenario Packets and Session Breakdown for each specific program.

OUTLINE OF INSTRUCTION

I. INTRODUCTION

A. RAPPORT AND OPENING STATEMENT

1. Today, anyone could be a first responder at a terrorist attack, a natural disaster, or active shooter event that has a medical environment similar to that of a battlefield. Active hostile fire associated with unknown number of combatants/suspects with injured casualties make it difficult to determine which intervention to perform first or even where. Besides addressing a casualty's medical condition, responding LEOs/agents and/or medical personnel must also address the tactical situation faced while providing casualty care in the hostile environment. A medically correct intervention performed at the wrong time may lead to further casualties. To rephrase, "good medicine may be bad tactics," which can get the rescuer and casualty killed. To successfully navigate these issues, LEOs/agents and/or medical providers must have the skills and training to successfully operate in hostile environments while providing lifesaving trauma care. (DEPARTMENT OF HOMELAND SECURITY, 2015)



The pre-hospital period is the most important time to care for any casualty. Recent military conflicts have demonstrated that up to 90% of deaths occur before a casualty reaches a medical treatment facility. This highlights the primary importance of treating casualties at the point of injury, prior to casualty evacuation (CASEVAC) and arrival at a treatment facility. (Defense Health Agency, 2023)

A review of the Boston Marathon bombing revealed that a significant number of injuries were consistent with combat injuries, amputations, extremity hemorrhage, burns and concussive force injures. Civilian law enforcement and first responder injuries align with injuries researched and studied by the military throughout recent conflicts. Immediate, effective treatment to the three leading causes of PREVENTABLE death or, extremity hemorrhage (bleeding out), preventing or treating a tension pneumothorax, and treating an obstructed airway can significantly increase the survivability of military, law enforcement and first responders. Of these potentially preventable deaths, the vast majority are due to massive hemorrhage (bleeding out) and airway or breathing difficulties; conditions that can and should be addressed at the point of injury. It has been estimated that of all preventable deaths, 90% of them can be avoided with the simple application of a tourniquet for extremity hemorrhage, the treatment of a tension pneumothorax, and the establishment of a stable airway.

The medical assessment of the casualty should prioritize the recognition and treatment of the leading causes of preventable death; extremity hemorrhage, tension pneumothorax and obstructed airway, for self-aid and buddy-aid. A good remote assessment should occur before the rescuer rushes in. If an officer is down or hurt, you need to ask that officer some of the following questions from a point of cover:

- Where is the suspect located?
- Can you return fire?
- Can you move to cover?
- Can you move to my location?
- How are you hurt?
- Can you apply a tourniquet or direct pressure?

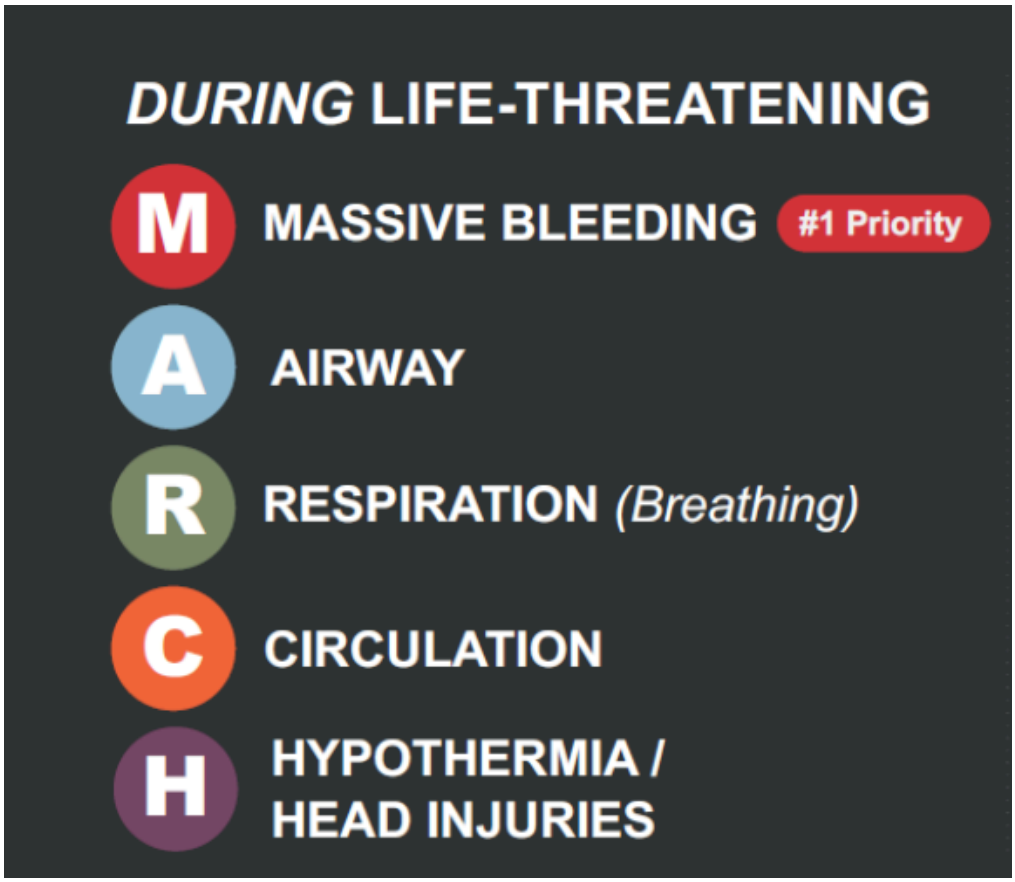
This provides the LEO a better tactical advantage if they must move in for care or rescue or direct/aid the casualty to a point of safety. If the casualty can provide information, then gather as much information as possible. It would be considered a normal reaction to an abnormal event (explosion, shot, etc.) for an individual to lack the immediate ability to think clearly. The LEO can ask about injuries and direct the casualty to provide self-aid. The casualty may identify uncontrolled life-threatening "bright red" bleeding. The location of the uncontrolled bleed may be dependent upon the rescuer or LEO observing/

finding large amounts of bright red squirting bleeding, pooling blood or obvious significant injury/amputation (full or partial). The importance of direct pressure applied to the casualty by themselves or by the rescuer cannot be overstated. The rescuer should maintain a profile that affords the best protection from the hostile fire/environment. Information should be gathered from a cover position. (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023)

Tactical Combat Casualty Care (TCCC) is the pre-hospital care rendered to a casualty in a tactical or combat environment. The TCCC trauma care guidelines are customized for battlefield and law enforcement use and are reviewed and updated by the Committee on TCCC (CoTCCC) on an ongoing basis. The CoTCCC is composed of trauma surgeons, emergency medicine physicians, combatant unit physicians, combat medics, corpsmen, and PJs. (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023)

TCCC is a systematic approach to dealing with casualties in a tactical environment and it incorporates tactical problem solving into any situation in which casualties are incurred from an armed, hostile opponent. (DEPARTMENT OF HOMLAND SECURITY, 2015)

The applicability of TCCC to law enforcement officers on the street is evident in single remote incidents and large-scale incidents. Resources are often overwhelmed, and medical equipment can be limited or non-existent. The scene is not safe and civilian emergency medical personnel are generally not trained to enter the scene. Much of the decision making is based on the assessment of the threat. The treatment techniques and equipment used are common with those trained by military units. (DEPARTMENT OF HOMLAND SECURITY, 2015)



It is known that up to 28% of combat deaths and 20% of civilian trauma deaths are potentially preventable with optimal emergency and trauma care. The lifesaving skills that you will learn during this course will prepare you to care for casualties at the point of injury and help to keep them alive long enough for help to arrive.

The five lifesaving skills you will learn are: rapid casualty assessment, tourniquet application, wound packing with a hemostatic dressing, application of a pressure bandage, and basic airway maneuvers to open the airway. (Defense Health Agency, 2023)

2.

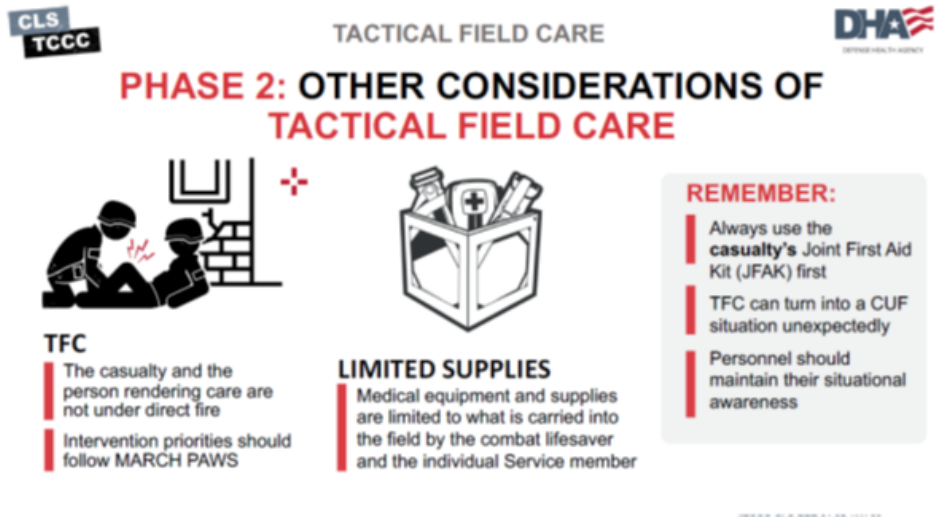
The Tactical Combat Casualty Care is a system focused on saving "preventable deaths" while achieving 3 primary goals:

1. Continue the mission
2. Prevent additional casualties
3. Treat the casualty / casualties

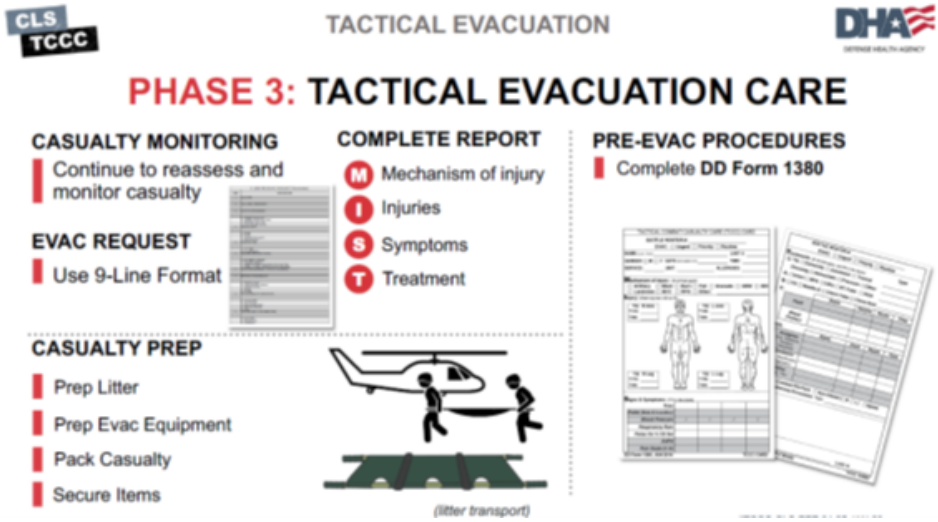
In thinking about the management of combat casualties, it is helpful to divide care into three distinct phases, each with its own characteristics and limitations:

a. **Care under Fire or Care Under Threat** is the aid rendered at the trauma scene while there is still an active threat. Available medical equipment is limited to that carried by an individual or found in a nearby first aid kit. Massive bleeding is the only medical priority that requires your attention during this phase, as you are actively dealing with what could be a chaotic and dangerous situation. (Defense Health Agency, 2023)

b. **Tactical Field Care** is the care provided once the threat has been neutralized and/or the scene is safe. During this phase a rapid casualty assessment should be performed. Bleeding control should be assessed/ reassessed, and airway/breathing issues addressed. Other injuries such as burns, fractures, eye trauma, and head injuries should now be identified and cared for. Medical equipment is still limited. Time to arrival of medical personnel or evacuation may vary considerably, depending on the situation and location of the event. (Defense Health Agency, 2023)



c. **Tactical Evacuation Care** is the care rendered during and once the casualty has been moved by an aircraft or other transportation to a higher level of care. Additional medical personnel and equipment that may have been pre-staged or are co-located should be available in this phase of casualty management. (Defense Health Agency, 2023)



3. Casualties will fall into three general categories:

    1. Casualties who will die, regardless of receiving any medical aid.
    2. Casualties who will live, regardless of receiving any medical aid.
    3. Casualties who will die if they do not receive timely and appropriate medical

aid.

4. In-Custody Care

LEO/Agents must remain aware that custody creates the duty to render aid. Once an officer takes control of a suspect, the officer cannot be "deliberately indifferent" to the suspect's sufficiently serious medical needs.

Serious medical needs may include but are not limited to:

- Inability to breathe sufficiently due to position or applied weight.
- Possible cardiac arrest due to excited delirium, narcotic overdose, or previous medical conditions exacerbated by a physical confrontation.
- Injuries incurred from the application of force to apprehend.

Once it is safe to do so, LEO/Agents must take steps to treat serious medical needs and mitigate possible in-custody injuries. LEO/Agents should remain vigilant in monitoring the suspect’s condition while the suspect is in their custody, and they should notify EMS if the suspect is injured or suffering from a medical condition as described above.

LEO/Agents should monitor and address any signs of respiratory distress. Though control should not be sacrificed for the comfort of the suspect, there are measures a LEO/Agent can take to ensure that both control and risk mitigation occur.

Seated Recovery Position - Care of a respiratory issue may be as simple as placing the suspect in a seated position. LEO/Agents must keep in mind that a handcuffed suspect will not be able to use their hands to support the weight of their upper torso (i.e. Tripod Position). Whenever possible, LEO/Agents should place suspects in a seated position that provides rearward support of the torso and allows the knees to be on the same plane as the hips.

Examples may include:

- Rear seat of a patrol car with seat belt secured.
- Office chair
- Park bench with back support
- Ground at the base of a wall, fence, tree, or pole.

5. null

B. LESSON PLAN OVERVIEW

1. Terminal Performance Objective (TPO)

   Given a tactical mission, the student will assess and recognize a life-threatening injury, provide effective treatment and extricate the casualty from a hostile fire scenario in a manner that ensures maintaining cover and effectively utilizing tactical movement strategies.

2. Enabling Performance Objective (EPO)

   EPO 1: *Define and/or conduct medical assessments, to include available resources.*
   EPO 2: *Apply and/or present techniques to control life-threatening bleeding during Care Under Fire.*
   EPO 3: *Perform and/or present techniques to treat life-threatening and non-life-threatening injuries during Tactical Field Care.*
   EPO 4: *Demonstrate and/or present moving and extricating victims from a tactical or hostile environment during all phases of care.*

II. PRESENTATION

A. EPO #1: DEFINE AND/OR CONDUCT MEDICAL ASSESSMENTS TO INCLUDE AVAILABLE RESOURCES.

1. LEO responders may be expected to deliver prehospital care in dangerous environments with little or no support when operational security is a consideration. They may also encounter situations where communication is not assured, and evacuation may be significantly delayed. The critical factors in these situations are:

   Mission

   Overall Team Health

   - Self-care
   - Buddy-care
   - Team care

   Protection of:

- Team Members
- Victims/Hostages
- Bystanders
- Perpetrators

The care provider in the tactical situation may be forced to improvise and adapt his or her medical procedures based on situational factors in order to provide care for and prepare the patient for evacuation to a safer environment. Tactical considerations are intended to support the care provider's efforts to provide prehospital life support until the patient can be transferred and given definitive care.

Basic Management Plan for Care Under Fire / Threat:

1. Return fire and take cover.

2. Direct or expect casualty to remain engaged as a combatant if appropriate.

3. Direct casualty to move to cover and apply self-aid if able or when tactically feasible, move or drag casualty to cover.

4. Try to keep the casualty from sustaining additional wounds.

5. Casualties should be extracted from burning vehicles or buildings and moved to places of relative safety. Do what is necessary to stop the burning process.

6. Stop life-threatening external hemorrhage if tactically feasible.

- Direct patient to control hemorrhage by self-aid if able.
- Use a tourniquet for a hemorrhage that is amenable to tourniquet application.
- Apply the tourniquet as high on the limb as possible over the uniform, tighten, and move the patient to cover.

Medical Threat Assessment:

The Medical Threat Assessment (MTA) is intended to document resources and does not imply recommendations for operational capabilities.

The MTA is a detailed, pre-mission report that provides an analysis of the

medical aspects and impacts of a tactical operation.

Preparation of the MTA is a key responsibility for the care providers. Preparation of the MTA is vital to mission planning and operational risk management:

- The MTA should be performed well in advance of the proposed operation, if possible.
- Data gathering for the MTA must be conducted in a manner that ensures Operational Security (OPSEC).

Care providers are responsible for presenting the mission commander and/or team with a briefing based on the MTA. The MTA should be mission-specific in design and be written using the components standard form.

ELEMENTS OF THE MEDICAL THREAT ASSESSMENT:

1. Type of operation and operational objectives.

2. Name of MTA preparer, assigned and backup care provider(s).

3. Location:

- Descriptive.
- Map.
- Aerial photographs.
- Longitude/latitude, Universal Transverse Mercator (UTM) grid coordinates.
- Local day/night visibility.
- Time of sunrise and sunset.
- Time of moonrise and moonset.
- Local roads and traffic patterns.
- Type of terrain (urban, industrial, forested, scrub, density, etc.).

4. Weather Conditions**.**

- Climatic data and long-range forecasts are used for advanced planning and extended operations.
- Short-range forecasts and direct observation are used immediately before and during the operation.

Data should include:

- Ambient temperature.
- Humidity.
- Wind speed, direction, and gusts.
- Wet bulb globe temperature or heat index.

5. Data for advanced planning, long-term operations.

- Average temperatures, humidity, precipitation.
- Wind patterns (typical speed, direction).
- Hazards (probability of severe weather, avalanche risk, etc.).
- Temperature extremes.

6. Current weather data and observations are vital when operations involve significant fire hazards and possibility of HAZMAT exposure.

