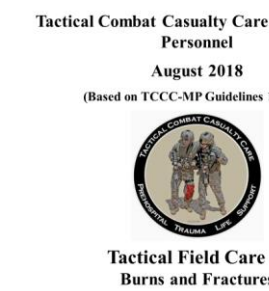
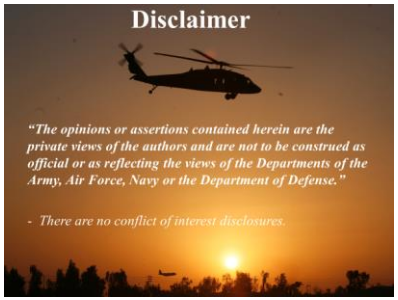
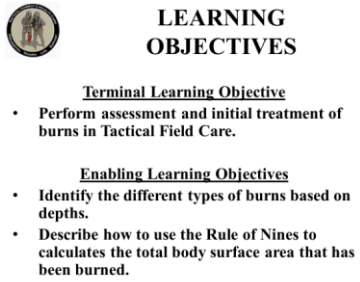
1.		**Tactical Combat Casualty Care for Medical Personnel** **August 2017** **(Based on TCCC-MP Guidelines 180801** **Tactical Field Care 3b** **Burns and Fractures**	In this presentation, we will discuss the management of burns and fractures in TFC.
2.		**Disclaimer** ***"The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Departments of the Army, Air Force, Navy or the Department of Defense."*** - ***There are no conflict of interest disclosures.***	Read the disclaimer.
3.		**LEARNING OBJECTIVES** Terminal Learning Objective • Perform assessment and initial treatment of burns in Tactical Field Care. Enabling Learning Objectives • Identify the different types of burns based on depths. • Describe how to use the Rule of Nines to calculates the total body surface area that has been burned.	Read the text.

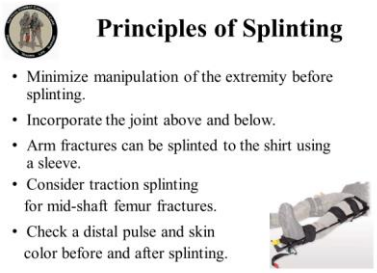
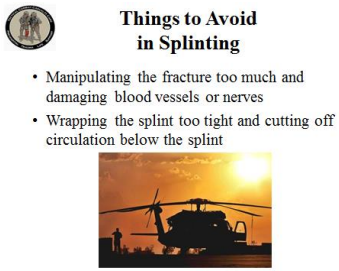
4.	**LEARNING OBJECTIVES** Enabling Learning Objectives • Describe the fluid resuscitation strategy for burned casualties using the USAISR Rule of Tens. • Describe the techniques used to cover burn areas and to protect the casualty from hypothermia. • Identify the airways and pulmonary complications that can ensue from burns and the associated smoke inhalation.	**LEARNING OBJECTIVES** Enabling Learning Objectives • Describe the fluid resuscitation strategy for burned casualties using the USAISR Rule of Tens. • Describe the techniques used to cover burn areas and to protect the casualty from hypothermia. • Identify the airways and pulmonary complications that can ensue from burns and the associated smoke inhalation.	Read the text.
5.	**LEARNING OBJECTIVES** Terminal Learning Objective • Perform assessment and initial treatment of fractures in Tactical Field Care. Enabling Learning Objectives • Identify the signs, symptoms, and considerations of a fractured extremity in tactical field care. • Describe the application of a splint to a suspected fracture in Tactical Field Care.	**LEARNING OBJECTIVES** Terminal Learning Objective • Perform assessment and initial treatment of fractures in Tactical Field Care. Enabling Learning Objectives • Identify the signs, symptoms, and considerations of a fractured extremity in tactical field care. • Describe the application of a splint to a suspected fracture in Tactical Field Care.	Read the text.
6.	**Tactical Field Care Guidelines** 14. Burns a. Facial burns, especially those that occur in closed spaces, may be associated with inhalation injury. Aggressively monitor airway status and oxygen saturation in such patients and consider early surgical airway for respiratory distress or oxygen desaturation. b. Estimate total body surface area (TBSA) burned to the nearest 10% using the Rule of Nines. 	**Tactical Field Care Guidelines** 14. Burns a. Facial burns, especially those that occur in closed spaces, may be associated with inhalation injury. Aggressively monitor airway status and oxygen saturation in such patients and consider early surgical airway for respiratory distress or oxygen desaturation. b. Estimate total body surface area (TBSA) burned to the nearest 10% using the Rule of Nines.	Read the guidelines.

