

<p><b>Tactical Combat Casualty Care August 2011</b></p>  <p><b>Introduction</b></p>	<p><b>Tactical Combat Casualty Care August 2011</b></p> <p><b>Introduction</b></p>	<p>Tactical Combat Casualty Care is the new standard of care in prehospital Battlefield Medicine. Previous medical training may not have contained the material presented in the following lessons. Medical care in combat is significantly different than that provided on the streets of Anywhere, USA.</p>								
 <p><b>Pre-Test</b></p> 	<p><b>Pre-Test</b></p>	<p>Pass out pre-tests Collect when done Do not take time to review the tests. Tell students that the post-test is the same, so now they know what to pay attention to.</p>								
 <p><b>What is TCCC and Why Do I Need to Learn about it??</b></p>  <ul style="list-style-type: none"> <li>• Coalition forces presently have the best casualty treatment and evacuation system in history.</li> <li>• TCCC is what will keep you alive long enough to benefit from it.</li> </ul>	<p><b>What is TCCC and Why Do I Need to Learn about it??</b></p> <ul style="list-style-type: none"> <li>•Coalition forces presently have the best casualty treatment and evacuation system in history.</li> <li>•TCCC is what will keep you alive long enough to benefit from it.</li> </ul>	<p>TCCC has been remarkably successful at keeping our wounded warriors alive. Today we are going to teach you how to do it.</p>								
 <p><b>Comparison of Statistics for Battle Casualties, 1941-2005</b> <i>Holcomb et al J Trauma 2006</i></p> <p><b>The U.S. casualty survival rate in Iraq and Afghanistan has been the best in U.S. history.</b></p> <table border="1" data-bbox="212 1143 529 1252"> <thead> <tr> <th></th> <th>World War II</th> <th>Vietnam</th> <th>OIF/OEF</th> </tr> </thead> <tbody> <tr> <th>CFR</th> <td>19.1%</td> <td>15.8%</td> <td>9.4%</td> </tr> </tbody> </table> <p>Note: CFR is the Case Fatality Rate – the percent of those wounded who die</p>		World War II	Vietnam	OIF/OEF	CFR	19.1%	15.8%	9.4%	<p><b>Comparison of Statistics for Battle Casualties, 1941-2005</b> <i>Holcomb et al J Trauma 2006</i></p> <p><b>The U.S. casualty survival rate in Iraq and Afghanistan has been the best in U.S. history.</b></p>	<p>TCCC has been one of the big developments in the wars in Iraq and Afghanistan. The most important measure is how well TCCC does in helping to keep our wounded warriors alive to come home to their families. This study by former Army Trauma Surgeon John Holcomb documents that we are now doing that better than ever before.</p>
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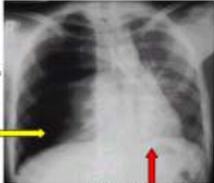
 <p><b>Why Are We Doing Better?</b></p> <ul style="list-style-type: none"> <li>• Improved Personal Protective Equipment</li> <li>• <b>Tactical Combat Casualty Care</b></li> <li>• Faster evacuation time</li> <li>• Better trained medics</li> </ul> <p><i>Holcomb et al J Trauma 2006</i></p> <p>5</p>	<p><b>Why Are We Doing Better?</b></p> <ul style="list-style-type: none"> <li>•Improved Personal Protective Equipment</li> <li>•Tactical Combat Casualty Care</li> <li>•Faster evacuation time</li> <li>•Better trained medics</li> </ul> <p><i>Holcomb et al J Trauma 2006</i></p>	<p>COL Holcomb and his co-authors list TCCC as one of the major reasons for that success. Also kudos to the rest of the chain of care, from the Level II and III hospitals in theater, the evac crews, the staff at Landstuhl, all the way back to the staffs at Walter Reed and Bethesda.</p>
 <p><b>TCCC: The New Standard of Care for Managing Trauma on the Battlefield</b></p> <ul style="list-style-type: none"> <li>• Used by Army, Navy, Air Force, Marine Corps, Coast Guard</li> <li>• Used by most coalition partner nations</li> <li>• Used by NATO</li> <li>• Used by other countries around the world</li> </ul> <p>6</p>	<p><b>TCCC: The New Standard of Care for Managing Trauma on the Battlefield</b></p> <ul style="list-style-type: none"> <li>•Used by Army, Navy, Air Force, Marine Corps, Coast Guard</li> <li>•Used by most coalition partner nations</li> <li>•Used by NATO</li> <li>•Used by other countries around the world</li> </ul>	
 <p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• EXPLAIN the differences between military and civilian pre-hospital trauma care</li> <li>• DESCRIBE the key factors influencing combat casualty care</li> <li>• UNDERSTAND how TCCC developed</li> <li>• DESCRIBE the phases of care in TCCC</li> </ul> <p>7</p>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>•EXPLAIN the differences between military and civilian pre-hospital trauma care</li> <li>•DESCRIBE the key factors influencing combat casualty care</li> <li>•UNDERSTAND how TCCC developed</li> <li>•DESCRIBE the phases of care in TCCC</li> </ul>	