7. Measures to be taken to reduce weather threat risk to personnel.

ASSET STAGING:

1. Fixed Facility Medical Assets.

- Location of nearest hospital emergency department.
- Location of nearest veterinary facilities.
- Location of nearest trauma center.
- Location of nearest burn unit.

Data must include:

- Level of emergency care available.
- Quickest ground route to facility.

- Alternate ground routes to facility.
- Contact telephone numbers of facility.

2. Aeromedical Assets.

- Type
- Name of provider agency.
- Contact telephone numbers.
- Radio frequency of aircraft/dispatch.
- Patient-carrying capacity.
- Appropriate to decrease response time by pre-staging aeromedical assets nearby?
- Identification of landing zones (LZ) and alternate LZ.
- Obtain GPS coordinates for primary LZ and alternate LZ.
- Identify ground surface and slope at LZ.
- Identify any hazards present near the LZ.

Providing agency policy inquiries; does agency policy permit:

- Flight over tactical hot zone?
- Landing in the tactical hot zone?
- Tactical team weapons on board?
- Transport of HAZMAT-exposed patients/personnel?
- Transport of civilian personnel.
- Ground Medical Assets.
- Local EMS providers.
- Type available and provider level of training.
- Proposed location staging of local EMS assets.
- Contact telephone numbers.
- Fire/Rescue assets as indicated by nature of operation.

- Type of specialized teams available.
- Fire suppression, HAZMAT.
- Heavy technical rescue teams.
- Urban search and rescue (USAR) or building collapse response teams.
- Location of staging area and preparation for fire/rescue assets.
- Contact telephone numbers.
- Radio operating frequencies/talk groups.
- Identification of potential HAZMAT risks.
- HAZMAT decontamination plan (protection from pepper spray, tear gas, etc.).
- Separate plan for team, suspects and incidental bystanders.
- Utilization of local HAZMAT assets.
- Public works and infrastructure.
- Utility (electric and gas) companies.
- Contact telephone numbers.

SPECIFIC THREAT ASSESSMENT:

1. Suspected weapons threats.

2. Firearms and sharp-edged weapons.

3. Booby traps.

4. Explosive devices.

5. Inhaled debris/toxins.

6. Potential animal and plant threats.

- Infectious disease risk, indigenous or operation specific.
- Indigenous wild animal threats (poisonous snakes, etc.).
- Domestic animal threats (pet or guard dogs, exotic animals, etc.).
- Poisonous or obnoxious plants (poison ivy, stinging nettles).

- Location of nearest anti-venom banks.
- Contact telephone numbers.
- Identification of animal control agency.
- Contact telephone numbers.

ADDITIONAL MEDICAL CONSIDERATIONS:

- Are language interpreters needed and available?
- Contact information for interpreter(s) on-scene or remote.
- Potential for pediatric patients.
- If hostages involved, do the hostages have any medical conditions and/or special needs?
- Provisions for mass casualty management.
- Medical support for agency service animals (dogs, horses) if utilized.
- Location of nearest capable veterinary hospital.
- Name and contact information of local veterinarian.
- Fire suppression and HAZMAT provisions.

COMMUNICATIONS PLAN:

- Contact information for key personnel.
- Contact information for medical treatment facilities, aeromedical assets, EMS providers, fire and rescue services, utilities.
- Radio frequencies of responding agencies.
- Backup communication plan for communications failures.

(Defense Health Agency, 2023) (Montgomery, 2023) (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023) (Caneva, D. D. 2020)

B. EPO #2: APPLY AND/OR PRESENT TECHNIQUES TO CONTROL LIFE THREATENING BLEEDING DURING CARE UNDER FIRE.

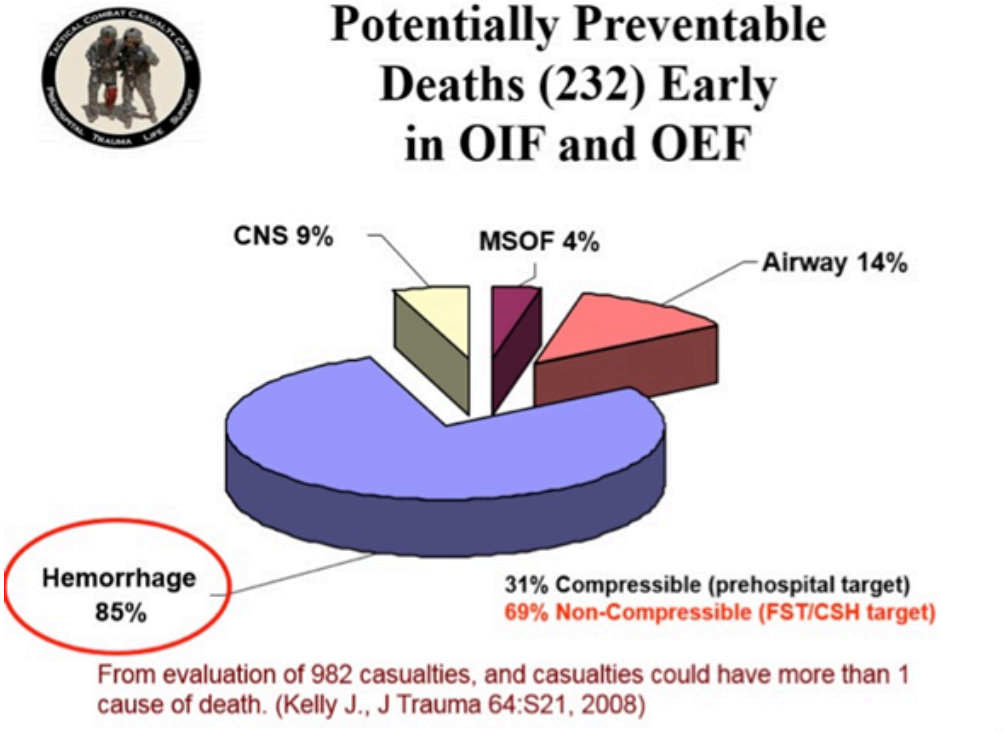
1. Use a CoTCCC-recommended limb tourniquet for hemorrhage that is anatomically amenable to tourniquet use.

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.

a. Assess for unrecognized hemorrhage and control all sources of bleeding. If bleeding is not controlled with the first tourniquet, apply a second tourniquet side-by-side with the first.

b. For compressible (external) hemorrhage not amenable to limb tourniquet use or as an adjunct to tourniquet removal, use Combat Gauze as the CoTCCC hemostatic dressing of choice.

2. Extremity hemorrhage had been reported to be a leading cause of preventable death on the battlefield during the Vietnam conflict. Despite this fact, in 1992, U.S. military combat medics, corpsmen, and PJs were not being taught to use a readily available and highly effective treatment for extremity bleeding—a tourniquet. This realization led to a systematic review of all aspects of battlefield trauma care. This project was conducted from 1993 to 1996 as a joint effort of Special Operations medical personnel and the Uniformed Services University. This 4-year research effort culminated with the publication of the original TCCC paper in 1996.



Two types of pressure applications: **Direct pressure and Indirect pressure**

Direct pressure can be used as a temporary measure to control external bleeding; it can even slow or stop carotid and femoral bleeding. Direct pressure requires very firm pressure.

Indirect pressure to “pressure points” is a method of bleeding control. This method uses the fingers, thumb, heel of the hand, elbow, or shin to press at the site or point where a main artery supplying blood to the wounded area lies near the surface of the skin or over bone. The use of hard objects or edges may also work if the victim has not gained a tactical advantage and needs the use of one or both hands. This method may afford the rescuer more time to locate a manufactured tourniquet (CUF Phase) or other items to create an improvised tourniquet (TFC Phase).

Brachial Artery (Indirect Pressure): The brachial artery (arm) is used to control severe bleeding of the lower part of the arm and elbow. The pressure point is located above the elbow on the inside of the arm in the groove between the muscles.

Femoral Artery (Indirect Pressure): The femoral artery (located on your leg) is used to control severe bleeding of the thigh and lower leg. The pressure point is located on the front, center part in the crease of the groin. Using the heel of your hand, palm, forearm or your shin, apply pressure to the artery against the femur bone. (DEPARTMENT OF HOMLAND SECURITY, 2015)

3. **The Need for a Tourniquet**

Limb Tourniquets should be applied for life-threatening extremity hemorrhages to include suspected life-threatening hemorrhages that are not fully assessed during CUF; multiple casualty situations; multiple injuries requiring intervention in a single casualty; and for all major amputation injuries. This is the only medical intervention recommended during CUF. (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023)

A tourniquet should still be applied to a victim who is suffering from a partial or full amputation even if severe bleeding is not occurring. Lack of bleeding is due to the body’s normal defenses (contraction and spasm of blood vessels) because of the amputation. However, bleeding will start when the blood vessels relax or if the clot is knocked loose while moving the casualty. Standard field dressings and direct pressure take time and access to the actual bleeding site for effectiveness, neither of which are options in CUF.

The benefits of tourniquet use over other methods of hemorrhage control include:

Direct pressure and compression are difficult to perform and maintain in rapidly evolving hostile situations, and can result in the rescuer and casualty delaying their ability to find a cover position.

Tourniquets can be applied by the casualty, limiting the rescuer's exposure to hostile fire and allowing for both parties to maintain a covered position.

Properly applied tourniquets rapidly stop bleeding. The lifesaving benefit of tourniquets through multiple military studies have clearly been demonstrated Stacy A. Shackelford, et al., and optimizing the use of Limb Tourniquets in Tactical Combat Casualty Care: TCCC Guidelines Change 14-02, 2014.

4. **Extremity Tourniquet (Manufactured / Improvised)**

An extremity tourniquet is used on an arm or leg to control arterial bleeding. A tourniquet can be commercially manufactured or improvised to control bleeding below (distal to) the tourniquet placement.

a. **Manufactured and Make Shift Tourniquet Parts**

Each type tourniquet is different in some shape or form, but they are all designed to compress the effected artery against the bone, stopping or slowing blood loss.

Width: Ideally the width of the compressing material should be 1.5” to 2” inches. Soft tissue damage can occur at the site of placement if the compression material is less than 1” in diameter. *Think of the width of a seatbelt as ideal.*

Length: The material needs to be long enough to secure tightly around the effected extremity. *On a smaller upper arm this can be as little as 18” or as long as 30” on a larger upper leg.*

Windlass rod or stick: This is a strong implement used to create torque and add more pressure to the effected extremity. This is accomplished with a small metal or plastic stick, like those found on the CAT or SOFT

branded tourniquets. When improvising an officer may use objects from his duty belt (magazine, baton, metal pen) or objects commonly found in the environment such as a wooden stick, pipe, piece of furniture.

Securing the Tourniquet: Manufactured tourniquets are typically designed with a system in place to prevent the pressure from being relived once effectively applied. When improvising there is no limit to the creativity and ingenuity an officer can use to secure the pressure and the tourniquet in place. It could be a simple as taping the torquing device in place or as creative as an officer's belt keeper.

b. **Tourniquet Application**

Combat Application Tourniquet

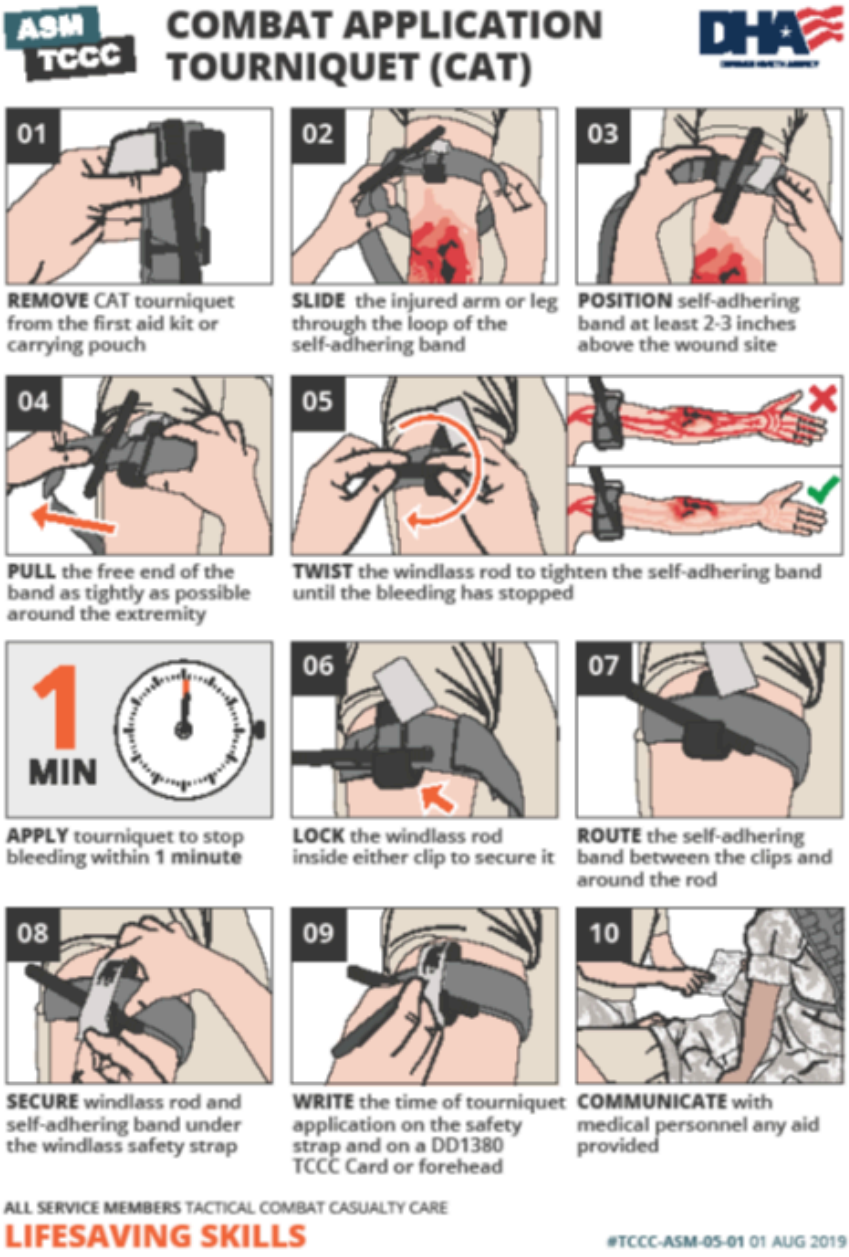
1. Identify the location for the tourniquet (as high as possible on the effected extremity) to be placed and ensure there are no items in between the compression strap and the effected extremity. Slide the tourniquet over the extremity and above the wound. If unable to slide the tourniquet over the extremity, pass the working end through the buckle around the effected extremity.

2. Pull the working end of the tourniquet tight, fasten the Velcro back on itself all the way around the extremity, but not over the Windlass rod or "C" lock.

3. Twist the Windlass rod until the bright red bleeding stops.

4. Secure the Windlass rod inside the "C" lock to secure in place. Check for bleeding and distal pulse. If bleeding is not controlled, or distal pulse is present, consider additional tightening or applying a second tourniquet above and side by side to the first. Reassess.

5. Once bleeding has stopped, route the remaining/excess working end between the "C" lock over the Windlass rod. Secure the rod and band with the time strap. Reassess. Record time of application if feasible.



SOF Tourniquet

1. Identify the location for the tourniquet (as high as possible on the effected extremity) to be placed and ensure there are no items in between the compression strap and the effected extremity. Slide the tourniquet over the extremity and above the wound. If unable to slide the tourniquet over the extremity, disconnect the buckle, go around the extremity and re-connect the buckle.

2. Pull the working end of the tourniquet tight.

3. Twist the Windlass rod until the bright red bleeding stops.

4. Secure the Windlass rod inside the "C" lock to secure in place. Check for bleeding and distal pulse. If bleeding is not controlled, or distal pulse is present, consider additional tightening or applying a second tourniquet above and side by side to the first. Reassess.

5. Once bleeding has stopped, secure the windlass rod in the “triangle” lock. Reassess. Record time of application if feasible.

Improvised Tourniquet Application

1. Locate a piece of material to position (as high as possible on the effected extremity) that is at least two inches wide and will retain this width after being tightened. This can be a handkerchief, folded clothing, sleeve, seat belt etc. Tie the band of material tightly in place.

2. Locate a source for a windless rod or stick to apply torque to the tied off material. (wooden stick, pocket knife, weapon magazine, rolled up newspaper/magazine etc.)

3. Place the Windlass rod or stick beneath the tied material.

4. Twist the improvised windlass rod or stick until the bright red bleeding stops.

5. Secure the Windlass rod or stick in place by any means available.

CLS TCCC | CMC TCCC | CPP TCCC

COMBAT MEDIC/CORPSMAN
TACTICAL COMBAT CASUALTY CARE
M A R C H

IMPROVISED LIMB TOURNIQUET

CAUTION: An improvised tourniquet should be used only as a last resort when a CoTCCC-recommended tourniquet is NOT available.

CONSIDER body substance isolation.
NOTE: If a Combat Lifesaver is available, direct them to assist.

01 **EXPOSE** the injury and assess the bleeding source.
NOTE: Clothing may need to be cut away to properly expose the injury.

02 **APPLY** direct pressure while gathering materials for an improvised tourniquet.

03 Rapidly **GATHER** and **PREPARE** appropriate improvised tourniquet materials.

Strap, cloth, or flexible material greater than 40 inches in length and folded to at least 2 inches in width (cravat, bandana, strip of trouser leg or towel, necktie).

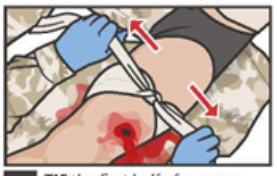
Rigid object for windlass device 1/4–1 inch in diameter and 4–6 inches in length (wooden dowel/stick, broom/mop handle, weapons cleaning rod, freshly cut tree limb).

Optional locking ring (keyring, ring seal of commercial liquid bottle, heavy rubber band, or hairband).

Inappropriate materials include electric cords, belts, wire, or material less than 2 inches wide; single pens/pencils, ground clutter wood, polished metal objects, boot/shoelaces, zip ties.

04 **IDENTIFY** application site 2–3" above the bleeding site. If bleeding is at the joint, application site is 2–3" above the joint.

