

## Chapter 53

# Applying Social Aspects in Home Telecare Design to Improve the Safety of Users and Quality of Service

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### ABSTRACT

*Telecare enables remote and cost-effective home treatment of patients, improving the safety and quality of life of frail individuals. However, despite increased availability of telecare devices, many are not fully used and often ignored due to poor social perception and experience. The research suggests the social aspects of quality and safety related to user experience have not been considered. This can lead to misuse or non-use of telecare devices, reducing patient safety and quality of life. This chapter explores the implications for the lack of social considerations in telecare and develops a series of models and methodologies to integrate the social dimension with the traditional medical intervention focus. By applying semiotics and normative behavioural theory, the authors show how a Normative Home Telecare Framework can improve telecare solution design and ensure take up and use of the devices and increase patient safety and life quality.*

### 1. INTRODUCTION

Telecare and telehealth safety issues are adverse events, errors and near misses that compromise the wellbeing of users and service provider staff. Safety issues include emotional and social issues of providing service into the home besides the physical and clinical issues prevalent in telecare. It is stressing enough for a user to cope with aging,

illness or a condition that limits one's function. The stress may increase by the introduction of technology into the home care as the care of an increasing number of conditions is moved from the hospital into the home. Safety risks can be introduced by the system, equipment or human beings. Patient safety in acute and hospital environment is viewed as an issue occurring in a controlled environment where the provider controls the standards and culture

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that prevail. In home environments things become different and in some ways difficult as homes are designed to suite the taste of the occupants and not for care. A review of literature on telecare revealed that there were few articles that specifically address safety and quality issues in telecare although there are more articles on these aspects in telehealth. The technical aspects of safety and quality can be measured and metrics have been proposed for this (Brook, McGlynn et al., 2000). However the social aspects of quality and safety, which are also related to user experience, have not been given much consideration. The need to capture and structure individual social context led to the framework proposed in this article as a telecare solution design guideline.

Telecare services monitor individuals in their homes from a distance by linking emergency and care professionals directly to a residence using electronic, computing and communication technologies that are dispersed in the individual's home. Emergency "trigger events" can be detected via electronic devices distributed about the home (Porteous and Brownsell, 2000). Telecare operators decide on the appropriate response to the raised alarm. The range of people who receive home care is very diverse and the numbers of users are growing (Sethi, Azzi et al. 2011). This poses challenges of increased safety and quality of service to the providers.

The application of technology in home care will mostly be evaluated from a social perspective by the users. The social perspective includes ethics, privacy, security and the cultural perspective (Perry and Beyer, 2010; Sethi, Azzi et al., 2011) which are linked to user safety and quality of service. It is therefore important to understand the social issues that surround implementation of technology in the home. There is a realisation that the nature of services to which technologies are being applied are very personal and present a range of ethical and social challenges to the service providers and the users alike. This raises the need

to develop methods of designing and implementing telecare that respect the choices of the individual, improve acceptance and minimises unintended injury. In order to understand the social aspects of telecare quality and user safety the following section will give a brief background to telecare. The background will end with a narrative of the current telecare approach using a pilot study. Section 3 looks at the social aspects of quality in telecare followed by a section on patient safety. Section 5 discusses a proposed home normative home telecare framework and section 6 discusses the validation of the framework before a conclusion is made.

## **2. TELECARE BACKGROUND**

The United Nations predicts that 40% of the world population will be over 60 years old in 2050 (UN, 2009). The same report shows that between the years of 2009 to 2050 the ratio of dependent people will double in Africa, Europe, North America and Oceania. The ratio will triple in Asia and Latin America and the Caribbean. Dependent people are calculated as those people under the age of 15 and over the age of 65 who are expected to need some sort of support in order to survive. The significance of this and other reports is that governments will have a decreasing tax base as a source of revenue and this will impact on the social programmes that they provide like the support for the elderly and vulnerable groups. The increase in the number of elderly needing care is partly attributed to improved living conditions. Another contributing factor to the decrease in the working population is the decreasing births rate especially in developed countries. These trends have led to the search for new ways to provide care and the use of technology as advocated in telecare has been identified as one of those with the biggest potential.

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