

## Home solutions: a study into the benefits of telecare for older people choosing to remain at home

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Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

# Home Solutions

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March 2011

*... those uncostable human benefits of contentment, safety, fulfilling one's desire and choice to be in one's own home, being able to remain with one's life partner, to live with the familiar and amongst friends and neighbours, free from anxiety and with a sense of contentment and safety.*

Sheila Simmons

# **Home Solutions**

## **A study into the benefits of telecare for older people choosing to remain at home**

**Alastair Graham, Bryan Lawson & David Bolton**



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

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## The study team

- **Alastair Graham**, *People First*, an independent organisation that focuses on finding innovative person-centred solutions for social care needs.
- **Professor Bryan Lawson**, an architect and psychologist who has been Professor and Dean of Architecture at Sheffield, Singapore, Sydney and in Malaysia, and has consulted on a number of projects for the HSE in Ireland.
- **David Bolton**, former senior manager of statutory health and social care services in Northern Ireland including telecare services, researcher and writer on evidence-based services and policy, and a contact carer of a current user of telecare services.

## The team also had the support and advice of

- **Rosie Lawson**, an occupational therapist involved in projects using telehealth, former director of Sheffield Community Health NHS Trust and consultant on health inequalities to the UK Department of Health

## Members of the Steering Group

- Kieran Madden, Chairman; Former Assistant National Director, Finance HSE
- Michael Curran, Louth County Council
- Bernard Haddigan, formally HSE West, PCCC
- Alice McAndrew, Department of the Environment, Heritage and Local Government
- Joe McGuinness, Louth County Council
- Michael Murchan, Services for Older People, Department of Health and Children
- Orlaigh Quinn, Department of Social Protection,
- Sheila Simmons, The Irish Association of Older People
- Teresa Donoghue and Maureen Sheehan, Department of the Environment, Heritage and Local Government, also served for a time on the Steering Committee.

## Provider of the telecare service during the study

- Tunstall Emergency Response Ltd. Bunclody, Co. Wexford





## Foreword

Through experiences from recent years in working with older people to address expectations and needs, we know that one of the traditional images of older people as infirm, ill, lonely, dependent or resigned is giving way to a changing recognition that older people seek a new vision of life and of care when they need it.

Those of us reaching the years beyond the conventional retirement years, are likely to be healthier and have a set of values, views of life in older age, plans and intentions that mean we will expect and want a life at home that looks very different from those in similar circumstances fifty years ago. This new vision is firmly established on the reasonable expectation that we can, within reason and limits, choose how we want to live our lives, including in this context, the years at the end of our lives. It is also grounded in how those of us involved in responding to the needs of the later years and in providing services should do so with attention to the important principles of respect and dignity, and with the recognition of the individuality of each person we meet.

In terms of services (and policy) this vision introduces a new perspective (perhaps it is the rediscovery of an old perspective), which shifts the planning and delivery of care from a service driven approach, to a needs-led programme, and places the person who uses the service at the centre.

New supportive technologies based upon electronic and communications innovations have been developing for some years. These hold out the prospect of enabling older people to remain in their own homes thereby supporting personal choices and reducing risk. And as people are supported in fulfilling their expectations and hopes, quality of life is supported and even enhanced.

This study is another important contribution to the growing body of knowledge in how these new technologies can be deployed. As will be seen in the pages that follow, the study shows how, when targeted appropriately at assessed need, telecare services can greatly enhance the lives of older people who wish to remain at home; can bring considerable relief to families and carers; and make a considerable contribution to the effective use of resources and services available for older people and their families.

We believe the study, its findings and conclusions, clearly demonstrate the benefits of supportive technologies in maintaining older people at home and provide a significant enhancement to the application of the Housing Aid for Older People Schemes.

Finally, I would like to take this opportunity to place on record our warmest appreciation to everyone who contributed to the completion of this study. The study benefited from the contribution of managers, practitioners and administration staff in the HSE and the Grants Section of the Department of Environment, Heritage and Local Government. Thanks also to James Doyle and his colleagues at Emergency Response for their practical and willing engagement. Our special thanks to the participants, their families and carers who so willingly engaged in the study and upon whose experiences and thoughts the findings and recommendations that follow are founded.

Kieran Madden  
Chairman of the Home Solutions Steering Group

March 2011

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*"I can't imagine myself in a (residential or nursing) home. In the times that we are in with the terrible robberies, the assisted technology is just marvellous. We don't feel nervous and we just have to press the button if we have worries. It gives us great reassurance. I just have to call someone with the alarm button. Before we had it we would have telephoned the ambulance as we thought they were the people we should ring for help."*

## ■ Chapter 1

### Summary of key findings and key recommendations

The findings and recommendations are detailed at the end of the report. In summary the study demonstrates that the telecare service was highly effective in supporting older people with significant needs to remain at home. The conclusion is that a telecare service should be regarded as a substantive component of home care services.

- Assessments of need that focussed on the prospect of telecare services supporting a client, were found to be pivotal in the success of the service.
- After installation it was found that the usage by the most needy and high-risk clients reflected the level of dependency described in the assessments undertaken by HSE staff.
- The assurance and confidence offered by telecare made a considerable contribution to the decision of the older people who took part in the study, to remain at home.
- Whilst the research was not a health economics study, an assessment of the alternative costs along with the views of and feedback from the service users and their families, clearly suggest that telecare is likely to contribute to the appropriate use of limited and specialist resources, and support the most effective use of finances.
- From the study it is clear that the success of telecare relies upon effective and reliable devices, a competent telecare monitoring and response service and effective arrangements for the technical assessment of clients' homes, installation, maintenance and support, and response protocols.
- Finally, there was a clear finding that telecare is considered by users and carers to be easy to use and is well received.

### It is recommended that:

1. Telecare should be regarded as a substantive ingredient of home care services especially for people with high levels of need and those who are assessed as likely to need residential or similar forms of care.
2. The HSE and the Department of Environment, Heritage and Local Government should further develop assessment arrangements and facilities to support the deployment of telecare care services that will support dependent persons.
3. Decisions to provide telecare should be based upon a comprehensive assessment of need and conclusions on how telecare can support the client.
4. Clients and their carers who wish to have telcare, and staff working in relevant public services should receive adequate explanation, training and support in telecare devices and systems.
5. Further to consideration by the relevant authorities and bodies, planning and building standards should include provision for the future installation of telecare devices in domestic homes, e.g. the provision of a double electric power socket adjacent to telephone sockets.
6. Telecare services should be commissioned from organisations capable of delivering:
  - a. Effective and reliable devices;
  - b. Effective arrangements for the technical assessment of homes and clients' needs, installation, maintenance and support;
  - c. Competent telecare monitoring and response protocols and services.
7. The HSE, with the Department of Environment, Heritage and Local Government, should assess the added benefit of teleHEALTH and telemedicine services for people with more marked health related needs.
8. Further research and follow up would build upon this study and enable some of the longer term and economic issues to be assessed more comprehensively.

## ■ Chapter 2

### The strategic context

#### A young but dramatically ageing population

The 2006 mid-census estimates for the population of Ireland<sup>1</sup> record that out of a total state population of 4,239,848 those 65 years and over made up just over 11% (467,926). Males aged 65 years and more, made up 4.9% (207,095) and females 6.2% (260,831).

The population of Ireland is projected to age rapidly within a relatively short time. Currently, Ireland has a significantly younger profile than most of the rest of the EU but demographic projections point to significantly greater numbers of older people living in the State in the years ahead. For example, at present, there are approximately 500,000 people over the age of 65. This is projected to rise to 775,000 by 2021 (a rise of 55% in just 11 years), to 909,000 by 2026 and to over 1,400,000 by 2041. The departure of many young people from Ireland in the wake of the recession of the later years of the first decade of the 21st century will accentuate these trends, at least in the short to medium term.

#### Recognising the aspiration to live at home in old age

The preference of older people to remain living in their homes has been a key finding in a number of reports. The landmark report ***The Years Ahead (1978)***, highlighted the importance of maintaining older people at home and the North Western Health Board's ***Choice Survey (2002)*** found that 96% of older people living in Donegal, Sligo and Leitrim wished to remain living at home. More recently the ***Enable Age (2002-4)*** report sponsored by the EC Commission conducted in 5 countries, Sweden, Germany, United Kingdom, Hungary and Latvia, highlighted the importance of "home" for older people. Nationally, the recognition of the aspirations of older people to live at home as a first choice has become well established in policy, planning and practice.

#### Moving policy and services forward

The Office for Older People was established in 2008 within the Department of Health and Children to improve Government policy, planning and service delivery in the context of the cross-sectoral nature of service requirements for older people. One of the key priorities of the Office is to lead the development of a new National Positive Ageing Strategy. Work is currently being undertaken by a Cross-Departmental Group to prepare the National Positive Ageing Strategy, which is currently the subject of consultation.

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<sup>1</sup> SOURCE: Central Statistics Office, Ireland; LAST-UPDATED (Sept 2009)



The purpose<sup>2</sup> of the National Positive Ageing Strategy is “to identify the provisions that must be made and the plans that must be implemented to ensure the best quality of life for older people in the Ireland of the future. In that context, a key objective of the new Strategy is to help people develop and maintain a positive quality of life as they grow older by encouraging people of all ages to think positively about their own ageing, to plan sensibly for their later years and to facilitate them in adopting the kind of lifestyle practices that will have the effect of ‘adding years to life and life to years’”.

Currently work is nearing completion or has been completed in relation to four other related developments.

1. To bring forward standardised access and operational guidelines for delivery of Home Care Packages.
2. To adopt a voluntary code of *Quality Guidelines for Home Care Support Services for Older People*
3. To develop a *Procurement Framework* for home care services.
4. To introduce Guidelines for access to and allocation of Home Help hours.