 <p><b>Importance of the First Responder</b></p> <ul style="list-style-type: none"> <li>• <b>75-90% of all combat deaths occur before the casualty reaches a Medical Treatment Facility (MTF)</b></li> <li>• The fate of the injured often lies in the hands of the one who provides the first care to the casualty.</li> <li>• Corpsman, medic, or pararescueman (PJ)</li> <li>• Combat Lifesaver or non-medical combatant</li> </ul> <p>8</p>	<p><b>Importance of the First Responder</b></p> <ul style="list-style-type: none"> <li>•75-90% of all combat deaths occur before the casualty reaches a Medical Treatment Facility (MTF)</li> <li>•The fate of the injured often lies in the hands of the one who provides the first care to the casualty.</li> <li>•Corpsman, medic, or pararescueman (PJ)</li> <li>•Combat Lifesaver or non-medical combatant</li> </ul>	<p>Prehospital care is the most important aspect in ensuring the survival of the casualty. If the casualty does not arrive alive at the Forward Surgical Team or the Combat Support Hospital, then the surgeon's skill can't help. There may not be any combat medical personnel available when the casualty occurs. Initial care may have to be provided by the combatant. The goal of TCCC is to identify and treat those casualties with preventable causes of death, and keep them alive long enough to reach the hospital.</p>

 <p><b>Trauma Care Setting</b></p> 	<p><b>Trauma Care Setting</b></p>	<p>If you are injured and taken to a civilian trauma center, you will be treated by a skilled team of medical professionals using the latest technology and working in a well-lighted, climate-controlled, secure area. What about trauma that occurs in a tactical combat setting?</p>
	<p><b>Tactical Trauma Care Setting – Shrapnel Wound in the Hindu Kush</b></p>	<p>This is a good example of where the combat corpsmen and medics live and practice. This picture was taken at about 10,000 feet altitude in the Hindu Kush mountains in Afghanistan. The wound is a shrapnel wound of the hip. In this setting, care is much more difficult. Common sense tells you that the management plan will need to be different here. TCCC helps to define how it's different.</p>
 <p><b>Prehospital Trauma Care: Military vs. Civilian</b></p> <ul style="list-style-type: none"> <li>• Hostile fire</li> <li>• Darkness</li> <li>• Environmental extremes</li> <li>• Different wounding epidemiology</li> <li>• Limited equipment</li> <li>• Need for tactical maneuver</li> <li>• Long delays to hospital care</li> <li>• Different medic training and experience</li> </ul> 	<p><b>Prehospital Trauma Care: Military vs. Civilian</b></p> <ul style="list-style-type: none"> <li>• Hostile fire</li> <li>• Darkness</li> <li>• Environmental extremes</li> <li>• Different wounding epidemiology</li> <li>• Limited equipment</li> <li>• Need for tactical maneuver</li> <li>• Long delays to hospital care</li> <li>• Different medic training and experience</li> </ul>	<p>What factors must we think about when defining combat trauma care?</p>
 <p><b>Prior Medical Training</b></p> <ul style="list-style-type: none"> <li>• Combat medical training historically was modeled on civilian courses             <ul style="list-style-type: none"> <li>– EMT, PHTLS</li> <li>– BTLs, ATLS</li> </ul> </li> <li>• Trained to standard of care in non-tactical (civilian) settings</li> <li>• Tactical elements not considered</li> </ul>	<p><b>Prior Medical Training</b></p> <ul style="list-style-type: none"> <li>• Combat medical training historically was modeled on civilian courses             <ul style="list-style-type: none"> <li>– EMT, PHTLS</li> <li>– BTLs, ATLS</li> </ul> </li> <li>• Trained to standard of care in non-tactical (civilian) settings</li> <li>• Tactical elements not considered</li> </ul>	<p>These are the training programs that are used to teach trauma care in the civilian community. They are all EXCELLENT training programs. However, they are designed for the civilian trauma setting - the principles they reflect often need to be modified for the tactical setting. Emerging civilian guidelines/programs are only recently beginning to address providing care in conjunction with an ongoing threat.</p>

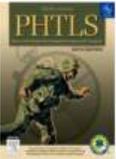
