

TCCC Guidelines Comprehensive Review and Edits 2020

TCCC Guidelines Change 20-05

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ABSTRACT

Based on careful review of the Tactical Combat Casualty Care (TCCC) Guidelines, the authors developed a list of proposed changes and edits for inclusion in a comprehensive change proposal. To be included in the proposal, individual changes had to meet at least one of three criteria:

1. The change was primarily tactical, operational, or educational rather than clinical in nature.
2. The change was a minor modification to the language of an existing TCCC Guideline.
3. The change, though clinical, was straightforward and noncontentious.

The authors initially presented their list to the TCCC Collaboration Group for review at the 11 August 2020 online virtual meeting of the Committee on Tactical Combat Casualty Care (CoTCCC). Based on discussions during the virtual meeting and following revisions, a second presentation of guideline modifications was presented during the CoTCCC session of the online virtual Defense Committee on Trauma meeting on 02 September 2020. The CoTCCC conducted voting on the guideline changes in early October 2020 with subsequent inclusion in the updated TCCC Guidelines published on 01 November 2020.¹

Proximate Causes for This Proposed Change

1. A routine comprehensive review provides an opportunity to integrate best practices and lessons learned from the field.
2. Enable improved and more precise TCCC messaging tailored for all Servicemembers.
3. Clarify Joint terminology and lexicons for use in all applications of TCCC in support of the Department of Defense (DoD)'s full range of military operations.
4. Maintain synchronization with TCCC curricula, knowledge products, and literature references.

Background

The original TCCC Guidelines were published in *Military Medicine* in 1996.² Since they first appeared, the TCCC Guidelines have been updated numerous times by the CoTCCC to incorporate new evidence in prehospital trauma care, lessons learned in Iraq and Afghanistan, and new trauma care technology. In 2016 and 2017, a comprehensive review and update of the TCCC Guidelines were conducted resulting in 23 changes and edits.³ It was proposed during the 2017 review that the CoTCCC continue to conduct such detailed comprehensive

reviews periodically to ensure integration of best practices, improved messaging, and synchronization with other TCCC products.

Discussion of Recommended Changes

1. Change “Care Under Fire” phase to “**Care Under Fire/Threat.**”

The TCCC Guidelines have become the standard of care for prehospital trauma within the DoD for both medical and nonmedical first responders. As such, the methodology and subsequent training programs are intended to be applied to any high-threat or all-hazard situation encountered by a Servicemember whether in combat or during normal duty activities. Fundamentally, the principles of TCCC apply whether in ground tactical combat, aboard a sea vessel, at a deployed staging base, or even at home station facilities. The principle of first suppressing enemy fire, subduing an active shooter, extinguishing a shipboard fire, or reducing life threats prior to rendering medical treatment is applicable across the full range of military operation at home or abroad. Additionally, the principle of controlling immediate life-threatening hemorrhage remains the only recommended medical intervention until the threat is suppressed or controlled.

It is also important that the TCCC Guidelines be relevant in terminology used throughout the entire DoD. Joint lexicons ensure interoperability between the Services, unit formations, and individual Servicemembers for key terms used in support of trauma care, operational medical planning, performance improvement, and research across the spectrum of military operations.⁴ Additionally, the use of “Care Under Fire/Threat” was integrated into the TCCC All Service Members (TCCC-ASM) curriculum in 2019 by the ASD, Health Affairs–chartered working group based on guidance from Joint Trauma System personnel.⁵ This action was specifically included to ensure acceptance and compliance by all the military departments.

2. Add text to Care Under Fire/Threat line 3 to include dragging and/or carrying a casualty to cover when tactically feasible.

Proposal: Edit Care Under Fire Line 3 to read:

Direct casualty to move to cover and apply self-aid **or, when tactically feasible, move or drag casualty to cover.**

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Though we have covered the implied task of moving or dragging a casualty to cover in TCCC curricula for several years, the guidelines do not actually cover this task.⁶ In the review of the TCCC Guidelines translated into a comprehensive curriculum with terminal and enabling learning objectives as well as hands-on assessments, the specified and implied tasks within the guidelines were heavily scrutinized. Though there were existing hands-on tasks based on various casualty movement techniques, this task was highlighted as not being specifically worded in the guidelines. It was also identified that many of the existing task's conditions varied thus subjecting learners to randomized interpretation of graders. There have also been instances of both overexaggerated and underexaggerated training sessions involving casualty movement during care under fire and tactical care phases.

