Patient – Clinician Partnership through a Personal Online Health Social Network System

Abstract
Involving clinicians in the day-to-day lives of individuals can provide a backdrop for a healthcare system that focuses on prevention rather than treating symptoms for acute conditions. A partnership between the patient and clinician can be a viable way towards achieving this desirable goal. We are exploring how the clinician fits into the design of an online social network to motivate health behaviour change to promote a partnership between people and clinicians, even before they are patients.

Keywords
Online social networks, health behaviour change, VivoSpace, ABC framework

ACM Classification Keywords
H5.3 Group and organization interfaces: web-based interaction

General Terms
Design
Introduction

Living a healthy life by eating well and exercising regularly are keys to preventative medicine. Furthermore, diet and exercise are mechanisms to self-management of chronic diseases such as diabetes [1,3]. However, this simple formula for good health remains elusive for many, as good health is not a sufficient motivator. Additionally, the current medical paradigm is best suited to treat acute conditions rather than prevent the illness [2]. Therefore, it is not surprising that there has been significant interest in the domain of Human-Computer Interaction (HCI) research and commercial software development in developing technologies that motivate health behaviour change.

More recently, the uptake of online social networks combined with the knowledge of the social effects of one’s social connection to their health has led to interest in incorporating online social networks into health technologies [6,7].

We are interested in exploring how best to bridge between clinicians, i.e. physicians, dieticians and exercise therapists, and people using an online social network designed to promote health behaviour change. In this position paper, we explore the clinician’s role in such a system as related to technical design. We also discuss methodologies to explore this design space and consider the most appropriate applications for bridging clinicians to individuals who would use such a system.

Online Social Networks for Health Behaviour Change

Online social networks such as Facebook™ have a large committed user base. The rapid uptake of these systems can potentially be harnessed to promote health behaviour change if we can understand the motivations for their use.

To better understand these motivations and provide the determinants for both the use of online social networks and how they relate to health behaviour, we have developed a framework called Appeal Belonging and Commitment. The ABC framework stratifies the motivational determinants into three dimensions: appeal, which contain all the individual determinants; belonging, which contain all the socially based determinants; and commitment, which are the temporal aspects to behaviour change [5]. The ABC Framework was developed through a synthesis of existing theoretical models. The theories for use of online social networks include: Uses and Gratification Theory, Common Identity Theory, Common Bond Theory, Social Identity Theory, Organizational Commitment Theory, Behavior Chain for Online Participation, and social network threshold. The theories for changing health behaviour include: the Health Belief Model, Social Cognitive Theory, Theory of Reasoned Action, Theory of Planned Behavior, Common Sense Model, and The Transtheoretical Model.

VivoSpace: a Case Study

The ABC Framework provides design guidelines, which were employed in a user-centered design process to develop VivoSpace, an online social network for health behaviour change. An initial user inquiry has been completed and paper prototypes have been developed and evaluated [4]. VivoSpace provides a newsfeed system similar to existing online social networks, and a status field, where users can enter their meals and activities. From this input, nutritional information and caloric intake or burn is provided. This information is
collated and presented on a dashboard alongside their social networks’ information. Results from evaluating this prototype indicated a need to provide group challenges and other gamification mechanisms. Concerns also existed around privacy, so the dashboard should only contain their own information.

**Role for Clinicians**

The information that is logged in a system such as VivoSpace is not traditional information that is collected by one’s primary care physician. However, this information is critical to maintaining well-being over a lifetime. A system such as this provides the ability to monitor, reflect upon and alter health behaviour over time. Further, it also provides insight into social influence for both positive and negative behaviour.

Although primary care clinicians may not be “friends” of the user or even a “social” connection, they can have a role in VivoSpace. The clinicians can now be coaches to the user on areas of focus and realistic goal setting. Furthermore, the clinicians can also provide individuals with insight into behaviours that they were not aware of, and indeed they can also learn from their patients. In this manner a true partnership can develop.

**Considerations**

Upon bringing clinicians into an online social network such as VivoSpace, there are certain considerations that need to be accounted for as they have a new role:

- Do clinicians have the same access as “friends” have?
- Should clinicians be able to see entire group’s progress through clubs and challenges?
- Should there be another level of sharing and access for clinicians?
- Do clinicians see more or less information than friends?
  - Do they see less social information?
- Do they see more nutritional information?
- What are the best mechanisms for clinicians to interact with the individual through the system?
  - Are clinicians’ comments alongside the individual’s friends’ comments?
  - Are clinicians’ comments separated from friends’ comments?
- How do we share the individual’s information between clinicians (e.g. between a physician and dietician)?

Methodologies for Design
As we are promoting a partnership between clinicians and individuals, we are also supporting a similar model for designing the interface that bridges the clinicians to the individuals. Through a Partnered User-Center Design process, we can take into consideration privacy and individual sharing preferences to ensure that the system will continue to be used, while still considering the clinician’s needs to ensure visibility into the individual’s health lifestyle and also ability to coach them adequately. Thoughts, design ideas and concerns can be shared collaboratively between individuals and clinicians to potentially garner stronger design strategies than if the evaluation was done in silos.

Most Appropriate Application
An online social network system that includes clinicians can be applied in many settings. However, it would be best applied in primary healthcare clinics that support preventative views on medicine. We feel that this is critical to ensure a bridge between the individual’s everyday life and the clinician. Furthermore, the clinic should have an interdisciplinary approach to care. This would ensure that information can be discussed with the most appropriate healthcare professional.

References