### **Developing policy to support older people at home**

While Ireland is already responding to population ageing by making policy interventions that support and enable people to live healthily and independently, and to be active participants in their communities as they grow older, a new National Positive Ageing Strategy will ‘*better recognise the position of older people in Irish society*’.

The other priority of The Office for Older People is to oversee the implementation of Government policy in relation to health and personal social care for older people. In this regard, Government policy is committed to supporting people to live with dignity and independence in their own homes and communities for as long as possible. Where this is not feasible, the health service supports access to quality long-term residential care.

The overall emphasis is on promoting a high quality service, delivered to those who require it, in the most appropriate setting. A critical concern is to ensure that the needs of clients are met as much as possible in a community setting and, where this is not possible, through residential services. Such community-based services are delivered by, or on behalf of, the HSE and include Home Help, Home Care Packages, and Day Services. It is in this context that the benefits of technology to support older people at home can play an important role.

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<sup>2</sup> Source Department of Health and Children website (February 2011)

## Home Care Packages – a practical response

One of the recent developments in building the range of services required to support older people at home was the development of Home Care Packages (HCP's). These were first introduced in 2006 to specifically address the needs of older people whose needs cannot be met by mainstream Primary, Community and Continuing Care (PCCC) services. Home Care Packages (HCPs), are enhanced supports over and above existing mainstream community services, with the objective of maintaining older people at home and in their communities. They are also targeted towards those at risk of inappropriate admission to long-term care or acute hospitals, or those who require discharge home from acute hospital. They are intended to permit flexible, tailored solutions to individual need. The key objectives of HCP's are to:

- Facilitate timely discharge of older people from acute hospitals
- Reduce inappropriate admission
- Reduce pressure on A&E Departments
- Support older people to continue to live in their own communities
- Support carers so that they might be able to continue to provide care.

HCP's could range from some therapy and nursing support for a few weeks after a hospital stay to ongoing, daily visits from a home care assistant to help the client get out of bed, washed and dressed. They could include a variety of services, such as public health nursing, day care, occupational therapy, physiotherapy, home help, home care and respite care, that are, as already stated, shaped around each client's individual needs. They could either be provided through a cash grant, which the recipient can use to purchase the care and support they need or through the organisation of care services by the HSE.

The HSE Service Plan for 2010 included €10m to bring Home Care Packages up to 5,100, benefiting 9,613 people. HCP's were the subject of an evaluation by the Department of Health and Children (November 2009).

The background to the development of Home Care Packages provides a comprehensive view of the reasons for, and benefits of, supporting older people in their own homes. Principally, the strategy behind HCP's is the conclusion that Ireland's health delivery model needs to shift from a hospital focus to a system that focuses on delivering services closer to the home, because:

1. As already noted, the majority of older people prefer to lead independent lives at home for as long as possible and the health and care delivery model should facilitate that preference.
2. The overall profile of healthcare conditions is changing such that the most common types of illness can be treated best at home.
3. It is not financially sustainable to meet these healthcare needs in an acute or residential setting.

Where physical works are required to properties to assist homeowners to remain in their properties, schemes were available through the HSE and housing authorities funded by the Departments of Health and Environment.

In recent years these schemes have been amalgamated in the Housing Grants Schemes operated by housing authorities and part-funded by the Department of Environment.



*"She likes the idea of having the technology in the house. She wouldn't like to have to part with it, definitely at night. There have been many robberies due to the recession and she can be scared at night. Having the monitoring device and the bogus alarm is so comforting. It is a great thing."*

## ■ Chapter 3

### What are Telecare, Telehealth and Telemedicine?

This study focuses on the application of telecare systems (as opposed to the telehealth or telemedicine) all of which are described briefly, below.

The terms telecare, telehealth, and telemedicine are frequently used differently in different contexts. Other terms are sometimes used to describe telecare such as 'electronic assistive technology' and preventative technology. Lack of consensus over the definitions may be due to the fact that equipment devices are very much linked to the local system that provides the response and this may vary with the local context.

The description of telecare in the Telecare Aware newsletter is, *"The continuous, automatic and remote monitoring of real time emergencies and lifestyle changes over time in order to manage the risks associated with independent living."* The original source of this definition is unclear but it is widely used. Telecare Aware goes on to elaborate on this definition – *"devices range from those where the user presses a button that raises an alert at the control centre, systems that monitor the person's well-being and /or environment and which trigger (without if necessary conscious involvement) a warning that the person's well-being has deteriorated, or that an untoward event has occurred."*

Telecare is as much about the philosophy of dignity and independence as it is about equipment and services. The system and associated service is described by the Telecare Services Association (TSA) as, *"a service that enables people, especially older and more vulnerable individuals, to live independently in their own home."* Equipment is provided to support individuals in their own homes and tailored to meet their needs. It can be as simple as the basic community alarm service, able to respond in an emergency and provide regular contact by telephone. It can include detectors or monitors such as motion or falls and fire and gas that trigger a warning to a response centre staffed 24 hours a day, 365 days a year.

As well as responding to an immediate need, telecare can work in a preventative mode, with services programmed to monitor an individual's health and well-being. Often known as lifestyle monitoring, this can provide early warning of deterioration, prompting a response from family or professionals. The same technology can be used to provide safety and security through bogus caller and burglar alarms. The TSA goes on to describe telehealth as *"a system that enables the clinical management of an individual's condition at a distance or in their own home. For example, technology can enable a patient to monitor their own vital signs, such as blood pressure, pulse rate, or temperature. Or a remote monitoring centre can take readings of physiological data and warn a clinician if the measurements fall outside the expected parameters."*



Telehealth comes under the umbrella of telecare, however telemedicine is a rather different field. According to the World Health organisation telemedicine is *“the practice of medical care using interactive audio visual and data communications. This includes the delivery of medical care, diagnosis, consultation and treatment, as well as health education and the transfer of medical data. It is more to do with consulting medical professionals at a distance, rather than monitoring of vital signs externally.”*

## **Telecare devices**

For the purposes of the study the telecare products were divided into four groups which are referred to as ‘key’ or ‘lifeline’, ‘emergency’, ‘lifestyle’ and ‘active’ devices.

### **Key or Lifeline alarm devices**

These are generally activated deliberately by the service user to seek help by a call-button that is worn around the neck as a pendant, or a bogus caller alarm normally located on the doorframe of an external door, or a pull-cord alarm in a toilet or bathroom

### **Emergency alarms devices**

These devices are automatic rather than user-operated and report some change in the user environment that may give cause for concern. Examples include fire or smoke alarms (which as well as alerting the householder also trigger an alarm to the call centre), flood or water alarms, gas shut-off devices, carbon monoxide sensors, movement and non-movement sensors (to, for example, detect lack of movement indicating that a person is unwell or has fallen, and the second to alert a carer when someone moves into a dangerous area) and falls sensors which detect if a person has or may have fallen.

### **Lifestyle alarms devices**

These monitor the use of certain features of the physical environment that are normally assumed to be on some regular pattern. Abnormal patterns can then be reported indicating that the user may be unwell or incapacitated. Devices include automatic lighting sensors, fridge activity sensors, bed or chair occupancy sensors (which has been set to the individuals routine. It senses when an individual gets out of bed in the night and will alert if they do not return within a time frame.) Also window or door sensors (which alert the call centre when doors or windows are opened) and temperature range sensors that detect heat for example when a cooker is not switched off or to detect very low temperatures that might give rise to hypothermia.

## Active alarm devices

These intervene in some way and may interact with the user and may report incidents to the monitoring centre. They can be combined with other devices, for example to turn on bathroom lights at night when the users leaves a bed and include devices such as medication reminder devices, automatic lighting sensors to turn on lights and, safety confirmation devices.

Telecare devices will rely upon a Call Centre or carer who is able to respond to an alert. Arrangements tend to vary greatly with each project area. Some product suppliers offer a central remote call centre which will respond to an alert and contact a given local responding agent.

## Limitations

Some devices are limited by merit of the stage, which technology has reached (i.e. they would benefit from further development) or because the person's circumstances means they cannot make effective use of the device. Such limitations can be overcome by careful assessment of need on one hand, and careful selection of devices best suited to the person's needs and circumstances. For example, dementia sufferers might not be able to use devices, which they need to activate in an emergency and in such circumstances it might be better to rely upon passive devices, which do not require the active input of the service person. Telecare also relies upon a telephone link with the call centre and where a landline is not available, or a mobile phone based caller will not work, telecare is unlikely to be of any benefit. Similarly, the system requires electricity, which, if not readily available, will obviate its use.

The reliability of products and their robustness in use and sensitivity to installation error have all emerged as key issues during preliminary research for this project. An example, of the kinds of problems that can occur linked to the point just made above, is that a monitoring device, which is expected to make a call, needs to be plugged into a telephone socket. Such a socket needs wiring into the domestic telephone system but in some cases the sequence of wiring can inhibit the ability of the device to make a call, i.e. where it cannot over-ride an ordinary voice call, interrupt it and dial the monitoring station. Incorrect wiring can give rise to this problem. Testing for such capability, at installation, may not have been included in the installing engineer's instructions or training. Installation engineers also need to be mindful of safety issues and to ensure, for example, that long free cables left hanging could cause tripping dangers especially for a client susceptible to falls.

One possible disadvantage is that when telecare systems are installed other informal care systems might become less effective because individuals such as family members, neighbours 'drop their guard'. Therefore any previous in place human methods of checking on vulnerable people may be suspended or become less effective.

*In spite of a history of falls, she is determined to live at home. "I could never think of moving." She has not had another fall and has never had to use the devices. However she does telephone the Monitoring Centre from time to time to make sure the devices work. She is never kept waiting and always gets a lovely response. It is just so good to know it is there.*



## ■ Chapter 4

### Evidence from research: case studies, projects and models of working

A search for reports and papers on projects and research into telecare with older people and other groups who might benefit reveals that in recent years there has been quite a lot of activity in examining the use or success of telecare, telehealth and telemedicine systems. Important sources include the CSIP Change Agent Team Website, which includes projects with SMART housing and telecare (UK). The TEIS website, also UK based, provides information on assisted technology projects. The following pages contain a short summary of a number of examples that had been selected with this study in mind with a view to deriving key lessons and pointers for the study, which are summarized at the end of this section.