05 **ROUTE** the strap under the limb at the application site. (If using an optional locking ring, then route the strap through the ring.)



06 **TIE** the first half of a square knot tightly and evenly (if using optional locking ring, ensure the ring device is approximately 2" away from the knot).

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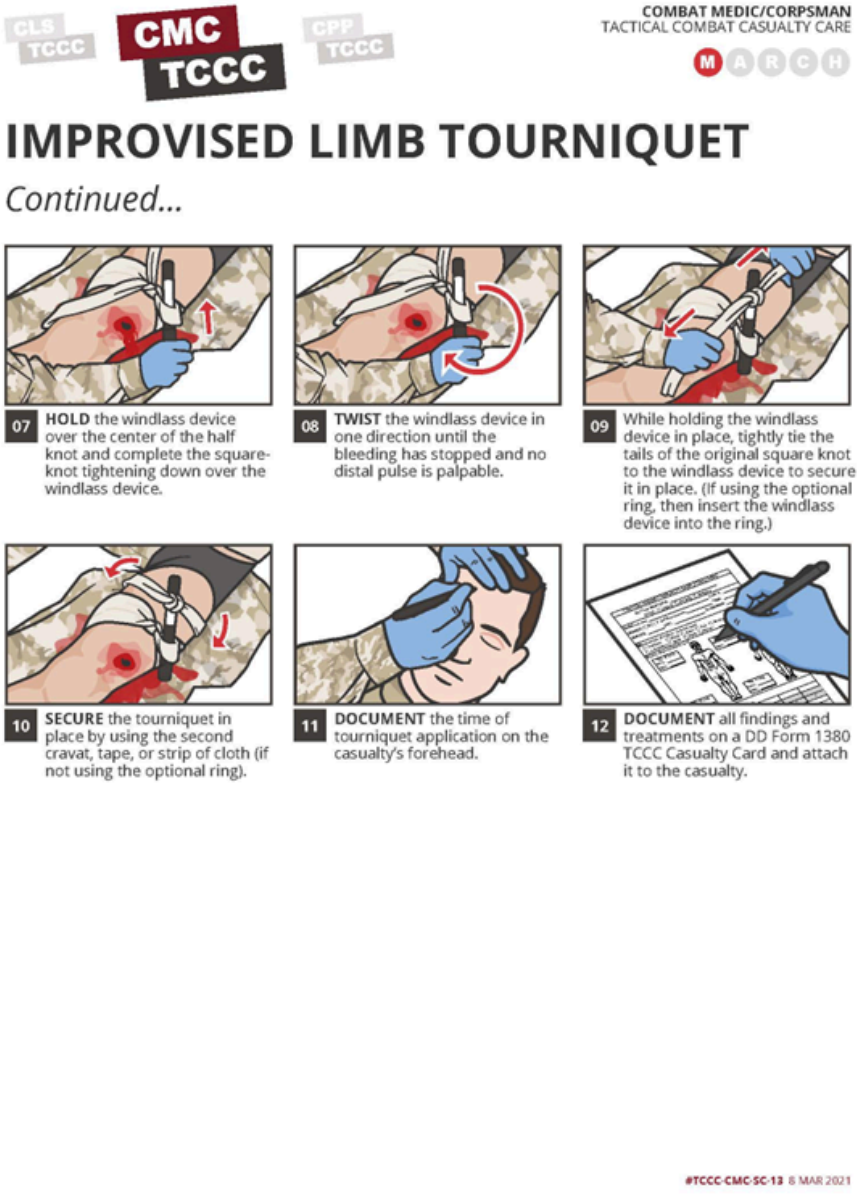


Commercial tourniquets are affordable and widely available; agencies and individual officers should make every effort to have them on hand. Improvised tourniquets when used properly can be highly effective at stopping arterial bleeding from an extremity.

We conclude that improvised tourniquets, when applied correctly, do have a vital role in the control of life-threatening bleeding. The scientific literature presents differing opinions as to their value, and undoubtedly, a considered balance of risk versus benefit exists. Objective evidence has shown certain improvised designs, namely, the Windlass rod or stick type, to be as effective as some commercially available tourniquets at controlling arterial blood flow. (Defense Health Agency, 2023)

C. EPO #3: PERFORM AND/OR PRESENT TECHNIQUES TO TREAT LIFE THREATENING AND NON LIFE THREATENING INJURIES DURING TACTICAL FIELD CARE.

1.

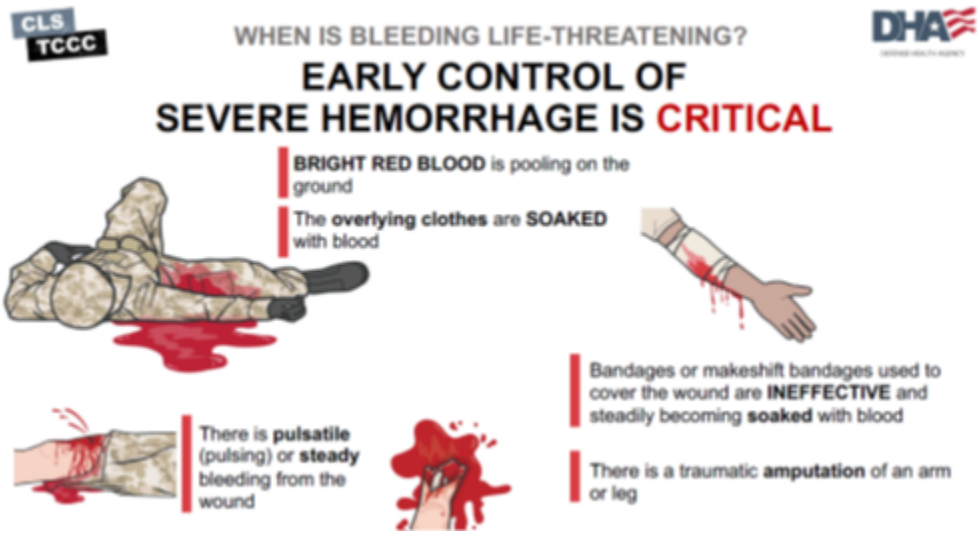
Establish a Security Perimeter IAW Tactical SOPs, maintain situational awareness, triage casualties as required and remember patients with altered mental status is a basis to have weapons cleared and secured. Tactical Field Care (TFC) is the care rendered to the casualty once the casualty and rescuer are no longer under effective hostile fire. This term also applies to situations in which an injury has occurred but there has been no hostile fire. This phase of care is characterized by the following:

a. The risk from the threat has been reduced but still potentially exists.

b. The medical equipment available is still limited by what has been brought into the are by responding personnel.

c. The time available for treatment is highly variable. Time prior to evacuation, or re-engagement with the threat, can range from a few minutes to many hours.

2.



After identifying and treating major hemorrhages, a more detailed wound assessment should be performed in the TFC. A “blood sweep” is done to minimize the exposure of the casualty. This means the responder should leave the casualty’s protective equipment on (if possible) and work around it, shifting the equipment as needed to provide visibility. When "sweeping", utilize the "joint to joint" method as to not miss any sections of the limbs and use a neck to groin crease (front and back) method for the remaining parts of body. Ensure checking of the upper ribs and arm pit regions. The key is finding the balance between speed and effectiveness.

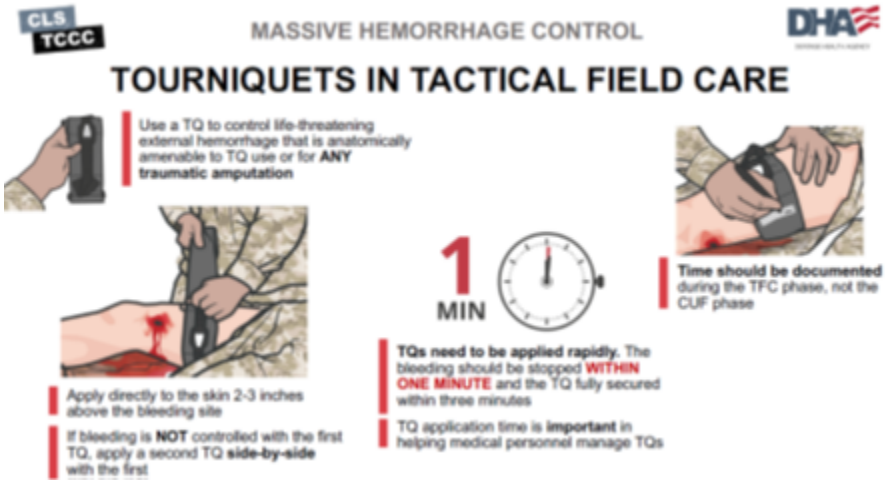
A wound “rake” is done with bent fingers utilizing the tips of fingers on the body. As the fingers move across the body, they catch on any unseen wounds. The injury can then be exposed and treated. Utilize the same methods as the "sweeps" when raking the body.

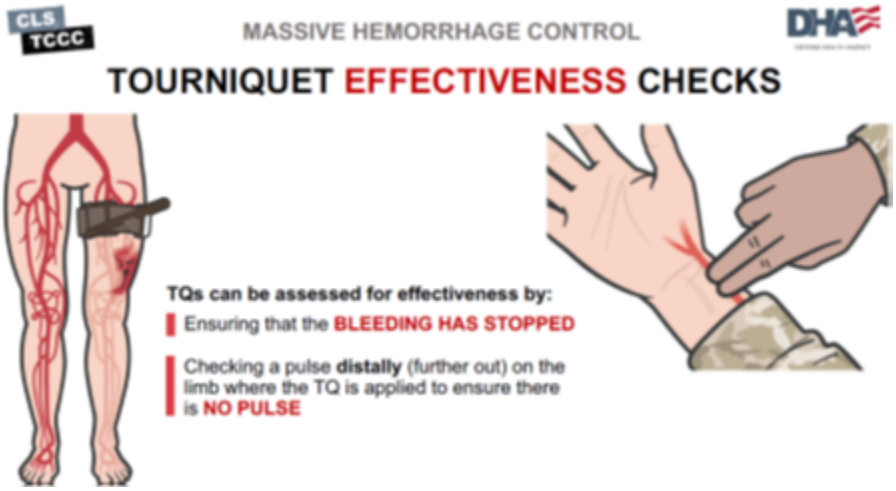
Blood sweeps generally work well with clean gloves, major hemorrhages, and light. It is best to use a combination of sweeping then raking for each section of the body. Sweeping identifies where bleeding is occurring, raking then identifies the location of the wound.

"M"-Massive Hemorrhage

a. Just as in traditional PHTLS (Pre-Hospital Trauma Life Support) or ATLS (Advanced Trauma Life Support) where care begins with the "A" in the ABC's, care begins with the "M" in MARCH and ends with the "H". While massive bleeding was addressed in CUF, it is possible that massive bleeding was missed, the treatment was inadequately applied or simply needs to be reassessed and readdressed. It is also possible there was no

CUF phase of treatment; and therefore, massive bleeding must be addressed first. Blood sweeps and rakes must be utilized to ensure all sources of bleeding have been identified and addressed. (Montgomery, 2023)





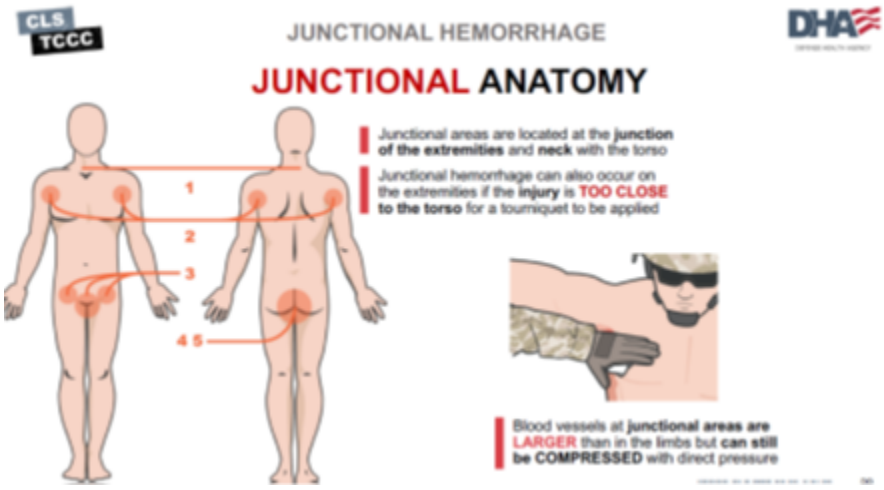
Ensure all massive hemorrhage/bleeding is stopped. When possible, a distal pulse should be checked. If bleeding persists or a distal pulse is still present, consider additional tightening of the tourniquet or use of a second tourniquet side-by-side with the first to eliminate both bleeding and distal pulse. Establish a security perimeter in accordance with agency (SOP'S) standard operating procedures. Maintain tactical SA (situational awareness). Triage casualties as required. Downed LEO's with an altered mental status should have all weapon systems taken away immediately

and secured. (Defense Health Agency, 2023)

b.

c. **Hemostatic Agents:**
Arterial hemorrhaging remains the leading cause of death from potentially survivable injuries. Great strides have been made in controlling extremity hemorrhages with tourniquets, but not all injuries are amenable to tourniquet application. Topical hemostatic agents and dressings have also contributed to success in controlling extremity and compressible junctional hemorrhages. Their benefit continues to increase as enhanced products are developed. Assess for unrecognized hemorrhages and control all sources of bleeding. Hemostatic agents are predominantly utilized in areas where a tourniquet cannot be applied. These areas include the neck to

collarbone region, and the groin areas from crease of upper leg to just below the belly button. If a limb tourniquet, or side by side, is not effectively stopping the bleed, the rescuer can utilize a hemostatic agent in conjunction with the applied tourniquet(s).



QuikClot Combat Gauze is impregnated with kaolin, a material that helps the blood to clot. Kaolin is a naturally occurring inert clay mineral that expedites the clotting process. It has been found in lab studies to control bleeding that would otherwise be fatal. It is used for making porcelain and china, as a filler in paper and textiles, and in medicinal absorbents.

Alternative hemostatic adjuncts:

- Celox Gauze

Celox™ blood clotting granules are actually very high surface area flakes. When they come in contact with blood, Celox™ swells, gels, and sticks together to make a gel like plug, without generating any heat. Celox™ blood clotting agent does not set off the normal clotting cascade, it only clots the blood it comes directly into contact with.

- Chito Gauze

Chitosan is a naturally occurring polysaccharide derivative of deacetylated chitin. Chitin can be obtained from a variety of sources including the exoskeletal structure of crustaceans (crabs, shrimps, diatoms, etc.). Chitosan is derived from chitin using various processes of sodium hydroxide washing to obtain the desired degree of deacetylation and molecular weight.

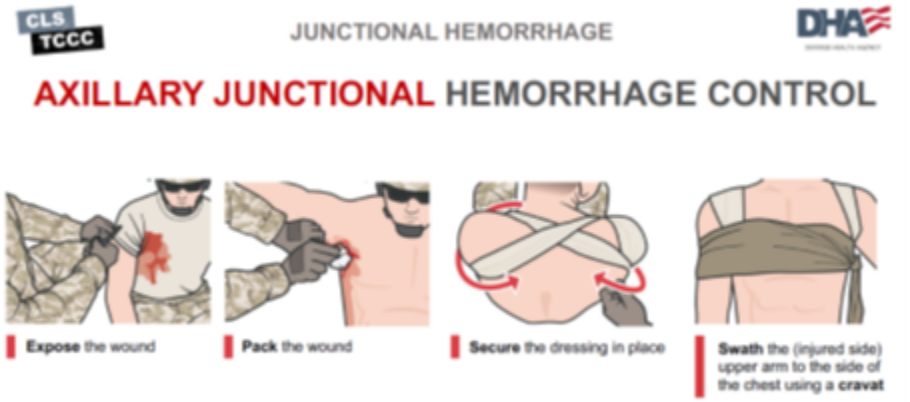
- XStat (Best for deep, narrow-tract junctional wounds)

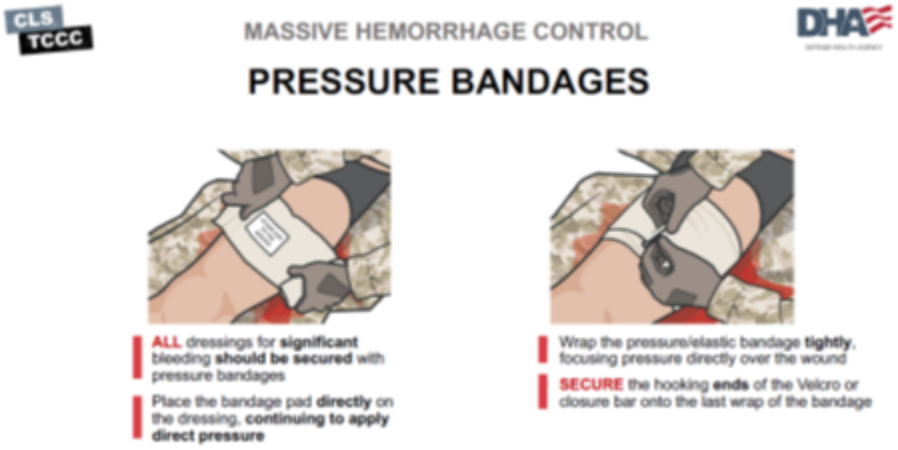
XSTAT contains rapidly expanding cellulose sponges coated with chitosan and individually marked with an X-shaped radiopaque marker. XSTAT is NOT indicated for use in: the thorax; the pleural cavity; the mediastinum; the abdomen; the retroperitoneal space; the sacral space above the inguinal ligament; or tissues above the clavicle.

