

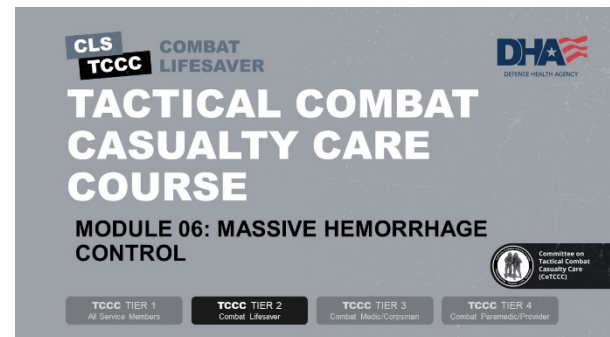
SPEAKER NOTES

MODULE 06 – MASSIVE HEMORRHAGE CONTROL IN TFC

SLIDE 1 – TITLE SLIDE

Good morning/afternoon, my name is (insert here) and I will be your lead trainer for Module 6: Massive Hemorrhage control in the Tactical Field Care (TFC) environment.

Before we get started are there any questions?



SLIDE 2 – TCCC ROLES

Tactical Combat Casualty Care is broken up into four roles of care. The most basic is taught to All Service Members (ASM), which is designed to instruct in the absolute basics of hemorrhage control and to recognize more serious injuries.

You are in the Combat Lifesaver (CLS) role.

This teaches you more advanced care to treat the most common causes of death on the battlefield, and to recognize, prevent, and communicate with medical personnel the life-threatening complications of these injuries.

The Combat Medic/Corpsman (CMC) role includes much more advanced and invasive care requiring significantly more medical knowledge and skills.

Finally, the last role, Combat Paramedic/Provider (CPP) is for Combat paramedics and advanced providers, to provide the most sophisticated care to keep our wounded warriors alive and get them to definitive care.

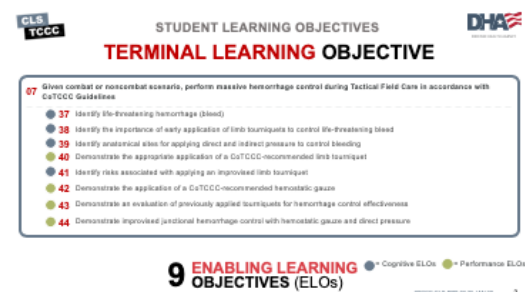
Your role as a CLS is to treat the most common causes of death on the battlefield, which are massive hemorrhage and airway/respiratory problems. Also, you are given the skills to prevent complications and treat other associated but not immediately life-threatening injuries.



SLIDE 3 – TLO/ELO

The TCCC-CLS course is built on a foundation of learning objectives. These objectives lay out the basic structure of the course and describe the knowledge and skills you are expected to acquire by the end of the course.

The module has one Terminal Learning Objective, or TLO. The TLO is supported by a series of Enabling Learning Objectives, or ELOs. This graphic shows how the ELOs are



mapped to the TLOs. The blue dots are the four cognitive or knowledge learning objectives, which include identifying:

1. Life-threatening hemorrhage (bleeding)
2. Importance of early application of limb tourniquets to control life-threatening bleeding
3. Anatomical sites for applying direct and indirect pressure to control bleeding
4. Risks associated with applying an improvised limb tourniquet.

The green dots are the four performance objectives focused on skills, which include demonstrating:

1. Appropriate application of a CoTCCC-recommended limb tourniquet
2. Application of a CoTCCC-recommended hemostatic dressing
3. Evaluation of previously applied tourniquet(s) for hemorrhage control effectiveness
4. Improvised junctional hemorrhage control with hemostatic dressing and direct pressure

The critical aspects are to identify life-threatening hemorrhage and the importance of prompt intervention and to demonstrate the appropriate interventions for life-threatening hemorrhage in accordance with the CoTCCC guidelines.

SLIDE 4 – THREE PHASES OF TCCC

TCCC is organized into Phases of Care that start at the point of injury. These phases are relevant to combat and noncombat trauma scenarios:

1. **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 an ongoing threat in a potentially chaotic and dangerous situation.
2. **Tactical Field Care** is the care provided once the threat has been neutralized and/or the scene is safe or the casualty has moved/been moved out of the immediate threat situation. 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 treated. Medical equipment is still limited. Time to arrival of medical personnel or evacuation may vary considerably, depending on the tactical situation, etc.
3. **Tactical Evacuation Care** is the care rendered during and once the casualty has been moved by an aircraft, vehicle, or other mode of transportation for evacuation to a higher level of care. Additional medical personnel and equipment are typically available in this phase of casualty care



SPEAKER NOTES

Remember: The goal of TCCC and the role of the CLS is to rapidly assess casualties to identify and treat potentially life-threatening injuries to keep them alive long enough to reach a higher level of medical care.