#### **Safe at Home Project, Northamptonshire 2002-4**

This project provided assistive and telecare technology in the homes of people with dementia in Northamptonshire since 2000. In 2002-4, a 21-month multi-method study, using a longitudinal design and a comparator group (in Essex), concluded that the project had saved £1,504,773 over the study period, 'equivalent to £3,690 p.a. for each of the 223 people who received help from the project'. The findings show that: (1) When the rates at which people left the community and moved into residential or nursing care were compared, people in the control group were four times more likely to leave the community (and enter residential/nursing care) than Safe at Home users (2) Carers and relatives were significantly less stressed after the project had provided technology (3) The project was extremely cost effective, with people spending less time in hospital, residential or nursing care. (4) The technology was very reliable.

#### **Falls and Telecare Evaluation (FATE); 2002-3**

A project in Barnsley studying 60 older people evaluating the success of automatic fall detectors against a non-intervention control group. Outcome – Most users who wore their detectors regularly felt more confident and independent and considered that the detector improved their safety. Determining the factors that made the intervention more beneficial to some than others would be advantageous in the future.

#### **New Technology in Elderly Care project (NTEC) Hammersmith Hospitals Trust and London Boroughs of Hammersmith, Fulham and Ealing; 2003-10**

The purpose of the project was to investigate the benefits of new technology equipment for the elderly in their own homes. Video monitoring and pressure mats were successful. Falls detectors and health monitors showed promise and require further evaluation. Due to unforeseen technical difficulties, personnel issues and delays in obtaining referrals the original aims of the project have not been realised.



### **Opening Doors for Older People Initiative (Opening Doors) 1999-2003**

West Lothian Council project aimed at providing housing based alternatives to traditional residential care. It was learned that the legal agreements necessary to make the project work take a long time to develop and can be costly; the training and development associated with cultural change should not be underestimated and should be adequately resourced. Project management is critical, there is a need to plan to mainstream services from the outset if it is to be viable in the long term.

### **Guildford Falls Project (Guildford Falls); 2003-**

The project aimed to use readily available technology to prevent the morbidity associated with elderly fallers not being detected within a short period of time. Key findings included (1) The falls detectors were withdrawn as clients were not happy wearing them. (2) The bed sensors did not fit all beds. (3) Pressure mats were found to be hazardous!

### **Going Home, Staying Home; Foyle Health and Social Services Trust; funded by the Northern Ireland Housing Executive; 2005**

The aim of this study was to supply a range of assistive technology/telecare services and community telemedicine service to support older people within the Foyle Health and Social Services Trust area of Northern Ireland. The Going Home Staying Home Project was considered to be successful both in terms of service outcomes (i.e. enabling clients who wish to remain within their own homes to do so, and feel safe and independent within the comfort of their own homes) but also in terms of learning and development. By the end of the Project funded period, Fold's TeleCare service has grown to support approximately 300 households in the Foyle Trust area, far in excess of the original target of 25 installations each year for 3 years, without exceeding the original budget. This is due principally to economies of scale and tailoring of the service model.

### **Northampton Safe at Home Project – Northamptonshire County Council 2000-3**

The project aimed to explore whether the use of assistive technology can help a small group of people with dementia to remain in their own homes. The study concluded that the creation of robust local infrastructure is needed to support the use of the technology; assessment processes need to be amended to reflect the role for technology; the assessment process needs to focus on environmental as well as social contexts; detailed consideration of ethical issues is essential; Professional training is important; regular reviews are essential. Key findings have been that the technology used in the project was generally reliable and straightforward to install. Most unpaid carers thought that technology had helped to address behaviour by the person they cared for that worried them. They felt it had helped them by reducing their feelings of anxiety about the person they cared for. Half the care professionals surveyed felt that technology had helped to reduce levels of risk. There was no evidence that the technology used in the project helped service users to regain lost independence, but there was considerable evidence that the use of technology helped to maintain existing levels of independence. In comparison with a matched group of people with dementia who did not use technology, Safe at Home users tended to remain longer, on average, in their own homes.

### **Supporting Independence. New products, new practices – Tanaka Business School; 2003-7**

The project aims to evaluate packages of telecare technology in terms of their potential aid to independence and the ease with which they are deployed. To develop service and business models that integrate telecare with mainstream processes, to develop evaluation tools and to investigate the wider implications of introducing telecare systems. The research has provided important new insights into the complexity of undertaking lifestyle monitoring, as well as the problems of implementing telecare from the perspectives of individual users, social and health services, and technology suppliers. It showed that events triggering increased care needs can be identified by reviewing vital signs and lifestyle data, but patterns are not easily discernable and the predictive capabilities are not immediately apparent - a deep knowledge of the individual and how they live is needed to 'make sense of sensors'.

### **Investigating Enabling Domestic Environments for People with dementia (INDEPENDENT); 2007**

Work on this project included three areas (1) user requirement analysis (2) an iterative approach to develop and (3) implement key assistive technologies and building/design solutions and dissemination and exploitation activities. The project has delivered two specific outcomes: 1) to support monitoring of older people in their own homes and 2) a comprehensive set of guidelines for architects, Guidance to Activities in Dementia Care and a tool designed to promote activity.

### **Sandwell Telecare Project; 2005**

This project seeks to take best aspects of installations and produce a bespoke telecare service capability compatible with the single assessment process and in the context of sound multi disciplinary practice. The Sandwell project demonstrated that assistive technology electronic sensors have a role to play in supporting elderly people to continue to live independently. The project has also demonstrated that the usefulness of telecare has its limits. On its own it cannot entirely compensate for the lack of human resources to provide backup to people in crisis situations.

### **Efortt –(Ethical frameworks for telecare technologies) 2010**

The project based at the University of Lancaster is a multi-national highly ambitious project concerned with the implications of the introduction of remote care technologies worn, installed or embedded in the homes of older people. The project addresses ethical issues and will also develop deliberative approaches to the making of remote care policies at a European level. The project has conducted ethnographic research using observations, interviews and citizens panels in all four countries. Participants include technology developers/manufacturers; providers and installers of telecare devices in domestic settings; professionals and volunteers working with telecare users; telecare users and their families; retired people who may be considering future options for their own independence or care.

### **Assistive Technology For Independence (AT41) 2006**

A two year study in Barnsley led by Simon Brownsell had two key elements which were firstly to introduce assistive technology to older people living in sheltered housing, including lifestyle reassurance, an internet café, and a health monitoring station; and secondly to quantify the impact of these interventions on service users and providers. A sheltered housing scheme with 40 self contained dwellings was selected. The 'life style reassurance' package consisted of bed and chair occupancy sensors; passive infra-red (PIR) movement detectors along with door and electrical usage sensors. The security package included a front door CCTV community television network; intruder alarm; flood detectors and extreme heat detectors. The falls package included a fall detector and automatic light switch. Other specialist devices were available as needed such as a wandering client system, epilepsy bed sensor, strobe light alert and vibrating pillow alert. This study also had a control group. The enhanced community alert system appeared to be beneficial to both users and service providers. Whilst the lifestyle reassurance system demonstrated potential benefits there were also occasions where health/care incidents were not observed by the system. They suggest the *"greater attention to understanding user requirements and providing more appropriate technology. A number of issues are apparent with the present technology which does not always perform as well as might be hoped for, while more attention could be given to aesthetics and design."*

### **The role of Technology in Dementia Care 2006-8**

The study was undertaken by the University of Warwick Medical School. The researchers aimed to investigate the attitudes and beliefs of carers towards the internet and related technologies and to explore the issues to be addressed in the implementation of new technologies with this group of people. A number of barriers were identified to the implementation of technology by carers. These included fear of increased workload, increased stress and misuse, lack of awareness of what is available, lack of experience with technology and lack of confidence in using it, carer time and cost issues, scepticism of whether technology will actually help, feelings of being overwhelmed and concerns about threats to privacy and dignity. The draft recommendations from the project are: (1) There is a need to integrate technology with human services for carers. (2) There is a need to increase awareness of available technology and its potential uses. (3) Technology provision should be varied, flexible and responsive. One size does not fit all and needs change over time for individual carers. (4) Implementation must be supported; carers need help deciding what to use, learning how to use it, and with ongoing support.

### **Home Sweet Home**

Louth County Council in association with the Netwell Centre of Dundalk Institute of Technology is involved in an EU funded research exercise, which focuses on medical interventions through a telecare process. Studies are also commencing in Italy, Spain, Belgium and Denmark and will use leading edge technology to capture deterioration in health and cognitive ability. The study involves colonies of 30 participants in each country who will be measured against a similar sized colony, who will not benefit from the interventions, i.e. the research has a control group built into the design.

## The financial implications of telecare

Other studies already suggest there are significant savings where telecare is provided in conjunction with home care services. A number of examples from Department of Health (London) publication "A review of the evidence base for Telecare" published with Choose Independence (circa 2008+) illustrate the potential.

The Safe at Home project in Northamptonshire saved £1,504,773 over the study period, "equivalent to £3,690 p.a. for each of the 223 people who received help from the project".

The West Lothian project, started in 1999, has shown:

- delayed discharges reduced to 2.14 per 1,000 compared to national average of 3.48
- average stay in private care homes reduced from 36 to 18 months between 1999 and 2002
- in 2005, the average cost per person in the intervention group to the Council was £7,121, compared with a cost of £21,840 per person in long term care
- 3,400 hospital bed days were saved (full year equivalent)
- better, more efficient services provided by multi-disciplinary team service users and carers worries alleviated, contributing to better quality of life.

An analysis of 131 telecare users in North Yorkshire in September 2008 identified what the traditional care package would have been if telecare had not been available and this showed that telecare provided a saving per person of between £1,756 and £12,246, with an average annual saving of £3,600 per person.



