

# **Tactical Combat Casualty Care for Medical Personnel**

## **August 2017**

**(Based on TCCC-MP Guidelines 170131)**



## **Tactical Field Care #3**



# OBJECTIVES

- **DESCRIBE** the rationale for early antibiotic intervention in combat casualties.
- **DISCUSS** the management of burns in TFC.
- **EXPLAIN** why cardiopulmonary resuscitation is not generally used for cardiac arrest in battlefield trauma care.
- **DESCRIBE** the procedure for documenting TCCC care with the TCCC Casualty Card.



# OBJECTIVES

- **DESCRIBE** the three ISAF categories for evacuation priority
- **LIST** the nine items in a MEDEVAC request
- **DISCUSS** the rules of thumb for calling for Tactical Evacuation and the importance of careful calculation of the risk/benefit ratio prior to initiating the call
- **DESCRIBE** the appropriate procedures for providing trauma care for wounded hostile combatants.



# Tactical Field Care Guidelines

11. Antibiotics: recommended for all open combat wounds:

a. If able to take PO meds:

- Moxifloxacin (from the CWMP), 400 mg PO one a day

b. If unable to take PO (shock, unconsciousness):

- Ertapenem, 1 g IV/IM once a day

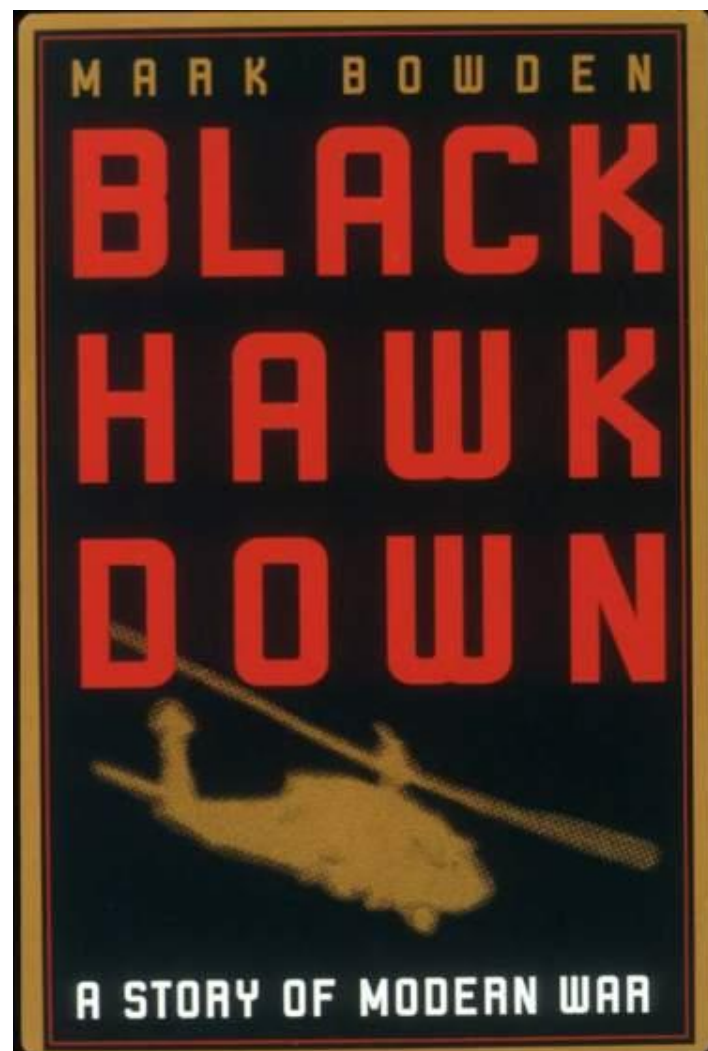




# Outcomes: Without Battlefield Antibiotics

- Mogadishu 1993
- Casualties: 58
- Wound Infections: 16
- Infection rate: 28%
- Time from wounding to Level II care – 15 hrs.

*Mabry et al*  
*J Trauma 2000*





# Outcomes: With Battlefield Antibiotics

Tarpey – AMEDD J 2005:

- 32 casualties with open wounds
- All received battlefield antibiotics
- None developed wound infections
- Used TCCC recommendations modified by availability:
  - Levofloxacin for an oral antibiotic
  - IV cefazolin for extremity injuries
  - IV ceftriaxone for abdominal injuries.



# Outcomes: With Battlefield Antibiotics

- MSG Ted Westmoreland
- Special Operations Medical Association presentation 2004
- Multiple casualty scenario involving 19 Ranger and Special Forces WIA as well as 30 Iraqi WIA
- 11-hour delay to hospital care
- Battlefield antibiotics given
- No wound infections developed in this group.



# Battlefield Antibiotics



**Recommended for all open wounds on  
the battlefield!**

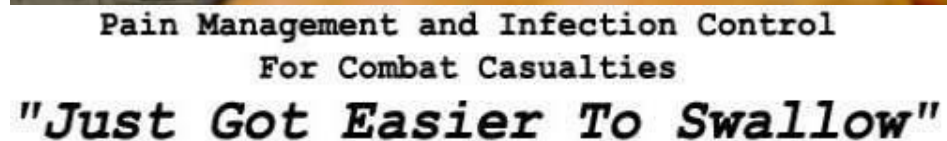
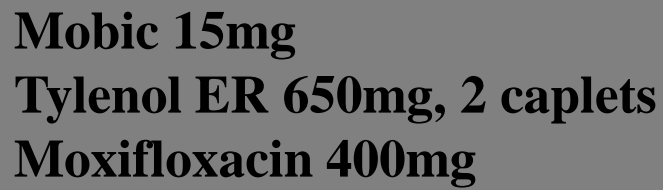


# Battlefield Antibiotics

If casualty can take PO meds:

- Moxifloxacin 400 mg, one tablet daily
  - Broad spectrum – kills most bacteria
  - Few side effects
  - Take as soon as possible after life-threatening conditions have been addressed
  - Delays in antibiotic administration increase the risk of wound infections







# Battlefield Antibiotics

- Casualties who cannot take PO meds:
  - Ertapenem 1 gm IV/IM once a day
    - IV requires a 30-minute infusion time.  
(1 gram vial of ertapenem in 10ml of 0.9% saline. Shake well to dissolve and immediately transfer to 50ml of 0.9% saline.)
    - IM should be diluted with lidocaine.  
(1 gm vial ertapenem with 3.2cc lidocaine without epinephrine)





# Medication Allergies

- **Screen your units for drug allergies!**
- Patients with allergies to aspirin or other non-steroidal anti-inflammatory drugs should not use Mobic.
- Allergic reactions to acetaminophen are uncommon.
- Patients with allergies to flouoroquinolones, penicillins, and cephalosporins may need alternate antibiotics which should be selected by unit medical personnel during the pre-deployment phase. **Check with your unit physician if unsure.**





# IV Meds Practical

- TXA
- Ketamine





# Tactical Field Care Guidelines

12. Inspect and dress known wounds.
13. Check for additional wounds.





# 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.





# Degrees of Burns

Superficial burn  
“First Degree”



Partial thickness burn  
“Second degree”





# Degrees of Burns

Full-thickness burn  
“Third degree”



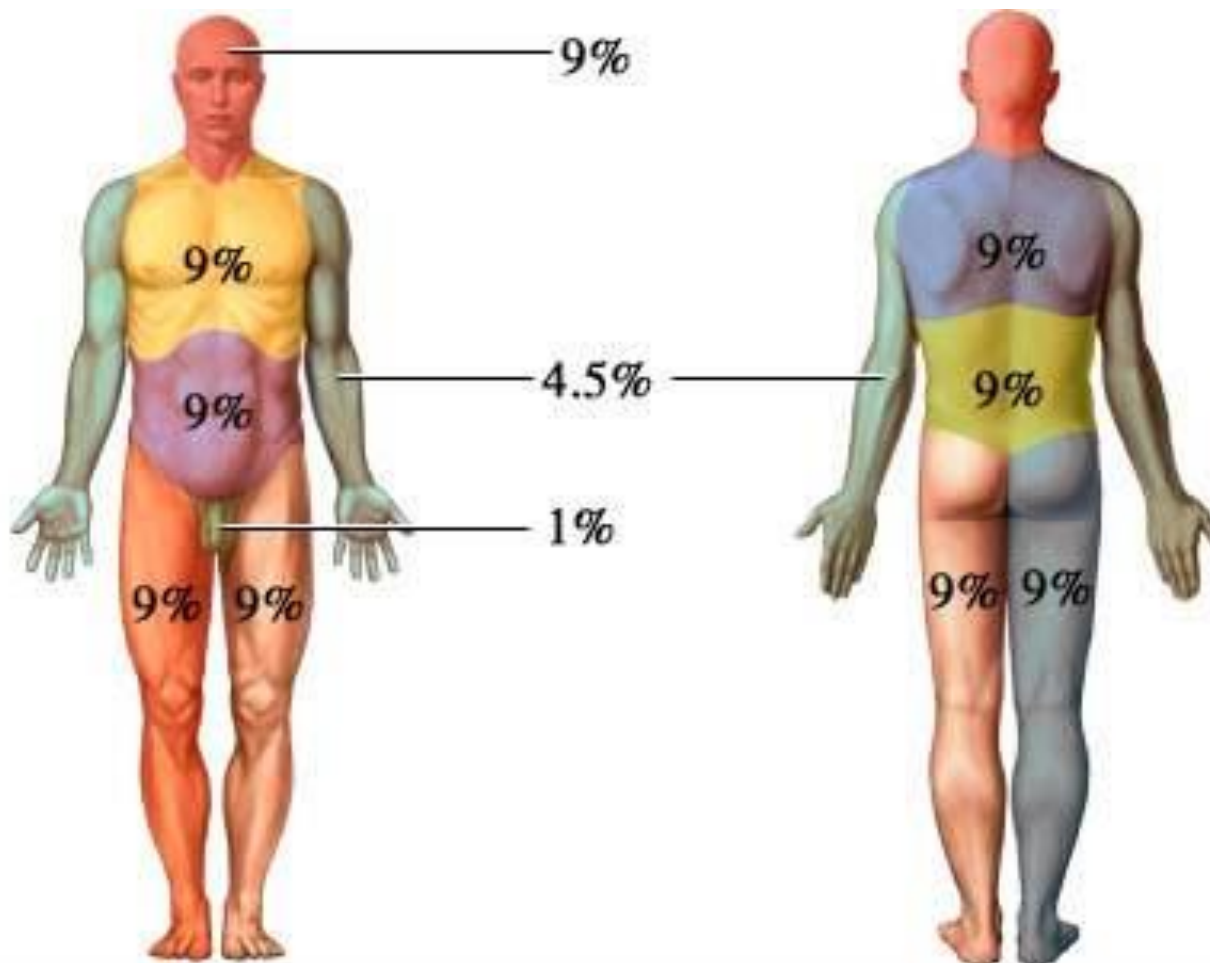
Deep(subdermal) burn  
“Fourth-degree”







# Rule of Nines for Calculating Burn Area



Do not count superficial (first degree) burns in calculating TBSA burned.



# 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)

### 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

### 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 (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)

- 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.



# Burns in Tactical Field Care

*These casualties are “Trauma casualties with burns” - not the other way around.*

*US Army ISR Burn Center*





# Tactical Field Care Guidelines

15. Splint fractures and recheck pulses.





# Fractures:

## Open or Closed

- Open Fracture – associated with an overlying skin wound
- Closed Fracture – no overlying skin wound

Open fracture



Closed fracture





# 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)





# Splinting Objectives

- Prevent further injury
- Protect blood vessels and nerves
  - Check pulse before and after splinting
- Make casualty more comfortable







# 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



# 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.





# 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





# Commercial Splints





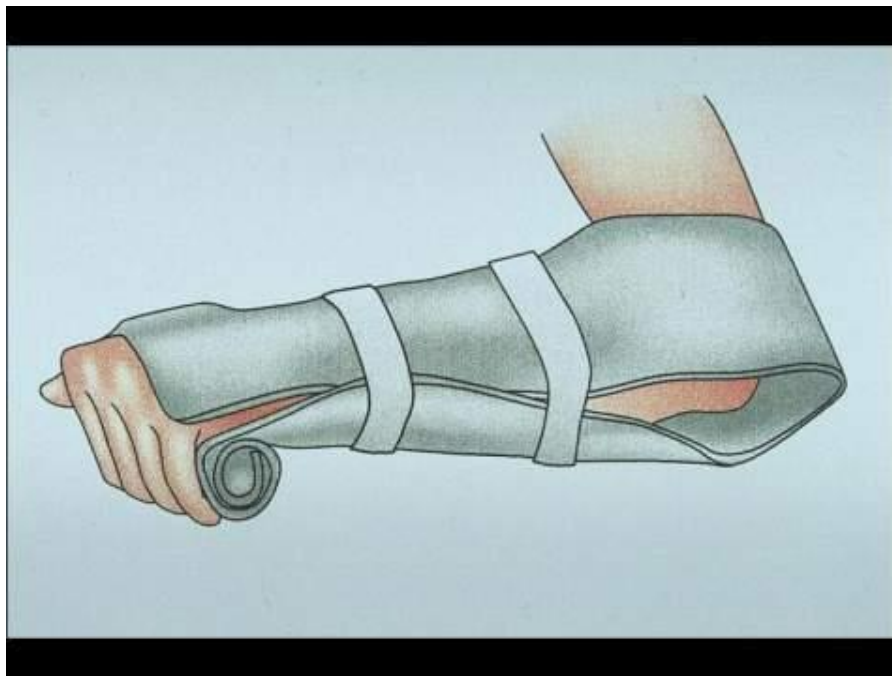
# Field-Expedient Splint Materials

- Shirt sleeves/safety pins
- Weapons
- Boards
- Boxes
- Tree limbs
- ThermoRest pad





# Don't Forget!



Pulse, motor and sensory checks before and after splinting!





# Splinting Practical





# Tactical Field Care Guidelines

## 16. Communication

- a. Communicate with the casualty if possible.  
Encourage, reassure and explain care







# Tactical Field Care Guidelines

## 16. Communication (cont)

- b. Communicate with tactical leadership as soon as possible and throughout casualty treatment as needed. Provide leadership with casualty status and evacuation requirements to assist with coordination of evacuation assets.





