

## INTRODUCTION

Death due to uncontrolled bleeding is potentially preventable through education of both the medical and lay communities on use of tourniquet and wound packing techniques for the pre-hospital setting. Accidental injury is a leading cause of death in North Carolina, with its incidence increasing. Currently, techniques to control bleeding at the scene of an accidental injury are not formally taught to either medical students or the community at large, though nationally established programs exist for this purpose. In conjunction with the Department of Defense (DOD), the American College of Surgeons (ACS) developed the Bleeding Control Basics Course (B-Con), which utilizes a combination of lecture and skills stations to teach lifesaving hemorrhage control techniques. Medical students, with minimal clinical trauma training, are excellent candidates to take the B-Con course, to enhance their own knowledge and eventually teach the course to community members. However, course instructors are required to hold some type of medical certification, such as EMT or RN, thus excluding medical students from serving as instructors. We believe medical students are an underutilized cohort of potential instructors, fully capable of teaching this course to the community.

B-Con currently functions with both didactic and skill portions, where a participant must show competency in the skill portion. However, there is currently no measure of fundamental knowledge obtained through the didactic portion. Here we describe the development of a *de novo* knowledge assessment to evaluate understanding prior to and after the administration of B-Con.

**Purpose:** To develop a knowledge based assessment to evaluate the bleeding control knowledge of learners prior to and following the completion of the B-Con course.

## METHODS

B-con course administration will occur in two groups—one taught by a physician and one taught by a medical student who has previously completed the B-Con course. The *de novo* knowledge assessment will be administered prior to and after the completion of the B-Con course. This *de novo* knowledge assessment consists of 6 multiple choice and 6 true false questions for a total score of 12. This assessment has undergone internal and external review by content and survey experts. These content experts have been involved with the ACS committee on trauma as well as initial development of the B-Con course itself. Pre- and post-knowledge assessment scores will be compared. Demographic data will be collected including age, gender, prior clinical experience, highest educational degree completed, and current educational status (level of undergraduate medical education) to stratify learners and evaluate the effects of these variables on pre-and/or post-knowledge assessment scores. An instructor evaluation will also be completed by course participants to assess instructors effectiveness and learner perception on the overall educational experience.



Students are assessed on their ability to perform the skill portion of this course, however there is currently no measure of fundamental knowledge obtained through the didactic portion

The bleeding control course consists of two portions: didactic lecture and skills training. Students learn the basics of tourniquet application and wound packing.



## OBJECTIVES

Utilizing the *de novo* knowledge assessment, this intervention will:

- Assess pre- and post-course knowledge in medical students with prior clinical experience (and required instructor licensure) compared to medical students with no clinical experience.
- Assess pre- and post- course knowledge of learners in the physician-led vs. medical student-led course.
- Assess any differences in the evaluation of two different instructors (physician vs. medical student) by the students of the bleeding control course.
- Assess the perceived difficulty of this course by medical students and their confidence in ability to potentially teach this course.

## IMPACT

- The purpose of the 'Stop the Bleed' initiative and the Bleeding Control Basics Course is to prepare people in the community, who have minimal medical training, on how to prevent life threatening bleeding in the event of massive bleeding from any cause, but particularly from an active shooter or explosive event where response may be delayed.
- Hemorrhagic bleeding is a preventable cause of death, and can easily be taught to members of the community, in a similar way CPR is taught.
- Medical students may be an underutilized population to teach this course in the community. Enabling medical students to become instructors could have an exponential increase in the dissemination of this educational course.
- The *de novo* knowledge assessment may provide medical students an opportunity to display competency in this material regardless of prior clinical experience.

## ACKNOWLEDGEMENTS

The 'Stop the Bleed' campaign was initiated by a federal interagency workgroup convened by the National Security Council Staff, The White House. The purpose of the campaign is to build national resilience by better preparing the public to save lives by raising awareness of basic actions to stop life threatening bleeding following everyday emergencies and manmade and natural disasters. Advances made by military medicine and research in hemorrhage control during the wars in Afghanistan and Iraq have informed the work of this initiative which exemplifies translation of knowledge back to the homeland to the benefit of the general public. The Department of Defense owns the 'Stop the Bleed' logo and phrase.

BleedingControl.org is an initiative of the American College of Surgeons and the Hartford Consensus and contains diagrams, news, videos, and other resources contributed by a variety of other private and nonprofit partners to help prepare civilians in the event they are witness to someone with life threatening bleeding.