## Conclusions and implications for the study

The above list is only a sample of a growing area of literature from which much has to be gained. The list and findings have been updated from the original work undertaken at the commencement of the study.

Drawing upon the literature the research team identified the following issues as being of relevance to the study.

- The targeted deployment of telecare systems can make a quantitative and qualitative difference in the choice of older people to remain at home, with economic advantages for services, enabling resources to be used most effectively in relation to the needs of older people.
- User requirements need to be fully understood and the telecare package designed to meet individual needs appropriately.
- Therefore, a robust system needs to be in place to assess clients for appropriate use of telecare/telehealth technology. This assessment needs to include environmental issues in the home as well as social issues.
- The technology provided must be robust and fit for purpose with any technical difficulties fully resolved.
- Falls devices have had variable effectiveness and success across some of the studies.
- The difficulty that carers clients and relatives may have, whether real or imagined, and inexperience with the technology must be recognised.
- The fears of some relatives and carers that the technology might increase their workload and responsibilities must be addressed.
- Explanations as to how the technology works and how it can support older people and carers is very important for professionals, clients, carers and relatives.
- Successful installation of the equipment, with as little going wrong as possible, is essential to good outcomes. Resources must be set aside for installation, explanation and proper training.
- There needs to be an effective local infrastructure and robust local response arrangements worked out as part of telecare developments, to ensure alerts are dealt with appropriately and in a timely fashion and that the next points of contact are clearly identified. This may link in to existing systems but individual areas will need to provide their own solutions.
- Good service management on a day-to-day basis is essential, as is the ability to respond quickly to any issue that might arise.

## ■ Chapter 5

### Brief overview of the study, the methodology and those who participated in the study

In August 2008, following a tendering process, the Health Services Executive (HSE) commissioned *People First*, an independent service and research agency focusing on the needs of older people, to undertake a study to investigate the application of telecare systems in supporting older people at home. The study was to be undertaken in partnership with the HSE and the Department of Environment, Heritage and Local Government.

A Steering Group was established to advise on the conduct of the study and to make comments and recommendations on the process and the findings. The Steering Group met during the planning stages, the fieldwork period and at the conclusion of the fieldwork.

Planning work commenced in October 2008. Key activities undertaken at this stage were the detailed design of the study, identifying the locations for the fieldwork and linking with senior HSE and Dept of Environment, Heritage and Local Government staff in the selected locations. Key HSE managers and practitioners in prospective locations were also consulted.

It was agreed by the Steering Group that the study should focus on older people who:

1. Had received a grant from the Special Housing Aid for the Elderly Scheme, or
2. Were currently in receipt of a Home Care Package.

In addition to one or both of the above, the older person should be considered to be at risk of losing their independence or in other ways to be vulnerable.

The categories of clients to be included were:

- Single and married people
- People with disabilities
- People with specific health related needs
- People living in rural and urban settings.

With the involvement of HSE staff a comprehensive assessment tool was developed which was designed to capture information about older people who might benefit from a telecare service, including whether they met the criteria for access to the project, details about their circumstances, details about any illnesses or disabilities, daily living problems, aids and appliances being used and an assessment as to the likelihood of whether the older person would need institutional care.

After a tendering exercise, Emergency Response was appointed to provide and install telecare devices and to monitor users for the duration of the study. Emergency Response were and are signatories to the Telecare Services Association (TSA) Code of Practice which at the time of the tendering process had three standards for providers of telecare. These are:

- **Part One** - Telecare Calls Handling Operational Requirements and the planning, management and operation of Telecare Response Centres.
- **Part Two** - Telecare installation operational requirement and the planning, management and installation of telecare equipment in the homes of service users.
- **Part Three** - Mobile response operational requirement and the planning, management and delivery of planned and/or emergency mobile response services.

The HSE gave a commitment to funding the installation of telecare devices from a defined range of devices that had previously been agreed. A commitment was also given to monitoring of the service by Emergency Response, including a commitment to continuing to cover monitoring costs after the end of the study.

As part of the preparatory work for the study, preliminary work commenced in the autumn of 2008, with contacts being made by the research team with managers and staff in prospective locations. Fieldwork commenced in the summer of 2009 with assessments being undertaken by HSE staff across 7 main locations, namely:

- Clare
- North Cork and West Cork
- Dublin
- Galway
- Laois/Offaly
- Louth
- Mayo

Assessments involved an initial screening to see if the person met the criteria (described above) and were otherwise capable of benefiting from the telecare system. When a prospective telecare beneficiary was identified his/her interest in the service was explored and if they were interested written consents, from the older person and his/her carers, were obtained for participation in the study. The needs assessment was then completed by HSE staff, and where relevant a recommendation made for the telecare service. This included an assessment as to whether and when the older person could need residential or a similar form of care. A referral was then made to Emergency Response which undertook a technical assessment of the older person's home and if conditions were suitable, approval for an installation of the service with appropriate devices was granted by *People First*. This process is summarised in Appendix 1.

#### **The approved list of devices were:**

- A Lifeline Connect master unit for every installation
- Pendant alarm (provided with the master unit)

#### **Optional user initiated devices**

- Key Fob
- Bogus Caller Button
- Pull Cord

#### **Optional passive/monitoring devices**

- Smoke Alarm,
- Carbon Monoxide detector
- Bed Sensor (to detect if a person is absent from bed for greater than predetermined periods – in between given times of the day)
- Chair sensor (similar to bed sensor)
- Property Exit Sensors
- Fall detector
- Extreme Heat Sensor
- Gas Detector
- PIR (passive infra-red detector intended to detect no movement)
- Flood detector

#### **Other devices**

- Where indicated provision was made for the installation of additional devices which could only be installed with additional approval of the HSE.

The first installations were made in October 2009. Installations continued up until the end of December 2010. (Activations were monitored for the purposes of the study up until the 21st January 2011.)

As part of the installation process up to three carers in respect of each service user were identified who were willing to be points of contact in the event of an alert from the user. The Emergency Response monitoring station commenced monitoring (which also included initial contacts with each user to build up confidence and familiarity with the service).

Emergency Response works to a well established protocol for monitoring and responding to alerts from users. This ranges from a conversation with the user to clarify the issue and offer advice and reassurance, to calling one of the contact carers, to calling emergency services.

Towards the end of the fieldwork, three qualitative studies were undertaken to ascertain the perspective of service users and their carers. This included:

1. A telephone poll of 21 service users
2. A telephone poll of 13 carers
3. A qualitative face-to-face in depth interview with three service users

To summarise various types of data were obtained in the course of the study. These are data about:

1. Each service user's needs, services received etc.
2. Devices installed
3. The activations made by each service user
4. The two service user qualitative studies
5. The carer qualitative study

The quantitative data from (1), (2) and (3) were compiled by HSE and Emergency Response Staff into computer databases and analysed by members of the *People First* team. The qualitative data from (4) and (5) were compiled on a database and overall conclusions drawn from responses and the comments and views of service users and carers.

### The research approach

It was decided that a single sample experimental design should be developed for this study as it was deemed that a randomized controlled trial was not feasible given the needs and circumstances of the likely participants and the time scale and associated limitations of the study. In other words it was not feasible to have a group of people who received the service and a control group, who did not, so that they might be compared. Also, there is the sensitive ethical problem of denying a service to one of the groups (i.e. the control), members of whom might benefit therefrom.

For all these reasons it was decided that a single sample experimental design should be used. The results show that the sample contained some highly atypical people and the chances of matching them in a control would have been negligible given the scope of the study.

The observational study was followed with user telephone feedback polls to, and interviews with, a sub-sample of service users and carers, as follows. The monitoring staff at Emergency Response who normally spoke to the participants conducted a telephone survey with participants and their carers. Also, a number of face-to-face extensive interviews were conducted by one of the research team. This more qualitative data, drawing on personal opinions and experiences, enabled a richer picture of the application and experience of the telecare devices and service to emerge, rather than relying on purely numerical observational data alone.



## The characteristics of the sample

Over the period of the study (October 2009-December 2010) the HSE installed the telecare service in 108 homes of users who met the criteria for the research.

Locations	Number of participants
Clare	11
North & West Cork	28
Dublin	1
Galway	22
Laois/Offaly	1
Louth	10
Roscommon	11
Mayo	10
Total	108

Figure 1

From the period of the study the research team studied nearly 37,000 user-operating days, which had resulted in nearly 2000 activations of the alarms.

The views of a sample of 21 of the 108 primary users (about 20%) were sought in a telephone follow-up. This sub-sample was broadly representative of the sample as a whole. Thirteen carers were also polled for their views and again, they reflect the wider sample.

The homes where the systems were installed are evenly split between cities or large towns (57) and more rural areas (51). All except one have only one resident using the technology in the homes concerned (i.e. in one home there were two individuals for whom the system had been installed). Taking account of partners, siblings or others living in the homes concerned, it is estimated that over 150 people were living in homes in which the system had been installed. The participants range between the ages of 60 and 98 with a mean age of 78 years and 5 months. As was to be expected the majority are women (66%).

Participants typically have considerable physical problems and report anxiety about their circumstances, or their health or disability condition or vulnerability.

As illustrated in Figure 2, most common among the medical conditions are arthritis (58%), and a history of falls (44%). Many suffer from heart disease (28%), osteoporosis (26%), or have vision (26%) or hearing (25%) difficulties. Some have diabetes (19%) or respiratory problems (19%) or have had stroke (14%).

