



The Electronic Health Record as a Research Lab: Leveraging Big Data to Improve Military Health Outcomes

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Problem Statement: The Military Health System (MHS) has invested extensively in health care information technology, resulting in a robust electronic health record with an accumulation of decades of clinical data. Currently more than three billion clinical encounters are accessible within the MHS Data Repository. **Methods:** The emergence of increasingly parallel, distributed, cooperative databases allows researchers to study military population health via querying large data sets. **Results:** Computer-aided analytics can measure patient-level health longitudinally by quantifying relationships between pre-disease states, disease presentation and progression, and quantitative measurement of treatment modalities and patient outcomes. Longitudinal studies of clinical symptomatology, treatment modalities, and clinical outcomes provide empirical evidence to improve patient safety and quality of care. **Significance:** Use Cases can illustrate application of Big Data analytics to compare effectiveness of treatment modalities and shape evidence-based clinical practice.