SLIDE 5 – MARCH PAWS

Massive bleeding assessment and management is the “M” in the MARCH PAWS sequence and the **#1 priority**.



SLIDE 6 – HEMORRHAGE OVERVIEW IN TFC (VIDEO)

Play video

Summary:

1. Use CoTCCC-approved limb TQ
2. Use hemostatic dressings
3. Use junctional TQs
4. Use pelvic compression device
5. REASSESS all interventions
6. DO NOT apply a TQ and forget it



SLIDE 7 – SECURITY AND SAFETY IN TACTICAL FIELD CARE

Remember to maintain **security** and tactical situational **awareness** during TFC.

Casualties with altered mental status (*due to shock, head injury, or medications*) who can no longer fight effectively should have weapons and sensitive items secured so they do not cause harm to themselves, their teammates, or the mission.



SLIDE 8 – PRIORITIZING MULTIPLE CASUALTIES

When you come upon a casualty, multiple injuries may need interventions. However, remember **Massive bleeding** is the **#1 priority**!



SLIDE 9 – WHEN IS BLEEDING LIFE-THREATENING? EARLY CONTROL OF SEVERE HEMORRHAGE IS CRITICAL

This slide show signs of ongoing life-threatening bleeding that **may not have been noted or appropriately addressed** in CUF.



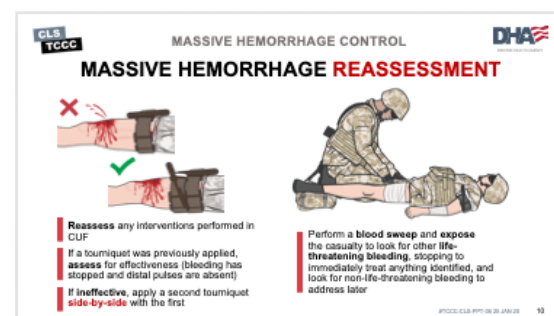
SLIDE 10 – MASSIVE HEMORRHAGE REASSESSMENT

The TFC phase allows the time and relative safety for a more deliberate assessment and treatment (MARCH PAWS). All casualties should be reassessed with a full tactical trauma assessment.

Assessment for massive hemorrhage includes a visual and manual blood sweep of the front and back of the casualty from head to toe (including neck, armpits, and groin).

Any massive hemorrhage identified (newly identified or ineffectively treated during CUF) should be addressed **immediately**.

All *tourniquets* placed during CUF should be reassessed for effectiveness, tightened if needed, and/or a second tourniquet placed adjacent (side-by-side) to the first to ensure bleeding is effectively stopped.



SLIDE 11 – TOOLS TO CONTROL LIFE-THREATENING HEMORRHAGE

Describe items on the slide and their use.

Direct Pressure: After packing the wound with hemostatic dressing or gauze, hold pressure for 3 minutes.

Gauze/Other Dressings & Pressure Bandages: These items are all CoTCCC-approved hemostatic dressing, etc.

CoTCCC Recommended TQ: They are either windlass or ratchet but have been proven effective in use.

Pressure Delivery Device: A PDD is made using improvised materials, such as a shoe/boot, full water bottle, or canteen, and applies additional pressure to the wound after it has been packed.

Hemostatic Dressing: CoTCCC-recommended hemostatic dressings are safe and contain active ingredients that assist with blood clotting at the bleeding site. Non-CoTCCC-recommended supplies may be available; however, they have not been shown to be effective in controlling massive hemorrhage.



SLIDE 12 – INITIAL DIRECT PRESSURE BEFORE INTERVENTION

Direct pressure can and should be used as a temporary measure until a tourniquet or dressing is in place. It is difficult to use direct pressure alone to control significant bleeding or while moving the casualty. While packing a wound, maintain constant, direct pressure at the source of bleeding to be effective.



SLIDE 13 – TOURNIQUETS

Remember: A tourniquet is a **one-time** use device.

Never deploy with or use a tourniquet that has been used previously in training, as there is an increased risk of device failure.



