

Needs Analysis

How to Apply a Tourniquet

Mark Hart, Heather Golub, Jekaterina Privis, Monique Lesieur

Group 7

Needs Analysis: How to Apply a Tourniquet

Problem Statement: We want to teach classroom educators how to react to a bleeding emergency about how to properly apply and when to apply a tourniquet.

Description of the problems

We currently are living in a world where students and teachers around the nation are faced with life-threatening situations. In 2018 alone, there were 24 active school shooting incidences, with 114 lives lost. It may be hard to visualize an educational world in which school personnel has to consider medical ability as well as academic ability, however, with this harsh reality, and no predicted changes in gun laws, teachers may need to undergo certain medical training to help students and their community. If no changes are made to laws that allow most individuals to own and carry guns, we cannot assume that these active shooting occurrences will lesson on their own. Therefore, if we cannot change the occurrence of these instances, we must better prepare ourselves to deal with the likelihood and fallout from active shooters on campuses.

Tourniquets are medical devices that stop the flow of blood on a limb through the application of pressure. By training teachers or school representatives to use tourniquets, many lives may be saved in the instance of an active shooter on campus. Through training, individuals will be able to help a victim before medical response teams have a chance to access and respond to the situation on campus.

Constraints

1. Budgets: School districts, or individual schools, must have the budget to supply classrooms or school facilities with tourniquets. Budgets may limit how many tourniquets

may be distributed around the school. For example, will budget allow for kits to be located in each classroom, one in the main office or scattered in designated areas around the school?

2. Accessibility: Tourniquet equipment must be designated to an accessible spot in the classroom or school that can be available during an active shooter situation. Each potential event is situational and the access to these kits is dependent on getting to a tourniquet, so teachers must know the location of the nearest kit.
3. Required training: If someone has not been trained to use the tourniquet properly, they will not be able to use it effectively. Will the school ensure that each teacher has the correct training or will it be a role for a few members on staff. This may tie back into budgeting and accessibility.

Task Analysis

To be able to apply a tourniquet the individual must understand what a tourniquet is and when it is necessary to use one. As mentioned above, a tourniquet is a medical device that stops the flow of blood on a limb through the application of pressure. It is necessary to use a tourniquet when a victim has a wound that is losing substantial and fatal amounts of blood. If the bleeding stops with the application of pressure on the wound, no further action is needed. If you apply pressure and the bleeding persists, a tourniquet is needed. Firearm injuries often require the application of a tourniquet due to hemorrhaging. Application of a tourniquet will potentially help the victim stay alive until proper medical care can be received, and can be done effectively with very little training.

To gain the necessary information and specifics of the medical background, a subject matter expert from a campus health care representative will provide experience and guidance on the subject of using and applying a tourniquet. Medical professionals will attend the training session to provide experience and answer questions as needed. To apply a tourniquet teachers must understand the correct steps to effectively use it.

How to apply a tourniquet:

1. Locate the affected area needing medical assistance.
2. Cut or remove any clothing from the section the tourniquet will need to be applied.
3. Place the tourniquet 2-3 inches above the wound, but make sure it is not on a joint.
4. Apply the tourniquet by sliding it over the limb, or unclipping and clipping onto the affected area, pulling the tail tight and then twisting the handle until the flow of bright red blood has stopped.
5. Lock the handle into the tourniquet.
6. Note the time on the tourniquets designated time slot for later medical assistance.
7. If blood continues to flow, tighten the tourniquet or apply pressure but do not remove completely.

The steps for application of a tourniquet are relatively straight forward however, each situation is very different and individuals must be aware of the complex tasks involved. The individual must first assess if the injury is one that is bad enough or qualified to use a tourniquet. Individuals must also use a tourniquet based on who needs one the most, due to kit availability, and this will

be assessed in the actual situation. The individual must assess whether they can slide the tourniquet over the limb or if they must clip it around the area. This will depend on their access to the affected limb and space constraints. Lastly, the individual must be able to continue monitoring the victim and their bleeding until they can be assessed and helped further through professional medical care units. There are ways that individuals can apply tourniquets simply using everyday items if an actual tourniquet is not available. This can be done with a variety of items including clothing or belts but will be easier to do if trained using a real tourniquet. For the current purpose, real tourniquet kits will be supplied.