# Tactical Field Care Guidelines

## 16. Communication (cont)

- c. Communicate with the evacuation system (the Patient Evacuation Coordination Cell) to arrange for TACEVAC. Communicate with medical providers on the evacuation asset if possible and relay mechanism of injury, injuries sustained, signs/symptoms, and treatments rendered. Provide additional information as appropriate.



# Talk to the Casualty

- Encourage, reassure and explain care.
- Talking with the casualty helps assess his mental status.
- Talking through procedures helps maintain your own confidence and the casualty's confidence in you.





# Talk to Leadership

- Communicate with tactical leadership ASAP and throughout the treatment process.
- Provide the casualty's status and evacuation requirements.
- Develop unit-level casualty reports and rehearse them frequently.
- Initiate the MEDEVAC request.





# Tactical Casualty Information

## Tactical Data

- Threat Identification
- Casualty Identification
- Casualty Location
- Casualty Weapon Systems
- Can casualty shoot, move, communicate?
- Does casualty need assistance?
- C2 notification

## Medical Data

- Injuries?
- Conscious/Unconscious?
- Treatment rendered / required?
- Get Medic to Casualty OR Casualty to Medic?
- Evacuation requirements?
- Triage for multiple casualties?
- Casualty evac category?
- Need more Class VIII?





# Communicate with Evac System

- Evacuation Request (9-Line MEDEVAC)
- MIST Report





# 9-Line Evacuation Request



**Required if you need to have a casualty evacuated by another unit.**





# 9-Line Evacuation Request

- Request for resources through tactical aircraft channels.
- NOT a direct medical communication with medical providers
- Significance
  - Determines tactical resource allocation
  - DOES NOT convey much useful medical information



# 9-Line Evacuation Request

Line 1: Pickup location

Line 2: Radio frequency, call sign and suffix

Line 3: Number of patients by precedence  
(evacuation category)

A – Urgent

B – Urgent-Surgical

C – Priority

D – Routine

E – Convenience



# 9-Line Evacuation Request

## Line 4: Special equipment required

A – None

B – Hoist

C – Extraction equipment

D – Ventilator

\* Blood





# 9-Line Evacuation Request

## Line 5: Number of casualties by type

L – Number of litter patient

A – Number of ambulatory patients

## Line 6: Security at pickup site

N – No enemy troops in area

P – Possible enemy troops in area (approach with caution)

E – Enemy troops in area (approach with caution)

X – Enemy troops in area (armed escort required)





# 9-Line Evacuation Request

## Line 7: Method of marking pickup site

- A – Panels
- B – Pyrotechnic signal
- C – Smoke signal
- D – None
- E – Other - specify

## Line 8: Casualty's nationality and status

- A – US military
- B – US civilian
- C – Non-US Military
- D – Non-US civilian
- E – Enemy prisoner of war





# 9-Line Evacuation Request

## Line 9 (Wartime): CBRN Contamination

C – Chemical

B – Biological

R – Radiological

N - Nuclear

## Line 9 (Peactime): Terrain Description







# MIST Report

- Conveys additional evacuation information that may be required by theater commanders.
- A MIST report is supplemental to a MEDEVAC request, and should be sent as soon as possible.
- MEDEVAC missions should not be delayed while waiting for MIST information.
- MIST information helps the receiving MTF better prepare for the specific casualties inbound.



# MIST Report

- M: Mechanism of injury
- I: Injury type(s)
- S: Signs & Symptoms
- T: Treatment



# Tactical Field Care Guidelines

## 17. Cardiopulmonary resuscitation (CPR)

- a. Resuscitation on the battlefield for victims of blast or penetrating trauma who have no pulse, no ventilations, and no other signs of life will not be successful and should not be attempted. However, casualties with torso trauma or polytrauma who have no pulse or respirations during TFC should have bilateral needle decompression performed to ensure they do not have a tension pneumothorax prior to discontinuation of care. The procedure is the same as described in section (5a) above.



# CPR



**NO battlefield CPR**



# CPR in Civilian Trauma

- This is a series of 138 trauma patients with prehospital cardiac arrest and in whom resuscitation was attempted.
- There were no survivors.
- The authors recommended that trauma patients in cardiopulmonary arrest not be transported emergently to a trauma center even in a civilian setting due to large economic cost of treatment without a significant chance for survival.

*Rosemurgy et al. J Trauma 1993*



# The Cost of Attempting CPR on the Battlefield

- CPR performers may get killed
- Mission gets delayed
- Casualty stays dead





# **CPR on the Battlefield (Ranger Airfield Operation in Grenada)**

- Airfield seizure operation.
- A Ranger was shot in the head by a sniper.
- Casualty had no pulse or respirations.
- CPR attempts were unsuccessful.
- The operation was delayed while CPR was performed.
- Ranger PA finally intervened: “Stop CPR and move out!”



# CPR in Tactical Settings

Only in the case of cardiac arrest due to:

- Hypothermia
- Near drowning
- Electrocution
- Other non-traumatic causes

should CPR be considered prior to the Tactical Evacuation Care phase.



# Traumatic Cardiac Arrest in TCCC

- Mounted IED attack in March 2011
- Casualty unconscious from closed head trauma
- Lost vital signs prehospital
- CPR on arrival at hospital
- **Bilateral needle decompression** done in ER
- Rush of air from left-sided tension pneumothorax
- Return of vital signs – life saved
- This procedure is routinely performed by Emergency Medicine physicians and Trauma Surgeons for trauma victims who lose their pulse and heart rate in the hospital Emergency Department.



# Questions?

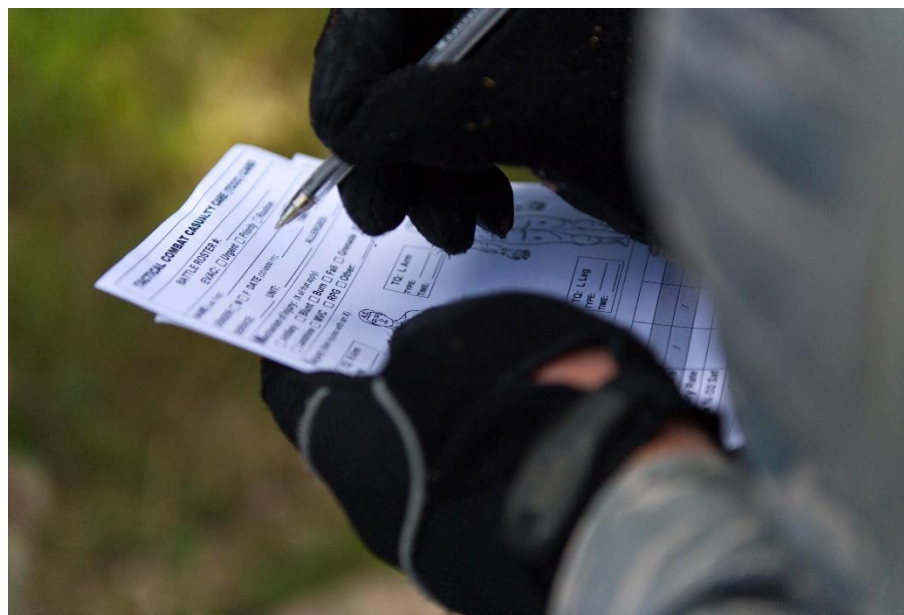




# Tactical Field Care Guidelines

## 18. Documentation of Care

- a. Document clinical assessments, treatments rendered, and changes in the casualty's status on a TCCC Casualty Card (DD Form 1380). Forward this information with the casualty to the next level of care.





# TCCC Card

- Designed by combat medics
- Used in combat since 2002
- Replaced old DD Form 1380
- Only essential information
- Can be used by the receiving hospital to document injuries sustained and field treatments rendered
- Heavy-duty waterproof or laminated paper

**TACTICAL COMBAT CASUALTY CARE (TCCC) CARD**

BATTLE ROSTER #: \_\_\_\_\_

EVAC: ☐ Urgent ☐ Priority ☐ Routine

NAME (Last, First): \_\_\_\_\_ LAST 4: \_\_\_\_\_

GENDER: ☐ M ☐ F DATE (DD-MM-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: \_\_\_\_\_





# Kotwal et al - 2011

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## ORIGINAL ARTICLE

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### ONLINE FIRST

## Eliminating Preventable Death on the Battlefield

*Russ S. Kotwal, MD, MPH; Harold R. Montgomery, NREMT; Bari M. Kotwal, MS; Howard R. Champion, FRCS; Frank K. Butler Jr, MD; Robert L. Mabry, MD; Jeffrey S. Cain, MD; Lorne H. Blackbourne, MD; Kathy K. Mechler, MS, RN; John B. Holcomb, MD*

- In order to know if we are doing the right thing, we must first know what we did.
- This paper was made possible by the Ranger TCCC Card.



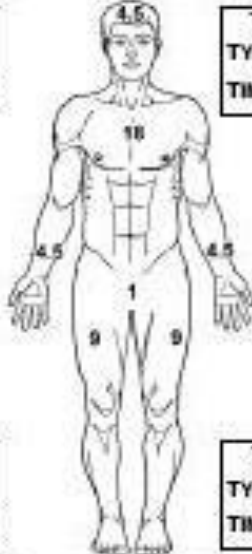
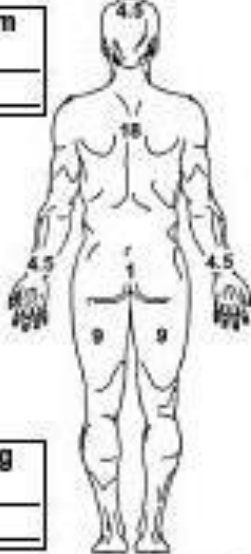
# TCCC Card

- This card is based on the principles of TCCC.
- It addresses the initial lifesaving care provided at the point of wounding.
- It should be filled out by *whoever* is caring for the casualty.
- Its format is simple with a circle or “X” in the appropriate block.





# TCCC Card Front

<b>TACTICAL COMBAT CASUALTY CARE (TCCC) CARD</b>																																							
BATTLE ROSTER #: _____																																							
EVAC: <input type="checkbox"/> Urgent <input type="checkbox"/> Priority <input type="checkbox"/> Routine																																							
NAME (Last, First): _____			LAST 4: _____																																				
GENDER: <input type="checkbox"/> M <input type="checkbox"/> F DATE (DD-MMM-YY): _____			TIME: _____																																				
SERVICE: _____		UNIT: _____		ALLERGIES: _____																																			
<b>Mechanism of Injury:</b> (X all that apply) <input type="checkbox"/> Artillery <input type="checkbox"/> Blunt <input type="checkbox"/> Burn <input type="checkbox"/> Fall <input type="checkbox"/> Grenade <input type="checkbox"/> GSW <input type="checkbox"/> IED <input type="checkbox"/> Landmine <input type="checkbox"/> MVC <input type="checkbox"/> RPG <input type="checkbox"/> Other: _____																																							
<b>Injury:</b> (Mark Injuries with an X) <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 100px;">TQ: R Arm</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TYPE: _____</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TIME: _____</div> </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 100px;">TQ: L Arm</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TYPE: _____</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TIME: _____</div> </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 100px;">TQ: R Leg</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TYPE: _____</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TIME: _____</div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 100px;">TQ: L Leg</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TYPE: _____</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">TIME: _____</div> </div> </div>																																							
<b>Signs &amp; Symptoms:</b> (Fill in the blank) <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 20%; text-align: left; padding: 5px;">Time</th> <th style="width: 15%;"></th> <th style="width: 15%;"></th> <th style="width: 15%;"></th> <th style="width: 15%;"></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"><i>Pulse (Rate &amp; Location)</i></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;"><i>Blood Pressure</i></td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> </tr> <tr> <td style="padding: 5px;"><i>Respiratory Rate</i></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;"><i>Pulse Ox % O2 Sat</i></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;"><i>AVPU</i></td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> </tr> <tr> <td style="padding: 5px;"><i>Pain Scale (0-10)</i></td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> </tr> </tbody> </table>					Time					<i>Pulse (Rate &amp; Location)</i>					<i>Blood Pressure</i>	/	/	/	/	<i>Respiratory Rate</i>					<i>Pulse Ox % O2 Sat</i>					<i>AVPU</i>	□	□	□	□	<i>Pain Scale (0-10)</i>	□	□	□	□
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<i>Pain Scale (0-10)</i>	□	□	□	□																																			



# TCCC Card

## Back

BATTLE ROSTER #: _____				
EVAC: <input type="checkbox"/> Urgent <input type="checkbox"/> Priority <input type="checkbox"/> Routine				
<b>Treatments:</b> (X all that apply, and fill in the blank)				<b>Type</b>
C: TQ- <input type="checkbox"/> Extremity <input type="checkbox"/> Junctional <input type="checkbox"/> Truncal				_____
Dressing- <input type="checkbox"/> Hemostatic <input type="checkbox"/> Pressure <input type="checkbox"/> Other				_____
A: <input type="checkbox"/> Intact <input type="checkbox"/> NPA <input type="checkbox"/> CRIC <input type="checkbox"/> ET-Tube <input type="checkbox"/> SGA				_____
B: <input type="checkbox"/> O2 <input type="checkbox"/> Needle-D <input type="checkbox"/> Chest-Tube <input type="checkbox"/> Chest-Seal				_____
C:	<i>Name</i>	<i>Volume</i>	<i>Route</i>	<i>Time</i>
<i>Fluid</i>			<input type="checkbox"/>	
			<input type="checkbox"/>	
<i>Blood Product</i>			<input type="checkbox"/>	
			<input type="checkbox"/>	
MEDS:	<i>Name</i>	<i>Dose</i>	<i>Route</i>	<i>Time</i>
<i>Analgesic</i> (e.g., Ketamine, Fentanyl, Morphine)			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
<i>Antibiotic</i> (e.g., Moxifloxacin, Ertapenem)			<input type="checkbox"/>	
			<input type="checkbox"/>	
<i>Other</i> (e.g., TXA)			<input type="checkbox"/>	
			<input type="checkbox"/>	
OTHER: <input type="checkbox"/> Combat-Pill-Pack <input type="checkbox"/> Eye-Shield ( <input type="checkbox"/> R <input type="checkbox"/> L) <input type="checkbox"/> Splint				
<input type="checkbox"/> Hypothermia-Prevention Type: _____				
NOTES:				
<b>FIRST RESPONDER</b>				
NAME (Last, First): _____				LAST 4: _____
DD Form 1380, MAR 2014 (Back)				TCCC CARD



# Instructions

- A TCCC Card should be kept in each Individual First Aid Kit.
- Use an indelible marker to fill it out.
- When used, attach it to the casualty's belt loop, or place it in their upper left sleeve, or the left trouser cargo pocket.
- Include as much information as you can.



