












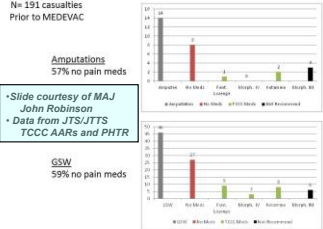










<p>1.</p>	<p>Tactical Combat Casualty Care for Medical Personnel August 2017 (Based on TCCC-MP Guidelines 170131)</p>  <p>Direct from the Battlefield: Tactical Combat Casualty Care Performance Improvement Items</p>	<p><b>Tactical Combat Casualty Care for Medical Personnel August 2017</b></p> <p>(Based on TCCC-MP Guidelines 170131)</p> <p><b>Direct from the Battlefield: Tactical Combat Casualty Care Performance Improvement Items</b></p>	
<p>2.</p>	 <p>Sources of TCCC Opportunities to Improve:</p> <ul style="list-style-type: none"> <li>• Reports from Joint Trauma System (JTS) weekly Trauma Telecons – every Thursday morning</li> <li>– Worldwide telecon to discuss every serious casualty admitted to a Role 3 hospital from that week</li> <li>• Published medical reports</li> <li>• Armed Forces Medical Examiner’s System</li> <li>• Theater AARs</li> <li>• Feedback from doctors, PAs, corpsmen, medics, and PJs</li> </ul> 	<p><b>Sources of TCCC Opportunities to Improve:</b></p> <ul style="list-style-type: none"> <li>• Reports from Joint Trauma System (JTS) weekly Trauma Telecons – every Thursday morning             <ul style="list-style-type: none"> <li>– Worldwide telecon to discuss every serious casualty admitted to a Role 3 hospital from that week</li> </ul> </li> <li>• Published medical reports</li> <li>• Armed Forces Medical Examiner’s System</li> <li>• Theater AARs</li> <li>• Feedback from doctors, PAs, corpsmen, medics, and PJs</li> </ul>	<p>Opportunities to improve TCCC flow to the CoTCCC from a number of sources.</p>
<p>3.</p>	 <p><b>The Forgotten Tourniquet</b></p>	<p><b>The Forgotten Tourniquet</b></p>	





<p>4.</p>	 <p><b>The Forgotten Tourniquet</b></p> <ul style="list-style-type: none"> <li>• There was an adverse outcome from a tourniquet that was left in place for approximately 8 hours.</li> <li>• Be aggressive about putting tourniquets on in Care Under Fire for any life-threatening extremity hemorrhage <b>BUT</b></li> <li>• Reassess the casualty in Tactical Field Care – remove it if it is not needed unless the casualty is in shock.</li> <li>• <b>Always</b> re-evaluate tourniquets at two hours and remove if possible.</li> </ul>	<p><b>The Forgotten Tourniquet</b></p> <ul style="list-style-type: none"> <li>• There was an adverse outcome from a tourniquet that was left in place for approximately 8 hours.</li> <li>• Be aggressive about putting tourniquets on in Care Under Fire for any life-threatening extremity hemorrhage <b>BUT</b></li> <li>• Reassess the casualty in Tactical Field Care – remove it if it is not needed unless the casualty is in shock.</li> <li>• <b>Always</b> re-evaluate tourniquets at two hours and remove if possible.</li> </ul>	<p>Read the text.</p>
<p>5.</p>	 <p><b>Tourniquet Mistakes to Avoid!</b></p> <ul style="list-style-type: none"> <li>• Not using a tourniquet when you should</li> <li>• Using a tourniquet for minimal bleeding</li> <li>• Leaving the TQ too high--if placed "high and tight" during Care Under Fire, move to just above the wound during TFC</li> <li>• Not taking it off when indicated during TFC</li> <li>• Taking TQ off when the casualty is in shock or has only a short transport time to the hospital</li> <li>• Not making it tight enough – the tourniquet should both stop the bleeding and eliminate the distal pulse if the distal extremity is intact</li> </ul>	<p><b>Tourniquet Mistakes to Avoid!</b></p> <ul style="list-style-type: none"> <li>• Not using a tourniquet when you should</li> <li>• Using a tourniquet for minimal bleeding</li> <li>• Leaving the TQ too high--if placed "high and tight" during Care Under Fire, move to just above the wound during TFC</li> <li>• Not taking it off when indicated during TFC</li> <li>• Taking TQ off when the casualty is in shock or has only a short transport time to the hospital</li> <li>• Not making it tight enough – the tourniquet should both stop the bleeding and eliminate the distal pulse if the distal extremity is intact</li> </ul>	<p>Read the text.</p>




