South West Surrey Safe at Home

Project Evaluation

Report

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Executive Summary

Background

Announcing an £80 million 'Preventative Technologies Grant' (PTG) for local authorities in England in 2006-7, the Department of Health aims to support more older people to remain independent at home, reducing hospital admissions and improving quality of life for older people and their informal carers. This aims to lead to a positive effect on the maintenance of health while preserving the independence of older people and a reduced burden of care on their relatives (Bowes 2006).

What we did

This exploratory study, commissioned by the Guildford and Waverley Borough Councils and conducted by the University of Surrey, examined the process of implementing six 'pilot' telecare projects across these boroughs in an attempt to identify good practice and learn from the experience prior to the implementation of Phase 2 of the PTG. We utilized a multi-method approach to evaluate how the process worked, and to determine users', carers' and staff's perspective and their experiences. The six pilot telecare projects were:

1. Hospital discharge
2. Monitored smoke detectors
3. Passive falls monitoring
4. Prescription compliance and dementia support scheme
5. Dementia monitoring in enhanced extra care schemes
6. Monitoring for Chronic Obstructive Pulmonary Disease

What we found

The Guildford Borough Council's Central Emergency Communications Service (CECS) played a pivotal role in the main thrust of the implementation of the pilot projects. The investment in appointing a telecare administrator was crucial in maintaining open communication and facilitating cross referrals between projects.

During the implementation period, several initiatives were taken to provide training and information about the respective schemes offered by the projects. The setting up of a training suite at the Japonica residential facility demonstrated how important it is to have a 'demonstration' site for frontline staff from various disciplines to become familiar with telecare equipment.

A telecare referral document was developed and is freely available for users and professional groups. This document offers useful information about the range of equipment available, costs, referral processes and contact details.

Project leads were very committed to the implementation of the use of telecare and were enthusiastic about the importance and value of telecare in their respective areas. Our focus groups with project leads at the outset of the implementation period identified several key challenges; these varied depending on the nature of the project and the type of telecare service to be introduced. There were concerns about the timing of the implementation not always being matched by the availability of the telecare equipment, and that the 'rush' to introduce telecare was sometimes complicated by the referrals made. Furthermore, the identification of users suitable to use telecare was perceived as another challenge alongside the anticipated changes in practice owing to the perceived increase demand in their workload. They identified the need for more training and more diverse types of training, the need for more publicity and promotion of telecare, the need to improve referral processes and the need for fuller engagement with other professional groups.

Our survey of 120 users yielded a response rate of 28%. Fourteen males and fifteen females in the sample participated. Their ages ranged between 47 and 95 years with a median age of 83 years. Although our sample was drawn mainly from the hospital discharge project, it is interesting to note that as many people found out about telecare services from personal contact with family, friends or other users as they had from a healthcare professional. Decisions on whether to use telecare were mostly made in conjunction with others such as family or healthcare professionals.

Having peace of mind, getting help quickly, safety, less fear of falling and increased confidence living alone were seen as major benefits of telecare. The free trial was not seen as a major benefit by most who would consider paying for the service after the end

of the trial period. When asked if they would choose to use telecare again, 89% reported that they would choose to use the equipment again. Where training on the use of telecare equipment was concerned, 91% thought they had had sufficient training.

Users and carers were very positive about telecare. They rated their experience with telecare equipment very highly. They found that the equipment was easy to use and felt confident using it and were satisfied with the equipment. Some concerns were expressed about people's reactions to the appearance of the telecare equipment. 71% of respondents found the appearance good although negative comments revolved around the bulkiness of the equipment (8.3%) and the appearance of the pendant (8.3%) which some people did not like. No problems with the equipment were reported by 93%. Those who did experience problems reported having a 'fault a few days after they were fitted' which was resolved when a replacement was made the following day.

Seventeen users and five carers participated in interviews which took place in their own home at a mutually convenient time. Users and carers were asked about the length of time they or their relative had the telecare equipment(s) in place. It was found that telecare device(s) were reported to have been in use for one week to a year. Sources of referral were identified by participants and/or their carers to include professional groups both in primary and secondary care; this suggests that the message of telecare availability might be getting through to other professional groups. Our interview data also supports the findings of our survey findings regarding the benefits of telecare. Users and carers found the use of telecare devices provided reassurance and enabled them to remain at home. It was also perceived that being cared for at home relieved the demand for nursing beds in hospital.

Where installation of devices was concerned, users and carers did not perceive this as problematic. While some found the devices easy to learn to use, others had concerns such as changing the battery of their smoke alarm or having hearing impairment that meant they could not hear an alarm activation. Nonetheless, the majority of users found the technical support adequate and were satisfied with it.

Where the management of people with COPD was concerned, the monitoring equipment was found to be problematic. It was found to be difficult for patients to use and it

generated unreliable data. This posed a major problem for the COPD team. Despite these problems patients were positive about the experience having felt reassured and confident. This is a useful indication of the potential benefits of remote monitoring for long term conditions such as COPD. Staff believed that the pilot project provided a firm basis for planning future remote monitoring services.

Findings from 33 case stories provided by the six project leads indicated that the majority of staff perceived that telecare supported users to live independently and identified its usefulness in the rehabilitation of their users. In several cases, staff considered increased safety and security were closely linked with maintaining independence and users having some control over their own life. Three project leads reported that telecare was instrumental in the early detection of any potential health problems. The benefits of telecare to informal carers such as giving them 'peace of mind' were also identified in the case stories. Enhancing relationships with their users was also seen as a positive aspect of telecare service. Although these case stories demonstrate generally that users and their family understood the purpose of having telecare, the need for clarification to enhance acceptability and compliance was also identified.

Our analysis of call centre data indicated that the highest mean number of calls per client was for the proactive calling project with an average of 215 calls per client. This was expected as the nature of this project meant that calling people to remind them to take their medication was part of the service. There was an average of 13.5 incoming calls and 21 outgoing calls per client. The mean number of calls was relatively low for the falls, COPD and hospital discharge projects. Incoming calls for COPD and dementia projects were mostly of a personal nature. Outgoing call numbers were low except for the proactive calling project.

The aim of the staff survey was to ascertain the experiences of frontline staff who were engaged in providing telecare. Twenty-one people completed the email survey and eight completed the postal survey making a total sample of 29. Staff were only slightly positive about the process of implementation of telecare in Guildford and Waverley. Despite many staff not receiving formal training on telecare, there were high rates of satisfaction with the training staff. Particular problems concerning the use of telecare were identified; these included lack of information about telecare, lack of training and lack of referrals. Telecare

was reported to have both positive and negative effects on relationships with clients; the positive effect included being able to offer clients more choices and better continuity of care while negative effects included the creation of negative feelings if clients were not receptive to telecare.

A number of recommendations for improving the delivery of telecare services were made:

1. **Training.** Review and improve training.
2. **Publicise telecare widely.**
3. **Referrals.** Improve the referral process and ensure there are clear guidelines.
4. **Reliability and usability of equipment.** Develop systems for reporting device problems and for formalising device assessment prior during the procurement process.
5. **Sustainability.** Consideration should be given to how telecare can be integrated into mainstream care and funded to ensure that it is sustainable.
6. **Call Centre Data.** Consideration should be given to introducing systems to capture and easily analyse call centre data. This would facilitate research into the benefits, costs and difficulties associated with telecare.

Table of Contents

List of Tables

List of Figures

1.   Introduction

Surrey County Council received funding for 2006/2007 from the Department of Health's Preventative Technology Grant and invited Area Management Teams to develop proposals for funding. The South West Surrey Safe at Home project was established following a successful bid for funding of six projects to implement telecare in South West Surrey. The overall aims of the six projects were to:

1. Develop infrastructure to support the implementation of telecare across Surrey.
2. Explore the potential of telecare to enable vulnerable adults to live independently at home.
3. Explore the potential of telecare to monitor chronic conditions and enhance communication between service users and professionals.

The project therefore aimed to extend telecare beyond the traditional user groups of older people and residents in supported housing to include people with sensory and cognitive impairments, those at risk of falls and those with chronic conditions such as Chronic Obstructive Pulmonary Disease (COPD). The project started in August, 2007, however project teams were not established until September, 2007 and then needed to develop implementation plans. It was some time after September 2007 that the first equipment was installed. The University of Surrey was engaged to conduct an evaluation of the outcomes of the project.

1.1.   Project governance

The project was established with a clear management structure. A South West Surrey Preventative Technology Group Board was established with responsibility to the Surrey County Council Operations Group for the direction and monitoring of the project. Membership of the Board included officers from Guildford and Waverley Primary Care Trust, Surrey County Council, and Guildford and Waverley Borough Councils. The Board was responsible for the procurement of equipment and the provision of training. A steering group was also established consisting of

representatives from Guildford Borough Council, Waverley Borough Council, University of Surrey, Guildford and Waverley PCT and a finance officer.

Project groups with designated project leads were established for each of the six telecare projects being implemented. The groups reported directly to the Board via regular reports and meetings. A budget was provided for each project lead and they were given a briefing document outlining

- The aims of their projects
- The outcomes to be delivered
- The time scale of the project
- Responsibilities, including monthly reports and budgets
- Monitoring and evaluation
- Procurement
- Training

1.2.   Project groups

1.2.1.   Passive Falls Monitoring Scheme

The aim of the Falls Monitoring project group was, within the budget provided, to provide an appropriate falls monitoring package - alarm unit and pendant, bed occupancy sensor and two movement detectors (PIRs) – to clients identified as being at serious risk of a fall. Potential referrers include care managers, community nurses, GP's, hospital falls teams and the ambulance service.

The range of equipment provided should monitor daytime falls and inactivity and also cover risks from falls overnight. The project aimed to provide equipment and monitoring services for a maximum of twenty clients.

1.2.2.   Hospital Discharge Scheme

The aim of the Hospital Discharge project was, to provide an alarm unit and pendant free of charge to clients for a period of twelve weeks on discharge from hospital.

Additional sensors were also provided, such as bed occupancy sensors, smoke detectors etc. It was anticipated that referrals will come from hospital discharge teams at Royal Surrey County Hospital (RSCH), Frimley Park Hospital, and community hospitals. Installations will be carried out by Guildford Borough Council (GBC) or Waverley Borough Council (WBC).

After the twelve week trial period, the normal weekly fee becomes payable. There is no obligation to keep the alarm after the free period and it will be removed at no cost to the user. This scheme will provide 50 all alarm units and pendants – 25 in Guildford and 25 in Waverley.

Experience in the Boroughs and Districts in North Surrey already participating in a similar project has shown that an alarm unit is the necessary level of input in the majority of cases, and will support hospital discharges by reducing perceived risk in the home, and in many cases will reduce the length of stay in hospital.

1.2.3.   Prescription Compliance and Dementia Support Scheme

The aim of the project group was, within the budget provided, to prepare, and subsequently manage, a plan to provide pro-active call-outs from the Alarm Receiving Centre, to up to thirty clients with a cognitive disability, to assist them with medication compliance in their own homes. Potential referrers included care managers, community nurses, GP's, Community Psychiatric Nurses and other PTG project leads.

The project should also identify, where appropriate, clients who would also benefit from the provision of telecare technology, e.g. monitored medication reminders/medicine dispensers for this purpose.

1.2.4. Monitored Smoke Detectors Scheme

The aim of the project was to prepare, and subsequently manage, a plan to provide smoke detectors in the homes of vulnerable people living in the Guildford, Waverley and Woking Borough Council areas. Referrals were invited from families, care managers and carers, community nurses, GP's and Practice managers, voluntary agencies and Surrey Fire and Rescue Services.

Installation and maintenance was carried out either by the respective Borough Councils or in conjunction with the Fire Safety inspections by Surrey Fire and Rescue Services.

1.2.5. Dementia Monitoring In Enhanced Extra Care Schemes

The aim was to provide bed occupancy sensors and door exit sensors to monitor dementia sufferers in four Enhanced Extra Care Schemes. The project's underlying principles were to enable older people to retain independence for as long as possible, to promote choice of service provision, to develop innovative services in partnership with other agencies and to reduce the purchase of long term placements in residential care. It is envisaged that the development of enhanced care at Riverside and Faulkner Court will provide a useful model to extend to other areas. Within these schemes a project implementation structure was set up to include membership from the Project Manager, Assistant Operational manager from Waverly Social Care Team, Home Care Manager, Sheltered Housing Manager and Modern Matrons.

1.2.6. Extension to the COPD at Home Tele-Medicine Project

A joint partnership between Surrey County Council, Guildford and Waverley Borough Councils, and Guildford and Waverley Primary Care Trust, already exists to

provide Tunstall Safe 21 Telemedicine monitoring units in the homes of people with COPD, to evaluate the efficacy of the equipment, and assess the contribution that the equipment can make to clients managing their condition at home, wherever possible. The Safe 21 monitoring unit allows patients to take measurements of their vital signs at home. The information is then transmitted to a monitoring centre and a healthcare professional is alerted if the measurements are outside pre-determined safe limits.

The PTG grant will enable the purchase of three additional monitors to supplement the project already in existence.

1.3.   *Call centre co-ordination*

The Guildford Borough Council's Central Emergency Communications Service (CECS) played a key role in liaising with the project teams and the service users and referrers. However, in many of the early project team meetings the need for extra co-ordination and support was identified. In response the Board appointed a telecare administrator who commenced in December 2006. This role is crucial in co-ordinating the activities of the project groups and has been pivotal in ensuring open communication and facilitating cross referrals between projects.

1.4.   *Training and communication*

Several initiatives were taken to provide training and information about the scheme. A training suite was been set up at the Japonica residential facility containing many items of telecare equipment. Training days for all scheme workers were held at the suite so that people could become familiar with the equipment and the suite is still available for training use and demonstrations.

In addition, a telecare referral document was written. This is freely available and contains information about the equipment and schemes available, costs, referral processes, a referral form and contact details. A presentation about the scheme was also made at the Surrey Telecare Seminar on 25th January, 2007.

1.5.   Evaluation project aims

The aims of the evaluation were to:

1. Assess user satisfaction. The bid document outlined a possible assessment strategy: A survey and telephone interview assess user satisfaction and interviews to uncover perceptions of monitoring devices, evaluation of the service, compliance, advantages and barriers.

2. Analyse alarm activations by service type, user profiles.

3. To assess the process of implementing the projects and how work practices and patterns of interaction were changed by the introduction of the technology. The aim was to identify areas of success and good practice and problems in implementing the technology.

1.6.   Evaluation project timeframe

Although the Preventative Technology Grant runs from March 2006 to March 2007 the funds were not available until July 2006 and due to the requirement to set up project teams the projects did not commence until September 2006. Consequently there were not enough participants in the projects by March 2007 to conduct the evaluation. Therefore, it was agreed that the evaluation for Year 1 should be conducted until the end of September 2007.

2. User satisfaction

User satisfaction was assessed using questionnaires and semi structured interviews.

2.1. Questionnaires

2.1.1. Sample

Surveys were sent to all of the 120 people who had received telecare equipment under the PTG by June 2007. The following table indicates how many questionnaires were sent for each project and how many completed surveys were received for each project.

Table 1 Number of respondents for each project

Project	Number sent	Number of completed questionnaires returned
COPD	6	5
Falls	9	3
Proactive calling	21	2
Smoke alarms	9	5
Hospital discharge	75	19
Total	120	34

In addition, surveys were sent to home care managers, home based care team leaders, scheme managers and their deputies and care assistants at the homes where the dementia project was implemented. Despite issuing reminders, no completed questionnaires were received from this project. Thirty four completed surveys were received, indicating a response rate of 28%.

There were 14 males and 15 females in the sample (48% males, 52% females). Their ages ranged between 47 and 95 years with a median age of 83 years.

2.1.2.　　Procedure

Questionnaires were designed to address the following important aspects of the users' experience: how and why they made the decision to use telecare, their experience of using the equipment and their satisfaction with the service. Questionnaires were drafted and submitted to the co-ordinators' group for review. After their suggestions had been incorporated the questionnaires were submitted to the University of Surrey Ethics Committee and received approval. Questionnaires were then distributed by mail to users.

The questionnaires contained a mix of question formats. There were open ended questions, Likert rating scales and closed questions that required a yes/no answer. Open ended questions were analysed and the responses were classified and coded so that group data could be reported. Open ended responses from some questions were also used in their raw form to illustrate particular points made by the respondents.

2.1.3.　　Results

2.1.4.　　Decision to use telecare

The survey asked people how they found out about telecare services. As can be seen from Figure 1 the sources of information varied with the largest group of people finding out about it in hospital. This is indicative of the fact that our sample was drawn mainly from the hospital discharge project. It is interesting to note that as many people found out about it from personal contact with family, friends or other users as found out about it from a healthcare professional.

How did you find out about the telecare service? (n=27)

Figure values:
- Family/personal contact: 22.2
- Healthcare prof: 22.2
- Hospital: 29.6
- Age Concern: 7.4
- Social services: 11.1
- Written information: 7.4

(X-axis: Source; Y-axis: Percentage)
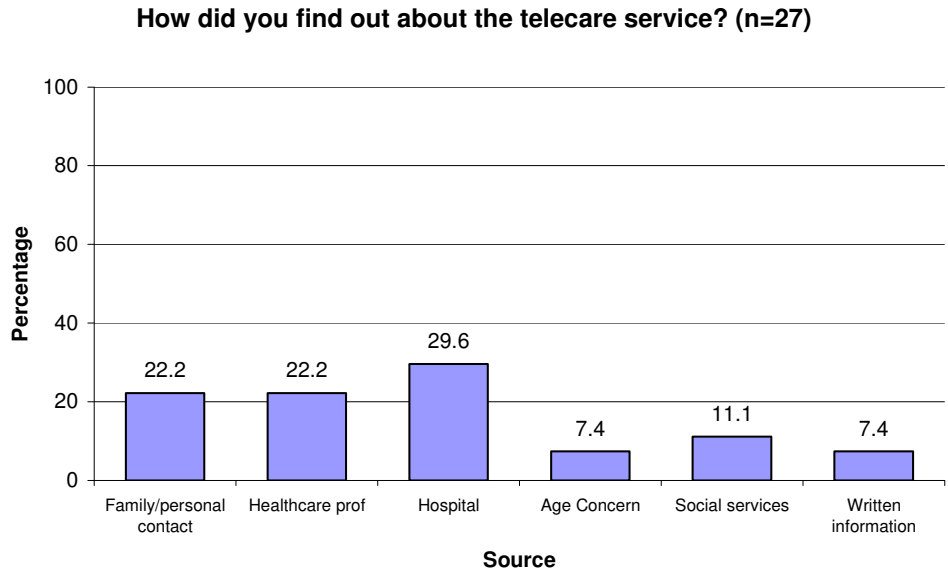
Figure 1. Sources of information about telecare

Figure 2 shows who was involved in the decision to get the telecare services. As can be seen, only a small percentage of the sample made the decision themselves, but a larger number made the decision in conjunction with others such as family or healthcare professionals. Family members made the decision for 22% of people and healthcare professionals in 18.5% of cases.