# Documentation

- Record each intervention in each category.
- If you are not sure what to do, the card will prompt you where to go next.
- Simply circle the intervention you performed.
- Explain any action you want clarified in the remarks area.





# Documentation

- **The card does not imply that every casualty needs all the interventions listed.**
- You may not be able to perform all the interventions that the casualty needs.
- The next person caring for the casualty can add to the interventions performed.
- This card can be filled out in less than two minutes.
- It is important that we document the care given to the casualty.



# TCCC Card Abbreviations

- DTG = Date-Time Group (e.g. – 160010Oct2009)
- NBC = Nuclear, Biological, Chemical
- TQ = Tourniquet
- GSW = Gunshot Wound
- MVA = Motor Vehicle Accident
- AVPU = Alert, Verbal stimulus, Painful stimulus, Unresponsive
- Cric = Cricothyroidotomy
- NeedleD = Needle decompression
- IV = Intravenous
- IO = Intraosseous
- NS = Normal Saline
- LR = Lactated Ringers
- ABX = Antibiotics





# TCCC After Action Report

- This electronic AAR is intended to be completed when the first responder returns to base.
- It is more complete than the TCCC Card.
- It should be submitted to the Joint Theater Trauma System Director within 72 hours of casualty evacuation.
- **Both the TCCC Card and the TCCC AAR are required for optimal patient care documentation.**



# TCCC After-Action Report

MEDICAL RECORD-SUPPLEMENTAL MEDICAL DATA												
For use of this form, see AR 40-66; the proponent agency is the Office of the Surgeon General												
REPORT TITLE TACTICAL COMBAT CASUALTY CARE-AFTER ACTION REPORT										JTS APPROVED (Date) (20140310) -VLO		
Event Date		Time		Country		AOR/Region						
Phase	<input type="checkbox"/> Care Under Fire	<input type="checkbox"/> Tactical Field Care	<input type="checkbox"/> Aid Station Care	<input type="checkbox"/> Battle Injury	<input type="checkbox"/> WIA	<input type="checkbox"/> KIA	<input type="checkbox"/> Non Battle Injury	<input type="checkbox"/> Alive	<input type="checkbox"/> Dead			
<b>Mechanism</b> <input type="checkbox"/> Aircraft Crash <input type="checkbox"/> Blast - IED or Mine Dismounted <input type="checkbox"/> Blast - IED or Mine Mounted <input type="checkbox"/> Blast - Indirect Fire (Mortar/Artillery) <input type="checkbox"/> Blast - RPG or Grenade <input type="checkbox"/> Blast - Other <input type="checkbox"/> Blunt <input type="checkbox"/> Burn <input type="checkbox"/> Collapse/Crush from Structure <input type="checkbox"/> Drowning <input type="checkbox"/> Environmental <input type="checkbox"/> Fall, Height _____ ft <input type="checkbox"/> Fragmentation (Shrapnel) <input type="checkbox"/> Gun Shot Wound <input type="checkbox"/> Motor Vehicle Crash <input type="checkbox"/> Parachute Incident <input type="checkbox"/> Other _____				<b>Injuries</b> <input type="checkbox"/> Amputation (AMP) <input type="checkbox"/> Burn (B), TBSA _____ % <input type="checkbox"/> Cranius (C) <input type="checkbox"/> Deformity (D) <input type="checkbox"/> Degloving (DG) <input type="checkbox"/> Fracture (FX) <input type="checkbox"/> Gunshot Wound (GSW) <input type="checkbox"/> Hematoma (H) <input type="checkbox"/> Laceration (LAC) <input type="checkbox"/> Peppering (PP) <input type="checkbox"/> Puncture Wound (PW) <input type="checkbox"/> TBI Suspect (TBI) <input type="checkbox"/> Other _____				<b>Annotate Injuries</b> 				
<b>Vital Signs</b>												
	Time	HR	BP	RR	SpO2	ETCO2	Temp	F	C	AVPU	GCS: Eye 1-4 Verbal 1-5 Motor 1-6 Total	Pain 0-10
First			/					<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>		<input type="checkbox"/>
			/					<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>		<input type="checkbox"/>
			/					<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>		<input type="checkbox"/>
Last			/					<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>		<input type="checkbox"/>
<b>Circulation - Hemorrhage Control</b>												
Time	NM: Non-medical; M: Medical; MO: Medical Officer <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-CAT <input type="checkbox"/> TQ-SOFTT <input type="checkbox"/> TQ-Other _____ <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-CAT <input type="checkbox"/> TQ-SOFTT <input type="checkbox"/> TQ-Other _____ <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-CAT <input type="checkbox"/> TQ-SOFTT <input type="checkbox"/> TQ-Other _____ <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-CAT <input type="checkbox"/> TQ-SOFTT <input type="checkbox"/> TQ-Other _____ <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-Multiple to the same extremity, Type & Ext _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> TQ-Junctional, Type & Region _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> Hemostatic Dressing, Type _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> Pressure Dressing, Type _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> Other Dressing, Type _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> SplInt, Type _____											
<b>Airway</b>												
Time	<input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> NPA-Nasopharyngeal Airway <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> Cric-Cricothyroidotomy, Type _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> ET-Endotracheal Tube, Type _____ <input type="checkbox"/> NM <input type="checkbox"/> M <input type="checkbox"/> MO <input type="checkbox"/> King LT <input type="checkbox"/> LMA <input type="checkbox"/> Other _____											
PREPARED BY (Name, Rank & Title)										DEPARTMENT/SERVICE/CLINIC (Treating Unit)		DATE
PATIENT'S IDENTIFICATION (Name: last, first, middle; grade; date; hospital or medical facility)										<input type="checkbox"/> HISTORY/PHYSICAL <input checked="" type="checkbox"/> TREATMENT <input type="checkbox"/> DIAGNOSTIC STUDIES <input type="checkbox"/> FLOW CHART <input type="checkbox"/> OTH-408 EXAMINATION OR EVALUATION <input type="checkbox"/> OTH-408, Specify _____		
Last Name		First Name		MI		BR#		Rank		Unit		
SSN		DOB		Gender <input type="checkbox"/> M <input type="checkbox"/> F		Allergy <input type="checkbox"/> Other						



# Questions ?





# Tactical Field Care Guidelines

## 19. Prepare for Evacuation

- a. Complete and secure the TCCC Card (DD 1380) to the casualty.
- b. Secure all loose ends of bandages and wraps.
- c. Secure hypothermia prevention wraps/blankets/straps.
- d. Secure litter straps as required. Consider additional padding for long evacuations.





# Tactical Field Care Guidelines

## 19. Prepare for Evacuation (cont)

- e. Provide instructions to ambulatory patients as needed.
- f. Stage casualties for evacuation in accordance with unit standard operating procedures.
- g. Maintain security at the evacuation point in accordance with unit standard operating procedures.



# Secure Loose Ends

- Secure all loose ends of bandages, wraps and hypothermia prevention materials.
- Consider padding for long evacuations.





# Package the Casualty

- Secure the casualty's weapons/equipment as required.







# Prep for Evacuation

- Evacuation equipment should be prepped by unit personnel while treatment continues.





# Prep for Evacuation

Casualty movement in TFC may be better accomplished using litters.







# Litter Selection

- Selection is based on the mission and the unit type.
- Rigid litters work better than pole-less or improvised.
- Consider terrain and obstacles in the operating area.







# Be Prepared for the Operating Environment





# Evacuation Equipment

- All unit members should know how to open and set up litters and rehearse their use during pre-mission training.
- All unit members should know who will carry litters and/or where litters are located on vehicles.







# Package the Casualty

- Secure litter straps.
  - Know your litter! Does it have attached straps or does it need supplementary strapping?



Patient Securing Strap  
NSN: 6530-00-784-4205



# Package the Casualty







# Walking Wounded

- Provide instructions or assistance to ambulatory patients as needed.
- Depending on the nature of their injuries, they may be able to assist with carrying litters or providing security.
- Best to guide disoriented or visually impaired casualties hand-to-shoulder to the evacuation platform.
- Instruct them on repeatedly checking their own wounds and dressings to ensure that bleeding remains controlled.





# Stage Casualties for Evac

- Be prepared for the arrival of the evacuation platform.
- Stage the casualties in the loading sequence of the evacuation platform.







# Instructions from Platform Crew

Take direction from the crew of the evacuation platform on approaching the platform, loading casualties, and turnover with receiving medics.





# SECURITY

Maintain security at the evacuation point in accordance with unit SOP.





# Litter Carry Video

- Secure the casualty on the litter.
- Bring his weapons.
- Maintain security.



Courtesy 75<sup>th</sup> Ranger Regiment

[Link to Online Video](#)



# Questions?





# JTS-Recommended Standard Evacuation Categories

- Specifies three categories for casualty evacuation:
  - **A - Urgent**
  - **B - Priority**
  - **C – Routine**



# JTS-Recommended Standard Evacuation Categories

- **CAT A – Urgent (denotes a critical, life-threatening injury)**
  - Significant injuries from a dismounted IED attack
  - Gunshot wound or penetrating shrapnel to chest, abdomen or pelvis
  - Any casualty with ongoing airway difficulty
  - Any casualty with ongoing respiratory difficulty
  - Unconscious casualty





# JTS-Recommended Standard Evacuation Categories

- **CAT A – Urgent** (continued)
  - Casualty with known or suspected spinal injury
  - Casualty in shock
  - Casualty with bleeding that is difficult to control
  - Moderate/Severe TBI
  - Burns greater than 20% Total Body Surface Area



# JTS-Recommended Standard Evacuation Categories

- **CAT B – Priority (serious injury)**
  - Isolated, open extremity fracture with bleeding controlled
  - Any casualty with a tourniquet in place
  - Penetrating or other serious eye injury
  - Significant soft tissue injury without major bleeding
  - Extremity injury with absent distal pulses
  - Burns 10-20% Total Body Surface Area



# **JTS-Recommended Standard Evacuation Categories**

- **CAT C – Routine (mild to moderate injury)**
  - Concussion (mild TBI)
  - Gunshot wound to extremity - bleeding controlled without tourniquet
  - Minor soft tissue shrapnel injury
  - Closed fracture with intact distal pulses
  - Burns < 10% Total Body Surface Area



# Tactical Evacuation: Nine Rules of Thumb





# TACEVAC 9 Rules of Thumb: Assumptions

- These Rules of Thumb are designed to help the corpsman or medic determine the true urgency for evacuation.
- They assume that the decision is being made at 15-30 minutes after wounding.
- They also assume that care is being rendered per the TCCC guidelines.
- These considerations are most important when there are tactical constraints on evacuation:
  - Interferes with mission
  - High risk for team
  - High risk for TACEVAC platform





# **TACEVAC Rule of Thumb #1**

**Soft tissue injuries are common and may look bad, but usually don't kill unless associated with shock.**





## **TACEVAC Rule of Thumb #2**

**Bleeding from most extremity wounds should be controllable with a tourniquet or hemostatic dressing. Evacuation delays should not increase mortality if bleeding is fully controlled.**





# **TACEVAC Rule of Thumb #3**

**Casualties who are in shock should be evacuated as soon as possible.**



Gunshot wound to the abdomen



## **TACEVAC Rule of Thumb #4**

**Casualties with penetrating wounds of the chest who have respiratory distress unrelieved by needle decompression of the chest should be evacuated as soon as possible.**





# **TACEVAC Rule of Thumb #5**

**Casualties with blunt or penetrating trauma of the face associated with airway difficulty should have an immediate airway established, and should be evacuated as soon as possible.**

**REMEMBER to let the casualty sit up and lean forward if that helps him or her to breathe better!**







# **TACEVAC Rule of Thumb #6**

**Casualties with blunt or penetrating wounds of the head where there is obvious massive brain damage and unconsciousness are unlikely to survive with or without emergent evacuation.**



# **TACEVAC Rule of Thumb #7**

**Casualties with blunt or penetrating wounds to the head - where the skull has been penetrated but the casualty is conscious - should be evacuated emergently.**





# **TACEVAC Rule of Thumb #8**

**Casualties with penetrating wounds of the chest or abdomen who are not in shock at their 15-minute evaluation have a moderate risk of developing late shock from slowly bleeding internal injuries. They should be carefully monitored and evacuated as feasible.**





# **TACEVAC Rule of Thumb #9**

**Casualties with TBI who display “red flag” signs - witnessed loss of consciousness, altered mental status, unequal pupils, seizures, repeated vomiting, visual disturbance, worsening headache, unilateral weakness, disorientation, or abnormal speech – require urgent evacuation to a medical treatment facility.**





# Questions?







# Further Elements of Tactical Field Care

- Reassess regularly.
- Minimize removal of uniform and protective gear, but get the job done.
- Replace body armor after care, or at least keep it with the casualty. He or she may need it again if there is additional contact.



