A Multiple Sclerosis Flowsheet Registry Integrated With The Electronic Health Record To Provide Comprehensive Care And Local Research Opportunities

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Introduction

Multiple Sclerosis (MS) is an autoimmune disease which affects over 2 million people worldwide. Management of MS is complicated because the clinical course differs among individuals. The entire clinical picture of an MS patient could be viewed easier by the care providers with the implementation of a MS database registry that is integrated with the electronic health record (EHR). Tracking long-term patient outcomes in the real-world clinical setting could help physicians and researchers understand this disease better.

Background

The promise of information technology solutions to improve health care is seldom realized, and the gap between health information system design and reality persists. Not every electronic health record (EHR) has the same capabilities for automated data extraction. Many times information can only be entered in narrative format within progress notes, which creates a challenge extracting data efficiently. Manual chart review to retrieve information is time-consuming and not an effective use of EHRs and staff resources. The INI MS Center treats over 800 MS patients every year. This clinic predicted benefits of integrating a MS registry database with the EHR:

1. Cost savings - due to early access to Disease Modifying Therapy (DMT).
2. Improved patient care - due to a decrease in relapse rates, disability progression, and MS related hospitalizations.
3. Improved staff satisfaction - due to less time searching the EHR to view the complete individual MS patient history.
4. Increase in local research opportunities - due to outcome reporting functionality.

Discussion

An EHR was implemented in 2011 at the INI MS Center. Although it greatly improved dissemination of healthcare data among disciplines, the MS Clinic saw a gap in regards to data extraction for outcome reporting with the MS population. In the EHR, specific MS information was documented in narrative format only. Over time it became cumbersome to search through multiple encounters to review the MS patient’s individual clinical course. In 2013, an OSF MS research coordinator, INI MS Clinic providers and staff, OSF Data Analytics, and an outcomes researcher at UCOMP collaborated to integrate a MS Flowsheet Registry. The database registry was created using Instant Data Entry Application (IDEA) Software and was customized to capture the specific MS metrics missing in the EHR. Figure 1 - 2. Since EPIC and IDEA interface with the Enterprise Data Warehouse (EDW), outcome reporting was possible. The clinic implemented the MS Flowsheet Registry in May 2015. Year 1 data prior to the integration is available here.

Materials / Methods

DMT access, relapse rates, and MS related hospitalizations from the year prior to integration are presented in Figures 3-6. INI clinic population (N=1210). No. of relapses (N=194). No. of MS hospital admissions (N=21). DMT access data, Figure 3, represents the time it took staff to extract data from the EHR prior to the registry integration to receive insurance authorizations. Staff at the INI clinic were presented with the Clinical Information System Implementation Effectiveness Scale (CISIES) © Brian Gugerty 2005, prior to “going live” with the database and after 3-4 months of consistent use. Satisfaction results both prior to and after implementation were favorable and statistically significant (P value <0.003) in Figure 7. We hypothesize that improving DM'Ts access will occur because of the implementation of the MS Flowsheet Registry. This could result in decreased relapse rates and MS hospitalizations, cost savings and staff satisfaction. Post 1 year results will be available in 2017 and we hope to present these findings next year.

References


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