

Optimizing the Treatment of Diabetes Patients

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Project Period: 08/11/08 – 07/31/11

Description

On average, diabetes patients have more than three comorbid conditions, the most common being hypertension and hyperlipidemia. Having these comorbid conditions in addition to diabetes can negatively impact a patient's health status and result in significantly higher medical costs and poorer work productivity. Therefore, it is important to identify optimal treatments for these highly complex patients so that their quality of life is maximized without adding too much burden. As an initial step in prioritizing interventions for diabetes patients, this study aims to use quantitative models to determine the best treatment plans for hyperlipidemia and hypertension among diabetes patients. This study also examines the impact of adherence (and non-adherence) on treatment and its role on optimal time to initiate as well as the tradeoffs on costs and quality adjusted life-years.

Specific Aims

1. Develop a mathematical model (Markov model) to compare existing treatment guidelines on the basis of quality of life and cost for the management of diabetes, hyperlipidemia, and hypertension.
2. Assess the use of medications among diabetes patients by evaluating a) the relationship between hypertension and hyperlipidemia and adherence to prescribed medication, and b) the health outcomes associated with prescribed medication, non-adherence, and discontinuation of medication.
3. Translate the results of the mathematical models into point-of-care decision making tools to help practitioners choose the best treatment for their patients with diabetes and other comorbid conditions.

Main Objective

To determine individualized treatment plans for hyperlipidemia and hypertension among diabetes patients.

Chronic Conditions Considered

Diabetes
Hypertension
Hyperlipidemia

Preventive Services Considered

This project did not address a specific clinical preventive service.

Study Design & Population

Analytic epidemiological study
Decision analysis

Cohort of 663 patients, aged 40 to 80 from the Mayo Clinic Diabetes Electronic Management System between 1997 and 2006. A cohort of over 1.4 million persons with a diagnosis of diabetes and at least 3 years of follow-up from Ingenix.

Strategies Addressed from the National MCC Strategic Framework

- 2.C. Provide tools for medication management
- 4.C. Increase clinical health research

