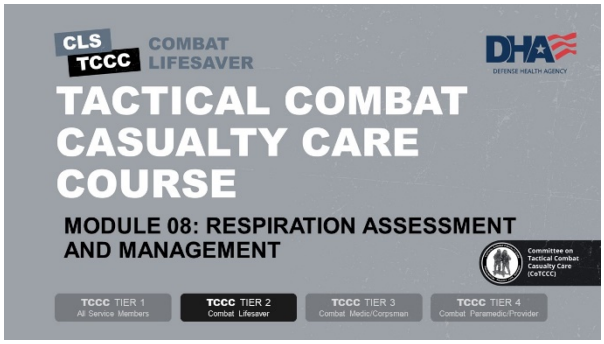
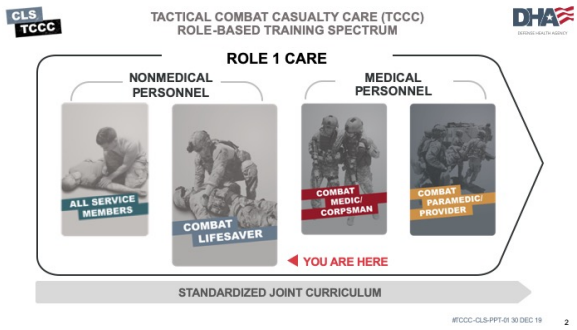
MODULE 08 – RESPIRATION ASSESSMENT AND MANAGEMENT TFC

SLIDE 1 – TITLE SLIDE



SLIDE 2 – TCCC ROLES

Tactical Combat Casualty Care is broken up into 4 roles of care. The most basic is taught to All Service Members (ASM), which is the absolute basics of hemorrhage control and to recognize more serious problems.



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.

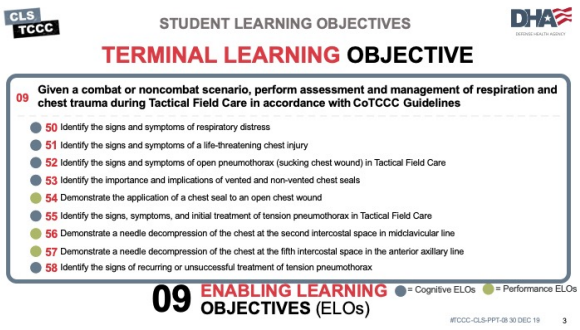
The Combat Medic/Corpsman role has much more advanced and invasive care requiring significantly more medical knowledge and skills.

Finally, the last role 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 combat lifesaver is to treat the most common causes of death on the battlefield, which are massive hemorrhage and airway/respiratory problems. In addition, you are given the skills to prevent complications and treat other associated but not immediately life-threatening injuries.

SLIDE 3 – TLO/ELO

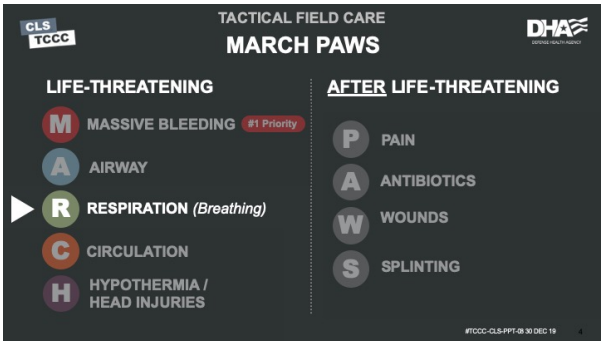
The TCCC-CLS course is built on a foundation of learning objectives. These objectives lay out the basic structure of the course and describe the knowledge and skills you are expected to acquire by the end of the course.



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 cognitive or knowledge learning objectives, and the green dots are performance objectives focused on skills.

SLIDE 4 – MARCH-PAWS

Respiration assessment is the "R" in the MARCH PAWS sequence.