Learner Analysis

The learners for this training are K-12 level teachers across the United States. The average teacher that would be going through this instructional design is a white female with an average of 14 years' experience in the education system per 2016 Survey by the National Center for Education Statistics. Within K-12 level teachers over 50% have a master's degree. The average teacher is in her early 40's however the ages range from 21-and up as a minimum of a bachelor's degree is required. While this group of individuals is well educated they are not taught in their education the necessary medical skills to address a trauma such as bleeding from a major wound/injury.

The extent of training for active shooters currently is focused on safely getting students into the proper areas for lockdown. There is no training given however for the absolute worst-case scenario that a student is injured in the process of getting them to the designated area. Teachers wear the hat of many roles and this group would be motivated and open to having a simple instruction for temporary tourniquet use as they are tasked with the student's

overall safety daily. The ability to apply a tourniquet to help a student would give them some active control in a situation that was out of their control.

The hesitation of these learners would be the cost of supplies as many of them fund a lot of their supplies every year. Giving them the option and ability to learn this task with materials they would have on hand would help keep this group engaged in learning this skill. We must also take into account that teachers are typically working long hours with no additional compensation and that the training would need to be easy and simple as to not discourage participation. This is not because they cannot comprehend a complex process but based on their day to day and workload it would not be ideal for this group of individuals.

Context Analysis

The correct application of a tourniquet is being implemented school-wide as a part of the School Improvement Plan. To incentivize participants in this training, Continuing Education Credits will be credited to their five-year certificate renewal. Also, a certificate of completion will be provided after successful completion. Upon completion, the learner will be able to use this skill in the school environment and outside of it. Each learner can include this achievement during their year-end evaluation. The skills learned in the training are transferable to settings outside the school community and may help with other real-world scenarios to motivate teachers to complete the training.

The instruction will take place during the “pre-planning” time (one of the six days) before school starts. We are exploring using mats and the Media Center to train up to 20 learners at a time. Tables and chairs are already present. If we divide learners down by departments, we could also increase camaraderie among learners. Using the Media Center for the learning

environment will simulate the application environment where the possible application of a tourniquet could occur in a classroom.

We also will ask a volunteer to take turns during each step. We will use a total of 12 tourniquets, laptop, overhead projector, PowerPoint presentation, and a note-taking copy of the PowerPoint presentation for each learner to complete the training. (Writing instruments will be provided if they are without).

A matching pre-test will be included to expose the learners to definitions and nomenclature and to assess how much the learner already knows on the topic.

The Assistant Principal for Administration will be the contact person to schedule learners at the school. Consultation with the school's Nurse or Campus Health Care Office will be coordinated to provide SME assistance.

References

Brush, T. (2004a). R521: Instructional design and development [Handout]. Instructional Systems Technology Department, School of Education, Indiana University.

Brush, T. (2004b). R521: Instructional design and development: Overview of the ADDIE Approach for ID [Handout]. Instructional Systems Technology Department, School of Education, Indiana University.

The American Red Cross (2017), Every Second Counts - Red Cross Tourniquet, In Tactical Medical Solutions, Retrieved from <https://redcrosstourniquet.com/>

Decker, S., & Blad, E. (2019, August 9). School Shootings in 2018: How Many and Where. Retrieved from <https://www.edweek.org/ew/section/multimedia/school-shootings-2018-how-many-where.html>

Who is the Average U.S. Teacher? (2018, July 30). Retrieved from <http://neatoday.org/2018/06/08/who-is-the-average-u-s-teacher/>