 <p><b>Different Trauma Requires Different Care Strategies</b></p> <ul style="list-style-type: none"> <li>• It is intuitive that combat and civilian trauma are different, BUT...</li> <li>• It is difficult to devise and implement needed changes.</li> <li>• No one group of medical professionals has all of the necessary skills and experience.</li> <li>• <b>Trauma docs and combat medical personnel have different skill sets. Both are needed to optimize battlefield trauma care strategies.</b></li> <li>• Tourniquets are one striking example of how battlefield trauma care has sometimes been slow to change.</li> </ul> <p>13</p>	<p><b>Different Trauma Requires Different Care Strategies</b></p> <ul style="list-style-type: none"> <li>•It is intuitive that combat and civilian trauma are different, BUT...</li> <li>•It is difficult to devise and implement needed changes.</li> <li>•No one group of medical professionals has all of the necessary skills and experience.</li> <li>•Trauma docs and combat medical personnel have different skill sets. <u>Both</u> are needed to optimize battlefield trauma care strategies.</li> <li>•Tourniquets are one striking example of how battlefield trauma care has sometimes been slow to change.</li> </ul>	<p>TCCC principles are now determined by physicians and combat medical personnel working as a team. In the past, the failure of these two groups to communicate well slowed the implementation of critical trauma care measures. We will look at a dramatic example of this.</p>
 <p><b>Tourniquets in WWII</b> Wolff AMEDD J April 1945</p> <p>“We believe that the strap-and-buckle tourniquet in common use is ineffective in most instances under field conditions...it rarely controls bleeding no matter how tightly applied.”</p> <p>14</p>	<p><b>Tourniquets in WWII</b> Wolff AMEDD J April 1945</p> <p>“We believe that the strap-and-buckle tourniquet in common use is ineffective in most instances under field conditions...it rarely controls bleeding no matter how tightly applied.”</p>	<p>This report was written by an Army doctor in World War II. Provided very clear input on tourniquets. A tourniquet would seem to be a simple thing to fix. Now, fast-forward 25 years.</p>
 <p><b>Vietnam</b></p> <p>Over 2500 deaths occurred in Vietnam secondary to hemorrhage from extremity wounds. These casualties had no other injuries.</p> 	<p><b>Vietnam</b></p> <p>Over 2500 deaths occurred in Vietnam secondary to hemorrhage from extremity wounds. These casualties had no other injuries.</p>	<p>25 years later, we had still not learned the tourniquet lesson in Vietnam. <b>2500 preventable deaths from extremity hemorrhage were the result.</b> Surely, we would have learned the lesson after this experience. Maybe not - fast-forward another 25 years.</p>
 <p><b>Tourniquets in U.S Military</b> Mid-1990s</p> <ul style="list-style-type: none"> <li>• Old strap-and-buckle tourniquets were still being issued.</li> <li>• Medics and corpsmen were being trained in courses where they were taught <b>not</b> to use them.</li> </ul> <p>16</p>	<p><b>Tourniquets in U.S Military</b> Mid-1990s</p> <ul style="list-style-type: none"> <li>•Old strap-and-buckle tourniquets were still being issued.</li> <li>•Medics and corpsmen were being trained in courses where they were taught not to use them.</li> </ul>	<p>Amazingly, by the 1990’s, we were still making the same mistakes about tourniquets that we had been in World War II.</p>

 <p><b>SOF Deaths in the GWOT</b> Holcomb, et al <i>Annals of Surgery 2007</i></p> <p><u>Factors That Might Have Changed Outcomes (82 Fatalities – 12 Potentially Survivable)</u></p> <ul style="list-style-type: none"> <li>• Hemostatic dressings/direct pressure (2)</li> <li>• <b>Tourniquets (3)</b></li> <li>• Faster CASEVAC or IV hemostatic agents (7)</li> <li>• Surgical airway vs. intubation (1)</li> <li>• Needle thoracostomy (1)</li> <li>• PRBCs on helos (2)</li> <li>• Battlefield antibiotics (1)</li> </ul> 	<p><b>SOF Deaths in the GWOT</b> <b>Holcomb, et al</b> <i>Annals of Surgery 2007</i></p> <p><u>Factors That Might Have Changed Outcomes (82 Fatalities – 12 Potentially Survivable)</u></p> <ul style="list-style-type: none"> <li>• Hemostatic dressings/direct pressure (2)</li> <li>• Tourniquets (3)</li> <li>• Faster CASEVAC or IV hemostatic agents (7)</li> <li>• Surgical airway vs. intubation (1)</li> <li>• Needle thoracostomy (1)</li> <li>• PRBCs on helos (2)</li> <li>• Battlefield antibiotics (1)</li> </ul>	<p>And we paid a price for that when the GWOT started. This paper on Special Ops deaths showed 3 out of 12 potentially preventable deaths were due to extremity hemorrhage. Note the makeshift tourniquets used here.</p>
