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Indomitable Spirit
and Sacrifices of
the SOF Medic*

A Peer-Reviewed Journal that Brings Together the Global Interests of Special Operations' First Responders

TCCC UPDATES

Tactical Combat Casualty Care Guidelines for Medical Personnel: 3 June 2015

All changes to the guidelines made since the 140602 annual update are shown in **bold text**. These recommendations are intended to be guidelines only and are not a substitute for clinical judgment.

Basic Management Plan for Care Under Fire

1. Return fire and take cover.
 2. Direct or expect casualty to remain engaged as a combatant if appropriate.
 3. Direct casualty to move to cover and apply self-aid if able.
 4. Try to keep the casualty from sustaining additional wounds.
 5. Casualties should be extricated from burning vehicles or buildings and moved to places of relative safety. Do what is necessary to stop the burning process.
 6. Airway management is generally best deferred until the Tactical Field Care phase.
 7. Stop life-threatening external hemorrhage if tactically feasible:
 - Direct casualty to control hemorrhage by self-aid if able.
 - Use a Committee on Tactical Combat Casualty Care (CoTCCC)-recommended **limb tourniquet for hemorrhage that is anatomically amenable to tourniquet use**.
 - **Apply the limb tourniquet over the uniform clearly proximal to the bleeding site(s). If the site of the life-threatening bleeding is not readily apparent, place the tourniquet “high and tight” (as proximal as possible) on the injured limb and move the casualty to cover.**
3. Breathing
 - a. In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax and decompress the chest on the side of the injury with a 14-gauge, 3.25-inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed toward the heart. An acceptable alternate site is the fourth or fifth intercostal space at the anterior axillary line (AAL).
 - b. All open and/or sucking chest wounds should be treated by immediately applying a vented chest seal to cover the defect. If a vented chest seal is not available, use a non-vented chest seal. Monitor the casualty for the potential development of a subsequent tension pneumothorax. If the casualty develops increasing hypoxia, respiratory distress, or hypotension and a tension pneumothorax is suspected, treat by burping or removing the dressing or by needle decompression.
 - c. Casualties with moderate/severe traumatic brain injury (TBI) should be given supplemental oxygen when available to maintain an oxygen saturation > 90%.

Basic Management Plan for Tactical Field Care

1. Casualties with an altered mental status should be disarmed immediately.
 2. Airway management
 - a. Unconscious casualty without airway obstruction:
 - Chin lift or jaw thrust maneuver
 - Nasopharyngeal airway
 - Place casualty in the recovery position
 - b. Casualty with airway obstruction or impending airway obstruction:
 - Chin lift or jaw thrust maneuver
 - Nasopharyngeal airway
 - Allow casualty to assume any position that best protects the airway, to include sitting up.
 - Place unconscious casualty in the recovery position.
 - c. If the previous measures are unsuccessful, **perform a surgical cricothyroidotomy using one of the following:**
 - Cric-Key technique (Preferred option)
 - **Bougie-aided open surgical technique using a flanged and cuffed airway cannula of less than 10mm outer diameter, 6mm to 7mm internal diameter, and 5cm to 8cm of intratracheal length**
4. Bleeding
 - a. Assess for unrecognized hemorrhage and control all sources of bleeding. If not already done, use a CoTCCC-recommended **limb tourniquet** to control life-threatening external hemorrhage that is anatomically amenable to tourniquet use or for any traumatic amputation. Apply directly to the skin 2 to 3 inches above the wound. **If bleeding is not controlled with the first tourniquet, apply a second tourniquet side-by-side with the first.**
 - b. For compressible hemorrhage not amenable to limb tourniquet use or as an adjunct to tourniquet removal, use Combat Gauze™ as the CoTCCC hemostatic dressing of choice. **Celox™ Gauze and ChitoGauze® may also be used if Combat Gauze is not available. Hemostatic dressings should be applied with at least 3 minutes of direct pressure. If the bleeding site is amenable to use of a junctional tourniquet, immediately apply a CoTCCC-recommended junctional tourniquet. Do not delay in**

the application of the junctional tourniquet once it is ready for use. Apply hemostatic dressings with direct pressure if a junctional tourniquet is not available or while the junctional tourniquet is being readied for use.

- c. Reassess prior tourniquet application. Expose the wound and determine if a tourniquet is needed. If it is, replace any limb tourniquet placed over the uniform with one applied directly to the skin 2 to 3 inches above wound. **Ensure that bleeding is stopped. When possible, a distal pulse should be checked. If bleeding persists or a distal pulse is still present, consider additional tightening of the tourniquet or the use of a second tourniquet side-by-side with the first to eliminate both bleeding and the distal pulse.**
 - d. **Limb tourniquets and junctional tourniquets should be converted to hemostatic or pressure dressings as soon as possible if three criteria are met: the casualty is not in shock; it is possible to monitor the wound closely for bleeding; and the tourniquet is not being used to control bleeding from an amputated extremity. Every effort should be made to convert tourniquets in less than 2 hours if bleeding can be controlled with other means. Do not remove a tourniquet that has been in place more than 6 hours unless close monitoring and lab capability are available.**
 - e. Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.
5. Intravenous (IV) access
- Start an 18-gauge IV line or saline lock if indicated.
 - If resuscitation is required and IV access is not obtainable, use the intraosseous (IO) route.

6. 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 1g of TXA in 100mL normal saline or lactated Ringer's as soon as possible but NOT later than 3 hours after injury.
- Begin second infusion of 1g TXA after Hextend or other fluid treatment.

7. Fluid resuscitation

a. The resuscitation fluids of choice for casualties in hemorrhagic shock, listed from most to least preferred, are: whole blood*; plasma, red blood cells (RBCs), and platelets in 1:1:1 ratio*; plasma and RBCs in 1:1 ratio; plasma or RBCs alone; Hextend; and crystalloid (lactated Ringer's or Plasma-Lyte® A).

b. Assess for hemorrhagic shock (altered mental status in the absence of brain injury and/or weak or absent radial pulse).

1. If not in shock:
 - No IV fluids are immediately necessary.
 - Fluids by mouth are permissible if the casualty is conscious and can swallow.
2. If in shock and blood products are available under an approved command or theater blood product administration protocol:
 - Resuscitate with whole blood*, or, if not available
 - Plasma, RBCs, and platelets in a 1:1:1 ratio*, or, if not available

- Plasma and RBCs in 1:1 ratio, or, if not available;
- Reconstituted dried plasma, liquid plasma, or thawed plasma alone or RBCs alone;
- Reassess the casualty after each unit. Continue resuscitation until a palpable radial pulse, improved mental status, or systolic blood pressure (BP) of 80-90 mmHg is present.

