
POSTER ABSTRACT

Insights from health data - the national healthcare group chronic disease management system (singapore)

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Introduction: The National Healthcare Group (NHG) is a leader in public healthcare in Singapore supporting the central and northern regions, providing the full spectrum of healthcare from primary care to acute and community hospitals.

With its provision of services across the spectrum of care spread among many institutions, there is a risk of fragmentation of care and inability to meaningfully track the outcome of integration efforts. Central collation and analysis of patient data and metrics may play a large part in integration and monitoring efforts.

In support of these efforts, patient data from NHG institutions are reported centrally to NHG and stored in the Chronic Disease Management System (CDMS), a database that aims to facilitate care for patients with chronic conditions and provide comprehensive and evidence-based population management.

Description of of the CDMS: Introduced in 2005, the CDMS currently contains the data of over 1.2 million unique patients (50.7% male), and has been configured to provide statistics for over 100 chronic diseases / conditions. These include diabetes, hypertension, dislipidaemia, coronary heart disease, chronic kidney disease and hip fracture.

The CDMS automatically categorises patients based on set criteria, which allows for a high degree of accuracy when conducting research. For example, CDMS has already been configured to identify patients with diabetes with an accurate onset date by flagging only those patients with a prior normal fasting glucose test or oral glucose tolerance test prior to a positive diagnostic test for diabetes.

Targeted Use Scenarios:

Research with strict inclusion criteria, especially when large sample sizes are needed or rare diseases/outcomes are involved

Identification of population health trends / outcomes over time

Monitoring of service quality

Example of Previous Use

A recent study examined the incidence and risk factors of peripheral vascular disease and peripheral neuropathy among type 2 diabetes patients at primary care clinics in Singapore. This involved merging data from diabetic foot screening at primary care with operative procedures done

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at NHG acute hospitals (e.g. lower extremity amputation). By matching these various datasets, a holistic perspective of patient baseline and outcomes over time could be seen, and outcomes measures such as incidence rate (outcome per 1,000 patient years) could be calculated.

Comments on Transferability: While the implementation of the CDMS is not immediately transferable, we expect that the policy imperative that led to its formation is one faced by practically all large healthcare providers. It is hoped that this overview of the CDMS will encourage providers of its use as a tools for both research and performance measurement, especially of integrated care initiatives which may span across difference institutions and care contexts.

Keywords: big data; database; electronic health records; research; data management policy
