

Developing Treatment Policies for Complex Patients Using Modeling and Data Mining

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Project Period:

Description

Patients with type 2 diabetes mellitus have high risk for cardiovascular events, and the risk derives from multiple sources including elevated glucose, blood pressure, lipids, and other factors. This research addresses how to estimate the relative impact on cardiovascular events or on costs of competing clinical policies that differentially emphasize glucose, BP, or lipid control, or the relative merits and drawbacks of a "feedforward" versus the more typical "feedback" clinical policy that typically characterizes care of complex patients. The research uses modeling and data mining technologies to discover and structure clinical policies that most effectively reduce risk of cardiovascular events in complex patients with diabetes.

Specific Aims

1. Develop modeling methodology to identify physician treatment strategies (combinations of pharmaceutical agents, timing of clinical interventions, complexity of regimen, risky prescribing events) that minimize cost or risk of major cardiovascular complications in complex patients with diabetes.
2. Apply computational modeling and data mining techniques to identify the optimal combinations of pharmaceutical agents to minimize pharmaceutical costs while achieving pre-specified degrees of reduction in risk of major cardiovascular complications in complex patients with diabetes.

Main Objective

Use simulations to model the optimal combination of pharmaceutical agents to structure clinical policies that are most effective in reducing risk of cardiovascular events in complex patients with diabetes.

Chronic Conditions Considered

Type 2 diabetes mellitus

Preventive Services Considered

Not applicable

Study Design & Population

Modeling and data mining
Patients with type 2 diabetes

Strategies Addressed from the National MCC Strategic Framework

- 1.D. Implement and successfully use health information technology
- 3.A. Identify best practices and tools