# Summary of Key Points

- Still in a hazardous environment
- Limited medical resources
- Hemorrhage control
- Airway management
- Breathing
- Transition from tourniquet to another form of hemorrhage control when appropriate
- For hemorrhagic shock, resuscitate with blood products per the TCCC Guidelines when they are available



# Summary of Key Points

- Hypotensive resuscitation with Hextend for hemorrhagic shock when blood products are not available
- Hypothermia prevention
- Shield and antibiotics for penetrating eye injuries
- Pain control
- Antibiotics
- Reassure casualties
- No CPR
- Documentation of care



# Questions?



**Wear your body armor!**



# Casualty Collection Point Operations



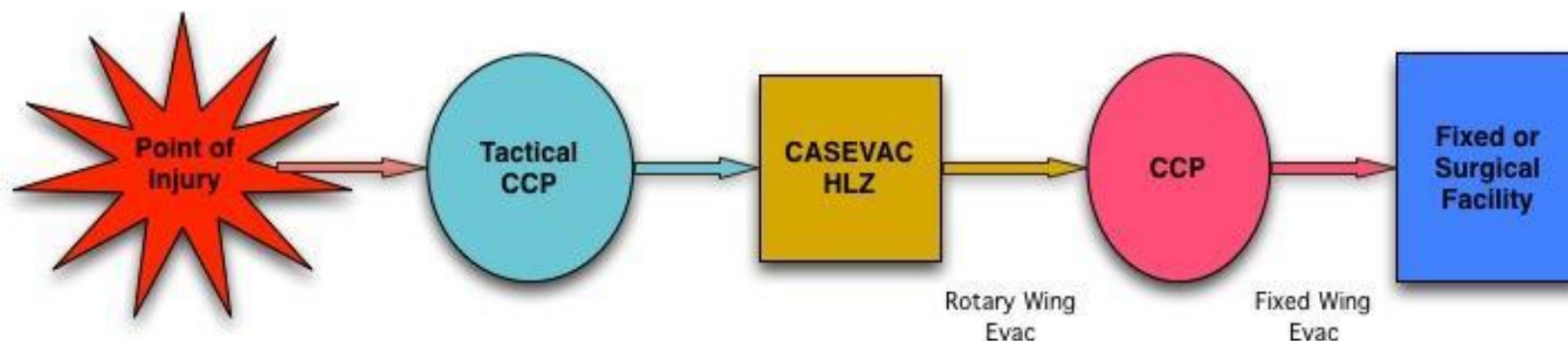
**This section is adapted from:**

**Kotwal, R., Montgomery, H. (2011). TCCC Casualty Response Planning. In N. McSwain, J. Salamone, P. Pons, B. Butler & S. Giebner (Eds.), PHTLS Prehospital Trauma Life Support: Military Version, Seventh Edition (pp. 719-735). St. Louis: Elsevier.**





# Casualty Collection Points in the Evacuation Chain



Casualty flow from target to hospitalization.



# CCP Site Selection

- Should be reasonably close to the fight.
- Located near areas where casualties are likely to occur.
- Must provide cover and concealment from the enemy.
- Inside a building or on hardstand (an exclusive CCP building limits confusion).
- Should have access to evacuation routes (foot, vehicle, aircraft).
- Proximal to “Lines of Drift” or paths across terrain that are the most likely to be used when going from one place to another.



# CCP Site Selection

- Adjacent to Tactical Choke Points (breeches, HLZ's, etc...)
- Avoid natural or enemy choke points.
- Choose an area providing passive security (inside the perimeter).
- Good drainage
- Accessible to evacuation assets
- Expandable if casualty load increases

(continued)



# CCP Operational Guidelines

- Typically, a First Sergeant (1SG) or Platoon Sergeant (PSG), or equivalent, is given responsibility for casualty flow and everything outside the CCP:
  - Provides for CCP structure and organization (color coded with chemlights).
  - Maintains command & control and battlefield situational awareness.
  - Controls aid & litter teams, and provides security.



# CCP Operational Guidelines

- First Sergeant (1SG), Platoon Sergeant (PSG) or equivalent:
  - Strips, bags, tags, organizes, and maintains casualties' tactical gear outside of treatment area.
  - Accountable for tracking casualties and equipment into and out of CCP and reports to higher command.
  - Moves casualties through CCP entrance/exit choke point which should be marked with an IR chemlight.





# CCP Operational Guidelines

- Medical personnel are responsible for everything inside the CCP:
  - Triage officer sorts and organizes casualties at choke point into appropriate treatment categories.
  - Medical officers and medics organize medical equipment and supplies and treat casualties.
  - EMTs, First Responders, and Aid & Litter Teams assist with treatment and packaging of casualties.



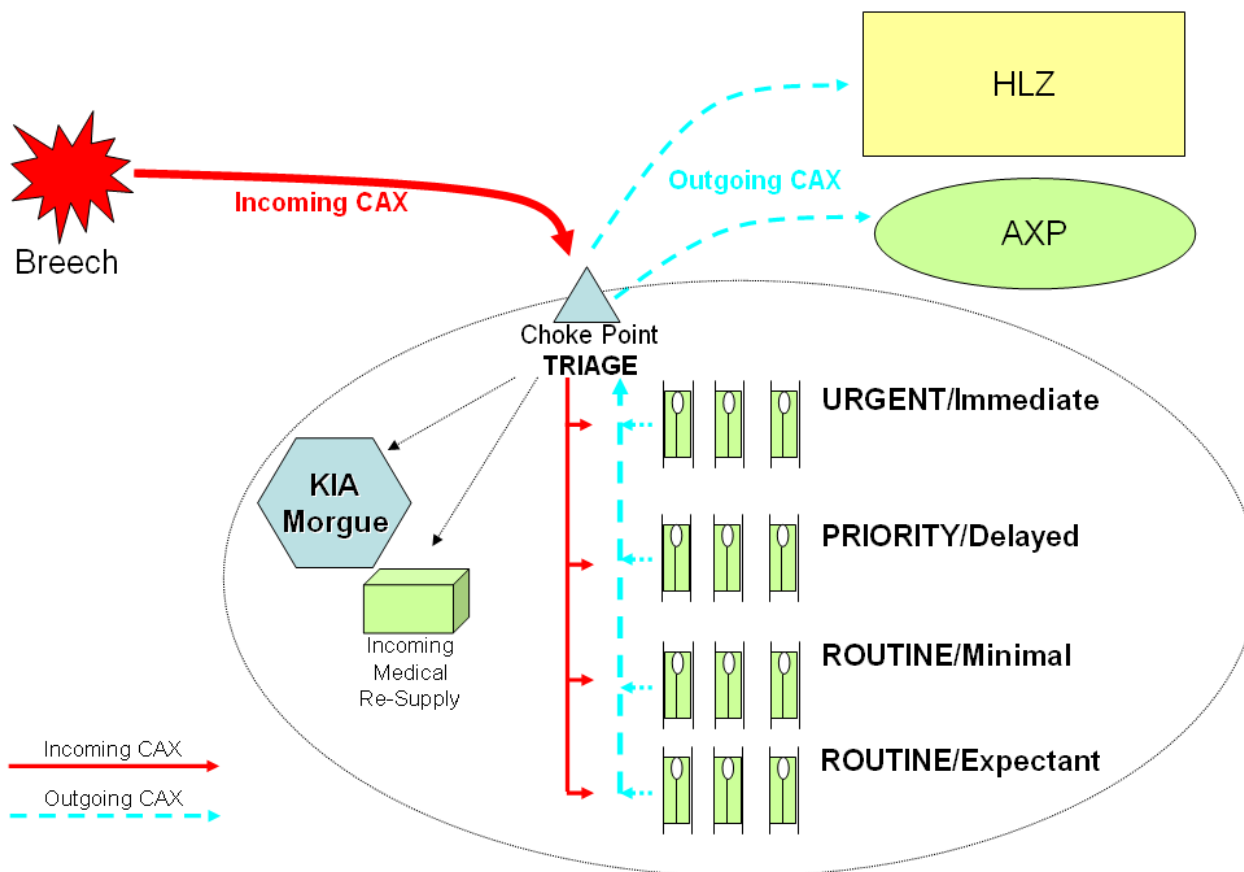
# CCP Operational Guidelines

- Casualties with minor injuries should remain with their original elements or assist with CCP security if possible.
- Those killed in action should remain with their original elements.



# CCP Operational Guidelines

## CCP / CEP Template 1 (Adjacent to Breech)



# Questions?







# Management of Wounded Hostile Combatants







# Objective

- DESCRIBE the considerations in rendering trauma care to wounded hostile combatants.



# Care for Wounded Hostile Combatants

- No medical care during Care Under Fire
- Though wounded, enemy personnel may still act as hostile combatants
  - May employ any weapons or detonate any ordnance they are carrying
- **Enemy casualties are hostile combatants until they:**
  - **Indicate surrender**
  - **Drop all weapons**
  - **Are proven to no longer pose a threat**



# Care for Wounded Hostile Combatants

- **Combat medical personnel should not attempt to provide medical care until sure that the wounded hostile combatant has been rendered safe by other members of the unit.**
- Restrain with flex cuffs or other devices if not already done.
- Search for weapons and/or ordnance.
- Silence to prevent communication with other hostile combatants.



# Care for Wounded Hostile Combatants

- Segregate from other captured hostile combatants.
- Safeguard from further injury.
- **Care as per TFC guidelines for U.S. forces after the steps above are accomplished.**
- Speed to the rear as medically and tactically feasible





*QUESTIONS ?*







# Convoy IED Scenario

- Recap from Care Under Fire:
- Your last medical decision during Care Under Fire:
  - Placed tourniquet on left stump
- You moved the casualty behind cover and returned fire.
- You provided an update to your mission commander.



# Convoy IED Scenario

## **Assumptions in discussing TFC in this scenario:**

- Effective hostile fire has been suppressed.
- Team Leader has established a security perimeter.
- Pre-designated HLZ for helicopter evacuation is 15 minutes away.
- Flying time to the hospital is 30 minutes.
- Ground evacuation time is 3 hours.
- Enemy threat to helicopter at HLZ estimated to be minimal.



# Convoy IED Scenario

Next decision (Command Element)?

- How to evacuate the casualty?
  - Helicopter
    - Longer time delay for ground evacuation.
    - Enemy threat at the HLZ is acceptable.



# Convoy IED Scenario

Next decision (Command Element)?

- Load first and treat enroute to the HLZ or treat first and load after?
  - Load and Go
  - Why?
    - You can continue treatment enroute.
    - Avoids potential second attack at the ambush site.



# Convoy IED Scenario

Casualty is still conscious and has no neck or back pain.

Next decision?

- Do you need spinal immobilization?
- No
  - Not needed unless casualty has neck or back pain
    - Why?
    - There is little expectation of a spinal fracture in the absence of neck or back pain in a conscious casualty.
    - Speed is critical.
    - NOTE: Casualties who are unconscious from blast trauma should have spinal immobilization if feasible.





# Convoy IED Scenario

Ten minutes later, you and the casualty are in a vehicle enroute to HLZ.

Next action?

- Reassess the casualty.
  - Casualty is now unconscious.
  - No bleeding from first tourniquet site.
  - The other stump is bleeding severely.



# Convoy IED Scenario

- Next action?
  - Place a tourniquet on the 2<sup>nd</sup> stump.
- Next action?
  - Remove any weapons or ordnance that the casualty may be carrying.
- Next action?
  - Place a nasopharyngeal airway.
- Next action?
  - Make sure he's not bleeding heavily elsewhere.
  - Check for other trauma.



# Convoy IED Scenario

- Next action?
  - Pelvic binder
  - Establish IV access - need to give TXA and then resuscitate for shock
- Next action?
  - Administer 1 gram of tranexamic acid (TXA) in 100 cc NS or LR
  - Infuse slowly over 10 minutes



# Convoy IED Scenario

- Next action?
  - Begin fluid resuscitation – your convoy carries cold-stored, type O, low-titer whole blood.
- Next actions?
  - Hypothermia prevention
  - IV antibiotics
  - Pulse ox monitoring
  - Continue to reassess the casualty.



# Convoy IED Scenario

## What is your 9-line?

Line 1: Grid NS 12345678

Line 2: 38.90, Convoy 6

Line 3: 1 Urgent

Line 4: Whole blood, oxygen, advanced airway

Line 5: 1 litter

Line 6: Secure

Line 7: VS-17 (Orange Panel)

Line 8: U.S. Military

Line 9: Flat field

**\* Some individuals recommend adding a  
tenth line: the casualty's vital signs**





# Convoy IED Scenario

**Your convoy has now arrived at the HLZ.**

**Next steps?**

- Continue to reassess the casualty and prepare for helo transfer.
  - Ensure the casualty has no remaining weapons or comms gear before loading him on the helo.
  - Secure the casualty's personal effects per unit SOP.
  - Document casualty status and treatment.



# Remember

- **The TCCC guidelines are not a rigid protocol.**
- **The tactical environment may require some modifications to the guidelines.**
- **Think on your feet!**



# Questions?



# **Tactical Combat Casualty Care for Medical Personnel**

## **August 2017**

**(Based on TCCC-MP Guidelines 170131)**



# **Tactical Evacuation Care**



# OBJECTIVES

- **DESCRIBE** the differences between MEDEVAC and CASEVAC
- **DESCRIBE** the differences between Tactical Field Care and Tactical Evacuation Care
- **DESCRIBE** the additional assets that may be available for airway management and electronic monitoring





# OBJECTIVES

- **DISCUSS** the indications for and administration of Tranexamic Acid during tactical evacuation
- **DISCUSS** the management of moderate/severe TBI during tactical evacuation



# Tactical Evacuation

- Casualties need evacuation as soon as feasible after significant injuries.
- The evacuation asset may be a ground vehicle, aircraft, or boat.
- **Evacuation time is highly variable – significant delays may be encountered.**
- The tactical situation and hostile threats to evacuation platforms may differ markedly from one casualty scenario to another.
- The Tactical Evacuation phase allows for additional medical personnel and equipment to be used.



# Evacuation Terminology

- **MEDEVAC:** evacuation using special dedicated medical assets marked with a Red Cross
  - MEDEVAC platforms are non-combatant assets
- **CASEVAC:** evacuation using non-medical platforms
  - May carry a Quick-Reaction force and provide close air support as well
- **Tactical Evacuation (TACEVAC)** – this term encompasses both types of evacuation above



# Aircraft Evacuation Planning

- Flying rules vary widely among different aircraft and units
- Consider:
  - Distances and altitudes involved
  - Day versus night
  - Passenger capacity
  - Hostile threat
  - Medical equipment
  - Medical personnel
  - Icing conditions





# Aircraft Evacuation Planning

- Ensure that your evacuation plan includes aircraft capable of flying the missions you need.
- Plan for primary, secondary, & tertiary options.

