instances of use that after review would be deemed complicated and possibly needing greater than one ALS provider.
Conclusion: ALS is an important component for a small percentage of prehospital emergencies, but its widespread promotion and use might not be a fiscally sound option.

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A Survey of 200 National Collegiate Emergency Medical Service Organizations

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Study/Objective: Our objective is to look at data collected by the National Collegiate EMS Foundation (NCEMSF) to present an updated statistical summary of the Collegiate-Based Emergency Medical Service (CBEMS) organizations.
Background: University campuses are unique, typically self-contained environments. In North America over the past twenty years, CBEMS organizations have proliferated on campuses. Today, hundreds of university-funded, student-run organizations perform prehospital medical care for the campus population of our universities.
Methods: We performed a retrospective observational study of 200 CBEMS organizations in North America. The NCEMSF has aggregated data from 1993 to 2015 from an annual survey of all CBEMS organizations. Of those, 329 organizations self-identified themselves to the NCEMSF and completed the survey. We excluded 129 organizations who were either not operational or who had not completed significant portions of the survey.
Results: In North America, the mean response time for CBEMS organizations is 3.09 minutes. The mean annual budget reported is $38,333. The mean annual call volume is 516 calls, while the mean number of total vehicles per organization is 3.8. Looking at the level of service provided by the CBEMS organization, 15.50% (31/200) are classified as first responder only organizations, 69.50% (139/200) are basic life support (BLS) capable, 3% (6/200) provide intermediate level of care, 8.5% (17/200) provide Advanced Life Support (ALS) care, while the remaining 3.5% (7/200) were classified as 'other'. For the type of response provided, 10.5% (21/200) provide 'event only' coverage, 54.5% (109/200) provide quick response services (QRS) only, 23% (46/200) provide ambulance response, 5.5% (11/200) provide a response type classified as 'other', while the remaining 6.5% (13/200) provide non-emergent response (see Table 1).
Conclusion: Collegiate EMS organizations are diverse, with the majority being urban Basic Life Support (BLS) Quality Rescue Services (QRS) services. CBEMS organizations are a relatively recent development in the history of EMS, paralleling other specialty EMS agencies, such as wilderness and tactical medicine.

Variable	N Size	Mean Or %	Std. Dev
School Type [Private = 0, Public = 1]	200		
Private	103	52%	
Public	97	48.50%	
Campus Type [Rural = 0, Urban = 1, Suburban = 2]	200		
Rural	47	23.50%	
Urban	140	70.00%	
Suburban	13	6.50%	
Mean Number of Total Students	196	13515	13935.33
Mean Number of Students Living on Campus	81	6053.35	4558.12
Level of Service [First Responder = 0, BLS = 1, Intermediate = 2, ALS = 3, Other = 4]	200		
First Responder	31	15.50%	
Basic Life Support (BLS)	139	69.50%	
Intermediate	6	3.00%	
Advanced Life Support (ALS)	17	8.50%	
Other	7	3.50%	
Type of Response [Event Only = 0, QRS = 1, Ambulance = 2, Other = 3, Non-Emergent = 4]	200		
Event Only	21	10.04%	
Quick Response Vehicle (QRS)	109	54.50%	
Ambulance	46	23.00%	
Other	11	5.50%	
Non-Emergent	13	6.50%	
Years of Existence	192	22.05	13.79
Volunteer Members	161	44.97	29.15
Paid Administrator [No Paid = 0, Paid = 1, Part-Time Paid = 2]	200		
No Paid	135	67.50%	
Paid	27	13.50%	
Part Time Paid	38	19.00%	
Portable Automated External Defriberallator (AED)	156	3.01	2.33
Coverage Area (Campus Only = 0, Campus + surround Area = 1, Events Only = 2	200		
Campus Only	127	64.80%	
Campus + Surrounding Areas	49	25.00%	
Events Only	20	10.20%	
Number of Vehicles			
Number of Ambulances	46	1.89	1.3
Number of Gas Vehicles	60	1.65	1.25