Who was involved in the making the decision to get the telecare services? (n=27)
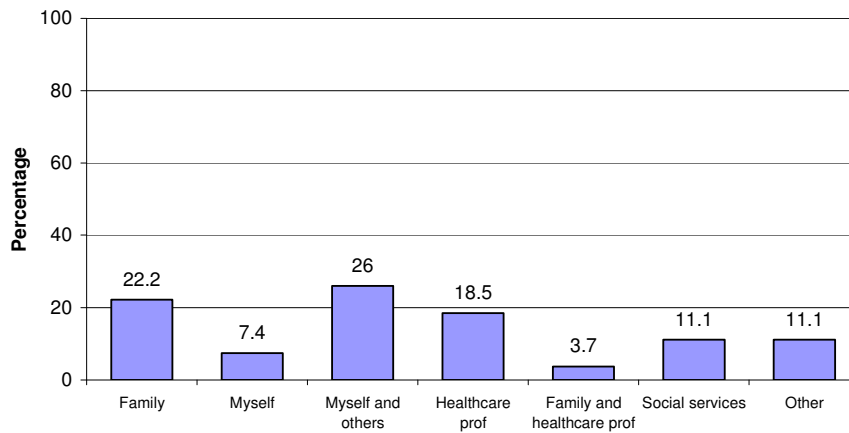
Figure 2 People involved in the decision to get telecare.

Participants were asked what they were hoping the benefits of telecare would be and the results are shown in Figure 3. Getting help quickly was the major potential benefit with peace of mind second. Only a small percentage of respondents mentioned independence and a number of people mentioned benefits associated with particular projects, such as assistance if they have fallen and early warning in the case of a fire.

What were you hoping the benefits would be? (n=26)
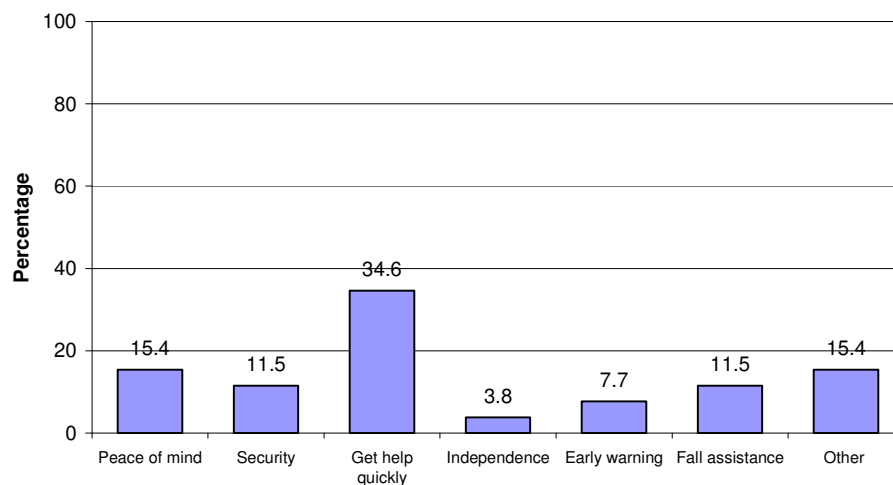
Figure 3. Potential benefits of telecare.

2.1.5.   Experience using telecare equipment

There were a number of questions that used a 5 point Likert scale to assess people's experiences of using telecare equipment. Their responses to each of the questions were averaged and are presented in Figure 4. As can be seen, participants rated their experience with the telecare equipment very highly. They felt that the equipment was easy to use, they felt confident using it and they were satisfied with the equipment. It also led them to feel reassured about their safety, more independent, safer and they experience improved quality of life.

Experience of having the equipment

Note:
1 = "Strongly disagree"
5 = "Strongly agree"
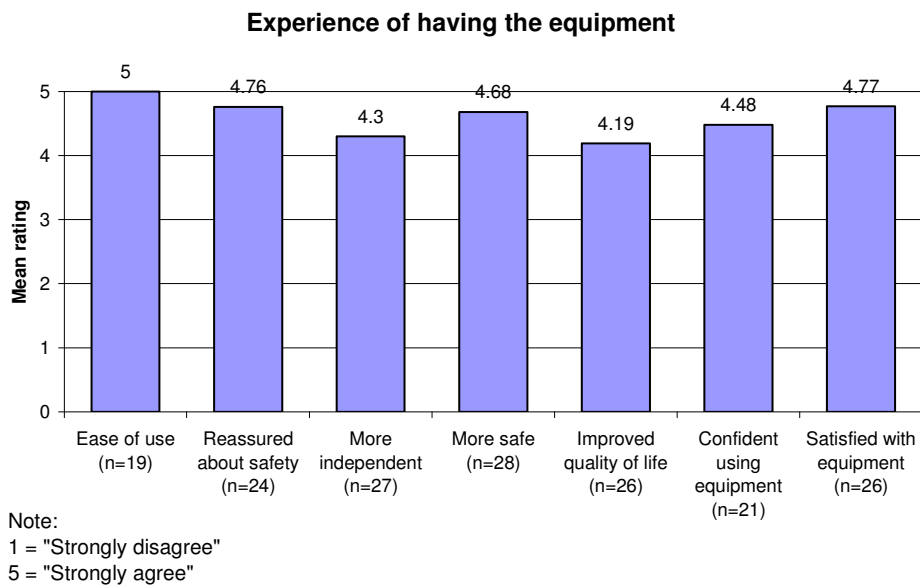
Figure 4. Users' experience of using telecare equipment.

Some concerns have been expressed about people's reactions to the appearance of telecare equipment so the survey asked people to describe their reactions to the appearance of the equipment. As can be seen from Figure 5 71% of respondents found the appearance good. Negative comments revolved around the bulkiness of the equipment (8.3%) and the appearance of the pendant (8.3%) which some people did not like.

How did you feel about the look of the equipment? (n=24)
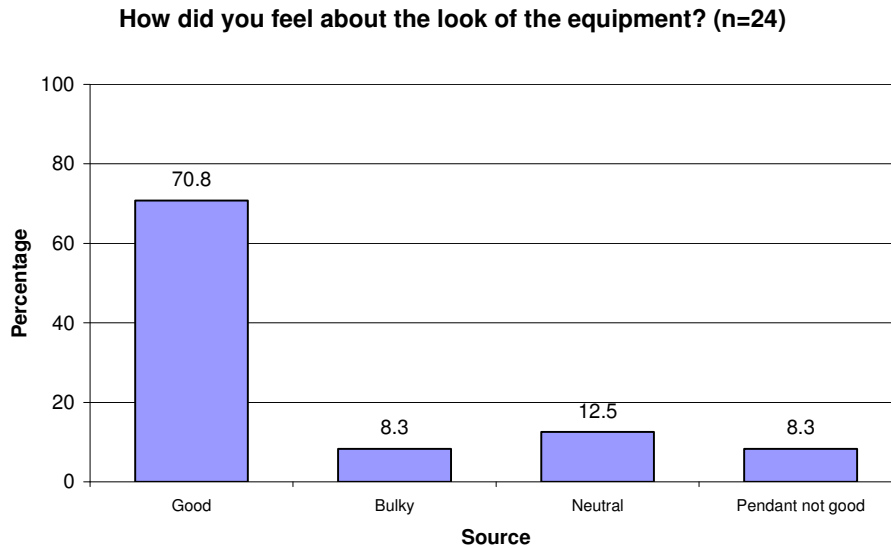
Figure 5. Users' reactions to the appearance of telecare equipment.

Ninety three percent of respondents reported that they did not have any problems with the equipment. Of those who did have problems, the following comments were made: "One had a fault a few days after they were fitted. It went off at 11 at night until 1 in the morning. The engineer came and stopped it. They replaced it next day been fine since."

"Remembering to put it on in the garden always."

2.1.6.   Experience of using the service

Participants were asked what were the main benefits of using the telecare service. Respondents could choose more than one response for this question. The results are shown in Figure 6. It can be seen that the free trial was not seen as a major benefit by very many people, however peace of mind, getting help quickly, safety, less fear of falling and increased confidence living alone were seen as major benefits of telecare.

What were the main benefits
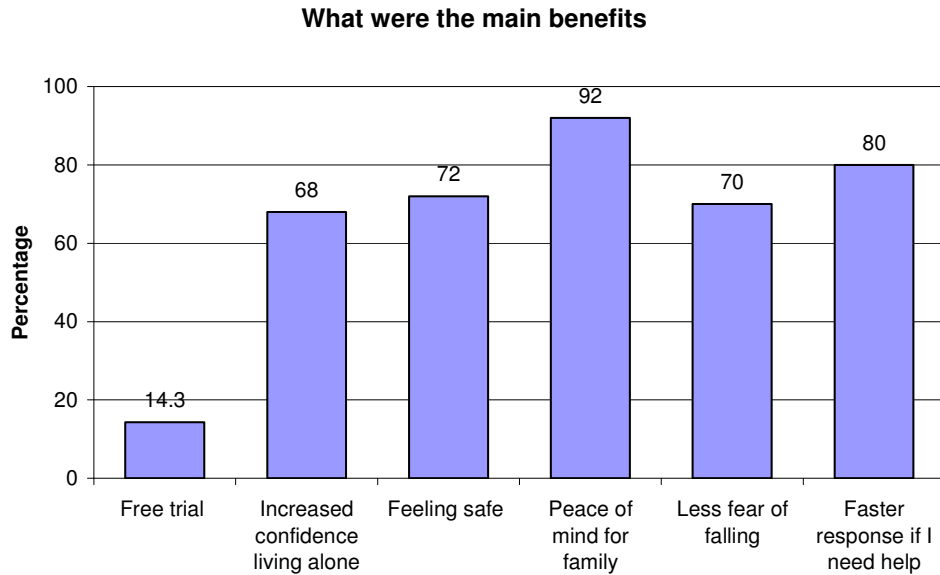
Figure 6. Benefits of telecare for users.

As shown in Figure 7 most people would consider paying for the service after the end of the trial period. However, cost was still an issue for some people. Some respondents made comments about the cost and possibility of paying for the service in the future.

"Depends on the cost."

"Having served in Coventry all his life, the government should support disabled people who have paid into the system all their lives."

"If affordable."

"If necessary."

"If not too expensive."

"If I had the funds."

Would you consider paying for the service after the free trial period? (n=28)
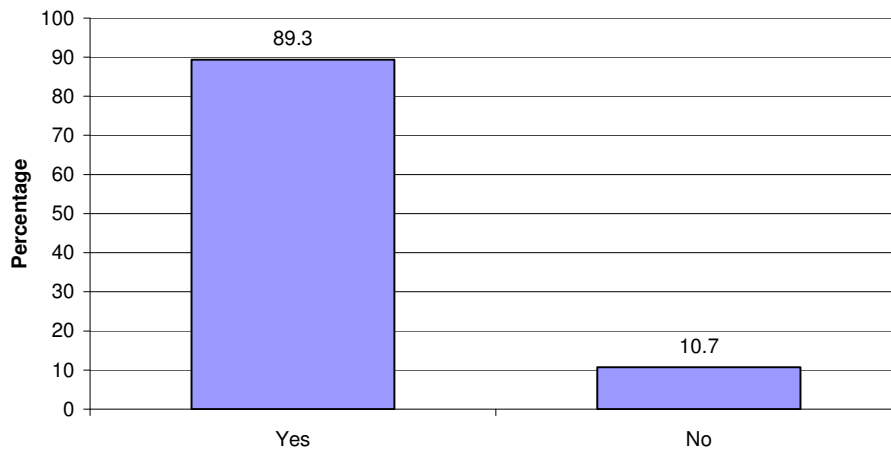
Figure 7. Percentage of users willing to pay for telecare.

Of the 28 people who responded to the question "Would you choose to use telecare again?" 89% said they would choose to use the equipment again. Eleven percent was unsure and no respondent said they would not choose to use it again.

Respondents were asked whether the training they had received was sufficient. Twenty three people answered the question and ninety one percent said that it had been sufficient. One person who reported that the training was not sufficient made the following comment:

 "I did not get any training, everyone spoke to my husband, not to me."

Table 2 shows users' responses to the question of what was the best aspect of the service.

Table 2. What was the best aspect of the service?

Response	Fast response Knowing help is at hand Speed of ambulance arrival Speed of response (6 comments) Speed with which alarms were installed
Manner of response	Everyone was pleasant and kind Were very polite
Other	It operates automatically when the sensor becomes horizontal without any action on my part. This is important in my case as I am a diabetic and sometimes have a hypo without warning. Just before I had the equipment I had a hypo and was in a coma for over 7 hours without help. Taking notice The fact that if I was ill in the night and press the button the ambulance could get in to the house via the little wall key safe They ring me

There were very few responses to the question "What was the worst aspect of the service?" The following comments were made:

"Concern if triggered by mistake."

"People dealt with my husband and not me even though I am physically not mentally unwell."

"The range of use away from the house."

People were asked for suggestions to improve the service and they made the following suggestions:

"I am very deaf so it would be nice if one could increase the volume."

"Make it more widely known."

"When there is a fault the response needs to be quicker. You can't hide from the noise."

"Call centre number on answer machine, so it it is set off by accident you have time to phone the centre."

"My answers would be much more positive if the range for the alarm button was longer. I understand it would be much more expensive if I could wear it walking into Shalford Village or going into Guildford to shop at the market particularly."

"Telephone answer ringing too short. Can't reach telephone in time. Suggest a second call."

Finally, there were many spontaneous positive comments that people made about their experiences with telecare and these are shown below.

Table 3. Positive comments about telecare.

Theme	Participants'comments
Feelings of confidence	Gave me confidence
	A feeling of great help to help me live a little longer. It gives me a happy feeling
	I am very satisfied with the equipment. It does the job it is designed to do. It calls help when it identifies a need and it does so when I am indoors or in the garden.
	It makes life so much better having help at the end of the line
Response	If a problem arises all one needs to do is press a button, talk to the people who answer and wait for help. What is there to be dissatisfied about?
	Instant reply and help when needed twice
	It worked well, quickly and efficiently in the emergency.
	Pleasant cheerful reliable
	The response when used was fast and assured
	Unobtrusive and gave excellent service
	Triggered inadvertently and was impressed by the response.

2.2. Interviews with older users and their carers

We invited participants who completed the questionnaire to indicate whether they would be willing to be interviewed. From a sample of 120 users who were sent a questionnaire, 17 users and 5 carers indicated their willingness to be interviewed. Individual interviews were conducted in participant's own homes at a mutually convenient time. In five cases, users and carers were interviewed together in the user's home. Interviews lasted between half an hour and one hour, and were tape-recorded and were transcribed verbatim, and analysed thematically.

A number of broad themes emerged from the analysis of interview data. Examples of these are 'being in the telecare scheme', sources of referral, living with telecare, benefits of telecare and usability. Under some of these broad themes are sub-themes. For example, under the broad theme of 'perceived benefits' were sub-themes including 'feeling safer', 'living independently', 'a sense of security', 'a peace of mind' and 'having more control of my own life'. Table 4 contains a summary of the results from the interviews. Further information about the interviews and extracts from the raw data are contained in Appendix A.

Table 4. Results from interviews with users and carers

Emergent theme	Findings
Length of time using telecare	Users and carers were asked about the length of time they/their relative had the telecare device(s) in place. In this project, the time span during which telecare device(s) were in use ranged from a week to a year.
Sources of referral	We were interested to know the sources of referral as this would inform us of some aspects of the implementation of telecare in the local areas. Given the range of schemes used in this particular PTG project, it is fair to suggest that there is some engagement from mainstream services; the message of telecare availability might be getting through to other professional groups both in primary and secondary care such as GPs, specialist care team and those working in acute settings. In some cases, users and carers reported self-referral and finding out about telecare through word of mouth via other contacts, friends and/or neighbours.
Expectations	What users and their carers expect from the use of telecare can easily influence their satisfaction in the service provision. Because of some changes in their health and social circumstances, users and/or their family carers had some expectation of what telecare was meant to do for them. Some saw the use of telecare as an answer to some 'emergency' in case there was 'trouble'; others viewed it as a form of 'insurance' that something or someone would know what to do in an emergency thus providing some reassurance. Few would have liked the telecare devices to be able to perform more functions such as activating an alarm during a hypoglycaemic episode or be able to 'work' outside the house. Only one user was not sure what to expect from the use of telecare while one participant was surprised by the size of the device installed.
Previous experience with telecare	Users' and carers' previous experience in using telecare was explored; this was found to be generally limited to a smoke alarm. Majority have not had experience with telecare devices.
Perceived benefits	The benefits of telecare were explored in our interviews with users and carers. Many benefits were identified; these included 'being on my own', 'getting immediate feedback', 'living independently', 'a sense of security' or 'a peace of mind'. Many recognised their own vulnerability when living on their own and having some physical disability and had found that the telecare device made them feel 'safer'.

Users and carers perceived that the use of telecare devices had been beneficial in several ways; it provided reassurance and at the same time enabled them to remain at home. Being cared for at home also relieved the demand for nursing beds in hospital and it was definitely easier and comfortable for them, as illustrated below: |

Table 4 continued…..

Emergent theme	Findings
Living with telecare	Our evaluation also illuminated what living with telecare was like for some users and carers. They reported what routine was in place for them and how in some cases, there was no change in their daily routine although there is an awareness that the device(s) were 'there'. They were only reminded of the presence of the device(s) when an alarm had been triggered. Users' adherence to wearing their device could have avoided some life-threatening event. On the other hand, the use of telecare can be restrictive, particularly if the user plans to go away.
Change in care	Living with telecare could potentially affect the way in which health and social care were delivered. We asked our users and carers if they had found any changes had occurred. Most reported few changes.
User satisfaction	In this study, there seems to be universal acceptance and satisfaction with the telecare service offered, as found in Brownsell and Bradley's (2003) work. Many were very positive about the telecare service, as shown in other counties such as Kent. Many users indicated that they were fairly familiar with the use of the community alarm. Despite some initial hiccups, most users felt supported by the Call Centre staff and health professionals.
Usability	The installation of devices was perceived generally as unproblematic. While some reported that the devices they were using were easy to learn to use, others had concerns. For example, one couple was not sure if they would have to change the battery of their smoke alarm. Another was concerned for those who might have hearing impairment and could not hear the alarm activation. One user highlighted the limitation of the device he had should he experience a hypoglycaemic episode. One other reported the sensitivity of the device he had which went off 'on its own'. Another user reported feeling flustered in having to deal with a situation when the call centre line was busy. The usability of the telecare also depends on the technical support available to all users and their carers. The majority of users found the technical support adequate and were satisfied with it.

