ICT PSP – Health, Ageing and Inclusion Programme

Health monitoring and sOcial integration environMEnt for Supporting WidE ExTension of independent life at HOME

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Barriers to deployment
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Abstract

This document sets out some of the barriers to deployment that have been identified during the Home Sweet Home project.

Executive Summary

There are a number of obstacles to telemonitoring which the consortium considers challenging but not insurmountable.

Some general ones cover:

- Cost justification: the results of different studies are mixed on this front.
- Financial rewards: financial remuneration needs to be aligned to recognise that telemonitoring does not involve face-to-face encounters between patients and healthcare professionals. What is clear at the moment is a very low willingness to pay by citizens; hence other financing models will be needed.
- Co-ordination of services: a new care ecosystem needs to recognise the partnership between health and social care.
- Technology advances: the concept of protection of patient safety in conjunction with greater flexibility in terms of new technological innovations is paradoxical in nature and need to be managed carefully.

In addition, there are specific issues with the various components of the HSH basket of services, covering.

- Telemonitoring services.
- Environmental sensors.
- Cognitive training.
- Videoconferencing.
- Diary / scheduling.
- Navigation system.
- Home automation.

Change History

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0.1 28th March 2014
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Version Changes

0.1 Initial draft
0.2 Some updates to section 2.1
1.0 version for issue
1.1 Section 2.6 clarified

Outstanding Issues

Table of Contents

1. Introduction

1.1 Purpose of this document

This document sets out the barriers to deployment that have been identified during the project, both general issues and ones pertinent to the various individual HSH services.

In addition to this document, D4.7 Implementation Guidelines identifies lessons learned, and provides some implementation guidelines and recommendations.

1.2 Glossary

GP	General Practitioner
HCP	Healthcare Professional
HSH	Home Sweet Home
WTP	Willingness To Pay

2. Barrier to deployment

2.1 General

The main general barriers relate to:

- Cost justification.
- Reimbursement.
- Organisational issues.
- Technological improvements.

2.1.1 Cost justification

Cost justification still remains the biggest barrier to deployment. Even large scale trials such as the Whole System Demonstration in UK, and Renewing Health EU funded project covering trials in nine countries have produced mixed results.

Some telemonitoring trials in some countries for some chronic diseases appear to show benefits, but by no means all.

However, it is also true that trials in general do not release all the financial benefits, because it is not possible to realise the benefits that accrue from organisation changes while operating both the "new" and "old" workflows.

2.1.2 Reimbursement

Where healthcare professionals, in particular GPs, are reimbursed on the basis of face-to-face meetings, tele-monitoring increases their workload with no corresponding increase in remuneration. The project consortia consider this to be a significant obstacle to further deployment.

Future deployments will need to consider the care ecosystems and their remuneration procedures in order to fully understand the complexities involved. HCPs will be motivated to use a technology solution where the rewards package is commensurate with the effort expended.

A formal Willingness To Pay (WTP) study was not carried out as part of the Home Sweet Home project; however, a question in the qualitative study asked participants how much they would pay for the solution. Results show that the amounts recorded are below the costs associated with the equipment solution. In order to ensure greater deployment of future technology solutions, national healthcare systems and/or insurance companies will need to provide a subvention to cover full costs.

2.1.3 Organisational issues

The HSH services cover both healthcare and social care domains. Anyone wishing to implement a range of these services will need to address the organisational issues that arise from conjoining these two domains, including:

- A joint call centre: from an investment point of view, a joint centre makes economic sense, but there are a number of points to bear in mind:
  - monitoring e.g. smoke detectors requires 24/7 coverage.
  - monitoring health vital signs parameters requires clear protocols for non-medical call centre staff to escalate to the appropriate medically trained personnel.
- Optimising home visits: It makes no sense for both healthcare and social care staff to visit citizens if it is possible in some way for one person / organisation to undertake the objectives of both. This is particularly true if voluntary organisations are involved.
- Even if lack of coordination is not an obstacle to deployment, it is certainly an obstacle to achieving the best return on investment, both in terms of health benefits, and economic benefits. Where there is a lack of coordination, gaps will appear in service provision and feedback loops will be exposed.

The Home Sweet Home project has affirmed the heterogeneity of participants in the study group requiring a flexible approach to care provision. Forging a new care paradigm with the customer at the centre, enabled with technological devices, will require the bringing together of family, care professionals, technology support teams and Contact Centre personnel into a new ecosystem. This can pose a challenge where cultural or legal obstacles exist.

2.1.4 Technological Improvements

A technology solution can only provide benefit as long as it is evolving. Engineers and designers are coming up with new technological advances all the time. In order to access these new concepts, future deployments will need to incorporate a level of flexibility in their design.

Closed (proprietary) systems will suffer in this environment; however, using open source software and interoperable devices can create safety and dependability issues in the future. A degree of caution is required when integrating new technology that may jeopardise patient safety.

2.2 Telemonitoring services

From the experience of the HSH project, the man barrier relates to a couple of issues with the technology.

- Reliability: there were more problems than expected with the reliability of the medical devices. However, this appears to be improving, for example, Renewing Health which started later appears to have had fewer problems of this sort.
- Battery life.

2.3 Environmental sensors

There are few barriers for these devices, although their value is severely reduced unless their installation is accompanied by implementing a call or monitoring centre of some sort.

However, there may be some limitations in specific areas in specifics countries. For example, in Belgium the fire brigade is not obliged to respond to a call from the Call Centre, for example if a smoke detector alarm is registered. Some fire brigades will react to the call; others will not.

2.4 Cognitive training

Anyone wishing to introduce cognitive training should evaluate carefully the investment required for language and/or culturally dependent exercises, especially if the intention is to be able to grade the exercises as easy, medium or difficult.

On the other hand, there are already providers who supply exercises and games based on playing cards, numbers (e.g. sudoko) or mahjong or similar tiles. While these are more limited in their scope for exercising cognitive faculties, they are readily available and provide at least a starting point.

2.5 Videoconferencing

Videoconferencing, or even voice only calls, is a service that has limited appeal to citizens:

- Videoconferencing with vision requires a good and reliable bandwidth to be effective.
- Voice calls are attractive for citizens wishing to keep in touch with family who live abroad.

The technology behind the HSH service has now been overtaken by the market, e.g. skype, so the limitations of HSH should no longer be a barrier.

2.6 Diary / scheduling

As implemented, the HSH service had a severe limitation: citizens, and their relatives and carers, were unable to update the diary directly from the InTouch; this had to be done from their own PC or via the call centre.

Once this restriction is lifted, the service would become much more usable.

2.7 Navigation system

In general, the project believes the value of this service is limited. The service is aimed at older citizens who become confused while out and about. Unfortunately, these are the people who it is quite difficult to give directions to from a distance.

Even with e.g. Google Streetview, it is quite difficult to establish which direction someone is facing, before giving instruction to e.g. turn left, or go east.

However, a more limited approach could be of value. If the device can give GPS coordinates in an alarm situation, at least it is possible to direct assistance to that location.

2.8 Home automation

The HSH project found that the physical requirements and intrusion of the home automation devices in the HSH project were a severe barrier to deployment. Any future deployment will need to evaluate carefully the following aspects:

- Windows: There are different types of window which open in different ways. The devices must be chosen so they are appropriate.
- Doors: installing the devices means physical alterations to the doors, which may not be acceptable, especially in rented accommodation. (This is also true to a lesser extent with the window devices.
- Radiators: The HSH devices would not work with electric radiators, and in some cases the physical space needed meant they could not be installed.
- Power: the devices need either batteries that can run out, or mains electric supply.