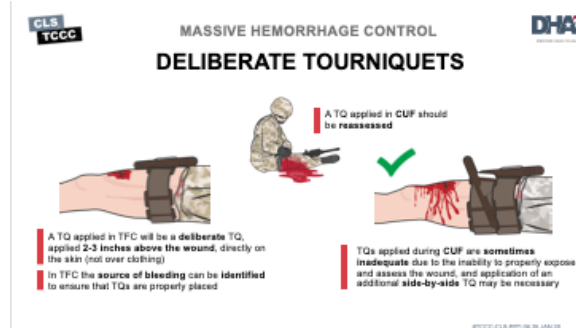
SLIDE 14 – DELIBERATE TOURNIQUETS

In TFC, there is more time to expose the wound and determine the actual site of bleeding.

All tourniquets applied during TFC should be deliberate tourniquets, **applied 2 to 3 inches above the wound** and directly on the skin. This maximizes the effectiveness of the TQ in stopping bleeding and minimizes the amount of healthy tissue that might be impacted by a TQ unnecessarily placed too high on the limb.

Reassess any tourniquets that were applied in CUF for effectiveness. These tourniquets are rapidly applied and may have been placed “high and tight” (for example, high on the leg when the actual site of bleeding is near the ankle), and this will need to be addressed by medical personnel as they respond.

Remember: **DO NOT** put tourniquets over the knee, elbow, holster, or cargo pocket containing bulky items, as the tourniquet will be inadequate.

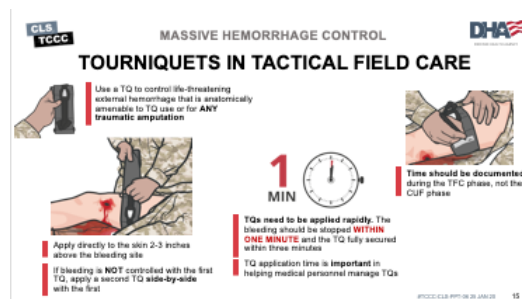


SLIDE 15 – TOURNIQUETS IN TACTICAL FIELD CARE

Tourniquets applied during TFC should be **deliberate tourniquets**. They are anatomically amenable to a CoTCCC-approved tourniquet.

If bleeding is **not controlled** with the first tourniquet, apply a second tourniquet side-by-side with the first, which is further away from the wound.

Remember: Bleeding should be **stopped** within **1 minute** and the tourniquet was fully **secured** within **3 minutes**.



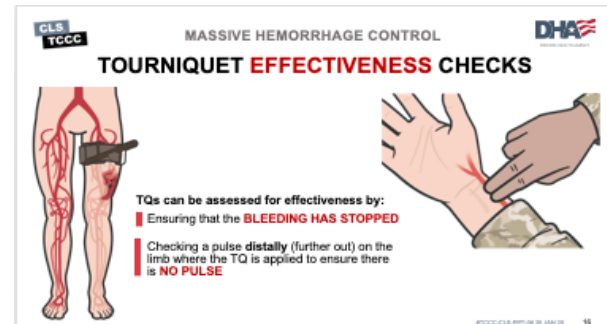
SPEAKER NOTES

The time the tourniquet was placed should be documented on the tourniquet itself and on the **DD Form 1380** in TFC (not during CUF). This is important for medical personnel as the casualty is moved to higher echelons of care.

SLIDE 16 – TOURNIQUET EFFECTIVENESS CHECKS

Check for circulation below the tourniquet by feeling for **distal pulse** (a pulse *below* the tourniquet).

If bleeding continues or you detect a distal pulse, **tighten the existing tourniquet** further or apply a second tourniquet next to the first.



SLIDE 17 – TWO-HANDED RATCHET TOURNIQUET APPLICATION IN TFC (VIDEO)

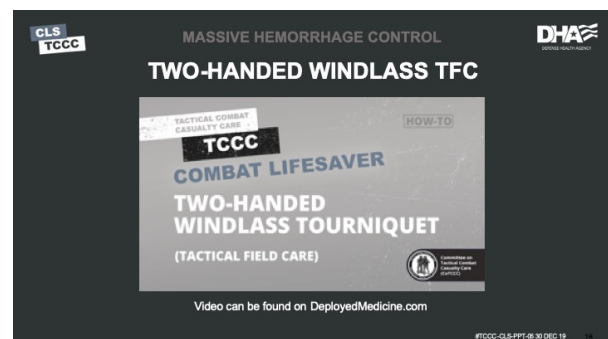
Play video



SLIDE 18 – TWO-HANDED WINDLASS TOURNIQUET APPLICATION IN TFC (VIDEO)

Play video(s)

1. SOFT-T buddy looped
2. SOFT-T buddy routed
3. C-A-T buddy looped
4. C-A-T buddy routed



SLIDE 19 – TOURNIQUET PITFALLS/MISTAKES

1. The longer you wait to apply a tourniquet the more blood the casualty loses.
2. If you do not pull all the slack out, you will not be able to tighten the tourniquet effectively.



