

SAINT LOUIS CENTER FOR SUSTAINMENT OF TRAUMA AND READINESS SKILLS: A COLLABORATIVE AIR FORCE–CIVILIAN TRAUMA SKILLS TRAINING PROGRAM

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Lethal weaponry and tactics used by enemy forces in Operations Enduring Freedom and Iraqi Freedom have resulted in complex multisystem injury patterns among US allied military personnel engaged in combat operations. Military medical personnel deployed in support of these campaigns have had to maintain a high degree of clinical skill to effectively render care to wounded combatants, a necessity that has been challenged by a lack of

training opportunities within the military health care system. Medical components across the military have formed partnerships with civilian institutions to form programs such as the Saint Louis Center for Sustainment of Trauma and Readiness Skills, in which medical personnel from active and reserve components are able to obtain and build skills needed to respond to contingencies that may arise both abroad and within the homeland.

Recent conflicts in Afghanistan and Iraq have yielded both significant innovations in trauma care and several challenges. Some notable innovations included the use of whole blood transfusions and the development of numerous hemostatic agents.¹ One of the most significant challenges has been the increase in explosive injury mechanisms compared with prior conflicts.² Such injuries are the result of lethal weaponry and tactics used by enemy forces and have necessitated a high degree of clinical skill among medical personnel deployed to provide care to combat-injured patients. Civilian trauma training programs have been incorporated in military training expectations. Although these courses provide a foundational level of knowledge and skill, they are limited by the number of hands-on clinical training opportunities they are able to offer. Furthermore, reductions in the inpatient capabilities of many military treatment facilities

have presented a dearth of opportunities for personnel to build trauma-focused skills. Many medical components within the military have thus formed partnerships with civilian medical facilities in which personnel are able not only to build experience in trauma care but also to maintain skills required for their specialty. This article will highlight the Saint Louis Center for Sustainment of Trauma and Readiness Skills (C-STARS), one of three such programs that were established by the Air Force in collaboration with civilian trauma hospitals around the country. The invaluable support of the civilian facilities involved in this collaboration has enabled the Air Force to provide robust, cutting-edge training opportunities for its active and reserve personnel.

Origination of C-STARS Saint Louis

The foundation for this program began in 1998 with the establishment of a medical skills training laboratory at DePaul Hospital in Bridgeton, Missouri, by Colonel (Dr) Michael Hayek (now deceased), who served as the Missouri Air National Guard (ANG) Surgeon at the time. Colonel Hayek presented the program to the Air Force Surgeon General in March 2000 and secured a commitment to obtain the necessary resources to grow the program. Four active-duty personnel were assigned in 2001, and the program was transferred to Saint Louis University Hospital (SLUH) in November 2002.³

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J Emerg Nurs 2016;42:104-7.

Available online 13 June 2015

0099-1767

Published by Elsevier Inc. on behalf of Emergency Nurses Association.

<http://dx.doi.org/10.1016/j.jen.2015.04.010>

Overview

C-STARS Saint Louis conducts 19 courses year-round, each of which is 14 days in length and includes classroom instruction, high-fidelity human patient simulation, low-fidelity skills laboratory stations, and rotations in various clinical settings. Each course can accommodate up to 22 students, who primarily consist of physicians, physician assistants, advanced practice registered nurses, registered nurses, and medical technicians who are assigned to stateside ANG units or US Air Force medical facilities around the world. The program has a dual focus: to provide trauma-focused training and to fulfill sustainment training needs that students may not be able to accomplish at their assigned duty location.

The current cadre is composed of a mix of active-duty and full-time Missouri ANG providers, nurses, and medical technicians along with administrative staff. All of the nurses and providers are credentialed as full-time non-tenure track faculty at Saint Louis University and work alongside their civilian counterparts within their respective specialties at SLUH and the affiliated institutions. Each has undergone his or her respective facility's orientation, credentialing, and privileging processes and has been involved in the care of trauma patients while deployed in support of Operations Enduring Freedom and Iraqi Freedom.

The program is primarily based within SLUH and has affiliations with several other institutions in the Saint Louis metropolitan area. Most of the cadre are assigned to SLUH, where the C-STARS Director also functions as the chief of the trauma department. The nurse cadre at SLUH is assigned to the trauma and neurologic intensive care units (ICUs) and the emergency department, as are some of the technician cadre. Additional cadre members are assigned to the emergency department and ICU at Sisters of Saint Mary Cardinal Glennon Children's Medical Center and to Mercy Hospital St. Louis. C-STARS also is affiliated with the Saint Louis City Fire Department Emergency Medical Services (EMS). An Air Force Training Affiliation Agreement (TAA) is in place at all facilities that addresses medical malpractice coverage for military personnel, and it also allows each facility to capture Medicare reimbursement for patient care services rendered by the provider cadre assigned to it.

Program Components

The first 2 days of the course include lectures, rotations through various skills stations, and an initial simulation exercise. The lectures cover a variety of topics related to management of trauma patients in deployed settings. Some

examples of topics covered include initial stabilization and treatment, management of mass casualty situations, and management of pediatric patients. Skills stations include operation of medical equipment such as a rapid fluid infuser and ventilator setup and operation. Students also participate in specialty-specific stations covering topics including intravenous therapy, central-line and chest tube insertion, and performance of the focused assessment of sonography for trauma examination.

The remainder of the program is composed of additional simulation scenarios and clinical rotations that vary depending on the students' specialties and enable them to provide direct patient care. The clinical rotations for the provider students are designed to build skill in the management of adult trauma patients and in the performance of invasive procedures such as chest tube and central venous catheter insertion. These individuals are assigned to the trauma service at SLUH under the guidance of the C-STARS provider cadre and perform 24-hour call shifts that involve rounding on trauma ICU patients and responding to trauma calls with the civilian members of the trauma team.

The clinical experiences for nurse and technician students are designed to build trauma-focused skills and provide them with opportunities to obtain currency in skills required for their individual specialty. Nurses rotate through the emergency department and neurologic, trauma, and pediatric ICUs at SLUH and the affiliated facilities. The medical technicians rotate through these same areas and also are assigned to shifts with the civilian EMS teams. When not under the guidance of the C-STARS cadre, students are paired with civilian nurse and EMS preceptors in accordance with the TAAs.

Simulation scenarios involve 1 to 4 computerized patients, each of which has undergone moulage application to mimic cases that have occurred in the deployed environment. Both low-fidelity task trainers and high-fidelity manikins are used for learning. Moulage can be applied to the manikins to mimic a range of injuries such as explosive blast wounds and traumatic brain injury. The low-fidelity task trainers are used to provide students the opportunity to practice patient stabilization skills; for example, a tension pneumothorax mimicked by the manikin would be addressed by demonstration of chest tube insertion on the task trainer. Each of the trainers can be reconfigured to enable multiple students to practice the same skills. These scenarios are designed to emphasize the importance of teamwork and communication in affecting the outcome of the patient and to prepare students for particular injury patterns they likely will encounter in deployed environments.

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