CLS TCCC COMBAT LIFESAVER

DHA DEFENSE HEALTH AGENCY

TACTICAL COMBAT CASUALTY CARE COURSE

MODULE 08: RESPIRATION ASSESSMENT AND MANAGEMENT

Committee on Tactical Combat Casualty Care (CoTCCC)

TCCC TIER 1
All Service Members

TCCC TIER 2
Combat Lifesaver

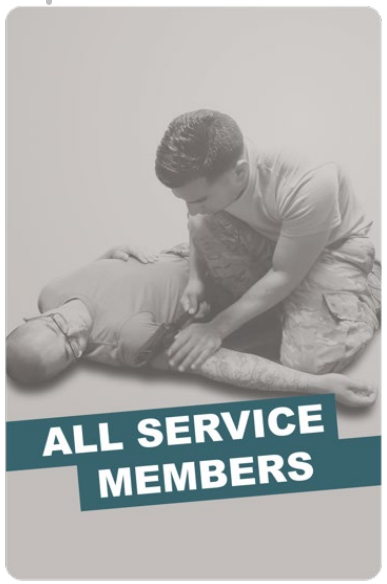
TCCC TIER 3
Combat Medic/Corpsman

TCCC TIER 4
Combat Paramedic/Provider

TACTICAL COMBAT CASUALTY CARE (TCCC)
ROLE-BASED TRAINING SPECTRUM

ROLE 1 CARE

NONMEDICAL PERSONNEL



MEDICAL PERSONNEL

YOU ARE HERE

STANDARDIZED JOINT CURRICULUM

TERMINAL LEARNING OBJECTIVE

09 **Given a combat or noncombat scenario, perform assessment and management of respiration and chest trauma during Tactical Field Care in accordance with CoTCCC Guidelines**

- **50** Identify the signs and symptoms of respiratory distress
- **51** Identify the signs and symptoms of a life-threatening chest injury
- **52** Identify the signs and symptoms of open pneumothorax (sucking chest wound) in Tactical Field Care
- **53** Identify the importance and implications of vented and non-vented chest seals
- **54** Demonstrate the application of a chest seal to an open chest wound
- **55** Identify the signs, symptoms, and initial treatment of tension pneumothorax in Tactical Field Care
- **56** Demonstrate a needle decompression of the chest at the second intercostal space in midclavicular line
- **57** Demonstrate a needle decompression of the chest at the fifth intercostal space in the anterior axillary line
- **58** Identify the signs of recurring or unsuccessful treatment of tension pneumothorax

