Project details

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Award amount: €100,000

This project will develop and test a novel method for conducting automated large-scale post-marketing drug surveillance using advanced text-mining techniques. A prototype application developed will provide a review of risk-assessment and guide treatment strategies for patients on warfarin therapy for Atrial Fibrillation (AF) seen at The Ottawa Hospital.

Large scale epidemiology is a challenge given the quantity of resources needed to obtain accurate results. Pre-marketing trials provide specific information, and possibly leave anomalies undiscovered. These anomalies, few and far between, may hold important information about specific medication effects on individuals. We will use artificial intelligence based language processing methods and text mining to discover adverse events, co-morbidities and contraindications in clinical reports/databases. Objective: The objectives of this project are to: • Develop a process framework that will enable large scale automated post marketing drug surveillance. • Build a prototype application, as proof of concept for this technology, for the detection of adverse events associated with warfarin therapy in AF patients. Clinical Relevance: Clinical practice guidelines recommend long-term use of warfarin/anticoagulation to reduce the risk of stroke associated with AF. Potential serious adverse events are associated with anticoagulants and may be cited as the reason for under-prescription of such drugs. Our results will give a better understanding of the incidence of adverse events and risk factors associated with anticoagulation. Target Population: The project will process clinical records obtained from patient visits at The Ottawa Hospital (Time period: 2007-2010). Data Set: Data sources will include the following clinical reports: • Laboratory values for assessment of anticoagulation status (INR, Hemoglobin) • Consultation notes (anticoagulation clinic, arrhythmia clinic) • Discharge summaries • Reports (Coaxial Tomography Scan, Electrocardiography) Methods: The majority of these reports are derived from voice dictations which are stored electronically in free text format. The information stored as free text is not computer tractable. Recent advances in artificial intelligence permit the conversion of free text to computable information. We have developed an intelligent system (DMReporter 1,2) for processing free text reports of patients with Diabetes. We will extend our current system to automatically extract adverse event details from health records. The

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Audience

Type
- Healthcare professionals

Location

Canada, North America