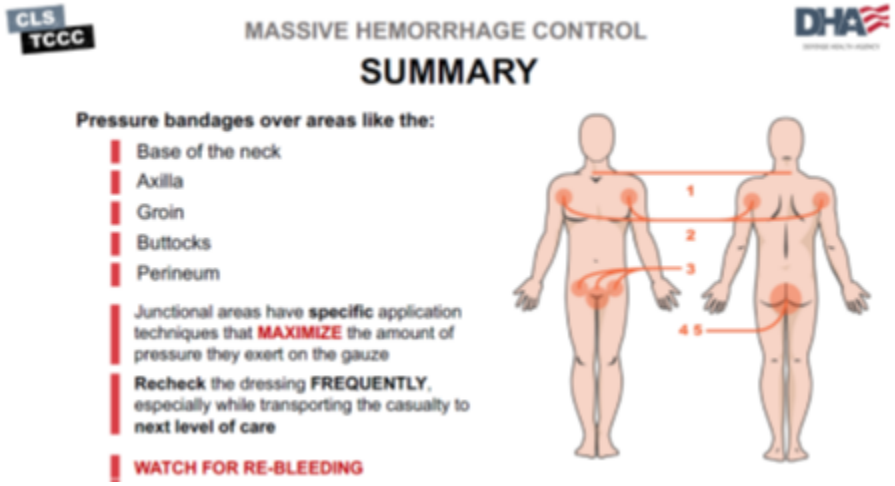
Hemostatic dressings should be applied with at least 3 minutes of direct pressure (optional for XStat). Each dressing works differently, so if one fails to control bleeding, it may be removed and a fresh dressing of the same type or a different type applied. (Note: XStat is not to be removed in the field, but additional XStat, other hemostatic adjuncts, or trauma dressings may be applied over it.) (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023) (Defense Health Agency, 2023) (Montgomery, 2023)

Combat Gauze Application:

Open the clothing around wound. If possible, remove any excess pooled blood from the wound while preserving any clots already formed in the wound. Wipe away excess blood, water, and dirt from the wound. Locate the source of most active bleeding. Pack the Combat Gauze tightly into wound and directly onto the source of the bleeding. Attempt to pack the entire roll of gauze in the wound (north, south, eats, west method). Quickly apply direct, firm pressure to the wound for 3 minutes. Reassess for proper and effective placement. Apply a pressure bandage to the wound to secure the Combat Gauze in the wound. (Defense Health Agency, 2023)



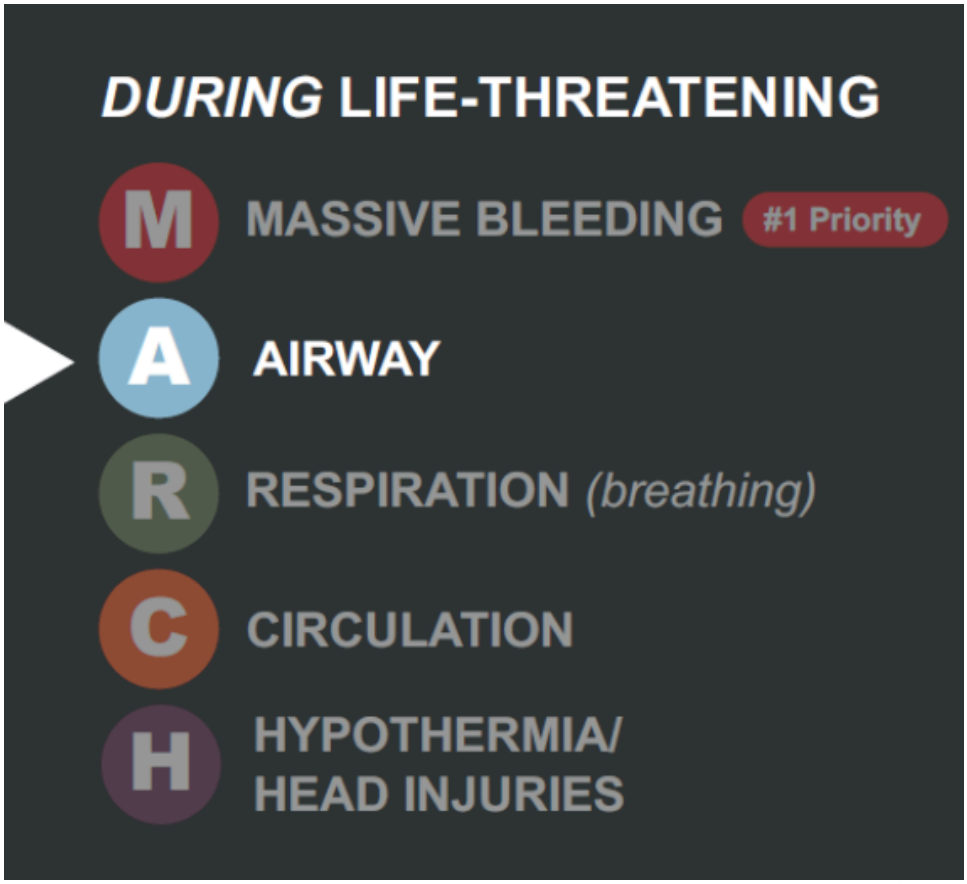




3. **"A"- Airway**

a. In TFC, direct initial attention should be given to the evaluation and treatment of the casualty's airway, once all hemorrhaging has been addressed. Intervention should proceed from the least invasive procedure to the most invasive. Do not attempt any airway intervention if patient

is conscious and breathing on their own. Allow the casualty to assume the most comfortable position that best protects their airway; to include sitting upright. If alert, talking, and not in respiratory distress, no airway intervention is needed at this time. However, continue to monitor the casualty's breathing since their condition could deteriorate. The head-tilt/ chin-lift is one of the most efficient and effective means to open an airway if head and spine injuries do not exist. (Defense Health Agency, 2023)



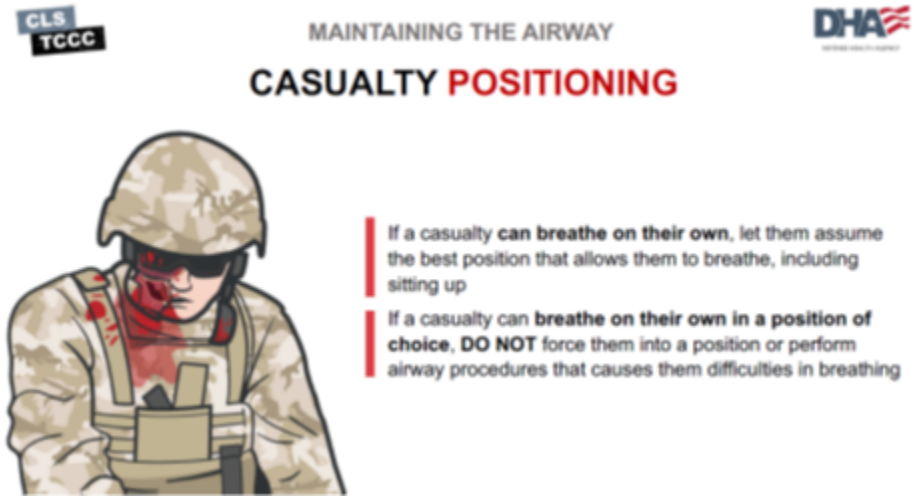
b. **Head Tilt Chin Lift:** If the casualty is unconscious or having difficulty breathing, and no apparent spinal injuries are presented.

1. Kneel at the level of the casualty’s shoulders.
2. Place one of your hands on the casualty’s forehead and apply firm, backward pressure with the palm of your hand to tilt the head back.
3. Place the fingertips of your other hand under the tip of the bony part of the casualty’s lower jaw and bring the chin upward from the ground.
4. Lift the chin forward
   until the upper and lower teeth are almost brought together. The mouth should not be closed as this could interfere with breathing if the nasal passages are blocked or damaged. If needed, the thumb may be used to depress the casualty's lower lip slightly to keep his mouth open.
5. Check the casualty for breathing using the look, listen and feel method. Place your ear over the casualty's mouth and nose with your face toward the
   casualty's chest while maintaining the casualty's airway (head-tilt/ chin- lift).

Look for the rise and fall of the casualty's chest and abdomen. Listen for sound of breathing. Feel for his breath on the side of your face.

c. **Jaw Thrust Maneuver**: Utilized when possible spinal injuries are present.

1. Kneel down on ground at top of patients head.
2. Place palms of both hands over temple region of patients head firmly.
3. Use index and middle fingers placed under angle of jaw to thrust lower jaw upward to the sky.
4. Ensure little to no movement of the patients head once established. The lower jaw thrust upward will allow for the patients tongue to be moved out of the way of their airway.



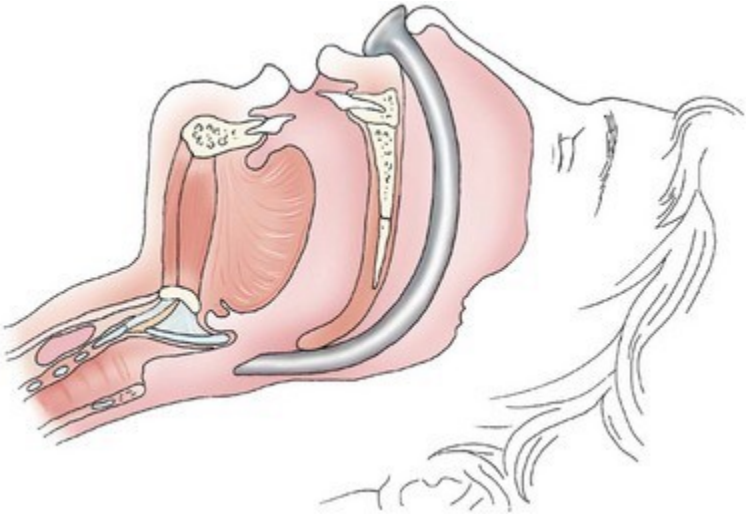
d. **Nasopharyngeal Airway (NPA)**

A NPA is preferred over an oropharyngeal airway because it is better tolerated if the casualty regains consciousness and is less likely to be dislodged during casualty transport. After inserting the NPA, place the casualty in the recovery position to maintain the open airway and prevent aspiration of blood, mucous, or vomitus. A nasopharyngeal airway provides an open (patent) airway and helps to keep the tongue from falling to the back of the mouth and blocking the airway.

- Do not use the nasopharyngeal airway if there is a history of head trauma and the roof of the casualty's mouth is fractured, facial trauma or brain matter is exposed.
- Do not use the nasopharyngeal airway if there is clear fluid coming from the ears or nose. This may be cerebrospinal fluid (CSF). Cerebrospinal fluid indicates a possible skull fracture.
- Never force the airway into the casualty’s nostril.

- If resistance is met, pull the tube out and attempt to insert it in the other nostril. If neither nostril will accommodate the airway, place the casualty in the recovery position and seek medical aid.

Nasopharyngeal Airway (NPA) Insertion



1. Place the casualty on their back with the head in a neutral position.
2. Lubricate the tube with a water-based lubricant, the patients blood or spit.
3. Insert the NPA into the right nostril.
4. Push the tip of the nose upward gently.
5. Position the tube so the bevel of the airway faces toward the septum.
6. Insert the airway into the nostril and advance it until the flange rests against the nostril.
7. Insert the NPA straight back, towards the back of the head, not up.

e. **Recovery Position**

The recovery position allows blood, mucus, and vomit to drain out of the casualty's mouth and not block the airway. It also helps to prevent the tongue from blocking the airway. The casualty should be positioned so the airway is open while in the recovery position.

Recovery Position Application:

1. Extend the casualty's arm alongside the head.
2. Bring the far arm across the chest and place the back of the hand against the cheek.
3. Grasp far leg just above the knee and pull it so the foot is flat on the ground.
4. Grasp the shoulder and hip and roll causality.
5. Roll far enough for causality's face to be angled forward and slightly angled down to ground.
6. Position the elbow and knee to help stabilize the head and body.

In Custody Care- Modified Prone Recovery Position:

If more control is needed, LEO/Agents may elect to keep a suspect laying on the ground. LEO/Agents must be mindful of the amount and location of the weight they apply on the suspect. To decrease the amount of force applied to the chest of the suspect, the LEO/Agent should move the suspect into the modified prone recovery position.

Roll – LEO/Agents should roll the suspect onto their side ensuring that the suspect is facing away. LEO/Agents should control this roll by pulling the

suspects lower back/hips into the upright shin of the leg closest to the suspect's feet.

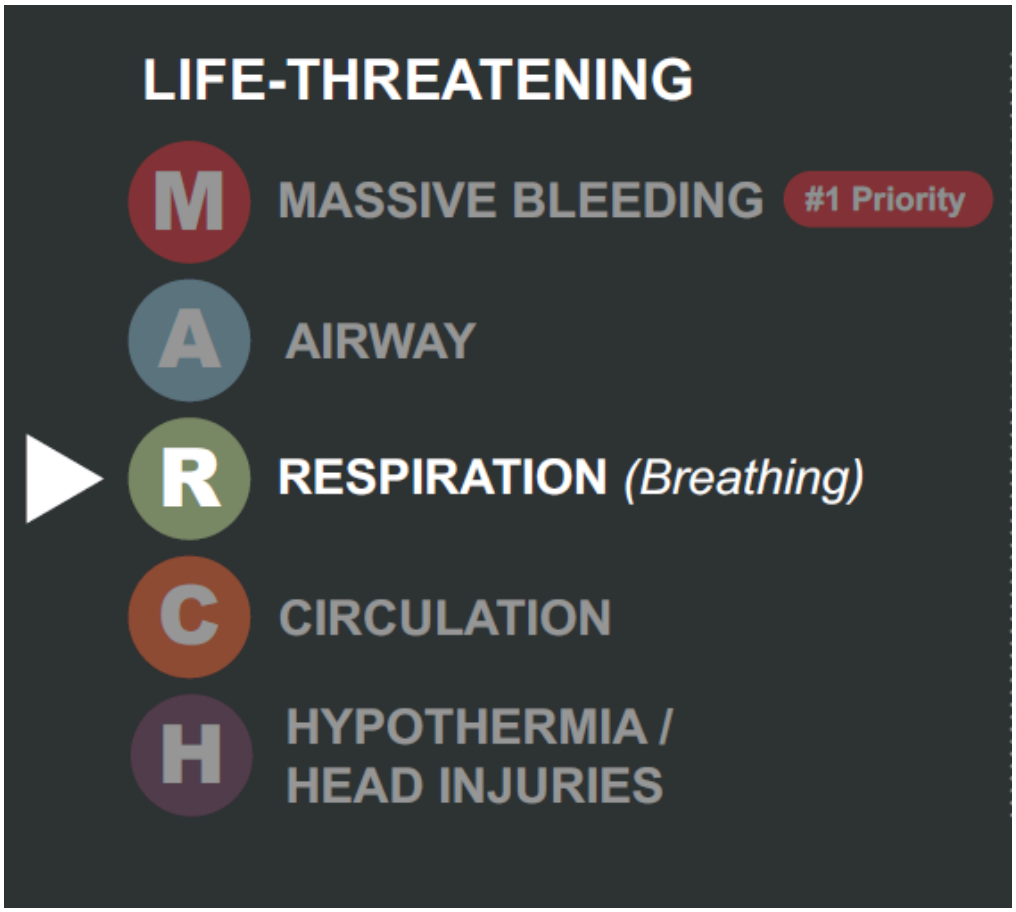
Stabilize - LEO/Agents should instruct the suspect to bend their top knee and place that foot behind their other knee. The suspect should then be rolled slightly forward, back towards the prone position until the bent knee makes contact with the ground and stabilizes the position.

Maintain Control and Monitor – LEO/Agents should remain in positive control of the suspect and monitor their status until medical assistance arrives and/or LEO/Agents are prepared to transport.

4. **Respirations**

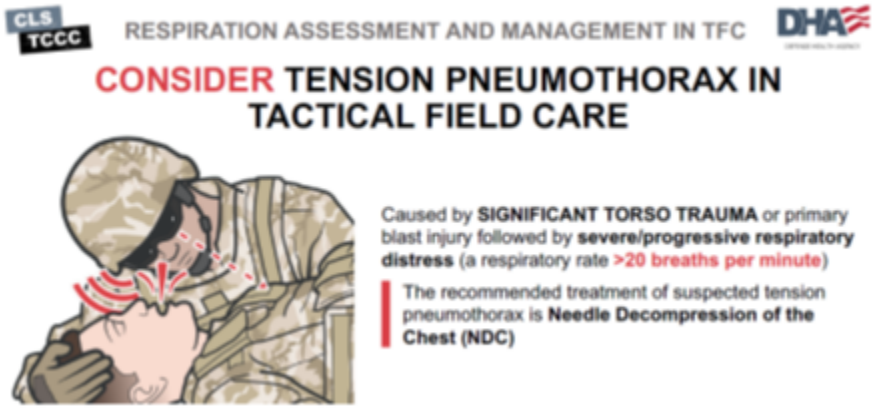
The next aspect of casualty care in the TFC phase is the treatment of any breathing problems, specifically the development of either an open pneumothorax or a tension pneumothorax. Traumatic defects in the casualty's chest wall may result in an open pneumothorax.

When a casualty with an open chest wound breathes, air is sucked into the chest cavity through the chest wall instead of into the lungs through the airways; air goes in and out of the wound. This occurs because air follows the path of least resistance. When the hole in the chest wall approaches 66% of the width of the trachea (wind pipe) or roughly the size of a penny or larger, a sucking chest wound can occur. This air sometimes causes a "sucking" sound. Because of this distinct sound, an open chest wound is often called a "sucking chest wound."



Open chest wounds can be caused by the chest wall being penetrated by a bullet, knife blade, shrapnel, or other object. If you are not sure if the injury has penetrated the chest wall completely, treat the injury as though it were an open chest wound. Law enforcement personnel wear body armor that protects much of the chest.

The body armor has vulnerable areas; under the arm pits, the clavicle where velcro or connective straps secure the armor, and lower chest/upper abdominal area from an individual reaching high or moving. Rescuers must pay attention to these areas as they can be hidden, missed or misinterpreted as a different wound treatment.