09 ENABLING LEARNING OBJECTIVES (ELOs)

= Cognitive ELOs = Performance ELOs

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TACTICAL FIELD CARE

MARCH PAWS

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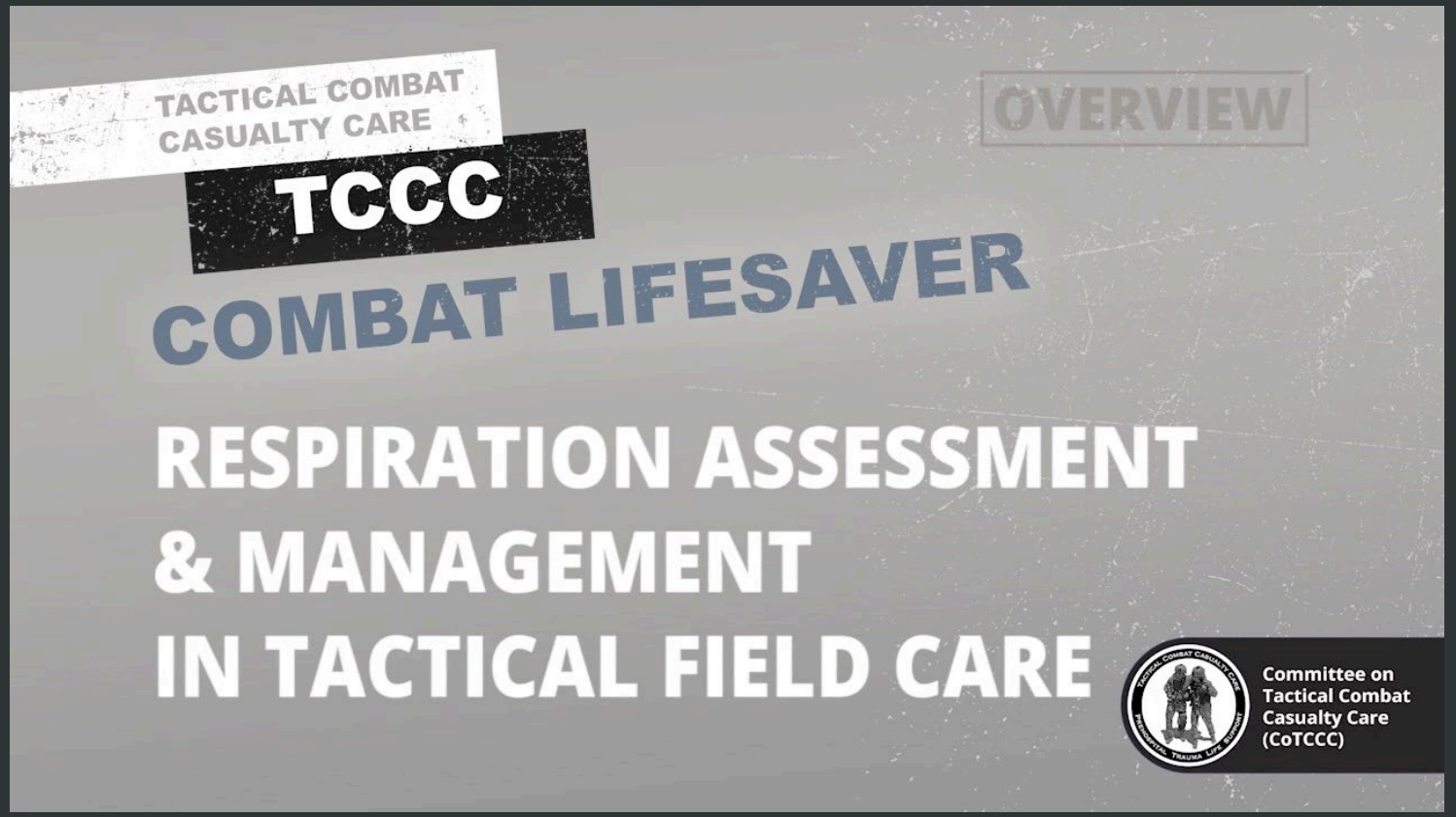
LIFE-THREATENING

- **M** MASSIVE BLEEDING — #1 Priority
- **A** AIRWAY
- **R** **RESPIRATION** *(Breathing)*
- **C** CIRCULATION
- **H** HYPOTHERMIA / HEAD INJURIES

AFTER LIFE-THREATENING

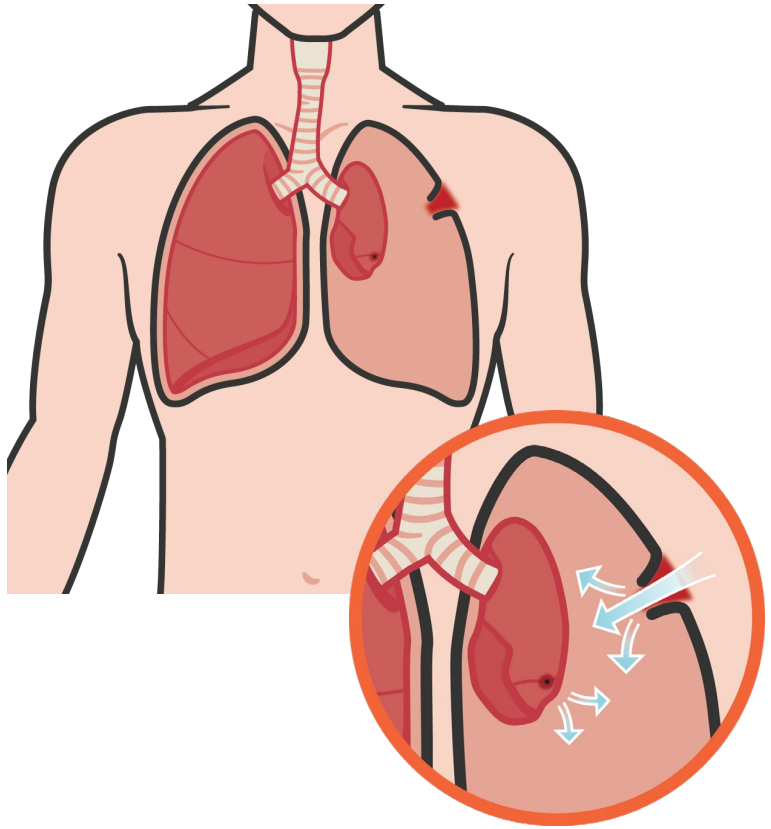
- **P** PAIN
- **A** ANTIBIOTICS
- **W** WOUNDS
- **S** SPLINTING