3. If in shock and blood products are not available under an approved command or theater blood product administration protocol due to tactical or logistical constraints:

- Resuscitate with Hextend, or if not available;
- Lactated Ringer's or Plasma-Lyte A;
- Reassess the casualty after each 500 mL IV bolus;
- Continue resuscitation until a palpable radial pulse, improved mental status, or systolic BP of 80 to 90mmHg is present.
- Discontinue fluid administration when one or more of the above end points has been achieved.

4. If a casualty with an altered mental status due to suspected TBI has a weak or absent peripheral pulse, resuscitate as necessary to restore and maintain a normal radial pulse. If BP monitoring is available, maintain a target systolic BP of at least 90mmHg.

5. Reassess the casualty frequently to check for recurrence of shock. If shock recurs, recheck all external hemorrhage control measures to ensure that they are still effective and repeat the fluid resuscitation as outlined above.

*Neither whole blood nor apheresis platelets as these products are currently collected in theater are FDA compliant. **Consequently, whole blood and 1:1:1 resuscitation using apheresis platelets should be used only if all of the FDA-compliant blood products needed to support 1:1:1 resuscitation are not available or if 1:1:1 resuscitation is not producing the desired clinical effect.**

8. Prevention of hypothermia

- a. Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.
- b. Replace wet clothing with dry if possible. Get the casualty onto an insulated surface as soon as possible.
- c. 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).
- d. If an HRS is not available, the previously recommended combination of the Blizzard Survival Blanket and the Ready Heat blanket may also be used.
- e. If the items mentioned above are not available, use dry blankets, poncho liners, sleeping bags, or anything that will retain heat and keep the casualty dry.
- f. Warm fluids are preferred if IV fluids are required.

9. Penetrating eye trauma

If a penetrating eye injury is noted or suspected:

- a. Perform a rapid field test of visual acuity.
- b. Cover the eye with a rigid eye shield (NOT a pressure patch.)
- c. Ensure that the 400mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given as outlined below if oral moxifloxacin cannot be taken.

10. Monitoring
Pulse oximetry should be available as an adjunct to clinical monitoring. All individuals with moderate/severe TBI should be monitored with pulse oximetry. Readings may be misleading in the settings of shock or marked hypothermia.
11. Inspect and dress known wounds.
12. Check for additional wounds.
13. Analgesia on the battlefield should generally be achieved using one of three options:
 - Option 1
Mild to Moderate Pain
Casualty is still able to fight
 - TCCC Combat pill pack:
 - Tylenol: 650mg bilayer caplet, 2 PO every 8 hours
 - Meloxicam: 15mg PO once a day
 - Option 2
Moderate to Severe Pain
Casualty IS NOT in shock or respiratory distress AND
Casualty IS NOT at significant risk of developing either condition
 - Oral transmucosal fentanyl citrate (OTFC) 800µg
 - Place lozenge between the cheek and the gum
 - Do not chew the lozenge
 - Option 3
Moderate to Severe Pain
Casualty IS in hemorrhagic shock or respiratory distress
OR
Casualty IS at significant risk of developing either condition
 - Ketamine 50mg IM or IN
 - OR
 - Ketamine 20mg slow IV or IO
 - *Repeat doses q30min prn for IM or IN
 - *Repeat doses q20min prn for IV or IO
 - *End points: Control of pain or development of nystagmus (rhythmic back-and-forth movement of the eyes)

*Analgesia notes

 - a. Casualties may need to be disarmed after being given OTFC or ketamine.
 - b. Document a mental status exam using the AVPU method prior to administering opioids or ketamine.
 - c. For all casualties given opioids or ketamine – monitor airway, breathing, and circulation closely
 - d. Directions for administering OTFC:
 - Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure OR utilizing a safety pin and rubber band to attach the lozenge (under tension) to the patient's uniform or plate carrier.
 - Reassess in 15 minutes
 - Add second lozenge, in other cheek, as necessary to control severe pain
 - Monitor for respiratory depression
 - e. IV morphine is an alternative to OTFC if IV access has been obtained
 - 5mg IV/IO
 - Reassess in 10 minutes.
 - Repeat dose every 10 minutes as necessary to control severe pain.
 - Monitor for respiratory depression.
 - f. Naloxone (0.4mg IV or IM) should be available when using opioid analgesics.
 - g. Both ketamine and OTFC have the potential to worsen severe TBI. The Combat Medic, Corpsman, or PJ must consider this fact in his or her analgesic decision, but if the casualty is able to complain of pain, then the TBI is likely not severe enough to preclude the use of ketamine or OTFC.
 - h. Eye injury does not preclude the use of ketamine. The risk of additional damage to the eye from using ketamine is low and maximizing the casualty's chance for survival takes precedence if the casualty is in shock or respiratory distress or at significant risk for either.
 - i. Ketamine may be a useful adjunct to reduce the amount of opioids required to provide effective pain relief. It is safe to give ketamine to a casualty who has previously received morphine or OTFC. IV ketamine should be given over 1 minute.
 - j. If respirations are noted to be reduced after using opioids or ketamine, provide ventilatory support with a bag-valve-mask or mouth-to-mask ventilations.
 - k. **Ondansetron, 4mg ODT/IV/IO/IM, every 8 hours as needed for nausea or vomiting. Each 8hour dose can be repeated once at 15 minutes if nausea and vomiting are not improved. Do not give more than 8mg in any 8hour interval. Oral ondansetron is NOT an acceptable alternative to the ODT formulation.**
 - l. Reassess – reassess – reassess!

14. Splint fractures and recheck pulses.
15. Antibiotics: recommended for all open combat wounds
 - a. If able to take PO:
 - Moxifloxacin 400mg PO one a day
 - b. If unable to take PO (shock, unconsciousness):
 - Cefotetan 2g IV (slow push over 3 to 5 minutes) or IM every 12 hours
 - OR
 - Ertapenem 1g IV/IM once a day
16. 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.
 - 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.
 - 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 1000mL should be given, followed by lactated Ringer's or normal saline as needed.
 - Initial IV/IO fluid rate is calculated as %TBSA × 10mL/hr for adults weighing 40 to 80kg.
 - For every 10kg ABOVE 80kg, increase initial rate by 100mL/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 7.
- e. Analgesia in accordance with the TCCC Guidelines in Section 13 may be administered to treat burn pain.
 - f. Prehospital antibiotic therapy is not indicated solely for burns, but antibiotics should be given per the TCCC guidelines in Section 15 if indicated to prevent infection in penetrating wounds.
 - g. All TCCC interventions can be performed on or through burned skin in a burn casualty.
17. Communicate with the casualty if possible.
- Encourage; reassure
 - Explain care
18. Cardiopulmonary resuscitation (CPR)
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 3a above.
19. Documentation of Care
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.

Basic Management Plan for Tactical Evacuation Care

*The term "Tactical Evacuation" includes both Casualty Evacuation (CASEVAC) and Medical Evacuation (MEDEVAC) as defined in Joint Publication 4-02.

