Prediction Modelling and Risk Stratification for Chronic Disease for Care Coordination: A Systematic Review

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Introduction

Chronic disease management represents a significant challenge to modern day health systems. This review aims to systematically assess the literature and methodological quality of a number of studies to determine whether models of prediction modelling and risk stratification can be used to identify patients with chronic disease who may be at a high risk of future hospitalisation and also to determine models that are best for identifying patients with chronic disease for care coordination.

Results

This review has shown that prospective, predictive risk models that are applied to retrospective patient information can benefit health service designers and planners with responsibility for implementing and evaluating services. However, another potential application of a model would be to design a clinical needs assessment tool in order to inform appropriate disease management. In addition, prediction models could also be used to clinical care bundles of treatment for use in primary and community care.

Improve Health

Results suggest that there is strong evidence for the application of prediction models to both administrative and clinical data for patients with chronic disease. Using such models provides evidence based opportunities for service planners, clinical design authorities and health systems to develop, monitor, evaluate and plan for more appropriate integration and coordination of health and social care services that better suit the needs and choices of individuals living with life-limiting chronic diseases.

Patient Experience

Chronic disease prediction models should also assist health and social care professionals in the decision-making process in knowing how and when to select individuals for preventive interventions, additional investigations or health maintenance programmes. For individuals, knowing their predicted risk increases their intellectual and anticipatory awareness of their chronic disease and the importance of prevention, and helps them to communicate their needs and choices with their primary care professional.

Increase Value

With the development of prediction models and a risk stratification methodology for the main chronic diseases in Ireland, unnecessary admissions to hospital could be avoided and individuals could be better cared for in their primary care setting. This review will contribute to the design of a model to be implemented across the 5 operational divisions of the HSE, which will ensure a seamless integrated experience for our patients focusing on their health and wellbeing and quality of life.