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## COUNTERFEIT EMERGENCY MEDICAL TOURNIQUETS

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*Tourniquets have long been used to treat battlefield injuries, often with poor results due to misuse. However, recent overseas conflicts demonstrated that proper use of tourniquets can increase survival rates among those with severe external bleeding due to extremity injuries [1]. Following high-profile civilian mass casualty events at home, lessons learned on overseas battlefields are being applied by emergency responders to civilian prehospital care and disseminated to the public through national awareness campaigns [2]. As tourniquet use becomes routine, the existence of counterfeit tourniquets in the marketplace has become a public safety issue as the counterfeits are manufactured with substandard materials and processes and are likely to fail when used.*

### Overview

Emergency medical tourniquets are commercial products used in prehospital settings to apply proximal pressure to extremities to stem blood flow. To achieve the pressure necessary to occlude blood flow, tourniquets employ a mechanical device such as a windlass [2].

Windlass tourniquets (shown in Figure 1) are the most common type of emergency medical tourniquet, and consist of a strap, buckle, windlass, and windlass clip. The strap slides around the injured extremity, is tightened with the buckle, and fastened back on itself. The windlass is then twisted until bleeding stops and is locked in place with the windlass clip.

Windlass tourniquets are small, lightweight, and easy to use one-handed, making them suitable for self-aid when needed; they also feature wide bands with soft edges and provide uniform pressure to minimize the risk of complications [3]. The simplicity of their design makes them targets for counterfeiting.



Figure 1. Windlass Tourniquet

### Counterfeit Tourniquets

Counterfeit windlass tourniquets have been present in the marketplace for years. In August 2010, the Food and Drug Administration (FDA) issued a now archived letter warning of suspected counterfeit tourniquets on the market. The warning letter was specific to the Combat Application Tourniquet®, or C-A-T®, and described the suspected counterfeit as possessing small design differences to the genuine product including a weak windlass that would bend or break before the requisite pressure could be applied to occlude blood flow.

The U.S. Department of Homeland Security (DHS) Science and Technology Directorate (S&T) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders making procurement decisions.

DHS S&T's Nation Urban Security Technology Laboratory (NUSTL) manages the SAVER Program and conducts objective assessments and validations on commercial equipment and systems. These results, along with other relevant equipment information, are provided to the emergency response community in an operationally useful form. SAVER provides information on equipment that falls within the categories listed in the DHS Authorized Equipment List.

The SAVER Program is supported by a network of technical agents who perform assessment and validation activities. Further, SAVER focuses primarily on two main questions for the emergency responder community: "What equipment is available?" and "How does it perform?"

For more information on this and other technologies, contact NUSTL by e-mail at [NUSTL@hq.dhs.gov](mailto:NUSTL@hq.dhs.gov) or visit the [SAVER website: www.dhs.gov/science-and-technology/SAVER](http://www.dhs.gov/science-and-technology/SAVER).



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The current version of the C-A-T—Gen 7—was introduced in November 2015 with anti-counterfeiting measures that make counterfeit products both harder to produce and easier to identify. According to the manufacturer, North American Rescue, the Gen 7 C-A-T is not known to have been counterfeited to date; the known counterfeits are of previous generations.

Differences between counterfeit and genuine tourniquets can be subtle. The most obvious difference is likely to be the price point, with counterfeit tourniquets often being considerably less expensive than genuine products. Manufacturing differences may include the size of mold marks, differences in stitching, the types of welds used (heat vs. sonic), the absence of markings, and the flexibility or fragility of the windlass. Genuine Gen 7 C-A-T tourniquets feature a red tip and printed lot number on the self-adhering band, raised manufacturer information printed on the baseplate, a time stamp printed directly on the rod-securing strap, sonic welding, and a robust buckle and windlass with raised lettering. These features are captured in the images in Figure 2.

In January 2018, an [Interpol Orange Notice](#) was issued warning that counterfeit emergency medical tourniquets are an imminent threat to public safety. This notice, which does not identify a specific manufacturer or brand, describes the discovery—by responders—of counterfeit tourniquets within the supply chain in the United States, as well as news reports of finding counterfeit tourniquets within supply chains overseas. This notice also describes a windlass breaking as a paramedic attempted to apply a department-issued counterfeit to a victim at an accident scene. When the windlass snapped in two, the paramedic was unable to tighten the tourniquet. Fortunately, another paramedic was able to successfully apply a genuine tourniquet.

To ensure tourniquets are genuine, the FDA and Interpol recommend purchasing tourniquets only from the manufacturer, authorized distributors, and reliable supply chains—not third party sellers or surplus stores—and contacting the manufacturer to verify the authenticity of questionable tourniquets.



Figure 2. Features of Genuine C-A-T Tourniquets

Clockwise from top left: Raised lettering on windlass and buckle, time stamp on rod-securing strap, red tip and lot number on self-adhering band, and manufacturer details on baseplate. Sonic welds are visible on the self-adhering band near the red tip and the back of rod-securing strap in the baseplate image.

## National Awareness Campaigns

While not explicitly geared toward responders, [Stop the Bleed](#)—a national awareness campaign—and [Until Help Arrives](#)—a FEMA Program—train, equip, and enable bystanders to provide aid—including the proper application of tourniquets—during bleeding emergencies prior to the arrival of professional help. It may be advantageous for responders to promote these programs within their local communities.

## References

[1] U.S. Army Institute of Surgical Research:  
<https://dodstem.us/sites/default/files/lab-narratives/US-Army-Institute-of-Surgical-Research-Lab-Narrative.pdf>

[2] Hartford Consensus:  
<https://www.bleedingcontrol.org/~media/bleedingcontrol/files/hartford%20consensus%20compendium.ashx>

[3] Journal of Emergency Medical Services:  
<https://www.iems.com/2010/05/20/tourniquet-first/>