1. Airway management
 - a. Unconscious casualty without airway obstruction:
 - Chin lift or jaw thrust maneuver
 - Nasopharyngeal airway
 - Place casualty in the recovery position
 - b. Casualty with airway obstruction or impending airway obstruction:
 - Chin lift or jaw thrust maneuver
 - Nasopharyngeal airway
 - Allow casualty to assume any position that best protects the airway, to include sitting up.
 - Place unconscious casualty in the recovery position.
 - If the previous measures are unsuccessful, assess the tactical and clinical situations, the equipment at hand, and the skills and experience of the person providing care, and then select one of the following airway interventions:
 - Supraglottic airway, or
 - Endotracheal intubation or
 - Perform a surgical cricothyroidotomy using one of the following:
 - Cric-Key technique (Preferred option)
 - Bougie-aided open surgical technique using a flanged and cuffed airway cannula of less than 10mm outer diameter, 6mm to 7mm internal diameter, and 5cm to 8cm of intratracheal length
 - Standard open surgical technique using a flanged and cuffed airway cannula of less than 10mm outer diameter, 6mm to 7mm internal diameter, and 5cm to 8cm of intratracheal length (Least desirable option)
 - Use lidocaine if the casualty is conscious.
 - c. Spinal immobilization is not necessary for casualties with penetrating trauma.
2. Breathing
- a. In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax and decompress the chest on the side of the injury with a 14-gauge, 3.25-inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed toward the heart. An acceptable alternate site is the fourth or fifth intercostal space at the anterior axillary line (AAL).
 - b. Consider chest tube insertion if no improvement and/or long transport is anticipated.
 - c. Most combat casualties do not require supplemental oxygen, but administration of oxygen may be of benefit for the following types of casualties:
 - Low oxygen saturation by pulse oximetry
 - Injuries associated with impaired oxygenation
 - Unconscious casualty
 - Casualty with TBI (maintain oxygen saturation > 90%)
 - Casualty in shock
 - Casualty at altitude
 - d. All open and/or sucking chest wounds should be treated by immediately applying a vented chest seal to cover the defect. If a vented chest seal is not available, use a non-vented chest seal. Monitor the casualty for the potential development of a subsequent tension pneumothorax. If the casualty develops increasing hypoxia, respiratory distress, or hypotension and a tension pneumothorax is suspected, treat by burping or removing the dressing or by needle decompression.
3. Bleeding
- a. Assess for unrecognized hemorrhage and control all sources of bleeding. If not already done, use a CoTCCC-recommended limb tourniquet to control life-threatening external hemorrhage that is anatomically amenable to tourniquet use or for any traumatic amputation. Apply directly to the skin 2 to 3 inches above the wound. **If bleeding is not controlled with the first tourniquet, apply a second tourniquet side-by-side with the first.**
 - b. For compressible hemorrhage not amenable to limb tourniquet use or as an adjunct to tourniquet removal, use Combat Gauze as the CoTCCC hemostatic dressing of choice. Celox Gauze and ChitoGauze may also be used if Combat Gauze is not available. Hemostatic dressings should be applied with at least 3 minutes of direct pressure. If the bleeding site is amenable to use of a junctional tourniquet, immediately apply a CoTCCC-recommended junctional tourniquet. Do not delay in the application of the junctional tourniquet once it is ready for use. Apply hemostatic dressings with direct pressure if a junctional tourniquet is not available or while the junctional tourniquet is being readied for use.

- c. Reassess prior tourniquet application. Expose the wound and determine if a tourniquet is needed. If it is, replace any limb tourniquet placed over the uniform with one applied directly to the skin 2 to 3 inches above wound. **Ensure that bleeding is stopped. When possible, a distal pulse should be checked. If bleeding persists or a distal pulse is still present, consider additional tightening of the tourniquet or the use of a second tourniquet side-by-side with the first to eliminate both bleeding and the distal pulse.**
 - d. Limb tourniquets and junctional tourniquets should be converted to hemostatic or pressure dressings as soon as possible if three criteria are met: the casualty is not in shock; it is possible to monitor the wound closely for bleeding; and the tourniquet is not being used to control bleeding from an amputated extremity. Every effort should be made to convert tourniquets in less than 2 hours if bleeding can be controlled with other means. **Do not remove a tourniquet that has been in place more than 6 hours unless close monitoring and lab capability are available.**
 - e. Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.
4. Intravenous (IV) access
 - a. Reassess need for IV access.
 - If indicated, start an 18-gauge IV or saline lock
 - If resuscitation is required and IV access is not obtainable, use intraosseous (IO) route.
 5. 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 1g of TXA in 100mL normal saline or lactated Ringer's as soon as possible but NOT later than 3 hours after injury.

 - Begin second infusion of 1g TXA after Hextend or other fluid treatment.
 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. O₂ saturation > 90
 5. Hypothermia
 6. PCO₂ (If capnography is available, maintain between 35 and 40mmHg)
 7. Penetrating head trauma (if present, administer antibiotics)
 8. Assume a spinal (neck) injury until cleared.
 - 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 250mL of 3% or 5% hypertonic saline bolus.
 2. Elevate the casualty's head 30 degrees.
 3. Hyperventilate the casualty.
 - a) Respiratory rate 20
 - b) Capnography should be used to maintain the end-tidal CO₂ between 30 and 35mmHg

- c) The highest oxygen concentration (FIO₂) possible should be used for hyperventilation.

*Notes:

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

7. Fluid resuscitation

- a. The resuscitation fluids of choice for casualties in hemorrhagic shock, listed from most to least preferred, are: whole blood*; plasma, RBCs, and platelets in 1:1:1 ratio*; plasma and RBCs in 1:1 ratio; plasma or RBCs alone; Hextend; and crystalloid (lactated Ringer's or Plasma-Lyte A).
- b. Assess for hemorrhagic shock (altered mental status in the absence of brain injury and/or weak or absent radial pulse).
 1. If not in shock:
 - No IV fluids are immediately necessary.
 - Fluids by mouth are permissible if the casualty is conscious and can swallow.
 2. If in shock and blood products are available under an approved command or theater blood product administration protocol:
 - Resuscitate with whole blood*, or, if not available
 - Plasma, RBCs and platelets in a 1:1:1 ratio*, or, if not available
 - Plasma and RBCs in 1:1 ratio, or, if not available;
 - Reconstituted dried plasma, liquid plasma, or thawed plasma alone or RBCs alone;
 - Reassess the casualty after each unit. Continue resuscitation until a palpable radial pulse, improved mental status, or systolic BP of 80 to 90mmHg is present.
 3. If in shock and blood products are not available under an approved command or theater blood product administration protocol due to tactical or logistical constraints:
 - Resuscitate with Hextend, or if not available;
 - Lactated Ringer's or Plasma-Lyte A;
 - Reassess the casualty after each 500mL IV bolus;
 - Continue resuscitation until a palpable radial pulse, improved mental status, or systolic BP of 80 to 90mmHg is present.
 - Discontinue fluid administration when one or more of the above end points has been achieved.
 4. If a casualty with an altered mental status due to suspected TBI has a weak or absent peripheral pulse, resuscitate as necessary to restore and maintain a normal radial pulse. If BP monitoring is available, maintain a target systolic BP of at least 90mmHg.
 5. Reassess the casualty frequently to check for recurrence of shock. If shock recurs, recheck all external hemorrhage control measures to ensure that they are still effective and repeat the fluid resuscitation as outlined above.

