Report on the Exploratory on Smart Care in a Homely Setting

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Introduction

The Exploratory on Smart Care in a Homely Setting was arranged on the 4th May 2016 at Maxim park by the Digital Health and Care Institute. The aim of the event was to explore what care currently looks like in a homely setting, to identify citizens' and carers' needs as well as pin point potential areas for innovation to go forward. The theme covered both homes and care homes, and other home-like settings where care is being given. The findings from the Exploratory informed key themes for a follow up event, an Ecosystem organised on the 6th of June. The overall "Care in a homely setting" -program will yield Information to ideate alternatives for future home services. This document summarises the key outputs from the focus group activities arranged on the day.

Participants

There were 34 participants in the Exploratory with 24 experts invited from the Scottish government, local authorities, charities, industry, academia, including a number of full time carers. An additional 10 participants were University students from across Scottish universities with an interest in innovation and entrepreneurship in digital health from the Scottish Institute of Enterprise (SIE).

Format

The aim of the day was to gather information about current practices of care in a homely setting, as well as identify existing needs for care in a homely setting and find emerging opportunities for future. The participants were divided into six groups of 5-6 participants. Each table had a DHI facilitator/scribe to record the discussions and their outcomes. The format of the exploratory presented five main discussion points throughout the sessions:

1. What does care in a homely setting mean to you?
2. Identify the daily home care needs for a person with X condition.
3. Identify the daily home care needs of person with the X condition from the perspective of their carer.

4. Discuss what types of smart home technologies and opportunities do you know of.
5. Scenario mapping: identify potential opportunities for innovation within smart care in a homely setting over the next 20 years?

For topics 2 and 3 each group was allocated a specific condition to consider (frailty, learning difficulty, dementia, limited mobility, need for rehabilitation, and visual impairment). The groups were free to expand on the scenario to highlight different needs and opportunities.

Outputs

The outputs of the group discussions were documented and analysed to identify areas of potential improvement and opportunities for innovation within care in a homely setting. The main themes to emerge were around *communications, non-invasive sensing of health and wellbeing, the home environment,* and *carer support*. These four themes were the areas of innovation with the greatest potential. The following sections summarise the key points from the Exploratory discussions.

Communications

Need for better communications was a general discussion point mentioned across many different areas of care. Ideas that could potentially form innovation project to improve current practices were:

- Better communication with the patient, carer and the care network to provide information and feedback.
- Care record digitisation and integration – A digitised care record would ensure keeping the complex network of people involved in a person's care informed of the care plan and of any potential issues. Eventual integration with electronic health records would provide tiered access to users depending on need for information.
- One point for all billing and tracking of people's finances. This would be to simplify finances for carers and family. Similar products exist for tracking finances (Moneydashboard) but not targeted at people that potentially require extra support.
- The use of augmented reality to provide informational, communications, and decision support for people and carers at home.
- Teleconferencing between groups of people with specific conditions for peer support or to reduce social isolation.

- Telehealth mentors/coaching for people with conditions to enable better recovery and wellbeing

Non-invasive sensing of health and wellbeing

A big theme of ensuring independence at home is the ability to detect when problems occur. Home monitoring of people would ideally be in a way that is practically invisible to the person and would not require them to learn additional skills to use the technology. Non-invasive sensing technology has potential to provide data that can be used to detect behavioural trends, monitor health, and monitor the home environment, something that would enable improved independence, wellbeing, and care management. The following ideas were highlighted as having the potential to improve care at home:

- Non-invasive sensing technologies – To monitor both the person's health (vital signs, gait, falls, movements) and home environment.
- Having one interface for all connected devices and services. Interoperability, open API, data exchange layer for sensing technologies
- Ways to predict problems/conditions and care needs from sensor data.
- Methods to provide feedback and information to carers form home sensing devices
- Tools for optimising personalised routine from behavioural data for both carer and patient
- Geo-fencing device to control wandering, attached with alerts to inform carers.

The home environment

The home environment is hugely important in ensuring independence and allowing care to be delivered. "Digital home" was highlighted as a key enabler for new services and technologies, with ubiquitous internet and WiFi being vital for future service delivery, something housing associations and providers should consider a utility. Building housing able to adapt to the changing needs of a person over time was deemed key to enable aging in one place. Companies like Carbon Dynamic are innovating in this area. The following areas were highlighted as having potential to improve the home environment:

- Access to the property – digital locks may provide better access for carers and provide a more secure environment.
- Improved methods for interaction with technology, such as voice controlled interaction.
- Robotic assistance - personalised and home robotics like the Buddy system (robot virtual helper to reduce social isolation).

- Single interoperable system for all house smart needs and the Internet of Things. Number of companies (Google, Apple) are working towards solutions but may not be specialist enough to cater for care needs to be integrated in house and care systems.
- Augmented reality to provide information around house. For example instructions or warnings.
- Therapies to maintain mental health and happiness of citizens, such as music therapy, colour therapy and SAD lighting. (NANO-LIT SME doing this Edinburgh based)
- Creating rehabilitation pods/units that can be brought to the home to provide different sorts of services, to treat conditions and to provide hospital-like care at home.

Carer support

Ensuring people are able to live at home as long as possible requires a complex network of care to operate and respond to potential problems as efficiently as possible. Care comes from a number of different sources, both paid and unpaid. The discussions focused on the potential technologies/services that could improve the delivery of care:

- A digitised care diary that can be used to pass information and potentially predict trends from stored data and information. This is important for ensuring a smooth transfer of responsibilities between paid and unpaid carers.
- Carer decision support technology for easier detection of issues and assisting with care planning.
- Optimising the care routine from information about the status of the patient derived from sensors in the house to allow carers to prepare longer scheduled visit if needed. Early detection of potential problems.
- Method to provide audio notes to the carer as they travel to next appointment. Potential software solution to condense care plan patient information.
- Methods for improving continuity of care or relationship with the carer. Relationships are often difficult to build with changing care staff visiting. One idea was that a carer information display in the person's house gives information about the next carer arriving and the expected time of their arrival.
- Post-condition diagnosis support for both patient and carer.
- Methods for delivering medicine adherence. Some local authorities pay for care visitor for four visits a day just to give medications to a single patient.

What next?

The Exploratory was arranged with a view of exploring what care currently looks like in a homely setting, to identify citizens' and carers' needs as well as pin point potential areas for innovation to go forward. The four themes identified and presented above were used to inform a wider Ecosystem event arranged on the 6th June 2016 on the same topic. Going forward, the DHI is also working together with a number of directorates at the Scottish Government, various businesses, third sector organisations, academics and charities to design a larger scale experimentation around Smart care in a homely setting in order to ideate alternatives for future home services. It is envisaged that the emerging smart-home norm will empower a large number of health systems to build new smart care services. A number of White Papers on the experimental environment will be released towards the end of the summer 2016.