

Clinical Database to Support Comparative Effectiveness Studies of Complex Patients

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Infrastructure Description

This project developed a unique relational database, linking chronic disease clinical information from the electronic medical records (EMR) of the University of Michigan Health System (UMHS), a large academic healthcare system, to multi-payer claims data. The database is dynamic, with most information available for between 2 and 5 years, and has strong potential for sustainability. The database can be used to evaluate the quality of clinical care as well as models of care delivery that are particularly important for complex patients, such as the patient-centered medical home, transitional care, and complex care coordination.

Specific Aims

1. Enhance and add to the chronic disease registry systems within the UMHS electronic medical record.
2. Categorize prescribed medications documented on the EMR to allow medication categories to be more efficiently added to registry data.
3. Link multi-payer claims to the population of patients in the UMHS EMR, including claims for low-income patients on public insurance, Medicare patients, and patients from large commercial payers.
4. Plan for further extension of, and research using, the developed database, particularly collection of survey data regarding patient function, quality of life, and preferences.

Pilot Study

In 2009 and 2010, UMHS implemented a Patient Centered Medical Home (PCMH) model in its primary care clinics. The creation of this relational database allowed project investigators to examine the effect of this model on diabetes and coronary artery disease quality indicators, blood pressure control, and clinical utilization in complex patients. This pilot study also compared two models of PCMH: one of self-management support that was used in the Family Medicine clinics and another model that was used in the General Medicine clinics.

Infrastructure Goal

Develop a unique relational database, linking chronic condition clinical data to multi-payer claims data.

Data Sources

Electronic medical record clinical data and multi-payer claims data for more than 20,000 continuing care patients who are also in chronic disease registries at the University of Michigan Health System.

Data Access

Data not publicly available.

Strategies Addressed from the HHS Strategic Framework on Multiple Chronic Conditions

- 1.A. Identify evidence-supported models to improve care coordination
- 1.D. Implement and effectively use HIT
- 1.F. Evaluate models of care, incentives, and other health system interventions
- 4.C. Increase clinical research

Clinical Database to Support Comparative Effectiveness Studies of Complex Patients (continued)

Initial analyses involving Medicare patients younger than 75 years of age on the diabetes registry showed that the general medicine patients were managed more aggressively than were the family medicine patients. However, the number of patients available for analysis for each measure was different, demonstrating that “missingness” is a substantial problem (as expected) in this real-world clinical data and must be accounted for in analyses. “Missingness” occurs because of gaps in registries and claims data when patients do not have or do not keep medical appointments or move to another health system during a given period, or when quality measures are not recorded during patient visits.

Future analyses will evaluate patients with both heart failure and diabetes, evaluate patients older than 75 years of age, and investigate additional outcomes, including composite quality measures and utilization.

Publications (as of September 2013)

Cigole CT, Kabeto MU, Lee PG, and Blaum CS. Clinical complexity and mortality in middle-aged and older adults with diabetes. *J Gerontol A Biol Sci Med Sci*. 2012; 67(12): 1313-20.