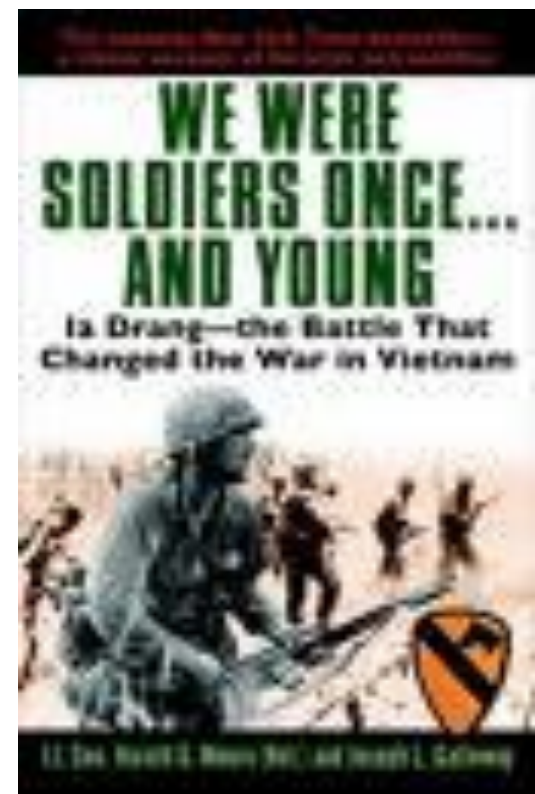






# CASEVAC vs. MEDEVAC: The Battle of the Ia Drang Valley

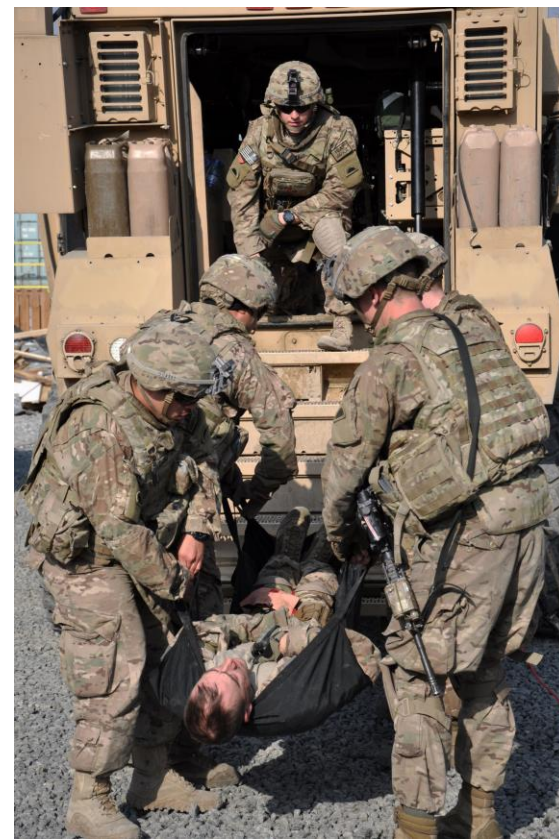
- 1st Bn, 7th Cavalry in Vietnam
- Surrounded by 2000 NVA - heavy casualties
- Called for MEDEVAC
- Request refused because landing zone was not secure
- Eventual pickup by 229th Assault Helo Squadron after long delay
- Soldiers died because of this mistake.
- We must get this part right!





# Ground Vehicle Evacuation

- More prevalent in urban-centric operations in close proximity to a medical facility.
- Vehicles may be organic to the unit or designated MEDEVAC assets.





# Tactical Evacuation Care

- TCCC guidelines for care are largely the same in TACEVAC as they are in Tactical Field Care.
- There are some changes that reflect the additional medical equipment and personnel that may be present in the TEC setting.
- This section will focus on those differences.





# Tactical Evacuation Care Guidelines

## 1. Transition of Care

- a. Tactical force personnel should establish evacuation point security and stage casualties for evacuation.
- b. Tactical force personnel or the medic should communicate patient information and status to TACEVAC personnel as clearly as possible. The minimum information communicated should include stable or unstable, injuries identified, and treatments rendered.



# Tactical Evacuation Care Guidelines

## 1. Transition of Care (cont)

- c. TACEVAC personnel should stage casualties on evacuation platforms as required.
- d. Secure casualties in the evacuation platform in accordance with unit policies, platform configurations and safety requirements.
- e. TACEVAC medical personnel should re-assess casualties and re-evaluate all injuries and previous interventions.





# Transition of Care

- Involves both the tactical force and the evacuation platform personnel.
- Loud environment making communication difficult.
- Hazardous environment and safety concerns.
- Preplanned procedures, rehearsals and effective communication can reduce the chaos and risks.





# Tactical Force Responsibilities

- Ensure appropriate selection, clearing, and securing of evacuation site.
- Move casualties to site and stage for loading.
- Stage according to specifics of the evacuation platform.
- Maintain accountability of personnel.





# Tactical Force Responsibilities

- Communicate casualty information to TACEVAC personnel.

## “SIT” Casualty Report

- Stable or Unstable
- Identify Injuries
- Treatments Rendered







# TACEVAC Responsibilities

- Triage and ensure appropriate placement during loading.





# TACEVAC Responsibilities

- Secure IAW platform-specific required configurations, policies and safety.
- Check and double-check.







# TACEVAC Responsibilities

- Re-assess ALL previous interventions and treatments.
  - Assess all interventions for effectiveness.





# Airway in TACEVAC

- Additional Options for Airway Management
  - **Supraglottic airway**
  - Endotracheal Intubation
- Confirm ETT placement with CO2 monitoring.
- These airways are advanced skills not taught in the basic TCCC course.





# Respiration/Breathing in TACEVAC

- Watch for tension pneumothorax as casualties with a chest wound ascend into the lower pressure at altitude.
- Pulse ox readings will become lower as casualty ascends unless supplemental oxygen is added.
- Chest tube placement may be considered if a casualty with suspected tension pneumo fails to respond to needle decompression



# Supplemental Oxygen in Tactical Evacuation Care

Most casualties do not need supplemental oxygen, but have oxygen available and use it for:

- Casualties in shock
- Low oxygen sat on pulse ox
- Unconscious casualties
- Casualties with TBI  
(maintain oxygen saturation > 90%)
- Chest wound casualties





# Tactical Evacuation Care Guidelines

## 5. Circulation

### c. Tranexamic Acid (TXA)

- If a casualty is anticipated to need significant blood transfusion (for example: presents with hemorrhagic shock, one or more major amputations, penetrating torso trauma, or evidence of severe bleeding):
  - Administer 1 gram of tranexamic acid in 100 ml Normal Saline or Lactated Ringer's as soon as possible but NOT later than 3 hours after injury.
  - Begin second infusion of 1 gm TXA after initial fluid resuscitation has been completed.





# TXA

## Administration – 2nd Dose

- Typically given after the casualty arrives at a Role II/Role III medical facility.
- May be given in Tactical Evacuation Care if the first dose was given earlier, and fluid resuscitation has been completed before arrival at the medical facility.
  - TXA should NOT be given with Hextend or through an IV line with Hextend in it.
  - Inject 1 gram of TXA into a 100-cc bag of normal saline or lactated Ringer's.
  - Infuse slowly over 10 minutes.



# Tactical Evacuation Care Guidelines

## 6. Traumatic Brain Injury

a. Casualties with moderate/severe TBI should be monitored for:

1. Decreases in level of consciousness
2. Pupillary dilation
3. SBP should be  $>90$  mmHg
4. O<sub>2</sub> sat  $> 90$

Continued...



# Tactical Evacuation Care Guidelines

## 6. Traumatic Brain Injury

a. Casualties with moderate/severe TBI should be monitored for:

5. Hypothermia

6. PCO<sub>2</sub> (If capnography is available, maintain between 35-40 mmHg)

7. Penetrating head trauma (if present, administer antibiotics)

8. Assume a spinal (neck) injury until cleared

Continued...



# Tactical Evacuation Care Guidelines

## 6. Traumatic Brain Injury

b. Unilateral pupillary dilation accompanied by a decreased level of consciousness may signify impending cerebral herniation; if these signs occur, take the following actions to decrease intracranial pressure:

1. Administer 250cc of 3% or 5% hypertonic saline bolus.
2. Elevate the casualty's head 30 degrees.

Continued...



# Tactical Evacuation Care Guidelines

## 6. Traumatic Brain Injury

### b. (Continued)

#### 3) Hyperventilate the casualty

- a. Respiratory rate 20
- b. Capnography should be used to maintain the end-tidal CO<sub>2</sub> between 30-35 mmHg
- c. The highest concentration of oxygen (FIO<sub>2</sub>) possible should be used for hyperventilation

Continued...





# Tactical Evacuation Care Guidelines

## 6. Traumatic Brain Injury

Notes:

- Do not hyperventilate unless signs of impending herniation are present.
- Casualties may be hyperventilated with oxygen using the bag-valve-mask technique.



# Hypothermia Prevention in TACEVAC

Remember to keep the casualty on an insulated surface or get him/her on one as soon as possible.

Apply the Ready-Heat Blanket from the Hypothermia Prevention and Management Kit (HPMK), to the casualty's torso (not directly on the skin) and cover the casualty with the Heat-Reflective Shell (HRS).





# Hypothermia Prevention in TACEVAC



**enFlo  
w<sup>TM</sup>**



**Thermal  
Angel<sup>TM</sup>**



**Buddy  
Lite<sup>TM</sup>**

**Use a portable fluid warmer capable of warming all IV fluids  
including blood products.**



# Remember: Prevention of Hypothermia in Helicopters!



- Cabin wind and altitude cold result in cold stress.
- Protection is especially important for casualties in shock and for burn casualties.



# Tactical Evacuation Care Guidelines

## 14. Burns

- h. Burn patients are particularly susceptible to hypothermia. Extra emphasis should be placed on barrier heat loss prevention methods and IV fluid warming in this phase.







# Tactical Evacuation Care Guidelines

## 18. CPR in TACEVAC Care

- a. Casualties with torso trauma or polytrauma who have no pulse or respirations during TACEVAC should have bilateral needle decompression performed to ensure they do not have a tension pneumothorax. The procedure is the same as described in section (4a) above.



# Tactical Evacuation Care Guidelines

## 18. CPR in TACEVAC Care (cont)

- b. CPR may be attempted during this phase of care if the casualty does not have obviously fatal wounds and will be arriving at a facility with a surgical capability within a short period of time. CPR should not be done at the expense of compromising the mission or denying lifesaving care to other casualties.



# TACEVAC CARE - Hoisting



- Rigid Litters Only When Hoisting!
- Check and double-check rigging

The image shows two helicopters on a tarmac at sunset. The helicopters are in silhouette against a bright, orange-hued sky. Several ground crew members are also visible in silhouette, working around the helicopters. The word "Questions?" is overlaid in the center in a white, serif font.

Questions?



# TACEVAC Care for Wounded Hostile Combatants

- Principles of care are the same for all wounded combatants
- Rules of Engagement may dictate evacuation process
- Restrain and provide security
- Remember that each hostile casualty represents a potential threat to the provider and the unit and take appropriate measures
- **They still want to kill you.**







# Tactical Evacuation Care

## Summary of Key Points

- Evacuation time is highly variable
- Thorough planning is key
- Similar to Tactical Field Care guidelines but with some modifications





# Convoy IED Scenario

## Recap from TFC

The last medical interventions during TFC were:

- Placed tourniquet on both bleeding stumps
- Disarmed
- Placed NPA
- Pelvic binder applied
- Established IV
- Administered 1 gm TXA and 1 unit whole blood
- IV antibiotics
- Provided hypothermia prevention
- Your helo has now arrived at the HLZ



# Convoy IED Scenario

## What's Next?

- Casualty is now conscious, but is confused.
- Reassess casualty for ABCs
  - NPA still in place
  - Tourniquets, pelvic binder in place, no significant bleeding
- Attach electronic monitoring to casualty
  - Heart rate 140; systolic BP 70
  - O2 sat = 90%



# Convoy IED Scenario

## What's next?

- Supplemental Oxygen
  - Why?
    - Casualty is still in shock

## What's next?

- Continue fluid resuscitation with whole blood or plasma and RBCs in a 1:1 ratio.
  - Why?
    - Casualty is still in shock



# Convoy IED Scenario

## What's next?

- Inspect and dress known wounds and search for additional wounds

## What's next?

- Try to remove tourniquets and use hemostatics?
  - No
  - Why? THREE reasons:
    - Short transport time - less than 2 hours from application of tourniquets
    - No distal extremities to lose
    - Casualty is in shock





Questions/Comments?