RESPIRATION OVERVIEW



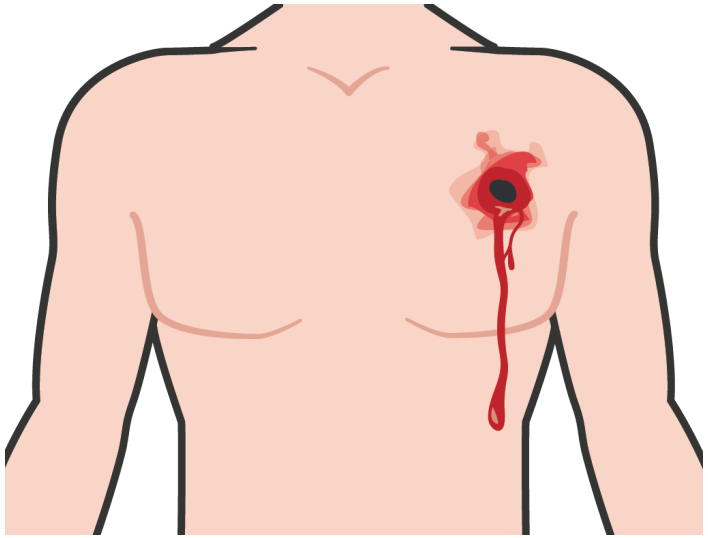
Video can be found on DeployedMedicine.com

LIFE-THREATENING CHEST INJURY

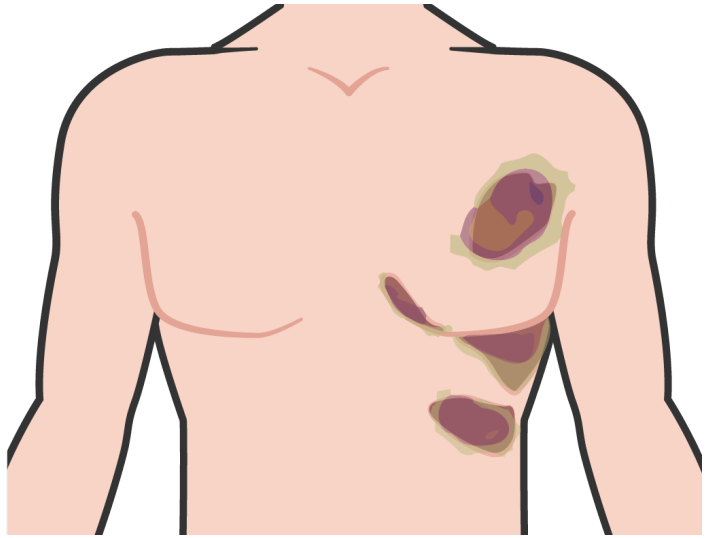


- Respiratory distress means **DIFFICULTY BREATHING** (rapid or abnormally slow breathing), in other words, it is difficult for the casualty **to get air in or out**
- The pleural space between the lungs and chest wall naturally has negative pressure which helps the lungs to collapse (exhale) and expand (inhale)
- With either a **BLUNT** or **PENETRATING INJURY** to the chest wall or lungs, air may counteract the lung's natural tendency to expand and collapse
  - This is due to positive pressure replacing negative pressure
  - Resulting in air being trapped in the pleural space putting pressure on the affected lung
  - This forces the lung to collapse and reduces the ability to get oxygen to the body

LIFE-THREATENING CHEST INJURY



- **Gunshot** or **shrapnel wound** to the chest (penetrating trauma)



- **Blunt force** trauma (force from an IED explosion, high-impact vehicle accident (chest hitting steering wheel), etc.)
- **Bruising**, **contusions** (swelling around the chest, back or rib cage), **crepitus** which is felt or heard (crackling, popping, grating)
- **ANY** deformities of the chest

MARCH

REMEMBER:

- These injuries can lead to a tension pneumothorax
- This is the **2nd leading cause** of preventable deaths

IDENTIFYING TENSION PNEUMOTHORAX

SIGNS AND SYMPTOMS OF PROGRESSIVE RESPIRATORY DISTRESS:

- **Progressive** difficulty breathing (labored and rapid breathing worsening overtime)
- **Shortness** of breath
- Confusion / lightheaded and / or agitation due to lack of oxygen
- Bluish discoloration around mouth and lips
- Rapid pulse
- Distended Jugular veins

Remember! Airway and Respiration are NOT addressed in CUF and must be addressed in TFC