SLIDE 5 – RESPIRATION OVERVIEW (VIDEO)

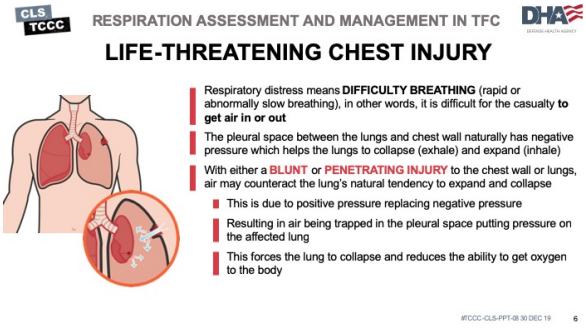
Trainer: *Play video*

SLIDE 6 – LIFE-THREATENING CHEST INJURY

Respiratory distress means difficulty breathing.

The casualty is struggling to get air in or out or his breathing is ineffective.

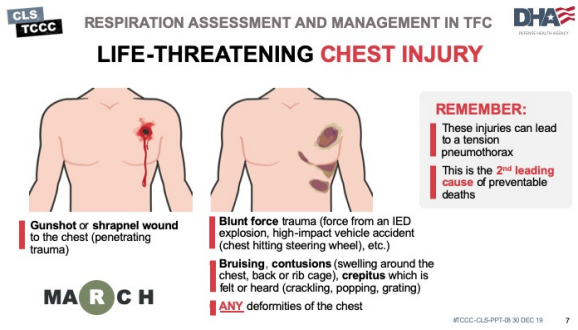
This can result from blunt or penetrating injury.



SLIDE 7 – LIFE-THREATENING CHEST INJURY

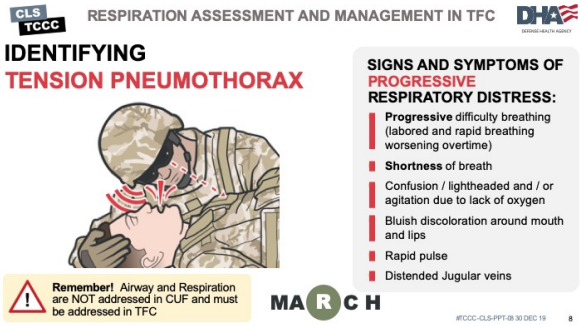
While it may be easy to see a gunshot wound or shrapnel wound to the chest, it is important to evaluate casualties for additional injuries, such as bruising, swelling, or other deformities of the chest not normally seen without removing the clothing.

These injuries may be signs of future life-threatening respiration issues.



SLIDE 8 – IDENTIFYING TENSION PNEUMOTHROAX

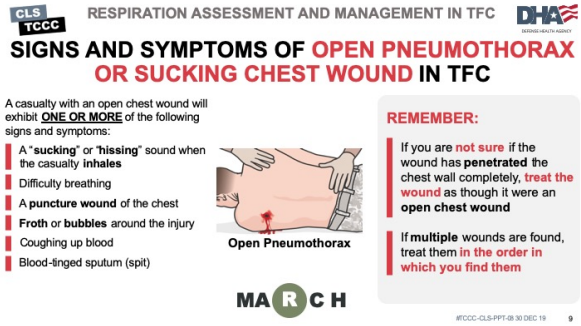
Tension pneumothorax is caused by significant torso (chest) trauma or a blast injury resulting in severe and progressive respiratory distress.



SLIDE 9 – IDENTIFYING SIGNS AND SYMPTOMS OF OPEN PNEUMOTHORAX IN TFC

With an open pneumothorax, also called a sucking chest wound, air enters the pleural space around the lung through a wound in the chest wall.

The elastic lung deflates and pulls away from the chest wall. On inspiration, the air now enters the chest THROUGH THE HOLE instead of INTO THE LUNGS through the normal airways of the mouth and nose. As a result, the affected lung cannot be fully re-inflated by inhalation.

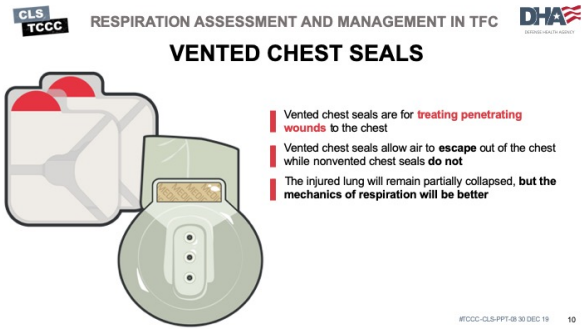


It usually takes a hole in the chest the **size of a nickel or bigger** for a sucking chest wound to occur.