Table 4 continued….

Emergent theme	Findings
Recommending to others	Although users and carers were generally satisfied with the telecare service and the devices they used, we were also interested to know if their experience would lead them to recommending telecare to others. Overall, the response had been overwhelmingly positive. However, there was some feeling of frustration expressed because of faulty device and the need for refinement.
Paying for telecare	To gauge the general feeling among users and carers about having to pay for telecare, we asked them if they would consider paying for it. Overall, most users and their carers found the telecare invaluable and reported that if they could afford to pay, they would. Some were not aware of what it was costing them currently.
Information giving and explanation	In order that telecare can be readily accepted by users and their carers, there is a need to ensure that information giving and explanation concerning the use of telecare were adequate. In addition, Brownsell and Bradley (2003) argue that the key to telecare system is 'communication and information exchange between the user's home and the service contact points' (p.68). In our evaluation, we attempt to explore this aspect with our participants. Although most of our users and their carers seemed to have a general working knowledge of the telecare devices they had used, some had experience some problems with alarm activations while others were vague about the information they were given regarding the working of the device.
Carer's perspective	Although the above findings have included some feedback from carers, it was important to understand more of the experience from the carers' perspective. In discussion of the data in the appendix, we have provided some accounts from carers regarding the impact of telecare on their daily routine.

2.3.   *Summary*

- Respondents reported high levels of satisfaction with telecare. They reported increased feelings of security, safety, peace o f mind, independence and confidence.
- Respondents were satisfied with the equipment, the amount of training they received and most people were satisfied with the appearance of the equipment.
- People were willing to pay for the service in principle, but many made comments that indicated that cost was still an issue and would need to be considered carefully.
- The best aspects of telecare were the speed of response when needed, and the kind and polite manner of the people they dealt with.
- There were very few problems reported with the equipment, but equipment faults that trigger an audible alarm perhaps need to be dealt with more speedily.

3. COPD project

The setting up and evaluation of the COPD project is described in this section. This project is reported separately because the project was qualitatively different from the other projects and it was felt that the evaluation might yield some distinctive results that might inform future applications of remote medical monitoring. It involved remote medical monitoring for people with a long term condition, namely Chronic Obstructuve Pulmonary Disease.

3.1. Background

COPD is a common disabling chronic disorder affecting adults, particularly older people (Renwick & Connolly 1996; Britton 2003). An increase in the incidence and prevalence of long term conditions, from around 18.5 million people in the UK today to 20.6 million by 2020 (DOH 2006) is expected. COPD, one of the long term conditions affects about 1.5 % of the UK population, and is the second commonest cause of acute medical admission in the UK (Roberts 2003). These acute episodes tend to be serious, with a 14% mortality rate and nearly a third of patients are readmitted within 90 days of the admission (Roberts 2002, Roberts 2003). The cost to the UK economy is estimated at £492 millions per annum, of which 40% is expended on hospital care (Britton 2003).

The impact of COPD among older people cannot be underestimated. Older people are more likely to spend longer in hospital care (DOH, 2006). Coupled with the disabling episode and restricted mobility, older people with COPD are found to experience moderate levels of depression which are largely unrecognised and untreated (Yohannes 2005).

Concerning older adults with COPD, the NICE (2004) guideline offers best practice advice on their care and has great relevance to primary and secondary healthcare professionals who have direct contact with patients with COPD. The reconfiguration of primary care trusts (PCTs) and the recent joint health and social care White Paper (Secretary of State for Health 2006) suggest that partnership working remains central to the public services agenda.

3.2. The study

The study aimed to evaluate the telecare service offered by the COPD Home Care team and addressed four key objectives:

- to assess the process of implementing the telecare service
- to identify how work practices and patterns of interaction were changed by the introduction of the technology
- to examine the usability of the equipment from both users and/or carers and staff
- to identify areas of success and good practice and problems in implementing the technology.

These aims were met using a mix of quantitative and qualitative methods.

3.3. Method

We chose a case study approach to preserve 'wholeness, unity and integrity' of the case (Punch 2005: 154). The study was initially planned to last 12 months. A project group was set up to redesign COPD service to include telecare. This group comprised a Consultant Respiratory Physiotherapist, a key representative from social services, Call Centre staff, a Community Matron and the researchers. Considerations were made on the change management and integration process involving the telecare devices and Information Technology available in the Acute Trust setting where the COPD at Home team was based, and the development of a care protocol. The choice of equipment, the development of referral criteria for patients, costing, equipment installation, electronic care plans, type of clinical data to be collected, call centre data and when to implement the service were also discussed extensively at regular meetings. It took six months before the contract between local authorities and PCT and Acute services were agreed and signed before the procurement of equipment could begin.

The redesigned COPD care would mean that the COPD Home Care team would be clinically responsible to the Consultant Respiratory Physiotherapist and the Consultant Respiratory Physician. Once patients were discharged home the clinical responsibility would rest with the GP. The team were responsible for assessing

patients for suitability for the telecare service and for assessing their ongoing condition and discussing any deterioration or issues with the GP and hospital consultants.

The telecare service comprised three elements: 1) daily monitoring of the patient's condition via the local Call Centre with an integrated community response service; 2) in parallel, a more intensive monitoring was instigated to determine any physiological changes; 3) an escalation procedure was set up in order that the Call Centre operator would know what intervention would be appropriate. The physiological parameters included oxygen saturation, pulse and respiratory rate.

The constant change of structures and the delay in completing the legal contracts among the stakeholders and the procurement of equipment resulted in delays to the evaluation in terms of data collection for another six months. Patients were sent a questionnaire (see Appendix C). Staff members were invited to take part in a focus group discussion six months following the service implementation. Due to work demands, only three health care professionals and a key member from the Call Centre, who was very involved with the implementation, were able to participate.

A topic guide was developed to support the discussion relating to the implementation of telecare and key challenges. The themes for discussion within the focus group were considered carefully, while the sequence offers the flexibility to be discussed out of sequence without compromising the natural flow of discussion in the group. Issues relating to previous and current experience in telecare, their expectation of the role of telecare, and their satisfaction with the redesigned model, including the referral system were explored. The focus group lasted about one hour. Two researchers moderated the focus group and undertook data analysis. As described by Fielding & Thomas (2001), qualitative data analysis consists of systematic consideration of the data in order to identify themes and concepts.

3.4.   Focus group discussions

Experience and expectation in the use of telecare

The anticipation of what telecare can or cannot do was very much related to the lack of experience of the staff concerned. None of the health care professionals knew how the telecare equipment would work prior to this new approach to COPD care. Despite having had two training sessions from both the Call Centre manager and the manufacturer's technical representative, team members had great reservations about how confident they and their patients have about the referring patients onto the new scheme. The team also acknowledged that the support they had received from the Call Centre manager and the staff had been significant; the latter had dealt with any problems arising from the telecare equipments. If necessary, the manufacturer's technical representative was contacted. Despite this, decisions made about which patient to refer to the study continued to pose a challenge. Some nurses were unsure about leaving patients at home 'just in case the machine didn't work' and about how to conduct their work in the early months in particular about referrals. This concurs with the work by Bowes and McColgan (2006) who indicate that staff found the new model of care to be restrictive.

Usability of equipment

Introduction of any new equipment such as telecare poses another challenge to the participants. By far the most frequent comments related to the equipment were 'not meeting needs', 'difficult to access reading' (relating to physiological readings), 'patient had trouble sending a reading' and that the temperature probe that took longer than expected was definitely a 'nuisance'.

'We have one patient who was discharged… he could not cope with it because it was not easy to use the blood pressure cuff and the temperature probe, well, it is unbelievable, it takes ten minutes, ten whole minutes to work'

'Everything had to be in set order… literally to be wired, and because it's something new, it can add anxiety to our patient too.'

The user-friendliness of the equipment was discussed. The team thought the readings were difficult from the patients' perspective and if their patient was very ill there was no way they would be able to handle the equipment. The lack of confidence and knowledge of the equipment of one member of the team resulted in no referral.

A lot of wasted time

Because of the inherent problems with the equipment, health care professionals reported that a lot of time was wasted. 'I had to come down to the office…access the electronic care plan… We also spent a lot of time sorting out the telephone line'. This relates to identifying where the analogue telephone lines were located in the hospital where the team base was. The particular equipment in question would only work using analogue lines.

An added bonus to the patients

Despite the problems experienced by health care professionals, they reported that their patients were keen to participate. For example, one professional said patients felt they were helping other people with one patient saying 'if I can do anything to help the department, I would'. Another professional reported that patients thought telecare was 'an added bonus', in that it put them in control because they knew they were able to read their vital signs. Subsequently, this meant they were not terrified when contacted by the call centre, although when asked to repeat their readings, they sometimes found it stressful. In general, participants reported that their patients' attitudes showed high levels of satisfaction and a willingness to use telecare in the future, as found in other studies (Loane *et al.* 1998).

Changes in practice and for the future

Participants were asked whether telecare led them to new ways of working. By far the most frequent comments related to the way they made referrals, and joint working with local authority staff. One participant commented that:

> 'in a way I think it made more work for the nurses after we've been in [after installation]'.

However, the health care professionals did not think there was any change in the way they worked. This was confounded by their perception that the 'machine was not

reliable' and that because sicker patients were admitted to the emergency department, they did not meet the criteria for telecare.

Participants were also asked about the changes they would make for future implementation. Overall, all participants expressed an interest to change the equipment, to investigate what other equipments were available and to make informed decisions about selecting the most appropriate product for the patient. They also reported that they would review their referral criteria to include patients already at home instead of being exclusively available to patients admitted via the Emergency Department. They conceded that they could have had the equipment for longer with the patient rather than the five days in their current scheme. They also recognised that their lack of confidence in the equipment, and hence their attitude towards telecare might have influenced the uptake of telecare. This led them to be 'picky about whom to offer this service'. This emphasises that the implementation of telecare was restrictive in that it was perceived as not person-centred.

Concerning training, the participants recognised that they 'didn't have time to get the team together to undergo specific training' and that their limited knowledge meant they were not able to inform their patients when questions arose. They had relied mainly on the Call Centre team to teach their patients about how to use the equipment.

Telecare and managing COPD
The lack of confidence and low expectations revealed in some of the comments above demonstrate the anxiety that participants described about choosing or referring the patient for the scheme. In particular, there was a high level of concern about being able to decide which patients would be able to cope with the use of the equipment. Despite these negative experiences, the COPD Home Care team recognised the need as knowledgeable and skilled in using telecare as they were with their clinical skills. Efforts are now made to contact other COPD teams who are using telecare equipments and to find out more about other equipments available. In essence, the opportunity to have some training in the use of one of the telecare equipments strengthened the newly forged inter- and multi-agency working.

3.5. Findings from the case studies

The case studies could concern users or carers or both. All six users (four older men and two older women) identified by the team had been discharged from hospital following an acute exacerbation of COPD. Their mean age was 73 years. Four lived with their spouse, and the remainder lived on their own.

The perceived users' and families' healthcare experiences while receiving telecare at home was enhanced by the following facilitating factors: rapid access to care, contact at the end of the line and continuity of care. This concurs with findings from Young et al. (2006) in their use of telephone technologies. Older users were perceived by the team as finding the experience positive and were confident about using the machine. One participant noted that:

> 'Mr B was reluctant to finish using the machine as it made him feel that it was something he was part of that was monitoring him daily'.

It was interesting to note that this particular user had encountered problem with his machine to take reading.

Another participant recorded that:

> 'He understood how to operate various devices on the monitoring equipment. When he did have problems, mainly with the temperature probe, the Call centre rang him up immediately. The speed of response greatly reassured him as he was confident that his condition was frequently assessed'.

A further example of the positive attitude and experience of users can be gleaned here:

> 'Overall she coped well with the monitoring equipment and had no problems with it. she declared that both she and her husband were very reassured by being able to perform her clinical measurements at home and happy that we were able to access these figures'.

Data generated from this study offers invaluable insights into the perceived facilitators for and barriers to the implementation of telecare service in the managed care of people with chronic illnesses, such as COPD. During the six month's implementation period, only ten users had been recruited to the scheme. Our

evaluation was unable to incorporate a large number of older users with the same resources, hence making it difficult to generalise results to other groups. The negative impact that emerged from the case studies related to the equipment, which was described as 'not user friendly'. When the blood pressure cuff triggered an alarm that necessitated repeated reading, it led to one user opting to continue with the use. The aesthetic appearance of the equipment received some unfavourable comment; for example, 'his wife was unhappy with the size of the equipment - she believed it would be like a small box that they could 'hide in a corner'. This suggests that some people might feel a stigma attached to receiving such services, as also found by Bowes and McColgan (2006:130) in that 'they did not want to acknowledge that they were unable to cope alone, or simply that they were getting older and might need help'.

The lack of understanding of the lease of equipment also raised some concern for two users: 'They did not understand the lease agreement and this upset them to a degree as they thought they would be charged for the unit. The Call Centre staff reassured them'.

Although there is the expectation that telecare helps individuals to avoid admission to institutional care, in the COPD telecare scheme, we had no indication that this is the case. It is more likely that telecare postpones the admission to institutional care, as suggested by Bayer *et al*. (2005).

3.6.   Questionnaires

There were only five patients who returned questionnaires. One of these questionnaires was not completed – the respondent had written the following comment on the questionnaire but had not completed any of the questions.

"We had the equipment removed because we could not cope with operating it."

Of the remaining four completed questionnaire, three were male but one did not indicate gender. One person also did not indicate their age and the ages of the others were 70, 70 and 76 years. Such a small sample can provide only a limited indication of patients' reactions to the equipment so the following results should be regarded as

tentative only.The analysis of the remaining four questionnaires resulted in the following findings. All four respondents had made calls to their respiratory nurse during the time they had the equipment and two had also made calls to their GP. Three reported that they had not been admitted to hospital during the study period and the fourth person did not answer this question. All the respondents reported that they had received sufficient training. Three of the four reported having no problems with the equipment, but all respondents commented about negative aspects of the equipment. The following comments were made:

"It was complicated. Needed my wife to affix all the wires and then to switch on screen monitor and to follow instructions".

"Information did not transmit, the call centre rang and I had to do the whole thing again. Difficult to hold the thermometer under arm for 15 minutes".

"Difficult to put all contacts in place and transmit information, needed two people".

"Sending wrong information back and they were telling me to do it again. Nurses came and examined him and he was ok. It was so stressful we had it taken away".

Figure 8 shows the mean ratings that patients gave about various aspect of using the equipment. It can be seen that the ratings positive, despite the problems reported with the equipment. However, it is clear that the relationship with the nurse was extremely positive for the patients and this must be one of the most important aspects of their care. The apparent contradiction between the patients' reported problems with the equipment, which was confirmed by the qualitative information from the staff, and their positive ratings of using the equipment is interesting. This might indicate that the patients were happy to receive what they perceived as extra clinical care in the form of the telecare equipment and the confidence that resulted even though the equipment proved problematic. This is reflected in their comments on the best aspects of using the equipment:

"It gives you confidence".

"Confident help was at hand".

"Passing of information to call centre computer"

"Ability to see results".

COPD patient experience with telecare

Figure 8. Patients' experience of using telecare

Only one patient said they would not recommend using the equipment, and three of the four said they would choose to use it again.

3.7.   Summary

- The monitoring equipment was problematic – it was difficult for patients to use and generated unreliable data. This was a major problem for the COPD team.
- Despite these problems patients were positive about the experience of using the equipment, feeling reassured and confident. This is a powerful indication of the potential benefits of remote monitoring for long term conditions.
- Although staff experienced difficulties in implementing the service because of equipment problems they were convinced that it provided a firm basis for planning future remote monitoring services. The main benefits of the project were increased knowledge of the requirements for effective equipment for this patient population and increased team working between health and social care.

4.   Case data

There is limited reliable data on the scale of the care need in the areas that telecare addresses (Bayer et al 2005). In our evaluation, we attempt to draw examples from practice to provide useful information regarding the success and challenges in implementing telecare. As part of the evaluation, we invited the six project leads to each provide **six examples** of telecare in action. A case story could be an individual event involving users and/or carers that identify how telecare has affected them. A guide was provided with key headings: 'an event', 'role for telecare' and 'improvement in outcome'. Pseudonyms were used to protect user's identity. Pseudonyms were used to protect user's identity.

In general, all project leads were able to seek out cases in which they or their colleagues had had a key role in implementing telecare in their area of practice. The commitment to make it work was evident through their account in problem-solving 'cases' to enhance the lives of users. As these 'stories' are subjective information from the perspective of each project lead, there are limitations in how these findings can be generalised.

4.1.   Data Analysis

In total, thirty-three case stories from project leads were received. These were written in various formats; some were in bullet points, others in more descriptive notes, while some included sub-headings according to the guide provided by the researchers.

One researcher analysed the data systematically and identified broad themes before subsequent coding. Consideration was given to the internal consistency of the responses and the frequency and extensiveness of participants' narratives in their case stories. Where possible, we have gleaned descriptive data from each of the case stories to provide an overall profile of the users including details of their age, gender, the type of devices installed, and the event that triggered the need for telecare. A second researcher verified the consistency and internal validity of the coding. In quotations the symbol '….' indicates material edited out to preserve confidentiality, [

] indicates explanatory material included. Each case story was numbered to protect the identity of participants who contributed the case stories.

Sample of case stories analysed:
- COPD, n=6
- Falls, n-=4
- Smokes, n=6
- Proactive calling, n=6
- Dementia, n=5
- Hospital discharge, n=6

4.2.   Profile of users:

1.   Mean Age (range): 81 years (45-97)

(Excluded 2 cases with no age information although one stated that the couple were in their forties)

2.   Gender:

Male n=14*

Female, n=20*

*included one couple

3.   Social circumstances:

Living with spouse/family: n=12

Lives alone: n=18

Lives in sheltered housing: n=3

Types of telecare devices offered to users differed depending on the user's need(s) and the role of the project lead. Hence, in the hospital discharge scheme, users were offered a 12-week free installation of call alarm system with a key safe while in another scheme such as smoke alarm scheme; users were offered a smoke alarm and other devices following an assessment by the call centre co-ordinator. Below is of the range of devices identified from these cases:

Bed sensor

Fall detector

Proactive Calling

Tunstall S21

Call alarm system

Smoke alarm

4.3. **Results**

The role of telecare and its impact

Bowes and McColgan (2006) recognised that telecare devices by themselves might be 'seen as neutral in that they have the potential to be used in a variety of ways, positive or not' (p18). It is suggested that the identification of each case story by the project lead or their colleague is itself a value; be it a positive or a negative impact.

