

Chapter 4

Home Care Systems for the Management of Patients With Mental Disorders: The “ALADDIN” Experience

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ABSTRACT

This chapter provides an overview of the various aspects involved in the development of a home care system for the management of dementia, based on the experience of ALADDIN implementation. The ALADDIN platform aims to provide a trustworthy and reliable solution supporting patients and their informal carers in the management of the disease from home. Based on a set of monitoring parameters and measuring scales feeding a reconfigurable Event Detection mechanism used for Risk Assessment and Analysis, the system aims to early detect symptoms predicting decline, avoid emergencies and secondary effects and thus prolong the period that patients can remain safely cared at home. Informal carers are also monitored by the system whereas additional features supporting networking, education and cognitive stimulation are also integrated along with decision support tools for the clinicians. It is an open, secure, interoperable, integrated IT-solution designed according to Service Oriented Architecture principles and credible methodologies for patient follow-up, risk detection and adaptive care.

INTRODUCTION

Chronic illnesses impose a great burden on the lives of citizens worldwide. In modern health-care, decentralization, dehospitalization and self management of diseases at home are crucial factors for improving the every-day life of chronic patients and the people close to them. Telemedicine and Home Care systems have been developed, making significant advances in healthcare by decentralizing it, offering

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innovative services to patients and doctors, and making medical practice more efficient and cost-effective in a variety of medical disciplines. However, people in general tend to dislike monitoring of their daily activities, so the challenge for modern home care solutions is to implement systems that provide clinicians with adequate and concise information on their patients' health status while at the same time be as unobtrusive as possible and easy to use. Moreover, such systems must ensure that they produce high impact warnings on the patient's status, only when these warnings are truly necessary, in order to relieve clinicians from unnecessary workload and become a real tool for decision making and efficient patient follow-up. Cost considerations are also very important and must be taken into account when designing homecare systems in order to produce solutions that are affordable by the users. Finally, open issues also exist with regard to strategic design aspects and care guidelines. For example, the implementation of fully automated systems vs solutions that allow an increased level of self-involvement to the disease management process is an open question as regards the benefits to the users.

Due consideration of the above aspects is necessary when developing home care systems for chronic patients, but can become more demanding and difficult when it comes to older patients with mental disorders (Archer, Keshavjee, Demers, & Lee, 2014). The development of home care systems for this patient group has not advanced as much as those for other chronic patients, even though mental disorders induce a significant burden on the lives of people all over the world, and they are directly associated with increased costs for national healthcare systems. Moreover, special attention is required for the informal carers of patients with mental disorders, as they run the risk of developing depression symptoms themselves and often face social withdrawal and heavy additional private costs (Tremont & Davis, 2014).

In the above general context, this chapter aims to provide an overview of the different aspects involved in the design and development of a home care system for the management of dementia, based on the experience of ALADDIN implementation (Perakis, Haritou, & Koutsouris, 2009). The ALADDIN platform was developed in the framework of a research project funded by the Ambient Assisted Living Joint Programme (AAL JP), with the objective to provide a trustworthy and reliable solution supporting patients with dementia and their informal carers in the management of the disease from home. Based on a set of monitoring parameters and measuring scales feeding a reconfigurable Event Detection mechanism used for Risk Assessment and Analysis, the system aims to early detect symptoms that predict decline, avoid emergencies and secondary effects and, ultimately, prolong the period that patients can remain safely cared at home (Xeferis et al., 2011). Informal carers are also closely monitored by the system whereas additional features supporting networking, education and cognitive stimulation are also integrated along with decision support and patient management tools for the treating clinicians (Cuno et al., 2011; Haritou & Glickman, 2011; Sáez et al., 2011). The platform has been built based on credible methodologies for efficient patient follow-up, risk detection and adaptive care. It is an open, secure, interoperable, integrated IT-solution designed according to Service Oriented Architecture principles. The benefits of this platform have been assessed in a small pilot trial at three clinical sites in Europe, involving the follow-up of 60 subjects (pairs of patients and their carers) using the system at home (Torkamani et al., 2014). The system was assessed against three predefined target outcomes, namely a) prevention of emergencies, b) reduction of carer burden and c) maintenance of the patient's and carer's quality of life.

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