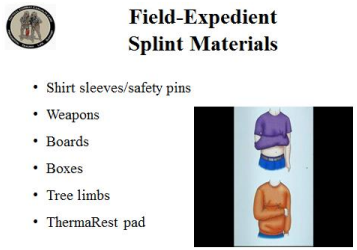
7.	**Tactical Field Care Guidelines** **14. Burns (cont)** **c. Cover the burn area with dry, sterile dressings. For extensive burns (>20%), consider placing the casualty in the Heat Reflective Shell or Blizzard Survival Blanket from the Hypothermia Prevention Kit in order to both cover the burned areas and prevent hypothermia.** 	**Tactical Field Care Guidelines** 14. Burns (cont) c. Cover the burn area with dry, sterile dressings. For extensive burns (>20%), consider placing the casualty in the Heat Reflective Shell or Blizzard Survival Blanket from the Hypothermia Prevention Kit in order to both cover the burned areas and prevent hypothermia.	Read the guideline.
8.	**Tactical Field Care Guidelines** **14. Burns (cont)** **d. Fluid resuscitation (USAISR Rule of Ten)** **• If burns are greater than 20% of TBSA, fluid resuscitation should be initiated as soon as IV/IO access is established. Resuscitation should be initiated with Lactated Ringer's, normal saline, or Hextend. If Hextend is used, no more than 1000 ml should be given, followed by Lactated Ringer's or normal saline as needed.**	**Tactical Field Care Guidelines** 14. Burns (cont) d. Fluid resuscitation (USAISR Rule of Ten) ● If burns are greater than 20% of TBSA, fluid resuscitation should be initiated as soon as IV/IO access is established. Resuscitation should be initiated with Lactated Ringer's, normal saline, or Hextend. If Hextend is used, no more than 1000 ml should be given, followed by Lactated Ringer's or normal saline as needed.	Read the guideline.

9.	 **Tactical Field Care Guidelines** **14. Burns** **d. Fluid resuscitation (USAISR Rule of Ten) (cont)** • **Initial IV/IO fluid rate is calculated as %TBSA x 10ml/hr for adults weighing 40-80 kg.** • **For every 10 kg ABOVE 80 kg, increase initial rate by 100 ml/hr.** • **If hemorrhagic shock is also present, resuscitation for hemorrhagic shock takes precedence over resuscitation for burn shock. Administer IV/IO fluids per the TCCC Guidelines in Section (6).**	**Tactical Field Care Guidelines** 14. Burns d. Fluid resuscitation (USAISR Rule of Ten) (cont) • Initial IV/IO fluid rate is calculated as %TBSA x 10ml/hr for adults weighing 40-80 kg. • For every 10 kg ABOVE 80 kg, increase initial rate by 100 ml/hr. • If hemorrhagic shock is also present, resuscitation for hemorrhagic shock takes precedence over resuscitation for burn shock. Administer IV/IO fluids per the TCCC Guidelines in Section (6).	Read the guideline.
10.	 **Tactical Field Care Guidelines** **14. Burns (cont)** **e. Analgesia in accordance with TCCC Guidelines in Section (10) may be administered to treat burn pain.** **f. Prehospital antibiotic therapy is not indicated solely for burns, but antibiotics should be given per TCCC guidelines in Section (11) if indicated to prevent infection in penetrating wounds.**	**Tactical Field Care Guidelines** 14. Burns (cont) e. Analgesia in accordance with TCCC Guidelines in Section (10) may be administered to treat burn pain. f. Prehospital antibiotic therapy is not indicated solely for burns, but antibiotics should be given per TCCC guidelines in Section (11) if indicated to prevent infection in penetrating wounds.	Read the guidelines.
11.	 **Tactical Field Care Guidelines** **14. Burns (cont)** **g. All TCCC interventions can be performed on or through burned skin in a burn casualty.** **h. Burn patients are particularly susceptible to hypothermia. Extra emphasis should be placed on barrier heat loss prevention methods.**	**Tactical Field Care Guidelines** 14. Burns (cont) g. All TCCC interventions can be performed on or through burned skin in a burn casualty. h. Burn patients are particularly susceptible to hypothermia. Extra emphasis should be placed on barrier heat loss prevention methods.	Read the guidelines.