 <p><b>Tourniquets – Beekley et al</b> <i>Journal of Trauma 2008</i></p> <ul style="list-style-type: none"> <li>• 31<sup>st</sup> CSH in 2004</li> <li>• 165 casualties with severe extremity trauma</li> <li>• 67 with prehospital tourniquets; 98 without</li> <li>• Seven deaths</li> <li>• <b>Four of the seven deaths were potentially preventable had an adequate prehospital tourniquet been placed</b></li> </ul> 	<p><b>Tourniquets – Beekley et al</b> <i>Journal of Trauma 2008</i></p> <ul style="list-style-type: none"> <li>• 31<sup>st</sup> CSH in 2004</li> <li>• 165 casualties with severe extremity trauma</li> <li>• 67 with prehospital tourniquets; 98 without</li> <li>• Seven deaths</li> <li>• Four of the seven deaths were potentially preventable had an adequate prehospital tourniquet been placed</li> </ul>	<p>We were still losing people to extremity bleeding in 2004. Notice the makeshift tourniquets used here. At about this point, the military had started a very strong effort to push tourniquets forward. Since this study, preventable deaths from extremity hemorrhage have now been minimized due largely to issuing a new IFAK and training individuals to use it.</p>
 <p><b>Tactical Combat Casualty Care in Special Operations</b></p>  <p><b>Military Medicine Supplement</b> August 1996</p> <p><i>Trauma care guidelines customized for the battlefield</i></p>	<p><b>Tactical Combat Casualty Care in Special Operations</b></p> <p>Military Medicine Supplement August 1996</p> <p><i>Trauma care guidelines customized for the battlefield</i></p>	<p>In the mid-90s, the Special Operations medical community began looking for some better answers for combat trauma and Tactical Combat Casualty Care was born.</p>



 <p><b>Point of Wounding Care</b></p> <p>Causes of preventable death on the battlefield today:</p> <ul style="list-style-type: none"> <li>- Hemorrhage from extremity wounds</li> <li>- Junctional hemorrhage (where an arm or leg joins the torso, such as in the groin area after a high traumatic amputation)</li> <li>- Non-compressible hemorrhage (such as a gunshot wound to the abdomen)</li> <li>- Tension pneumothorax</li> <li>- Airway problems</li> </ul> <p>34</p>	<p><b>Point of Wounding Care</b></p> <p>Causes of preventable death on the battlefield today:</p> <ul style="list-style-type: none"> <li>-Hemorrhage from extremity wounds</li> <li>-Junctional hemorrhage (where an arm or leg joins the torso, such as in the groin area after a high traumatic amputation)</li> <li>-Non-compressible hemorrhage (such as a gunshot wound to the abdomen)</li> <li>-Tension pneumothorax</li> <li>-Airway problems</li> </ul>	<p>These are the injuries that we need to focus on for saving lives in combat.</p>
 <p><b>Junctional Hemorrhage</b></p>  <p>These types of wounds are often caused by IEDs and may result in junctional hemorrhage.</p>	<p><b>Junctional Hemorrhage</b></p> <p>These types of wounds are often caused by IEDs and may result in junctional hemorrhage.</p>	
 <p><b>Extremity Hemorrhage</b></p>  <p>Click on picture to start video</p> <p>36</p>	<p><b>Extremity Hemorrhage</b></p> <p>Click on picture to start video</p>	<p>Here is a classic example of a preventable cause of death - arterial hemorrhage from a leg wound in a pig. Forget about the “Golden Hour” – bleeding like this will kill you in a few minutes. If no one controls this type of bleeding in a casualty, that casualty is going to die very quickly.</p>
 <p><b>Tension Pneumothorax</b></p>  <p>Air escapes from injured lung – pressure builds up in chest</p> <p>Air pressure collapses lung and pushes on heart</p> <p>Heart compressed - not able to pump well</p> <p>37</p>	<p><b>Tension Pneumothorax</b></p> <p><b>Air escapes from injured lung – pressure builds up in chest</b></p> <p><b>Air pressure collapses lung and pushes on heart</b></p> <p><b>Heart compressed - not able to pump well</b></p>	<p>This X-ray shows a tension pneumothorax, which, in combat, is usually secondary to a penetrating injury to the chest. This condition may be quickly fatal if not identified and treated. Tension pneumothorax is the <b>SECOND LEADING</b> cause of preventable death on the battlefield after hemorrhage.</p>

 <p><b>Airway Trauma</b></p>  <p>28</p>	<p><b>Airway Trauma</b></p>	<p>Deaths from airway trauma are a small percentage of combat fatalities.                  If the casualty is conscious, he will instinctively protect his own airway.  <b>While this patient has a significant injury to his airway, he is able to breath on his own reasonably well if he is sitting up and leaning forward.</b>  <b>This casualty survived and did well after reconstructive surgery.</b>                  Could you lay this casualty down on a litter on his back to transport him?                  Probably a bad idea - all that blood and mucus would funnel right into his airway.</p>