MARCH

SIGNS AND SYMPTOMS OF OPEN PNEUMOTHORAX OR SUCKING CHEST WOUND IN TFC

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

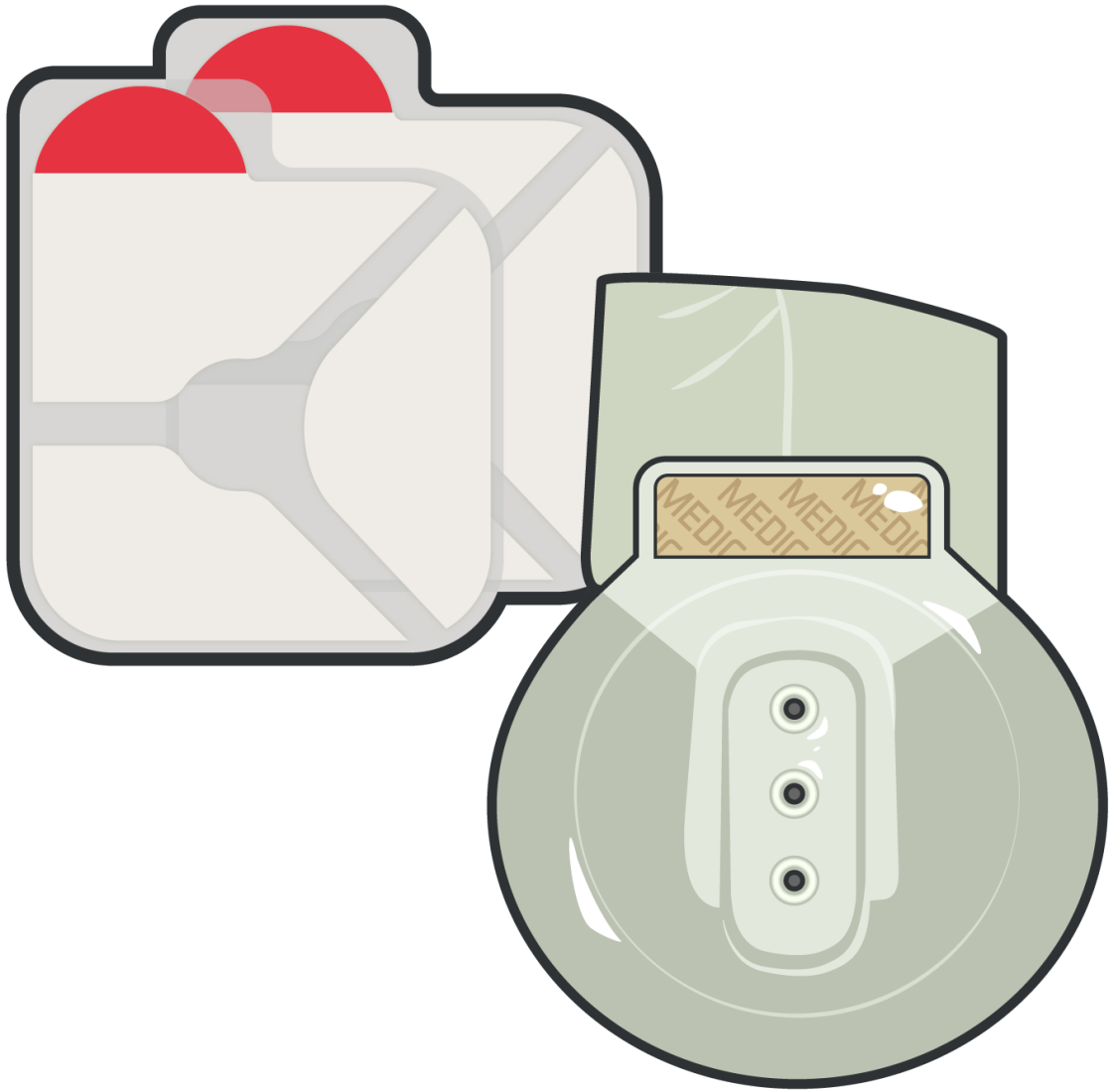
MARCH

REMEMBER:

If you are **not sure** if the wound has **penetrated** the chest wall completely, **treat the wound** as though it were an **open chest wound**

If **multiple** wounds are found, treat them **in the order in which you find them**

VENTED CHEST SEALS



- Vented chest seals are for **treating penetrating wounds** to the chest
- Vented chest seals allow air to **escape** out of the chest while nonvented chest seals **do not**
- The injured lung will remain partially collapsed, **but the mechanics of respiration will be better**