*Neither whole blood nor apheresis platelets as these products are currently collected in theater are FDA-compliant. **Consequently, whole blood and 1:1:1 resuscitation using apheresis platelets should be used only if all of the FDA-compliant blood products needed to support 1:1:1 resuscitation are not**

available, or if 1:1:1 resuscitation is not producing the desired clinical effect.

8. Prevention of hypothermia
 - a. Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.
 - b. Replace wet clothing with dry if possible. Get the casualty onto an insulated surface as soon as possible.
 - c. 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).
 - d. If an HRS is not available, the previously recommended combination of the Blizzard Survival Blanket and the Ready Heat blanket may also be used.
 - e. If the items mentioned above are not available, use poncho liners, sleeping bags, or anything that will retain heat and keep the casualty dry.
 - f. Use a portable fluid warmer capable of warming all IV fluids including blood products.
 - g. Protect the casualty from wind if doors must be kept open.
9. Penetrating eye trauma
If a penetrating eye injury is noted or suspected:
 - a. Perform a rapid field test of visual acuity.
 - b. Cover the eye with a rigid eye shield (NOT a pressure patch).
 - c. Ensure that the 400mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given as outlined below if oral moxifloxacin cannot be taken.
10. Monitoring
Institute pulse oximetry and other electronic monitoring of vital signs, if indicated. All individuals with moderate/severe TBI should be monitored with pulse oximetry.
11. Inspect and dress known wounds if not already done.
12. Check for additional wounds.
13. Analgesia on the battlefield should generally be achieved using one of three options:
Option 1
Mild to Moderate Pain
Casualty is still able to fight
 - TCCC Combat pill pack:
 - Tylenol: 650mg bilayer caplet, 2 PO every 8 hours
 - Meloxicam: 15mg PO once a dayOption 2
Moderate to Severe Pain
Casualty IS NOT in shock or respiratory distress AND
Casualty IS NOT at significant risk of developing either condition
 - Oral transmucosal fentanyl citrate (OTFC) 800µg
 - Place lozenge between the cheek and the gum
 - Do not chew the lozengeOption 3
Moderate to Severe Pain
Casualty IS in hemorrhagic shock or respiratory distress
OR
Casualty IS at significant risk of developing either condition
 - Ketamine 50mg IM or IN
 - OR
 - Ketamine 20mg slow IV or IO

- *Repeat doses q30min prn for IM or IN
- *Repeat doses q20min prn for IV or IO
- *End points: Control of pain or development of nystagmus (rhythmic back-and-forth movement of the eyes)
- *Analgesia notes
 - a. Casualties may need to be disarmed after being given OTFC or ketamine.
 - b. Document a mental status exam using the AVPU method prior to administering opioids or ketamine.
 - c. For all casualties given opioids or ketamine – monitor airway, breathing, and circulation closely
 - d. Directions for administering OTFC:
 - Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure OR utilizing a safety pin and rubber band to attach the lozenge (under tension) to the patient's uniform or plate carrier.
 - Reassess in 15 minutes
 - Add second lozenge, in other cheek, as necessary to control severe pain
 - Monitor for respiratory depression
 - e. IV Morphine is an alternative to OTFC if IV access has been obtained
 - 5mg IV/IO
 - Reassess in 10 minutes.
 - Repeat dose every 10 minutes as necessary to control severe pain.
 - Monitor for respiratory depression.
 - f. Naloxone (0.4mg IV or IM) should be available when using opioid analgesics.
 - g. Both ketamine and OTFC have the potential to worsen severe TBI. The Combat Medic, Corpsman, or PJ must consider this fact in his or her analgesic decision, but if the casualty is able to complain of pain, then the TBI is likely not severe enough to preclude the use of ketamine or OTFC.
 - h. Eye injury does not preclude the use of ketamine. The risk of additional damage to the eye from using ketamine is low and maximizing the casualty's chance for survival takes precedence if the casualty is in shock or respiratory distress or at significant risk for either.
 - i. Ketamine may be a useful adjunct to reduce the amount of opioids required to provide effective pain relief. It is safe to give ketamine to a casualty who has previously received morphine or OTFC. IV ketamine should be given over 1 minute.
 - j. If respirations are noted to be reduced after using opioids or ketamine, provide ventilatory support with a bag-valve-mask or mouth-to-mask ventilations.
 - k. **Ondansetron 4mg ODT/IV/IO/IM, every 8 hours as needed for nausea or vomiting. Each 8hour dose can be repeated once at 15 minutes if nausea and vomiting are not improved. Do not give more than 8mg in any 8hour interval. Oral ondansetron is NOT an acceptable alternative to the ODT formulation.**
 - l. Reassess – reassess – reassess!
- 14. Reassess fractures and recheck pulses.
- 15. Antibiotics: recommended for all open combat wounds
 - a. If able to take PO:
 - Moxifloxacin 400mg PO one a day

- b. If unable to take PO (shock, unconsciousness):
 - Cefotetan 2g IV (slow push over 3 to 5 minutes) or IM every 12 hours
 - OR
 - Ertapenem 1g IV/IM once a day
- 16. 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.
 - 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.
 - 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 1000mL should be given, followed by lactated Ringer's or normal saline as needed.
 - Initial IV/IO fluid rate is calculated as %TBSA × 10mL/hr for adults weighing 40 to 80kg.
 - For every 10kg ABOVE 80kg, increase initial rate by 100mL/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 7.
 - e. Analgesia in accordance with the TCCC Guidelines in Section 13 may be administered to treat burn pain.
 - f. Prehospital antibiotic therapy is not indicated solely for burns, but antibiotics should be given per the TCCC guidelines in Section 15 if indicated to prevent infection in penetrating wounds.
 - 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 and IV fluid warming in this phase.
- 17. The Pneumatic Antishock Garment (PASG) may be useful for stabilizing pelvic fractures and controlling pelvic and abdominal bleeding. Application and extended use must be carefully monitored. The PASG is contraindicated for casualties with thoracic or brain injuries.
- 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 2a above.
 - 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.

19. Documentation of Care

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.