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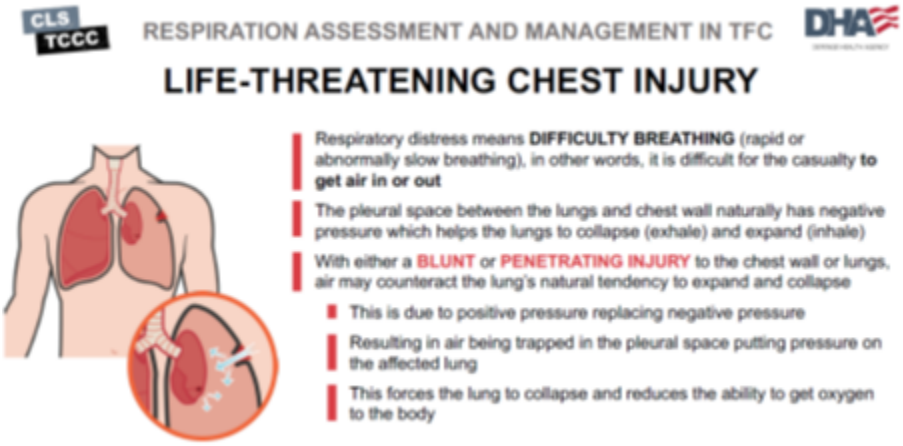
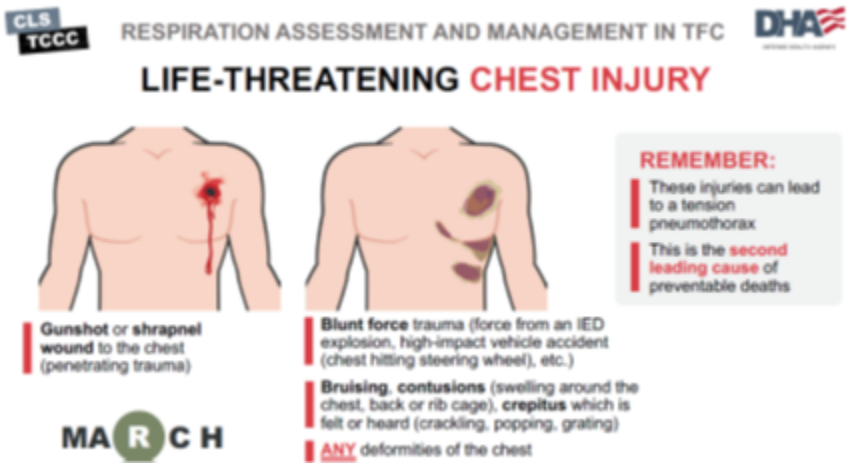


Signs and symptoms of an open pneumothorax or sucking chest wound:

1. Sucking or hissing sounds coming from the chest.
2. Casualty coughing up blood (hemoptysis).
3. Frothy blood coming from the chest wound. (The air going in and out of an open chest wound causes bubbles in the blood coming from the wound.) Shortness of breath or difficulty in breathing.
4. Chest not rising normally when the casualty inhales. (The casualty may have several fractured ribs and the lung may be deflated.)
5. Pain in the shoulder or chest area that increases with breathing.
6. Bluish tint of lips, inside of mouth, fingertips, and/or nail beds (cyanosis).



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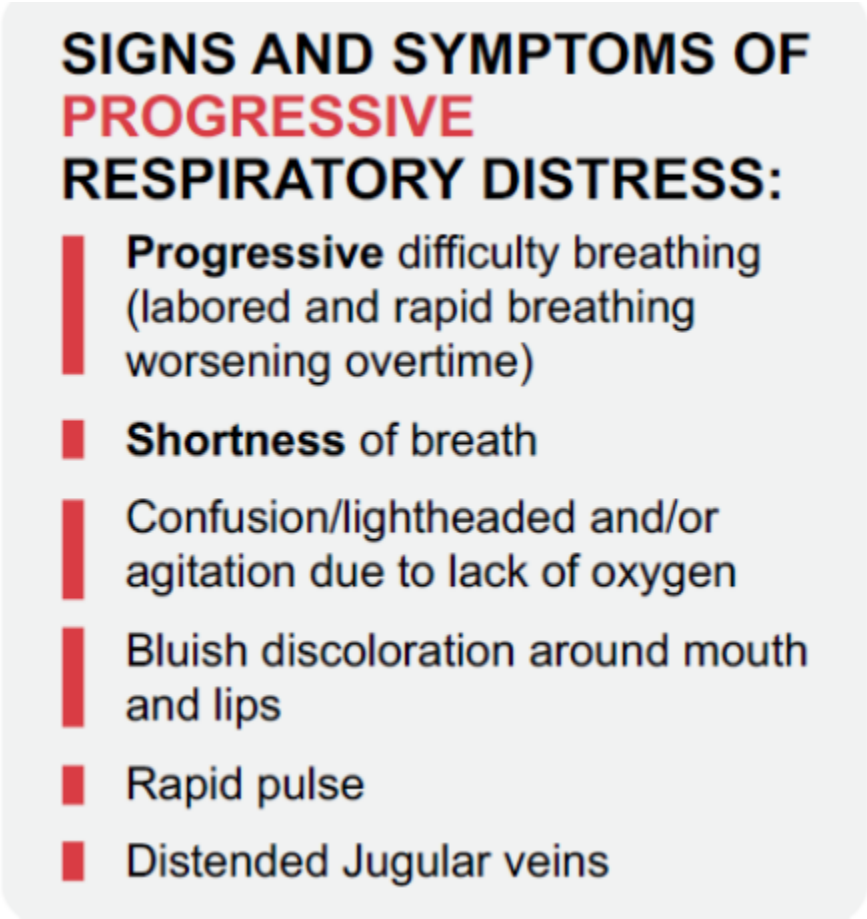


Treatment:

Seal the hole. Do not let air enter into the chest cavity. Air belongs in the lungs not in the chest cavity. Open or sucking chest wounds cause respiratory difficulty. The wound can be sealed with any material that does

not allow air to readily pass through it such as plastic, petroleum gauze or a specifically manufactured chest seal. All holes must be sealed. If there is both an entry wound and exit wound(s), the wounds must be closed so air does not enter the chest cavity.

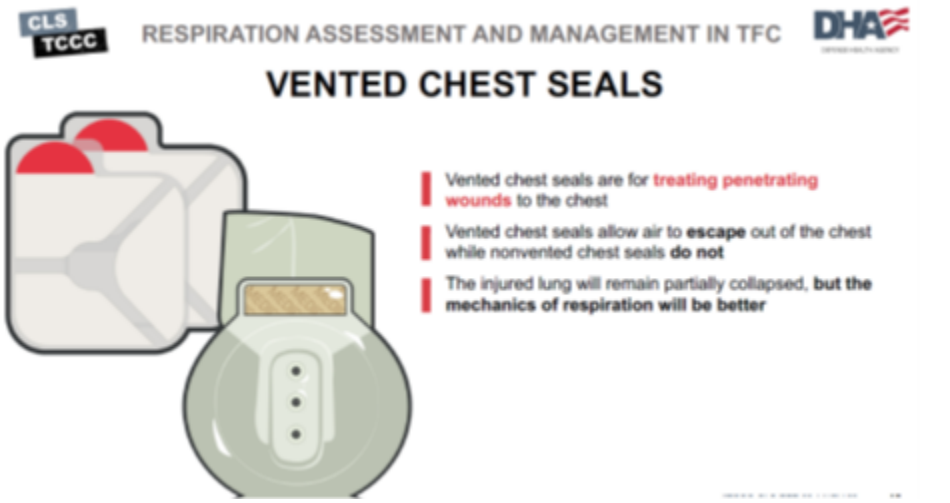
A casualty with an open chest wound will exhibit **ONE OR MORE** of the following signs and symptoms:

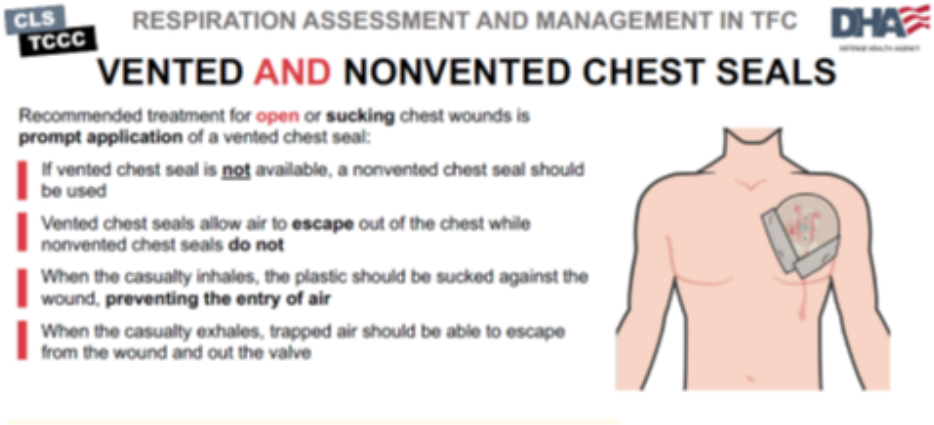
- A "**sucking**" or "**hissing**" sound when the casualty **inhales**
- Difficulty breathing
- A **puncture wound** of the chest
- **Froth** or **bubbles** around the injury
- Coughing up blood
- Blood-tinged sputum (spit)

Open Pneumothorax

Use commercially manufactured Vented chest seals.

1. Expose the wound(s), cut or unfasten the clothing that covers the wound, disrupt the wound as little as possible.
2. Apply a vented chest seal (non-vented if vented is not available) according to manufacture direction.
3. Check for an exit wound. Sweep and rake the casualty's chest and back. Remove the casualty's clothing if necessary.
4. Allow casualty to position themselves if conscious. If unconscious, place in the recovery position, injured side down.
5. Monitor the casualty for signs of tension pneumothorax development.





Improvising a chest seal:

The improvised chest seal must be constructed of material that readily seals the chest. The failure point of the improvised chest seal is not understanding the purpose; not letting air into the chest cavity. A second failure point is in the selection of material for the chest seal. The plastic must be malleable or flexible enough to create an airtight seal on the skin and non-porous. The use of a rigid ID card, while plastic, on the uneven surface of the body will not create a seal and air may still enter into the chest cavity. The thin plastic wrap from a bandage out of the IFAK or plastic shopping sack, sandwich bag, or similar material will create a seal on the chest when taped down and air will not enter the chest cavity on inspiration. A third failure of a chest seal (improvised or manufactured) is the failure to monitor the casualty for worsening condition.

No evidence was found in the current reviews that improvised three sided dressings are reliably effective either in reversing the respiratory difficulty caused by an open pneumothorax or in preventing the conversion of an open pneumothorax to a tension pneumothorax. Constructing a three-sided chest seal takes more time for the medic than simply applying a

commercially made chest seal. (CoTCCC Minutes July 2008)

1. Wipe wound site clean from any fluids. Apply the wrapper to the wound, ideally when the casualty exhales.
2. Ensure that the covering extends at least two inches beyond the edges of the wound.
3. Seal by applying overlapping strips of tape to all four sides or three sides. Taping three sides will allow for a flutter-type or one-way valve. This type of taping is designed to allow trapped air under pressure in the chest cavity to escape and the malleable/flexible airtight material to seal to the chest during inhalation and not allow air into the chest wall.
4. Cover the exit wound in the same way, if applicable, but tape the wound on all four sides.
5. Assess the effectiveness of the flutter valve when the casualty breathes. When the casualty inhales, the plastic should be sucked against the wound, preventing the entry of air. When the casualty exhales, trapped air should be able to escape from the wound and out the open side of the dressing.
6. Dress the wound by placing a field first aid dressing over the seal and tie the ends directly over the wound. This may negate the flutter valve effect, so reevaluate and adjust the dressing to maintain the flutter-valve effect. Use padding material or another dressing for pressure and stability. Dress the exit wound in the same way, if applicable. Ensure that the dressings are not tied so tightly that they interfere with the breathing process or the flutter type valve.
7. If patient is conscious, allow them to position themselves in a position of comfort. If patient is unconscious, place them in a recovery position; injured side down.
8. Monitor breathing and the wound seal, assess the effectiveness of the flutter valve, check vital signs and observe for signs of shock.

Recent animal studies provide evidence that sealing the chest wall with either a vented or non-vented chest seal provides improved respiratory effort. Unmanaged non-vented chest seals allows for the potential development of a subsequent tension pneumothorax. Therefore vented chest seals are the preferred treatment. There is little additional risk in

using a vented chest seal and there is potential benefit. Regardless of which type of chest seal is used, the casualty should be monitored closely for signs and symptoms of a subsequent tension pneumothorax. (Frank K. Butler, Joseph J. Dubose, Edward J. Otten, Donald R. Bennett, & all, 2013) and (Kheirabadi BS, Terrazas 18, Koller A, Allen PB, Klemcke HG, Convertino VA, Dubick MA, Gerhardt RT, Blackbourne LH. 2013)

c. Tension Pneumothorax occurs when there is a buildup of air under pressure in the plural space and the air cannot escape. The case of a tension pneumothorax as a result of an open or sucking chest wound is a two-fold problem. Part one is air enters from outside through the open chest wound. Part two is that air enters the chest cavity from a damaged lung. We are able to treat part one but not part two. As a result of this unbalanced equation, air can build up in the chest cavity.

   As the air outside the lung continues to increase, the affected lung continues to collapse. In addition to causing further collapse of the affected lung, the increasing pressure of the trapped air pushes on the mediastinum (the mass of material separating the two plural sacs). This movement of the mediastinum may compress the uninjured lung, major blood vessels, and the heart. If the casualty develops signs of increasing hypoxia (above), respiratory distress, or hypotension and a tension pneumothorax is suspected, treat by “burping” or removing the dressing. It is imperative that the casualty be under constant monitoring. The following are signs and symptoms to watch for:

   - Changes in the skin color.
   - Changes in mental status and/or confusion.
   - Fast/increasing heart rate.
   - Rapid/shallow breathing.
   - Shortness of breath/inability to speak more than one to two word sentences.
   - Sweating.

d. Impaled object in the chest , (FACT)

   If an object is protruding from the chest wound, do not try to remove

it. Place airtight material (such as Vaseline gauze) around the object to form as airtight a seal as possible. Stabilize the object by placing a bulky dressing made from the cleanest material available around the object.

- Apply improvised bandages to hold the sealing material and dressings in place.
- Do not wrap the bandages around the protruding object.

5. **"C"-Circulation**

a. 

In the TFC phase, assess for untreated bleeding. Acute fluid or blood loss is a life threatening emergency. It causes inability of the heart to pump the essential blood needed to the body and results in multiple organ failure.

There are four stages of this hypovolemic shock. Each stage is based on the amount of blood loss:
1) under 15 % by volume
2) between 15 and 30 %
3) between 30 and 40 %
4) more than 40 %

Stopping the blood loss while the patient is in Stage I shock, specifically keeping the blood volume loss below 15 percent, keeps the survivability rate high—about 94 percent. If blood loss continues and the patient goes into Stage II shock or greater, the survivability rate goes down to just 14 percent; based on a U.S. Army Institute of Surgical Research (USAISR) study.

b. A systematic sweeping with the hands, and raking with the finger tips, should be used over the entire patients body. Utilize the same system/ method as previously discussed in the Massive Hemorrhage section at the beginning of EPO# 3

Varying types of soft tissue injuries include:

Abrasions: Removal of tissue caused by friction.

Avulsion: Tearing away of tissue from the structures underneath.

Impalements.

Lacerations: Deep cut or tear.

Amputated limb.

Eviscerations: Abdominal contents protruding through the abdominal wall.

Emergency Bandage

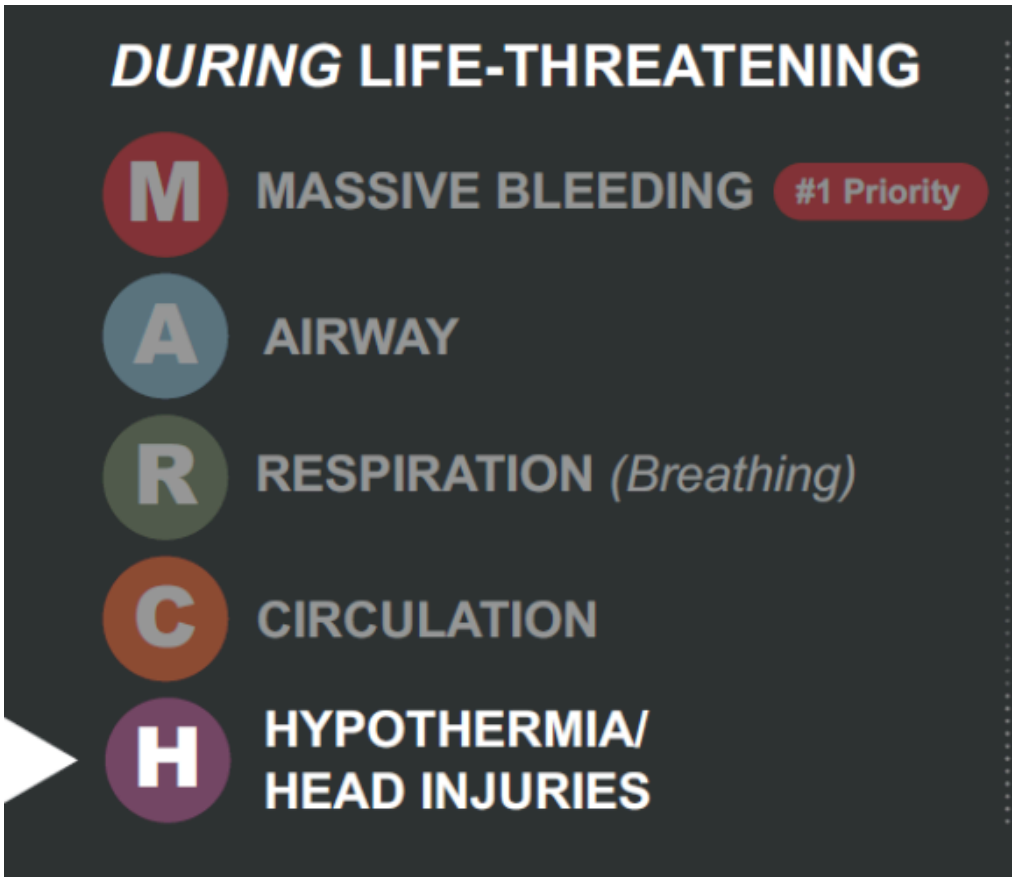
The emergency bandage is an elasticized bandage with a non-adhesive bandage pad sewn in. The bandage has a built-in pressure bar, which allows to twist the bandage around the wound once, and then change the direction of the bandage, wrapping it around the limb or body part to create pressure on the wound. Aside from this, the pressure bar also makes bandaging easier. A closure bar at the end of the bandage means that it clips neatly into place and will not slip.