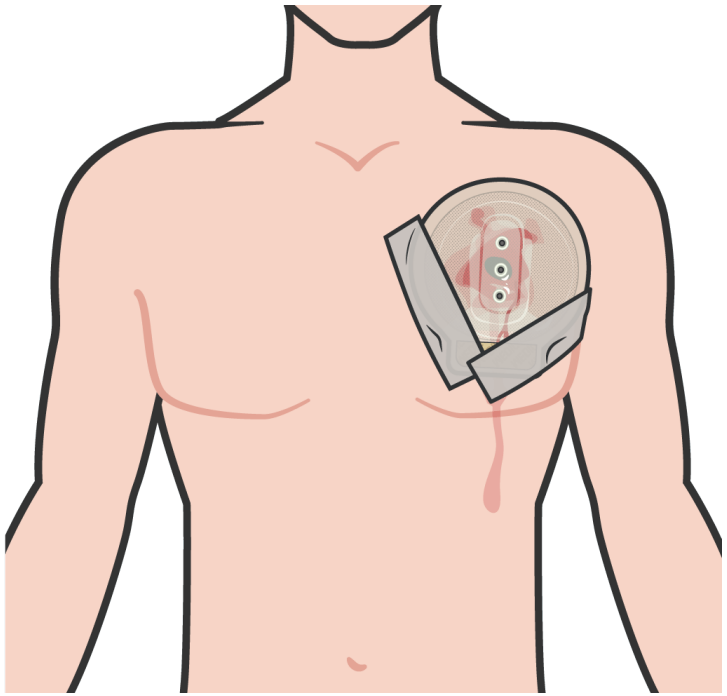
VENTED AND NONVENTED CHEST SEALS

Recommended treatment for **open** or **sucking** chest wounds is **prompt application** of a vented chest seal:

- If vented chest seal is **not** available, a nonvented chest seal should be used

Vented chest seals allow air to **escape** out of the chest while nonvented chest seals **do not**

- 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 valve



MONITOR the casualty **closely** and if their condition **worsens**, you should **suspect a tension pneumothorax**. **Treat this by burping or temporarily removing the dressing**

MARCH

POSITION AFTER OCCLUSIVE DRESSING TREATMENT

If the casualty is unconscious, place the casualty in the recovery position

If the casualty is conscious, allow the casualty to adopt the sitting position if breathing is more comfortable

CHEST SEAL

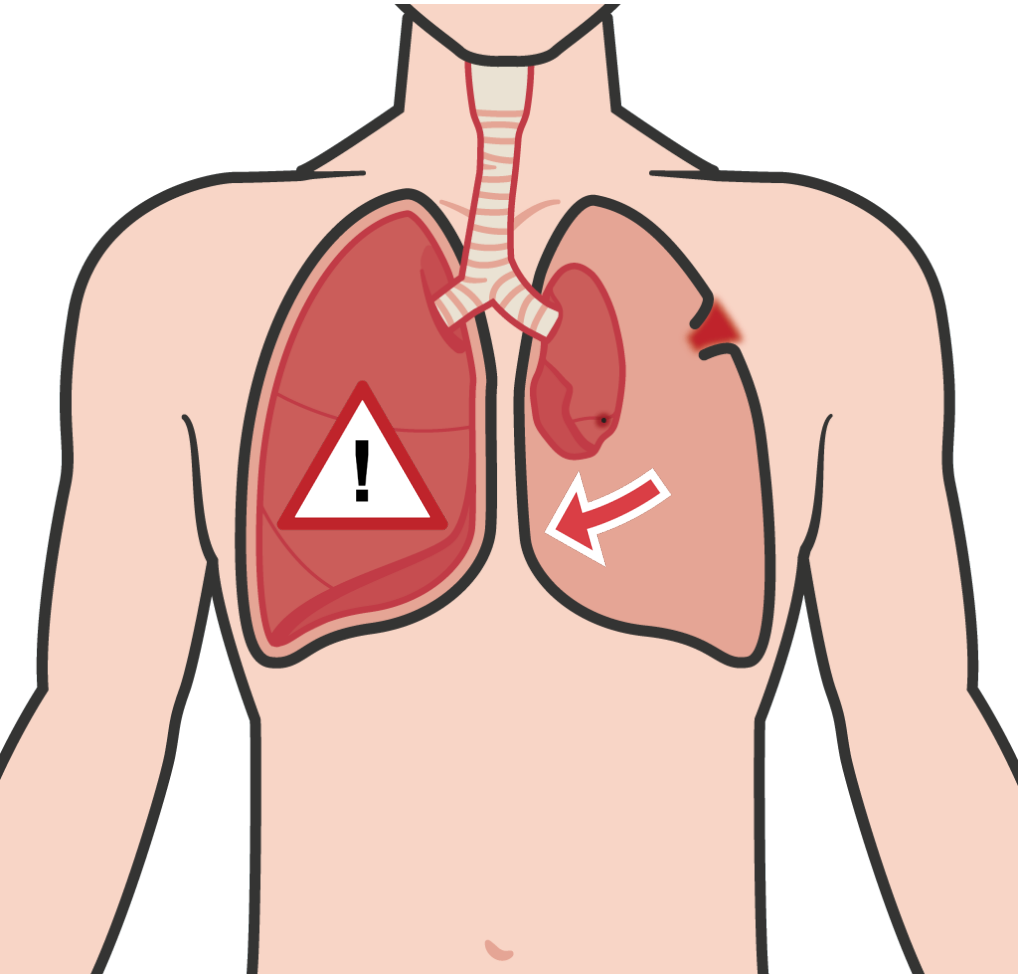
Video can be found on DeployedMedicine.com