# TCCC Critical Decision Case Studies



**August 2017**



# **The Biggest Challenge in TCCC**

- **Knowing WHEN to use the interventions taught in TCCC**
- **Based on a suggestion by COL Bob Mabry**
- **TCCC Critical Decision Case Studies will help to illustrate which interventions to perform for casualties with life-threatening conditions.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 1**

### **The Setting**

- **A unit is on a dismounted mission in Afghanistan.**
- **Dismounted IED attack.**
- **The unit has no junctional tourniquets.**
- **There is no effective incoming fire at the moment.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 1**

### **The Casualty**

- **High amputation right leg**
- **Below the knee amputation left leg**
- **Ongoing massive hemorrhage from his right leg amputation site**
- **Too proximal to be controlled by a tourniquet**





# **TCCC Critical Decisions**

## **Bleeding Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Combat Gauze applied with at least 3 minutes of direct pressure at the bleeding site**
- 2. Start an IV**
- 3. Construct a pressure dressing over the bleeding site**
- 4. Apply direct pressure over the femoral artery at the level of the inguinal ligament**



# **TCCC Critical Decisions**

## **Bleeding Case Study 1**

### **Correct Answer and Feedback**

- 1. Combat Gauze applied with at least 3 minutes of direct pressure at the bleeding site**

**In this casualty with uncontrolled junctional bleeding in the right upper thigh, since the unit has no junctional tourniquets and since the bleeding site is too proximal on the leg to be controlled with a limb tourniquet, the best option is direct pressure with Combat Gauze. Pressure dressings and pressure applied to so-called "pressure points" at vascular sites proximal to the bleeding have not been proven to be effective.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 2**

### **The Setting**

- **A squad of Marines is engaged in a small arms battle with hostile forces**
- **RPG blast near one of the unit members**
- **Casualty lying on his right side**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Bleeding Case Study 2**

### **The Casualty**

- **The casualty is moving around and awake, but his movements are not purposeful and he is not responding to questions**
- **Face and neck wounds (not airway) are present**
- **Several teeth are missing, and there are lip and cheek lacerations**
- **There is ongoing severe bleeding from the neck wound**
- **No other major bleeding sites are immediately noted**
- **He is voicing significant pain**



# **TCCC Critical Decisions**

## **Bleeding Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Perform a cricothyroidotomy**
- 2. Start an IV**
- 3. Apply Combat Gauze with sustained direct pressure at the bleeding site on the neck**
- 4. Administer OTFC to treat the casualty's pain**





# **TCCC Critical Decisions**

## **Bleeding Case Study 2**

### **Correct Answer and Feedback**

**3. Apply Combat Gauze with sustained direct pressure at the bleeding site on the neck**

**This casualty has massive hemorrhage from a neck wound. Tourniquets are obviously not usable, so sustained direct pressure with Combat Gauze is the best hemostatic option available. Also - opioid medications such as OTFC should not be used in casualties in or at risk for shock, which this casualty definitely is.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 3**

### **The Setting**

- **A small unit is moving across an open area**
- **It is night and there is zero visibility without night vision devices**
- **The casualty has a gunshot wound in his left leg just above the knee**
- **The unit is still taking effective incoming fire**



# **TCCC Critical Decisions**

## **Bleeding Case Study 3**

### **The Casualty**

- **There is severe bleeding on the thigh on a blood sweep**
- **Visualization of the bleeding site is poor**
- **He is in extreme pain**



# **TCCC Critical Decisions**

## **Bleeding Case Study 3**

### **Question**

**What is the NEXT action you should take?**

- 1. Apply a limb tourniquet high and tight on the left leg**
- 2. Try to guess where the bleeding site is and apply a limb tourniquet just proximal to that.**
- 3. Administer OTFC to the casualty**
- 4. Administer ketamine to the casualty**



# **TCCC Critical Decisions**

## **Bleeding Case Study 3**

### **Correct Answer and Feedback**

**1. Apply a tourniquet high and tight on the left leg**

**For this casualty, with potentially life-threatening bleeding from the gunshot wound to his leg, the most important aspect of care is to control the extremity bleeding. Since the bleeding site cannot be definitively located at this point in his care, the hemorrhage must be controlled by immediately applying a limb tourniquet as proximally as possible on the extremity. Treating the casualty's pain is important, but should be done after bleeding is controlled, once the unit is in the Tactical Field Care phase of care.**





# **TCCC Critical Decisions**

## **Bleeding Case Study 4**

### **The Setting**

- **A US Military advisory team is assaulting a terrorist compound**
- **They take small arms fire from a roof**
- **One team member sustains a GSW just below the left clavicle**
- **The casualty is moved to cover for treatment**
- **There is no effective incoming fire at the covered location**



# **TCCC Critical Decisions**

## **Bleeding Case Study 4**

### **The Casualty**

- **There is very heavy bleeding from the wound just below the left clavicle.**
- **Breathing is not labored.**
- **The wound is noted to have a deep wound track**
- **Efforts to control the bleeding with Combat Gauze are unsuccessful**



# **TCCC Critical Decisions**

## **Bleeding Case Study 4**

### **Question**

**What is the NEXT action you should take?**

- 1. Construct a pressure dressing over the wound using standard gauze**
- 2. Start an IV**
- 3. Use a hemostat to reach in the wound and clamp the bleeding vessel**
- 4. Apply XStat into the wound tract**



# **TCCC Critical Decisions**

## **Bleeding Case Study 4**

### **Correct Answer and Feedback**

#### **4. Apply XStat into the wound tract**

**For uncontrolled bleeding from a wound with a deep wound track such as in this casualty, XStat is clearly the best of the listed options. Neither a limb tourniquet nor a junctional tourniquet is usable and Combat Gauze has not been effective.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 5**

### **The Setting**

- **A helicopter is disabled by small arms fire and crashes**
- **2 of the crew are dead**
- **1 crew member has severe head trauma and is unconscious – she is being treated by another medic**
- **You are treating the 4th member of the flight crew - the pilot**
- **There is no effective incoming fire at the crash site**





# **TCCC Critical Decisions**

## **Bleeding Case Study 5**

### **The Casualty**

- **The pilot is alert and complains of severe left hip pain**
- **Breathing is unlabored with an O2 sat of 96%**
- **Blood sweep shows no external hemorrhage**
- **You examine his pelvic region and find a large area of bruising over his left hip**
- **There is marked tenderness to palpation in that area**



# **TCCC Critical Decisions**

## **Bleeding Case Study 5**

### **Casualty Dashboard**

- |                        |   |
|------------------------|---|
| • <b>AVPU</b>          | <b>Alert</b>                            |
| • <b>Airway</b>        | <b>Patent – patient is talking well</b> |
| • <b>Breathing</b>     | <b>RR 19 and unlabored</b>              |
| • <b>Radial Pulse</b>  | <b>Present but weak</b>                 |
| • <b>O2 Saturation</b> | <b>97%</b>                              |



# **TCCC Critical Decisions**

## **Bleeding Case Study 5**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer OTFC 800 ug for pain**
- 2. Apply a pelvic binder for suspected pelvic fracture**
- 3. Start an IV and administer 500 mL of Hextend**
- 4. Administer the Combat Wound Medication Pack**



# **TCCC Critical Decisions**

## **Bleeding Case Study 5**

### **Correct Answer and Feedback**

#### **2. Apply a pelvic binder for suspected pelvic fracture**

**The diagnosis of immediate concern here is a suspected pelvic fracture, so a pelvic binder should be applied immediately. Pelvic fractures may be associated with non-compressible bleeding. This casualty has a weak radial pulse and may be going into hemorrhagic shock. He may need fluid resuscitation shortly, but the pelvic binder should be applied first. OTFC should not be used in this casualty.**



# **TCCC Critical Decisions**

## **Bleeding Case Study 6**

### **The Setting**

- **An Army infantry squad is on foot patrol in Iraq**
- **A dismounted IED detonates, causing multiple casualties**
- **There is no effective incoming fire at the moment**





# **TCCC Critical Decisions**

## **Bleeding Case Study 6**

### **The Casualty**

- **The casualty you are treating has bilateral lower extremity amputations**
- **Both are very high**
- **There is severe bleeding from both amputation sites**
- **Limb tourniquets are judged unlikely to be successful**
- **No other life-threatening injuries are noted**



# **TCCC Critical Decisions**

## **Bleeding Case Study 6**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer ketamine since this casualty is at risk of going into shock**
- 2. Start an IV and administer TXA**
- 3. Construct pressure dressing's using standard gauze for both amputation sites**
- 4. Apply direct pressure with Combat Gauze until the unit's SAM Junctional Tourniquet is ready to apply**



# **TCCC Critical Decisions**

## **Bleeding Case Study 6**

### **Correct Answer and Feedback**

**4. Apply direct pressure with Combat Gauze until the unit's SAM junctional tourniquet is ready to apply**

**The correct next action is to apply direct pressure with Combat Gauze until a junctional tourniquet is ready to apply. This action may prevent the casualty from going into shock. An IV, TXA, and ketamine are all good follow-on actions in this casualty, but the first priority is to control massive hemorrhage, which this casualty currently has.**



# **TCCC Critical Decisions Circulation Case Study 1**

## **The Setting**

- **A small unit is moving outside of a village**
- **There is a single shot from somewhere in the village**
- **No other hostile fire**



# **TCCC Critical Decisions**

## **Circulation Case Study 1**

### **The Casualty**

- **Single gunshot wound to abdomen**
- **The casualty is alert and in moderate pain**
- **There is no life-threatening external hemorrhage**
- **There is a normal radial pulse**



# **TCCC Critical Decisions**

## **Circulation Case Study 1**

### **Casualty Dashboard**

- |                        |                            |
|------------------------|----------------------------|
| • <b>AVPU</b>          | <b>Alert</b>               |
| • <b>Airway</b>        | <b>Patent</b>              |
| • <b>Breathing</b>     | <b>RR 18 and unlabored</b> |
| • <b>Radial Pulse</b>  | <b>Strong</b>              |
| • <b>O2 Saturation</b> | <b>97%</b>                 |





# **TCCC Critical Decisions**

## **Circulation Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Start an IV and administer TXA immediately**
- 2. Start an IV and administer a unit of freeze dried plasma**
- 3. Administer 50 mg of ketamine IM**
- 4. Administer an 800ug fentanyl lozenge**



# **TCCC Critical Decisions**

## **Circulation Case Study 1**

### **Correct Answer and Feedback**

**1. Start an IV and administer TXA immediately**

**This casualty may have life-threatening intra-abdominal hemorrhage. The next action should be to immediately start an IV and infuse 1 gm of TXA over 10 minutes.**



# **TCCC Critical Decisions**

## **Circulation Case Study 2**

### **The Setting**

- **A small unit is patrolling outside of a village**
- **There is a single shot from somewhere in the village**
- **No other hostile fire**



# **TCCC Critical Decisions**

## **Circulation Case Study 2**

### **The Casualty**

- **Single gunshot wound to abdomen**
- **The casualty was alert initially but is now becoming confused**
- **The radial pulse is weak**
- **You have already started an IV and administered a gram of TXA**



# **TCCC Critical Decisions**

## **Circulation Case Study 2**

### **Casualty Dashboard**

- |                        |                                   |
|------------------------|-----------------------------------|
| • <b>AVPU</b>          | <b>Alert but confused</b>         |
| • <b>Airway</b>        | <b>Patent</b>                     |
| • <b>Breathing</b>     | <b>RR 20 and unlabored</b>        |
| • <b>Radial Pulse</b>  | <b>Present but rapid and weak</b> |
| • <b>O2 Saturation</b> | <b>96%</b>                        |



# **TCCC Critical Decisions**

## **Circulation Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer another gram of TXA**
- 2. Infuse 500 mL of Hextend**
- 3. Administer a unit of fresh whole blood as per unit protocol**
- 4. Administer 1 gm of ertapenem to prevent infection**





# **TCCC Critical Decisions**

## **Circulation Case Study 2**

### **Correct Answer and Feedback**

**3. Administer a unit of fresh whole blood as per unit protocol**

**The casualty has gone into shock from intra-abdominal hemorrhage. The best resuscitation fluid for hemorrhagic shock is whole blood and giving a unit of that should be the next action taken.**



# **TCCC Critical Decisions**

## **Circulation Case Study 3**

### **The Setting**

- **An Army infantry squad is on foot patrol in Iraq**
- **A dismounted IED detonates**
- **There are multiple casualties**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Circulation Case Study 3**

### **The Casualty**

- **Your casualty has bilateral lower extremity amputations**
- **There was previously severe bleeding from the amputation sites**
- **Limb tourniquets were quickly applied to both legs and are effective**
- **The casualty is alert and in significant pain**
- **His radial pulse is normal**
- **The casualty also has multiple penetrating wounds of the abdomen and pelvis**



# **TCCC Critical Decisions**

## **Circulation Case Study 3**

### **Casualty Dashboard**

- **AVPU** **Alert**
- **Airway** **Patent with patient dazed but breathing well**
- **Breathing** **RR 16 and unlabored**
- **Radial Pulse** **Strong**
- **O2 Saturation** **95%**



# **TCCC Critical Decisions**

## **Circulation Case Study 3**

### **Question**

**What is the NEXT action you should take?**

- 1. Start an IV and administer 1 gm of TXA**
- 2. Start an IV and administer 500 mL of Hextend, since there are no blood products available on this operation**
- 3. Administer 50 mg of ketamine IM**
- 4. Try to convert both tourniquets to other modes of hemorrhage control**



# **TCCC Critical Decisions**

## **Circulation Case Study 3**

### **Correct Answer and Feedback**

#### **1. Start an IV and administer TXA**

**This casualty does need battlefield analgesia, but the most important aspect of care right now is to start an IV and administer 1 gm of TXA. He is at risk of non-compressible hemorrhage due to his penetrating abdominal and pelvic wounds. He does not require fluid resuscitation at the moment.**





# **TCCC Critical Decisions**

## **Airway Case Study 1**

### **The Setting**

- **An IED detonates underneath a vehicle in a mounted convoy**
- **The vehicle is turned over by the blast**
- **The casualty is unconscious**
- **She is not wearing seat belt**
- **Her helmet is dented**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Airway Case Study 1**

### **The Casualty**

- **Blood and bruising over the right parietal area**
- **No facial injuries noted**
- **No other injuries noted**
- **The unconscious casualty has been removed from the vehicle and is in the supine position**
- **Chin lift maneuver accomplished**



# **TCCC Critical Decisions**

## **Airway Case Study 1**

### **Casualty Dashboard**

<b>• AVPU</b>	<b>Unconscious</b>
<b>• Airway</b>	<b>No injuries noted</b>
<b>• Breathing</b>	<b>RR 12 - shallow</b>
<b>• Radial Pulse</b>	<b>Normal</b>
<b>• O2 Saturation</b>	<b>70%</b>



# **TCCC Critical Decisions**

## **Airway Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Cricothyroidotomy**
- 2. Place casualty in a sit-up and lean forward position**
- 3. Start an IV**
- 4. Insert a nasopharyngeal airway**



# **TCCC Critical Decisions**

## **Airway Case Study 1**

### **Correct Answer and Feedback**

#### **4. Insert a nasopharyngeal airway**

**This casualty may have an airway obstruction. The low pulse oximetry reading indicates a critical level of hypoxia. This casualty needs her airway opened immediately. There are no facial injuries noted, so a cricothyroidotomy should not be attempted until less invasive measures have failed. The casualty should not be placed supported in a sitting position because of the potential for spinal cord injury. Inserting a nasopharyngeal airway is the best option of the choices shown.**