The emergent themes arising from the data in these case stories are enhancing independent living, role in rehabilitation, increased safety and security, early detection, support for family carers and enhancing relationship. Participants were encouraged to highlight positive and negative impacts of telecare in their case stories.

Enhancing independent living

Most project leads reported on how telecare supported users to live independently. Of the thirty-three cases, nearly half of the users (n=18) were living alone. Some users had chronic conditions such as Chronic Obstructive Pulmonary Disease, diabetes, stroke, arthritis, dementia while others were frail and/or disabled with sight or hearing problems. In most cases, there were indications of how users had benefited from the installation of telecare devices that enabled these individuals to live independently and how their quality of life was enhanced. For example:

> *My father, has 2 calls daily and this has made him feel so much better mentally, he*
> *always tells me that his 'girls' [call centre operators] have called him to see how*
> *he is and to make sure that he has had his lunch and taken his medication and they*
> *always call [proactive calling] him before he goes to bed. I did not think that my*

Father would still be able to live on his own and I truly believe that the daily calls have perked him up and made him feel that he is able to manage on his own.

(Case story 07, Male user, aged 86)

She [user] was worried that she would not be able to live in her house anymore, or do her garden, but was reluctant to accept help of any kind. She agreed to a call alarm, as it would be within range for use in her garden, and a keysafe, as her key holder neighbour was out at work all day.

*(*Case story 17, Female user, aged 90)

A lady was resistant to outside help. Her son very anxious and he lives nearby but tends to stay with mum as she is vulnerable to falls and crawls outside to do her gardening. She was still refusing all input BUT agreed to a trial of call alarm as it was free. Her sons acted as point of contact, and they report they would continue to fund once 3 months is up [service was free for 3 months].

(Case story 18, Female user, aged 93)

He lives alone and has carers three times a day and twice-daily visits from his daughter. He is confined to a wheelchair when he is not in bed. Mr P's daughter was very concerned for his safety in the event of a fire in the house. It [Smoke alarm] allowed him to continue living in his own home, which was what he very much wanted.

(Case story 28, Male user, aged 97)

Having realised that the lady being assessed had not got any alarm or mobile phone as she "lived with her husband" so was assumed to feel safe…So I introduced the idea of a pendant alarm for a trial of 12 weeks at no cost, to improve her safety, and prevent a possible hospital admission. Her frail condition could deteriorate, as she could not raise an alarm without one. I relayed all to the GP who said, "I just presumed she had an alarm"... I am sure it is because her husband was so caring, that her vulnerability had not placed that thought to her GP before. Therefore, we all are very grateful for the service provided, and see this as an easy way to improve quality of life.

(Case story 30, Female user, aged 78)

Role in rehabilitation

Project leads also reported the usefulness of telecare in the rehabilitation of their users.

> *Following falls and fracture, user had Pro-active calls for three months to help rehabilitate.*
>
> (Case story 10, Female user, aged 82)

> *Three months' call alarm to enable user to rehabilitate following a fall resulting in a broken leg, which required plastering and non-weight bearing with zimmer frame.*
>
> (Case story 17, Female user, aged 69)

Increased safety and security

In several cases, increased safety and security were closely linked with maintaining independence and having some control over their own life; this concurs with findings from Bowes and McColgan's (2006) story.

> *In view of her previous independence, a call alarm for 3-month loan covers her vulnerable period [user lives alone and has had a fall which resulted in a broken leg] and gives extra safety for someone living alone.*
>
> (Case story 17, Male user, aged 68)

> *Had quite a complicated recovery from her hospital admission [due to an infective exacerbation of COPD] and required further visits from her GP. Overall, she coped well with the monitoring equipment and had no real problems with it. She declared that both she and her husband were very reassured by being able to perform her clinical measurements at home and happy that we were able to access these figures [vital signs measurements].*
>
> (Case story 02, Female user, aged 69)

> *Mr B was reluctant to finish using the machine [Tunstall S21] as it made him feel that it was something he was part of that monitored him daily.*
>
> (Case story 04, Male user, aged 75)

User -Prone to falls. She and her family were worried about it; if at night she had a fall then she may not get assistance until the morning. The outcome of this is that Mrs Riddles and her family are happy and more reassured that help would be on hand if required [user has bed occupancy sensor and pendant alarm]. Mrs Riddles is happy to talk to the call centre staff if she needs help.

(Case story 22, Female user, aged 92)

Since the alarms were installed in December 2006, the Smoke Detector has called through [activated] twice and both times everything was OK, thus giving both residents [user and his wife] peace of mind. Both residents know that we are able to get help for them very quickly should the alarms be activated and assistance required.

(Case story 24, Male user, aged 85)

The Smoke alarms have called through [activated] 3 times since they were installed in September 2006, each time all was ok. This means that the person feels safer in her own home and knows that we can get help to her straight away if required.

(Case story 26, Female user, aged 88)

The Careline Officer visited the couple [both wheelchair bound] and together they decided that linked smoke detectors would enable an early warning to be sent to the Care Centre thus saving valuable time in an emergency. The smoke detectors were installed and Mr and Mrs T both felt more secure about their safety.

(Case story 27, couple in their forties)

She is hard of hearing with poor sight and poor mobility. She has had a simple alarm for some time. Following a stay in hospital however, it was thought that the addition of linked smoke detectors would give her more security and safety. Mrs. T felt much safer in her home.

(Case story 29, Female user, aged 92)

He and his son [live together] feel that he [the father] is very secure with the alarm (falls monitor). If the father were to fall into a diabetic coma, the alarm would indicate that he had had a fall.

(Case story 31, Male user, aged 88)

He has recently been widowed. He suffers from diabetes, glaucoma, and angina. He has passed out on occasion. His GP recommended that he should have a falls monitor alarm. The alarm was installed in December 2006. Mr D chose to keep the alarm following the trial period. He Is now far less worried about the consequences of passing out as he knows that help will be with him very quickly.

(Case story 32, Male user, aged *86)*

She has been largely confined to a wheelchair… also diabetic and prone to infections. Recently she has made some small progress in being able to stand for very short periods; however, this progress does raise the possibility of falling. She is delighted with it [falls detector] as she is not now worried about falling when she is alone.

(Case story 33, Female user, aged 45)

Early detection

Three of the project leads reported that telecare has been instrumental in leading to early detection of any potential health problems would otherwise not be detected. Indirectly, this has resulted in appropriate care intervention.

Proactive call team has been instrumental in raising help for user whenever they noticed that he has become depressed. 2nd April 2007: Proactive call team advised his care team. 23rd April 07: alerted his GP that his condition had again deteriorated and the GP made a home visit.

(Case story 08, Male user, aged 72)

When the bed sensor was first installed, there was a few nights were it was activated, this was due to Mr B being slightly confused, he thought it was daytime instead of nighttime. After a few weeks, it was apparent that Mr B was not moving around at irregular intervals during silent hours. The technology has enabled the monitoring of a difficult situation and enabled the team to identify and assist with the needs of the neighbour.

(Case story 21, Male user, aged 92)

Support for informal carers

In several case studies, project leads consistently reported incidents in which telecare had supported informal carers giving them 'a peace of mind'. In others, there was an indirect benefit on the quality of life of carers whose lifestyle had been restricted.

Medicines have been colour-coded to help with user's failing eyesight. User's son has commented that telecare helps him, as he knows that his mother is being contacted on a daily basis; this gives him a peace of mind as he lives far away.

(Case story 9, Female user, aged 80)

They [Couple] have a daily care visit to help his wife to get washed and dressed. Their son lives nearby, and visits frequently, but works long hours in London. He called one evening at 9.30 pm to find his mother on the floor at the top of the stairs, having fallen off the stair lift. His father was on the floor downstairs, and could not remember what had happened - if he had fallen down the stairs. Whilst we were assessing him, he expressed some frustration at not being able to pop out and leave his wife. We thus arranged for them to have a call alarm, for his wife to wear, particularly when he went out. Call alarm provided that opportunity.

(Case story 15, Male user, aged 89)

Proactive calls commenced 15th February every afternoon to remind her to take medicines with water… Female admitted to hospital end of March and calls [proactive calling] stopped. However, her husband, who took the calls and helped her take her medicine, asked for the calls to be reinstated as they reminded him to take his medication.

(Case story 11, Female user, aged 72)

She is hard of hearing with poor sight and poor mobility. She has had a simple alarm for some time. Following a stay in hospital however, it was thought that the addition of linked smoke detectors would give her more security and safety. Mrs T's family were very relieved by this solution.

(Case story 29, Female user, aged 92)

Enhancing relationship

One of the positive aspects resulting from implementing telecare relates to their relationship with the users, for example:

The Proactive Call Team like to personalize their calls and in this case always check that Lucy the dog is fine. "Stop asking me about the blooming dog, you ask about the dog more than you ask about me!" proclaimed the lady recently. The team took this as a sign that they are building relationships. She is always there when we call and is happy for us to call. The woman is also happy that we ask after Lucy-the dog.

(Case story 12, Female user, aged not given)

The equipment

Generally users appeared to have understanding of the telecare devices installed in their homes, though it was clear that in some cases, it was much less obvious. The users were happy with the equipment(s) offered although there were some who experienced problems and/or difficulties with it.

His wife was unhappy with the size of the equipment (Tunstall S21) - she believed it would be like a small box that they could 'hide in a corner.

(Case story 01, Male user, aged 68)

Mr B was very enthusiastic about the machine even though there were major issues with the blood pressure cuff, as this did not fit his arm correctly so it was unable to take a reading. So in order to get the machine to take a reading he used bubble wrap under it. The patient was very pleased he had solved the problem however; the nursing team felt the recordings would be unreliable.

(Case story 04, Male user, aged 75)

Mrs S was keen to accept the unit but it was her husband who seemed uncertain and expressed a wish for the unit to be out of sight. Due to the telephone points, this was not easy and the installer put in an extension lead to help the situation. Mrs S did not find the unit 'user friendly' and when the blood pressure cuff alarmed and required her to repeat the operation several times; she opted to have the unit removed after two days.

(Case story 05, Female user, aged 80)

The Bed Sensor was fitted but after only a few days, it was removed as it kept activating itself during the middle of the night. The call centre would then contact

Mrs S via the Tunstall Unit, this frightened Mrs S as she thought the walls of her

flat were talking to her, consequently the bed sensor was removed.

(Case story 20, Female user, aged 95)

The fall detector (on a belt around his waist) was a bit temperamental. One day on

visiting Mr T, he was found on the floor, as he had slipped off the chair but the

alarm never activated. We presumed that because Mr T was so frail and very

underweight that as he slipped off the chair it never registered as a fall.

Unfortunately, this fall did result him being admitted into hospital.

(Case story 23, Male user, aged 72)

Information giving

Although these case studies demonstrate generally that users and their family
understood the purpose of having telecare, there were instances where clarification
was required to enhance acceptability and compliance.

User did not take any readings over the weekend as he assumed that no one would

be monitoring the data.

(Case story 01, Male user, aged 68 year)

They did however not understand the Guildford lease agreement and therefore this

upset them to a degree as they thought they would be charged for the unit. The Call

centre staff reassured them.

(Case story 06, male user, aged 76)

Mrs F [has dementia] was reminded daily to wear the (falls) monitor but

sometimes took it off.

(Case story 19, Female user, aged 76)

4.4.   Summary

The above findings provide some examples from the perspectives of project
participants on the diverse ways in which telecare can influence the lives of users and
their family. There was also evidence that users and their family were able to exercise
choices and preferences in terms of whether they wish to continue with the devices or
not. However, there were some problems associated with the telecare devices that

staff continue to address, and they will no doubt influence future compliance and acceptability. Despite some challenges, telecare can play a pivotal role in enhancing lives. Finally, these are subjective 'stories' that offer a different avenue in our exploration of the experiences of telecare implementation. We also recognise that these are not representative of the experiences of all users.

5.   Analysis of call centre data

In order to investigate the demands of implementing these projects, the call centre provided data on the numbers of outgoing and incoming calls for each person who received services under the PTG. The call data were coded according to the purpose of the call. The following categories were used:

1. Incoming call about equipment
2. Incoming call about person
3. Incoming call about a test or mistake
4. Outgoing call about equipment
5. Outgoing call about person
6. Outgoing call about a test or mistake

The number of calls in these categories was recorded for each project, together with the total numbers of incoming and outgoing calls. These were averaged to obtain the mean number of calls per client. These results are shown below in Figure 9. Please note that the scale varies according to the number of calls for each project. It can be seen that the highest mean number of calls per client was for the proactive calling project with an average of 215 calls per client. This was expected because of the nature of this project, which entailed calling people to remind them to take their medication.
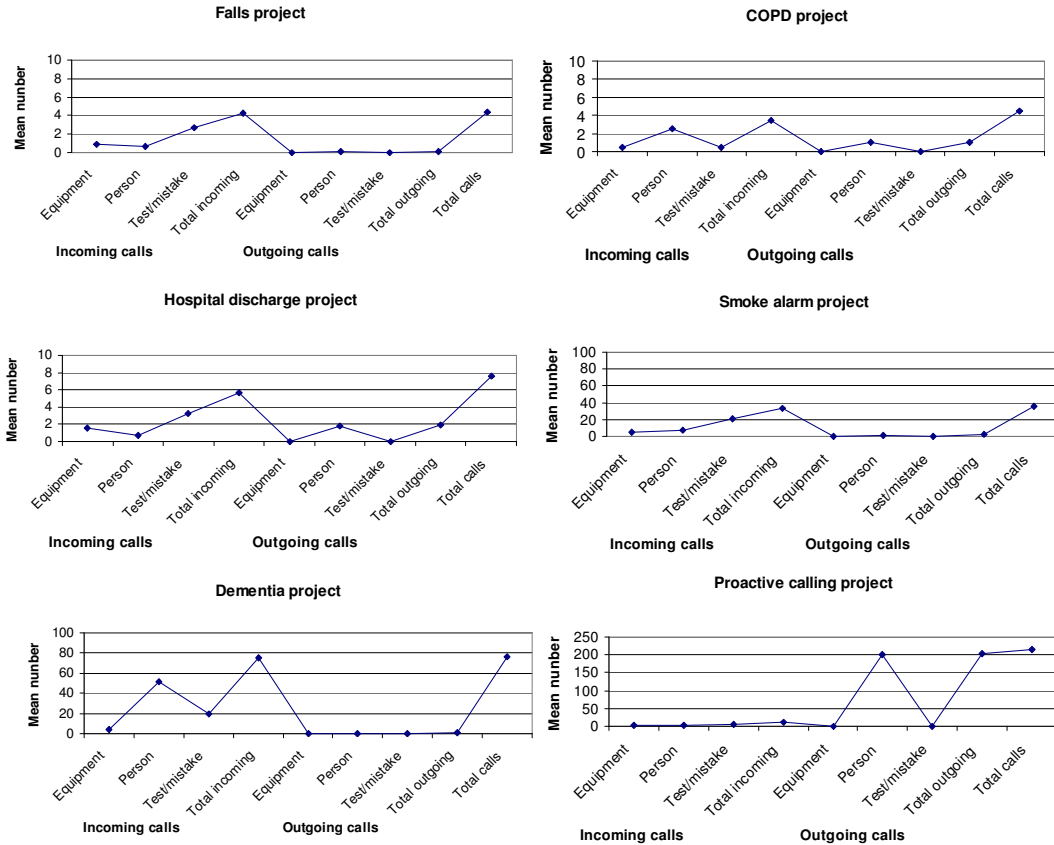
Figure 9. Mean number and type of calls per client by project.

It can be seen that the mean number of calls was relatively low for the falls, COPD and hospital discharge projects. The smoke alarm project and the dementia project had intermediate numbers of calls. The types of calls also differed between projects. For the falls, hospital discharge and smoke alarm projects most incoming calls were tests or mistakes. For the COPD project, most incoming calls were of a personal nature possibly reflecting the fact that the COPD patients required a lot of reassurance given the difficulties associated with the equipment. This also applied to the dementia project. Outgoing calls for all projects except the proactive calling project were low.

The following figure shows the mean number of calls per client totalled across all projects. There was an average of 13.5 incoming calls and 21 outgoing calls per client. Total outgoing calls were higher than total incoming calls, as expected. There were relatively few incoming calls about the equipment with more calls of a personal nature and more calls involving tests or mistakes.

44

Mean number of calls per client for all projects
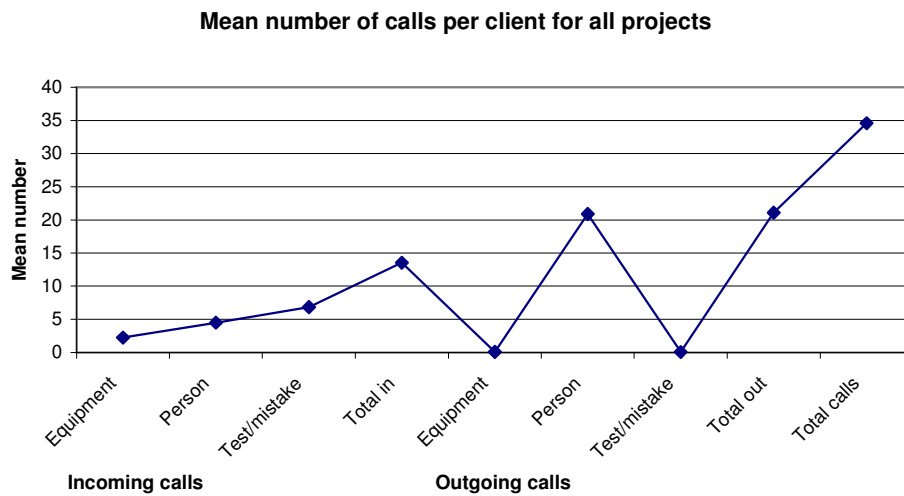
Figure 10. Mean calls per clients for all projects

5.1. Summary

- Call centre data indicated that there was an average of 13.5 incoming calls and 21 outgoing calls per client.
- The proactive calling project accounted for most of the outgoing calls with an average of 215 calls per client.
- The number of incoming calls for the falls, hospital discharge and COPD projects was low.
- Incoming calls were mostly tests or equipment problems for the falls, hospital discharge and smoke alarm projects.
- Incoming calls for COPD and dementia projects were mostly of a personal nature.
- Outgoing call numbers were low except for the proactive calling project.