SKILL STATION

Respiration (skill)

- **Chest Seal**

TENSION PNEUMOTHORAX



- A tension pneumothorax the **2nd leading cause** of preventable deaths on the battlefield
- As a tension pneumothorax develops, **air enters** the chest cavity **through the wound** **WITH EVERY BREATH**
- 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

MARCH

CONSIDER TENSION PNEUMOTHORAX IN TACTICAL FIELD CARE

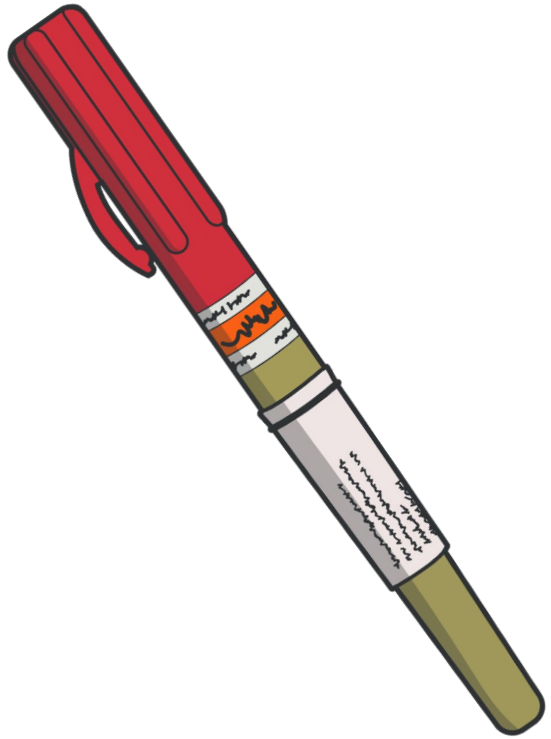
Caused by **SIGNIFICANT TORSO TRAUMA** or primary blast injury followed by **severe/progressive respiratory distress** (a respiratory rate **GREATER** than **20 breaths per minute**)

> The recommended treatment of suspected tension pneumothorax is **Needle Decompression of the Chest (NDC)**

MARCH

UNSUCCESSFUL TREATMENT OR RECURANCE OF TENSION PNEUMOTHORAX

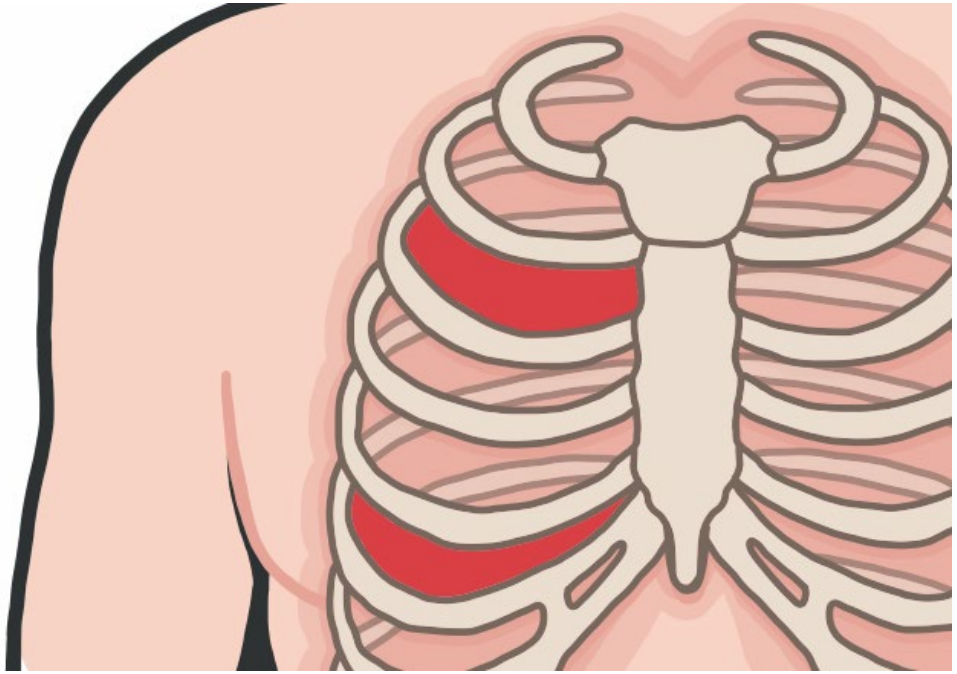
- Burp chest seal if in place
- If **initial** NDC **does not** result in improvement, a second NDC should be attempted at the **alternate recommended site**
- If tension pneumothorax initially responds to NDC, **but** symptoms later **recur**, then **repeat NDC at the same site right beside the original NDC**
- If **no improvement** is noted with the second NDC, **proceed with** circulation assessment and treatment following the **MARCH protocol**