SPEAKER NOTES

3. Tourniquets should be tight and **will hurt a lot** when applied properly.
4. If one tourniquet is not effective, apply a second. This may be necessary in casualties with large extremities.
5. When in doubt, apply a tourniquet. However, the need for a tourniquet should be reassessed as soon as possible.
6. In CUF, a tourniquet is placed *'high & tight'* but in TFC the tourniquet should be placed 2-3 inches above the wound.
7. **DO NOT loosen!**
8. Leave the tourniquet in place even if loosened by medical personnel. You DO NOT want to have rebleeding occur and not have a tourniquet available.
9. **DO NOT** put tourniquets over joints...they DO NOT work over joints. If the wound is directly below a joint, place the tourniquet 2-3 inches above the joint.

SLIDE 20 – IMPROVISED TOURNIQUETS

Remember: DO NOT use an improvised tourniquet except as an **absolute last resort** when there is **no other option** to control life-threatening bleeding. If no tourniquet is available, pack the wound and use direct pressure. Improvised tourniquets can cause damage to skin if they are too narrow (less than 2 inches), they may loosen, and may not completely control bleeding. Improvised tourniquets that are 2 inches wide may be more successful in controlling bleeding.

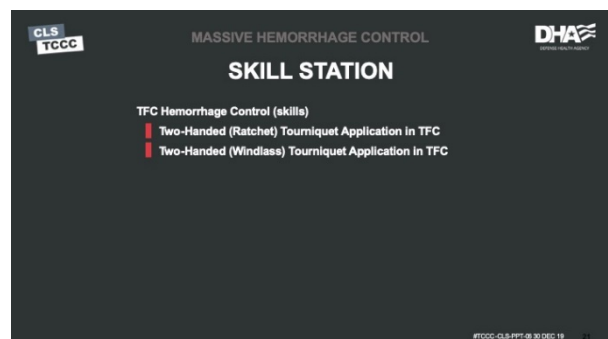


Continue to check the tourniquet, as improvised tourniquets are prone to loosening due to (but not limited to) casualty movement, shift fluid, and quality of improvised material.

SLIDE 21 – SKILL STATION

At this time, we will break into skill stations to practice the following skills:

- Two-Handed Ratchet Tourniquet Application in TFC
- Two-Handed Windlass Tourniquet Application in TFC



SLIDE 22 – HEMOSTATIC DRESSING

Familiarize yourself with the items in your JFAK.

A JFAK contains one hemostatic dressing and one dry sterile gauze.

CoTCCC-recommended hemostatic dressings are safe and contain active ingredients that assist with blood clotting at the bleeding site.

Dressings include:

- **Combat Gauze®**, a 4-yard-long roll of gauze about 3 inches wide, used to control hemorrhage. The material has a chemical in it that causes a



clot to form when it comes into contact with blood. This action, along with packing it into a bleeding wound and applying manual pressure, forms a clot and stops the bleeding.

- **Celox gauze**, with Celox granules bonded to its surface. Celox granules are Chitosan-based products that absorb fluid from blood, swell, and form a binding gel. The adherent gel plug seals the wound.
- **ChitoGauze**, a Chitosin-based hemostatic dressing that binds red and platelets on the dressing's surface, which provides clotting at the point of bleeding.

Note: Although Chitosin is a shellfish derivative, it will **NOT** cause an allergic reaction in casualties with a shellfish allergy.

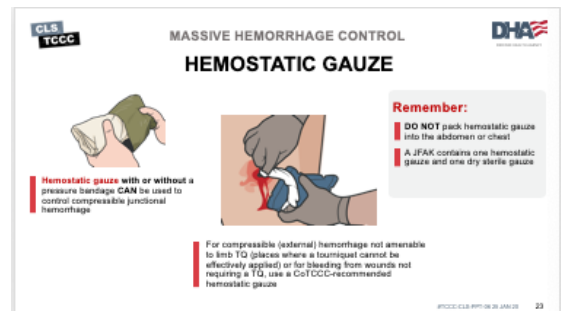
Note: When packing larger wounds, more than one hemostatic dressing and/or gauze may be needed to control bleeding. If bleeding has not stopped, remove prior hemostatic packing material and repack with a new hemostatic dressing, if available. Apply additional gauze and pressure (for at least 3 minutes) until bleeding has stopped. Watch for rebleeding.

SLIDE 23 – HEMOSTATIC DRESSING (CONT.)

While hemostatic dressings should be packed into wounds of the limbs, *when the source of bleeding is too high on limb for tourniquet application such as neck, armpit, and groin*, they should **NOT** be packed into the **abdomen or chest**.

