



School of Medicine



Implementation of Electronic Medical Records in Disaster Relief Training

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Background

Electronic medical records systems (EMR's) are known to improve health care delivery, and may be especially useful in tracking patient care during mass-casualty incidents (MCI). Current EMR's designed and tested for MCIs may require too many technical experts and advanced equipment to deploy in a timely manner during a disaster.¹ fEMR is a bare-bones EMR designed originally for week-long medical service trips to austere settings. Equipment required to set up fEMR's intranet can fit into a single carry-on piece of luggage, and can be set up by medical personnel in under ten minutes. fEMR was implemented into a field training exercise involving state and federal agencies responding to a simulated 7.3 magnitude earthquake. Clinician attitudes regarding EMR use as well as fEMR usability were assessed.



Fig. 1: First responders constructing field hospital tents.



Fig. 2: Member of Urban Search & Rescue.



Fig. 3: Destroyed infrastructure used in field training exercise.

Methodology

Participants trained on fEMR software during a one-hour class. Five point Likert scale surveys, adopted from previously validated instruments², were administered at the beginning of class and at the conclusion of the event. Mean survey responses were compared between pre- and post-training exercise using a linear mixed model with a two-level fixed effect for time, and a subject-level random effect to account for repeated measurements.

Thank you to Dr. Louis E. Penrod & Dr. Cynthia S. Gadd for the 'EMR Satisfaction Scale'.

Results

Positive but Non-significant Improvement

- The rapport established during the encounter between clinician ($p=.09$)
- Time required for documentation ($p=.08$)

fEMR Ease of Use

1= Strongly Disagree; 5=Strongly Agree

QUESTION

- | MEAN, SD |
|--|
| fEMR is easy to use 4.4, 0.7 |
| Worth the time required to use 4.3, 0.9 |
| Interface is aesthetically pleasing 4.2, 0.6 |
| Ergonomics are acceptable. 3.6, 0.8 |
| fEMR is forgiving of mistakes 3.1, 0.9 |

Conclusion

Clinician attitudes were positive regarding the use of an EMR during a disaster scenario as well as fEMR specifically. With modifications, fEMR may be applied to global disaster scenarios both within the US and in resource constrained environments.

References

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- Cork RD, Detmer WM, Friedman CP. Academic physicians' use of, knowledge about, and attitudes towards computers: Measurement study and validation. *JAMIA* 1998;5(2):164-176.

"In a disaster, we need equipment that... is operable by personnel who are unskilled in advanced telecommunications."¹
—Ahmad Fayaz-Bakhsh, MD PhD & Meehan Sharifi-Sedeh