Not all chest wounds are sucking chest wounds; some do not penetrate as deeply as the lung cavity.

SLIDE 10 and SLIDE 11 – VENTED AND NONVENTED CHEST SEALS

Get to know the supplies within your JFAK and CLS kit. Vented chest seals are preferred.



Penetrating chest wounds (open or sucking chest wounds) are treated by applying a chest seal.

Once a wound has been occluded with a chest seal, air can no longer enter (or exit) the pleural space through the wound in the chest wall.

The injured lung will remain partially collapsed, but the mechanics of respiration will be better.

Continue to monitor the casualty after treatment with a chest seal. If the casualty condition worsens, a tension pneumothorax should be suspected.

Burping or removing the dressing may help; otherwise a needle decompression of the chest may be needed.

SLIDE 12 – POSITIONING AFTER TREATMENT

If the casualty is unconscious, place the casualty in the recovery position. If conscious, allow the casualty to adopt the sitting position if that makes breathing more comfortable.

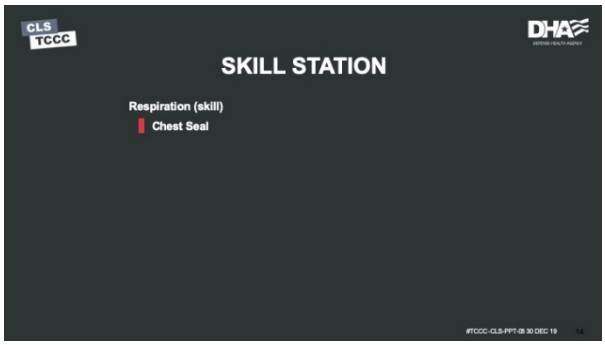
SLIDE 13 – TREATMENT OF OPEN PNEUMOTHORAX WITH CHEST SEAL (VIDEO)

Trainer: *Play video*

SLIDE 14 – SKILL STATION

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

- Chest seal

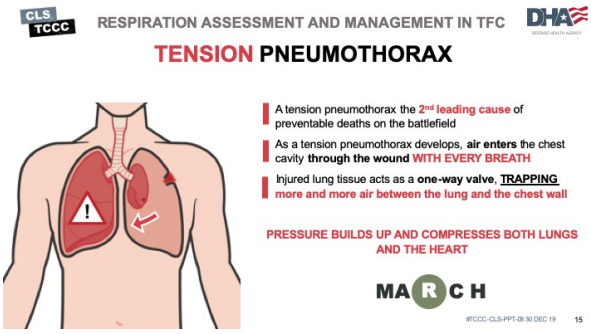


SLIDE 15 – TENSION PNEUMOTHORAX IN TACTICAL FIELD CARE

As a tension pneumothorax develops, air enters the chest cavity through the wound with every inspiration, but doesn't leave with expiration and is trapped.

Every breath adds more air to the air space inside the rib cage and outside the lung, and the pressure inside the chest builds up.

Injured lung tissue acts as a one-way valve, trapping more and more air between the lung and the chest wall.



Pressure builds up and can potentially compress both lungs and the heart.

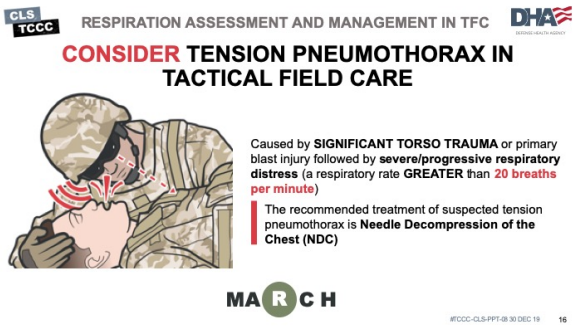
Both lung function and heart function are impaired with a tension pneumothorax, causing respiratory distress and shock. The elevated air pressure **OUTSIDE** the collapsed lung in a tension pneumothorax can impair the function of both lungs and the heart by preventing them from expanding normally. This CAN kill the casualty.

SLIDE 16 – CONSIDER TENSION PNEUMOTHORAX IN TACTICAL FIELD CARE

Signs of tension pneumothorax include early and late signs.