For compressible (external) hemorrhage **not amenable to limb tourniquet**, places where a tourniquet cannot be effectively applied like **neck, armpit, and groin** areas, use a CoTCCC-recommended hemostatic dressing.

Even with the active hemostatic agents in hemostatic dressings, direct pressure **must be applied** for at least 3 minutes.

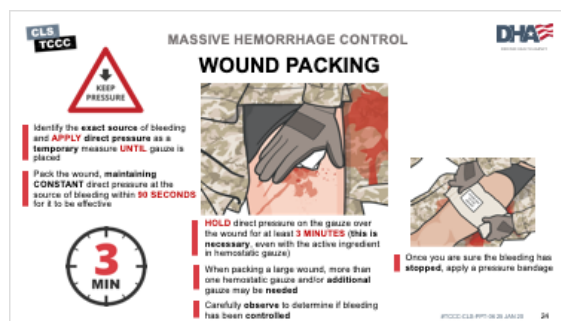


SLIDE 24 – WOUND PACKING

DO NOT blindly pack a wound.

Make an effort to locate the source of bleeding and immediately apply direct pressure while retrieving gauze.

While packing a wound with gauze, maintain **constant**, direct pressure at the source of bleeding within 90 seconds. Once the dressing is applied, hold direct pressure on the gauze over the wound for **at least 3 minutes**. Then, carefully observe for blood continuing to flow from under the gauze to determine if bleeding has been controlled. Once you are sure the bleeding has stopped, apply a pressure bandage over the hemostatic dressing.



SLIDE 25 – WOUND REPACKING FOR FAILED CONTROL

If bleeding has not been stopped, **remove the hemostatic dressing/packing material**. **Immediately**, repack with a new hemostatic dressing, if available. 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.

Alternatively, additional hemostatic or nonhemostatic dressings can be applied on top of the first dressing. Apply additional gauze and pressure **for at least 3 minutes**, until bleeding has stopped. Watch for rebleeding.

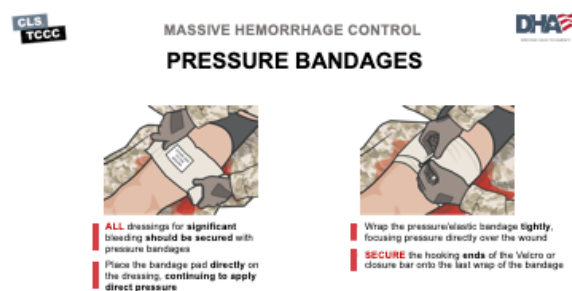
NOTE: When packing larger wounds, more than one hemostatic dressing and/or gauze may be needed to control bleeding.



SLIDE 26 – PRESSURE BANDAGES

Once bleeding has been controlled with a hemostatic dressing/packing material you must maintain pressure on the wound.

Place the pressure dressing directly on top of the hemostatic dressing/packing material and wrap around the limb, ensuring you cover all the wound and gauze previously applied.



Be sure to secure the pressure dressing tail either by hooks or with a knot. Tape both to ensure they do not come loose.

SLIDE 27 – PRESSURE BANDAGE ASSESSMENT

1. Pressure bandages **should not** have a tourniquet effect.
2. If there is **no pulse** below the pressure bandage, it has been applied too tightly and will need to be loosened and retied.
3. Another sign the pressure bandage has been applied too tightly is the color of the skin will have a **bluish tint**, the skin may be **cool to touch** or the casualty will complain of **numbness** in the extremity below the bandage.



Remember: REASSESS any and all bandages after the casualty has been moved.

SPEAKER NOTES

SLIDE 28 – MASSIVE HEMORRHAGE CONTROL PRESSURE BANDAGE (VIDEO)

Play video - Pressure Bandage

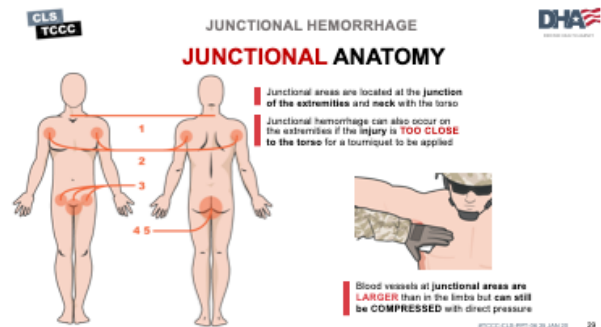


SLIDE 29 – JUNCTIONAL ANATOMY

This is a key concept for the CLS learner to understand.