6.   Staff experience with telecare

One of the aims of our evaluation was to assess the process of implementing the projects and how work practices and patterns of interaction were changed by the introduction of the technology. We adopted multi-method approaches to examine this process. These included focus groups, on-line survey and case-stories.

6.1.   Focus groups

We conducted a focus group discussion with project leads at the outset of the implementation period to explore the perceptions of project leads regarding their expectation of the role of telecare in their area of practice and their perceived challenges. Essentially, project leads identified several aims in the use of telecare. These included:

- o   To support people who are at the end of their lives
- o   To decrease incidents arising from people entering other residents' rooms
- o   To decrease the number of falls
- o   To provide reminders to do basic functions such as locking door, turning off gas
- o   To remind patients to take medications
- o   To protect vulnerable people who would not know how to respond to an alarm
- o   To provide call alarm/pendants for people discharged from hospital
- o   To ensure that those who have fallen and activated alarms have a referral to link nurses
- o   To result in change in practice

During our first focus group, challenges in the implementation of telecare were explored with project leads. These challenges were varied depending on the nature of the project and the type of telecare service to be introduced. **Time frame** was identified as one of the key challenges; there were concerns that the timing of the implementation was not always matched by the availability of the telecare equipments, and that the 'rush' to introduce telecare was sometimes complicated by the **referrals** made, and who could make the referrals. Inevitably, the **identification**

of clients suitable to use telecare was perceived as another challenge. Another challenge relates to anticipated **changes in practice** which could be a result of an increased demand in the workload, such as having to make more visits to ensure that clients were 'safe' with the equipment; having to enhance team working and inter-professional and agency working. There were also anxieties that the equipment might not be effective resulting in re-admissions.

6.2. Staff survey

The aim of the staff survey was to ascertain the experiences of frontline staff who were engaged in providing telecare. It is possible that these people would have a different perspective on the implementation of telecare from the strategic view of the project leaders.

6.2.1. Sample description

Staff involved in providing telecare services, or referring patients/clients for telecare services were identified by the project leaders who provided email addresses or postal addresses for those who did not have internet access. 55 people were invited to complete the survey by email and 16 were posted a hard copy of the survey. Twenty one people completed the email survey and 8 completed the postal survey. In total, 29 completed surveys were returned. Of these, 72% were completed online and 28% by post. Seventeen percent of the respondents were male and 83% were female. Further details about the sample are shown in Tables 5,6 and 7. Not all respondents completed all questions on the survey. The number of people who answered each question is shown in the table or figure, for example, (n=51).

Table 5 Staff age groups

Age (n=29)	Percentage
Under 30	3.4
30-39	13.8
40-49	20.7
50-59	41.4
Over 60	20.7

Table 6 Staff employment sectors

Employment sector (n=29)	Percentage
Healthcare	55.3
Social care	17.2
Boroughs and districts	17.2
Fire and rescue	10.3

Table 7 Staff employment status

Employment status (n=29)	Percentage
Full time	55.2
Part time	44.8

6.2.2.   Demand for telecare

Staff were asked to rate their agreement with a number of statements about the demand for telecare. They used a five point rating scale with the following values: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. As can be seen in Figure 11, staff did not agree that there was a lot of demand for telecare from patients or family members, but they strongly agreed that telecare could benefit more people if more information about it was available.

Demand for telecare
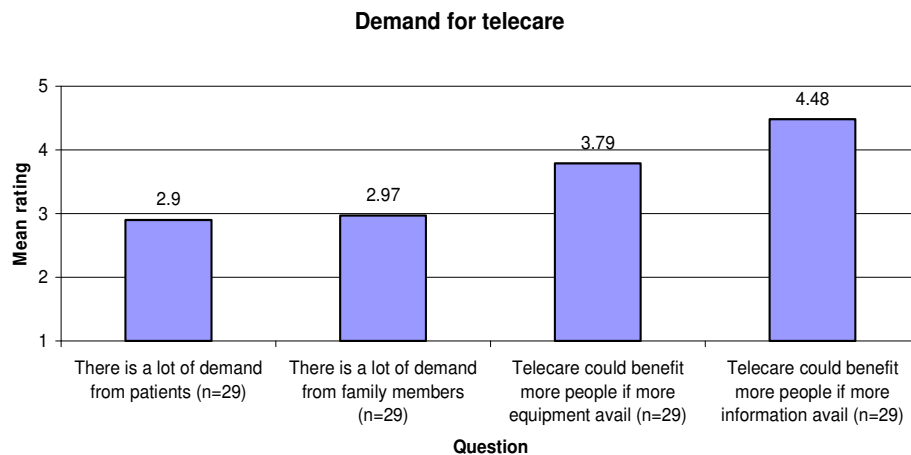
Figure 11 Staff perceptions of the demand for telecare

48

6.2.3.   Implementation

Statements about the implementation of telecare included in the survey are shown in Figure 12 along with the mean rating of agreement for each statement. Staff were neutral about whether they were well informed about telecare, about whether the introduction of telecare was well managed, about their organisation's culture being welcoming of change or of telecare, and whether there are sufficient resources for introducing telecare. They were also neutral about whether there was a co-ordinated approach to the introduction of telecare in Guildford.

Implementing telecare

Note:
1 = "Strongly disagree"
5 = "Strongly agree"
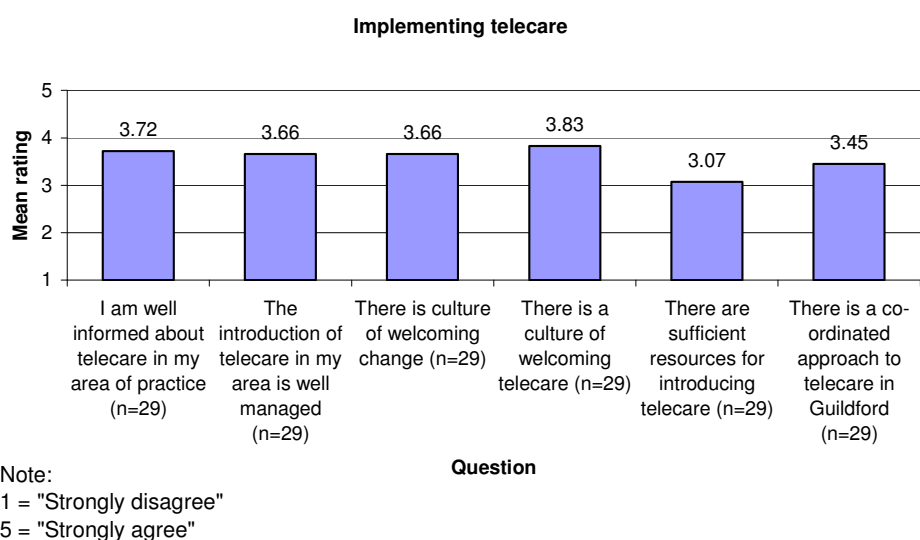
Figure 12 Staff perceptions of the implementation of telecare.

Training is an important aspect of implementation. Forty two percent of the staff stated that the training they received was sufficient, but 38% said it was not sufficient and 20% were not sure. Figure 13 shows the training that the respondents reported receiving. Many staff had attended demonstrations and presentations in their place of work. Fewer had attended formal courses, conferences or workshops. Only 3% of the group reported receiving very little or no training.
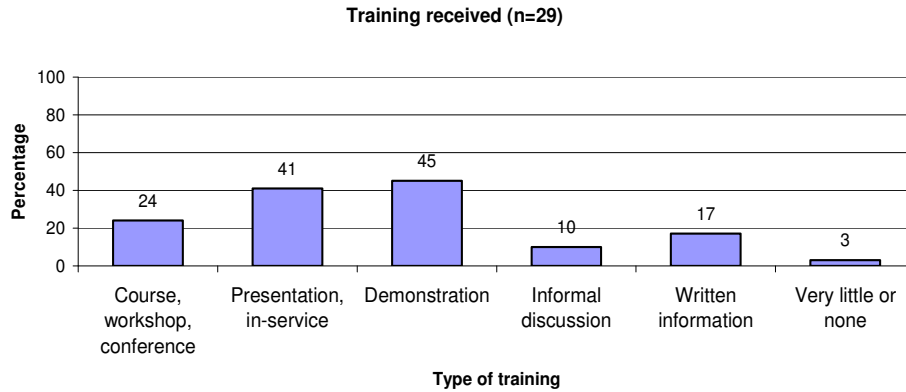
Figure 13 Type of training received by staff

Respondents also identified what training they would have like to have received but didn't. These were:

- Regular updates, including the number of people currently using telecare
- Downloadable leaflet for staff and patients
- Information about how patients can access a free trial
- Payment process
- Face to face training
- Updates from manufacturers
- Information on what equipment is available
- Opportunity to review a service already in use (this suggestion came from the COP-D project).

The survey included questions about the referral process and the criteria for deciding who should receive telecare. There was also a question about whether telecare is incorporated into care or discharge plans. This question was not relevant to all respondents and they were provided with the option to answer not applicable. There were 25 people who answered the question. From Figure 14 it is clear that the referral process could be improved and there could be increased clarity about the criteria used. There is scope for making sure that telecare is part of the discharge process and is incorporated into care plans.

Delivering telecare

Note:
1 = "Strongly disagree"
5 = "Strongly agree"
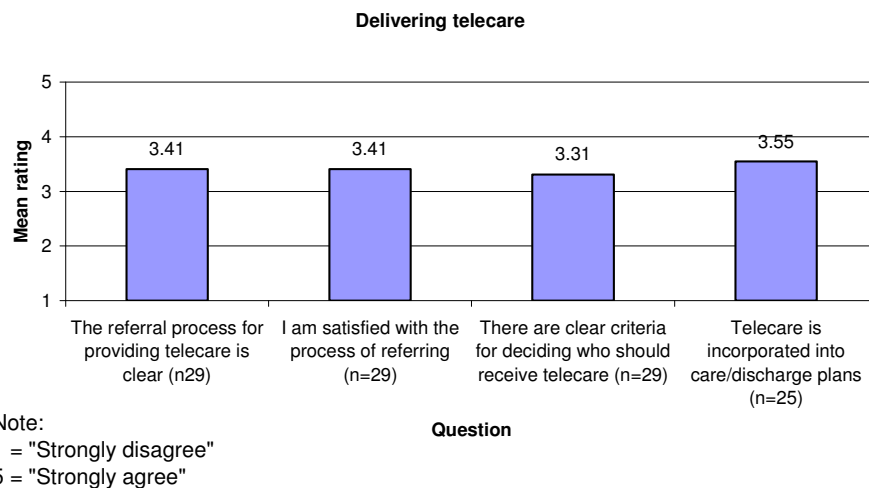
Figure 14 Staff perceptions of how telecare is delivered.

Nineteen respondents made suggestions for how to improve the referral process. The responses are shown in Table 8.

Table 8 Staff suggestions for improving the referral process.

Suggestions	Number
Communication/feedback	3
Training/information about the telecare options available	3
Raise awareness of telecare amongst healthcare professionals	2
Include telecare in the discharge process and care plans	2
Make electronic referral possible	1
Provide patients with a video or cd with information about telecare	1
Clear guidelines on suitability of patients	2
Broaden the base of referrers	2
Partnership working	1
Access to a specialist who can advise on patient needs	2

Increased information about telecare and the provision of training were suggested by six people as ways to improve the referral process. Communication and feedback to the referrers was also a suggestion made by three people.

6.2.4.   Staff satisfaction with telecare

Staff were asked to rate their agreement with various statements about telecare. The results are shown in Figure 15. Although ratings were not particularly high for any of the questions, it is interesting that the mean rating for the item "telecare equipment is reliable" indicates concerns among staff about the technology involved.

Staff opinions of telecare

Note:
1 = "Strongly disagree"
5 = "Strongly agree"
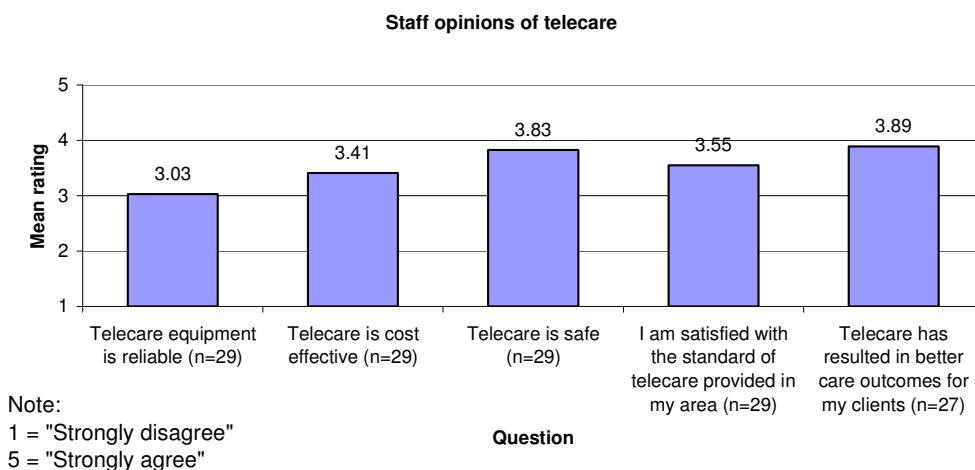
Figure 15 Staff opinions of telecare

The survey included a list of the benefits of telecare. Participants were able to tick as many as they agreed with. As a result percentages in Table 9 do not add to 100%. Most respondents felt that telecare increased confidence for people living alone, that it provided peace of mind for family, increased feelings of independence and safety and provided a faster response if help was needed.

Table 9 Staff perceptions of the benefits of telecare.

Benefits of telecare (n=29)	Percentage
Peace of mind for family	93.1
Increased confidence for people living alone	75.9
Faster response if help is needed	89.7
Increased independence	65.5
Patients feeling safe	75.9
Cost savings	31.0
Less fear of falling	20.7
Fewer burdens on carers	44.8

Similarly, staff were asked to indicate which of a list of problems they had encountered in introducing telecare and these are shown in Table 10. Again, the percentages do not add to 100% because respondents could select more than one problem. Over 50% of the respondents thought that lack of information was a problem, followed by lack of training for staff. Lack of referrals was also seen as a problem by a large number of respondents.

Table 10 Staff perception of the problems of introducing telecare

Problems of introducing telecare (n=29)	Percentage
Lack of information	58.6
Resistance from patients	31.0
Lack of training for staff	51.7
Lack of referrals	44.8
Resistance from staff	13.8
Lack of staff time	31.0
Difficulty building working relationships	24.1

The following comments were also made about the problems they experienced in introducing telecare:

- Availability of some of the telecare equipment
- Benefits not recognised
- Equipment not up to the job

- Costs to patients
- Equipment not user friendly
- General anxiety inducing for some patients
- Lack of specialist assessors
- Maintaining staff awareness
- Resource availability

6.2.5.   Issues arising from change

Respondents were asked an open ended question: "In what ways if any does telecare change your relationships with clients. The data were analysed thematically and the number of times a comment in a particular category was made was counted. Table 11 shows responses to the question of how telecare affected staff client relationships.

Table 11 Effect of telecare on staff/client relationships

Effect on relationship with clients	Number
Positive	4
Negative	2
Increased patient confidence	2
Reduced risk/worry for care worker	2
Client is more empowered, relationship more equal	3
Don't know/not applicable	7
No change	8

Many respondents indicated that telecare had a positive impact on their relationships with clients due to their being able to offer the clients a free service, more choices over and above basic needs and a smoother discharge process with improved continuity of care. Negative effects on client relationships were seen to be as a result of the client being resistant to telecare, in which case it can set up barriers in the relationship. One respondent commented that if the professional broaches the subject of telecare at assessment it can be easier for clients to accept telecare than otherwise would have been the case if family raised it as an option. One respondent from the

COP-D project thought that more time was spent discussing systemic observations rather than the patients' clinical condition, but it was not clear whether this was seen as a positive or negative effect. Interestingly, many people felt that telecare did not change their relationships with clients.

Another open ended question asked respondents whether telecare changed their responsibilities at work Again responses were thematically analysed and categorised and are shown in Table 12.

Table 12 Effect of telecare on work responsibilities

Effect on work responsibilities	Number
Provide client with more options	6
Making referrals	2
Increased professional responsibility/vulnerability	1
Increased workload – computer work, keeping records	3
Decreased workload – prevention of falls, fewer visits	2
Enhanced partnership working	1
None	17

Although many respondents said that telecare had not changed the way they work this may be because of the degree to which they have been involved with providing telecare. Six respondents noted that they were able to provide clients with more options and three commented that their workload had increased. Although two people said that their workload had decreased, another person said that in theory they thought they could visit patients less if observations could be accessed from the office, but in practice this did not happen. One respondent identified a need for robust risk management strategies for people with dementia being supported in the community.

Forty five percent of respondents said that they had experienced particular difficulties in providing telecare for clients/staff. Table 13 shows the difficulties and how many staff experienced each difficulty.

Table 13 Difficulties experienced by staff in providing telecare.

Difficulties experienced	Number
Equipment reliability	4
Lack of information about equipment	1
Delays in procurement/installation	2
Appropriate backup	2
Client confusion	1
Family/patient resistance	3
Lack of equipment	3
Suitability for client	2

Respondents were asked what particular difficulties they had encountered in providing telecare for clients. The responses were thematically analysed and categorised. Equipment reliability, delays in procuring and installing equipment and lack of equipment were problems encountered by 9 respondents. Other comments were related to the needs of the patient. One respondent said that a phone call to remind a patient to take their medication is not a guarantee that they have taken it. Another stated that a patient became extremely anxious about the equipment and was unable to take readings (COP-D project). Another respondent who had referred a patient for telecare said that they were contacted by a patient's daughter when a patient did not take their medication and the call centre contacted the daughter about it.

An open ended question asked respondents for suggestions about how the telecare service delivery could be improved. The results are shown in Table 14.

Table 14 Staff suggestions for improving telecare service delivery

Suggestions	Number
Publicity and information	9
Integrated approach – including health and social care	1
Dedicated staff who can champion telecare and provide specialist advice	1
Improved backup	1
Improved equipment reliability	4
Feedback to referrers about outcome and about installation	2
Provision of clear guidelines for assessing clients for telecare	1
More equipment	2
Demonstrations in hospitals	1
Include in care assessment process	1

There is clearly a need for greater publicity and information about telecare to be available. Some respondents also noted a need for information about how valuable telecare is. Equipment reliability and the need for more equipment were identified as problems by six people. One person suggested that there was a need for a specialist assessor who can keep up to speed with this whole area of knowledge, can educate staff and raise awareness generally.