 <p><b>Three Objectives of TCCC</b></p> <ul style="list-style-type: none"> <li>• Treat the casualty</li> <li>• Prevent additional casualties</li> <li>• Complete the mission</li> </ul>  <p>29</p>	<p><b>Three Objectives of TCCC</b></p> <ul style="list-style-type: none"> <li>•<b>Treat the casualty</b></li> <li>•<b>Prevent additional casualties</b></li> <li>•<b>Complete the mission</b></li> </ul>	<p>The ongoing mission does not stop just because there is a casualty.                  The 3 objectives of TCCC are to provide lifesaving care to the injured combatant, to limit the risk of taking further casualties, and to enable the unit to achieve mission success.</p>
 <p><b>TCCC Guidelines 1996</b></p> <ul style="list-style-type: none"> <li>-Tourniquets</li> <li>-Aggressive needle thoracostomy</li> <li>-Nasopharyngeal airways</li> <li>-Surgical airways for maxillofacial trauma</li> <li>-Tactically appropriate fluid resuscitation</li> <li>-Battlefield antibiotics</li> <li>-Improved battlefield analgesia</li> <li>-Combine good tactics and good medicine</li> <li>-Scenario-based training</li> <li>-Combat medic input to guidelines</li> </ul> <p>30</p>	<p><b>TCCC Guidelines 1996</b></p> <ul style="list-style-type: none"> <li>-Tourniquets</li> <li>-Aggressive needle thoracostomy</li> <li>-Nasopharyngeal airways</li> <li>-Surgical airways for maxillofacial trauma</li> <li>-Tactically appropriate fluid resuscitation</li> <li>-Battlefield antibiotics</li> <li>-Improved battlefield analgesia</li> <li>-Combine good tactics and good medicine</li> <li>-Scenario-based training</li> <li>-Combat medic input to guidelines</li> </ul>	<p>Here were the key elements of TCCC as originally published in 1996.                  Once established, though, there had to be a way to keep TCCC guidelines updated.</p>

 <p><b>Changes in TCCC: How Are They Made?</b></p>  <p>The Committee on Tactical Combat Casualty Care</p> <p>31</p>	<p><b>Changes in TCCC: How Are They Made?</b></p> <p><b>The Committee on Tactical Combat Casualty Care</b></p>	<p>The DoD has a group with a charter to keep the TCCC Guidelines updated.</p>
 <p><b>Committee on Tactical Combat Casualty Care</b></p> <ul style="list-style-type: none"> <li>• Sponsored by the DoD</li> <li>• 42 members from all services in the DoD and civilian sector</li> <li>• Trauma Surgeons, ER and Critical Care physicians, operational physicians; medical educators; <u>combat medics, corpsmen, and PJs</u></li> <li>• <u>Nearly 100% deployed experience</u></li> <li>• Meet quarterly; update TCCC as needed</li> <li>• <u>Part of Defense Health Board – senior medical advisory body to SECDEF</u></li> </ul> <p>32</p>	<p><b>Committee on Tactical Combat Casualty Care</b></p> <ul style="list-style-type: none"> <li>•Sponsored by the DoD</li> <li>•42 members from all services in the DoD and civilian sector</li> <li>•Trauma Surgeons, ER and Critical Care physicians, operational physicians; medical educators; <u>combat medics, corpsmen, and PJs</u></li> <li>•Nearly 100% deployed experience</li> <li>•Meet quarterly; update TCCC as needed</li> <li>•Part of Defense Health Board – senior medical advisory body to SECDEF</li> </ul>	
 <p><b>TCCC Now</b></p> <ul style="list-style-type: none"> <li>• Combat Gauze</li> <li>• Intraosseous infusion devices</li> <li>• Combat Pill Pack – antibiotics and non-narcotic pain meds</li> <li>• Hypotensive resuscitation with Hextend</li> <li>• Fentanyl lozenges for severe pain</li> <li>• Combat Ready Clamp and TXA</li> <li>• Hypothermia prevention</li> <li>• Management of wounded hostile combatants</li> </ul>  <p>33</p>	<p><b>TCCC Now</b></p> <ul style="list-style-type: none"> <li>•Combat Gauze</li> <li>•Intraosseous infusion devices</li> <li>•Combat Pill Pack – antibiotics and non-narcotic pain meds</li> <li>•Hypotensive resuscitation with Hextend</li> <li>•Fentanyl lozenges for severe pain</li> <li>•Combat Ready Clamp and TXA</li> <li>•Hypothermia prevention</li> <li>•Management of wounded hostile combatants</li> </ul>	<p>These are changes in the TCCC guidelines made by the CoTCCC in 2003 and 2006. Note that the updated guidelines are now published with each new version of the Military Edition of Prehospital Trauma Life Support Manual.</p> <p><b>The recommendations made in this manual have the endorsement of the American College of Surgeons Committee on Trauma and the National Association of EMTs.</b></p> <p><b>TCCC is the ONLY set of combat trauma care guidelines to have been approved by these two groups. Combat Ready Clamp and TXA – will be covered later – they help to control junctional hemorrhage and non-compressible hemorrhage.</b></p>