Attention Exhibitors! Please plan to join us for the 2015 SOMA Symposium (formerly known as mini-SOMA) December 14-16, 2015 in San Marcos, Texas.

Each 10x10 booth will include pipe and drape, one line identification sign and two (2) booth representatives. Booths will be assigned on a first-paid, first-served basis.

Preference will be given to Symposium supporters and exhibitors who also sign up for the SOMA Scientific Assembly 2016 (SOMSA), to be held May 23-26, 2016 in Charlotte, North Carolina.

Companies who commit to register for SOMSA 2016 when registering for the 2015 SOMA Symposium will receive a \$250 discount on their Scientific Assembly Exhibit fee and two (2) additional booth representatives for the Exhibit Hall at SOMSA.

For complete details visit the [Exhibitors/Sponsors](#) page of the SOMA website located under the Meetings/Events menu. Early registration deadline is September 29!

Tactical Combat Casualty Care Training: The Need for a Standard



Dr. Frank Butler
Joint Trauma System
5 May 2015



Disclaimer

"The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Departments of the Army, Air Force, Navy or the Department of Defense."



BLUF

- Tremendous advances have been made in battlefield trauma care throughout OEF/OIF
 - These are captured in the TCCC Guidelines and the TCCC training curriculum
- BUT - TCCC training in the US Military is currently inconsistent; some courses are of very poor quality
- Improper TCCC training has been directly associated with adverse outcomes
- TCCC courses as taught by NAEMT will greatly improve the quality of TCCC training - and at less expense to the DoD than vendor-taught courses

Tactical Combat Casualty Care




The Prehospital Arm of the Joint Trauma System


TCCC

- Medics, Corpsmen, PJs
- Combat Lifesavers
- All Combatant Self/Buddy Care
- Includes Tactical Evacuation Care

Photo – MSG Harold Montgomery

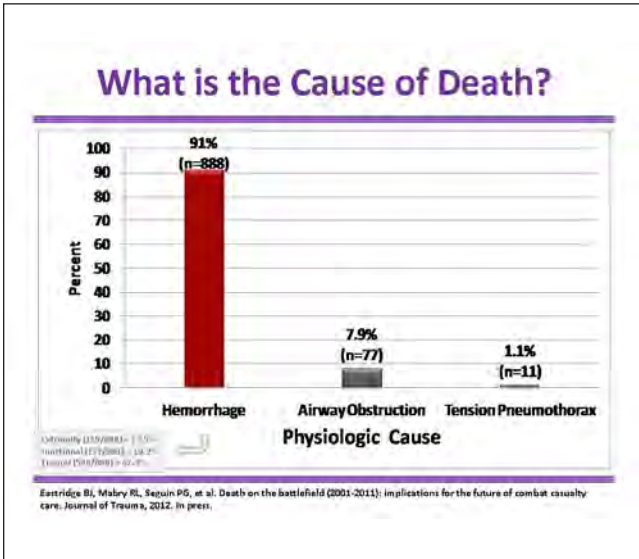


Preventable Death on the Battlefield: OEF and OIF



Eastridge 2012 Study

- **4,596** U.S. deaths
- **87%** of combat fatalities were pre-hospital
- **24%** of these deaths were potentially preventable




Battlefield Trauma Care: 1970


“All seem uncertain regarding the best method to implement factual knowledge to the man most in need, the front line trooper....citing our ineptness in the field of self-help and first aid” little if any improvement has been made in this phase of treatment of combat wounds in the past 100 years.”

CAPT J.S. Maughon
Mil Med 1970

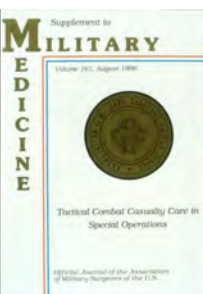


Battlefield Trauma Care: 2001

- Based on trauma courses NOT developed for combat
- Medics were taught NOT to use tourniquets
- No hemostatic agents
- No junctional tourniquets
- Large volume crystalloid fluid resuscitation for shock
- 2 large bore IVs on all casualties with significant trauma
- Civil War-vintage technology for battlefield analgesia (IM morphine)
- No focus on prevention of trauma-related coagulopathy
- No tactical context for care rendered
- Heavy emphasis on endotracheal intubation for prehospital airway management



Tactical Combat Casualty Care in Special Operations



Military Medicine Supplement
August 1996

Trauma care guidelines customized for the battlefield



TCCC: A Brief History

- Original paper published in 1996
- First used by Navy SEALs, Army Rangers, and Air Force Pararescue in 1997
- Updates published in PHTLS manual since 1999
- ACS COT and NAEMT endorsement of PHTLS Manual
- USSOCOM adopted TCCC in 2005
- Now used throughout the U.S. military
- Also allied nations and civilian sector



Battlefield Trauma Care: Now

- **Phased care in TCCC**
- **Aggressive use of tourniquets in CUF**
- **Combat Gauze as hemostatic agent**
- **Aggressive needle thoracostomy**
- **Sit up and lean forward airway positioning**
- **Surgical airways for maxillofacial trauma**
- **Hypotensive resuscitation**
- **IVs only when needed/IO access if required**
- **PO meds, OTFC, ketamine as "Triple Option" for battlefield analgesia**
- **Hypothermia prevention; avoid NSAIDs**
- **Battlefield antibiotics**
- **Tranexamic acid**
- **Junctional tourniquets**



Tourniquets in the U.S. Military - 2003



Lest we forget – most of the U.S. military went to war in Afghanistan and Iraq without tourniquets



Tourniquets in Vietnam: A Historical Perspective

"The striking feature was to see healthy young Americans with a **single injury of the distal extremity arrive at the magnificently equipped field hospital, usually within hours, but **dead on arrival**. In fact there were **193 deaths** due to wounds of the upper and lower extremities, or two percent of the 2600."**

**CAPT J.S. Maughon
Mil Med 1970**



Tourniquets in TCCC Mil Med 1996

"It is very important, however, to stop major bleeding as quickly as possible since injury to a major vessel may result in the very rapid onset of hypovolemic shock...Although ATLS discourages the use of tourniquets, they are appropriate in this instance because direct pressure is hard to maintain during casualty transport under fire. Ischemic damage to the limb is rare if the tourniquet is left in place less than an hour and tourniquets are often left in place for several hours during surgical procedures. In the face of massive extremity hemorrhage, in any event, it is better to accept the small risk of ischemic damage to the limb than to lose a casualty to exsanguination....The need for immediate access to a tourniquet in such situations makes it clear that all SOF operators on combat missions should have a suitable tourniquet readily available at a standard location on their battle gear and be trained in its use."



A Preventable Death: 2003

This casualty was wounded by an RPG explosion and sustained a traumatic amputation of the right arm and a right leg wound. He bled to death from his leg wound despite the placement of three field-expedient tourniquets.