6.3. *Summary*

- Staff were only slightly positive about the process of implementation of telecare in Guildford and Waverley.
- There were high rates of satisfaction with the training staff had received although many staff had not received formal training.
- Staff identified that processes for referring and assessing people for telecare required improvement.
- Lack of information about telecare, lack of training and lack of referrals were particular problems.
- Telecare had both positive and negative effects on relationship with clients. Positive effects included being able to offer clients more choices and better continuity of care. Negative effects included the creation of negative feelings if clients were not receptive to telecare.
- The effect of telecare on workload was mixed with some staff reported decreased workload and others more. In some cases, expectations of a reduction in workload did not materialise.
- The main suggestions made by staff for improving the service were to increase publicity and information about telecare and to improve equipment reliability.

7. Conclusion

The implementation of the PTG in Guildford demonstrated a number of strengths. First, the project had a strong governance structure that facilitated the implementation of the projects. Second, project teams were supported in their activities particularly by the appointment of a telecare administrator who took on the key role of co-ordinating activities between project teams, referrers, installers and clients. This role was pivotal in the implementation process. Third, the provision of training was quite extensive and staff from the call centre took a key role in contacting those they thought would benefit from training and providing a personalised introduction to the call centre and telecare in general. A telecare demonstration was set up to enable equipment demonstrations and written guides to telecare equipment were produced. Fourth, regular project meetings provided valuable opportunities to share experiences, gain information and consider how the projects could complement each other, for example through cross referrals.

Users and staff in general displayed positive attitudes to telecare and its benefits however there were some areas for improvement. Providing more training, publicising the telecare service more extensively and improving the referral process for telecare provision were priorities identified by both users and staff. The success of telecare will depend on whether staff from health and social care can co-ordinate their services effectively. The study found encouraging signs that this was beginning to happen but there is still scope for improvement. Experience with telecare in Guildford is still in a developmental phase and the positive benefits of the initial phase of the PTG need to be built on.

7.1. Recommendations

7. **Training.** Review the training provided for all staff and people who refer clients for telecare with a view to increasing the type and amount of training available. Specific suggestions for training emerging from this study include providing regular updates, a downloadable leaflet for staff and patients,

updates from manufacturers, comprehensive information on the equipment available and the payment process and the opportunity to review a service already in use.

8. **Publicise telecare.** Lack of information about telecare was identified as a problem by both users and staff. Consideration should be given to publicising the service more widely and more comprehensively.

9. **Referrals.** Improved training and publicity will address some of the referral problems. However, additional changes should be considered. These include providing communication and feedback to referrers, including telecare in discharge and care plans, enabling electronic referral and providing clear guidelines on telecare use and access to specialist advice about patients' needs.

10. **Reliability and usability of equipment.** Review problems with devices and develop a process for reporting problems to manufacturers and suppliers. A procurement process should also be formalised that enables proposed equipment to be assessed for suitability with the target user group. Experience with the COPD project has shown that this is especially important.

11. **Sustainability.** Significant progress has been made in implementing telecare in Guildford. Working partnerships have been forged and new patterns of working have been established. Telecare appears to be of great benefit to users and carers and is highly valued. The issue of sustainability through continued funding now needs to be addressed and consideration should be given to how to move forward. To be sustainable telecare needs to be integrated into mainstream care rather than remaining as a special project that relies on the enthusiasm of a small group of people for its success.

12. **Call Centre Data.** A limitation of present systems involves the capture of call centre data. There is currently no easy way to capture data that would allow analysis of alarm activations, the reasons for them and the actions taken. Even collecting information about the numbers of incoming and outgoing calls was difficult and laborious. It is recommended that consideration be given to implementing systems that will allow a database of call centre and client activity to be captured and easily analysed. This would enable better analysis of the benefits of telecare, the costs and the difficulties associated with telecare.

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9.   Appendix A Raw data from interviews

Guildford PTG Interviews with Users

Findings from interviews with users and carers

We invited participants who completed the questionnaire to indicate whether they would be willing to be interviewed. From a sample of 120 users who were sent a questionnaire, 17 users and 5 carers indicated their willingness to be interviewed.

Individual interview was conducted in participant's own home at a mutually convenient time. In five cases, users and carers were interviewed together in the user's home. Interviews lasted about half an hour to an hour, and were tape-recorded and were transcribed verbatim, and analysed thematically.

Findings from User interviews

A number of broad themes emerged from the analysis of interview data. Examples of these are 'being in the telecare scheme', sources of referral, living with telecare, benefits of telecare and usability. Under some of these broad themes are sub-themes. For example, under the broad theme of 'perceived benefits' were sub-themes including 'feeling safer', 'living independently', 'a sense of security', 'a peace of mind' and 'having more control of my own life'.

Being in the telecare scheme

Users and carers were asked about the length of time they/their relative had the telecare device(s) in place. In this project, the time span during which telecare device(s) were in use ranged from a week to a year.

>   **How long have you had the smoke alarm and alarm system?**
>   Oh, it's not a year yet, is it? [User 1]
>   [Oh it must be getting on that way. [Carer 1]
>   About a year. [User 1]
>
>   About six months. [User 3]
>
>   About a year now. [User 4]

I had it for a week. [User 6]

About a year, 6 months or a year, I can't remember exactly when, I'd have to look. [User 8]

About a year now [Re: pendant alarm] [User 15].

Sources of referral

We were interested to know the sources of referral as this would inform us of some aspects of the implementation of telecare in the local areas. Given the range of schemes used in this particular PTG project, it is fair to suggest that there is some engagement from mainstream services; the message of telecare availability might be getting through to other professional groups both in primary and secondary care such as GPs, specialist care team and those working in acute settings. In some cases, users and carers reported self-referral and finding out about telecare through word of mouth via other contacts, friends and/or neighbours.

> **And who suggested that you had it?**
> I think the council, wasn't it? [User 2]
> I'm not sure, we were having a lot of work done, the bathroom has been done and the thing and they come in and said that we had to have smoke alarms didn't he. No, he said he'd do a smoke alarm and connect it... from the council I think. .[Carer 2]
> And connect it up and all that, I don't really know at the time its just people doing all these, because we had the bathroom done, you know, a walk in, I think it was the same people wasn't it? [User 2]
> Yeah, several people come in, the care people come and the council come and age concern come. [Carer 2]
> Age concern, everybody. [User 2]

> **And who suggested that you had a try of this equipment?**
> I seem to remember it was my GP and the reason that he suggested it was the fact that my wife died at the end of November, I'm a diabetic and have been for many years and he was concerned about me living on my own because if I have problems and I do have problems at times, unless there is a means of people being alerted, well it could prove very difficult, it could even prove fatal if I go into a coma which I have done more than once, so I believe it was suggested originally, first by him and they

followed through the channels and Waverley came to see me and it went on from there. [User 3]

Well the manager of the court. [User 4]

Well the manager of the court [Sheltered Housing]. [User 15]

I had accidents and I fell over and that made them decide to put it in… Oh yes, man in Guildford whatever he is, then he sends a message round to the carers in here [Sheltered Housing]. [User 5]

The COPD at home team. [User 6]

The respiratory nurse at the hospital. [User 7]

I think it was my social worker. [User 8]

And who suggested that you had that piece of equipment?
The hospital. [User 9]

Well, I was in hospital and there was a patient there, his wife runs the control centre at Park Barn and started talking about it and he said I'll talk to my wife when she comes in and it sort of snowballed and got picked up from there. As far as I'm concerned it was a great thing because one of my concerns while in hospital is my wife here on her own, the children are a long way away, 300 miles and my daughter is 100 miles so they can't sort of get here, and I know she's on her own and you're laying in a hospital bed and it's a bit disconcerting. [User 10]

Expectations

What users and their carers expect from the use of telecare can easily influence their satisfaction in the service provision. Because of some changes in their health and social circumstances, users and/or their family carers had some expectation of what telecare was meant to do for them. Some saw the use of telecare as an answer to some 'emergency' in case there was 'trouble'; others viewed it as a form of 'insurance' that something or someone would know what to do in an emergency thus providing some reassurance. Few would have liked the telecare devices to be able to perform more

functions such as activating an alarm during a hypoglycaemic episode or be able to 'work' outside the house. Only one user was not sure what to expect from the use of telecare while one participant was surprised by the size of the device installed.

And it might have been one of the nurses. When you were given the alarm equipment, what were your expectations about what would happen with it?
Well, I understood in an emergency it would come on and be connected to the authorities like and it would go on from there, they would answer the call if there was trouble or there wasn't and that was the end of that. [User 1]

And what were you told would be the expected benefits of having the equipment?
Well, the expected benefit of having the equipment is that it's an emergency call system which I can activate by because I wear this round my neck, I can activate it by pressing it or being one of the newest ones it activates itself if I say have a fall and it becomes horizontal like that, it will activate itself and I therefore don't have to do anything, unless I'm able to press the thing if I feel ill. So it's really to me, it's an emergency insurance system...Now one thing I would say and I did mention this in passing that if I have a hypo and I'm sitting somewhere and this doesn't, I mean because I'm confused and I can't gather my thoughts as part and parcel of my hypo, if I have one without warning unless this should, because I fall go horizontal it then can't help me and that leaves an area in which I could then have hypo, go into a coma and therefore because it can't help me, anything could happen. [User 3]

Well if you happen to fall down in your flat or something's wrong then you just press…that and they know where it's coming from, but it doesn't work outside. [User 4]

And did you have any expectations, were you going to benefit from it or?
No, I had no idea what it was going to be so it was all new. [User 6]

And what did you think was going to happen when you had the equipment, did you have any expectation?
Well, she said do you mind having this machine at home, I said 'well how big is it?', she said 'oh, its about that big', and when she brought it it looked like an octopus. She said it was a small thing, I said not one like that. [User 7]

'Some reassurance'

66

What were you expecting as a result of having those pieces of equipment?

Some reassurance if I was to fall and unable to move, I could press the fob and the telephone would help me. My best friend is actually 89 (laughs), he's a wonderful chap we go out to concerts in Woking and Christchurch and he comes around but he, not always available. [User 8]

We had no expectations really, just to monitor and to see how she's going, keep everything monitored, which is easy to do with her sitting at home than in hospital and that's all. [Carer 1]

It was reassuring that knowing that how you felt was being monitored. Because if you were in trouble then somebody would come. [User 11]

'But it doesn't work outside'

Well if you happen to fall down in your flat or something's wrong then you just press that and they know where it's coming from, but it doesn't work outside. [User 15]

Previous experience with telecare

Users' and carers' previous experience in using telecare was explored; this was found to be generally limited to a smoke alarm. Majority have not had experience with telecare devices.

Have you had any previous experience of using any kind of technology or system?

No. [User 1]

Well we've had a smoke alarm in the hall for around, probably 15 years since the fire brigade came and knocked and said can they put one in and I could have had the place caught fire. [User 2]

And have you had any other technology before this time?

Not for medical purposes no, well not for a call system no… No, but then I've not had any previously. [User 3]

And did you have any expectations, were you going to benefit from it or?

No, I had no idea what it [Tunstall S21] was going to be so it was all new. [User 6]

And you haven't used any of the equipment before?

No. [User 7]

Have you, what is your experience of using technology previously?

> Not a great deal I would say, not a great deal, we're not into computers and all that sort of thing, the DVD and the video, the television, the microwave, that's about it. [Carer of User 11]
>
> No, that [Tunstall S21}was the first one. [User 11]

> Video- recorder. I am not computer literate. I don't have a computer, no, I'm not on-line or web-site or anything. [User 12]

Perceived Benefits

The benefits of telecare were explored in our interviews with users and carers. Many benefits were identified; these included 'being on my own', 'getting immediate feedback', 'living independently', 'a sense of security' or 'a peace of mind'. Many recognised their own vulnerability when living on their own and having some physical disability and had found that the telecare device made them feel 'safer' .

> **So what do you think is the main benefit to you for having this piece of equipment?**
>
> Well I think in an emergency if they react as quick as that its going to be beneficial to us because we're slow to get about, if there was anything dangerous we would try and get out obviously but if we couldn't it would be pretty quick. [User 1]

> Well, particularly being partially deaf.[User 2]

> Well, I mean, if I happen to fall down or I'm not ill or anything, I just press that and they come up. [User 4]

> What did you think you were going to benefit from using it?
>
> Well, it didn't actually do anything to me did it [S21], it just monitored me blood and things like that. [User 7]

On my own

> Well, I'm on my own and I can't ring my daughter up for her to come and I'm not very friendly with the neighbours. They're new people, been there about two months now. I've never spoken to them. They keep themselves to themselves. [User 13]

> Oh, just confidence, you know, because I live alone. It's nice to know that there's something to call on, yes. [User 12]

<u>Getting immediate feedback</u>

Well that, I'm not a health professional and it [Tunstall 21]was going, it was being recorded so that it would instantaneously read the other end and if there was anything wrong I would get immediate feedback. [User 6]

<u>'Carry on living on my own'</u>

Oh yes, without a doubt, I mean if I didn't have it then I think that I would probably not be able to carry on living on my own, I would have to go into some form of accommodation where help could be at hand, but I mean, apart from the diabetes I'm fit, I'm active and I'm perfectly able to look after myself. I have a daughter who lives near and she comes in 3 or 4 times a week, the help she gives me apart from that she comes in one morning a week and does the cleaning, so that's a great help and she's a great help but then she understands my needs quite well because she is a care assistant in an old people's home, that's the job she does so she's well used to. [User 3]

Would you say you can live more independently now that you have the telecare?
Oh, yes, definitely. [User 8]

Would you say you can live more independently with the telecare device [S21]?

Yes. [User 11]

<u>Feeling 'safer'</u>

Feel safer and makes you worry about some of the other residents, whether they've got anything similar. [User 2]

I feel safer with it [pendant alarm], of course. [User 5]

Yes I think it [pendant alarm] did make me feel safer. [User 6]

<u>A sense of security</u>

Well it gives you a sense of security really, yes. Yes with my frames and my button here I know that I can get help if I need it. [User 9]

Well, a bit of security really, I mean, I didn't lose consciousness, but if I had, you know and had had time to press the buzzer, that would be a great help to know something would happen, if I was unconscious. [User 12]

A Peace of Mind/ Reassurance

> It is peace of mind, it is the fact that it can activate and call help even when I don't, when I'm not calling it by personal action. [User 3]

> Well I suppose the main benefit is peace of mind when I'm not here and I know the wife's here alone, I mean – [wife] or vice versa. [User 10]

<u>Having more control of my own life</u>

> Has the contact between you and social services and nursing services changed since you had the alarm put in your house?
>
> **Probably I don't need to contact them as much, I've more control of my own life. [User 8]**

'Weren't taking up nursing facilities'

Users and carers perceived that that use of telecare devices had been beneficial in several ways; it provided reassurance and at the same time enabled them to remain at home. Being cared for at home also relieved the demand for nursing bed in hospital and that it was definitely easier and comfortable for them, as illustrated below:

> What do you think was the main benefit to you from having the machine?
>
> Reassurance really wasn't it?. [User 11]
>
> Being able to be at home. [Carer of User 11]
>
> Yes, and being able to be at home, I prefer being home, I prefer to be in my chair because I can sit. [User 11]
>
> We weren't taking up nursing facilities. [Carer of User 11]
>
> The nurses came, they were very very nice, always have been when they've come. Husband: they popped in here once or twice, every other day I think they came into see, just to check if things were okay. [User 11]
>
> A lot easier than being in hospital, taking up a hospital bed and nurses and doctors and everything else. [Carer of User 11]
>
> Much more comfortable of course. [User 11]

'Comfortable with it being there'

> **What do you think was the main benefit to you of having this equipment?**
>
> Knowing that the oxygen in me blood was sort of up a bit, not low right down. You felt sort of comfortable with it being here you know, seeing that the machine was sort of looking after you, you know. [User 7]

Living with telecare

Our evaluation also illuminated what living with telecare was like for some users and carers. They reported what routine was in place for them and how in some cases, there was no change in their daily routine although there is an awareness that the device(s) were 'there'. They were only reminded of the presence of the device(s) when an alarm had been triggered. Users' adherence to wearing their device could have avoided some life-threatening event. On the other hand, the use of telecare can be restrictive, particularly if the user plans to go away.

> Yes I suppose so, I don't think about it unless it goes off. [Carer of User 1]
> We're aware it's there. [User 1]
>
> It's [smoke alarm] up there and forget about it, not unless you're going to change the battery if they need changing. [User 2]
>
> Oh it's been used several times, but not by me calling them, by them calling me because if I'm sitting here which I do quite a bit and it [fall detector] becomes inadvertently horizontal which it would do if it's pressed like that if I lean forward or if I fall asleep it operates the system, if it's like that for less than half a minute and then they are calling me and they're calling me because the machine is on the wall and it invariably wakes me up and I have to go and answer it and say I'm okay, it's just inadvertently went. [User 3]
>
> And the worst situation was I went into a coma and I was found, I hadn't got the thing on, I hadn't got it then but I fell and injured my face when I fell onto the floor and I was there for over 7 hours before I came round, but as my GP said the situation could arise where I wouldn't come round. He agreed with what I'm saying. [User 3]
>
> And it certainly made, you certainly couldn't obviously going away with that kind of equipment, it [Tunstall S21] would be far too big. [User 6]

Change to home environment

> **And has your daily routine changed at all since you've had the device in the house?**
> No. [User 3]

Yes, the wife didn't like it all that much, it's sat out there most of the time now because we've got the television and they sit in there and watch what they want and I sit and watch what I want. So it doesn't really, it didn't really worry me in there, you got used to it in a couple of days time. [User 7]

Has having the equipment changed your environment?
Oh it's been marvellous, yes. …I couldn't do without them, no, I'm very independent I am, I am independent of anyone else now, yes. [User 9]

How did the service work for you, did it?

Very well. [User 9]

Very well indeed. We had one slight problem and that could have been the machine or it could have been us, we don't really know, I had to phone up, we were given a phone number for any problems and I had to phone up and they told me to just reset the machine and start again and it was fine. She said it does sometimes happen like that so, that was the only problem we had with it the whole time we had it, just that one minor hiccup. [Carer of User 9]

And how about the way in which it affected your home environment having the machine here?
It didn't really, did it? [asked husband] [User 11]
Not really, I mean it's a type of machine that you don't normally have, apart from that it didn't affect the running of the house or anything. [Carer of User 11]
The only thing was that's bulky, that's the only trouble. [User 11]
What all the buttons were for and what done what and why but that's grandchildren for you. [Carer of User 11]

'The worst situation'

One user reported an event during which the pendant alarm was not worn and not triggered. This was potentially life threatening as the user was in a coma.