It was also highlighted that although casualty movement techniques have principles of patient movement that apply to any environment, the original intent was to focus on the tactical applications.² Not specifying casualty movement within the TCCC Guidelines increases the probability of user misinterpretation. While the principles of cover, concealment, shoot, move and communicate are applicable to tactical situations, there is room for interpretation based on unit mission profiles. The principles are consistent between a ground infantry force and an armored vehicle force, but the techniques of execution might vary. As such, how rapid casualty movement may occur in different units could vary slightly but with similar principles.⁷ The intent of this change is to ensure tactical principles are established for training but provide units flexibility in performing specific techniques based on their mission.

3. Change text in Care Under Fire/Threat line 5 from extricated to extracted.

The current TCCC guideline states: Casualties should be extricated from burning or damaged vehicles of buildings to places of relative safety.

Proposal: Edit Care Under Fire Line 5 to read:

Casualties should be **extracted** from burning or damaged vehicles or buildings and moved to places of relative safety.

The term "extricated" is associated with technical rescue capabilities involving specialized equipment such as used during combat search and rescue operations⁸ as well as fire, rescue, and emergency medical services.⁹ As such, the use of specialized equipment requires specialized training that is part of technical rescue training. Most ground tactical organizations do not carry or employ specialized equipment which would be required as part of a rescue operation. In contrast, extracted implies a less specialized or technical means of quickly removing a casualty from a hazardous vehicle, aircraft, watercraft and/or structure. Further, extrication implies the unit's mission transitioning to a technical rescue operation in which the site must be secured, and special equipment brought in to conduct rescue operations.¹⁰

4. Add text to Tactical Field Care Airway Management, Paragraph 4-c, bullet 1.

The current TCCC guideline states: Allow a conscious casualty to assume any position that best protects the airway, to include sitting up.

Proposal: Add text to paragraph 4-c to read: Allow a conscious casualty to assume any position that best protects the airway, to include sitting up **and/or leaning forward**.

Positioning a conscious casualty to a position of breathing comfort with special emphasis on "sitting up and leaning forward" has been part of TCCC skills from the earliest curricula days.^{6,11} However, only part of the skill has been published in the actual guidelines. This proposal simply inserts the appropriate text to synchronize the guidelines with the TCCC teaching that has occurred for years.

5. Shift assessment of hemorrhagic shock to an earlier text and reference point in the guidelines.

The current TCCC guideline places the assessment for hemorrhagic shock in paragraph 6-d at the beginning of fluid resuscitation. However, both para 6-b IV Access and 6-d TXA list hemorrhagic shock as an indication for action.

Proposal: Add a new line 3-d and shift existing 6-d, bullet 1 to become a new 6-b.

3-d. Perform initial assessment for hemorrhagic shock (altered mental status in the absence of brain injury and/or weak or absent radial pulse) and consider immediate initiation of shock resuscitation efforts.

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

In the current TCCC Guidelines, the assessment for hemorrhagic shock is the first action in the fluid resuscitation portion of circulation in the MARCH sequence (para 6-d). However, hemorrhagic shock is highlighted as an indication for assessments and actions prior to the current placement in the wording. For instance, in the current para 6-b, an indication for initiating IV/IO access is if the casualty is in hemorrhagic shock or at significant risk of shock. Additionally, in the newly revised paragraph 6-c, hemorrhagic shock is listed as an example indication for the administration of tranexamic acid (TXA). Recognition of clinical patterns associated with the need for resuscitation is essential for effective triage and/or treatment when shock is present or expected; as such, initial assessment of hemorrhagic shock should be initiated in conjunction with massive hemorrhage control or M in the MARCH sequence.¹² Furthermore, it may be implied that assessment and initial management of hemorrhagic shock takes priority over airway and respiration interventions. In many ways, this is a judgement call made on the spot based on several factors including the tactical situation, hemorrhage control options, and if a casualty has life-threatening airway or respiration injuries.

6. Add a new first line to 14. Burns paragraph.

Proposal: Add a new first line to paragraph 14. Burns to read: **a. Assess and treat as a trauma casualty with burns and not burn casualty with injuries.**

This point has been part of the TCCC curricula for several years.^{6,11} It is a significant reference point in the overall management of casualties with burns to ensure that other life-threatening injuries such as hemorrhage and hemorrhagic shock have been addressed prior to burn management or burn-specific fluid resuscitation.

7. Add a new bullet text to 14-d under burn fluid resuscitation paragraph.

Proposal: Add a new last bullet to paragraph 14-d to read: **Consider oral fluids for burns up to 30% TBSA if casualty is conscious and able to swallow.**

This measure is currently published in the JTS Burn Wound Management in Prolonged Field Care CPG.¹³ This is a measure that is more feasible for a medic during the tactical field care phase than initiating a burn fluid resuscitation.

It should be noted there was significant discussion during CoTCCC meetings of shifting the complete burn fluid resuscitation measures to a prolonged casualty care guideline. While this might seem a radical change to the established TCCC guidelines, the reality is a complete burn fluid resuscitation would be a significant challenge for a medic in TFC. Generally, medics and corpsman do not carry, within their aidbags, the fluid quantities needed for an appropriate burn fluid resuscitation.