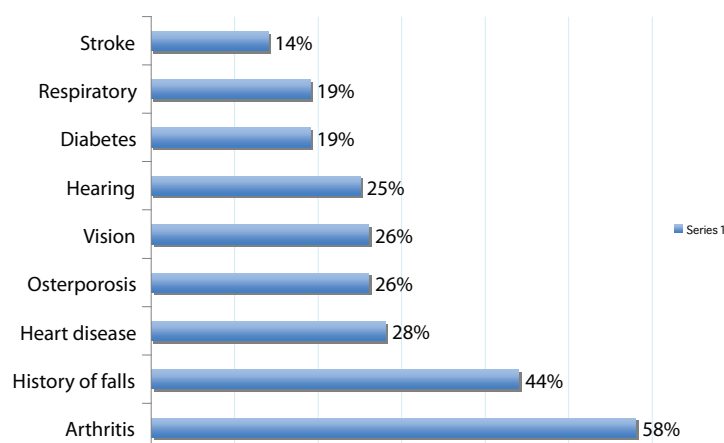


Figure 2

Most participants are being seen regularly by their GP (81%), a nurse (50%) or get home help (43%). Others get regular attention from an occupational therapist (21%), a physiotherapist (17%), or have day care (14%).

Most have limited mobility. The key findings are illustrated in Figure 3. Many find it difficult to stand for long periods (63%), or have difficulty getting out (60%). Around half experience difficulty walking short distances (52%), using a bath or shower (53%) and reaching (48%). About a third have difficulty with stairs (36%), getting in or out of bed (38%) or a chair (37%). Many need to use a variety of aids including walking sticks (40%), Zimmer frames (27%) and wheelchairs (21%). Bathing aids (30%), hoists (11%) and stair lifts (6%) are also used.

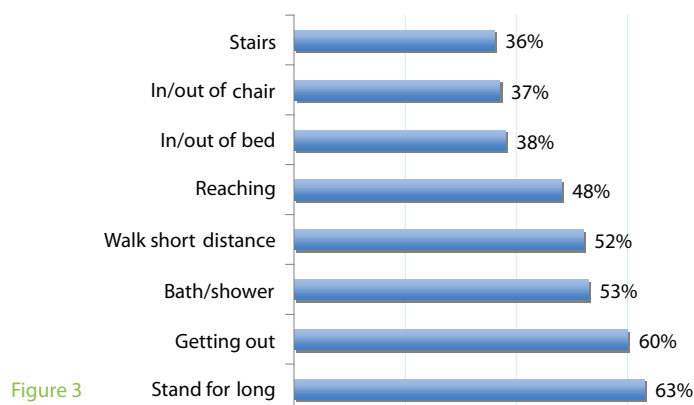


Figure 3

Many participants report concern about their condition as illustrated in Figure 4. Nearly half (43%) worry about having a medical emergency. Many are to some degree anxious about falling (66%) or about bogus callers (59%). Others worry about being burgled (54%) or a personal attack (36%), or fire (35%). Others worry about forgetting things (37%) or getting lost (13%).

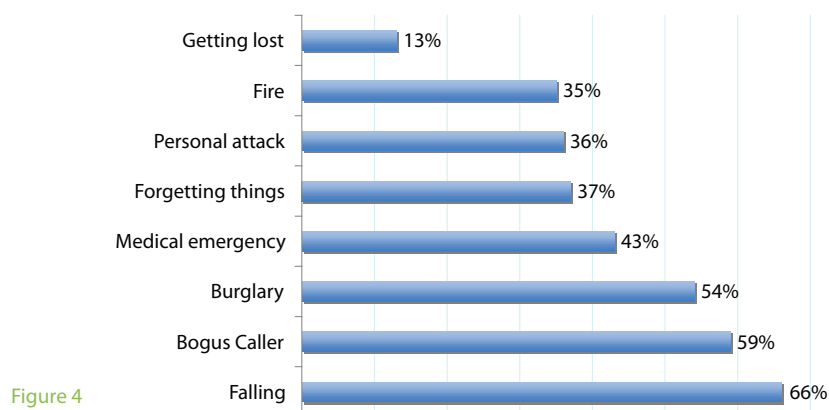


Figure 4

## The Installations

The equipment installed depends on the needs assessment done in the first instance by HSE staff and completed with a technical assessment by Emergency Response staff. Installations commenced in late October 2009 and continued until December 2010. The vast majority of participants had their system in operation for over 5 months of the study with only a very few having it for less than 2 months. Recording of alarm activations concluded after 15 months on 21st January 2011. Nearly all systems were still in use though sadly 3 people had died and 2 had left their homes for a care setting. The average length of usage by study participants was just under a year at 48 weeks.

The number of devices fitted in each home varied between 2 and 6, the average being 3.9. All the households had the pendant alert button – known as the Connect+ button - and of course the master unit, which acts as the interface between the devices in the home and the monitoring station. Of the sample, 95% had the bogus caller capability fitted. Other common devices were smoke detectors (69%), falls detectors (52%), temperature sensors (21%) and carbon monoxide (CO) sensors (15%). Smaller numbers of detectors for bed occupancy, flood and property exit were fitted. A very small number of households had extra devices such as wristbands for activating the main Connect+ line. The main results are summarized in Figure 5.

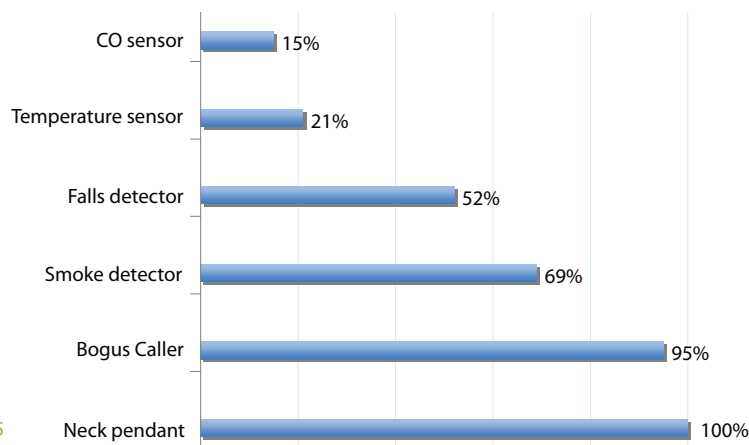
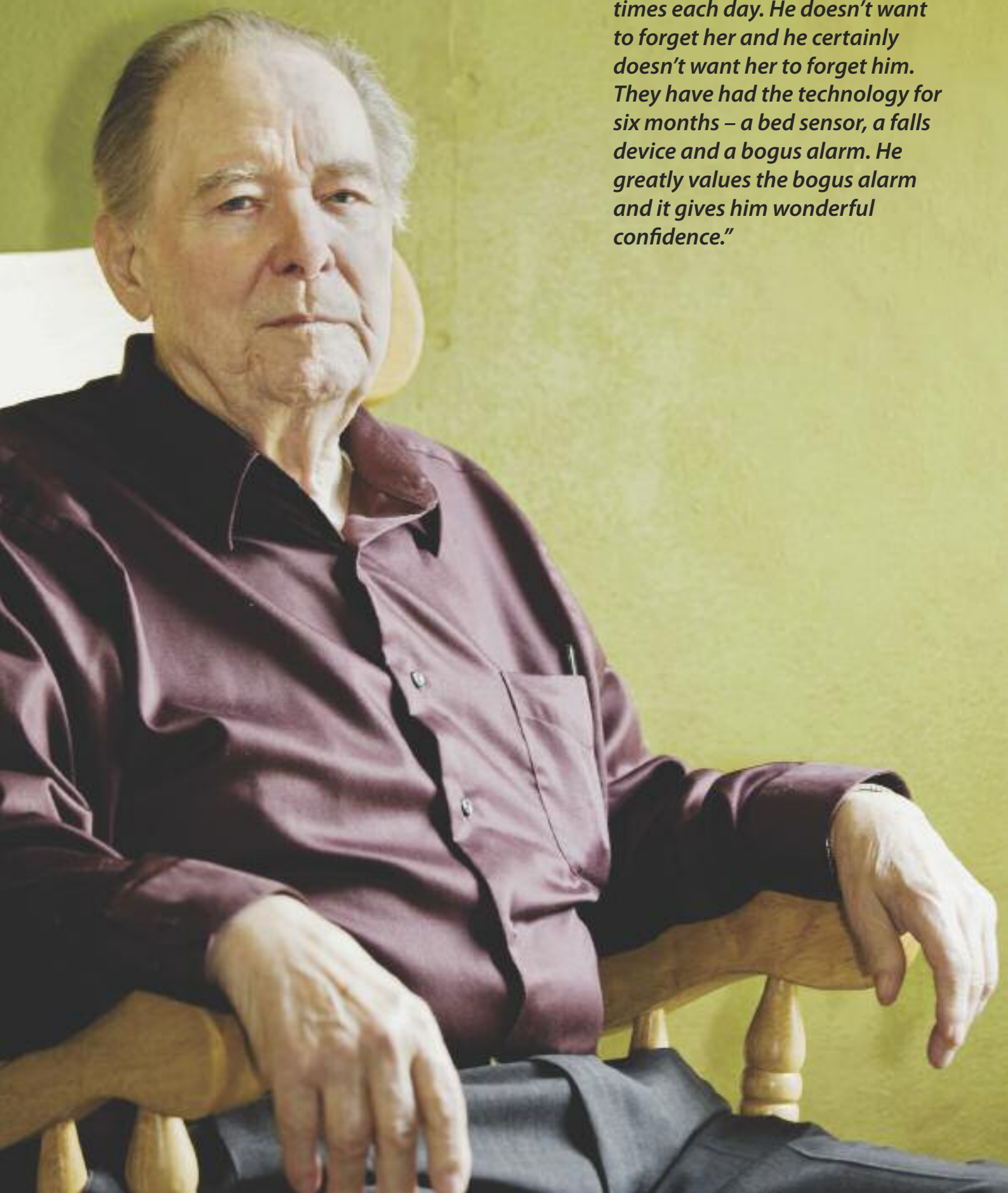


Figure 5



*"As her husband and primary carer, he is determined to keep his wife at home and has reluctantly agreed to accept respite care. When she goes to the respite he intends to visit her three or four times each day. He doesn't want to forget her and he certainly doesn't want her to forget him. They have had the technology for six months – a bed sensor, a falls device and a bogus alarm. He greatly values the bogus alarm and it gives him wonderful confidence."*

## ■ Chapter 6

### The key findings

#### The Number of Activations

The study consists of 5241 weeks of usage of the systems across the whole of the sample, generating 1961 alarm activations in which a signal was sent from a user's home to Emergency Response. An important statistic used throughout the following analysis is the average Number of Activations per Week for each participant (NAW). Overall this statistic is 0.37 or 1 activation roughly every 3 weeks.

