Tactical Combat Casualty Care Guidelines – Nov 2009

• CARE UNDER FIRE
  – Stop life-threatening external hemorrhage if tactically feasible

• TACTICAL FIELD CARE
  – Airway management, Breathing, Bleeding
  – IV access, Fluids, Hypothermic precautions, Splint, Secondary assessment
  – Antibiotics, Analgesics

• TACTICAL EVACUATION CARE
  – Continue aspects of Tactical Field Care, Antibiotics, Analgesics
  – Documentation of care
Tactical Combat Casualty Care – Care Under Fire

• Where a tourniquet can be applied, it is the first choice for control of life-threatening hemorrhage in Care Under Fire
Tourniquet Application

• Non-life-threatening bleeding should be **ignored** until the Tactical Field Care phase.
• Apply the tourniquet without removing the uniform – make sure it is clearly proximal to the bleeding site.
• Tighten until bleeding is controlled.
  • May need a second tourniquet applied just above the first to control bleeding.
  • Don’t put a tourniquet directly over the knee or elbow.
  • Don’t put a tourniquet directly over a holster or a cargo pocket that contains bulky items.
Tourniquet Application

• Apply without delay if indicated
• Both the casualty and the medic are in grave danger while a tourniquet is being applied in this phase – don’t use tourniquets for wounds without significant bleeding
• The decision regarding the relative risk of further injury versus that of bleeding to death must be made by the person rendering care.
Examples of Extremity Wounds That Do NOT Need a Tourniquet

Use a tourniquet ONLY for severe bleeding
Tactical Field Care Guidelines - Bleeding

Use **Combat Gauze** as the hemostatic agent of choice for compressible hemorrhage not amenable to tourniquet use or as an adjunct to tourniquet removal (if evacuation time anticipated to be longer than two hours)

**Combat Gauze** should be applied with **at least 3 minutes of direct pressure**.

Reassess prior tourniquet application. Expose wound and determine if tourniquet is needed. If so, replace tourniquet over uniform with another applied directly to skin 2-3 inches above wound. If tourniquet is not needed, use other techniques to control bleeding.

Before releasing any tourniquet on a casualty who has been resuscitated for hemorrhagic shock, ensure a positive response to resuscitation (i.e., a peripheral pulse normal in character and normal mentation if there is no traumatic brain injury (TBI)).

Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.
Kragh et al
Journal of Trauma 2008
• Combat Support Hospital in Baghdad
• 232 patients with tourniquets on 309 limbs
• CAT was best field tourniquet
• No amputations caused by tourniquet use
• Approximately 3% transient nerve palsies

Annals of Surgery 2009
• Ibn Sina Hospital, Baghdad, 2006
• Tourniquets are saving lives on the battlefield
• Better survival if tourniquets were applied BEFORE casualties went into shock
• Estimated 31 lives saved by applying tourniquets prehospital rather than in ED
Tourniquet Studies – Take Away Points

• Get tourniquets on BEFORE the onset of shock
  – Mortality is very high if casualties are already in shock before tourniquet application

• If bleeding is not controlled and distal pulse is not eliminated with first tourniquet – use a second one just proximal to first
  – Increasing the tourniquet WIDTH with a second tourniquet controls bleeding more effectively and reduces complications

• Tighten velcro band on tourniquets as tight as possible before starting to use windlass – a loose velcro band contributes to tourniquet malfunction
  – Should be effective with approximately three 180 degree turns of windlass
  – Use second tourniquet as needed
TOURNIQUETS - HOW TO APPLY