<p>6.</p>	 <p><b>Tourniquet Mistakes to Avoid!</b></p> <ul style="list-style-type: none"> <li>• Not using a <b>second tourniquet</b> if needed</li> <li>• <b>Waiting too long to put the tourniquet on</b></li> <li>• Periodically loosening the tourniquet to allow blood flow to the injured extremity</li> <li>• <b>Failing to reassess to make sure the bleeding is still stopped</b></li> <li>• <b>Not attempting to convert a tourniquet if it has been on for two hours.</b></li> </ul>	<p><b>Tourniquet Mistakes to Avoid!</b></p> <ul style="list-style-type: none"> <li>• <b>Not using a second tourniquet if needed</b></li> <li>• <b>Waiting too long to put the tourniquet on</b></li> <li>• <b>Periodically loosening the tourniquet to allow blood flow to the injured extremity</b></li> <li>• <b>Failing to reassess to make sure the bleeding is still stopped</b></li> <li>• <b>Not attempting to convert a tourniquet if it has been on for two hours.</b></li> </ul>	<p>Read the text.</p>
<p>7.</p>	 <p><b>Opioid Analgesics for Casualties in Shock</b></p>	<p><b>Opioid Analgesics for Casualties in Shock</b></p>	
<p>8.</p>	 <p><b>NO Opioid Analgesia for Casualties in Shock</b></p>  <ul style="list-style-type: none"> <li>• <b>Narcotics</b> (morphine and fentanyl) are <b>CONTRAINDICATED</b> for casualties who are in shock or who are likely to go into shock; these agents may worsen their shock and increase the risk of death</li> <li>• <b>Four</b> casualties in two successive weekly telecons were noted to have received narcotics and were in shock during transport or on admission to the MTFs</li> <li>• Use <b>ketamine</b> for casualties who are in shock or at risk of going into shock but are still having significant pain</li> </ul>	<p><b>NO Opioid Analgesia for Casualties in Shock</b></p> <ul style="list-style-type: none"> <li>• <b>Narcotics</b> (morphine and fentanyl) are <b>CONTRAINDICATED</b> for casualties who are in shock or who are likely to go into shock; these agents may worsen their shock and increase the risk of death</li> <li>• <b>Four</b> casualties in two successive weekly telecons were noted to have received narcotics and were in shock during transport or on admission to the MTFs</li> <li>• Use <b>ketamine</b> for casualties who are in shock or at risk of going into shock but are still having significant pain</li> </ul>	<p>Read the text.</p>

9.	 <p><b>JTS Case Report 2017</b></p> <ul style="list-style-type: none"> <li>• Casualty injured in a dIED attack</li> <li>• CPR in progress on arrival at forward surgical capability</li> <li>• Multiple abdominal and pelvic injuries <ul style="list-style-type: none"> <li>– Severe liver laceration (requiring packing)</li> <li>– Splenic laceration</li> <li>– Significant mesenteric bleeding</li> <li>– Left iliac vein injury</li> <li>– Pelvic fracture</li> <li>– Zone 1 REBOA placed with return of VS</li> </ul> </li> </ul>	<p><b>JTS Case Report 2017</b></p> <ul style="list-style-type: none"> <li>• Casualty injured in a dIED attack</li> <li>• CPR in progress on arrival at forward surgical capability</li> <li>• Multiple abdominal and pelvic injuries <ul style="list-style-type: none"> <li>– Severe liver laceration (requiring packing)</li> <li>– Splenic laceration</li> <li>– Significant mesenteric bleeding</li> <li>– Left iliac vein injury</li> <li>– Pelvic fracture</li> <li>– Zone 1 REBOA placed with return of VS</li> </ul> </li> </ul>	Read the text.
10.	 <p><b>JTS Case Report 2017</b></p> <ul style="list-style-type: none"> <li>• Re-operated at Role 3 hospital several times</li> <li>• Stormy course but stabilized and was off pressor medications at time of transport</li> <li>• Private transport to a NATO partner hospital</li> <li>• On Precedex &amp; ketamine at the Role 3, but changed to fentanyl and midazolam by the flight team</li> <li>• Casualty became hypotensive and was treated with escalating dose Levophed drip</li> <li>• Arrived at coalition partner hospital unstable</li> <li>• Died shortly thereafter of multi-organ failure</li> </ul>	<p><b>JTS Case Report 2017</b></p> <ul style="list-style-type: none"> <li>• Re-operated at Role 3 hospital several times</li> <li>• Stormy course but stabilized and was off pressor medications at time of transport</li> <li>• Private transport to a NATO partner hospital</li> <li>• On Precedex &amp; ketamine at the Role 3, but changed to fentanyl and midazolam by the flight team</li> <li>• Casualty became hypotensive and was treated with escalating dose Levophed drip</li> <li>• Arrived at coalition partner hospital unstable</li> <li>• Died shortly thereafter of multi-organ failure</li> </ul>	Read the text.
11.	 <p><b>Untreated Pain on the Battlefield</b></p>	<p><b>Untreated Pain on the Battlefield</b></p>	




