

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

Julian G. Mapp¹, Alan J. Hans², Anthony M. Darrington², Elliot M. Ross², Calvin C. Ho³, David A. Miramontes⁴, Stephen A. Harper², David A. Wampler⁴

1. San Antonio Uniformed Services Health Education Consortium, San Antonio/TX/United States of America
2. San Antonio Uniformed Services Health Education Consortium, San Antonio/United States of America
3. University of Colorado Denver School of Medicine, Aurora/CO/United States of America
4. Department of Emergency Health Sciences, University of Texas Health Science Center at San Antonio, San Antonio/AL/United States of America

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 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 pre-hospital 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

Ari Salo¹, Kari Porthan², Teuvo Määttä¹, Markku Kuisma¹

1. Section Of Emergency Medical Services, Helsinki University Hospital and University of Helsinki, Helsinki/Finland
2. Helsinki City Rescue Department, Emergency Medical Services, Helsinki/Finland

Study/Objective: We examined the proportion and characteristics of frequent EMS (Emergency Medical Services) users (\geq 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 \geq 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 \geq 20 was 2, 222, 210, and 58, respectively. The most common reasons for EMS activation was a deteriorated health condition, falls, back pain, mental

problems, and chest pain. In 9,686 (62.1 %) calls, patients were transported to a hospital.

Conclusion: This study showed that frequent users constitute a significant proportion of all EMS calls; they may explain the substantial increase seen in EMS call volumes in the last few years. Individually tailored interventions to users with an annual call volume of ≥ 10 should be considered.

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Prehospital Care at a Mass Endurance Event: The Chicago Marathon Experience

Anita V. Goyal¹, Valentino Constantinou², Jennifer Fokas³, Sarah Van Duesen Phillips³, Jennifer Chan⁴, George T. Chiampas⁴

1. Emergency Medicine, University of Illinois at Chicago, Chicago/IL/United States of America
2. Industrial Engineering And Management Sciences, Northwestern University, Evanston/IL/United States of America
3. Chicago Event Management, Chicago/IL/United States of America
4. Emergency Medicine, Northwestern University, Chicago/IL/United States of America

Study/Objective: To investigate the impact of prehospital care on patient outcomes and public health systems for the Chicago Marathon from 2012 to 2015.

Background: The Bank of America Chicago Marathon is a 26.2 mile race with approximately 40,000 runners annually. One of six World Marathon Majors, it serves as a model for mass event field medicine. The goals of this medical infrastructure are to decrease time to medical attention and transport, triage effectively, decrease hospital burden, and optimize public safety. This study examines impacts of medical structures at the Chicago Marathon, highlighting patient care volumes and trends.

Methods: A comprehensive retrospective study was conducted of the Chicago Marathon during 2012–2015. Prehospital medical care involved 21 medical aid stations on course, and two major medical tents in the finish area, including general care and intensive care units. Each facility, staffed with medical personnel, conducted its own triaging. Additionally, each site was equipped with an EMS Superior ambulance for transferring patients to a higher level of care if needed. Medical data was collected via paper and a digital Medical Patient Tracking System designed by Nika Tec.

Results: During 2012 to 2015, in total 4,963 people encountered pre-hospital care at the marathon. Of these, 175 people (3.53%) were transferred to a hospital for further care (Figure 1). One-hundred-thirty (2.62%) people were treated in the on-site ICU facilities, suggesting that the triage system imperatively connects patients to appropriate care without overburdening particular personnel and resources.

Conclusion: The majority of individuals seeking care were successfully triaged and treated by the personnel and resources on site, addressing the needs of an average of over 1,200 individuals per event. The small fraction transferred to hospitals minimized the public health burden, while identifying and mobilizing those who required transfer. This event can be

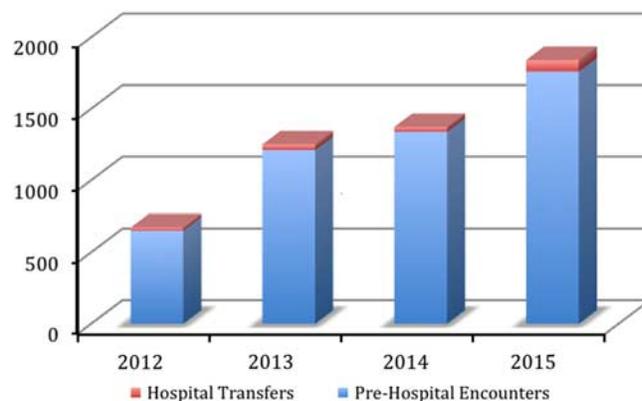


Figure 1. Number of Medical Encounters at Chicago Marathon 2012–2015.

likened to mass events both planned and unexpected, and it demonstrates strategic pre-hospital medical preparedness.

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Analysis of Prehospital Scene Times and Interventions on Mortality Outcomes in Victims of Blunt and Penetrating Trauma

Matthew D. Sztajnkrzyer¹, Octavia Ruelas², Christine Lohse²

1. Emergency Medicine, Mayo Clinic, Rochester/MN/United States of America
2. Mayo Clinic, Rochester/MN/United States of America

Study/Objective: This study was to perform an outcome analysis of patients presenting after blunt (BT) and penetrating (PT) traumatic events.

Background: Recent studies have suggested improved outcomes in victims of penetrating trauma, managed with shorter prehospital times and limited interventions.

Methods: Descriptive analysis of the 2014 National Emergency Medical Services Information System (NEMSIS) public release research data set for patients presenting after acute traumatic injury.

Results: A total of 2,018,141 patient encounters met criteria, of which 3.9% were PT. Prehospital cardiac arrest occurred in 0.5% BT patients, and 4.2% PT patients. 0.8% BT patients and 4.1% PT patients died in the ED. Scene times were 18.1 (IQR 11.0–21.0) minutes for BT and 16.0 (IQR 8.0–17.0) minutes for PT, while transport times were 15.1 (IQR 7.0–19.0) minutes and 14.4 (IQR 6.0–17.0) minutes for BT and PT, respectively. Mean scene time for BT patients who died in the ED was 24.9 (IQR 10.0–24.0) minutes compared with 18.8 (IQR 11.0–22.0) minutes for those admitted; for PT, scene times were 17.9 (IQR 8.0–18.0) and 13.4 (IQR 6.0–17.0) minutes, respectively. Mean number of procedures performed for BT patients who died in the ED was 6.5 (IQR 3.0–9.0) compared with 3.1 (IQR 1.0–4.0) for those who survived until admission; for PT, number of procedures performed were 5.7 (IQR 3.0–7.0) and 2.6 (IQR 1.0–3.0), respectively. 2.2% BT and 14.8% PT patients receiving prehospital venous access died in the ED.