Three participants showed unusually high usage patterns. One generated about 7 activations per week and up to 10 per day while two users generated around 2 alarms per week. If these three participants are excluded, the overall average number of activations per week (NAW) drops substantially from 0.37 to 0.29, such is their disproportionate effect. For this reason precise inferential statistics are not used in the body of the report and mostly only results where they can be detected with or without extreme cases are quoted. The highest activation cases are discussed in detail later in the report.

#### Factors influencing the number of activations of an alarm

From the data on activations, consideration was given as to whether there are particular groups of people or circumstances that seem to generate larger than average numbers of alarm activations.

##### Age and gender

There is no correlation between NAW and age.

Regarding gender, on average women (NAW=0.46) generated more activations than men (NAW=0.24). Two of the extreme cases are women, but even if they are excluded there was a similar ratio of 1.5 female alarms to every 1 male alarm.

##### Living circumstances

There appears to be slight differences if urban and rural settings are compared, or those living alone contracted with those sharing their homes. However these differences disappear if the 3 extreme cases are excluded, so these factors do not appear to be significant. There was no impact due to the types or ages of houses occupied by the participants.

##### Medical conditions

Arthritis and osteoporosis seem to be conditions likely to generate more activations. The three extreme cases make a very significant impact on many other results in this category. If they are taken into account a history of falls, respiratory problems and incontinence emerged as conditions that led to more activations.

##### Mobility

Higher levels of activations were noticeable among participants who reported difficulty walking, climbing stairs, standing, using the toilet or bath/shower or just reaching. People who make use of walking sticks, Zimmer frames or wheelchairs all generate more activations than those who do not.



### Current care

Those who receive some respite care are small in number - (8% of the sample) - but on average generate almost 5 times more activations (NAW=1.44) than those who do not use respite care (NAW=0.30). Similarly, those receiving regular physiotherapy (18%) generate about 3 times more activations (NAW=0.84) compared with those who do not (NAW=0.27). Those with regular visits from a nurse, home help or meals on wheels were all more likely to generate activations. However all these figures are influenced by the extreme cases. They are included here since, although there are no figures on this, such cases may be expected to crop up in these or similar proportions in such a sample.

### Social Issues

Is it possible that some people are simply more anxious than others and this leads to more activations? For example around 50% of the sample reported they were frightened of having a fall. This had no impact however on the number of activations; similarly when concern about bogus callers is examined, or even just having a medical emergency. None of these factors had a significant effect on the number of activations.

### Anxieties and concerns

Whilst anxieties and concerns feature much in the assessments of need it seems quite clear from a lack of matching use of the system that the provision of telecare has provided considerable reassurance, an observation reinforced in the qualitative feedback. The interpretation is, telecare reduces anxieties to a point that service users are much comforted and reassured whilst living at home and therefore do not use the system as much as might have been expected.

Also, the technology enabled, in not a few circumstances, real life choices central to clients and carers.

The findings point strongly to the beneficial impact of having telecare for those who were assessed at the outset of being anxious about their own health and wellbeing, or external threats, and who were deemed to one degree or another to be in need of care and possibly at risk of requiring residential or a similar form of alternative care. In short, telecare reduces a lot of anxieties and materially contributes to the wishes and decisions of older people to remain at home.

### Extreme cases

The overall average number of activations per week (NAW) is 0.37. All of the participants who generated more than twice this average were examined to see if there was any pattern. This is a group of 6 people (4 women and 2 men) who all had their systems for about a year. They represent about 6% of the sample and yet are responsible for over 40% of all the alarm activations.

Their average age is no different to the rest of our sample. Arthritis and a history of falls were present in 5 out of these 6 participants who were being seen regularly by both a doctor and a nurse and 3 had home help. Half were assessed as likely to need a care setting within 12 months. They had a variety of mobility problems and were mostly anxious about falling and bogus callers.

The majority of alarms generated by these people were through the Connect+ button (63%). The prolific participant generated all her 459 alarms by pressing this button. A further 23% were generated by the bed occupancy detectors which all came from 2 people who were repeatedly getting up in the night. A further 11% came from the falls detectors with which 3 of these participants were fitted. Thus although there were clearly some real and genuine alarms, most were probably from over-anxious behaviour.

## Timing of activations

The study team looked to see if there was any pattern of alarms relating to the timing of the installation. Were there, for example, more in the early weeks or perhaps after a settling in period? No such pattern was found. However it is certainly the case that alarms were often not evenly spread.

There are many cases of a participant activating an alarm more than once in a day; 10 activations in a single day, is the largest number found. Also, examples of a sequence of several consecutive days when there were activations, typically followed by a sequence of blank days, were found on a number of occasions. This suggests that the alarms are indeed being made in relation to temporary problems, as one might expect.

Variations in the number of activations diurnally were found. As might be expected the vast majority of activations occur during normal waking hours with 79% made between 6 a.m. and 9 p.m. However a significant number of activations are also generated in the very small hours with some 13% between 11 p.m. and 5 a.m. This latter group indicates a possible need for and value of a 24-hour teleHEALTHcare services – as opposed to, or in addition to, telecare.

## Frequency of use of devices

Here the extent, to which each type of device was triggered, is examined by considering the ratio of alarm activations generated by each type of device. By far the highest of these is the bed occupancy device with a ratio of 25.0 events per installed device. The next highest utilisations were the simple Connect+ button (9.4) and the falls detector (9.1). Next came passive infra-red sensors (PIRs) with a ratio of 4.3, property exit detectors (2.3) and the remainder all being 1 or less. (See Chapter 4 for a brief overview of the devices used in the study.)

## Outcomes of alarm activations

This section considers what happened after ER received each alarm. In over half the cases (59%) some reassurance was given to the client and this was sufficient. In addition there were a few other cases (2.1%) where the client was checked on and found to be alright having perhaps inadvertently set off an alarm. In other cases (3.1%) the client was volunteering some information such as returning from a period away from home. A very small number of cases involved a detector sending an alarm entirely correctly but for innocent reasons. One such example would be the smoke detector sensing a fire smoking just after the client had lighted it. Altogether this amounts to about 65% of alarm activations, which, while genuine in themselves, required no follow up action.

There are some alarm activations that can be seen as effectively generated by the system itself. These include testing and installation (5.1%) or a fault reported (4.7%). In another 15% of cases no action was deemed necessary. This was often when a mobile device such as a fall detector was known to have a low battery, which sends out an alarm. These findings are illustrated in Figure 6.

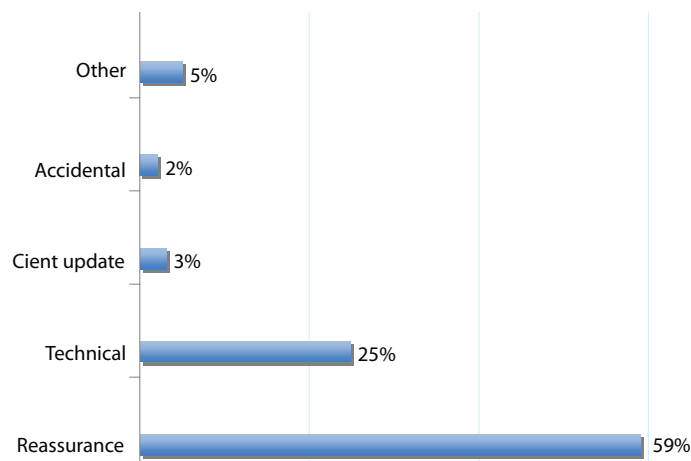


Figure 6

### Has the system extended the time people live at home?

It is not possible within the scope of this study to authoritatively answer the question as to whether or not the telecare system kept people at home for longer than might otherwise have been the case. However there are a couple of encouraging statistics. In the 436 person-months of the study only 2 out of 108 people were moved from their homes to a care setting.

This finding is significant when considered alongside the anticipated situation. In completing the needs assessment HSE staff were asked to predict whether each participant would need to be moved from his/her home to a care setting either within 6 or 12 months. There were 4 participants identified in the 6-month category and 17 in the 12-month category; 21 in all. Sadly one of the 21 died in the first month of the study.

This is a fifth of the sample and yet all remained at home at the end of the 15-month study. All of the 6-month category had exceeded 11 months at home since assessment. Nine of the 12-month category participants had exceeded their predicted maximum of 12 months at home, with 7 of them into their 15th month.

Those assessed as likely to need care within 6 months generated 2.4 times more activations (NAW=0.85 compared with the study average of 0.36), with the 12-month group generating only slightly more alarms. The data suggests two things. Firstly, given the higher level of activations, the HSE staff assessments seem pretty accurate and second, that at the very least telecare seems to be working for these more dependent groups.