8. Swap paragraph 16. Communication and paragraph 17. Cardiopulmonary resuscitation in sequence.

Proposal: **Swap paragraph 16. Communication and paragraph 17. Cardiopulmonary resuscitation in sequence.**

The intent of this swap of existing text is simply to ensure the flow of casualty treatment measures in precedence over other nontreatment actions. From a medic/corpsman and treatment guideline perspective, treatment should be the primary action and goal. In contrast, many aspects of the communication paragraph in the guidelines are not necessarily restricted to a specific sequence. As such, it can be highlighted that a medic/corpsman should be communicating with the casualty and tactical leadership throughout the TCCC situation.

9. Separate the TACEVAC guidelines from the TCCC Guidelines to become a stand-alone document and the baseline guidelines managed by the Committee on En Route Combat Casualty Care (CoERCCC).

Proposal: **Separate TACEVAC portion of the TCCC guidelines to be managed and published by CoERCCC, as the proponent.**

The intent is to establish the existing TCCC TACEVAC Guidelines as the primary point of reference for any air, ground, or water evacuation from point of injury to the next point of medical care. As such, TACEVAC would be foundational for tactical evacuation to include MEDEVAC aircraft, tactical ground ambulances, and initial evacuation watercraft. This shift does not preclude the establishment of detailed en route clinical practice guidelines for other evacuation situations such as Role II to Role III postsurgical casualties. The CASEVAC phase, later renamed TACEVAC, was an original phase of care established in the TCCC guidelines as published in 1996.² Under the original concept, which was specific to special operations, the perception of CASEVAC was tailored around nonmedical platforms being used for evacuation from the tactical field care phase. In these cases, there was a level of assumption that units would outfit and conduct CASEVAC using mission platforms and organic or coordinated personnel and equipment. When CASEVAC was redesignated as TACEVAC in the 2008 TCCC Guidelines and subsequently updates¹⁴ to

be aligned with then-Joint Publication 4-02, 31 October 2006. At the time, the new term of TACEVAC included both the concept of CASEVAC (Casualty Evacuation) using nonmedical platforms and MEDEVAC (Medical Evacuation) using dedicated medical platforms.

The Committee on En Route Combat Casualty Care (CoERCCC) as a peer committee to CoTCCC under the Defense Committee on Trauma (DCoT) in 2017 and rechartered in 2020 The CoERCCC mission is to provide evidence-based service and platform agnostic Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P) recommendations to improve all aspects of the continuum of en route trauma care and casualty evacuation.¹⁵ Along with the mission statement and establishment of CoERCCC as the proponent for evacuation clinical practice guidelines (CPGs) in the Joint Trauma System. Accordingly, it is recommended that the CoERCCC assume control of the current TACEVAC Guidelines to be established as the baseline CPG for tactical evacuation.

10. TCCC medication indicated for intraosseous (IO) infusion

It was noted as the TCCC curriculum content was under development that some of the medications listed in the TCCC Guidelines noted an intravenous infusion route but not intraosseous (IO). As IO is generally considered an alternative to peripheral IV access throughout the guidelines, it was determined that further clarity was required. It is generally accepted that most medications that can be administered IV can also be administered IO. A review of current practices highlighted this fact. Advanced Cardiac Life Support (ACLS) states that any IV drug can be given IO.¹⁶ In two randomized clinical trials, there was no statistically significant interaction between the route of access and study drug on outcomes.¹⁷ IO access is a method recommended by the American Heart Association and the European Resuscitation Council to administer resuscitative drugs and fluids when intravenous (IV) access cannot be rapidly or easily obtained.¹⁸

After presentation to the CoTCCC and further discussion, it was determined that all medications in the TCCC Guidelines indicated for an IV route are also suitable for IO route. All medications in the TCCC Guidelines indicated for IV administration will be edited to reflect to also include IO administration.

Recommended CoTCCC Future Initiatives Include:

1. Initial treatment and management of directed energy injuries in a tactical environment.
2. A comprehensive review of the TCCC Guidelines applicability in extremely challenging tactical environments or conditions therein (CBRNE, arctic, subterranean, dense urban, etc.).
3. All proposed changes to the TCCC Guidelines should be cross-referenced against existing JTS clinical practice guidelines prior to vote to ensure synchronization.

Disclaimers

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 Defense Health Agency or the

Department of Defense. This recommendation is intended to be a guideline only and is not a substitute for clinical judgment.

Release

This document was reviewed by the Chief of the Joint Trauma System and by the Public Affairs Office and the Operational Security Office at the DoD's Defense Health Agency. It is approved for unlimited public release.

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