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## **AMELIORATING THE GLOBAL CRISIS OF TYPE 2 DIABETES: REDUCING AVOIDABLE HOSPITALISATIONS**

### **Abstract:**

#### Background

The epidemic of Type 2 diabetes is one of the world's main disabling and killing conditions. Increasing in every country of the world, it is the fastest growing chronic condition globally with enormous social and economic costs. Immediate action is required to manage diabetes early and prevent complications. In 2015, diabetes affected an estimated 415 million people and caused 5.1 million deaths. It is projected to affect 642 million (10% of population) by 2040 with related expenditure exceeding 802 billion USD unless action is taken to reduce the global burden. Type 2 diabetes accounts for 90-95% of diabetic cases and is the leading cause of kidney failure, nontraumatic lower-limb amputation, new cases of blindness, and a major cause of heart disease and stroke. These consequences and subsequent hospitalisation can potentially be mitigated with quality primary care. Thus, it is critical to identify patients at risk of type 2 diabetes complications within a community setting. This study identifies types of patient who are at risk for hospitalisation for type 2 diabetes complications and adverse outcomes during their hospital stay.

#### Methods

Models were fit to five years of hospital data and Census data for the New South Wales North Coast in Australia. Factors associated with hospitalisation for type 2 diabetes complications, multiple admissions, longer length of stay, readmissions within 28 days and admission to intensive care unit (ICU) were examined.

#### Results

Among the cohort of 11,293 patients with type 2 diabetes, patients were more likely to be hospitalised for type 2 diabetes complications if older and female, and less likely if comorbid with other chronic conditions. For a range of fourteen general patient profiles, the probability of hospitalisation for a type 2 diabetic complication and the probability for multiple admissions, longer length of stay, readmissions within 28 days and ICU admission were estimated.

#### Discussion

This discussion will canvass the fourteen patient profiles for whom predictive analytics can direct mitigation efforts of type 2 diabetes-related hospital readmissions. Differing predictive characteristics (e.g. demographics, comorbidities) have been shown to require tailored strategies, and these will be highlighted. Early identification within the community of individuals at high risk for diabetic complications is crucial. Through quality management of these individuals, it is possible to prevent the complications of diabetes and ameliorate the global crisis arising from the diabetic epidemic.

### **Keywords:**

diabetes, hospitalisation, modelling

**JEL Classification:** I10, I18, I31