What could have saved him

CAT Tourniquet
TCCC training for all
unit members

***Note: Medic killed at onset of action**



Tourniquet Use Early in the Iraq and Afghanistan Conflicts

- NOT widely used at the start of the wars
- Increased use by both Special Operations and conventional units beginning in 2005
- NOT evolutionary – a series of discrete events

The Drivers:

- Early reports of success with TCCC, especially TQs
- Holcomb study: "Causes of SOF Deaths 2001-2004"
- USAISR tourniquet study by Walters et al (2005)
- USSOCOM TCCC message - March 2005
- USSOCOM/ISR TCCC Transition Initiative (SFC Greydanus)
- USCENTCOM tourniquet and hemostatic dressing (HemCon) message 2005



Preventable Combat Deaths from Not Using Tourniquets

- Maughon – *Mil Med 1970*: Vietnam
 - 193 of 2,600
 - 7.4% of total combat fatalities
- Kelly – *J Trauma 2008*: OEF + OIF (2003/4 and 2006)
 - 77 of 982 (in both cohorts of fatalities)
 - 7.8% of total fatalities – no better than Vietnam
- **Tourniquets became widely used in 2005-2006**
- Eastridge – *J Trauma 2012*: OEF + OIF (to Jun 2011)
 - 119 of 4,596
 - **2.6% of total fatalities – a 67% decrease**



TCCC and Hemorrhage

External
Tourniquets
Combat Gauze
Junctional TQs

Non-Compressible
AAJT
Self-Expanding PU Foam
Pelvic Hemostatic Belt
REBOA

Both
Prehospital DCR
TXA
Hypothermia Prevention
Avoidance of NSAIDs
Triple-Option Analgesia



TCCC and Airway

Sit Up and Lean Forward Positioning
De-emphasize endotracheal intubation
Nasopharyngeal Airways
Surgical airways
CricKey



TCCC and Tension Pneumothorax

Revised indications
Chest tubes usually not needed
3.25 " 14-gauge catheter
Lateral site
Bilateral NDC for loss of vital signs prehospital



TCCC: How Do We Know That it's Working?



TCCC: Success in Combat 3rd Infantry Division

“The adoption and implementation of the principles of TCCC by the medical platoon of TF 1-15 IN in OIF 1 resulted in **overwhelming success**. Over 25 days of continuous combat with 32 friendly casualties, many of them serious, we had 0 KIAs and 0 Died From Wounds, while simultaneously caring for a significant number of Iraqi civilian and military casualties.”

*CPT Michael Tarpey
Battalion Surgeon 1-15 IN
AMEDD Journal 2005*



TCCC in Canadian Forces Savage et al: Can J Surg 2011

CONCLUSION

For the first time in decades, the CF has been involved in a war in which its members have participated in sustained combat operations and have suffered increasingly severe injuries. Despite this, the CF experienced the highest casualty survival rate in history. Though this success is multifactorial, the determination and resolve of CF leadership to develop and deliver comprehensive, multileveled TCCC packages to soldiers and medics is a significant reason for that and has unquestionably saved the lives of Canadian, Coalition and Afghan Security Forces. Further-



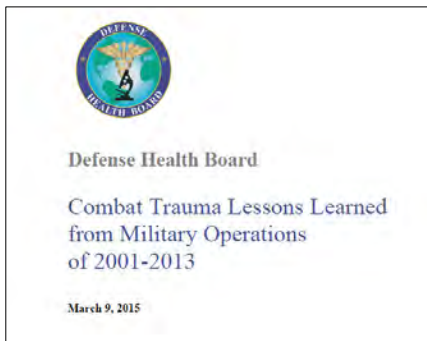
Eliminating Preventable Death on the Battlefield



- Kotwal et al – Archives of Surgery 2011
- **All Rangers and docs trained in TCCC**
- **U.S. military preventable deaths: 24%**
- **Ranger preventable death incidence: 3%**



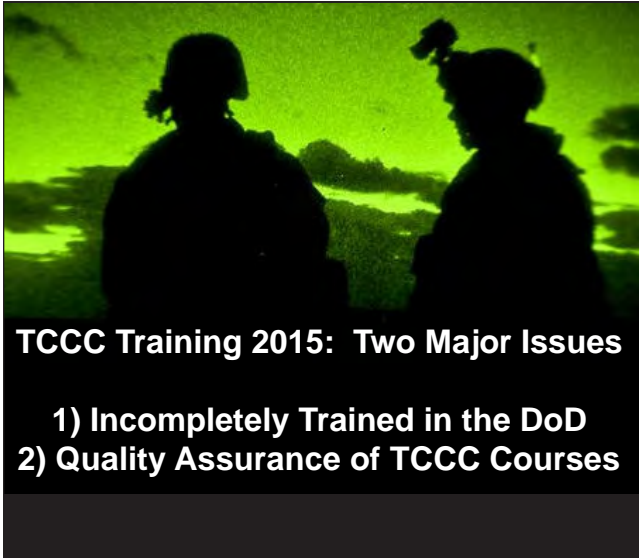

Defense Health Board 9 March 2015



Defense Health Board 9 March 2015




Lesson 9: Effectively trained TCCC has a demonstrable effect on reducing potentially preventable causes of death on the battlefield.

Recommendation 9: TCCC shall continue to form the basis for battlefield trauma care and be integrated as the minimal accepted standard of training for all military members, initial enlisted medical training, and specialized enlisted medical training. In addition, TCCC sustainment training programs must occur on a regular basis, as the TCCC Guidelines are a “living” document and are regularly updated.


Saving Lives on the Battlefield I (2012) and II (2013)

- Surveys of prehospital care in Afghanistan
- Combined Joint Trauma System/USCENTCOM team
- Directed interviews with hundreds of physicians, PAs, and combat medical personnel in combat units
- COL Russ Kotwal (I)
- COL Samuel Sauer (II)


Findings from the Two CENTCOM/JTS Prehospital Care Assessments

- TCCC is not being implemented evenly across the battle space
- These variations are not just SOF versus conventional forces difference
- Why is this happening?
- **We teach physicians ATLS (maybe) and then assign them to operational units and expect that they can effectively supervise medics who have been taught battlefield trauma care based on TCCC concepts**



Saving Lives on the Battlefield 1

- “Senior medical leaders cannot force individual physicians to provide medical care that they do not agree with.” (KAF Role I – 3rd Infantry Division)
- **Implication: An O-3 Battalion Surgeon with no prehospital or trauma training can overrule any recommendation made by TCCC or the JTS.**
- “This underscores the need for physicians to be trained in TCCC and to be familiar with the evidence base for recommended TCCC interventions.” (CoTCCC Chairman)



The Mabry Question: Who Owns Battlefield Medicine?