<p>12.</p>	<p>Jul 2013 - Feb 2014 N = 191 casualties Prior to MEDEVAC</p>  <p>Amputations 57% no pain meds</p> <p>Slide courtesy of MAJ John Robinson Data from JTS/JTTS TCCC AARs and PHTR</p> <p>GSW 59% no pain meds</p> <p><small>**As of Dec 2013, 92% of line medics in USFOR-Afghanistan carry Morphine auto-injectors</small></p>	<p>Jul 2103 – Feb 2014 N = 191 casualties Prior to MEDEVAC</p> <p>Amputations: 57% had no pain meds GSW: 59% had no pain meds</p>	<p>Almost 2/3 of these seriously wounded casualties got no pre-hospital treatment for pain.</p> <p>Furthermore, several of them received IM morphine which is clearly not the contemporary standard of care.</p>
<p>13.</p>	 <p><b>Case Report</b></p> <ul style="list-style-type: none"> <li>• Male casualty with GSW to thigh</li> <li>• Bleeding controlled by tourniquet</li> <li>• In shock – alert but hypotensive</li> <li>• Severe pain from tourniquet</li> <li>• Repeated pleas to PA to remove the tourniquet</li> <li>• PA did not want to use opioids because of the shock</li> <li>• Perfect candidate for ketamine analgesia</li> <li>• Ketamine not fielded at the time with this unit</li> <li>• 50 mg ketamine autoinjectors would help - but approval from the FDA is needed to use ketamine in that mode</li> </ul>	<p><b>Case Report</b></p> <ul style="list-style-type: none"> <li>• Male casualty with GSW to thigh</li> <li>• Bleeding controlled by tourniquet</li> <li>• In shock – alert but hypotensive</li> <li>• Severe pain from tourniquet</li> <li>• Repeated pleas to PA to remove the tourniquet</li> <li>• PA did not want to use opioids because of the shock</li> <li>• Perfect candidate for ketamine analgesia</li> <li>• Ketamine not fielded at the time with this unit</li> <li>• 50 mg ketamine autoinjectors would help - but approval from the FDA is needed to use ketamine in that mode</li> </ul>	<p>Read the text.</p>
<p>14.</p>	 <p><b>Opioid Analgesics Given in Combination with Benzodiazepines</b></p>	<p><b>Opioid Analgesics Given in Combination with Benzodiazepines</b></p>	







