Chapter 16
A Transaction Cost Economics Assessment of a Diabetes Self-Management Solution

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ABSTRACT

Diabetes is one of the leading chronic diseases affecting Australians and is increasingly becoming a serious challenge and threat for both the quality of healthcare while increasing cost pressures on the Australian healthcare system. The goal of this study is to provide a transaction cost economics framework which can be used as a tool for high-level assessments of the economic viability of a pervasive technology solution developed by INET in the form of a wireless enabled mobile solution to facilitate superior diabetes self-management. In doing so, we prepare the inroads for proposing an approach for refined quantifiable assessments of a pervasive IT-enabled healthcare solution.

INTRODUCTION

Diabetes is one of the leading chronic diseases affecting Australians and its prevalence continues to rise with an estimated 275 Australians developing diabetes daily (DiabetesAustralia, 2008). Evidence shows that diabetes and its complications are incurring significant costs for the healthcare system in Australia including costs incurred by patients, carers, government, and the entire health system. Only in 2004-05 direct healthcare ex-

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penditure on diabetes was A$907 million which constituted approximately 2% of the allocatable recurrent health expenditure in that year (AIHW, 2008). Further costs include societal costs that represent productivity losses for both patients and carers. Diabetes can, therefore, have considerable social, human, and economic impacts and tackling these requires solutions that substantially enhance the existing fragmented and uncoordinated capacity for effective prevention, early detection and management (VictorianGovernment, 2007).

Furthermore, there are many deficiencies that are rooted the Australian health system setup (Wickramasinghe, Troshani, & Goldberg, 2009, 2010). Based on fee-for-service episodic doctor-patient consultation, the current Australian healthcare system can handle short-term illnesses involving a limited range of interventions including their diagnosis and treatment (Hunt, 2007). However, this system is comprised of a mixture of fragmented private and public healthcare subsystems that provide both healthcare funding and delivery. Largely uncoordinated, these subsystems are deemed to be unsuitable for the treatment of long-term chronic diseases including diabetes (Dixon & Webbie, 2006; Sprivulis, et al., 2007). In particular, diabetes requires teams of various health professionals and long-term support to help sufferers make effective healthy lifestyle changes and constantly maintain them (Hunt, 2007). This has the potential to substantially increase costs while potentially adversely affecting diabetes treatment effectiveness.

Since diabetes is and is expected to be a major challenge for the Australian healthcare system in both providing quality healthcare and in incurring increasing expenditures (Swerissen & Taylor, 2008), a treatment imperative is required that provides patients with appropriate levels of monitoring ensuring diabetes containment and prevention of further complications (AIHW, 2008). A pervasive technology solution would offer the necessary monitoring that is cost-effective and convenient to both patients and clinicians and least disruptive to patient lifestyle. The goal of this chapter is to investigate the application of a pervasive technology solution developed by INET International in the form of a mobile phone to facilitate superior diabetes self-management in Australia. Moreover, this chapter provides a transaction cost economics framework and uses it for a preliminary assessment of the proposed solution.

CURRENT TRENDS IN DIABETES SELF-MANAGEMENT RESEARCH

As there is no cure for diabetes, non-medical approaches are used jointly with medical approaches so that patients can have a life which is as normal as possible. However, non-medical approaches can be challenging as they require effective lifestyle management and meticulous attention and monitoring by both patients and healthcare professionals (Britt, et al., 2007). Particularly, to be successful, patients need to be both informed and active in their treatment regimen (AIHW, 2007, 2008). This can be achieved by effective self-management which is a non-medical approach and which constitutes the focus of this chapter.

Self-management is important as it empowers diabetes patients while acknowledging their central role and responsibility for managing their healthcare (ICIC, 2008). Extant research indicates that active participation of diabetes patients in self-management is a key strategy for managing their condition and reaching improved treatment outcomes (Colagiuri, Colagiuri, & Ward, 1998; Poulton, 1999; Rasmussen, Wellard, & Nankervis, 2001; Wellard, Rennie, & King, 2008). However, self-management is constantly time-consuming and requires significant self-discipline (Russell, Churl Suh, & Safford, 2005) and support strategies including assessment, goal-setting, action-planning, problem-solving and follow-up (ICIC, 2008). Moreover, because effective self-management may require patient interaction with