The early signs to look for are:

1. Increased difficulty breathing
2. Rapid or shallow breathing (like being out of breath and not able to take a full breath)
3. Anxiety
4. Agitation
5. Apprehension
6. Decreased level of consciousness or unconsciousness



The late signs may not be displayed or may be displayed only when the casualty's condition has worsened. Late signs that indicate progression of tension pneumothorax include neck veins protruding (distended); tracheal deviation (a shift of the windpipe to the right or left).

These signs may be difficult to assess in a combat situation. You must be alert to the possibility of tension pneumothorax whenever a casualty has a penetrating or other chest wound. Therefore, the sole criterion for suspecting a tension pneumothorax is a chest wound with increasing respiratory difficulty.

It is important to evaluate casualties during TFC for early and late signs of tension pneumothorax. Like bleeding control, tension pneumothorax is treatable. Left untreated, a tension pneumothorax can cause severe respiratory distress, shock, and death.

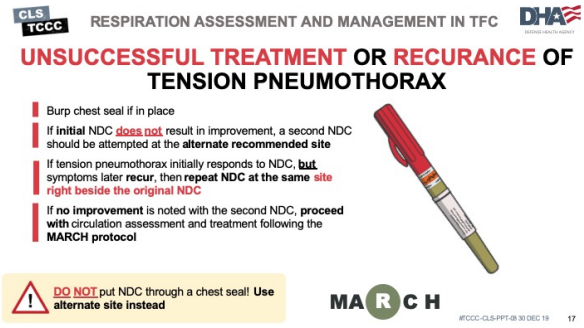
The treatment is to let the air trapped under pressure escape by inserting a needle into the chest.

After initial treatment by CLS, both types of chest injuries (sucking chest wounds and tension pneumothorax) will require advanced evaluation by medical personnel and evacuation.

SLIDE 17 – UNSUCCESSFUL TREATMENT OR RECURANCE OF TENSION PNEUMOTHORAX

If initial treatment of tension pneumothorax with NDC is unsuccessful or if symptoms recur after successful treatment, a second NDC should be attempted.

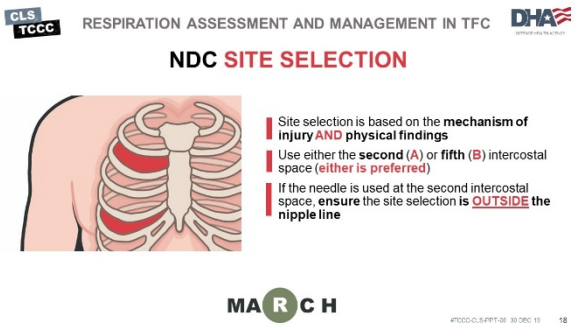
If no improvement is noted after second NDC, proceed with circulation assessment and treatment following the MARCH protocol.



SLIDE 18 – TREATMENT OF TENSION PNEUMOTHORAX

The treatment is to let the air trapped under pressure escape by inserting a needle into the chest. This is called **N**eedle **D**ecompression of the **C**hest (NDC).

The device used for NDC is a catheter over needle device that is found in the JFAK.



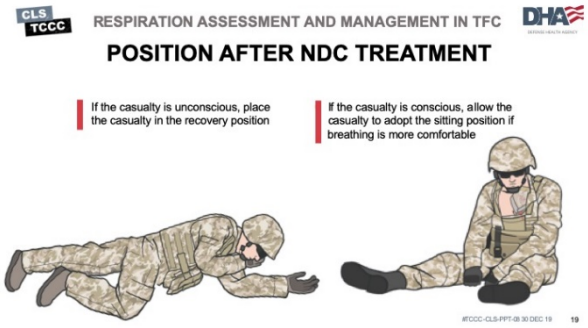
NDC can be performed at either the space between the second and third ribs on the front of the chest (away from the middle of the chest outside the nipple line to avoid the heart) or on the side of the chest between the fifth and sixth ribs.