<p>15.</p>	 <p><b>Warning: Opioids and Benzos</b></p> <ul style="list-style-type: none"> <li>• Ketamine can safely be given after a fentanyl lozenge</li> <li>• Some practitioners use benzodiazepine medications such as midazolam to avoid ketamine side effects <b>BUT</b></li> <li>• Midazolam may cause respiratory depression, especially when used with opioids</li> <li>• <b>Avoid</b> giving midazolam to casualties who have previously gotten fentanyl lozenges or morphine</li> </ul> 	<p><b>Warning: Opioids and Benzos</b></p> <ul style="list-style-type: none"> <li>• Ketamine can safely be given after a fentanyl lozenge</li> <li>• Some practitioners use benzodiazepine medications such as midazolam to avoid ketamine side effects <b>BUT</b></li> <li>• Midazolam may cause respiratory depression, especially when used with opioids</li> <li>• <b>Avoid</b> giving midazolam to casualties who have previously gotten fentanyl lozenges or morphine</li> </ul>	<p>Read the text.</p> <p>There is a black box warning from the FDA about midazolam causing respiratory depression and arrest even when used as a single agent. This effect is potentiated when midazolam is used in conjunction with opioids.</p>
<p>16.</p>	 <p><b>Penetrating Eye Injuries</b></p>	<p><b>Penetrating Eye Injuries</b></p>	
<p>17.</p>	 <p><b>Penetrating Eye Trauma</b></p> <ul style="list-style-type: none"> <li>• Rigid eye shield for obvious or suspected eye wounds - often not being done – SHIELD AND SHIP!</li> <li>• Not doing this may cause permanent loss of vision – use a shield for any injury in or around the eye.</li> <li>• Eye shields are not always in IFAKs. You can use eye pro instead.</li> <li>• IED + no eye pro + facial wounds = Suspected Eye Injury!</li> </ul>  <p>Shield after injury</p>  <p>No shield after injury</p>	<p><b>Penetrating Eye Trauma</b></p> <ul style="list-style-type: none"> <li>• Rigid eye shield for obvious or suspected eye wounds - often not being done – SHIELD AND SHIP!</li> <li>• Not doing this may cause permanent loss of vision – use a shield for any injury in or around the eye.</li> <li>• Eye shields are not always in IFAKs. You can use eye protection instead (i.e., tactical eyewear)</li> <li>• IED + no eye pro + facial wounds = Suspected Eye Injury!</li> </ul>	<p>The eye on the left has a good chance of recovering vision. The eye on the right will have to be surgically removed.</p>




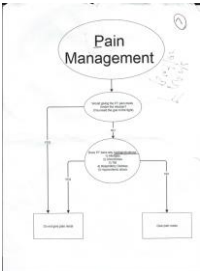
<p>18.</p>	 <p><b>Patched Open Globe</b></p> <ul style="list-style-type: none"> <li>• Shrapnel in right eye from IED</li> <li>• Had rigid eye shield placed</li> <li>• Reported as both pressure patched and as having a gauze pad placed under the eye shield without pressure</li> <li>• Extruded uveal tissue (intraocular contents) noted at time of operative repair of globe</li> <li>• <b>Do not place gauze on injured eyes! COL Robb Mazzoli: Gauze can adhere to iris tissue and cause further extrusion when removed <u>even if no pressure is applied to eye.</u></b></li> <li>• <b>At least two other known occurrences of patching open globe injuries</b></li> </ul>	<p><b>Patched Open Globe</b></p> <ul style="list-style-type: none"> <li>• Shrapnel in right eye from IED</li> <li>• Had rigid eye shield placed</li> <li>• Reported as both pressure patched and as having a gauze pad placed under the eye shield without pressure</li> <li>• Extruded uveal tissue (intraocular contents) noted at time of operative repair of globe</li> <li>• <b>Do not place gauze on injured eyes! COL Robb Mazzoli: Gauze can adhere to iris tissue and cause further extrusion when removed <u>even if no pressure is applied to eye.</u></b></li> <li>• <b>At least two other known occurrences of patching open globe injuries</b></li> </ul>	<p>COL Robb Mazzoli was formerly the Army Surgeon General’s Consultant for Ophthalmology.                  Reminder: Rigid eye shields are GOOD, and pressure patches are BAD for eye trauma.                  You should put no gauze underneath the shield at all – may cause problems as noted here.</p>
<p>19.</p>	 <p><b>Antibiotics after Eye Injuries</b></p> <ul style="list-style-type: none"> <li>• 2010 casualty with endophthalmitis (blinding infection inside the eye)</li> <li>• <b>Reminder – shield and moxifloxacin in the field for penetrating eye injuries – use combat pill pack!</b></li> <li>• Also –moxi, both topically and systemically, should be continued in MTFs</li> <li>• Many antibiotics <u>do not penetrate well</u> into the eye</li> </ul> 	<p><b>Antibiotics after Eye Injuries</b></p> <ul style="list-style-type: none"> <li>• 2010 casualty with endophthalmitis (blinding infection inside the eye)</li> <li>• <b>Reminder – shield and moxifloxacin in the field for penetrating eye injuries – use combat pill pack!</b></li> <li>• Also –moxi, both topically and systemically, should be continued in MTFs</li> <li>• Many antibiotics <u>do not penetrate well</u> into the eye</li> </ul>	<p>Eye infections can cause permanent loss of vision after eye injury.                  Give antibiotics in the Combat Pill Pack to help prevent them!</p>
<p>20.</p>	 <p><b>Tension Pneumothorax</b></p>	<p><b>Tension Pneumothorax</b></p>	