Areas **NOT** amenable to extremity tourniquets are neck, axilla (arm pit), groin, and perineal. These areas are known as '**JUNCTIONAL**' areas and are difficult to stop bleeding even though the vessels are larger than in the extremities.

***Have the students locate the junctional areas on each other.*



SLIDE 30 – NECK JUNCTIONAL HEMORRHAGE CONTROL

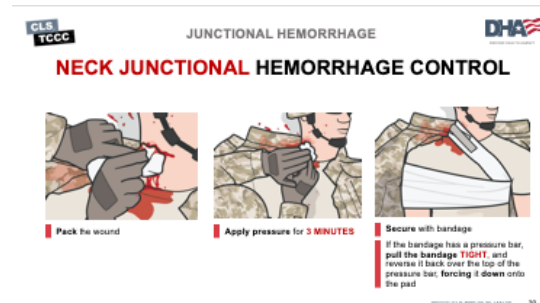
Carefully pack the wound with hemostatic dressing using your fingers to ensure that the gauze is packed in all parts of the wound.

The wound should be packed sufficiently to ensure that the **gauze extends 2-3 inches above skin surface**.

Maintain direct pressure continuously **for 3 minutes**, and maintain pressure throughout the application of the dressing. Apply a pressure dressing on top of the gauze.

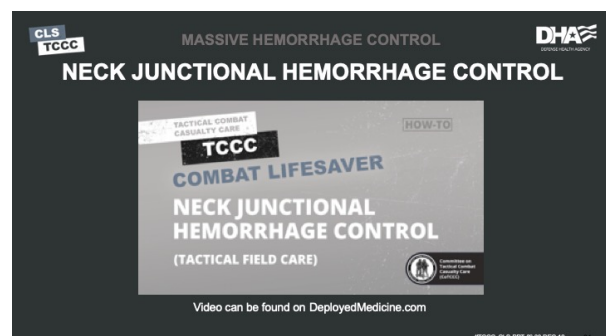
Wrap the tail under the armpit of the noninjured side, continue to wrap around the arm on the injured side. Finally, the last wrap should be tied to the tails of the bandage on the neck for pressure.

NOTE: If the bandage has a pressure bar, pull the bandage tight, and reverse it back over the top of the pressure bar forcing it down onto the pad.



SLIDE 31 – NECK JUNCTIONAL HEMORRHAGE CONTROL (VIDEO)

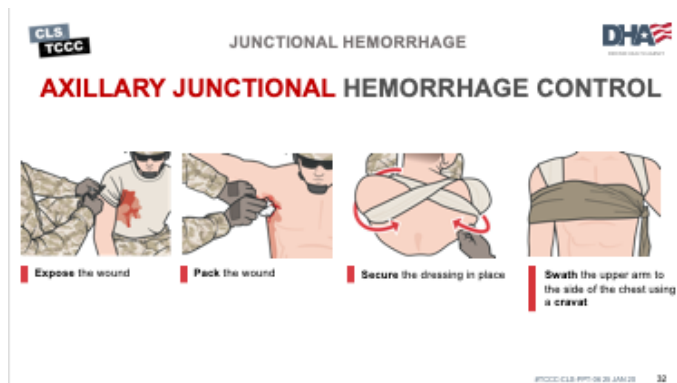
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SLIDE 32 – AXILLARY JUNCTIONAL HEMORRHAGE CONTROL

If there is a suspected 'axillary' wound, compressible (external) hemorrhage **not amenable to limb tourniquet**:

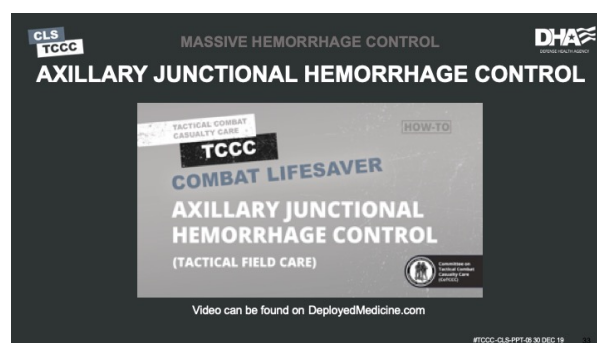
1. Expose the wound to assess it (*Remove only the gear you need to*).
2. Make an effort to locate the source of bleeding and immediately apply direct pressure while retrieving gauze.
3. Carefully pack the wound with hemostatic dressing using your fingers to ensure that the gauze is packed in all parts of the wound. **DO NOT blindly pack a wound.**
4. While packing a wound with gauze, maintain **constant**, direct pressure at the source of bleeding within 90 seconds. The wound should be packed sufficiently to ensure that the **gauze extends 2-3 inches above skin surface**.
5. Once the dressing is applied, hold direct pressure on the gauze over the wound for **at least 3 minutes**.
6. Then, carefully observe for blood continuing to flow from under the gauze to determine if bleeding has been controlled.
7. Once you are sure the bleeding has stopped, apply a pressure bandage over the hemostatic dressing and wrap the long end around the injured shoulder twice ensuring the gauze underneath is completely covered, next wrap the elastic bandage across, back and under the opposite armpit, anchoring around the opposite shoulder in a "figure 8" pattern.
8. Finally, secure the bandage. This will depend on the type of bandage used (either a closure bar or tie tails) and wrap tape a minimum of 1½ times.
9. Swath the upper arm on the injured side to the side of the chest to add pressure to the dressing.