And the worst situation was I went into a coma and I was found, I hadn't got the thing on, I hadn't got it then but I fell and injured my face when I fell onto the floor and I was there for over 7 hours before I came round, but as my GP said the situation could arise where I wouldn't come round. He agreed with what I'm saying. [User 3]

Change in health and social care

Living with telecare could potentially affect the way in which health and social care were delivered. We asked our users and carers if they had found any changes had occurred. Most reported few changes.

> **Has there been any difference in the number of visits that you have from social services or the district nurses or anybody like that?**
> No. [User 4]

> Did you have any more or fewer visits than normal from the respiratory nurse?
> Well obviously in that period I was quite ill so it was a daily visit I had from them. [User 6]

> So would you say that you can live more independently now you've got these devices?
> It hasn't really made any difference has it? [asking user] [Carer of User 10]
> No, we still live the same. [User 10]

> Has there been a change in the number of visits or your usual contact that you've had since you've had the machine?
> Not since we've had it. [Carer of User 11]
> No. [User 11]
> We've had no more contacts apart from you joining us today, we did have.. had a lady from the social services or council or something come out because of my wife's disabilities to see if they can help which might possibly not of happened, she's been since and things have gone very well in that direction for us anyway. [Carer of User 11]
> I had them [nurses] everyday at first and then every other day for about a fortnight. [User 11]
> But they haven't been since have they, since the machine and everything went back. [Carer of User 11]

User satisfaction

In this study, there seems to be universal acceptance and satisfaction with the telecare service offered, as found in Brownsell and Bradley's (2003) work. Many were very positive about the telecare service, as shown in other counties such as Kent. Many users indicated that they were fairly familiar with the use of the community alarm. Despite some initial hiccups, most users felt supported by the Call Centre staff and health professionals.

> **Okay. And how has the service worked for you?**

It's been alright at the moment thank you, I say it's [smoke alarm] gone off a couple of times accidental with the door open and the wife cooking and the reaction is immediate isn't it. [User 1]

Yes. [Carer of User 1]

It actually takes us by surprise, it's quite an alarm, we don't know where to run, you can talk from the bottom of the stairs, it's in the bed room and they can hear you and say 'okay fine'…It's pretty immediate, yeah. Because you've got that going and it stops for a little while and then the speech is going, we all panic for a little while, but we've got used to it now haven't we? … you just tell them what's the matter at the other end and you get serviced pretty quickly. [User 1]

Yes, they put an ordinary smoke alarm over there and …they put one in the hall – an ordinary one and they put a heat sensor I think if the oven heated up when we weren't in there it would sound the alarm off again so for me it's a good service. [User 2]

I'm extremely pleased with it. [User 3]

Yes, there were no problems with delivery, it took a bit – two of them came in and it took a bit of time setting it up, getting the telephone line sorted, but the set up itself was no problem. [User 6]

As I say it all seems to work fine, I've got no complaints and I think it's a great system. [User 10]

Very good. [User 11]

Very good, it was several straightforward and we knew we had help at the end of the line, we only had to make a quick call and we could get advice and help which was very reassuring…No down points really at all just apart from the fact that you've got the chunk of machinery which isn't massive but you know, if you've got a very small flat it could be a bit awkward because it's quite big [Tunstall S21], it takes over the floor the stand. [Carer of User 11]

The only person who didn't like it was the cat wasn't it. [User 11]

It's light and it's removable but no, it's very good I thought. [Carer of User 11]

Usability

One of the objectives of this project was to determine the usability of the telecare devices and the services offered. We explored with users and their carers on how easy it was to learn to operate some of the devices. The installation of devices was perceived generally as unproblematic. Several issues arose from their comments. While some reported that the devices they were using were easy to learn to use, others had concerns. For example, one couple was not sure if they would have to change the battery of their smoke alarm. Another was concerned for those who might have hearing impairment and could not hear the alarm activation. One user highlighted the limitation of the device he had should he experience a hypoglycaemic episode. One other reported the sensitivity of the device he had which went off 'on its own'. Another user reported feeling flustered in having to deal with a situation when the call centre line was busy.

How easy was it for you to learn to use the equipment?

No bother at all, it's just got the button on the thing and then you've got the red button that glows all night, if you're in the dark you just tap it and away it goes. [User 1]

How has the service worked for you so far?

Well, nothing's had to be done to it so alright, nobody comes to inspect it but we give it a test, we press the button, you know press it and see if it makes us jump which it does. I've had more trouble round here with people, I'm partially deaf, I haven't got my deaf aid in at the moment, I'm partially deaf but for people totally deaf and if they press the button, they don't press the button because they don't know anything about it so if anybody calls at our door we say 'do you know you're bleeping?' and they didn't know so I give them a battery and put it in but they wouldn't know apart from that, with that in mind it's dangerous because if they don't know the thing's bleeping then it wouldn't work in an alarm. [User 2]

No problems apart from, I haven't had to change the battery yet so the only problem is going to be getting up to it, because I won't be able to get up to it, if my wife can climb the steps and get up there, I don't know, if not we'll have to ask the council to come and do it. [User 2]

Oh yes, just for easy I press that one but if I lean against anything it [fall detector] will go off on its own (laughs). [User 5]

And how easy is it to learn to use the equipment?

> Yes, you just press that and this one will go off on its own if you don't look out, if you lean against anything. [User 5]

'Setting up'

> Yes, there were no problems with delivery, it took a bit – two of them came in and it took a bit of time setting it up, getting the telephone line sorted, but the set up itself was no problem. [User 6]

> Oh, the actual using of it [Pendant alarm] is fine. The setting up was a bit hairy with the 'phone, you know, getting the right plugs in the right place. The lady came to help me do it, you know, and all sorts of noises were going off at one time, but I think that was a fault of the 'phone, not the fault of the equipment, but then we sorted it all out and it's fine now. [User 12]

> That was my main critics of the equipment [S21] , it was a bit bulky, a lot of wires around and it was not easy to, you certainly wouldn't have been able to use it on your own, my wife had to be here. [User 6]

> Pushing the buttons because he's all wired up and he and I decided to say we do this now, we know what we're doing anyway because we got it all, we were quite used to doing it, but although it is possible to do it on your own, we're pretty able bodied in being able to move around, if you weren't or you're arthritic or what have you, I think you'd have difficulty without another person being there and we nobody somebody who's already had it as well and she couldn't manage on her own, she had to have her husband pushing the buttons at the right time. [Carer of User 6]

> I think the biggest problem I think was with the little temperature. [User 6]

> The thing that goes on your arm. [Carer of User 6]

> The little button which you have to hold it there for 10 minutes or so, holding your arm in like that which meant you couldn't actually reach the keyboard anyway, so it was a bit Heath Robinson ish I think. [User 6]

Is anything else you'd like to comment on about the service?

> Not really, as I say I think the idea is good, the principle is good, the training was fine no problem there, we could use the equipment [S21], but as I say the equipment itself could be modified and brought into the 21st century. I know it is computers but there's too many wires and it was too awkward for a single person to use. [User 6]

Do you find the equipment easy to use?

Yeah, quite easy, yeah. For me I'm not very, as you say, I'm not very up on this technical stuff but it tells you what to do and you go and do it and that's it. [User 7]

Okay, so is there anything you want to say about the equipment.

No, it's easy to use and that's about it really. [User 7]

How easy was it for you to use the equipment [S21]?

Very easy. [User 11]

Oh, a gentleman brought it and I more or less knew what it was for and how it worked. But it's in an awkward place sometimes. Several times I've knocked it and they've come through to me. [User 13]

'But it doesn't work outside'

Well if you happen to fall down in your flat or something's wrong then you just press that and they know where it's coming from, but it doesn't work outside. [User 15]

'Supposing I collapse'

No. But they [call centre] make periodic calls to you. I mean, supposing I collapsed, I did, say, collapse, and no one would come. I mean, my daughter doesn't come in every day. Being a school teacher she doesn't have time.   If they made a call to me once a day or every other day [User 13]

Up to a point, I'm not wholly and the reason I'm not wholly is because I'm a diabetic and I do have occasions when I can go into a hypo without warning and if I don't get a warning and I'm in the hypo and I can't do anything, so I'm sitting like this and the thing doesn't go horizontal – I'm in a hypo and when you're in a hypo you become confused, you cannot connect your thoughts, you sometimes don't know where you are and it will only operate itself if it goes onto the horizontal and therefore if it doesn't go onto the horizontal I could have a hypo, I could go into a coma and it has indeed happened without me being able to call anyone or it activating itself to call someone. [User 3]

'Flustered'

Yeah, there was one thing, I told you it's very quick to reaction and I do a pendant check once a month, I just push the pendant and they answer and I say, they ask if we're alright and we say 'everything's okay, it's the monthly pendant check', 'fine, you're coming through loud and clear', I'll switch it off and I'll say 'thank you very

much' and that's that. Last month I done the pendant check and it dialled through and the voice came through 'the line is busy could you do a ring back' and that flustered me, I didn't know what to do. So I waited a while and she came back and said 'is everything' and I said 'yeah fine it's the pendant check' and she said 'okay and switch off', but I said to you afterwards if that was an emergency that's nice isn't it that you get a line busy do a ring back, how do you do a ring back, push the pendant again or what, it's a bit confusing and I thought if it was a really bad emergency like me on the floor or her on the floor asking to do a ring back is a bit flustering you know what I mean, it wasn't the usual 'is everything okay?' and you say 'yeah, fine, everything's coming through loud and clear', it didn't happen. [User 1]

'A slight irritating thing'

> And has the fixing of the equipment affected your home environment at all or has your home improved?
>
> There was a slight irritating thing, I have a slow cooker, I go to St Peters Day Centre, I go for 2 days a week and while I'm away I leave the slow cooker on, beef and I do a casserole, it's been very nice, I'm quite partial to garlic (laughs), but the thing is it seems to set the alarm off. I came back and the slow cooker had set it off, it's better if I keep that door closed. [User 8]

Technical Support

The usability of the telecare also depends on the technical support available to all users and their carers. The majority of users found the technical support adequate and was satisfied with it.

> Yeah, they [call centre staff] were pretty good, I made a couple of mistakes and they rang straightaway. They put me right. [User 7]
>
> **So what happened, how did you use the equipment?**
>
> Well, I just did what they told me to do, press this button, press that button, away it went. I made a couple of mistakes and they just rang me up and said start again. [User 7]

> You were taught to use the alarm system?
>
> **I accidentally set the alarm off by pressing the fob accidentally. [User 8]**
>
> And what happened when you did that?
>
> **In a very timely fashion the centre contacted me and someone called my name and 'are you alright' and I can easily speak back to the telephone so that's excellent. [User 8]**

We test them [alarm system] out once a month.

Right and what happens when you test them?

Well, does everything it's supposed to.

Do you get a response from the call centre?

Yeah, yeah, they always answer back and we say we're just checking. [User 10]

Did your machine alarm [S21] so that you had to contact the call centre at all while you had it?

Did the alarm go off? No, we had no problems like that. [User 11]

However, one couple reported how they had to deal with an instance when a fault had resulted in triggering the alarm:

No, as soon as she said everything's okay I just thought that's it it's only a check right, but it was just that, we mentioned it. [User 1]

That thing where, there was a time when the men came to fix it that time, that was terrible that was. [Carer of User 1]

Oh no, the alarm just after they'd fitted it, the one upstairs must have developed a fault and it went off, it was about 11 o'clock at night wasn't it and of course the speaker comes on straightaway and says 'we're okay, everything's alright, its just a fault' and it wouldn't stop, we came down from bed and locked ourselves in, it was a terrific noise and eventually a guy came out at 1 o'clock. [User 1]

Two hours it was going for, we didn't know what to do, did we? [Carer of User 1]

No, it was a bit frightening, well not frightened just worried that perhaps neighbours was hearing it you know, it got so bad that we came and locked ourselves in here didn't we, but they were straight out the next morning 9 o'clock and fitted a new one, as quick as that. [User 1]

Recommending to others

Although users and carers were generally satisfied with the telecare service and the devices they used, we were also interested to know if their experience would lead them to recommending telecare to others. Overall, the response had been overwhelmingly positive. However, there was some feeling of frustration expressed because of faulty device and the need for refinement.

Would you recommend the system for family for friends?

Yes I would, in fact the other smoke alarm we had that burnt out, which got damaged by smoke, we recommended that and my sister had one and various people in the family have had one. [User 2]

Oh yeah, yeah, definitely [re: pendant alarm]. [User 4]

Would you recommend other people having it ?

Well, if they're elderly yes, yeah I would. [User 5]

So would you recommend it [Tunstall S21] for anybody else?

Oh yes. I would recommend it because I think the idea is very good, they just have to refine the equipment. [User 6]

Would you recommend the equipment [pendant alarm and smoke alarm] to your friends and family?

Certainly, certainly. [User 10]

Would you recommend other people had it, do you think it would be useful for other people to have?

Oh I don't know, I don't know whether it's [fall detector], I don't want it here because it's such a nuisance. I've got my mind on the thing all the time which is not nice for me and I had to you know, because if something will go wrong again and I don't want to keep on them phoning up and getting annoyed. [User 14]

Paying for telecare

To gauge the general feeling among users and carers about having to pay for telecare, we asked them if they would consider paying for it. Overall, most users and their carers found the telecare invaluable and reported that if they could afford to pay, they would. Some were not aware of what it was costing them currently.

If you have to, would you be willing to pay for this service?

Yeah, I think if we had the funds which we didn't have, we've got no funds you know and yeah, we'd be willing to pay for it wouldn't we? [asking carer]

Yeah, it's a handy thing to have. [Carer of User 1]

Or something towards it if we could afford it, yeah. [User 1]

Yes, if we could afford to pay for it we would. [Carer of User 1]

I did have a letter to say that there is money involved and I thought 'hang on a minute', they said it was free, but nobody hasn't ever charged me anything anyway. [User7]

I don't know how much it's [smoke and alarm system] costing me per week.
You don't know how much.
No.
But you are paying for it?
I think it's been paid in my telephone bill but I really don't know how much I'm paying for it. [User 8]

And would you be willing to pay a contribution towards having that here if you had to?
Yes, yes. [User 9]

Well no. Up until now I've had it [pendant alarm] free, but I think this month they've started direct debiting me. When I test I'll ask them. I was direct debited £11.95 which I think is the cost. They said it would be about £12 a month thereafter. Well no, £12 is not a problem, but I must check that that's what the direct debit is, you know, and not something else from outer space. [User 12]

Yeah, if I did have to pay I think it would, I don't know now…If I had to, I'd pay it of course, because that's life, you've got to do what you're told don't you. [User 14]

Information giving and explanation

In order that telecare can be readily accepted by users and their carers, there is a need to ensure that information giving and explanation concerning the use of telecare were adequate. In addition, Brownsell and Bradley (2003) argue that the key to telecare system is 'communication and information exchange between the user's home and the service contact points' (p.68). In our evaluation, we attempt to explore this aspect with our participants. Although most of our users and their carers seemed to have a general working knowledge of the telecare devices they had used, some had experience some problems with alarm activations while others were vague about the information they were given regarding the working of the device.

No, presumably they check again but as you were saying do you press the button and I say 'yes', press the button – beep, beep, beep you know. [User 2]

They [installers] came in and fitted it up, set it up in the kitchen and showed us how to work it [Tunstall S21], went through it a couple of times with us and then said 'right, you're on your own'. [User 6]

`

You were taught to use the alarm system?

I accidentally set the alarm off by pressing the fob accidentally. [User 8]

And what happened when you did that?

In a very timely fashion the centre contacted me and someone called my name and 'are you alright' and I can easily speak back to the telephone so that's excellent. [User 8]

Does you alarm connect to a call centre?

I don't think so although they did say to me, a man said to me something about the one in the kitchen but, if that worked it would sound an alarm somewhere in the council but whether that needs setting because I don't, I've never seen it in writing that it does, so I don't really know. [User 2]

Did they even explain why that happened or how to deal with it?

No, as soon as she said everything's okay I just thought that's it it's only a check right, but it was just that, we mentioned it. [User 1]

That thing where, there was a time when the men came to fix it that time, that was terrible that was. [Carer of User 1]

Oh no, the alarm just after they'd fitted it, the one upstairs must have developed a fault and it went off, it was about 11 o'clock at night wasn't it and of course the speaker comes on straightaway and says 'we're okay, everything's alright, its just a fault' and it wouldn't stop, we came down from bed and locked ourselves in, it was a terrific noise and eventually a guy came out at 1 o'clock. [User 1]

Two hours it was going for, we didn't know what to do, did we? [Carer of User 1]

No, it was a bit frightening, well not frightened just worried that perhaps neighbours was hearing it you know, it got so bad that we came and locked ourselves in here didn't we, but they were straight out the next morning 9 o'clock and fitted a new one, as quick as that. [User 1]

So did they tell you what to do?

No, I don't think so, they just told me where it was and what it would do. [User 9]

What did they tell you it would do?

Well, to, if I needed help and I pressed my button here the answer would come through…when we had a power cut they called to see if I was okay, yes, 'are you alright Mrs B?', and I looked around, I couldn't understand where the voice was coming from (laughs), marvellous. [User 9]

Does anybody service the equipment, do they come and do batteries and things like that?
No, as I say it's only installed earlier in the year, when the batteries, I didn't realise there were batteries in there. [User 10]

Carer's perspective

Although the above findings have included some feedback from carers, it was important to understand more of the experience from the carers' perspective. In the following discussion, we have provided some accounts from carers regarding the impact of telecare on their daily routine.

Has it changed the way in which you care for your husband?
[Not really is it, you know, it doesn't make any difference to the way. [Carer of User 1]
He's [User 1] not too bad, I can go up the shop, this local shop isn't far away and that you know, I've managed to walk, it only takes about 20 minutes to go up and back you know, quickly…He usually sits in a chair or lays down in the bed don't you, so he's quite happy. [Carer ofUser 1]

It's taking your temperature and it's taking your blood pressure and that's always useful. [Carer of User 6]

It hasn't really made any difference. [Carer of User 10]

We had no expectations really, just to monitor and to see how she's going, keep everything monitored, which is easy to do with her sitting at home than in hospital and that's all. [Husband of User 11]

And did it make any difference to you having the machine [S21] here?
I was happy to have it because I have my wife home, carrying it backwards and forwards was a bit of a pain especially with the cost of parking at the hospital and the inconvenience

and she was much more relaxed at home than she would have been in hospital. [Husband of User 11]

10. Appendix B Staff Survey

Preventative Technologies Grant – Telecare in Surrey

Online Staff Survey

Welcome to the study. Researchers from the University of Surrey are conducting a study of the implementation of the tele-monitoring projects for Guildford Borough Council. This questionnaire will enable us to gather information about the tele-care project that you were involved with and will allow us to plan future tele care services in Surrey. We would greatly value your opinions.