21.	 <p><b>The Missed Tension Pneumothorax</b></p> <ul style="list-style-type: none"> <li>• One U.S. combat fatality in 2014 was found to have died with a tension pneumothorax</li> <li>• NO evidence of attempted needle decompression</li> <li>• <b>Monitor anyone with torso trauma or polytrauma for respiratory distress – perform needle decompression when indicated</b></li> <li>• <b>ALWAYS do bilateral NDC for a casualty with torso trauma who loses vital signs on the battlefield – this may be lifesaving</b></li> </ul>	<p><b>The Missed Tension Pneumothorax</b></p> <ul style="list-style-type: none"> <li>• One U.S. combat fatality in 2014 was found to have died with a tension pneumothorax</li> <li>• NO evidence of attempted needle decompression</li> <li>• <b>Monitor anyone with torso trauma or polytrauma for respiratory distress – perform needle decompression when indicated</b></li> <li>• <b>ALWAYS do bilateral NDC for a casualty with torso trauma who loses vital signs on the battlefield – this may be lifesaving</b></li> </ul>	Read the text.
22.	 <p><b>Combat Gauze</b></p>	<p><b>Combat Gauze</b></p>	
23.	 <p><b>External Hemorrhage – No Combat Gauze</b></p> <ul style="list-style-type: none"> <li>• Casualty with gunshot wound in the left infraclavicular area with external hemorrhage</li> <li>• “Progressive deterioration”</li> <li>• External hemorrhage noted to increase as casualty resuscitated in ED</li> <li>• <u>No</u> record of Combat Gauze use</li> <li>• All injuries noted to be extrapleural</li> <li>• Lesson learned: see following slide</li> </ul>	<p><b>External Hemorrhage – No Combat Gauze</b></p> <ul style="list-style-type: none"> <li>• Casualty with gunshot wound in the left infraclavicular area with external hemorrhage</li> <li>• “Progressive deterioration”</li> <li>• External hemorrhage noted to increase as casualty resuscitated in ED</li> <li>• <u>No</u> record of Combat Gauze use</li> <li>• All injuries noted to be extrapleural</li> <li>• Lesson learned: see following slide</li> </ul>	Read the text.













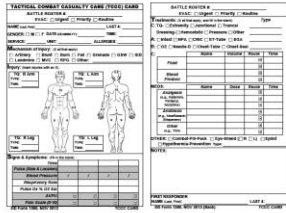

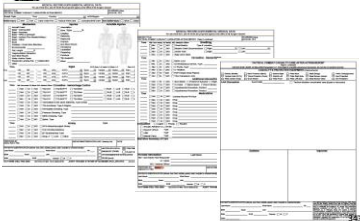
24.	 <p><b>Combat Gauze</b></p> <p><i>It doesn't work if you don't use it.</i></p>	<p><b>Combat Gauze</b></p> <p><i>It doesn't work if you don't use it.</i></p>	Read the text.
25.	 <p><b>Junctional Hemorrhage</b></p>	<b>Junctional Hemorrhage</b>	
26.	 <p><b>Junctional Hemorrhage</b></p> <ul style="list-style-type: none"> <li>• A U.S. casualty in 2013 sustained a GSW to the inguinal area.</li> <li>• The CASEVAC platform did not have junctional tourniquets aboard.</li> <li>• The subsequent junctional hemorrhage was only partially controlled with Combat Gauze.</li> <li>• Casualty went into hemorrhagic shock and had to be transfused.</li> </ul>	<p><b>Junctional Hemorrhage</b></p> <ul style="list-style-type: none"> <li>• A U.S. casualty in 2013 sustained a GSW to the inguinal area.</li> <li>• The CASEVAC platform did not have junctional tourniquets aboard.</li> <li>• The subsequent junctional hemorrhage was only partially controlled with Combat Gauze.</li> <li>• Casualty went into hemorrhagic shock and had to be transfused.</li> </ul>	Read the text.