DO NOT put NDC through a chest seal! **Use alternate site instead**

MARCH

NDC SITE SELECTION



- Site selection is based on the **mechanism of injury** AND **physical findings**
- Use either the **second** (A) or **fifth** (B) intercostal space (**either is preferred**)
- If the needle is used at the second intercostal space, **ensure** the site selection **is** OUTSIDE **the nipple line**

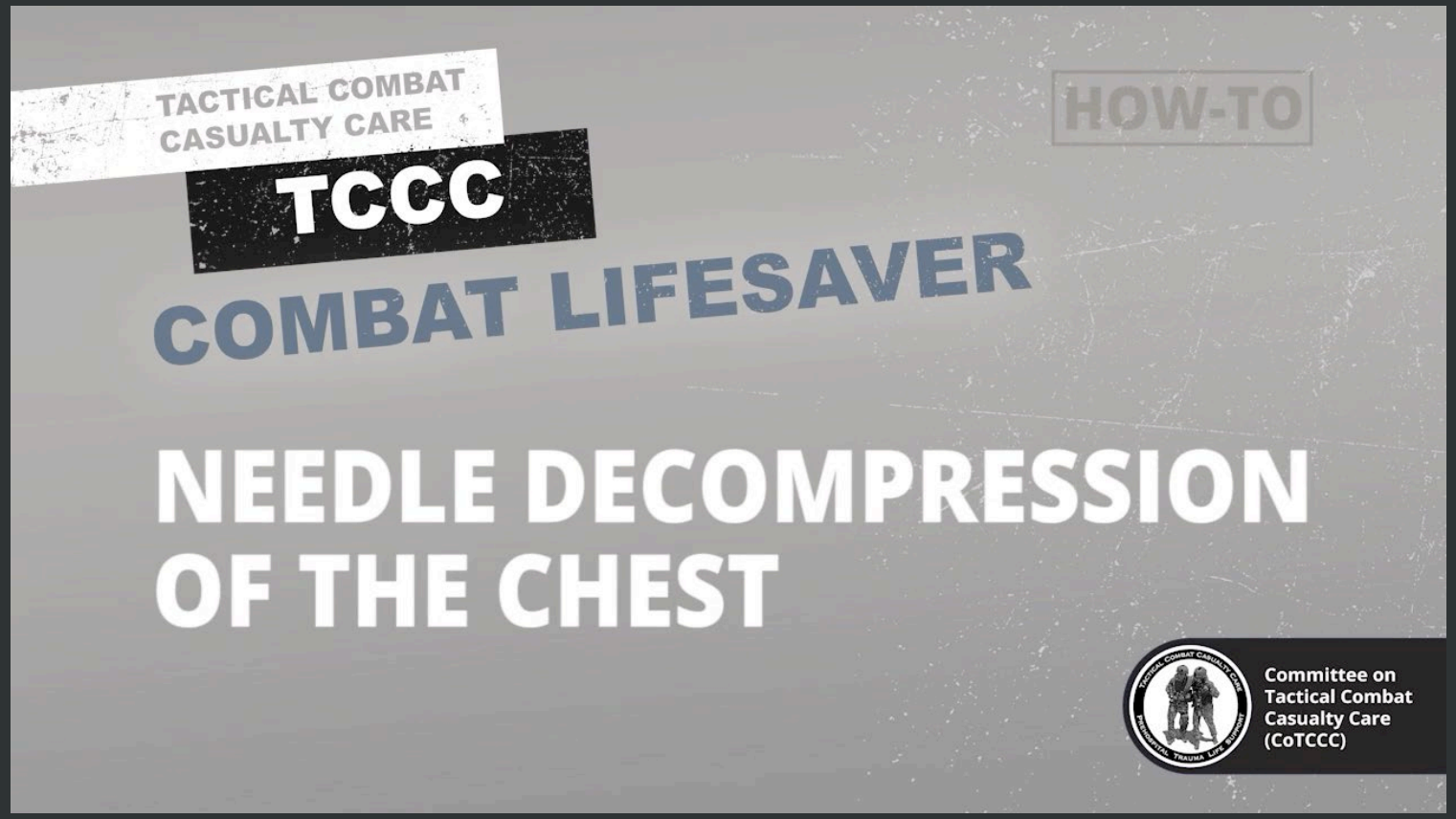
MARCH

POSITION AFTER NDC TREATMENT

If the casualty is unconscious, place the casualty in the recovery position

If the casualty is conscious, allow the casualty to adopt the sitting position if breathing is more comfortable

NEEDLE DECOMPRESSION OF THE CHEST



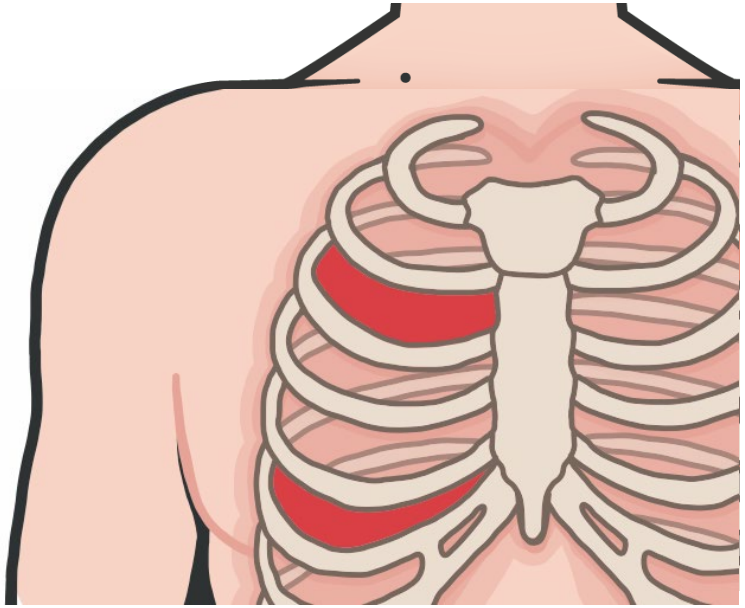
Video can be found on DeployedMedicine.com

SKILL STATION

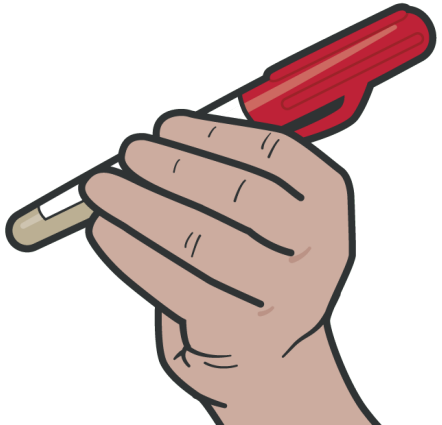
Respiration (skill)

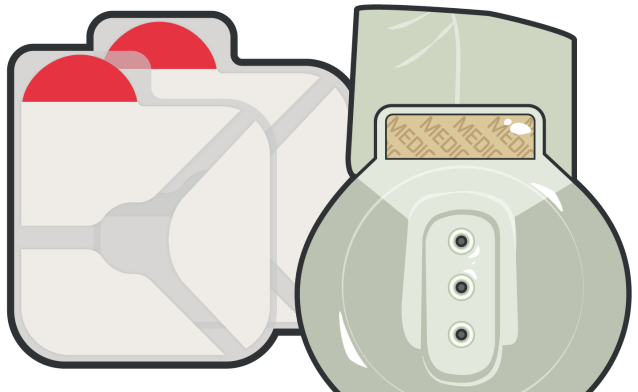
- **Needle Decompression of Chest (NDC)**

SUMMARY



- We **identified** the **signs and symptoms** of an **open pneumothorax**
- We **discussed** the **treatment** options for an open pneumothorax
- We **identified** the **signs and symptoms** of a **tension pneumothorax**
- We **discussed** the **treatment** for a tension pneumothorax
- **Both types** of chest injuries (sucking chest wounds and tension pneumothorax) **WILL REQUIRE** advanced evaluation by **medical personnel** and **evacuation**
- Tension pneumothorax is a **PREVENTABLE** **cause of death**





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CHECK ON LEARNING

- What is a tension pneumothorax?
- How should you treat an open chest wound?
- What should you do if you suspect a casualty has a tension pneumothorax?

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ANY QUESTIONS?