- **The U.S. military has four armed services, six Geographic Combatant Commands, and the U.S. Special Operations Command, each of which operates autonomously unless directives are issued by the Secretary of Defense (SecDef).**
- Lacking direction in the form of SecDef policy and Joint Staff doctrine, there is no assurance that lessons learned in trauma care will be used reliably or consistently across the U.S. military.
- **The SENIOR LEADER in the chain of command who steps up on this issue effectively owns battlefield medicine for his or her AOR.**



The Mabry Question: Who Owns Battlefield Medicine?

- All 3 SGs have endorsed TCCC training for medics
- Both the Defense Health Board and the Assistant Secretary of Defense for Health Affairs have recommended TCCC training for everyone (to include physicians and PAs) assigned to deploying combat units – twice.
- BUT – battlefield trauma care in combat units is owned by the unit commanders.
- Neither the DHB nor ASDHA are in their chain of command.
- For TCCC to be effectively incorporated into combat units, it must be an integral part of their warrior culture: shoot, move, communicate, AND care for your wounded buddies (75th RR Model).



From a Senior Army Flight Surgeon

“During my Medical Corps career I received ZERO training from the AMEDD on pre-hospital care. There was no training about or concerning pre-hospital trauma care within the AMEDD Officer Basic Course, the AMEDD Officer Advanced Course, Command and General Staff College and even, realistically, the C4 course. The C4 course (in my era) started at the Role 1. There was some evacuation planning but no mention of actual hands on care standards. So, it is reasonable to expect that my peers who are now senior leaders got the exact same lack of pre-hospital care training. I am an "expert" because everything I learned about pre-hospital care was delivered by USASOC.”



JTS – SOUTHCOM Telecon: 13 Nov 2014

Senior Enlisted SOF Medic

- TCCC courses used to train units deploying to SOUTHCOM often use an abridged and altered TCCC curriculum rather than the one found on the official TCCC websites. **The curriculum found on the official TCCC websites is often being modified at the unit level by physicians with little or no training in prehospital trauma care.**



E-mail 2014: HM2 Serving with the Marines

“I personally de-issued the Morphine IM autoinjectors and issued solely Ketamine (Intranasal kits) and OTFC. One of my primary tasks was as the narcotics custodian that issued and de issued narcotics to providers and medics during the deployment**As of yesterday, I was given clearance by the Medical Officer who deployed with us (and oversaw the ketamine rollout to our line corpsman during the deployment) to write a short white paper about our ketamine program in Afghanistan. I will expound more on the above cases and I will most definitely send you a copy.**”



CPT Nick Studer Emails - Jan 15


USAF 4N Medic Training

- “...they are receiving a 1-2 hour exposure to TCCC during BMT, and not during the 4N tech school itself. After that is variable with no standardization from what I can tell”.“TCCC as a doctrine is not a part of the general 4N MTL nor a focus of the curriculum. The Navy/Air Force combined EMT course that starts 4N "tech school" is designed to get folks past the Nation Registry of EMT's testing in order to generate a civilian certification. “



Does This Make a Difference for Our Casualties?

- **YES!**
- The JTS and AFME have an ongoing trauma care Performance Improvement process.
- The intent is to identify potentially preventable deaths and adverse outcomes
- There are still preventable deaths and adverse outcomes being noted that could have been avoided by adherence to TCCC Guidelines and JTS Clinical Practice Guidelines.
- **The acceptable number of preventable deaths is: ZERO.**





Wall Street Journal
19 September 2014
U.S. News

Prehospital – 24% of deaths potentially survivable (Eastridge 2012)


Are U.S. Soldiers Dying From Survivable Wounds? Despite Advances in Care, the Military Failed to Save Some Troops in Iraq and Afghanistan From 'Potentially Survivable' Wounds

By Michael M. Phillips



ELIMINATING ALL DEATHS FROM POTENTIALLY SURVIVABLE INJURIES


MG Thomas Brief
17 October 2014



Preventable Adverse Outcomes

Within the last 12 months:


- One Special Operations member suffered a leg amputation from prolonged tourniquet use
- The same member was put into pulmonary edema at a foreign medical facility from getting 9 liters of NS during resuscitation from hemorrhagic shock
- Another SOF Operator suffered shock from junctional hemorrhage – the unit had no junctional TQs



Proposed Actions

1. Commanders at every level in the U.S. military will establish TCCC as the standard of care and ensure that all combatants and medical personnel are trained in the current version of TCCC as posted on the Joint Trauma System (JTS) website and are directed to use these concepts to treat casualties on the battlefield.
2. Combatant Commanders should adopt the JTS CPGs as the standard of care for military hospitals and evacuation platforms in their commands and require that all in-hospital and enroute care trauma care providers be trained in these CPGs prior to deployment as CENTCOM has done during this set of conflicts.

Non-Standard TCCC Courses



TCCC Training

- **In the absence of a standard TCCC course with a professionally developed curriculum, "TCCC Training" in the DoD can wind up being an hour of Powerpoint slides or 11 days of inappropriate training - or anything in between.**
- **Who is responsible for assuring the content and quality of the course?**



Vendor-Taught TCCC: Butler Experience 2002

In 2002, I was working for the Naval Special Warfare Command and was preparing to deploy to Afghanistan with the Navy Special Missions Unit. I had already trained one of their squadrons in TCCC, but the command wanted me to go to a formal course that supposedly taught TCCC before I deployed. I went to a combat trauma course taught by a commercial vendor near Aquia, VA. The course lasted 11 days with two additional days of travel. The course fee was just over \$2000 per person and with TAD costs, **the total cost to the government for me to take this course was about \$5000. The course did not teach TCCC adequately and was largely a waste of time and money.**



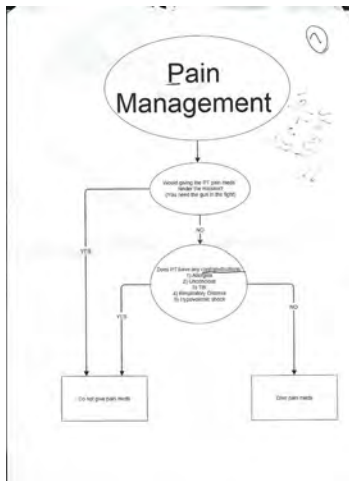
Problems with Non-Standard TCCC Courses

- **Incorrect messaging**
 - *Instructor drift*
 - *“Never take off a tourniquet in the field”*
- **Negative media coverage**
 - *Example 1*
 - *Example 2*
 - *Example 3*
- **Vendor-supplied training is expensive**
- **Inappropriate training**



TCCC Course 2015 Instructor Drift

- Wrong phase
- TBI not a CI for ketamine
- Shock – can use ketamine
- Allergies – not to both



Instructor Drift Navy Active Shooter GMT




Inappropriate Training

- “Shock labs”
- “Cognition labs”
- Insertion of intraosseous devices on course attendee volunteers
- Regional nerve blocks by non-medical personnel
- Central venous catheter placement by prehospital providers
- Arterial blood draws




Special Ops Major Command Surgeon email: 24 April 2015


- Whole blood field transfusion practical lab here for medics as well as ketamine.
- It is all voluntary, consented and supervised.
- “Almost everyone has some experience with the usual opioids and the ability to walk, talk and obey directions. Ketamine is another matter. We found it very instructive for the non-medical line types to see what effect giving an operator 50 mg of ketamine IM will have on mission. LL: you have at least 2 people off the gun and probably more like 3. In a squad size element that is no small deal. I understand the above is controversial but to not do it can create a real world tactical problem as well.”