<p>27.</p>	 <p><b>IED Blast Injury</b></p> <ul style="list-style-type: none"> <li>• 3 of 5 casualties had complex blast injuries.</li> <li>• All 3 had high traumatic LE amputations and reported difficulty with hemorrhage control despite tourniquet use.</li> <li>• Combat Gauze was reportedly not used.</li> <li>• All 3 would have been excellent candidates for a junctional tourniquet – none were fielded with this unit.</li> <li>• All 3 casualties required massive transfusions upon arrival at the Role 2 MTF.</li> </ul>	<p><b>IED Blast Injury</b></p> <ul style="list-style-type: none"> <li>• 3 of 5 casualties had complex blast injuries.</li> <li>• All 3 with high traumatic LE amputations and reported difficulty with hemorrhage control despite tourniquet use.</li> <li>• Combat Gauze was reportedly not used.</li> <li>• All 3 would have been excellent candidates for a junctional tourniquet – none were fielded with this unit.</li> <li>• All 3 casualties required massive transfusions upon arrival at the Role 2 MTF.</li> </ul>	<p>Read the text.</p>
<p>28.</p>	 <p><b>Junctional Tourniquets</b></p>    <p>Combat Ready Clamp      JETT      Sam Junctional Tourniquet</p> <p><i>Junctional tourniquets: They don't work if your unit doesn't have them.</i></p>	<p><b>Junctional Tourniquets</b></p> <p><b>Combat Ready Clamp, JETT, Sam Junctional Tourniquet</b></p> <p><i>Junctional tourniquets: They don't work if your unit doesn't have them.</i></p>	<p>Read the text.</p>
<p>29.</p>	 <p><b>TCCC Training</b></p>	<p><b>TCCC Training</b></p>	

<p>30.</p>	 <p><b>Issues with Current TCCC Training</b></p> <ul style="list-style-type: none"> <li>• There is significant variation among TCCC courses, both military and commercial.</li> <li>• Some segments of the DoD have had no TCCC training.</li> <li>• Some TCCC courses contain inappropriate training.</li> </ul>	<p><b>Issues with Current TCCC Training</b></p> <ul style="list-style-type: none"> <li>• There is significant variation among TCCC courses, both military and commercial.</li> <li>• Some segments of the DoD have had no TCCC training.</li> <li>• Some TCCC courses contain inappropriate training.</li> </ul>	<p>Read the text.</p>
<p>31.</p>	 <p><b>Problems with Non-Standard TCCC Courses</b></p> <ul style="list-style-type: none"> <li>• <b>Incorrect messaging</b> <ul style="list-style-type: none"> <li>– <i>Instructor drift</i> <ul style="list-style-type: none"> <li>• <i>“Never take off a tourniquet in the field”</i></li> </ul> </li> </ul> </li> <li>• <b>Inappropriate training</b></li> <li>• <b>Vendor-supplied training is expensive</b></li> </ul>	<p><b>Problems with Non-Standard TCCC Courses</b></p> <ul style="list-style-type: none"> <li>• <b>Incorrect messaging</b> <ul style="list-style-type: none"> <li>– <i>Instructor drift</i> <ul style="list-style-type: none"> <li>• <i>“Never take off a tourniquet in the field”</i></li> </ul> </li> </ul> </li> <li>• <b>Inappropriate training</b></li> <li>• <b>Vendor-supplied training is expensive</b></li> </ul>	<p>The recommended curriculum in TCCC is the one developed and continually updated by the Committee on Tactical Combat Casualty Care and approved by the Joint Trauma System. Any deviation from this curriculum cannot claim to be TCCC. Problems like these occur when training vendors and independent military training centers are not held to the standard curriculum.</p>
<p>32.</p>	 <p><b>Instructor Drift in a “TCCC” course, 2015</b></p> <ul style="list-style-type: none"> <li>• TBI does not contraindicate ketamine.</li> <li>• Shock does not contraindicate ketamine.</li> <li>• No one is likely to be allergic to both ketamine and opioids.</li> </ul> 	<p><b>Instructor Drift in a “TCCC” course, 2015</b></p> <ul style="list-style-type: none"> <li>• TBI does not contraindicate ketamine.</li> <li>• Shock does not contra-indicate ketamine.</li> <li>• No one is likely to be allergic to both ketamine and opioids.</li> </ul>	<p>This algorithm is from a TCCC course put on by a service trauma training center. It departs from TCCC Guidelines at a number of points:</p> <p>It ignores the analgesic option that can be used even if the tactical scenario is likely to revert to Care Under Fire (meloxicam and acetaminophen).</p> <p>It appears to discourage indicated analgesics even in Tactical Field Care.</p> <p>Neither TBI nor hemorrhagic shock is a contraindication to the use of ketamine.</p> <p>It is unlikely that any individual would be allergic to both ketamine and opioids.</p> <p>This is not the triple-option analgesia recommended in TCCC guidelines. It is an excellent example of instructor drift.</p>

