

Utilization of EMR data for public health surveillance and situational awareness during the 2010 Haiti Earthquake: a preliminary assessment

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Objective

To describe some uses of EMR data for surveillance and situational awareness during disaster response.

Introduction

During responses, an electronic medical record (EMR) allows federal emergency response staff to view and evaluate near real-time clinical encounter data. Analysis of EMR patient data can enhance situational awareness and provide decision advantage for headquarters' staff during both domestic and international events. The EMR was utilized by field medical personnel during the response to the Haiti earthquake.

Methods

During the U.S. response to the Haiti Earthquake in January 2010, patient demographic and clinical treatment data were collected by ESF-8 responders through the EMR. Data were collected throughout the patient experience during registration, triage, treatment and discharge. Inclusion criteria for encounter records in the main analysis were entered into the EMR between January 18, 2010, and February 22, 2010, encounter occurred at one of the HHS sites in Haiti and data downloaded no later than February 23, 2010. Data were then analyzed in order to identify potential emerging conditions and operational medical needs during the entire response.

Results

We analyzed 8925 patient encounter records entered into the EMR between January 18 and February 22, 2010. Of those records, 4612 (51.8%) were coded as female, 3995 (44.8%) as male and 303 (3.4%) were not specified. Additionally, 1444 (16.2%) of the encounters were coded as less than 6 years old, 1638 (18.3%) were coded as 6–18 years old, 4352 (48.8%) were coded as 19–49 years old, 1004 (11.2%) were coded as 50–65 years old, 283 (3.2%) were coded as more than 65 years old and

204 (2.3%) were not specified. Mean age was 27.1 (SD = 19.1) years with a minimum of 1 day and a maximum of 100 years. Additionally, 6575 (75.1%) records were coded as nonurgent, 1889 (21.6%) as urgent and 295 (3.3%) as emergent. Daily surveillance of the records resulted in the identification many of suspected or confirmed symptom and disease occurrences. They included 8 cases of chicken pox/herpes zoster, 46 cases of conjunctivitis, 1 case of hemorrhagic fever, 23 guns shots wounds, 15 cases of malaria, 1 case of measles, 3 cases of meningitis, 2 cases of mumps, 53 cases of acariasis (including scabies), 1 case of typhus, 3 cases of tetanus, 3 cases of tuberculosis and 7 cases of pneumonia. We also detected 714 instances of fever and 550 instances of diarrhea.

Conclusions

During the 2010 earthquake response in Haiti, knowledge of the medical encounters through EMR data in the field provided indications of need for patient care. The surveillance of suspected and confirmed condition and diseases of concern allowed for timely decisions on adjustments to the response. Event burden could be quickly assessed through electronic reporting. EMR data can enhance and inform emergency response decision-making during domestic and international events and may be a useful tool for field public health and medical surveillance and situational awareness during future disaster responses.

Keywords

Surveillance; disaster response; electronic medical records

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