

# Overview of development and effectiveness of cbems programs

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Collegiate-based emergency medical services (CBEMS) are a unique model capable of providing the first line in prehospital emergency medical care on dense university or college campus settings. This study investigates a representative CBEMS organization's patient demographics, call characteristics and geographic call distribution, and the effect on the call volume of the proximate professionally-staffed, community emergency medical services (EMS) affiliate organization. The objective of the study is to better inform the development and resource allocation of current and future CBEMS programs, and to shed light on the effect of CBEMS on professional EMS affiliate volumes, currently absent from the literature.

Campus based EMS takes on many forms and service is provided at all levels, but is primarily staffed by the students of their colleges and universities. CBEMS squads typically follow one of three models: independent student organizations, campus health services-based squads, or campus security-based organizations.

The National Collegiate Emergency Medical Services Foundation (NCEMSF), founded in 1993, acts as a resource for registered collegiate organizations, of which there were 259 in 2013.

Previously in the mid-1990's, concerns were raised that the colleges and universities with CBEMS had responders whose training and medical direction might have been below the desired standard for the EMS systems in the communities in which these CBEMS exist, and the actual role of these organizations within the overall community emergency response system was questioned.

Further research has demonstrated this to not be the case. Investigations have found the majority of CBEMS organizations effectively provide basic life support (BLS) (66.2%), with fewer than 20% providing some form of advanced life support (ALS).

Bearing that in mind, the activity and size of CBEMS organizations vary substantially. The busiest systems report an average of 12 incidents per day whereas the least busy system reports two incidents per year<sup>3</sup>. Most systems experience between 1 and 10 incidents per week. 31.7% of CBEMS have transport capabilities and with an average of 29 members per organization, respond in just 2.6 minutes, while 21.3% of organizations provide service to adjacent non-student communities. With 48% operating 24 hours per day and 7 days per week, CBEMS organizations average 568 calls per year. Three perspectives of advantage exist, spanning those of the patient, the student EMT, and the collegiate institution, which are worth noting when advocating for the establishment of CBEMS systems:

- From a patient perspective, with many college and university campuses located in rural settings, CBEMS organizations are particularly well-suited to respond to emergencies quickly, including providing early defibrillation<sup>3, 4</sup>.
- From a student perspective, CBEMS organizations play the dual role of inspiring a new generation of students to become emergency physicians while teaching students to think under pressure, communicate, work with others, and deal with uncertainty faced in emergent incidents<sup>5, 6</sup>.

- From an institutional perspective, CBEMS organizations have the ability to provide professional-level EMS at little cost to the university as a volunteer service, though previous surveys have found CBEMS responders are paid for their services in 61.5% of programs, while just 35% of organizations are staffed entirely by unpaid volunteers.

At many colleges and universities, dozens of already-qualified EMTs live on campus, but without CBEMS organizations in place, their skills, proximity to emergencies, and intimate knowledge of a campus are wasted. Establishing programs is not an easy task, as funding and communication/cooperation with outside agencies continue to be challenges for CBEMS organizations, in addition to institutional buy-in<sup>8</sup>. Students involved in CBEMS must also face the stigma associated with being “just students,” whose perceived collegiate status may be assumed to be incapable of matching the professionalism of a paid service.

Transient leadership is a unique obstacle for CBEMS organizations too, as the utilization of student volunteers results in high turnover rates of a CBEMS staff. Some institutions have decided to overcome this issue by hiring EMS coordinators or paid EMS staff members who remain in place even after the entire organization turns over after four years. The CBEMS organization investigated in this study is the Emergency Support Team (EST) of Washington University in St. Louis, a helpful case study in CBEMS. EST is a representative organization to study because of its NCEMSF accreditation, annual call volumes matching national averages, exclusive staffing by undergraduates, the medium size of the collegiate student body it services,

as well as its proximity to EMS affiliates of a major city and suburban environment. Undergraduate students founded EST, then-“ SHOUT” (Students Helping OUT), in 1979, in response to lackluster response times and training levels of St. Louis EMS crews in the St. Louis metro region. Then consisting of twenty students with varying amounts of emergency medical training, today EST’s 62 undergraduate members are trained as nationally-registered emergency medical technicians (NREMT-B). EST has been recognized by NCEMSF as a “ Striving for Excellence” agency and as an “ EMS Ready Campus” (NCEMSF Bronze Level accreditation). As of January 2017, the organization is responsible for providing basic life support to 16,398 people over the 169 acres of the undergraduate campus and receives nearly 600 calls per year. EST restricts its service to the undergraduate campus and its adjacent dorms, which it provides 24 hours per day, 7 days per week, for 238 days per year (Fall and Spring semesters). Three EST members are on call and respond to emergencies on campus using a retrofitted Ford Explorer, a non-transport BLS emergency vehicle.

EST also provides special event coverage, like for athletic and alumni events. The organization also practices responding to mass-casualty incidents (MCIs) on campus by organizing an annual “ disaster drill” using student volunteers. Some EST members receive additional training to become Red Cross CPR/AED/First Aid Instructors and teach essential first aid skills to members of the university community, like organizations on most campuses that work with local fire departments, private EMS agencies or medical schools to provide continuing education training<sup>5</sup>. Similar to other student-run CBEMS

organizations previously described, EST's annual funding of \$36, 254. 91 comes from Student Union. The Clayton Fire Department (CFD) of Clayton, Missouri, is EST's proximate professional affiliate organization and can either be co-dispatched on ALS calls or requested for additional support or to transfer care by EST if its BLS resources are overwhelmed.