Application:

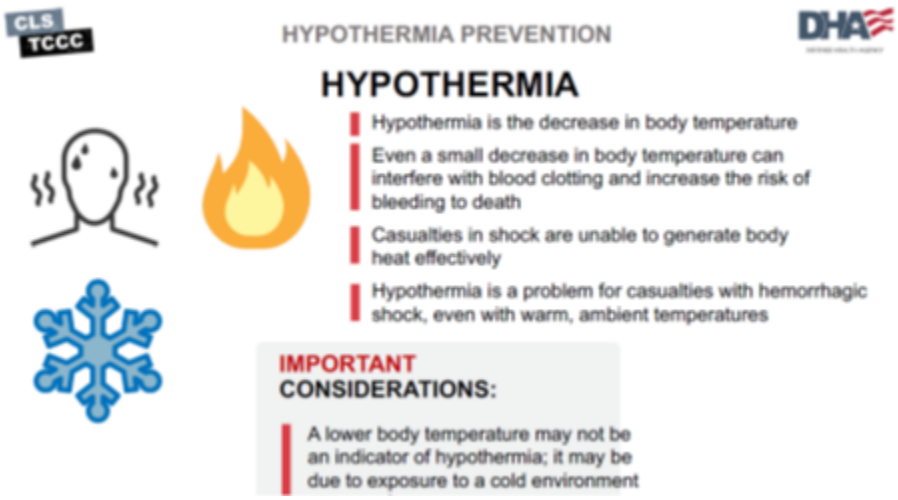
1. Place the white square pad on top of the wound and wrap the elastic bandage around limb or body part.
2. Insert elastic bandage into pressure applicator. Reverse directions with elastic bandage.
3. Tighten elastic bandage and pull back forcing pressure applicator down onto pad.
4. Wrap elastic bandage tightly over pressure applicator with every wrap around the limb or body part. Wrap over all edges of pad.
5. Secure hooking ends of closure bar into elastic bandage edges.

6. **H-Hypothermia**

Traumatic casualties are at a high risk for hypothermia, which is defined as a whole-body temperature below 95ºF (35ºC). A study at the University of Kentucky found that roughly 20% of people who go into hypothermia in a non-traumatic situation die, but 100% of people who go into hypothermia in a traumatic situation die.

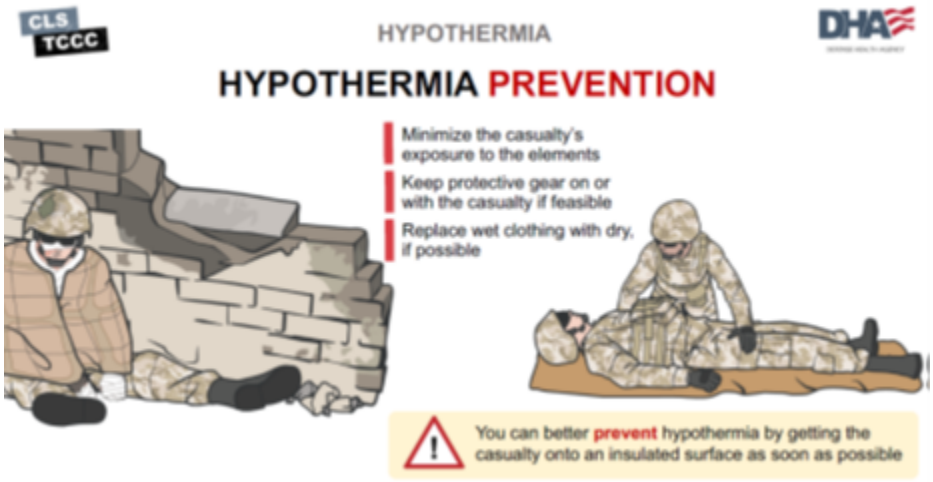


Hypothermia can occur regardless of the ambient temperature. The blood loss typically associated with trauma results in peripheral vasoconstriction, which contributes to the development of hypothermia. In addition, the longer a casualty is exposed to the environment during treatment and evacuation, especially in wet conditions, the more likely the development of hypothermia.



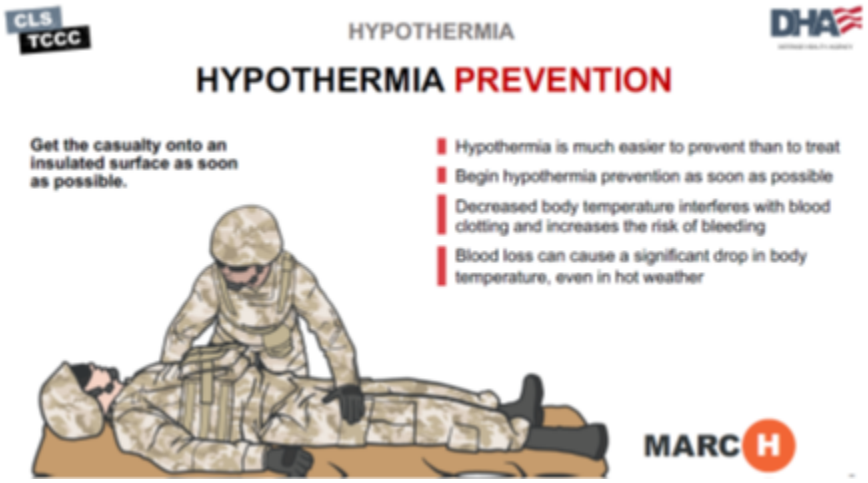
If possible, keep all protective gear on the patient. However, if at all

possible, replace any wet clothing. Use any methods available to keep the casualty warm, such as dry blankets, poncho liners, sleeping bags, etc. If you do not have a hypothermia prevention and management kit (HPMK) or a survival blanket of any kind, then find dry blankets, poncho liners, space blankets, sleeping bags, body bags, or anything that will retain heat and keep the casualty dry. (Defense Health Agency, 2023)



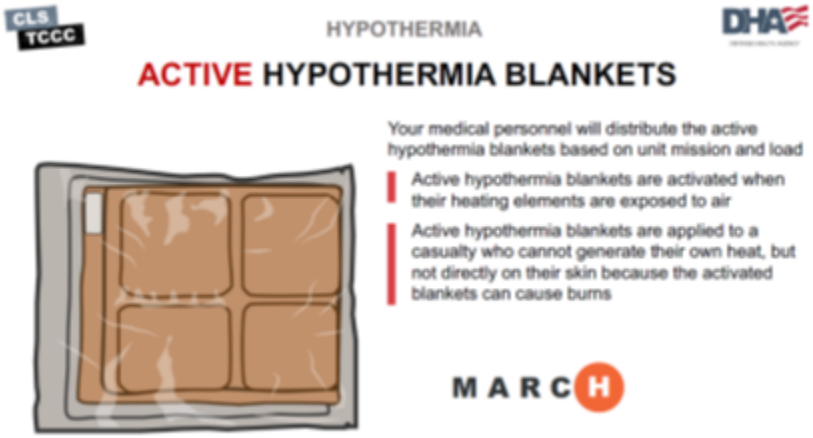
How Does Your Body Lose Heat?

- *Conduction:* Direct transfer of heat from a part of the body to a colder object by direct contact. Heat can also be gained if the substance being touched is warm.
- *Convection:* Transfer of heat to circulating air, as when cool air moves across the body.
- *Evaporation:* Conversion of any liquid to a gas, evaporation is the natural mechanism by which sweating cools the body.
- *Radiatio*n: Transfer of heat by radiant energy, radiant energy is a type of invisible light that transfers heat.
- *Respiration:* Loss of body heat during normal breathing, warm air in the lungs is exhaled into the atmosphere and cooler air is inhaled.



Signs and Symptoms of Hypothermia:

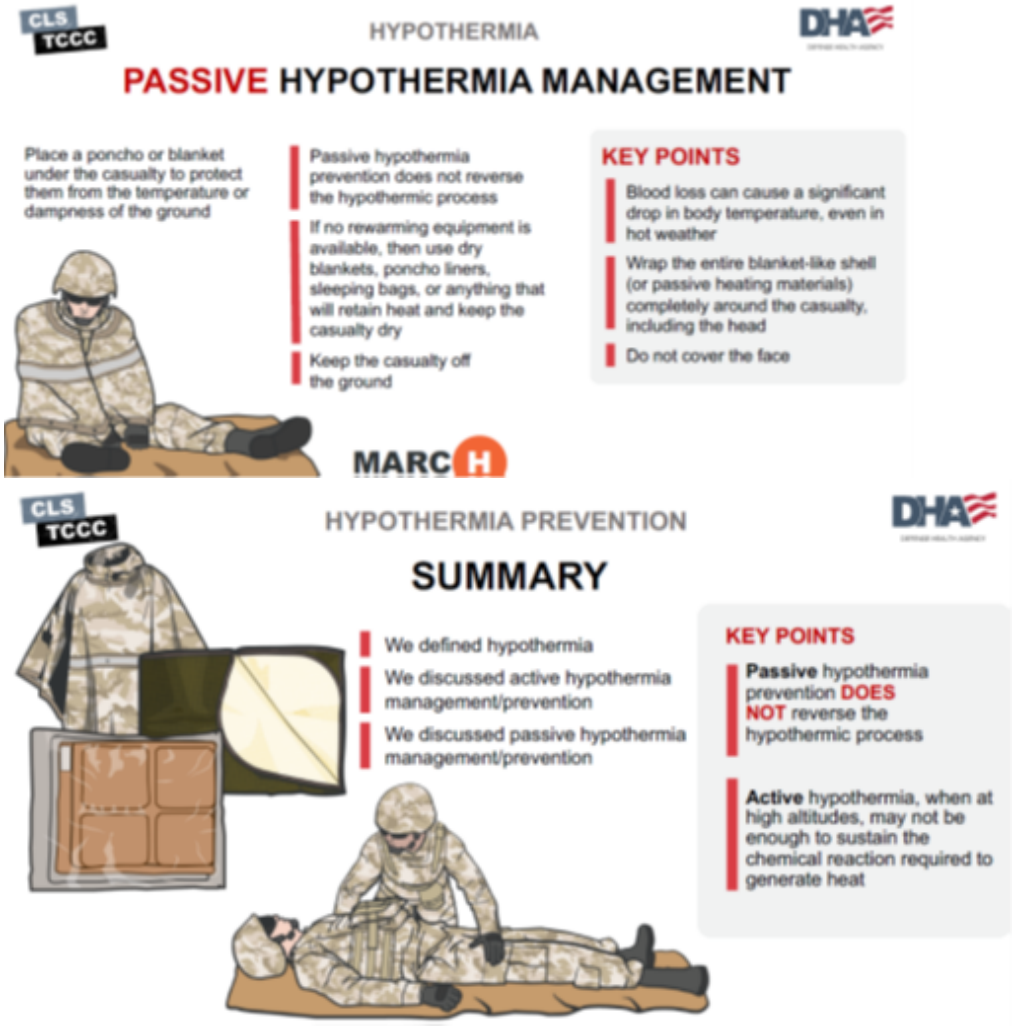
- *Shivering:* Body generates 5-6X more body heat when it is shivering in comparison to resting. Medications, drugs, and alcohol all decrease shivering.
- *Color changes:* Skin is initially red, becomes pale, then cyanotic, then grey. Lack of circulation in body.
- *Respirations and pulse rapid in early stages:* Body is attempting to compensate and make up for the heat/fluid loss.
- *Altered mental status:* Take into account that some of our personnel may be carrying weapons.
- *Loss of coordination and sensation in extremities*
- *Impaired clotting:* Body has difficult time establishing clots. Body also has difficult time maintaining clots.



Steps to prevent hypothermia:

- Increase or decrease in heat production, shivering and increasing movement when cold.
- Move to an area where heat loss can be decreased.
- Seek shelter from the wind in cold environments, increase the ambient temperature if possible. If in a vehicle turn the heat on and crank it up.
- Wear insulated clothing, which helps decrease heat loss in several ways; Layers of clothing that trap air provide good insulation. Protective clothing traps perspiration and prevents evaporation.
- Stay dry and stay hydrated.
- If clothing is wet, it must be removed and replaced with dry clothing. The body cools itself 32x faster with wet clothing on in comparison to having on dry clothing.
- Place hot packs in armpits and groins if you have access to them.
- Ensure to wrap hot packs in something (paper towel, shirt) to ensure we do not have direct contact with skin, which could cause burns.
- Insulate and cover the casualty.
- Use the survival wrap, make sure they are wrapped up all the way around so there are not any open areas. Covering the head can minimize heat loss by 70%. Focus on wrapping up the core, the extremities are not a concern at this point.
- Layer the casualty if possible.
- Top layer: Protect from elements (rain, wind) Middle layer: Insulation,

use blanket if possible. Bottom layer: Protects from moisture and the surface casualty is on. (DEPARTMENT OF HOMLAND SECURITY, 2015)



7. **Head Injury(FACT)**

a. A head injury is a traumatic insult to the head that may result in injury to soft tissue, bony structures, or the brain. Approximately 1.7 million people sustain a traumatic brain injury annually. Head injuries account for more than half of all traumatic deaths. Be alert to the fact that the casualty may have sustained additional trauma such as:

- Cervical spine injuries
- Pelvic injuries
- Chest injuries

b. There are two general types of head injuries closed and open. Closed head injuries are those in which the brain has been injured, but there is no opening in the skull. An open head injury is one in which an opening in the skull exists. Signs of skull fracture include:

- Casualty's head appears deformed.
- Visible cracks in the skull.
- Ecchymosis (bruising) that develops under the eyes (raccoon eyes) is indicative of a Basilar skull fracture.

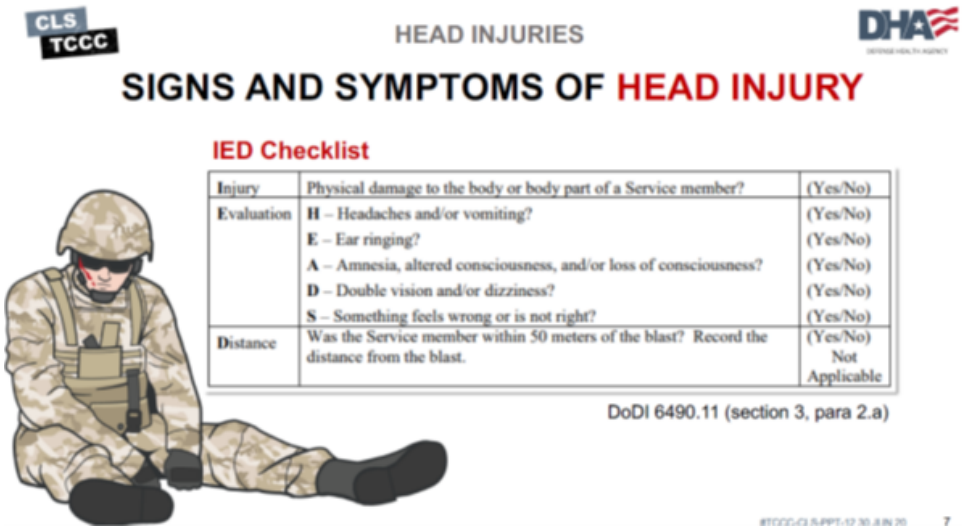
- Ecchymosis that develops behind one ear over the mastoid process (Battle's sign) is indicative of a Basilar skull fracture.

- Crepitus or step-off on palpation.

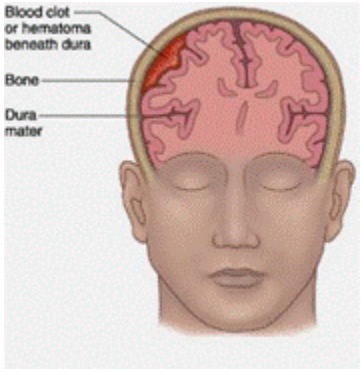
c. Traumatic Brain Injuries (TBI), (FACT):

Traumatic brain injuries (TBI) can be classified into two broad categories: primary (direct) injury and secondary (indirect) injury.

- Primary brain injury results instantaneously from impact to the head.
- Secondary brain injury increases the severity of the primary injury and may be caused by increased intracranial pressure.
- The brain can be injured directly by a penetrating object, such as a bullet, knife, or other sharp object, or indirectly, as a result of external forces exerted on the skull.



Intracranial pressure is an accumulation of blood within the skull or swelling of the brain and can rapidly lead to an increase in intracranial pressure (ICP). Increased ICP squeezes the brain against bony prominences within the cranium. Intracranial hemorrhage is bleeding inside the skull, which also increases the ICP. Bleeding can occur between the skull and the brain, or within the tissue of the brain itself.



Concussion is a blow to the head or face and may cause concussion of the brain. Concussions are also known as mild TBIs. A casualty with a concussion may be confused or have amnesia. Anterograde amnesia means the casualty can't form new memories. Occasionally, the casualty may have retrograde amnesia, which means he or she can remember everything but the events leading up to the injury (Much more serious than anterograde amnesia).

Signs and symptoms:

- Dizziness

- Weakness
- Nausea
- Vomiting
- Ringing in the ears
- Slurred speech
- Inability to focus
- Lack of coordination
- Abnormal movements

Awareness. It is important to know if the casualty is taking medications that may cause them to bleed more, like anticoagulants. It is important to protect the casualty's airway, as they will probably vomit. Always open the casualty's airway using the jaw thrust maneuver if C-spine injury is suspected. You should assume that a casualty with signs or symptoms of concussion has a more serious injury, until proven otherwise by a CT scan at the hospital or by evaluation by a physician.