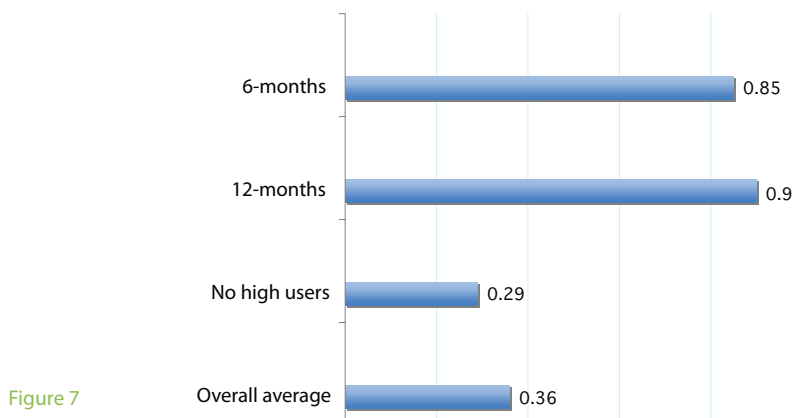


Figure 7

The Overall Average group includes all cases. The 'No High Users' excludes the three high frequency users. The 12-month group is those deemed to be in need of some form of institutional care within 12 months of the initial assessment. The 6-month group, a more needy group, is those deemed to be in need of some form of institutional care within six months of the initial assessment.

From the post-study interviews even more encouraging data is apparent. Some 71% of these more dependent participants said they felt the system had 'a lot of influence' on their decision to remain in their own homes, while another 19% felt it had 'some influence'. Over half had thought about other possibilities before they had been offered telecare. These included moving to live with a relative (29%) or a residential nursing home (19%).

## The economics of the home care choice

Policy supporting older people at home has been developed around the primary issue of choice, developments which enable people with health and social care needs to be cared for at home when previously they might have needed hospital, or nursing, or residential home care, and the recognition that it would not be financially sustainable to meet these healthcare needs in a hospital or nursing or residential care setting.

In this study, with the use of a comprehensive assessment tool, HSE staff were asked to indicate whether the older person they were assessing was at risk of admission to residential, nursing or hospital care within 6 or within 12 months. As reported above, there were 4 participants identified in the 6-month category and 17 in the 12-month category of whom 1 died in the first month of the study. All the surviving clients in the two categories remained in their own homes at the conclusion of the study (long past the assessed threshold in each case for the 6-month group and many of the 12-month group).

Taking one of the service users as an example here is a comparison of the likely costs comparisons using mean care figures.

The client had his/her telecare service installed in Jan 2010. They were assessed as likely to need institutional care within 6 months.

They remained at home for the six months and a further 6 months and at the end of the study (February 2011) were still at home. The client had been in receipt of GP care, home nursing, specialist nursing, day care, OT, physiotherapy. On the basis of annual mean costs this client's circumstances could be compared as follows.

**Table 1: Overview of costs and net first year effects (three-year net costs are shown to minimise first-year cost rebates and charges)**

	Weekly charge	Full annual charge	First 30-day reduction	Telecare first year costs <sup>3</sup>	Net first year cost	Three year costs
Lowest HSE Nursing home care weekly cost (1)	650	33,800	2,786		31,014	98,614
Highest HSE Nursing home care weekly cost (1)	2,500	130,000	10,714		119,286	379,286
Lowest private/voluntary Nursing Home weekly costs (2)	610	31,720	2,614		29,106	92,546
Highest private/voluntary Nursing Home weekly costs (2)	1,340	69,680	5,743		63,937	203,297
Lowest Home Care package (3)	100	5,200		600	5,800	16,400
Highest Home Care Package (3)	2,000	104,000		600	104,600	312,800
Average Home Care package (3)	500	26,000		600	26,600	78,800

### SOURCES

- (1) HSE Nursing Home Support Scheme Cost Of Care In Public Nursing Homes 29/7/10; <http://www.hse.ie>
- (2) Nursing Homes Support Scheme Maximum Agreed Prices With Private And Voluntary Nursing Homes 11/2/11; <http://www.hse.ie>
- (3) Health Services Executive; March 2011

<sup>3</sup> The telecare charge in Year 1 includes equipment and monitoring; after Year 1 the charge drops to €100

Decisions about alternative care options are not simply a matter of costs. For instance, availability in reasonable distances of family is likely to be an important issue. At a service level, it is also about the best use of scarce resources. There is a limit to number of residential home, nursing home and hospital places and judgements are required as to how best these resources should be used. Besides being most often the preferred choice, our own homes are an important and available resource and location for us to receive care. So, with reference to the example given above example, the findings suggest that the provision of telecare for the older person concerned contributed to the saving of over 180 nursing home care days, because they were enabled to remain at home for over six months longer than was originally assessed.

Further below Table 2 shows the comparative costs based on the overview in Table 1. The possibilities are numerous but for simplicity's sake the average, lowest and highest HCP costs are compared with the lowest and highest private/voluntary home care costs. Caution is needed in comparing options because it cannot be assumed that a high level of need being managed at home can be accommodated in a lower cost nursing home. Also, the lowest costs of nursing home care are not available widely and in every location.

**Table 2: Comparison of costs based on 6 months with an average cost home care package (HCP) and, thereafter, 6 months nursing home care**

	Lowest HCP	Average HCP	Highest HCP
12 months HCP costs with telecare (First Year costs)	5,200	26,000	104,000
6 months HCP + 6 months lowest Nursing Home care costs	16,146 (suggests more home care could be offered)	26,546	65,546 (unlikely to be an option)
6 months HCP + 6 months highest Nursing Home care costs	55,200 (unlikely to be a necessary option; more home care could be offered)	65,600	104,600

These comparisons do not take account of benefits, housing costs (including comparisons with institutional care and personal capital and running costs), and informal carer costs. A longitudinal health economics study would be required to provide a more global assessment of value of telecare.

However, on the basis of this brief analysis, the findings underpin the conclusion that services supporting older people to live at home (especially in the light of the population trends described in the strategic context) must be welcomed on both the bases of the predominant personal preference to remain at home and of costs. If the resources used to support someone at home reflect the need of the individual concerned, then the point of transfer to nursing home care is likely to be triggered by an increase in need, possibly coupled with problems in the home care package options. It would seem that telecare delays that tipping point for many users. To develop this further, the study findings suggest that besides the practical facility of aiding communication for and monitoring of vulnerable people, it is the capacity of telecare to address client (and carer) concerns and anxieties that is making the difference, and tips the client's circumstances in favour of staying at home. Therefore, subject to individual needs and circumstances, telecare would seem to be a service option that should be offered at a justifiable cost when it can provide the necessary communication and monitoring capability, and the necessary level of confidence and reassurance, for those whose needs can be sensibly accommodated at home.



The economic considerations need to be seen in the light of the personal aspirations of most older people to live at home discussed in the Strategic Context Chapter and the intangible human benefits of providing home care. To quote one of the Steering Group members, we need also to take account of "... those uncostable human benefits of contentment, safety, fulfilling one's desire and choice to be in one's own home, being able to remain with one's life partner, to live with the familiar and amongst friends and neighbours, free from anxiety and with a sense of contentment and safety." Here we can reach a view that user choice and economic realities lie in the same direction.

## Reactions to the telecare technology

Twenty-one telecare service users were consulted through a telephone survey on their experiences of the system.

Locations	Number of participants
North & West Cork	12
Dublin	1
Galway	3
Laois/Offaly	1
Louth	1
Mayo	3
Total	21

Figure 8 location of telecare service users

First, the system has been well used and liked. About 95% of the interviewed participants felt they had used the system either a bit (57%) or a lot (38%). All 100% of these participants said they had no worries about using the system and 95% said the system had become very important to them. All respondents said that the system had made a positive impact on their lives with 95% saying they felt much safer and another 5% reporting that they felt more content.

There is also an impact on the families of participants. Over a third of the interview sample said they thought their families worried about them less and 62% thought the system had made a big difference to their families.

Finally some 95.2% of the interviewed sub-sample said they would definitely recommend the system to a friend living in similar circumstances. The reminder said they probably would.

Different groups within the sample focused on different benefits of the system. For example, some focused on the peace of mind it provided.

*It has given me great peace of mind. It's like having another person in the house.*

*It allows me to stay at home, with the security of knowing help is at hand if needed.*

*I fell in November and lay on the floor for an hour and a half. I now wear the alarm all the time and know help will come quickly.*

*It's a comfort to know that help is at hand if I need it. Since I have been widowed it's a great security at night.*

*The client has been widowed and the system means she can stay at home independently. It has given her great peace of mind*

As noted before, the system supported real life choices, such as the wish to remain at home with a partner.

*We know it's there when we need it. We feel very secure with it. It allowed us to continue to stay in our own home - together.*

Others focused on the real difference it made as an alternative to higher levels of care.

*It's a huge comfort and gives me security in my own home. It allows me to be independent without having to rely on full time care.*

*The client feels she has her independence with feeling secure in the comfort of her own home, as an alternative to nursing home care.*

*The client has significant mobility problems and the system allows them to live at home with unobtrusive monitoring, instead of residential care*

Some appreciated the additional sense of safety of specific devices.

*I think the fire and smoke detector is great.*

*I am especially glad to have the CO detector and the fire alarm. I think every elderly person should have it.*

Nearly all said that the system was easy to use, one only expressing concern that her grandchild might accidentally 'set off the alarm'! The response of the monitoring staff was frequently described as helpful and friendly, which clients clearly appreciate. Whilst we might expect this to be a feature of any quality service it did seem to have real added value and importance for the older people involved in the study.

### **A note on the surveyed sub-sample**

This is a group of 21 participants who were surveyed by telephone to ask them about their experience of using the system. It would be impossible with a sample of this size to ensure absolute representation on all factors. This sub-sample is rather more tilted towards rural rather than urban homes but since this factor showed no significant effect in the main data this need not concern us. However their average age and gender distribution is very similar to the main sample and, as a group, they show very similar distributions of medical problems, social issues and existing support. Moreover, the numbers and types of IT devices fitted in their homes follow a pattern closely resembling the main sample. Their overall number of activations is also typical of the main group if the very extreme cases are removed (NAW=0.29). It seems therefore reasonable to take their responses as representative. In fact the responses to the survey are remarkably consistent within this group of 21 so there can be confidence that this sample broadly represents the experience and views of the total.

## The views of carers

Thirteen contact carers were consulted on their experiences and views.