Table 1. Descriptive Results of Survey Data *(continued)*

Variable	N Size	Mean Or %	Std. Dev
Other Vehicle (Golf Cart + Utility Vehicle + Bike + Other)	200	1.56	2.44
Total Number of Vehicles	131	3.82	4.08
Hours of operation [Day Time = 0, 24/7 School Year = 1, 24/7 Round = 2, Evenings = 3, Weekend = 4, Variable = 5, Events Only = 6]	200		
Day Time	11	6.51%	
24/7 School Year	41	24.26%	
24/7 Year Round	63	37.28%	
Evenings	31	18.34%	
Weekends	3	1.78%	
Variables	9	5.33%	
Events	11	6.51%	
Annual Call Volume	148	516.06	1174.05
Average Response Time (Mins)	153	3.09	2.56
Annual Budget (Dollars)	101	39333.38	106217.2

Table 1. *(continued)*. Descriptive Results of Survey Data.

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Prehospital Double Sequential Defibrillation: A Matched Case-Control Study

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Study/Objective: The goal of our study is to determine if Prehospital Double Sequential Defibrillation (DSD) is associated with improved "survival to hospital" admission, in the setting of refractory ventricular fibrillation/pulseless ventricular tachycardia (VF/pVT).
Background: The optimal management strategy of prehospital refractory ventricular fibrillation/pulseless ventricular tachycardia (VF/pVT) is controversial. One proposed management strategy is the prehospital use of Double Sequential Defibrillation (DSD). However, in the setting of Out-of-Hospital cardiac arrest (OHCA), prehospital DSD is a novel and unproven therapy.
Methods: This project is a matched case-control study, derived from prospectively collected Quality Assurance/Quality Improvement (QA/QI) data, obtained from the San Antonio Fire Department's Out-of-Hospital Cardiac Arrest (OHCA) database, between January 2013 and December 2015. The cases were defined as OHCA patients, with refractory VF/pVT, that survived to hospital admission. The control group was defined as OHCA patients, with refractory VF/pVT, that did not survive to hospital admission. The primary variable in our study was prehospital DSD. The primary outcome in our study was survival to hospital admission.
Results: Of the 3,469 consecutive OHCA patients during the study period, 205 patients met the inclusion criterion of refractory VF/pVT. Using a predefined algorithm, two blinded researchers identified 64 unique cases and matched them with 64 unique controls. Survival to hospital admission occurred in 48.0% of DSD patients, and 50.5% of the conventional therapy patients (P > .99; OR = 0.91; 95% CI, 0.40-2.1).
Conclusion: Our matched case-control study on the prehospital use of double sequential defibrillation for refractory VF/pVT found no evidence of associated improvement in survival to hospital admission. Our current protocol of considering prehospital double sequential defibrillation, after the third conventional defibrillation, in "out-of-hospital" cardiac arrest is ineffective and cannot be recommended at this time.

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Frequent Users of Emergency Medical Services

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Study/Objective: We examined the proportion and characteristics of frequent EMS (Emergency Medical Services) users (≥four annual calls), reasons for calls, and needs for transportation.
Background: There seems to be a trend that the number of patients who are frequently using EMS is rapidly increasing. The reasons are multifactorial and include aging of the population, social problems, changes in health care services, and in home care. If this trend continues, EMS may be faced with major operational and financial burdens.
Methods: We conducted a retrospective cohort study. All emergency ambulance calls in Helsinki from January 1, 2015 to December 31, 2015 were included. We analyzed the ones in which the same patient had used the EMS service at least four times per year. Patients were divided into three groups based on the annual call volume; 4-9, 10-19, and ≥20. Appropriate institutional approval for the study was sought.
Results: Altogether, 62,400 ambulance calls were handled by EMS during the study period. The calls related to frequent users (n = 15596) comprised 25% of all calls. The number of frequent users was 2,490 (6.3 % of all patients), out of which 1,360 (55.0 %) were female. The median age was 72 (IQR 54-84) years. The number of frequent users with an annual call volume of 4-9, 10-19, and ≥20 was 2, 222, 210, and 58, respectively. The most common reasons for EMS activation was a deteriorated health condition, falls, back pain, mental