Research Theme
Health Systems and Population Health

Research Project Title
Diabetes App for Better Care

Principal Investigator
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Project Description

Background
The advent of smartphones to the masses in the early 2000’s has changed our lives significantly. Not only has this broken distance barriers, we have now greater convenient access to information than ever before. Mobile apps are reshaping—and even revolutionizing—how institutions, organizations, and people communicate, do business and go about daily activities. Across various mobile platforms, tens of thousands of apps are currently available to consumers for the purposes of health, connectivity, productivity or leisure. The role of mobile health has also evolved from increasing access to medical information to “patient activation”, by “enabling patients to participate proactively in their care,” cutting down the cost of healthcare delivery, and improving awareness through self-monitoring. One aspect where mHealth can play a significant role in healthcare is the management of chronic disease; one in particular is type 2 diabetes mellitus (T2DM).

In 2014, the global prevalence of diabetes (defined as fasting blood glucose >= 7 mmol/l or on medication for raised blood glucose or with a history of diagnosis of diabetes) was estimated to be 9% among adults aged 18+ years. In 2012, an estimated 1.5 million deaths were directly caused by diabetes, more than 80% occur in low- and middle-income countries. (Source: WHO) Even though Asians in general and Singaporeans in particular, are increasingly at risk of diseases such as T2DM that are associated with modern, high calorie, sedentary lifestyles, the onset of T2DM can be prevented or delayed through seemingly simple measures, including healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use.

In an earlier study, 11.3% of Singapore’s population (more than 400,000 people), or one out of 9 people aged 18 to 69 has diabetes (Source: MOH Singapore, Singapore Burden of Disease Study 2010). As our population ages, and adopt modern, high calorie, sedentary lifestyles, the current burden of T2DM is likely to be greater than previously estimated. If current trends persist, the lifetime risk of T2DM in Singapore will be one in two by 2050. (Phan et al 2015) This would eventually lead to greater healthcare expenditure, productivity losses and poorer quality of life for patients and healthcare system.
While conventional interventions emphasize on processes within healthcare settings such as hospitals and clinics, new technologies have enabled the interventions to go beyond the healthcare settings into the daily lives. For example, mHealth centric interventions and inducing positive health behavior can help keep prediabetics in check, before actual onset of disease.

**Proposed work**

The aim of this project is to advance the field of mHealth in the management of chronic disease, in particular T2DM. Its objective is to understand the following – what are the facilitators and barriers in proper management of T2DM? How can we facilitate adoption of healthcare apps to empower self-management care for T2DM patients or patients at risk through “patient activation”? How can apps potentially affect or contribute to mainstream healthcare delivery or clinical pathways for T2DM management?

This research work is highly multi-disciplinary, and will take the candidate through the fields of clinical sciences, healthcare, education/andragogy (adult learning), engineering (computer sciences or software design), and behaviour change psychology. The candidate will also experience and undertake other fields in population health, including the modern epidemiology of chronic diseases, public health research, eHealth research, trials methodology, statistics and multi-method approaches. The candidate will also get involved in stakeholder engagement, including research teams across LKCMedicine; the National Healthcare Group (NHG), Singapore; IT implementation and industry partners.

**Contact Us**

If you have questions regarding this project, please email the Principal Investigator.

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