<p>33.</p>	 <p><b>Inappropriate Training</b></p> <ul style="list-style-type: none"> <li>• “Shock labs”</li> <li>• “Cognition labs”</li> <li>• Insertion of intraosseous devices on course attendee volunteers</li> <li>• Regional nerve blocks by non-medical personnel</li> <li>• Central venous catheter placement by prehospital providers</li> <li>• Arterial blood draws</li> </ul>	<p><b>Inappropriate Training</b></p> <ul style="list-style-type: none"> <li>• “Shock labs”</li> <li>• “Cognition labs”</li> <li>• Insertion of intraosseous devices on course attendee volunteers</li> <li>• Regional nerve blocks by non-medical personnel</li> <li>• Central venous catheter placement by prehospital providers</li> <li>• Arterial blood draws</li> </ul>	<p>These are examples of inappropriate training that have been identified in some vendor-supplied “TCCC” courses.</p> <p>In “shock labs”, volunteers are given hypotensive medications so that they can experience the signs and symptoms of hypovolemic shock.</p> <p>In “cognition labs”, volunteers are given mind-altering substances like ketamine and tested on tasks like manual dexterity.</p>
<p>34.</p>	 <p><b>NAEMT TCCC Courses: Advantages</b></p> <ul style="list-style-type: none"> <li>• JTS recommends that TCCC should be a credential-producing training program for the MHS, overseen by the MTN and administered by the NAEMT. This model already exists.             <ul style="list-style-type: none"> <li>– Precedents: ACLS, ATLS, PHTLS, BLS</li> </ul> </li> <li>• NAEMT TCCC courses and instructor courses follow the CoTCCC-developed/JTS-approved curriculum without deviation.</li> <li>• NAEMT TCCC instructors undergo Quality Assurance evaluation.</li> <li>• The recommended TCCC training provided through the NAEMT educational system costs much less than equivalent training purchased from for-profit TCCC vendors.</li> </ul>	<p><b>NAEMT TCCC Courses: Advantages</b></p> <ul style="list-style-type: none"> <li>• JTS recommends that TCCC should be a credential-producing training program for the MHS.</li> <li>• NAEMT TCCC courses and instructor courses follow the CoTCCC-developed/JTS-approved curriculum without deviation.</li> <li>• NAEMT TCCC instructors undergo Quality Assurance evaluation.</li> <li>• The recommended TCCC training provided through the NAEMT educational system costs much less than equivalent training purchased from for-profit TCCC vendors.</li> </ul>	<p>The TCCC curriculum as taught by NAEMT adheres to the CoTCCC guidelines and is updated as the CoTCCC curriculum is updated. This course is internationally recognized and provides a TCCC card with the logos of the groups that have endorsed the concepts that the course contains: the American College of Surgeons Committee on Trauma, the JTS, the CoTCCC and the NAEMT. This course is currently the best option available to ensure consistent and high-quality training in TCCC across the DoD.</p>
<p>35.</p>	 <p><b>NAEMT TCCC Courses: Advantages</b></p> <ul style="list-style-type: none"> <li>• The NAEMT system issues and tracks certification for instructors and students.             <ul style="list-style-type: none"> <li>– Cards and registries</li> </ul> </li> <li>• The NAEMT system for establishing training sites is working very well for military commands using it.</li> <li>• NAEMT TCCC courses do not include live tissue training with its associated expense and logistic burden.</li> <li>• NAEMT TCCC courses are endorsed by the ACS-COT.</li> <li>• Additional training such as trauma lanes, field exercises, and live tissue training could be added to supplement the basic TCCC curriculum as unit time and resources allow.</li> </ul>	<p><b>NAEMT TCCC Courses: Advantages</b></p> <ul style="list-style-type: none"> <li>• <u>The</u> NAEMT system issues and tracks certification for instructors and students.             <ul style="list-style-type: none"> <li>Cards and registries</li> </ul> </li> <li>• The NAEMT system for establishing training sites is working very well for military commands using it.</li> <li>• NAEMT TCCC courses do not include live tissue training with its associated expense and logistic burden.</li> <li>• NAEMT TCCC courses are endorsed by the ACS-COT.</li> <li>• Additional training such as trauma lanes, field exercises, and live tissue training could be added to supplement the basic TCCC curriculum as unit time and resources allow.</li> </ul>	<p>Read the text.</p>