12.	**Burns in Tactical Field Care Video** 	**Burns in Tactical Field Care Video**	Click on the photo to play the video.
13.	**Tactical Field Care Guidelines** 15. Splint fractures and recheck pulses. 	**Tactical Field Care Guidelines** 15. Splint fractures and recheck pulses.	Read the guideline.
14.	**Fractures: Open or Closed** • Open Fracture – associated with an overlying skin wound • Closed Fracture – no overlying skin wound Open fracture  Closed fracture 	**Fractures: Open or Closed** • Open Fracture – associated with an overlying skin wound • Closed Fracture – no overlying skin wound	Open fractures present a major threat of serious infection.

15.	**Clues to a Closed Fracture** • Trauma with significant pain AND • Marked swelling • Audible or perceived snap • Different length or shape of limb • Loss of pulse or sensation distally • Crepitus (“crunchy” sound)	**Clues to a Closed Fracture** • Trauma with significant pain AND • Marked swelling • Audible or perceived “snap” • Different length or shape of limb • Loss of pulse or sensation distally • Crepitus (“crunchy” sound)	What are the warning signs that an arm or leg might be fractured?
16.	**Splinting Objectives** • Prevent further injury • Protect blood vessels and nerves - Check pulse before and after splinting • Make casualty more comfortable 	**Splinting Objectives** • Prevent further injury • Protect blood vessels and nerves - Check pulse before and after splinting • Make casualty more comfortable	Why do we take the time to splint fractures?
17.	**Principles of Splinting** • Check for other injuries • Use rigid or bulky materials • Try to pad or wrap if using rigid splint • Secure splint with ace wrap, cravats, belts, duct tape • Try to splint before moving casualty	**Principles of Splinting** • Check for other injuries • Use rigid or bulky materials • Try to pad or wrap if using a rigid splint • Secure splint with ace wrap, cravats, belts, duct tape • Try to splint before moving the casualty	Here are some of the things that you want to do when splinting a fracture.

18.		**Principles of Splinting** • Minimize manipulation of the extremity before splinting. • Incorporate the joint above and below. • Arm fractures can be splinted to the shirt using a sleeve. • Consider traction splinting for mid-shaft femur fractures. • Check a distal pulse and skin color before and after splinting.	And here are a few more of the things that you want to do when splinting a fracture. The splint shown here is a traction splint.
19.		**Things to Avoid in Splinting** • Manipulating the fracture too much and damaging blood vessels or nerves • Wrapping the splint too tight and cutting off circulation below the splint	You can do harm with splinting as well.
20.		**Commercial Splints**	A pneumatic splint and a flexible type splint are shown here.

21.		**Field-Expedient Splint Materials** • Shirt sleeves/safety pins • Weapons • Boards • Boxes • Tree limbs • ThermaRest pad	Remember to pad rigid splints. **If you use a weapon as a splint – don't forget to unload and safe it first!**
22.		**Don't Forget!** Pulse, motor and sensory checks before and after splinting!	The most important aspect of splinting is to splint in a way that does not harm the nerves or blood vessels to the extremity. Check for this by assessing circulation and motor and sensory status before and after splinting.
23.		**Questions?**	