<p><b>TCCC: How Do We Know That it's Working?</b></p>	<p><b>TCCC: How Do We Know That it's Working?</b></p>	
<p><b>TCCC</b></p> <p>"I am writing to offer my congratulations for the recent dramatic advances in prehospital trauma care delivered by the U.S. military. Multiple recent publications have shown that Tactical Combat Casualty Care is saving lives on the battlefield."</p> <p><i>Dr. Jeff Salomone American College of Surgeons Committee on Trauma Chairman of Prehospital Trauma Subcommittee Letter to ASD Health Affairs 10 June 2008</i></p>	<p><b>TCCC</b></p> <p>"I am writing to offer my congratulations for the recent dramatic advances in prehospital trauma care delivered by the U.S. military. Multiple recent publications have shown that Tactical Combat Casualty Care is saving lives on the battlefield."</p> <p><i>Dr. Jeff Salomone American College of Surgeons Committee on Trauma Chairman of Prehospital Trauma Subcommittee Letter to ASD Health Affairs 10 June 2008</i></p>	<p>This letter is from the Chairman of the Prehospital Subcommittee of the American College of Surgeons Committee on Trauma. The same trauma experts that have established ATLS for managing trauma in the hospital endorses TCCC for battlefield trauma care.</p>
<p><b>Mabry and McManus AMEDD Center and School</b></p> <p>"The new concept of Tactical Combat Casualty Care has revolutionized the management of combat casualties in the prehospital tactical setting."</p> <p><i>Critical Care Medicine July 2008</i></p>	<p><b>Mabry and McManus AMEDD Center and School</b></p> <p>"The new concept of Tactical Combat Casualty Care has revolutionized the management of combat casualties in the prehospital tactical setting."</p> <p><i>Critical Care Medicine July 2008</i></p>	<p>In 2008, Major Bob Mabry was the Director of Academics for Combat Medic Training at the Army Medical Department Center and School. He used to be an 18D Special Forces medic himself. LTC John McManus was the Director of Predeployment Medical Training for the Army Medical Department Center and School.</p>

 <p><b>USMC Casualty Scenario 2008</b></p>  <ul style="list-style-type: none"> <li>• CoTCCC gets input directly from combat medics, corpsmen, and USAF pararescuemen (PJs)</li> <li>• 15 casualties - 4 tourniquets applied</li> <li>• 3 lives saved - 4<sup>th</sup> casualty died from chest wound</li> </ul>	<p><b>USMC Casualty Scenario 2008</b></p> <ul style="list-style-type: none"> <li>• CoTCCC gets input directly from combat medics, corpsmen, and USAF pararescuemen (PJs)</li> <li>• 15 casualties - 4 tourniquets applied</li> <li>• 3 lives saved - 4<sup>th</sup> casualty died from chest wound</li> </ul>	<p>Every meeting of the CoTCCC has combat casualty scenarios presented and discussed. Lessons learned are incorporated into TCCC curriculum.</p>
 <p><b>Tourniquets – Kragh et al: Two Landmark Papers</b></p>  <ul style="list-style-type: none"> <li>• Published in 2008/2009</li> <li>• Tourniquets are <u>saving lives</u> on the battlefield</li> <li>• 31 lives saved in 6 months by tourniquets</li> <li>• Author estimates 2000 lives saved with tourniquets in this conflict up to that date (2009)</li> <li>• No arms or legs lost because of tourniquet use</li> </ul>	<p><b>Tourniquets – Kragh et al: Two Landmark Papers</b></p> <ul style="list-style-type: none"> <li>• Published in 2008/2009</li> <li>• Tourniquets are <u>saving lives</u> on the battlefield</li> <li>• 31 lives saved in 6 months by tourniquets</li> <li>• Author estimates 2000 lives saved with tourniquets in this conflict up to that date (2009)</li> <li>• No arms or legs lost because of tourniquet use</li> </ul>	<p>Most important tourniquet papers ever published Most important – apply tourniquets ASAP when needed Survival improved if shock prevented NOBODY is arguing about whether tourniquets save lives any more</p>
 <p><b>What Do the Soldiers Say?</b></p> <p>A recent U.S. Army Training and Doctrine Command survey of Soldiers in combat units found that <b>TCCC is the second most valued element</b> of their training, exceeded only by training in the use of their individual weapon.</p>  <p><i>COL Karen O'Brien TRADOC Surgeon CoTCCC Meeting April 2010</i></p>	<p><b>What Do the Soldiers Say?</b></p> <p>A recent U.S. Army Training and Doctrine Command survey of Soldiers in combat units found that TCCC is the second most valued element of their training, exceeded only by training in the use of their individual weapon.</p> <p><i>COL Karen O'Brien TRADOC Surgeon CoTCCC Meeting April 2010</i></p>	