36.	 <p><b>TCCC Training for <u>ALL</u> combatants:</b></p> <p>Self and buddy aid should be part of the Warrior Culture in all combat units.</p>	<p><b>TCCC Training for <u>ALL</u> combatants:</b></p> <p><b>Self and buddy aid should be part of the Warrior Culture in all combat units.</b></p>	Read the text.
37.	 <p><b>Eliminating Preventable Death on the Battlefield</b></p>  <ul style="list-style-type: none"> <li>• Kotwal et al – Archives of Surgery 2011</li> <li>• <u>All</u> Rangers and docs trained in TCCC</li> <li>• <u>U.S. military</u> preventable deaths: <b>24%</b></li> <li>• <u>Ranger</u> preventable death incidence: <b>3%</b></li> <li>• <b>Almost a 90% difference in preventable deaths</b></li> </ul>	<p><b>Eliminating Preventable Death on the Battlefield</b></p> <ul style="list-style-type: none"> <li>• Kotwal et al – Archives of Surgery 2011</li> <li>• <u>All</u> Rangers and docs trained in TCCC</li> <li>• <u>U.S. military</u> preventable deaths: <b>24%</b></li> <li>• <u>Ranger</u> preventable death incidence: <b>3%</b></li> <li>• <b>Almost a 90% difference in preventable deaths</b></li> </ul>	The 75 <sup>th</sup> Ranger Regiment achieved the lowest preventable death rate ever recorded. They did this by training all their soldiers in TCCC, not just their medics.
38.	 <p><b>TCCC in Canadian Forces</b> Savage et al: Can J Surg 2011</p> <p><b>CONCLUSION</b></p> <p>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. <u>Despite this, the CF experienced the highest casualty survival rate in history.</u> Though this success is multifactorial, the determination and resolve of CF leadership to develop and deliver comprehensive, <u>multileveled TCCC packages to soldiers and medics</u> is a significant reason for that and has unquestionably saved the lives of Canadian, Coalition and Afghan Security Forces. Further-</p>	<p><b>TCCC in Canadian Forces</b> Savage et al: Can J Surg 2011</p>	Canadian Forces use TCCC, and credit it with helping achieve the highest casualty survival rate in their history. They also train both medics and soldiers in TCCC.
39.	 <p><b>Train ALL Combatants in TCCC</b></p> <ul style="list-style-type: none"> <li>• Service medical departments are responsible for training combat medical personnel only.</li> <li>• <b>Line commanders must take the lead to have an effective TCCC training program for <i>all</i> combatants.</b></li> <li>• The Ranger First Responder Course is the best model.</li> </ul> 	<p><b>Train ALL Combatants in TCCC</b></p> <ul style="list-style-type: none"> <li>• Service medical departments are responsible for training combat medical personnel only.</li> <li>• <b>Line commanders must take the lead to have an effective TCCC training program for <i>all</i> combatants.</b></li> <li>• The Ranger First Responder Course is the best model</li> </ul>	The JTS also recommends the <b>TCCC for All Combatants curriculum</b> as the minimum standard for TCCC training for non-medical personnel. This training could also be provided via an NAEMT/MHS/JTS program like TCCC for Medical Personnel. All the services should train medics and soldiers, sailors, airmen, and marines in TCCC like the 75 <sup>th</sup> Rangers do.

<p>40.</p>	 <p><b>Documentation of TCCC Care</b></p>	<p><b>Documentation of TCCC Care</b></p>	
<p>41.</p>	 <p><b>TCCC Card – Fill It Out!</b></p>  <ul style="list-style-type: none"> <li>You haven't finished taking care of your casualty until this is done</li> <li>Mission Commanders – this is a <u>leadership issue!</u></li> </ul>	<p><b>TCCC Card – Fill It Out!</b></p> <ul style="list-style-type: none"> <li>You haven't finished taking care of your casualty until this is done</li> <li>Mission Commanders – this is a <u>leadership issue!</u></li> </ul>	<p>Read the text.</p>
<p>42.</p>	 <p><b>New TCCC Card</b></p> 	<p><b>New TCCC Card</b></p>	<p>This shows both sides of the TCCC Card</p>
<p>43.</p>	 <p><b>New TCCC AAR</b></p> 	<p><b>New TCCC AAR</b></p>	<p>The AAR can be downloaded from the Joint Trauma System website.</p>

44.	  Questions?	Questions?	
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