Research Theme
Health Systems and Population Health

Research Project Title
Cardiovascular 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 cardiovascular disease (CVD).

Globally, CVDs rank as the number 1 cause of death. In 2012, death from CVDs represented 31% (an estimated 17.5 million) of all global death. Of these, an estimated 7.4 million were primarily due to coronary heart disease and 6.7 million were due to stroke. Early detection and management using counselling and medication are often necessary for people with CVD or high risk personnel (due to the presence of one or more risk factors such as hypertension, diabetes, hyperlipidaemia or already established disease.) Addressing behavioural risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol can also help to prevent CVDs. (Source: WHO).

In Singapore, heart disease (or heart related disease) ranks as one of the leading causes of death accounting for one in three deaths every year, comparable with that for cancer. As Singapore’s population ages, and adopt modern, high calorie, sedentary lifestyles, the burden of CVD is steadily on an upward trend. This would eventually lead to greater healthcare expenditure through more frequent hospital admissions, drug treatments, surgical procedures, 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 cardiac rehabilitation is a cost-effective intervention because it enables real-time monitoring and customization of a range of cardiac rehabilitation activities that include prescribed exercise, medical evaluation, and patient education.

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