Regional Emergency Medical Organization

24 Madison Ave. Ext.
Albany, NY 12203

REMAC Advisory 2025-02

Re: Tourniquet Reassessment and Conversion

Effective: November 24, 2025

The use of extremity tourniquets is a cornerstone of hemorrhage control in trauma care in situations involving life-threatening extremity bleeding where immediate control is essential. Tourniquets (TQ) are highly effective, rapidly deployed, and often lifesaving. However, prolonged application can result in increased pain, ischemic injury, nerve damage, and increased risk of limb loss if not reassessed in a timely manner.

Recent research has demonstrated that some tourniquets placed emergently in high-stress situations may not be required for adequate hemorrhage control. The implementation of a standardized **Tourniquet Conversion Procedure** aims to guide trained providers in the careful reassessment and removal of a tourniquet once bleeding is controlled and alternative hemostatic measures are in place. This procedure reflects best practices and recommendations from military and civilian trauma literature, including Tactical Combat Casualty Care (TCCC) guidelines, which support early evaluation of tourniquet necessity and safe removal in controlled environments when clinically appropriate.

Evidence indicates that appropriate takedown of a tourniquet can:

- Reduce ischemic time and tissue injury.
- Reduce patient pain and requirement for analgesia.
- Decrease the risk of complications such as reperfusion injury, rhabdomyolysis, and potential amputation.
- Improve overall limb salvage outcomes.
- Standardize care and reduce variability in clinical decision-making.

This procedure establishes clear criteria, steps, and safety parameters to ensure that tourniquet removal is only attempted when alternative bleeding control methods (e.g., direct pressure, wound packing, hemostatic agents, or pressure dressings) are successfully applied, and adequate resources are available to manage recurrent bleeding if it occurs.

The addition of this procedure ensures that providers continue to prioritize hemorrhage control while minimizing unnecessary ischemic injury, aligning practice with current evidence-based standards and improving long-term patient outcomes.

Reference:
https://journals.lww.com/jtrauma/fulltext/2025/08001/from_application_to_conversion__the_development_of.17.aspx

Procedure:

1. Assessment and evaluation of a patient following tourniquet placement.
    a. If the emergent TQ was placed proximally, "high and tight", consider placing another TQ 2-3" above the wound, and removing the emergently placed TQ.
    b. Assure appropriate placement; the TQ should be 2-3" proximal to the wound and not over a joint.
    c. Expose the wound to assure no active arterial bleeding
        i. If active arterial bleeding is present, tighten TQ and pack wound (hemostatic gauze and pressure dressing), wait (3) minutes before considering TQ take down step.
        ii. If no active arterial bleeding from the packed wound, proceed with the TQ take down step.
        iii. Evaluate the location of the wound and consider the anatomy and the injury. Are there major vessels likely involved? Can an effective pressure dressing be applied to the area?
2. Tourniquet Conversion (take down)
    a. Slowly loosen the TQ and closely observe the site for any signs of continued bleeding
    b. If bleeding occurs, stop releasing the TQ and try to control with direct pressure
        i. If bleeding is controlled with direct pressure, assess distal perfusion.
        ii. If distal perfusion is present, apply pressure dressing and leave TQ in current position.
        iii. If no distal perfusion is present, relax TQ further until perfusion is restored.
    c. If bleeding is not controlled with direct pressure, replace the TQ at the previous tension.
    d. If the conversion fails, it may be reattempted x1 in 15 minutes.
    e. Every effort should be made to convert tourniquets in less than (2) hours if bleeding can be controlled by other means.
    f. If loosening the TQ to allow blood flow into the injured limb simply results in bleeding, this is a failed conversion, stop further attempts.
    g. If the TQ is released and distal perfusion is restored, this may result in increased pain in the affected limb, be prepared to treat appropriately
    h. If the TQ has been in place greater than 2 hours prior to attempted conversion, proceed with the Crush Injuries protocol.
    i. If bleeding persists after placement or replacement of a TQ and the initial TQ cannot be tightened any further, apply a second TQ proximal to the first to control further bleeding.
    j. Assure an appropriate packing and pressure dressing is in place.
3. **NEVER** attempt TQ take down on a limb that has been amputated. The TQ should be placed as close to the amputation as possible but not over a joint.