- Use a 14-gauge or 10-gauge 3¼" needle catheter
- Two options for NDC sites
  - 2nd intercostal space on mid-clavicular line
  - 5th intercostal space on the anterior axillary line
- Watch needle placement to avoid the heart and arteries
- Clean area
- Place needle perpendicular to body
- Hold in place for 5–10 seconds before removing needle and leaving catheter

Document all interventions on the DD Form 1380

SLIDE 19 – POSITIONING AFTER TREATMENT

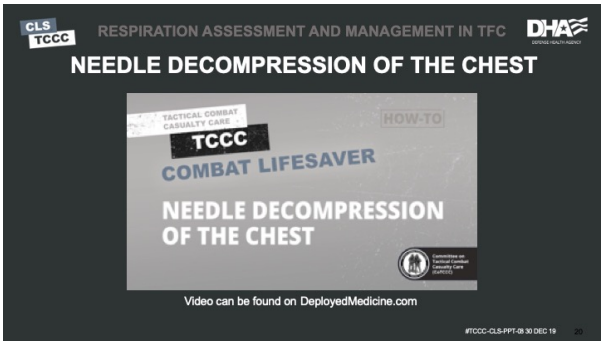
If the casualty is unconscious, place in the recovery position. If conscious, allow the casualty to adopt the sitting position if that makes breathing more comfortable.



SLIDE 20 – NEEDLE DECOMPRESSION OF THE CHEST (NDC) (VIDEO)

Trainer: *Play video*

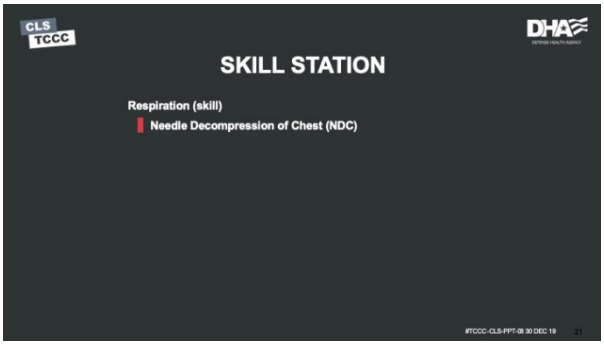
- Use a 14-gauge or 10-gauge 3¼" needle catheter
- Two options for NDC sites
  - 2nd intercostal space on mid-clavicular line
  - 5th intercostal space on the anterior axillary line
- Watch needle placement to avoid the heart and arteries
- Clean area
- Place needle perpendicular to body
- Hold in place for 5–10 seconds before removing needle and leaving catheter
- Document all interventions on the DD Form 1380



SLIDE 21 – SKILL STATION

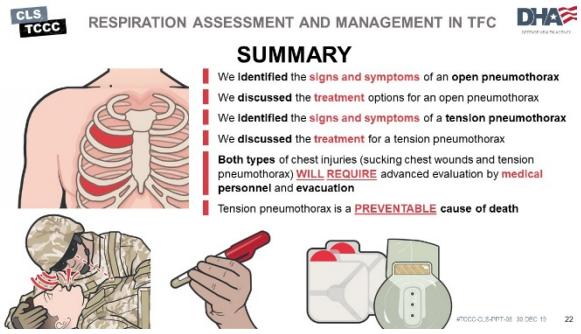
At this time we will break into skill stations to practice the following skills:

- Needle Decompression of Chest (NDC)



SLIDE 22 – SUMMARY

In this module, we discussed respiration assessment and management in Tactical Field Care. We identified the signs and symptoms of an open pneumothorax and of a tension pneumothorax, as well as how to treat both. We emphasized that tension pneumothorax is a preventable cause of death. We also reinforced the need for medical personnel to provide advanced evaluation of these types of chest injuries, along with the need for evacuation.



SLIDE 23 – CHECK ON LEARNING

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

Now for a check on learning.

1. What is a tension pneumothorax?
   - As a tension pneumothorax develops, air enters the chest cavity through the wound with every inspiration, but doesn't leave with expiration and is trapped, so every breath adds more air to the air space inside the rib cage and outside the lung, and the pressure inside the chest builds up and causes the lung to collapse. Injured lung tissue acts as a one-way valve, trapping more and more air between the lung and the chest wall. Pressure builds up and compresses both lungs and the heart.
2. How should you treat an open chest wound?
   - Treat open chest wounds by applying a vented chest seal completely over the wound during expiration.
3. What should you do if you suspect a casualty has a tension pneumothorax?
   - If a chest seal is in place, burp the seal. If there is no improvement after burping the seal perform a needle decompression of the chest.

SLIDE 24 – QUESTIONS