All the information that you give us will be kept confidential. Your name will not appear on the questionnaire and any reports of the information will be completely anonymous.

The questionnaire will take about fifteen minutes to complete. If you have any questions you can contact either of the researchers at the University of Surrey:

Dr. Khim Horton
Telephone: 01483 94555.
k.horton@surrey.ac.uk

Dr. Janet Anderson
Telephone: 01483 689205
j.anderson@surrey.ac.uk

Section A.

Information about Telecare

1. Please indicate below which of the following six telecare projects you are involved with

Project	Leader	Please tick
Hospital discharge	Jan Harber	☐
Dementia monitoring	Debbie Grimwood	☐
Prescription compliance	Faye Boyett	☐
COPD	Denise Daley	☐
Falls monitoring	Edith Kinghorn	☐
Smoke alams	Iris Ellis	☐

2. In relation to the information which staff receive about Telecare (in your organisation) please indicate which of the statements below you believe to be most accurate *(please make one choice only)*

There is too little information about Telecare in my place of work / organisation

There is about the right amount of information about Telecare in my place of work / organisation

There is too much information about Telecare in my place of work / organisation

3. What do you see as the aims and objectives of Telecare in your local area? *(write in answer below)*

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……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

4. What level of need is there for the service provided by your telecare project?

There is a lot of demand for Telecare in my place of work / organisation

There is some demand for Telecare in my place of work / organisation

There is very little demand for Telecare in my place of work / organisation

5. Which group of people would benefit most from your telecare project?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

6. Do you know how to make a referral for telecare services?

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……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
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7. Approximately how many referrals have you made for telecare services?

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……………………………………………………………………………………………

Section B

Issues arising from change

To what extent do you agree or disagree with the following statements? *(please make one choice per row)*

1. I am well informed about the Telecare equipment used in my area of practice

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

2. The introduction of Telecare in my area is well managed

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

3. There is a culture (in my organisation) of welcoming change

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

4. There is a culture (in my organisation) of welcoming Telecare

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

5. Do you feel that you have enough knowledge to assess people's needs for telecare?

Yes

No

Don't know

6. Do you feel there is a need for more staff development / training in telecare?

Yes

No

Don't know

7. What do you think this staff development/training should include?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Section C

Staff satisfaction with Telecare

To what extent do you agree or disagree with the following statements? *(please make one choice per row)*

    1. Telecare equipment is reliable

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

    2. Telecare is cost-effective

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

    3. Telecare is safe

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

    4. I would recommend Telecare to others

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

    5. Overall I am satisfied with the standard of Telecare provided in my area/organisation

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
	☐	☐	☐	☐	☐	☐

6. Overall I am satisfied with the technical support I received

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
	☐	☐	☐	☐	☐	☐

7. Where it is appropriately used Telecare is an effective aid to individuals remaining independent in their own home

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
☐	☐	☐	☐	☐	☐

8. What do you consider to be the main advantages or benefits of Telecare (if any)? *(write in answer below)*

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
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9. What do you consider to be the main disadvantages or weaknesses of Telecare (if any)? *(write in answer below)*

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……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

10. On what basis or criteria should the success or failure of Telecare interventions be judged? *(write in answer below)*

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

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11. What are the aims of the telecare project you have been involved in?
(If not sure, please write not sure).

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

12. Do you think the aims of the project have been fulfilled?

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

13. To what extent do you think users are involved in decisions about
Telecare services which they use? *(please make one choice only)*

Very involved	Fairly involved	Neither involved or uninvolved	Fairly uninvolved	Not at all involved	Don't know
☐	☐	☐	☐	☐	☐

14. To what extent do you think carers are involved in decisions about
Telecare services? *(please make one choice only)*

Very involved	Fairly involved	Neither involved	Fairly uninvolved	Not at all	Don't know

or   involved

uninvolved

☐   ☐   ☐   ☐   ☐   ☐

15. Overall, to what extent are you satisfied or dissatisfied that Telecare provided by your organisation meets the needs of users? *(please make one choice only)*

Very satisfied	Fairly satisfied	Neutral	Fairly unsatisfied	Very unsatisfied	Don't know
☐	☐	☐	☐	☐	☐

16. Have there been any ethical issues raised by the telecare service offered in your area/organisation?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

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…………………………………………………………………………………………

Section D

Implementation issues

1. Is there a clear referral process for providing telecare services? *write in answer below)*

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

2. Which professional groups are involved in referring users or potential users of telecare to (your organisation?) *(write in answer below)*

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

3. How committed are these professional groups to implementing telecare?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

4. How can the process of referring users or potential users of telecare to your organisation be improved? *(write in answer below)*

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

5. Overall how satisfied or dissatisfied are you with the process of referring users or potential users of telecare to your organisation? *(please make one choice)*

Very satisfied	Fairly satisfied	Neutral	Fairly unsatisfied	Very unsatisfied	Don't know
☐	☐	☐	☐	☐	☐

6. Does Telecare make different demands on you compared to delivering care through traditional means? *(write in answer below)*

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

7. In what ways (if any) does Telecare change your relationship with clients? *(write in answer below)*

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…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

8. Has telecare changed your responsibilities at work? Please explain in what way.

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9. Has Telecare changed any other aspect of the way you work? *(write in answer below)*

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……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

10. Is telecare incorporated into your client's care plans/discharge plans?

Yes

No

Don't know

11. Are there sufficient resources devoted to introducing telecare?

Yes

No

Don't know

12. Are there clear criteria for who should receive telecare?

Yes

No

Don't know

13. Has telecare resulted in better care outcomes for your clients?

Yes

No

Don't know

Do you have any suggestions for how the delivery of telecare could be improved in the future?

……………………………………………………………………………………………

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Section E

Telecare and the future

1. Do you think that Telecare raises particular issues for users of particular ethnic or faith groups? *(please make one choice only)*

    Yes

    No

    Don't know

2. Please say what you think these issues are and how they can best be managed? (*write in answer below*)

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

3. Thinking about the amount of telecare delivered by your (organisation) over the next 2-3 years do you think it is likely that *(please make one choice only)*

The demand for telecare will stay about the same

The demand for telecare will increase substantially

The demand for telecare will decrease substantially

4. Do you have any suggestions about what can be done to increase uptake of telecare?

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

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Section F

Information about you.

1. Please indicate which area you work in.

    Health care ☐

    Social care ☐

    Boroughs and districts ☐

    Other, please specify below ☐

    …………………………………………
    …………………………………………
    …………………………………………

2. How old are you? *(please make one choice only)*

    Under 30 ☐

    30-39 ☐

    40-49 ☐

    50-59 ☐

    Over 60 ☐

3. Are you:*? (please make one choice only*

    Male ☐

    Female ☐

4. Are you employed:*? (please make one choice only*

Full time ☐

Part time ☐

Casual or temporary ☐

5. Approximately how long have you been in your current post?
(please make one choice only)

Less than one year ☐

1-5 years ☐

6-10 years ☐

More than 10 years ☐

Thanks!

We really appreciate you taking the time to complete this survey.

11.   Appendix C Hospital Discharge questionnaires

UniS

University of Surrey

South West Surrey Safe at Home
Questionnaire for users.
Telecare for hospital discharge.

Welcome to the study. This questionnaire will enable us to gather information about the effectiveness of the telecare equipment that you used. It will allow us to plan future services. We would greatly value your opinions.

All the information that you give us will be kept confidential. Your name will not appear on the questionnaire and any reports of the information will be completely anonymous.

The questionnaire will take about fifteen minutes to complete. When you have finished place it in the envelope provided and place it in the mail. If you have any questions you can contact one of the researchers:

Dr. Khim Horton
Telephone: 01483 684555.
Email: k.horton@surrey.ac.uk

Dr. Janet Anderson

Telephone: 01483 689205

Email: j.anderson@surrey.ac.uk

Part 1

Finding out about telecare

1. How did you find out about the telecare service?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

2. Who was involved in making the decision to get the telecare services?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

3. What were you hoping the benefits would be?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

4. How did you feel about the look of the equipment?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

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Part 2

Your satisfaction with the equipment

5. How easy was the equipment to use?

Very easy	Moderately Easy	Unsure	Moderately difficult	Very difficult	Did not use
☐	☐	☐	☐	☐	☐

6. Did having the equipment make you feel more reassured?

Very much more reassured	A little more reassured	Unsure	A little less reassured	Very much less reassured
☐	☐	☐	☐	☐

7. Did having the equipment make you feel more independent?

Much more independent	A little more independent	Unsure	A little less independent	Much less independent
☐	☐	☐	☐	☐

8. Did having the equipment make you feel safer?

Much safer	A little safer	Unsure	A little less safe	Much less safe
☐	☐	☐	☐	☐

9. Did having the equipment improve your quality of life?

Very much better	A little better	Unsure	A little worse	Very much worse
☐	☐	☐	☐	☐

10. How would you describe your health since you have had the equipment?

Very much better	A little better	Unsure	A little worse	Very much worse
☐	☐	☐	☐	☐

11. How confident were you about using the equipment?

Very confident	Moderately confident	Unsure	Moderately unconfident	Very unconfident
☐	☐	☐	☐	☐

12. On the whole, how satisfied were you with the equipment?

Very satisfied	Moderately satisfied	Unsure	Moderately unsatisfied	Very unsatisfied
☐	☐	☐	☐	☐

Please explain:

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

13.   Would you choose to use the monitoring equipment again?

Yes   ☐

No   ☐

Don't know   ☐

Please explain:

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

Part 3

Your satisfaction with the service

14.   How confident were you about the backup service provided by
        the call centre?

Very confident	Moderately confident	Unsure	Moderately unconfident	Very unconfident	Did not use
☐	☐	☐	☐	☐	☐

15.   Was there enough training in how to use the service?

Yes   ☐

No   ☐

Don't know   ☐

If *no*, please explain:

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

16.   How long did you have the equipment for?

……………………………………………………………………………………

17.   The length of time I had the equipment was:

Too long   ☐

About right   ☐

Too short   ☐

18. What were the main benefits to you of using the service? Please tick as many options as apply.

Free trial

Increased confidence living alone ☐

Feeling safe ☐

Peace of mind for family ☐

Less fear of falling ☐

Faster response if I need help ☐

Other

………………………………………………………………………………………

………………………………………………………………………………………

19. Did you experience any problems with the equipment?

Yes ☐

No ☐

If yes, please explain

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

20.   What was the best aspect of the service?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

21.   What was the worst aspect of the service?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

22.   Would you recommend the telecare service to someone else?

Yes   ☐

No   ☐

Please explain:

....
....
....
....
....

23.   Would you consider paying for this service in the future?

Yes   ☐

No   ☐

Please explain:

....

....

....

24.   How could this service be improved?

....
....
....
....
....

Part 4
Your details

25.   I am:

Male   ☐

Female   ☐

26.   Age in years:

…………………………………………………………….

Thank you for completing this questionnaire. Please place it in the addressed envelope provided and place it in the mail.

We are interested in interviewing people and asking more about their feelings about the service. The interview would take about half an hour. If you would be interested in taking part please provide your name and contact phone number below. A member of the research team will call to arrange an interview at a time and place to suit you.

Name

………………………………………………………………

Phone number

………………………………………………………………

12. Appendix D COPD monitoring questionnaires

UniS

Questionnaire-
Using Tele-monitoring Equipment to Manage Chronic Obstructive
Pulmonary Disease (COPD) at Home

Welcome to the study. This questionnaire will enable us to gather information about the effectiveness of the tele-monitoring equipment that you used. It will allow us to plan future services for people with COP-D. We would greatly value your opinions.

All the information that you give us will be kept confidential. Your name will not appear on the questionnaire and any reports of the information will be completely anonymous.

The questionnaire will take about fifteen minutes to complete. When you have finished place it in the envelope provided. It will be collected by the Borough Council staff when they collect your equipment. If you have any questions you can contact Dr. Khim Horton at the University of Surrey.
Telephone: 01483 94555.

Part 1

Your history

1. Have you been hospitalised before for breathing difficulties?

Yes ☐
`

No ☐

2. In the past 12 months, how many times have you been hospitalised because of breathing difficulties?

   ……………………………………………..

3. Have you used the rapid discharge procedure with follow up from the respiratory care nurses before?

Yes
No ☐

If *'yes'*, please answer Questions 4 and 5. If *'no'* please go to Question 6.

4. How would you describe the **number of visits** you had from the respiratory nurses whilst using the monitoring equipment compared with the last time you were discharged? *(please tick one only)*

- I had **fewer** visits from the respiratory nurses when I was using the monitoring equipment than previously. ☐

- I had **about the same** number of visits from the respiratory nurses when I was using the monitoring equipment than previously. ☐

- I had **more** visits from the respiratory nurses when I was using the monitoring equipment than previously. ☐

- Unsure ☐

5. How would you describe the **number of telephone calls** you had from the respiratory nurses whilst using the monitoring equipment compared with the last time you were discharged? *(please tick one only)*

- I had **less** telephone calls from the respiratory nurses when I was using the monitoring equipment than previously ☐

- I had **about the same** number of telephone calls from the respiratory nurses when I was using the monitoring equipment than previously ☐

- I had **more** telephone calls from the respiratory nurses when I was using the monitoring equipment than previously ☐

- Unsure ☐

Part 2

Contacts whilst using the monitoring equipment

6. During the time that you had the telemonitoring equipment, ***were you asked*** to contact any of the following about managing your breathlessness? *(please tick all that apply)*

- Call centre ☐

- Respiratory nurses ☐

- Your GP ☐

- A relative ☐

- A neighbour ☐

7. Were you asked to contact anyone else?

☐

Yes

No

If so, who?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

8. During the time that you had the tele-monitoring equipment, **who did you** contact about managing your breathlessness? *(please tick all that apply)*

- Call centre ☐

- Respiratory nurses ☐

- Your GP ☐

- A relative ☐

- A neighbour ☐

9. Did you contact anyone else?

Yes

No

If yes, who?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

10. During the time that you had the equipment, were you admitted to hospital because of breathing difficulties?

Yes

No

If yes, for how long?

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

Part 3

Your satisfaction with the equipment

11.   How easy was the equipment to use?

Very easy	Moderately Easy	Unsure	Moderately difficult	Very difficult	Did not use
☐	☐	☐	☐	☐	☐

12.   Did having the equipment make you feel reassured about your condition?

Very reassured	Moderately reassured	Unsure	Moderately reassured	Very reassured	Did not use
☐	☐	☐	☐	☐	☐

13.   How confident were you about using the equipment?

Very confident	Moderately confident	Unsure	Moderately confident	Very confident	Did not use
☐	☐	☐	☐	☐	☐

14.   On the whole, how satisfied were you with the equipment?

Very satisfied	Moderately satisfied	Unsure	Moderately satisfied	Very satisfied	Did not use
☐	☐	☐	☐	☐	☐

Please explain:

……

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15.   Would you choose to use the monitoring equipment again?

Yes   ☐

No   ☐

Please explain:

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
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Part 4

Your satisfaction with the service

16.   How confident were you about the backup service provided by
    the call centre?

Very	Moderately	Unsure	Moderately	Very	Did not
confident	confident		confident	confident	use
☐	☐	☐	☐	☐	☐

17.   How confident were you about the backup service provided by
    the respiratory nurses?

Very	Moderately	Unsure	Moderately	Very	Did not
confident	confident		confident	confident	use
☐	☐	☐	☐	☐	☐

18.   Was there enough training in how to use the service?

Yes   ☐

No   ☐

If *no*, please explain:

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....

....

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19.   Did you experience any problems with the equipment?

Yes   ☐

No   ☐

If yes, please explain

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……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

20.   What was the best aspect of the service?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

21.   What was the worst aspect of the service?

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

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22.   Would you recommend the back up service to someone else?

Yes ☐

No ☐

Please explain:

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……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

23.   Which do you prefer most: *(please tick one only)*

- Being cared for by the respiratory team **without** ☐
  the monitoring equipment

- Being cared for by the respiratory team **with** the ☐
  monitoring equipment

- Unsure ☐

Part 5

Your details

24.   I am:

Male ☐

Female ☐

25.   Age in years:

……………………………………………………………….

Thank you for completing this questionnaire. Please place it in the
brown addressed envelope and pass it on to one of the Borough
Council call centre staff when they arrive to collect your equipment.

13. Appendix E Interview guide

South West Surrey Safe at Home Preventative Technologies Grant Evaluation Study

Face to face interview: Areas for exploration with users/carers

Background

The background to our research suggests that the implementation of assistive technology and telecare in Surry has a huge impact on both users, their family and staff to come into contact with them. Extensive review suggests telecare can address increased demand due to ageing populations, the desire for care at home, needs for more efficient, effective and equitable care, and staff recruitment and retention difficulties. Our study will update the research into telecare and will deepen our understanding of the experiences and satisfaction of users and their carers and how the implementation impacts on their lifestyle.

The research aims are:

- To investigate the users' and carers' experience and satisfaction of the telecare services offered.

In your view:

1. Background
- How long have you had the telecare devices?
- Who referred you to using the equipment/technologies?
- What were your expectations about the service? Expected benefits?
- How does the service work?

2. Use of devices
- What has been your experience of using the technologies?

- Have you used any of the devices?
- Can you explain what happened?
- How did you feel about this?
- What was the response from the call centre when an alarm was triggered?
- How did you feel about the action taken and the service you received? Were you satisfied?

3. **Effect of telecare**
- What do you think the main benefit has been for you?
- Do you feel any safer with the telecare devices in your home?
- Has your social contact changed since you have had the service? Change in number of visits, usually contacts.
- Has your daily routine changed since you had the service?
- How has it affected your home environment? Has your home environment improved since having the telecare devices installed?
- Would you say that you can live more independently now that you have the telecare devices?
- How easy was it for you to learn about how to use the equipment?
- Do you think the equipment is easy to operate?
- Is it accurate, reliable?
- For carers, has telecare changed the way you care for the person?
- Has it allowed some respite from care?

3. **Future**
- Would you recommend using telecare to your family and friends?
- If so, why? If not, explore reasons.
- Is the future affordability of telecare an issue for you?
- Are there any other aspects of the experience you would like to share with me?