TCCC and PHTLS




- This logo was designed, approved and copyrighted by the CoTCCC
- Notice the text at the bottom




TCCC – PHTLS – NAEMT The Beginning

In 1998, then-RADM Mike Cowan proposed that military medicine contribute a chapter to the Prehospital Trauma Life Support (PHTLS) textbook. PHTLS was led then (and now) by Admiral Cowan's friend, Dr. Norman McSwain, the Director of Trauma at Charity Hospital in New Orleans. The 1996 TCCC Guidelines were part of that first military chapter included in the Fourth Edition of the PHTLS textbook. TCCC has maintained a close and valuable working relationship with PHTLS since 1998. Dr. McSwain was previously a voting member of the Committee on TCCC and is currently the PHTLS liaison to the TCCC Working Group.

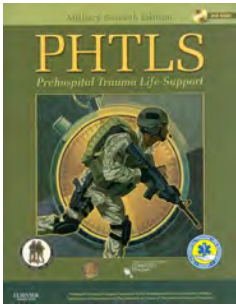


The PHTLS Textbook


- There is now a separate version of the PHTLS textbook (the current version is PHTLS 8) called PHTLS Military with 13 chapters written by TCCC and other military authors.
- The PHTLS textbook carries the endorsement of both NAEMT and the American College of Surgeons Committee on Trauma.




TCCC Guidelines: The *What* TCCC Curriculum: The *How* MPHTLS Text: The *Why*




“Military units that have trained all of their members in Tactical Combat Casualty Care have documented the lowest incidence of preventable deaths among their casualties in the history of modern warfare.”



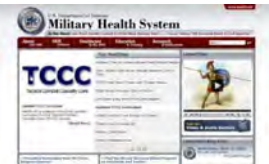

All TCCC change papers are now published in the JSOM



Plus... TCCC and TEMS Updates, and more



TCCC Curriculum: MHS and NAEMT Websites

- Also direct mailings to DoD combat medical schoolhouses
- Note that the TCCC section on the MHS site is behind a CAC-card firewall



NAEMT TCCC Courses: Origin

How did NAEMT, a civilian organization, start teaching TCCC courses?

About five years ago, the Spanish Special Forces were preparing to deploy to Afghanistan in support of coalition military operations. They contacted me and asked if I would teach a TCCC course for their unit and I agreed to help. I had been working with the TCCC instructors at Naval Hospital Pensacola at the time. With the full support of the Commanding Officer at NH Pensacola, CAPT Maryalice Morro, we assembled a team of instructors and were preparing to travel to Spain to teach this course. The Spanish Special Forces were going to cover travel expenses associated with the trip. Shortly before we were scheduled to leave, however, BUMED officials informed CAPT Morro that NH Pensacola could not accept funds from a foreign government to reimburse travel by US military personnel. The course was subsequently cancelled.



NAEMT TCCC Courses: Origin (continued)

After this episode, knowing that PHTLS is dedicated to improving prehospital trauma care and teaches their PHTLS courses all over the world, I approached them to see if they would be willing to train the Spanish Special Forces. They agreed, and have been conducting TCCC training for militaries all over the world ever since. They have also been teaching TCCC to law enforcement agencies in the United States and even to US military units, most recently Naval Medical Center, San Diego. Their interest and cooperation in teaching TCCC is well-established, and they use the standard TCCC curriculum as posted on both the the NAEMT and MHS websites, a key point.



PHTLS/TCCC



- At present, PHTLS-taught TCCC courses are **UP AND RUNNING!**



NAEMT TCCC Courses: Advantages

- NAEMT courses use the TCCC-approved curriculum just as it is posted on the NAEMT and MHS websites.
- They QA their instructors.
- Have a system for establishing training sites that will work very well for the military.
- Much less expensive than commercial TCCC vendors.
- TCCC certification card at the end of the course.
- NAEMT registry of all who complete the course.
- NAEMT website is usually the first to have new TCCC curriculum posted



NAEMT TCCC Courses: Advantages (continued)

- They can also teach two different curricula - one for medics and one for non-medics, which the military needs.
- NAEMT TCCC courses do not require the use of live tissue with the associated expense and logistic burden.
- Courses are affiliated with both NAEMT and the ACS-COT – recognized leaders in trauma care.
- Effort is ongoing right now



NAEMT TCCC Courses: Scope of Need

- METC
- MTF-based training for physicians, nurses, PAs, and medics
- Combat-unit based training for non-medical combatants AND medical personnel
- Needs to include provisions for reserve component



III Corps Surgeon Perspective

- COL Jim Geracci phonecon 1 May 2015
- Agrees with NAEMT standardized TCCC courses – need a recognized card
- Emphasizes the need for a DoD funding stream for units to sponsor that course
- Just like ACLS, ATLS
- Emphasizes the need for unit surgeons to be privileged and credentialed to do TCCC
- Emphasizes the need for commander-imposed requirement to be current in TCCC training



Points of Emphasis

- After PHTLS establishes training sites at military commands, it will be UNIT personnel doing the TCCC training. They will be certified as NAEMT TCCC Instructors.
- The TCCC for All Combatants curriculum can be used as the foundation for Combat Lifesaver courses.
- The NAEMT TCCC courses are the baseline. Live tissue training and field exercises may be added by the military unit as desired to enhance the training.
- Commercial vendors can also provide NAEMT TCCC courses if certified to do that.



USFOR-A FRAGO 14-067 21 March 2014

- All physicians, physician assistants, nurse practitioners, medics, corpsmen, parajumpers (PJs) and nurses in CJOA-A (Afghanistan) will be trained in TCCC
- **Training will be done in accordance with current TCCC Guidelines (found on the Joint Trauma System website)**
- Curriculum to support this training is found on the Military Health System website
- Training is reportable to the chain of command
- Units will field the equipment to perform TCCC



Recommendation to Army FORSCOM Surgeon: LTC Bob Mabry 14 Jan 15

FORSCOM Commander Directs

1. **All physicians, physician assistants, nurse practitioners, and medics, assigned to FORSCOM will be trained in TCCC**
2. Training will be done in accordance with current TCCC Guidelines (found on the Joint Trauma System website)