Locations	Number of participants
North & West Cork	8
Dublin	1
Galway	1
Mayo	3
Total	13

Figure 9 Location of contact carers

Ten of the 13 carers were either a son or a daughter; 2 were neighbours. Half had been called by the system.

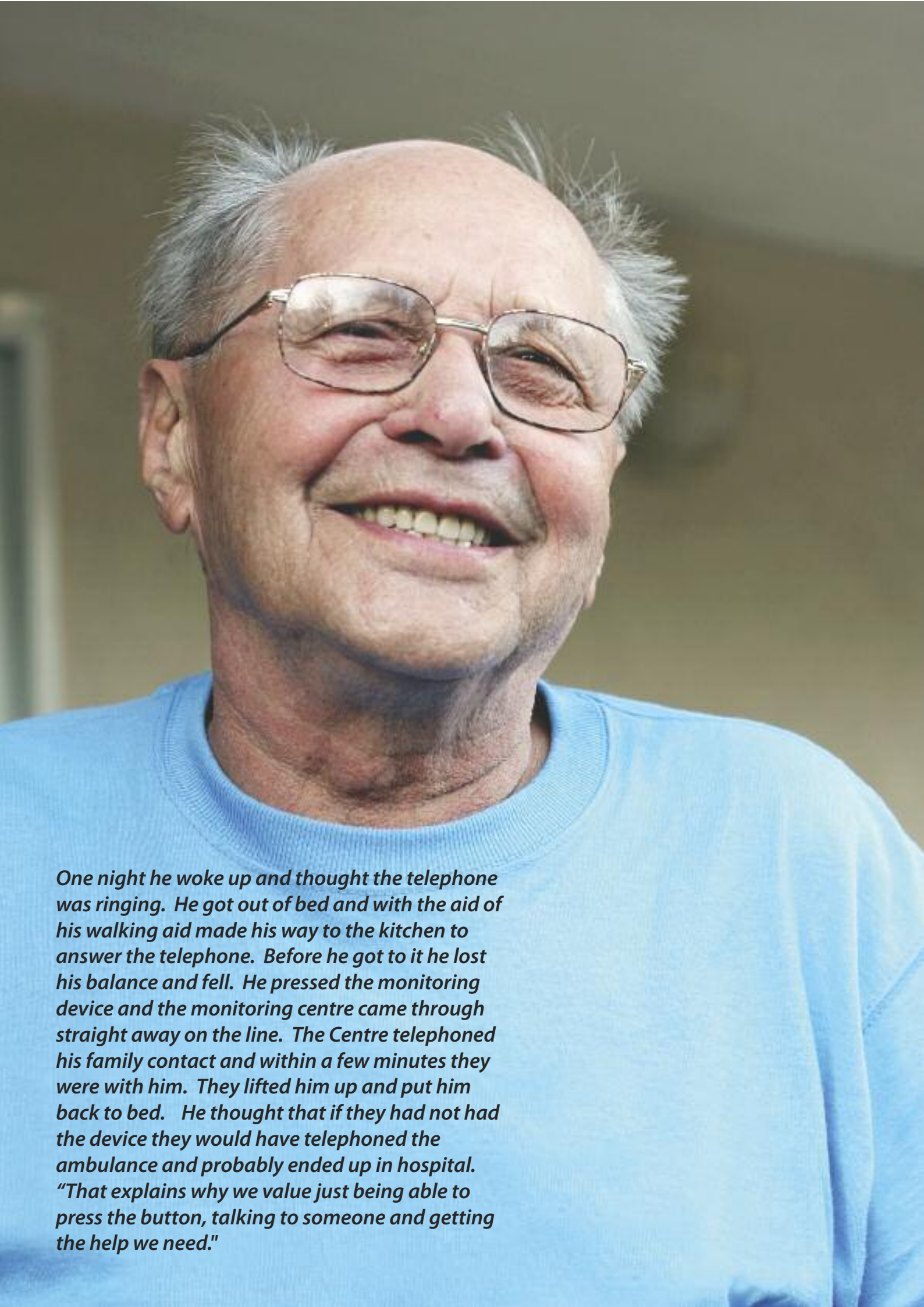
Most said that they had played a part in the decision to have the system installed (but not the two neighbours). Half had decided to have system on the recommendation of family; the other half on recommendation of HSE staff. Three quarters said the option of the system influenced the decision of their elderly parent(s) to stay at home. Nearly half of the users represented by the carers had considered other options, such as moving to live with a family member or moving to some form of institutional care.

All of the carers said they had no worries about the system. Nearly all said that their relative/neighbour felt much safer since the system was installed, the remainder reported their relatives/neighbours were more content. All said they would recommend the system to a friend in similar circumstances

Comments mirrored those of the users, examples of which are given above. Thoughts such as *"It gives the us comfort knowing they can call us in an emergency"* or *"It's peace of mind for both of us (i.e. the service user and the carer)"* were expressed by most. Also, *"The client is delighted to have the system in their home, always at her side. Her family are very content that she can remain independent."*

Relief at the monitoring of risk was expressed such as *"I'm glad to have the 24-hour monitoring of fire risk and bogus callers."*

The sense of contentment of carers being able to go about their daily business with a lessened sense of concern, knowing they could be called in an emergency if needed, was also expressed.



*One night he woke up and thought the telephone was ringing. He got out of bed and with the aid of his walking aid made his way to the kitchen to answer the telephone. Before he got to it he lost his balance and fell. He pressed the monitoring device and the monitoring centre came through straight away on the line. The Centre telephoned his family contact and within a few minutes they were with him. They lifted him up and put him back to bed. He thought that if they had not had the device they would have telephoned the ambulance and probably ended up in hospital. "That explains why we value just being able to press the button, talking to someone and getting the help we need."*

## ■ Chapter 7

### Summary of conclusions

This study has sought to investigate the application of telecare systems in supporting older people at home. A number of key conclusions emerge from the findings. These include:

- 1) Telecare system are effective in supporting older people with significant needs to remain at home, even when they were otherwise assessed as being in need of residential or similar forms of care.
- 2) Telecare is a substantive component of home care services.
- 3) The assessments by HSE staff ensured that the telecare installations were targeted at the most relevant group of clients. The benefits of telecare systems are maximised when provided on the basis of a telecare focussed comprehensive needs assessment and appropriately targeted at those who are likely to benefit.
- 4) The usage by the most needy and high-risk clients reflected the level of dependency described in the assessments undertaken by HSE staff. Usage of the telecare system was highest amongst those who had chronic, painful and disabling physical health conditions and those who had mobility problems - when those who used it a lot for reassurance are excluded from activation data.
- 5) The assurance and confidence offered by telecare made a considerable contribution to the decision of the older people who took part in the study, to remain at home, even though they had considered other options, most notably, moving to live with a family member, or to a nursing home.
- 6) Telecare makes a substantive contribution to the choice of older people to remain at home chiefly by (1) providing appropriate and dependable communication and monitoring devices and systems, (2) effectively addressing the anxieties and concerns older people may have about living at home, and (3) providing an effective and reliable communication service and reassurance to carers.
- 7) Telecare services need to be able to address a wide range of user requirements in terms of usage.
- 8) By supporting clients' preferences to remain at home, telecare is likely to contribute to the appropriate use of limited and specialist resources and support the most effective use of finances.
- 9) Telecare is considered by users and carers to be easy to use and is well received.
- 10) The success of telecare relies upon effective and reliable devices, a competent telecare monitoring and response service (with effective protocols) and effective arrangements for the technical assessment of clients' homes, installation, maintenance and support.



## ■ Chapter 8

### Recommendations

The findings and conclusion of the study point to a number of recommendations. These include:

1. Telecare should be regarded as a substantive ingredient of home care services especially for people with high levels of need and those who are assessed as likely to need residential or similar forms of care.
2. The HSE and the Department of Environment, Heritage and Local Government should further develop assessment arrangements and facilities to support the deployment of telecare care services that will support dependent persons.
3. Telecare should be provided subject to a comprehensive assessment of need.
4. Clients and their carers who wish to have telcare, and staff working in relevant public services should receive adequate explanation, training and support in the telecare devices and system.
5. Further to consideration by the relevant authorities and bodies, planning and building standards should include provision for the future installation of telecare devices in domestic homes, e.g. the provision of a double electric power socket adjacent to telephone sockets.
6. Telecare services should be commissioned from organisations capable of delivering:
  - a. Effective and reliable devices;
  - b. Effective arrangements for the technical assessment of homes and clients' needs, installation, maintenance and support;
  - c. Competent telecare monitoring and response protocols and services.
7. The HSE, with the Department of Environment, Heritage and Local Government, should assess the added benefit of teleHEALTH and telemedicine services for people with more marked health related needs.
8. Further research and follow up would build upon this study and enable some of the longer term and economic issues to be assessed more comprehensively.

## Appendix 1

### Home Solutions

#### Flow chart

#### Identification of older people

To be identified by each research location

#### Screening

Using **Home Solutions Screening Form**

Copy to be retained for the research team

#### Obtain consent

Using **Home Solutions Consent Form**

Copy to be retained with older person's records

#### Needs Assessment

Using **Home Solutions Needs Assessment Form**

Copy to be retained for the research team

#### Technical assessment

To be undertaken by Emergency Response

#### Installation of equipment and monitoring arrangements

To be undertaken by the Emergency Response in conjunction with health or social care staff

#### End of study evaluation

Using **Home Solutions Qualitative Study Form**

## Useful references

### **“A Virtual Care Village Model” Guide; 2005-8**

This guide to be found on the DH Housing Learning and Improvement Network site. It draws on the experience of Cumbria Social Services who developed a strategy to implement Telecare services across the County as part of the remodelling of community support services. The programme was comprised of an integration of care and support services of which telecare was one component.

(Source: <http://www.dhcarenetworks.org.uk/>)

### **A review of the evidence base for Telecare Department of Health (London) with Choose Independence (Circa 2008+)**