SLIDE 33 – AXILLARY JUNCTIONAL HEMORRHAGE CONTROL (VIDEO)

Play video

1. SAM Junctional Tourniquet
2. Combat Ready Clamp (CRoC)
3. Junctional Emergency Treatment Tool



SLIDE 34 – JUNCTIONAL HEMORRHAGE CONTROL WITH A PRESSURE DELIVERY DEVICE (PDD)

A **Pressure Delivery Device** may be needed to apply additional and targeted pressure to control inguinal/groin hemorrhage.

For groin injuries packed with hemostatic dressings, use an improvised junctional PDD to secure the dressing.

SPEAKER NOTES

A PDD is made using improvised materials, such as a shoe/boot, full water bottle, or canteen, and applies additional pressure to the wound after it has been packed.

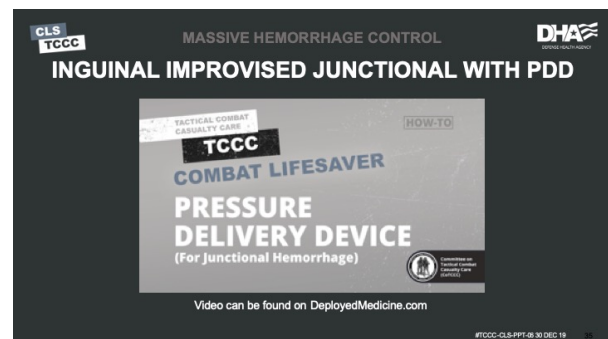
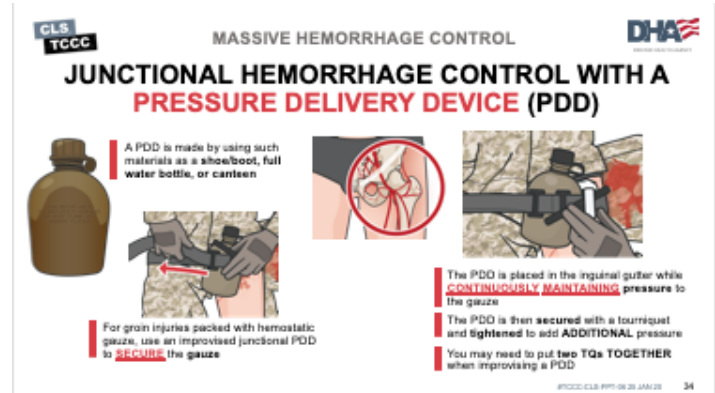
The PDD is placed in the inguinal gutter while continuously maintaining pressure to the dressing.

The PDD is then secured with a tourniquet, which is wrapped over the hips with the windlass or ratchet placed directly over the improvised device and tightened to add additional pressure. You may need to put two tourniquets together when improvising a PDD.

Remember: These are larger blood vessels requiring more pressure (and targeted pressure) than can be applied with a pressure dressing alone.

SLIDE 35 – INGUINAL JUNCTIONAL HEMORRHAGE CONTROL WITH IMPROVISED PRESSURE DELIVERY DEVICE (VIDEO)

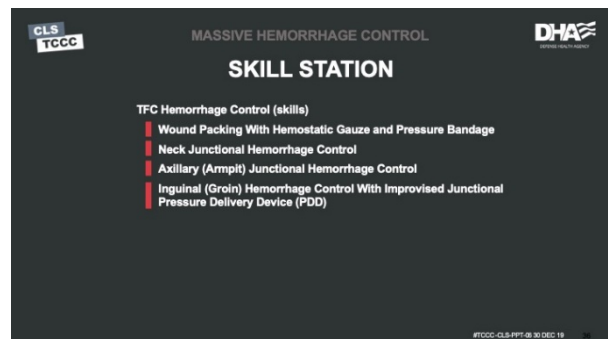
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SLIDE 36 – SKILL STATION

