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When a Child is Hemorrhaging from a Peripheral Trauma, Consider the Improvisational Tourniquet

Paul Patrick Rega | *University of Toledo, United States*

Abstract

Statement of the problem: Children are often intentional, accidental, or collateral victims of peripheral penetrating trauma. Commercial tourniquets have proven their efficacy in adult cases and a recent study indicates their value in the pediatric population. However, commercial tourniquets may be unavailable to civilian first responders during a mass casualty event. There is limited advocacy for improvisational tourniquets due to a paucity of evidence-based research.

The purpose of this presentation is to describe a university's efforts to improve awareness regarding improvisational tourniquets to diverse civilian communities.

Methodology

Over the space of two years, a multi-pronged strategy that incorporated improvisational tourniquets was developed: 1. Research; 2. Formal and informal commercial/improvisational tourniquet education; 3. Just-In-Time training with improvisational tourniquets; 4. Active shooter gaming that incorporated improvisational tourniquet application as a "survival" objective.

Findings

1. Research concluded that, testing multiple devices, a simple phone receiver and a necktie were the most effective improvisational tourniquets in curtailing fluid loss in a hemorrhage model. 2. Anti-hemorrhage training, including improvisational tourniquet education, maintained a flexibility and brevity that, over 2.5 years, trained nearly 2,500 faculty, students and staff. This training has 2019 been exported to teach children in an Arizona summer camp (n= 60) as well as high school students in New York (n= 80). 3. To improve "Just-In-Time" improvisational tourniquet training, a QR code linked in real time to a twenty-second video was created as a feasible emergency option in public access venues; 4. An active assailant board game that included tourniquet education was designed and tested. Out of 62 players, 97.6% felt more confident in applying an improvisational tourniquet.

Conclusion and significance

The improvisational tourniquet technique should be employed to stop a severe peripheral hemorrhage when nothing else is available and the procedure should be taught to the public while research is on-going.

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***Corresponding author:** Paul Patrick Rega, University of Toledo, United States; Email: Paul.Rega(at)utoledo.edu

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