The S’ANT Approach to Facilitate a Superior Chronic Disease Self-Management Model

Nilmini Wickramasinghe, Center for the Management of Medical Technology (CMMT), Stuart School of Business, and Institute of Technology, Chicago, USA

Rajeev K. Bali, Coventry University, UK

Steve Goldberg, INET International, Canada

ABSTRACT

Diabetes is one of the leading chronic diseases and its prevalence continues to rise exponentially. The goal of this article is to present the case for the application of a pervasive technology solution in the form of a wireless-enabled mobile phone to facilitate superior diabetes management. In so doing, we highlight the need for employing the S’ANT approach (Wickramasinghe and Bali, 2009) - namely the incorporation of Actor-network Theory and Social Network Analysis - in order to support a network centric healthcare solution.

Keywords: Chronic Disease Management, Diabetes, Healthcare, E-Healthcare, Knowledge-Based Methodology, ICT

BACKGROUND

Diabetes is a chronic disease that occurs when there is too much glucose in the blood because the body is not producing insulin or not using insulin properly (DA, 2007). Diabetes management involves a combination of both medical and non-medical approaches with the overall goal for the patient to enjoy a life which is as normal as possible (AIHW, 2008; AIHW, 2007). Critical to this manage-
ment regimen is the systematic monitoring of blood sugar levels. However, as there is no cure for diabetes, achieving this goal can be challenging because it requires effective lifestyle management and careful and meticulous attention and monitoring by the patient and health professionals (Britt, 2007). In particular, to be totally successful, this requires patients to be both informed and active in their treatment regimen. A solution is therefore required which provides the possibility for “anytime anywhere” monitoring of an individual’s diabetes, thereby contributing to diabetes management. In response to this, this chapter suggests the application of a pervasive technology solution in the form of a wireless-enabled mobile phone to facilitate superior diabetes management.

**Chronic Disease Management**

Containment of cost whilst offering the highest quality healthcare has become a global priority for healthcare delivery. In such an environment, prevention and/or early detection becomes critical since initiatives that prevent the occurrence of a disease help to circumvent costly healthcare interventions while initiatives that detect early the occurrence of a disease usually enable better control of this disease (and thereby less costly healthcare interventions). Moreover, in both instances, quality is high since the patient is subjected to less invasive healthcare interventions and can enjoy a higher quality of life. In such an environment, the effective management of chronic disease becomes particularly important.

If detected early, chronic diseases (such as diabetes, asthma or hypertension) can be contained and sufferers can continue to lead full and high quality lives. Conversely, if these diseases are not well managed, they can develop into more complicated healthcare problems and life for such patients can become less than satisfactory. Critical to effective chronic disease management is regular monitoring leading to an informed patient who takes responsibility for managing his/her wellness.

As identified by Rachlis (2006), a chronic care model requires the interaction and co-ordination of numerous areas (Figure 1). In particular, it requires the interaction of four key components of the healthcare system including self-management support, delivery support, decision support and clinical information systems and support from the community at large. Taken together, this provides a conducive environment to have productive interactions between an informed and activated patient and a prepared and proactive healthcare team.

Diabetes is an important chronic disease increasing in prevalence throughout not only North America but also the World (Figure 2). Given the treatment costs for this increasing population, coupled with the increased non-working hours due to treatment requirements, increases in the prevalence of diabetes as is projected is indeed alarming to any healthcare system.
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