# **TCCC Critical Decisions**

## **Airway Case Study 2**

### **The Setting**

- **A small unit is on foot patrol**
- **There is incoming fire from two hostiles**
- **The hostile threat is quickly eliminated by the unit**
- **One of your unit members sustains a gunshot wound to the lower face**
- **There is no further effective incoming fire**





# **TCCC Critical Decisions**

## **Airway Case Study 2**

### **The Casualty**

- **The casualty is awake**
- **There are facial wounds to lower jaw and teeth**
- **There is blood in the mouth**
- **The casualty has noisy, rapid breathing while in the supine position**
- **He is struggling to breathe**



# **TCCC Critical Decisions**

## **Airway Case Study 2**

### **Casualty Dashboard**

<b>• AVPU</b>	<b>Alert</b>
<b>• Airway</b>	<b>Facial injuries</b>
<b>• Breathing</b>	<b>RR 22 - Noisy</b>
<b>• Radial Pulse</b>	<b>Strong</b>
<b>• O2 Saturation</b>	<b>75%</b>



# **TCCC Critical Decisions**

## **Airway Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Cricothyroidotomy**
- 2. Nasopharyngeal airway**
- 3. Endotracheal intubation**
- 4. Allow this conscious casualty to assume any position that best protects the airway, to include sitting up and leaning forward.**



# **TCCC Critical Decisions**

## **Airway Case Study 2**

### **Correct Answer and Feedback**

**4. Allow this conscious casualty to assume any position that best protects the airway, to include sitting up and leaning forward.**

**The diagnosis is airway obstruction due to his maxillofacial injuries. The principle is to open the airway. Since the casualty is conscious, allow him to assume any position that best protects his airway, to include sitting up and leaning forward.**



# **TCCC Critical Decisions**

## **Airway Case Study 3**

### **The Setting**

- **A Marine platoon is moving across an open field on foot**
- **Dismounted IED detonation**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Airway Case Study 3**

### **The Casualty**

- **The face and neck are peppered with shrapnel wounds**
- **The casualty is alert but noted to have labored respirations and moderate distress**
- **A small puncture wound is noted on the left side of neck with minimal bleeding**
- **But there is rapidly expanding swollen area under the skin of the neck immediately adjacent to the midline airway structures**





# **TCCC Critical Decisions**

## **Airway Case Study 3**

### **Casualty Dashboard**

- |                        |                                      |
|------------------------|--------------------------------------|
| • <b>AVPU</b>          | <b>Alert and in distress</b>         |
| • <b>Airway</b>        | <b>No blood or obstruction noted</b> |
| • <b>Breathing</b>     | <b>RR 22 - labored</b>               |
| • <b>Radial Pulse</b>  | <b>Strong</b>                        |
| • <b>O2 Saturation</b> | <b>65%</b>                           |



# **TCCC Critical Decisions**

## **Airway Case Study 3**

### **Question**

**What is the NEXT action you should take?**

- 1. Cricothyroidotomy using the CricKey device**
- 2. Nasopharyngeal airway**
- 3. Endotracheal intubation**
- 4. Help the casualty into the sit-up and lean-forward position**



# **TCCC Critical Decisions**

## **Airway Case Study 3**

### **Correct Answer and Feedback**

#### **1. Cricothyroidotomy using the CricKey device**

**The diagnosis is airway obstruction due to a rapidly expanding hematoma that has resulted from a shrapnel injury to a large blood vessel in the neck. A nasopharyngeal airway and the sit-up and lean-forward position will not help in this situation. The best next action is a cricothyroidotomy performed with local anesthesia.**



# **TCCC Critical Decisions**

## **Breathing Case Study 1**

### **The Setting**

- **A small unit is on patrol in a mountainous area**
- **The unit is ambushed, but hostile fire is quickly suppressed**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Breathing Case Study 1**

### **The Casualty**

- **Gunshot wound in right upper quadrant of the abdomen just below the plate**
- **No other wounds**
- **Casualty conscious**
- **Noted to have increasing difficulty breathing**
- **Breath sounds on the right are absent**



# **TCCC Critical Decisions**

## **Breathing Case Study 1**

### **Casualty Dashboard**

- |                        |                                  |
|------------------------|----------------------------------|
| • <b>AVPU</b>          | <b>Alert</b>                     |
| • <b>Airway</b>        | <b>Patent</b>                    |
| • <b>Breathing</b>     | <b>RR 24 - Noisy and labored</b> |
| • <b>Radial Pulse</b>  | <b>Strong</b>                    |
| • <b>O2 Saturation</b> | <b>80%</b>                       |





# **TCCC Critical Decisions**

## **Breathing Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Perform a cricothyroidotomy**
- 2. Perform a needle decompression on the right side**
- 2. Insert a chest tube**
- 4. Start an IV**



# **TCCC Critical Decisions**

## **Breathing Case Study 1**

### **Correct Answer and Feedback**

**2. Perform a needle decompression on the right side**

**The diagnosis is a suspected tension pneumothorax. Although the entry wound is in the abdomen, the bullet may have traveled into the chest and injured the right lung. The correct next action is to perform a needle decompression on the right side of the casualty's chest.**



# **TCCC Critical Decisions**

## **Breathing Case Study 2**

### **The Setting**

- **A small unit is patrolling in a mountainous area**
- **The unit is ambushed**
- **One unit member is hit**
- **Four hostiles are killed after an intense, 2-minute firefight**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Breathing Case Study 2**

### **The Casualty**

- **Gunshot wound in right upper quadrant of the abdomen just below the plate**
- **No other wounds**
- **The casualty is conscious but in pain**
- **He is noted to have increasing difficulty breathing**
- **There are absent breath sounds on the right**
- **Breath sounds are present on the left side**
- **Needle decompression is performed on the right side at the right 4<sup>th</sup> ICS at the anterior axillary line**
- **No improvement is noted**



# **TCCC Critical Decisions**

## **Breathing Case Study 2**

### **Casualty Dashboard**

- |                        |                          |
|------------------------|--------------------------|
| • <b>AVPU</b>          | <b>Alert</b>             |
| • <b>Airway</b>        | <b>Patent</b>            |
| • <b>Breathing</b>     | <b>RR 22 and labored</b> |
| • <b>Radial Pulse</b>  | <b>Rapid and thready</b> |
| • <b>O2 Saturation</b> | <b>80%</b>               |



# **TCCC Critical Decisions**

## **Breathing Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Perform a cricothyroidotomy**
- 2. Administer OTFC 800 ug**
- 3. Start an IV**
- 4. Repeat needle decompression at the 2 ICS in the right mid-clavicular line**





# **TCCC Critical Decisions**

## **Breathing Case Study 2**

### **Correct Answer and Feedback**

**4. Repeat needle decompression at the 2 ICS in the right mid-clavicular line**

**The diagnosis is a suspected tension pneumothorax. Since needle decompression at the lateral site on the right side did not improve the casualty's condition, the next step should be to move to an alternate decompression site. A cricothyroidotomy will not help a casualty with a tension pneumothorax. Anyone with respiratory distress and hypoxia should not be given opioids, since this will potentially depress respirations.**



# **TCCC Critical Decisions**

## **Breathing Case Study 3**

### **The Setting**

- **A platoon of Marines is approaching a village to meet with village leaders**
- **One Marine steps on a pressure-plate IED and it explodes**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Breathing Case Study 3**

### **The Casualty**

- **Facial peppering**
- **Below the knee amputation - left leg**
- **Above the knee amputation - right leg**
- **Multiple fragment wounds to pelvis and abdomen**
- **Leg bleeding is controlled with tourniquets**
- **15 minutes later, while waiting for evacuation, he is noted to have labored breathing**
- **He becomes confused, then loses consciousness**
- **Not breathing**
- **There is no radial or carotid pulse detectable**



# **TCCC Critical Decisions**

## **Breathing Case Study 3**

### **Casualty Dashboard**

- |                        |                                       |
|------------------------|---------------------------------------|
| • <b>AVPU</b>          | <b>Unconscious</b>                    |
| • <b>Airway</b>        | <b>Apparently patent</b>              |
| • <b>Breathing</b>     | <b>Not breathing</b>                  |
| • <b>Radial Pulse</b>  | <b>None</b>                           |
| • <b>O2 Saturation</b> | <b>Not displaying on the pulse ox</b> |



# **TCCC Critical Decisions**

## **Breathing Case Study 3**

### **Question**

**What is the NEXT action you should take?**

- 1. Perform CPR**
- 2. Perform needle decompression on both sides of the chest**
- 3. Declare the casualty deceased and discontinue care**
- 4. Start an IV**



# **TCCC Critical Decisions**

## **Breathing Case Study 3**

### **Correct Answer and Feedback**

**2. Perform needle decompression on both sides of the chest**

**This casualty has lost vital signs. This could be due to non-compressible hemorrhage, but it may also be due to bilateral tension pneumothoraces. Casualties with chest or abdominal trauma or polytrauma who suffer a traumatic cardiac arrest should have needle decompression performed on both sides of the chest. If the arrest was caused by a tension pneumothorax, this maneuver may result in a return of vital signs.**





# **TCCC Critical Decisions**

## **Breathing Case Study 4**

### **The Setting**

- **A vehicle-borne IED explodes near US troops**
- **Your casualty was near the explosion**
- **She was briefly unconscious.**
- **Her tympanic membranes are ruptured –  
difficulty hearing**
- **You are now caring for her on a TACEVAC flight  
to the Role II hospital.**



# **TCCC Critical Decisions**

## **Breathing Case Study 4**

### **The Casualty**

- **Your casualty is alert**
- **There is no external hemorrhage**
- **There is no obvious trauma to the chest or abdomen.**
- **Some shrapnel peppering on face and extremities**
- **But she is having labored respirations.**
- **You are unable to hear breath sounds because of helicopter noise**



# **TCCC Critical Decisions**

## **Breathing Case Study 4**

### **Casualty Dashboard**

- |                         |                               |
|-------------------------|-------------------------------|
| • <b>AVPU</b>           | <b>Alert</b>                  |
| • <b>Airway</b>         | <b>Patent</b>                 |
| • <b>Breathing</b>      | <b>RR 22 – Mildly labored</b> |
| • <b>Blood pressure</b> | <b>140/85</b>                 |
| • <b>O2 Saturation</b>  | <b>70%</b>                    |



# **TCCC Critical Decisions**

## **Breathing Case Study 4**

### **Question**

**What is the NEXT action you should take?**

- 1. Needle decompression of both sides of the chest**
- 2. Start an IV and administer TXA**
- 3. Insert a supraglottic airway**
- 4. Start supplemental oxygen**



# **TCCC Critical Decisions**

## **Breathing Case Study 4**

### **Correct Answer and Feedback**

#### **4. Start supplemental oxygen**

**This casualty is likely suffering from blast-induced pulmonary contusions. A tension pneumothorax is possible, but unlikely because there is no penetrating trauma and there was no evidence of blunt trauma on exam. Additionally, the casualty is NOT in shock - her blood pressure is 140/85. The blast wave from the explosion can injure the lung and interfere with oxygenation. Providing supplemental oxygen will help reverse the hypoxia induced by the blast-induced pulmonary contusions.**



# **TCCC Critical Decisions**

## **TBI Case Study 1**

### **The Setting**

- **A small unit is operating in a mountainous region**
- **The casualty was a passenger in a vehicle that was attacked with an IED**
- **The vehicle was turned over by the blast**
- **Casualty was unrestrained in his seat**
- **Unconscious after the IED detonation**
- **Lying on roof of vehicle**
- **Helmet is dented**
- **Casualty was removed from the vehicle with attention to possible spinal injuries**





# **TCCC Critical Decisions**

## **TBI Case Study 1**

### **The Casualty**

- **Casualty is now lying supine on a litter during helicopter TACEVAC**
- **C-Collar in place**
- **Still unconscious**
- **There is an open left-sided skull fracture**
- **No other injuries are noted**
- **Breathing is not labored**
- **A supraglottic airway is in place**



# **TCCC Critical Decisions**

## **TBI Case Study 1**

### **Casualty Dashboard**

- |                         |                          |
|-------------------------|--------------------------|
| • <b>AVPU</b>           | <b>Unconscious</b>       |
| • <b>Airway</b>         | <b>Patent</b>            |
| • <b>Breathing</b>      | <b>RR 12 - unlabored</b> |
| • <b>Blood pressure</b> | <b>135/85</b>            |
| • <b>O2 Saturation</b>  | <b>85%</b>               |



# **TCCC Critical Decisions**

## **TBI Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Start an IV and give a unit of red blood cells**
- 2. Perform a bilateral needle decompression of the chest**
- 3. Perform a surgical airway**
- 4. Start high-flow supplemental oxygen via reservoir mask to get oxygen saturation to 90% or higher**



# **TCCC Critical Decisions**

## **TBI Case Study 1**

### **Correct Answer and Feedback**

**4. Start high-flow supplemental oxygen via reservoir mask to get oxygen saturation to 90% or higher**

**Hypoxia (oxygen saturations below 90%) in casualties with moderate/severe TBI is associated with worsening of outcomes. This casualty should receive supplemental oxygen to improve his oxygenation status and reduce the likelihood of secondary brain injury.**



# **TCCC Critical Decisions**

## **TBI Case Study 2**

### **The Setting**

- **The casualty was a passenger in a vehicle that was attacked with an IED**
- **The vehicle was turned over in the explosion**
- **Casualty was unrestrained in his seat**
- **Unconscious for several minutes after the IED detonation**
- **Lying on roof of vehicle**
- **Helmet was dented**
- **She was removed from the vehicle with attention to possible spinal injuries**
- **Pupils were equal and reactive at the point of injury**
- **You are now caring for her on a TACEVAC flight to the Role II hospital.**