At this time, we will break into skill stations to practice the following skills:

- Wound Packing with Hemostatic dressing and Pressure Bandage
- Neck Junctional Hemorrhage Control
- Axillary (Armpit) Junctional Hemorrhage Control
- Inguinal (Groin) Hemorrhage Control with Improvised Junctional Pressure Delivery Device (PDD)



SLIDE 37 – SUMMARY

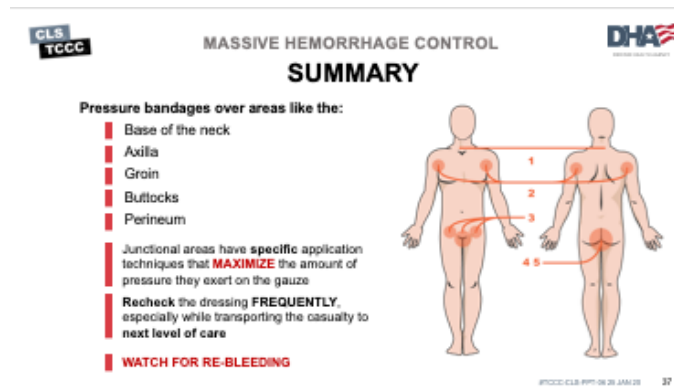
TCCC is broken up into four roles of care.

We covered four Cognitive ELOs, and four Performance ELOs that taught you how to control massive hemorrhage control in TFC.

REMEMBER, Massive bleeding is your #1 priority in treating casualties.

Some of the tools you have available to you are

1) direct pressure, 2) gauze/other dressings, 3) CoTCCC-recommended tourniquets, 4) Pressure Delivery Devices, and 5) hemostatic dressing, and pressure bandages.



You now know the difference between a deliberate and hasty tourniquet and where to apply them and avoid the common pitfalls/mistakes. You have learned that an 'improvised tourniquet' should **ONLY** be used as a **LAST** resort...they **DO NOT** work.

Everyone should have had the chance to apply both a 'ratchet' and 'windlass' tourniquet. What did you learn while applying these tourniquets? We covered the proper technique in packing 'hemostatic dressing', applying direct pressure, and proper application of a pressure bandage in all anatomic locations.

What do you do if the hemostatic dressing you applied has rebleeding? We learned there are certain areas that are **NOT** amendable to limb tourniquets. Where are these areas located?

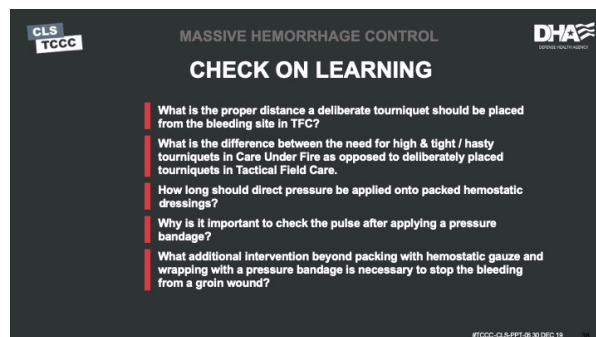
Everyone should have had a chance to practice 1) wound packing with hemostatic dressing and pressure bandage, 2) Neck junctional hemorrhage control, 3) axillary (armpit) junctional hemorrhage control, and 4) inguinal (groin) hemorrhage control with improvised junctional pressure delivery device (PDD).

SLIDE 38 – CHECK ON LEARNING

Ask questions of the learners, referring to key concepts from the module.

Now for a check on learning.

1. What is the proper distance a deliberate tourniquet should be placed from the bleeding site in TFC?
 - 2 to 3 inches above the bleeding site
2. Highlight the difference between the need for high & tight (hasty) tourniquets needed in CUF as opposed to deliberately placed tourniquets in Tactical Field Care.
 - A high & tight (hasty) tourniquet is placed above the clothing as high as possible on the extremity. A deliberate TQ is applied after the wound has been exposed, 2–3 inches above the bleeding site.
 - High & tight (hasty) TQs are applied during CUF, and deliberate TQs are applied during TFC.
3. How long should direct pressure be applied onto packed hemostatic dressings?



SPEAKER NOTES

- 2 minutes
- 4. Why is it important to check the pulse after applying a pressure bandage?
 - If the bandage is too tight, it could block circulation and the bandage should be loosened.
- 5. What additional intervention beyond packing with hemostatic dressing and wrapping with a pressure bandage is needed to stop the bleeding from a groin wound?
 - PDD is needed to secure the dressing.

SLIDE 39 – QUESTIONS