 <p><b>Eliminating Preventable Death on the Battlefield</b></p>  <ul style="list-style-type: none"> <li>• TCCC in the 75<sup>th</sup> Ranger Regiment</li> <li>• <u>All</u> Rangers and docs trained in TCCC</li> <li>• Ranger preventable death incidence: <u>3%</u></li> <li>• Overall U.S. military preventable deaths: <u>24%</u></li> </ul>	<p><b>Eliminating Preventable Death on the Battlefield</b></p> <ul style="list-style-type: none"> <li>• TCCC in the 75<sup>th</sup> Ranger Regiment</li> <li>• <u>All</u> Rangers and docs trained in TCCC</li> <li>• Ranger preventable death incidence: <u>3%</u></li> <li>• Overall U.S. military preventable deaths: <u>24%</u></li> </ul>	<p>The Army Rangers have achieved the lowest preventable death rate ever reported in a major conflict. They did it by training <b>everyone</b> in TCCC.</p>
 <p><b>Phases of Care in TCCC: Timing Is Everything</b></p> <ul style="list-style-type: none"> <li>• Casualty scenarios in combat usually entail both a medical problem as well as a tactical problem.</li> <li>• We want the best possible outcome for both the casualty and the mission.</li> <li>• Good medicine can sometimes be bad tactics; bad tactics can get everyone killed or cause the mission to fail.</li> <li>• <b>Doing the RIGHT THING at the RIGHT TIME is critical</b></li> </ul>	<p><b>Phases of Care in TCCC: Timing Is Everything</b></p> <ul style="list-style-type: none"> <li>• Casualty scenarios in combat usually entail both a medical problem as well as a tactical problem.</li> <li>• We want the best possible outcome for both the casualty and the mission.</li> <li>• Good medicine can sometimes be bad tactics; bad tactics can get everyone killed or cause the mission to fail.</li> <li>• Doing the RIGHT THING at the RIGHT TIME is critical</li> </ul>	<p>Most battlefield casualty scenarios involve making both medical and tactical decisions very rapidly. Remember the enemy still wants to kill you. The combat environment does not take a “time-out” just because you have a casualty.</p>
 <p><b>TCCC Phases of Care</b></p> <ul style="list-style-type: none"> <li>• TCCC divides care into 3 phases based on the tactical situation.</li> <li>• During the gunfight, attention is focused primarily on eliminating the threat.</li> <li>• As the threat decreases, increasing focus is applied to providing the best possible medical care for the casualties.</li> </ul>	<p><b>TCCC Phases of Care</b></p> <ul style="list-style-type: none"> <li>• TCCC divides care into 3 phases based on the tactical situation.</li> <li>• During the gunfight, attention is focused primarily on eliminating the threat.</li> <li>• As the threat decreases, increasing focus is applied to providing the best possible medical care for the casualties.</li> </ul>	<p>Doing the RIGHT thing at the WRONG time can get you and your teammates killed.</p>
 <p><b>Phases of Care in TCCC</b></p> <ul style="list-style-type: none"> <li>• Care Under Fire</li> <li>• Tactical Field Care</li> <li>• Tactical Evacuation Care</li> </ul> 	<p><b>Phases of Care in TCCC</b></p> <ul style="list-style-type: none"> <li>• Care Under Fire</li> <li>• Tactical Field Care</li> <li>• Tactical Evacuation Care</li> </ul>	<p>These are our 3 phases of care in TCCC. Next we’ll define these three phases of care. The picture is an FA-18 flying by Mt. Fuji.</p>

 <p><b>Care Under Fire</b></p> <p>Care under fire is the care rendered by the first responder or combatant at the scene of the injury while he and the casualty are still <b>under effective hostile fire</b>. Available medical equipment is limited to that carried by the individual or by the medical provider in his or her aid bag.</p> <p>44</p>	<p><b>Care Under Fire</b></p> <p>Care under fire is the care rendered by the first responder or combatant at the scene of the injury while he and the casualty are still under effective hostile fire. Available medical equipment is limited to that carried by the individual or by the medical provider in his or her aid bag.</p>	<p>The key sentence in this statement is that the first responder and the combatant are still under effective hostile fire.</p>