(Montgomery, 2023) (Defense Health Agency, 2023) (CAPT Brendon Drew, MC, USN DO, FAWM, FACEP, 2023)

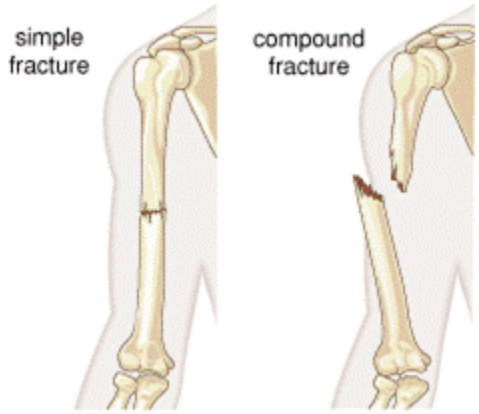
8. **Prolonged Field Care (Further Evaluation)**

a. During this extended time in the field, the TFC phase requires constant monitoring of the casualty and frequent reassessment until evacuation. Battlefield, austere environments or circumstances that increase the time to definitive medical treatment can make a seemingly small injury much more significant. Carefully check the casualty for additional wounds. High-velocity projectiles from assault rifles may tumble and take erratic courses in tissue, leading to exit sites removed from the entry wound. Inspect and dress all wounds.

b. The Giant Magnifier - Seemingly minor injuries and their evolution over time in a TFC environment, battlefield, austere environment or other circumstance that increases the time to definitive medical treatment. An example: Given time, a casualty with a limiting injury like a fracture/ broken bone may develop secondary dehydration - neither immediately life

threatening. The dehydration may be due to the casualty's level of pain and inattention or unwillingness to eat or drink. Body systems become impacted, respirations and heart rate increase as dehydration increases. The level of consciousness can decrease. Without monitoring and a high level of suspicion, the casualty with the fracture may deteriorate to something worse.

c. Fractures, (FACT)



Splint all fractures as circumstances allow, ensuring that peripheral pulse, sensory, and motor checks are performed both before and after splinting. Even if the bone is not broken, the pain caused by the wound may be lessened if the arm or leg is splinted after it has been dressed and bandaged. The casualty may have heard a "snapping" sound at the time of the injury. Do not have the casualty attempt to move the injured arm or leg to test this symptom. Rely upon what the casualty tells you. Some of the signs and symptoms of a fractured limb are:

- Part of the fractured bone may stick through the skin.
- Casualty may have pain, tenderness.
- Swelling and/or bruising at a particular location.
- Casualty has a massive injury to an arm or leg.
- One arm or leg may appear to be shorter than the other or the limb may be in an abnormal position (looks deformed).
- Casualty may have difficulty in moving an arm or leg.

- The patient felt a bone break or heard a "snap".
- The patient feels a grating sensation when he/she moves a limb. (This condition is known as crepitus.)
- The patient may not be able to move a limb or part of a limb (e.g., the arm, but not the fingers), or to do so produces intense pain.
- Loss of a pulse at the end of the extremity.
- Loss of sensation at the end of the extremity.
- Numbness or tingling sensations.
- Other unusual pain, such as intense pain in the rib cage when a patient takes a deep breath or coughs.

Splint fractured limbs using available materials. If available, a universal malleable splint (SAM splint) may be used to splint an arm, forearm, or lower leg. Two rigid objects (such as straight tree limbs, boards, or tent poles) may be used to splint fractured limbs. Materials such as cravats or strips of cloth can be used to secure the rigid objects and keep the fracture immobilized.

If there are other people with you, have them call 911. If you’re alone with the victim, make sure they’re breathing, their heart is beating, and they have no major bleeding, and then call 911 yourself. Assuming you’re in the middle of nowhere with no phone signal, you’re probably going to have to move your patient to get reception – and you may need to travel just to be in a place where rescue workers can find you. But you can’t move someone with an un-splinted, severely fractured limb.

1. Scene Safety and Body Substance Isolation: the most important consideration is safety of the rescuer. Don't treat anyone if you're in harm's way. If you're at risk, address your threat first, and then care for the patient. In this case, you may need to drag your patient to level ground (despite their fracture or bleeding) before you can safely treat them. Then, before you do anything, protect yourself from disease by wearing gloves (or even plastic bags).

2. Expose the wound & assess the patient: before you treat a patient you have to assess them in order of most important functions to least — and treat them as you encounter problems. It's always important to make sure your patient is breathing and that their heart is beating. You may have taken first aid and learned to remember your ABCs: Airway, Breathing, and Circulation, this is a great mnemonic device in a medical situation, but in major trauma this order of procedures can cost a life. Remember to follow the MARCH mnemonic.

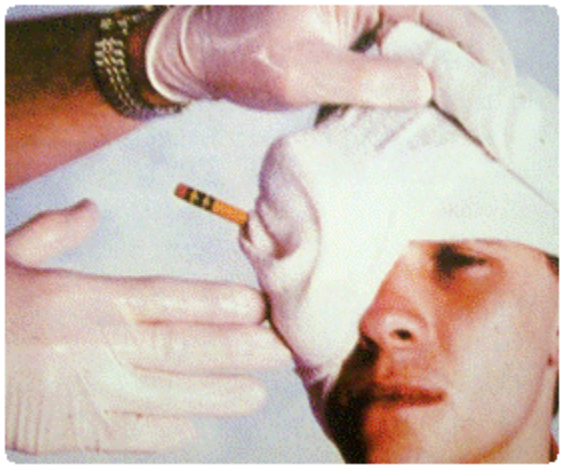
3. Manually stabilize the fracture: you need to leave it in the position you found it in, and you need to keep it still (so the broken bone doesn't cause more internal damage, i.e.: severed arteries; torn muscles, ligaments, tendons, etc.). You're going to splint it, but before you do, it's good practice to manually stabilize the broken limb while you prepare your homemade splint. If you aren't alone with the victim, have someone hold the broken limb in place.

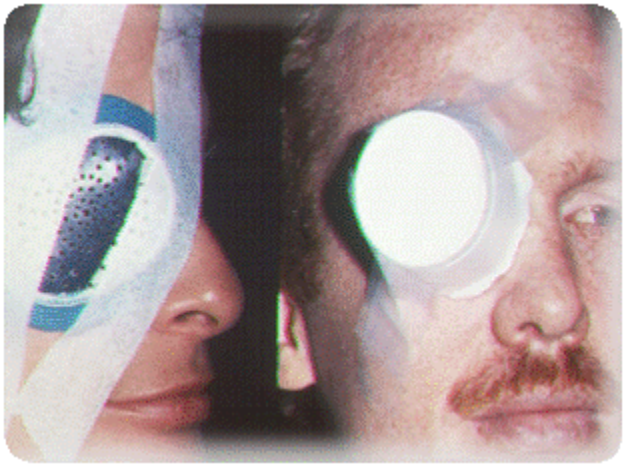
4. Check for pulse: motor control and sensory feeling. Check for tibial pulses (on the inside of the ankle, just behind the bump commonly referred to as the "ankle bone"), or for a dorsal pedal pulse (on top of the foot); have them wiggle their toes, and make sure they feel you touching their feet (pinch their pinky toe, ask them which toe you're touching).

5. Select your splint: you need to improvise a splint or use a manufactured splint. Grab a "SAM" splint, thick sticks, a hiking pole or walking stick, the frame from inside a backpack or an axe handle. You simply need two objects, preferably the length of the limb (or at least the length of the affected half) to splint each side. For even more support, extend a longer outer splint up to the victim's armpit. **Rule of Splinting, "If the injury is to a bone, secure the joint above and below,", "If the injury is to a joint, secure the bone above and below."** Next, you need something to tie your braces to the limb with. You can use a cravat, belts, shirt sleeves/torn strips from t-shirt, bandanas/handkerchiefs, shemagh /scarf, rope from a survival bracelet or a tie. It matters not what you use, but how you use it.

6. Apply the splint: start by laying your ties in place under the limb, then carefully slide the tying devices through the void and ease them back and forth until you've slid them into place. Once you have your ties in position, place your splints on either side of the limb on top of the tying devices. In the end, you want the ties to be snug, but not too tight. The idea is to hold the braces to the leg, but not to cut off circulation. Remember this rule of thumb: you should be able to easily slide two fingers side by side between the ties and their limb. Assess the splint when completed by checking for a pulse, movement and or sensation. If they had a pulse before and they don't now, you likely need to readjust your splint.

d. **Penetrating Eye Trauma, (FACT)**





(Penetrating Eye Trauma presents a problem with care providers and casualties on the battlefield, in austere environments or circumstances in which time to definitive care may be extended. These injuries can deteriorate without proper care.

- Apply an eye shield to the eye (not a pressure bandage).
- Avoid any pressure being placed on the eye, as this could cause the internal contents of the eye to be pushed out.
- Consider sympathetic movement and cover the other eye if possible.

e. **Burns, (FACT)**

Burn casualties should have their wounds covered with dry sterile bandages. Avoid using “WaterGel” directly on the burns. Burns to the face and neck should raise the suspicion for airway compromise and the care provider should be prepared to initiate airway support if necessary. The skin has an important role to play in the fluid and temperature regulation of the body. If enough skin area is injured, the ability to maintain that control can be lost. The skin also acts as a protective barrier against the bacteria and viruses that inhabit the world outside the body. The amount of damage that a burn can cause depends upon its location, its depth, and how much body surface area that it involves.

How are burns classified?

- First degree burn is superficial and causes local inflammation of the skin. Sunburns often are categorized as first degree burns. The inflammation is characterized by pain, redness, and a mild amount of swelling. The skin may be very tender to touch.
- Second degree is a partial thickness burns are deeper and in addition to the pain, redness and inflammation, there is also blistering of the skin.
- Third degree is a full thickness burn and is deeper still, involving all layers of the skin, in effect killing that area of skin. Because the nerves and blood vessels are damaged, third degree burns appear white and leathery and tend to be relatively painless.

Burns are not static and may mature. Over a few hours a first-degree burn may involve deeper structures and become second degree. Think of a sunburn that blisters the next day. Similarly, second degree burns may evolve into third degree burns. Regardless of the type of burn, inflammation and fluid accumulation in and around the wound occur. Moreover, it should be noted that the skin is the body's first defense

against infection by microorganisms. A burn is also a break in the skin, and the risk of infection exists both at the site of the injury and potentially throughout the body. Only the epidermis has the ability to regenerate itself. Burns that extend deeper may cause permanent injury and scarring and not allow the skin in that area to return to normal function.

General Burn Management:

- Stop the burning process
- Remember MARCH mnemonic
- Protect blisters and avoiding popping them
- Cover burns with dry and clean dressings
- Keep casualty warm and avoid hypothermia.
- Chemical burns - brush off excess powder
- Electrical burns – turn off power source

9. **Documentation TCCC Card or MARCH Card, (FACT)**

The DD Form 1380, TCCC Card is the standardized method for documentation of casualty care in the prehospital environment for battle and non-battle injuries. The DD Form 1380 promotes Department of Defense goals of capturing documentation of pre-hospital medical interventions at the point-of-injury.

There is a tremendous need for documenting clinical assessments, treatment rendered, and changes in the casualty's status, and forwarding that information with the casualty to the next level of care. Initiate a Tactical Combat Casualty Care Card or MARCH Card and attach the card to the casualty's clothing or place it in a pocket, this will provide medical personnel with a history of the casualty's injury and treatment. The MARCH Card uses the M.I.S.T. reporting method. Tactical Combat Casualty Cards or MARCH Cards are issued, the front side of the card has areas for the casualty's identification, a description of the injury or illness, and treatment rendered.
FRONT OF CARD

Battle Roster # - Write first letter of casualty's first name, then first letter of casualty's last name, then write the last four numbers of casualty's Social Security number. For example, John Doe 123-12-1234 is Battle Roster #

“JD1234”.

Evacuation (EVAC) - Mark an “X” on the casualty’s evacuation priority/ precedence (Urgent; Priority; or Routine).

Name - Write casualty’s name (Last, First).

Last 4 - Write last four numbers of casualty’s Social Security number.

Sex - Mark an “X” on the casualty’s sex (Male (M) or Female (F)).

Date - Write date of injury in DD-MMM-YR format. For example, “29-JUN-13”.

Time - Write 24-hour time of injury, and indicate whether local (L) or zulu (Z) time. For example, “1300Z”.

Service - Write casualty’s branch of service (USA, USAF, USCG, USN, USMC). For U.S. civilians, write “US CIV”. For non-U.S. personnel, write “NON US” or a standard abbreviation for casualty’s nationality.

Unit - Write casualty’s unit name.

Allergies - Write casualty’s known drug allergies. If no drug allergies, write “NKDA” (no known drug allergies).

Mechanism of Injury (MOI) - Mark an “X” on the mechanism or cause of injury (artillery, blunt, burn, fall, grenade, gunshot wound (GSW), improvised explosive device (IED), landmine, motor vehicle crash/collision (MVC), rocket-propelled grenade (RPG), other (specify)). Mark all that apply.

Injury - Mark an “X” at the site of the injury(ies) on the body picture. For burn injuries, circle the burn percentage(s) on the figure. If multiple mechanisms of injury and multiple injuries, draw a line between the mechanism of injury and the anatomical site of the injury.

TQ: R Arm (tourniquet, right arm) - If a tourniquet is applied to the right arm, write type of tourniquet used and the time of tourniquet application.

TQ: L Arm (tourniquet, left arm) - If a tourniquet is applied to the left arm, write type of tourniquet used and the time of tourniquet application.

TQ: R Leg (tourniquet, right leg) - If a tourniquet is applied to the right leg, write type of tourniquet used and the time of tourniquet application.

TQ: L Leg (tourniquet, left leg) - If a tourniquet is applied to the left leg, write type of tourniquet used and the time of tourniquet application.

Time, Pulse (rate & location), Blood Pressure, Respiratory Rate, Pulse Ox % O2 Sat, AVPU, Pain Scale (0-10) - Record vital signs (pulse rate and location, blood pressure, respiratory rate, oxygen saturation), level of consciousness (AVPU: Alert, responds to Verbal stimulus, responds to Pain stimulus, Unresponsive), and level of pain (on numeric rating scale of 0 to 10, with 0 being no pain and 10 being the worst pain) with time.

TACTICAL COMBAT CASUALTY CARE (TCCC) CARD

BATTLE ROSTER #: _____

EVAC: ☐ Urgent ☐ Priority ☐ Routine

NAME (Last, First): _____ LAST 4: _____

GENDER: ☐ M ☐ F DATE (DD-MMM-YY): _____ TIME: _____

SERVICE: _____ UNIT: _____ ALLERGIES: _____

Mechanism of Injury: (X all that apply)

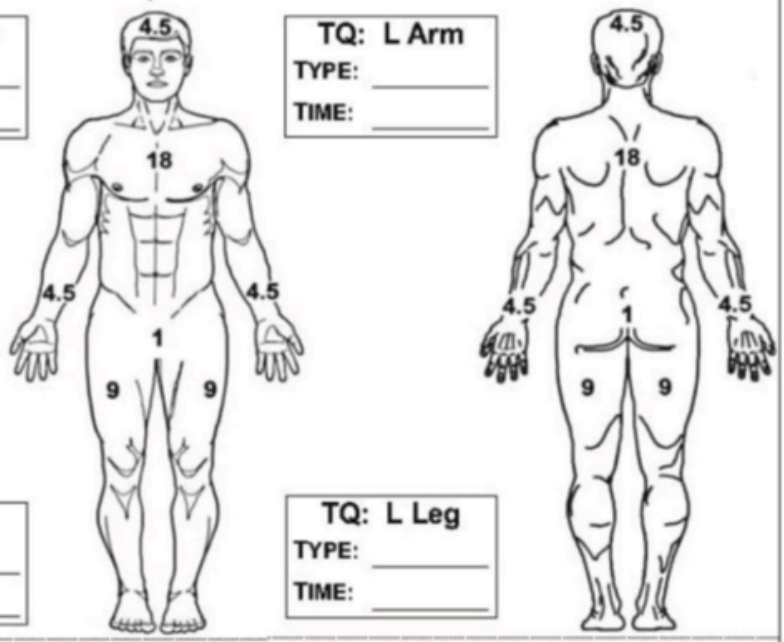
☐ Artillery ☐ Blunt ☐ Burn ☐ Fall ☐ Grenade ☐ GSW ☐ IED

☐ Landmine ☐ MVC ☐ RPG ☐ Other: _____

Injury: (Mark injuries with an X)

TQ: R Arm
TYPE: _____
TIME: _____

TQ: L Arm
TYPE: _____
TIME: _____



TQ: R Leg
TYPE: _____
TIME: _____

TQ: L Leg
TYPE: _____
TIME: _____

Signs & Symptoms: (Fill in the blank)

Time				
Pulse (Rate & Location)				
Blood Pressure	/	/	/	/
Respiratory Rate				
Pulse Ox % O2 Sat				
AVPU				
Pain Scale (0-10)				

DD Form 1380, JUN 2014 TCCC CARD

BACK OF CARD

Battle Roster # - Write first letter of casualty's first name, then first letter of casualty's last name, and then write the last four numbers of casualty's Social Security number. For example, John Doe 123-12-1234 is Battle Roster #

“JD1234” .

Evacuation (EVAC) - Mark an “X” on the casualty’s evacuation priority/ precedence (Urgent; Priority; or Routine).

C - Mark an “X” for all Circulation hemorrhage control interventions. For tourniquets (TQ), mark category (Extremity, Junctional and/or Truncal) and write name of TQ(s) used. For dressings, mark category (Hemostatic, Pressure, and/or Other) and write name of dressing(s) used.

A - Mark an “X” for all Airway interventions (Intact, NPA (nasopharyngeal airway), CRIC (cricothyroidotomy), ET Tube (endotracheal tube), SGA (supraglottic airway) and write type of device(s) used.

B - Mark an “X” for all Breathing interventions (O2 (oxygen), Needle D (needle decompression), Chest Tube, Chest Seal) and write type of device(s) used.

C: Fluid - Circulation resuscitation interventions. Write name, volume, route, and time of any fluids given.

C: Blood Product - Circulation resuscitation interventions. Write name, volume, route, and time of any blood products given.

Meds: Analgesic - Medications. Write name, dose, route, and time of any analgesics given.

Meds: Antibiotic - Medications. Write name, dose, route, and time of any antibiotics given.