# **TCCC Critical Decisions**

## **TBI Case Study 2**

### **The Casualty**

- **Casualty is now lying supine on a litter during helicopter TACEVAC**
- **She was initially alert and followed commands**
- **Pupils were equal and reactive at the start of the flight**
- **There is a left-sided scalp laceration**
- **No other injuries are noted**
- **Breathing is not labored**
- **The casualty suddenly becomes confused and then loses consciousness**
- **One pupil is dilated and unresponsive**





# **TCCC Critical Decisions**

## **TBI Case Study 2**

### **Casualty Dashboard**

<b>• AVPU</b>	<b>Now unconscious</b>
<b>• Airway</b>	<b>Apparently patent</b>
<b>• Breathing</b>	<b>RR 18</b>
<b>• Blood pressure</b>	<b>150/100</b>
<b>• O2 Saturation</b>	<b>96% on supplemental oxygen</b>



# **TCCC Critical Decisions**

## **TBI Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer 250 mL of 3% hypertonic saline**
- 2. Perform an emergency cricothyroidotomy**
- 3. Elevate the foot of the casualty's litter**
- 4. Immediately begin therapeutic hypothermia by removing the casualty's HPMK**



# **TCCC Critical Decisions**

## **TBI Case Study 2**

### **Correct Answer and Feedback**

#### **1) Administer 250 mL of 3% hypertonic saline**

**The decreasing state of consciousness and the dilated pupil are signs of an impending cerebral herniation. The casualty should receive 250 mL of hypertonic saline and have the head of his litter elevated 30 degrees. His oxygen saturation is good, so there is no need to perform an emergency surgical airway. Therapeutic hypothermia should not be undertaken during TACEVAC.**



# **TCCC Critical Decisions**

## **Additional Case Study 1**

### **The Setting**

- **You are on a hostage rescue mission**
- **An 8-man team is looking for 3 hostages in a building**
- **The team suddenly comes under heavy fire**
- **The assaulter next to you is shot in the head**
- **The hostages have not yet been located**
- **The hostiles are moving and returning fire**
- **The tactical situation is dynamic**



# **TCCC Critical Decisions**

## **Additional Case Study 1**

### **The Casualty**

- **The casualty is lying on the floor with a massive head wound.**
- **Shots are still being exchanged with the hostile forces.**



# **TCCC Critical Decisions**

## **Additional Case Study 1**

### **Question**

**What is the NEXT action you should take?**

- 1. Stop the assault and examine the casualty for other wounds**
- 2. Stop the assault and start an IV**
- 3. Stop the assault and begin CPR as needed**
- 4. Continue the assault until the threat is eliminated and the hostages have been secured.**





# **TCCC Critical Decisions**

## **Additional Case Study 1**

### **Correct Answer and Feedback**

**4. Continue the assault until the threat is eliminated and the hostages have been secured.**

**In the context of a hostage rescue operation, the hostages are in grave danger until the threat has been eliminated. The correct action here is to continue the mission until the hostages have been located and their safety has been assured.**



# **TCCC Critical Decisions**

## **Additional Case Study 2**

### **The Setting**

- **A small unit is approaching a compound to search for weapons and drugs**
- **They suddenly come under fire**
- **Fire is suppressed but several unit members are injured**
- **There is no effective incoming fire at present**



# **TCCC Critical Decisions**

## **Additional Case Study 2**

### **The Casualty**

- **Gunshot wound to the left chest just above his plate**
- **The casualty is conscious and in severe pain**
- **His radial pulse is weak**
- **His breathing is deep and rapid**
- **Oxygen saturation was 85% prior to needle decompression**
- **After needle decompression, the casualty's breathing becomes slower and less labored**
- **His oxygen saturation improves to 92%**
- **An IV has been started, TXA has been given, and Hextend is running**
- **The severe pain persists and he repeatedly asks for pain medicine**



# **TCCC Critical Decisions**

## **Additional Case Study 2**

### **Casualty Dashboard**

- |                        |                       |
|------------------------|-----------------------|
| • <b>AVPU</b>          | <b>Alert</b>          |
| • <b>Airway</b>        | <b>Patent</b>         |
| • <b>Breathing</b>     | <b>RR 20</b>          |
| • <b>Radial Pulse</b>  | <b>Weak</b>           |
| • <b>O2 Saturation</b> | <b>92% at present</b> |



# **TCCC Critical Decisions**

## **Additional Case Study 2**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer OTFC 800 ug**
- 2. Administer 5 mg of IV morphine**
- 3. Administer 20 mg of IV ketamine**
- 4. Administer 10 mg of IM morphine**



# **TCCC Critical Decisions**

## **Additional Case Study 2**

### **Correct Answer and Feedback**

#### **3. Administer 20 mg of ketamine IV**

**The casualty has both pulmonary compromise and the potential for hemorrhagic shock. Opioids may worsen both conditions. The best choice for analgesia here is ketamine, which does not lower blood pressure or suppress respirations.**





# **TCCC Critical Decisions**

## **Additional Case Study 3**

### **The Setting**

- **An Army convoy has taken multiple casualties in an ambush**
- **There is no effective incoming fire at the moment**
- **One casualty has a gunshot wound to the knee**



# **TCCC Critical Decisions**

## **Additional Case Study 3**

### **The Casualty**

- **Gunshot wound to the right knee**
- **There was moderate bleeding that was quickly controlled with a tourniquet**
- **No other wounds**
- **Casualty in severe pain**
- **Asking loudly for pain medications**
- **There are multiple other casualties remaining to be treated**



# **TCCC Critical Decisions**

## **Additional Case Study 3**

### **Casualty Dashboard**

<b>• AVPU</b>	<b>Alert</b>
<b>• Airway</b>	<b>Patent</b>
<b>• Breathing</b>	<b>RR 18 and unlabored</b>
<b>• Radial Pulse</b>	<b>Strong</b>
<b>• O2 Saturation</b>	<b>98%</b>



# **TCCC Critical Decisions**

## **Additional Case Study 3**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer IM morphine 8 mg**
- 2. Administer OTFC 800 ug**
- 3. Give the casualty meloxicam and acetaminophen from the Combat Wound Medication Pack**
- 4. Withhold pain meds because of the risk of shock**



# **TCCC Critical Decisions**

## **Additional Case Study 3**

### **Correct Answer and Feedback**

#### **2. Administer OTFC 800 ug**

**This casualty needs analgesia. OTFC is as effective as IV morphine and its onset of action is very rapid. IM morphine is slower acting and a less desirable choice. Meloxicam and acetaminophen are less potent than OTFC. There is no need to withhold opioid analgesia from this casualty since he is not in shock and his bleeding is controlled with a tourniquet – he should get an 800 ug OTFC lozenge.**



# **TCCC Critical Decisions**

## **Additional Case Study 4**

### **The Setting**

- **A small unit sustains multiple casualties from an engagement with hostile forces**
- **There is no effective incoming fire at the moment**





# **TCCC Critical Decisions**

## **Additional Case Study 4**

### **The Casualty**

- **Your casualty has a gunshot wound to the right knee**
- **Heavy bleeding from the wound was controlled quickly with a tourniquet**
- **There are no other injuries**
- **The casualty has a strong radial pulse**
- **Casualty given 800 ug of OTFC for pain and the antibiotic ertapenem**
- **5 minutes later - the casualty suddenly has labored breathing and is confused**
- **Re-exam confirms no chest or abdominal wounds**
- **Breath sounds reveal bilateral wheezing**



# **TCCC Critical Decisions**

## **Additional Case Study 4**

### **Casualty Dashboard**

- |                        |                                |
|------------------------|--------------------------------|
| • <b>AVPU</b>          | <b>Alert but confused</b>      |
| • <b>Airway</b>        | <b>Raspy breathing</b>         |
| • <b>Breathing</b>     | <b>RR 26 - Noisy and rapid</b> |
| • <b>Radial Pulse</b>  | <b>Rapid and weak</b>          |
| • <b>O2 Saturation</b> | <b>82%</b>                     |



# **TCCC Critical Decisions**

## **Additional Case Study 4**

### **Question**

**What is the NEXT action you should take?**

- 1. Perform a bilateral needle chest decompression**
- 2. Administer 0.5 mg epinephrine by autoinjector**
- 3. Insert a supraglottic airway**
- 4. Start an IV**



# **TCCC Critical Decisions**

## **Additional Case Study 4**

### **Correct Answer and Feedback**

**2. Administer 0.5 mg epinephrine by autoinjector**

**Anaphylactic reactions to ertapenem are rare but they do occur. The presence of labored breathing and a weak pulse shortly after administering this medication require that this diagnosis be considered and appropriate treatment rendered. There is no chest trauma and other obvious cause for these severe signs in this casualty.**



# **TCCC Critical Decisions**

## **Additional Case Study 5**

### **The Setting**

- **A hand grenade detonates in a building**
- **One unit member has moderate pain and vision loss in his right eye after the explosion**
- **He was not wearing eye protection**
- **There is no effective incoming fire at the moment**



# **TCCC Critical Decisions**

## **Additional Case Study 5**

### **The Casualty**

- **The casualty is alert but in significant pain from his eye injury**
- **There is mild pain from several scattered fragment injuries on his extremities and abdomen, but no significant external bleeding is identified**
- **His right eye is red and tearing**
- **The cornea appears to be injured**
- **His right upper eyelid is lacerated**
- **On vision testing, he is unable to count fingers with that eye but can see hand motion**





# **TCCC Critical Decisions**

## **Additional Case Study 5**

### **Casualty Dashboard**

- |                        |                            |
|------------------------|----------------------------|
| • <b>AVPU</b>          | <b>Alert</b>               |
| • <b>Airway</b>        | <b>Patent</b>              |
| • <b>Breathing</b>     | <b>RR 18 and unlabored</b> |
| • <b>Radial Pulse</b>  | <b>Strong</b>              |
| • <b>O2 Saturation</b> | <b>98%</b>                 |



# **TCCC Critical Decisions**

## **Additional Case Study 5**

### **Question**

**What is the NEXT action you should take?**

- 1. Cover the eye with a rigid eye shield**
- 2. Perform a detailed eye exam with the aid of a tactical flashlight**
- 3. Apply a pressure patch to the injured eye**
- 4. Apply pressure patches to both eyes to minimize eye movement**



# **TCCC Critical Decisions**

## **Additional Case Study 5**

### **Correct Answer and Feedback**

#### **1. Cover the eye with a rigid eye shield**

**The injured eye should be immediately covered with a rigid eye shield to protect it from further injury or from accidental pressure being applied that might cause the ocular contents to extrude from the corneal laceration. DO NOT attempt to manipulate the eye to perform a more thorough exam. DO NOT apply a pressure patch to the injured eye.**



# **TCCC Critical Decisions**

## **Additional Case Study 6**

### **The Setting**

- **A small unit sustains multiple casualties from a small arms engagement**
- **Your casualty has a gunshot wound to the right knee**
- **There are no other injuries**



# **TCCC Critical Decisions**

## **Additional Case Study 6**

### **The Casualty**

- **You are now on board a helicopter in the TACEVAC phase of care**
- **Severe pain during Tactical Field Care was treated with IM morphine x 3**
- **Bleeding from the wound was controlled quickly with a tourniquet**
- **The casualty continues to complain of pain**
- **You give the casualty 5 more mg of IV morphine x 2 at 10 minute intervals in an attempt to relieve his pain**
- **The casualty experiences relief of his pain**
- **But soon appears sleepy and confused**



# **TCCC Critical Decisions**

## **Additional Case Study 6**

### **Casualty Dashboard**

- |                         |                         |
|-------------------------|-------------------------|
| • <b>AVPU</b>           | <b>Awake but drowsy</b> |
| • <b>Airway</b>         | <b>Patent</b>           |
| • <b>Breathing</b>      | <b>RR 8</b>             |
| • <b>Blood Pressure</b> | <b>95/70</b>            |
| • <b>O2 Saturation</b>  | <b>79%</b>              |





# **TCCC Critical Decisions**

## **Additional Case Study 6**

### **Question**

**What is the NEXT action you should take?**

- 1. Administer a unit of packed red blood cells**
- 2. Stop using IV morphine and switch to 50 mg of ketamine as your next option**
- 3. Administer 0.4 mg of naloxone IV**
- 4. Administer 1 gm of TXA**



# **TCCC Critical Decisions**

## **Additional Case Study 6**

### **Correct Answer and Feedback**

#### **3) Administer 0.4 mg of naloxone IV**

**This scenario depicts a casualty suffering from an opioid overdose. IM morphine acts slowly, and the lack of pain relief may cause the combat medical provider to administer multiple doses of morphine, as in this scenario. When the morphine begins to take effect 30-45 minutes later, the multiple doses may act on concert with the IV morphine to produce an overdose. The next action should be to administer IV naloxone.**



# **TCCC Critical Decisions**

## **Additional Case Study 7**

### **The Setting**

- **A mission team is clearing a building**
- **One person is moving near the edge of the roof of a two-story building**
- **The person is hit by small arms fire in his body armor plates**
- **He stumbles backwards and falls from the roof**
- **There is no effective incoming fire at present**
- **Hostile fire is intensifying from nearby buildings**
- **Rounds are landing near you and your casualty**



# **TCCC Critical Decisions**

## **Additional Case Study 7**

### **The Casualty**

- **The casualty is unconscious when you get to him**
- **Hostile fire is intensifying from nearby buildings**
- **There are rounds landing near you and your casualty**
- **There is no obvious external bleeding**



# **TCCC Critical Decisions**

## **Additional Case Study 7**

### **Question**

**What is the NEXT action you should take?**

- 1. Intubate the casualty to secure his airway**
- 2. Await the arrival of a commercial litter before attempting to move the casualty to cover**
- 3. Start an IV**
- 4. Immediately move the casualty to the nearest cover by supporting his head and dragging him along the long axis of his body.**



# **TCCC Critical Decisions**

## **Additional Case Study 7**

### **Correct Answer and Feedback**

**4. Immediately move the casualty to the nearest cover by supporting his head and dragging him along the long axis of his body.**

**This casualty has a potential spinal cord injury that must be considered as well as likely TBI. He may also have noncompressible hemorrhage and multiple musculoskeletal injuries from his fall. But the first consideration at the moment is to move him to cover so that he (and you) will not be injured further by hostile fire.**



Questions?