NEW TECHNOLOGIES

Fast EMR: An Online and Offline Mobile Electronic Medical Record for Disaster Settings

Sarah Draugelis BS[1], Erik Brown MD, PhD[2,1], Donald Donahue DHEd[1], Justin Hickman MD[1], Sean Smith MSc[1], Philip Sutherland MD[1], George Yendewa MD, MPH&TM[3,4], Amir Mohareb MD[5,6]

1. Team fEMR, Detroit, USA
2. Nicklaus Children's Hospital, Miami, USA
3. Case Western Reserve University, Cleveland, USA
4. University Hospitals Cleveland Medical Center, Cleveland, USA
5. Massachusetts General Hospital, Boston, USA
6. Harvard Medical School, Boston, USA

Introduction: The absence of clinical information in the aftermath of disasters in resource-constrained environments costs lives. fEMR– fast Electronic Medical Records–is a medical records system designed for mobile clinics and has proven useful in post-disaster settings. While the original version of the system was developed for areas without access to the Internet, a new version of this system was developed in 2019 to accommodate regions with connectivity.
Method: We reviewed the design, implementation, and usage of fEMR from June 2014 to October 2022. We used logged data of the number of users, patient encounters, and the circumstances of each deployment. We compared usage between the original fEMR system and fEMR-on-chain.
Results: The original fEMR system was created in an iterative process by students in Computer Science classes at three different American universities. The system creates a closed intranet signal to which clinicians connect their own device to access the software. The hardware is transported to the medical team in a carry-on suitcase prior to deployment. All data are stored on a laptop that acts as a server. The online version, fEMR On-Chain, was developed under a grant, but is sustained in development through academic partnerships. Both versions are designed so that the provider can complete an encounter with as few clicks as possible and with as little input as necessary to identify patients.The original fEMR system has been deployed to mobile clinics worldwide since 2014. The system has about 14,181 patients and 16,021 clinical encounters from 12 different countries. fEMR On-Chain has been deployed to refugee and migrant settings since 2019, containing about 18,000 patients and 22,000 encounters in two different countries.
Conclusion: Successive versions of the fEMR system have been used in a variety of conditions and settings, with usage accelerating since 2019 in refugee and migrant health centers.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s84
doi:10.1017/S1049023X23002406

Developing a Statewide System for Prehospital Routing of Burn Injuries

Randy Kearns DHA, MSA[1], Tracee Short MD[2], David Barrios MD[3], Kevin Sittig MD[4], Paige Hargrove RN[5], Chris Hector NRP[5], Jeffrey Carter MD[6]

1. University of New Orleans, New Orleans, USA
2. Baton Rouge General Hospital, Baton Rouge, USA
3. Our Lady of Lourdes, Layfette, USA
4. Louisiana State University, Shreveport, USA
5. Louisiana Emergency Response Network, Baton Rouge, USA
6. Louisiana State University, New Orleans, USA

Introduction: In the USA, traumatic injuries are the leading cause of death before age 45 and have significantly lower mortality if treated in a verified trauma center. Burn injuries are included in trauma statistics and represent 1.1 million injured people annually seeking medical assistance. Routing of burn injuries to ABA-recognized burn centers has yet to be assessed as it has in trauma injury. Our goal was to examine the impact of prehospital routing of burn injuries on hospital length of stay, mortality, and potential costs-of-care through a statewide care coordination center.
Method: Our study is a retrospective statewide analysis of burn injuries from 01/01/2017 thru 12/31/2019 using the Louisiana Hospital Inpatient Discharge Database. Routing of burn patients was implemented in 2018 using the ABA burn referral criteria. Data included: total admissions with primary burn diagnosis, region, discharge status, length of stay, and raw mortality by region and state. Descriptive and comparative statistics were performed to assess the impact of routing burn-injured patients. Cost analysis was performed using Louisiana Medicaid per diem rates from 2021 at $1,907.92/day.
Results: 1,288 patients were treated in Louisiana during the study period, with 855 post-routing and 433 pre-routing. The mean length of stay was reduced from 11.84 days in 2017 to 8.82 days in 2018 (p value=0.0988), with a potential savings of 761 inpatient care days or $2.17 million. Overall mortality across the state was unchanged except in the highest volume region, where it dropped from 7.9% in 2017 to 3.6% in 2019 (54%).
Conclusion: Burn injuries are a time-sensitive trauma. This study marks the first analysis pre and post-implementation of routing for burn injuries by a statewide care coordination center. Our study demonstrates improvement in length of stay and mortality but a continued need to examine other contributing factors, such as injury severity and concomitant trauma.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s84
doi:10.1017/S1049023X23002418

Necessity and Feasibility of Medical Containers in Nankai Trough Mega Earthquake

Kiyokazu Maebayashi PhD[1], Keiji Nakata PhD[1], Ayako Tanaka MA[2], Naoki Syowa[3], Takamitsu Takada[3]

1. Kobegakuin University, Kobe, Japan
2. Kansai University of International Studies, Kobe, Japan
3. Mobile Medical Container Promotion Council, Tokyo, Japan

Introduction: In Japan, there is an 80% probability that the Nankai Trough Mega Earthquake will occur within 30 years, and a tsunami of more than 30 meters is expected to hit the Pacific coast, killing more than 320,000 people and devastating many towns. This study clarifies the necessity and feasibility of a