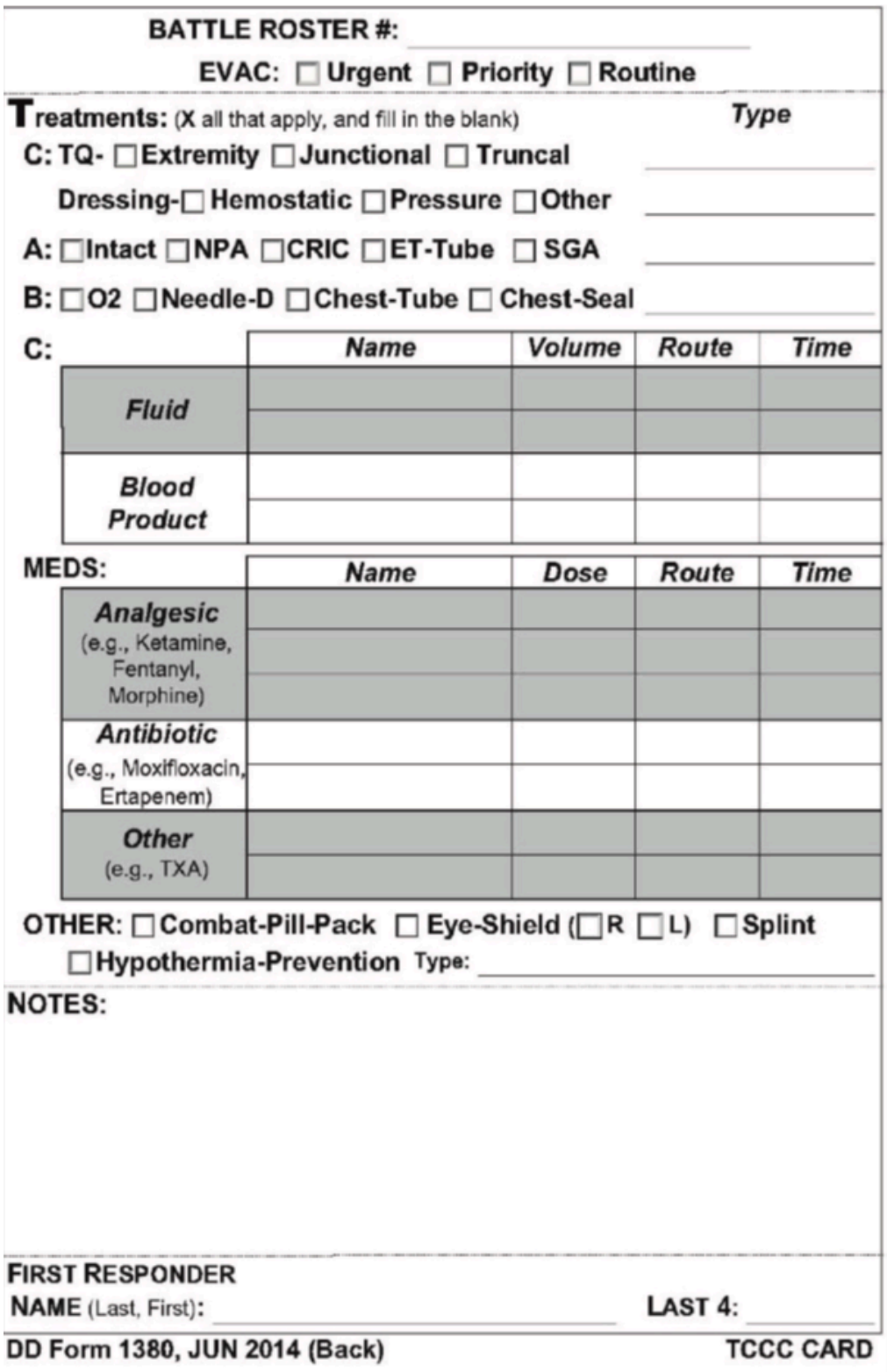
Meds: Other - Medications. Write name, dose, route, and time of any other administered medications.

Other - Mark an “X” for other treatments administered (combat pill pack, eye shield (mark right (R) or left (L)), splint, hypothermia prevention) and type of device(s) used.

Notes - Use this space to record any other pertinent information and/or clarifications.

First Responder Name - Print the first responder’s name (Last, First).

First Responder Last 4 - Write last four numbers of first responder’s Social Security number



BATTLE ROSTER #: _____

EVAC: ☐ Urgent ☐ Priority ☐ Routine

Treatments: (X all that apply, and fill in the blank) — Type

C: TQ- ☐ Extremity ☐ Junctional ☐ Truncal _____

Dressing- ☐ Hemostatic ☐ Pressure ☐ Other _____

A: ☐ Intact ☐ NPA ☐ CRIC ☐ ET-Tube ☐ SGA _____

B: ☐ O2 ☐ Needle-D ☐ Chest-Tube ☐ Chest-Seal _____

C:	Name	Volume	Route	Time
Fluid				
Blood Product				

MEDS:	Name	Dose	Route	Time
Analgesic (e.g., Ketamine, Fentanyl, Morphine)				
Antibiotic (e.g., Moxifloxacin, Ertapenem)				
Other (e.g., TXA)				

OTHER: ☐ Combat-Pill-Pack ☐ Eye-Shield (☐ R ☐ L) ☐ Splint

☐ Hypothermia-Prevention Type: _____

NOTES:

FIRST RESPONDER

NAME (Last, First): _____ LAST 4: _____

DD Form 1380, JUN 2014 (Back) TCCC CARD

D. EPO #4: DEMONSTRATE AND/OR PRESENT LIFTING, MOVING AND EXTRICATING VICTIMS FROM A TACTICAL OR HOSTILE ENVIRONMENT DURING TACTICAL EVACUATION CARE.

1. Tactical Evacuation Care (TEC), Evacuation Care, or Cold Zone Care is the care

rendered once the casualty has been removed from the threat environment and/or transported by any evacuation platform to a higher level of medical care. TEC is a more deliberate approach, usually performed by dedicated medical personnel with specialized equipment either on scene or enroute to a facility. However, the casualty must be first removed from the threat environment.

2. The casualty should be removed from the field of fire (“off the X”) as quickly as tactically feasible. The officer must assess the risk and the situation before making any attempt to retrieve the casualty, as to avoid creating additional casualties. Retrieving casualties may be complicated by the limited equipment, limited personnel available, and the inherent risks.

3. Attempt to communicate with the casualty. If the casualty can walk and/or move, encourage them to do so when appropriate. Direct them to move to cover and/or concealment and apply self-aid if able. Develop a plan for rescue and/or removal from the threat environment. The evacuation of the casualty is dictated by the tactical situation first and foremost, and the officer must also consider the location, how best to move the casualty, the physical capability of the officer, the weight of the casualty, and the distance to be covered.

4. The rescuer should consider reassessing medical interventions before and after moving the casualty (particularly for massive hemorrhage), unless the movement is hasty in nature. Ensure tourniquets are placed appropriately and hemorrhage has stopped, as tourniquets can move and loosen with casualty movement. Assess for junctional area re-bleeding, casualty consciousness, and breathing status.

5. Use of improvised and/or commercial gear is encouraged to assist in the evacuation of casualties. Examples of improvised gear include wheeled office chairs, fenestrated construction/erosion control fencing, tarps, sheets, carpet, clothing, and 22’ of tubular nylon/seat belt material in a water knot. Consider adding commercial carabiners, drag straps, drag sheets, and/or litters to gear selection. Utilization of gear may expedite evacuation, allow for more tactical options, make moving larger casualties easier, etc.

6. There are numerous techniques to remove the casualty from the threat environment or point of injury with only manpower. It is important to note,

these techniques are designed to minimize risk to the responders and/or reduce further harm to the casualty during exigent circumstances. If tactically feasibly, ensure all gear is secured before attempting to move the casualty. These techniques must be trained and practiced, with safety in mind during drills. The following techniques are designed as one and two responder movements. If additional officers are available, utilize them as security assets/ cover officers or support personnel (communications, opening doors, swapping out due to fatigue, etc). (Defense Health Agency, 2023)

a. **Drags** are defined as lifting only part of the casualty's body to move them. Drags can be performed over very short distances, as they are inefficient due to friction and terrain. Drags may be means to only move a casualty to cover or concealment or out of immediate harm's way due to their hasty nature.

   5-60 feet covers 90% of the distance an officer is reasonably likely to drag another person (fellow officer, suspect or victim). 78% of the time the person being dragged weighed less then 200 LBS. (Source: 5,527 California POST certified police officers 75% of which are patrol and 10% investigative) (Krueger, Chan, 2019)

   "Extremity and Equipment Drags" can be accomplished with one or two hands, by one or two officers, and is for hasty movement of a casualty to cover or concealment. The officer(s) may or may not be holstered for this technique.

   One officer one-hand drag:

   1. Utilize one hand to grasp one of the casualty's hands or wrists.
   2. Drag them backward while the casualty kicks their legs, if possible.

One officer two-hand drag:

1. Utilize two hands to grasp both of the casualty’s hands or wrists.
2. Drag them backward while the casualty kicks their legs, if possible.

Two officer two-hand drag:

1. Each officer grasps the casualty by one hand.
2. Drag them backward while the casualty kicks their legs, if possible.

One officer kit drag:

1. Grasp the casualty by the shoulder straps of the vest or carrier or belt line.
2. Drag them backwards while the casualty kicks their legs if possible.

Two officer kit drag:

- Some body armor is equipped with a drag handle. The equipment must be fully strapped and secured onto the casualty.
- While the Kit or Arm Drag may be a means to drag a casualty short distances to cover or safety, it is not efficient for longer distances and increases chances of causing further harm to the casualty.
- This allows the rescuers to maintain a “weapons up” posture while executing the drag.

One officer boot or leg drag:

1. To use one hand, cross one of the casualty’s ankles over the other ankle and grasps the bottom leg by the boot or pant leg**.** If both hands are available to use, grab both boots or pant legs.
2. Drag them backwards.

Two officer boot or leg drag:

1. Each officer grasps the casualty by one leg or boot.
2. Drag them backwards.

Cradle Drag is more controlled and can be utilized over more varied terrain. It is designed for a single officer dragging an unconscious or conscious casualty.

1. Align behind the casualty’s head.
2. Lift the casualty’s upper body to a seated position.
3. Position close to the casualty’s back in a squat position.

4. Reach each under the casualty's armpits, grabbing the casualty's left wrist with left hand and right wrist with right hand.
5. Squat up, lifting the casualty to approximately hip height.
6. Drag them backwards.

This drag translates into the two-officer carry.

Fore-and-Aft Carry:

1. The taller officer (Officer 1) will align themselves at the casualty's head and assume a Cradle Drag position.

2. The shorter officer (Officer 2) will align themselves at or between the casualty's feet or between the knees, grasping them.

3. The officers can either face each other or face the same direction. On command of Officer 1, the two officers will lift together.

4. Consider crossing the casualty's ankles. Officer 2 will stand beside the casualty's legs and cross the closest leg over top/away from the Officer 2. This allows the Officer 2 to grasp the bottom boot or pant leg, freeing a hand to open doors or manipulate a weapon.

5. If moving a casualty over a long distance, consider lifting the casualty's legs up. Position the casualty's knees over Officer 2's shoulders, allowing the weight of the casualty to be easily managed. Officer 2 must have the strength to power clean the casualty's legs to that height. The casualty's legs may be on one or both of Officer 2's shoulders.

Support Carry or Side-By-Side Carry:

One Officer Carry:

1. Assist the casualty to their feet and stand beside them.
2. With one hand, grip the casualty's beltline at the same corresponding side.
3. Firmly grasp the casualty's other wrist, drape it around the officer's neck, and hold it firmly at officer's chest or shoulder. Ensure the casualty's armpit is at or above the level of the officer's shoulder.
4. Walk together, supporting the casualty.
5. If the technique is not effective or the casualty loses the ability to walk, transition to the Pack-Strap Carry.
6. To transition, the officer will step forward and in front of the casualty, grasp both wrists, and perform the Pack-Strap Carry.

Two Officer Carry:

1. Assist the casualty to their feet and stand on either side.
2. Officers will each secure one of the casualty's wrists, drape the casualty's arms across their shoulders, and secure at their chest, maintaining control with their outside hand.

3. Officers will use their inside hand to grasp the casualty's belt line or kit to help secure them.

4. If the technique is not effective or the casualty loses the ability to walk, transition to the Seated Side-By-Side Carry.

Seated Side by Side Carry:

1. In the Side-By-Side Carry position, the officers will release their inside hand to grasp thigh, knee, or clothing to lift the casualty. This can be accomplished by grabbing in front of or behind the casualty.

2. If the casualty is on the ground, place them in a seated position. The officers will then bend down in a squat position on either side of the casualty facing each other, their rear hands grasping the casualty's belt or vest and their front hands grasping under the casualty's thigh, knee, or clothing. The officers may also grasp each other's wrists under the casualty's knees or thighs. On command, the officers will lift together.

- If unconscious or if the casualty is taller than the bearers, the bearers can the casualty's waist and place them behind/under the casualty's thighs for support; this keeps the feet from dragging.

- The two-man supporting carry can be used in transporting both conscious and unconscious casualties.

Pack-Strap Carry is for a single officer to carry a standing casualty.

1. Stand in front of the upright casualty, facing the same direction, with officer’s back to the casualty and their knees bent or in a slight squat position.
2. Grasp the casualty by the wrists, pull their arms forward over the officer’s shoulders and cross them at their chest, ensuring the casualty’s armpits are atop the officer’s shoulders.
3. Lift the casualty by straightening the officer's legs and hinging slightly at the hips. The weight of the casualty should rest along the officer’s straight back.

VEHICLE LOADS

Vehicle loads are the continuation of the above drags and carries, allowing the officer(s) to effectively load a casualty into an evacuation platform. It is imperative officers train with their various evacuation platforms (sedans, SUVs, trucks, MRAPs, helicopters, etc), as these techniques should be

modified to best fit the platform's capabilities and/or dimensions. If appropriate, the officer may remain with the casualty, providing aid during the transport. If the casualty is conscious, they should be able to assist in their own loading. The following are descriptions of loading an unconscious casualty.

Pack-Strap Carry load:

1. Utilizing the Pack-Strap Carry, the officer will back onto the rear quarter panel and pin the casualty against the vehicle. The officer then opens the vehicle door.
2. Once the door is open, the officer backs into the compartment space and lowers the casualty into the vehicle.
3. Ensure the casualty is on the seat or surface. Release the casualty's wrists and push the rest of their body into the compartment.
4. For a trunk dump/well load, ensure the casualty is seated on the trunk opening before releasing.

Cradle Drag load:

1. Utilizing the Cradle Drag, the officer will rest against the car with their body at the rear quarter panel.

2. Staying in this position, pull the casualty upwards, with their hips at least at the level of the officer's hips.
3. Balance the casualty on a bent knee as needed for support.
4. Open the vehicle door and drags the casualty into the space with the officer entering the space first.
5. The officer will press their feet against the B-post of the vehicle while pulling the casualty in. Both officer and casualty will slide across the seat.
6. Rotate from under the casualty, with the casualty rolling towards the trunk (**NOT** the footwell of the vehicle; where they could get stuck).

Fore-And-Aft Carry load:

1. Utilizing the Fore-And-Aft Carry, the officer at the feet (Officer 2) will open the vehicle door, ensuring their back is at the rear quarter panel (not in the door opening).
2. Officer 2 places the casualty's feet on the seat ("Rump to the trunk, feet on the seat.").
3. Officer 2 goes to the other side of the vehicle. The officer at the head (Officer 1) supports the weight of the casualty.
4. Both officers pull/push the casualty across the seat.
5. Alternatively, Officer 2 may enter the space with the casualty, sliding with them across the seat or walking across, carrying the feet if the space permits, while Officer 1 pushes the casualty inside.

6. For a trunk dump/well load, the two officers lift the casualty and lower them into the space.

Side-By-Side Carry load:

1. Utilizing the Side-By-Side Carry, the two officers lean the casualty's back against the vehicle and an officer opens the door.
2. As they move into the door opening, the casualty will be partially placed on the seat.
3. The officer inside the door (Officer 1) at the B-post will pin the casualty against the C-post, relieving the officer at the rear quarter panel (Officer 2).
4. Officer 2 goes to the other side of the compartment.
5. The two officers pull/push the casualty across the seat.

Half Cage or Passenger Seat Considerations:

If the officer only has a half-cage vehicle available or the casualty must be loaded into the front passenger seat, the casualty will remain in a seated, upright position. The Pack-Strap Carry is the simplest option for vehicle loading. If the casualty is unconscious, once seated, pull their hips forward to keep them in position and place material under their chin to keep their airway in a more neutral position. Seatbelt the casualty in place.

VEHICLE EXTRACTIONS

Vehicle extractions are used when the casualty is in the vehicle, especially the driver's seat. As a reminder, extractions are to be used specifically for exigent circumstances or when c-spine precautions are not utilized. If the

extraction is assumed difficult, stop major bleeding before removing the casualty. If the extraction must be hasty, remove the casualty first before attempting any hemorrhage control. Remember to unbuckle the casualty first.

Lower Ground Clearance Vehicles or Taller LEO:

1. To remove the casualty, the officer pitches the casualty's upper body forward over the steering wheel.
2. The officer may also grasp the casualty's belt and slide them toward the officer for better access.
3. Utilizing the Cradle Drag position behind the casualty, drag them out of the seat.

Higher ground clearance vehicles or shorter LEO:

1. To remove the casualty, the officer rotates the casualty's knees and hips so their feet are outside the vehicle (preferably on the ground).
2. The officer sits on the casualty's lap, the floor of the vehicle, or the running board and assumes the Pack-Strap Carry position.
3. The officer will then squat up with the casualty, bracing on the door and B-post for support if needed.
4. Once standing, if the casualty needs to be re-positioned, the officer can pin the casualty against the B-post and shift their weight for a more effective carry.

Officers may be tasked with the establishment of a secure staging area for the casualties or a casualty collection point, which will allow unarmed responders (fire department, EMS, etc) to enter and assume care of the casualties. Unarmed responders may enter the threat area as part of their duties; however, they do so with armed escorts. Ensure all LEO casualties are cleared of weapons; receiving medical personnel may not be familiar with the equipment or have a way to secure it.

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The references attached were verified and determined to be the most current according to the subject matter expert.