 <p><b>Tactical Field Care</b></p> <p>Tactical Field Care is the care rendered by the first responder or combatant once he and the casualty are <b>no longer under effective hostile fire</b>. It also applies to situations in which an injury has occurred, but there has been no hostile fire. Available medical equipment is still limited to that carried into the field by unit personnel. Time to evacuation to a medical treatment facility may vary considerably.</p> <p>45</p>	<p><b>Tactical Field Care</b></p> <p>Tactical Field Care is the care rendered by the first responder or combatant once he and the casualty are no longer under effective hostile fire. It also applies to situations in which an injury has occurred, but there has been no hostile fire. Available medical equipment is still limited to that carried into the field by unit personnel. Time to evacuation to a medical treatment facility may vary considerably.</p>	<p>The tactical situation has now changed. The first responder and the casualty are no longer under effective hostile fire. This allows more time and a little more safety, to be able to perform more medical care. Remember – effective hostile fire could resume at any time.</p>
 <p><b>Tactical Evacuation Care</b></p> <p>Tactical Evacuation Care is the care rendered once the casualty has been picked up by an aircraft, vehicle or boat. Additional medical personnel and equipment that may have been pre-staged should be available in this phase of casualty management.</p> <p>46</p>	<p><b>Tactical Evacuation Care</b></p> <p>Tactical Evacuation Care is the care rendered once the casualty has been picked up by an aircraft, vehicle or boat. Additional medical personnel and equipment that may have been pre-staged should be available in this phase of casualty management.</p>	<p>Tactical Evacuation Care is similar to TFC in many respects. However, the presence of extra medical personnel and equipment on the evacuation asset may enable some additional care. The term “Tactical Evacuation” encompasses both Casualty Evacuation (CASEVAC) and Medical Evacuation (MEDEVAC). More on this later in the course. The key principle in TACEVAC is that care and monitoring <b>MUST</b> be continued until the casualty is transferred to a higher level of care.</p>

 <p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>• Prehospital trauma care in tactical settings is markedly different from civilian settings.</li> <li>• Tactical and environmental factors have a profound impact on trauma care rendered on the battlefield.</li> <li>• Good medicine can be bad tactics.</li> <li>• Up to 24% of combat deaths today are potentially preventable.</li> <li>• Good first responder care is critical.</li> <li>• <b>TCCC will give you the tools you need!</b></li> </ul> <p>47</p>	<p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>•Prehospital trauma care in tactical settings is markedly different from civilian settings.</li> <li>•Tactical and environmental factors have a profound impact on trauma care rendered on the battlefield.</li> <li>•Good medicine can be bad tactics.</li> <li>•Up to 24% of combat deaths today are potentially preventable.</li> <li>•Good first responder care is critical.</li> <li>•TCCC will give you the tools you need!</li> </ul>	<p><b>TCCC is different from civilian trauma care training you may have received in the past.</b>                  This improvement in how we approach the combat casualty has resulted in significantly lower death rates in combat. Good battlefield care is paramount in avoiding preventable deaths.</p>
 <p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>• Three phases of care in TCCC                         <ul style="list-style-type: none"> <li>–Care Under Fire</li> <li>–Tactical Field Care</li> <li>–TACEVAC Care</li> </ul> </li> </ul> <p>48</p>	<p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>•Three phases of care in TCCC                         <ul style="list-style-type: none"> <li>–Care Under Fire</li> <li>–Tactical Field Care</li> <li>–TACEVAC Care</li> </ul> </li> </ul>	<p>Summarize key point of each phase.</p>
 <p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>• TCCC – designed for combat</li> <li>• NOT designed for civilian trauma settings</li> </ul>  <p>49</p>	<p><b>Summary of Key Points</b></p> <ul style="list-style-type: none"> <li>•TCCC – designed for combat</li> <li>•NOT designed for civilian trauma settings</li> </ul>	<p>TCCC is NOT necessarily the standard of care in civilian prehospital settings. In civilian EMS settings, you should follow the guidance established by your Emergency Medical Services Director.</p>
 <p>Questions?</p>	<p>Questions?</p>	