

**Joint Improvement Team and
Scottish Centre for Telehealth and Telecare**

**Telecare for People with Dementia:
Evaluation of Renfrewshire Project**

Final Evaluation Report

Providing
Consultancy
& Research in
Health Economics

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Executive Summary

1. INTRODUCTION

The Scottish Government has funded several initiatives including the Telecare Development Programme (TDP) to drive adoption of telecare by health and social care services. These exemplar projects have shown how telecare can contribute to the support, security and quality of life of older people, enabling them to live at home longer and also be cost saving.

The majority of clients benefiting from telecare services were older people, almost 85% were 65 years or older, but less than 10% had an official diagnosis of dementia. This may understate the proportion of telecare beneficiaries who had dementia because of the under-diagnosis of the condition.

Recently, the Scottish Government Health and Social Care Directorates (SGHSCD) commissioned a literature search to find evidence on the benefit of telecare for people with dementia. This reported there being no good quality evidence published on the cost-effectiveness of telecare for this group. Absence of such evidence is a concern to policy makers and practitioners seeking to understand the workability and cost-effectiveness of telecare to inform policy decisions and for adopting within business cases.

To address this gap, the Joint Improvement Team and Scottish Centre for Telehealth and Telecare commissioned this evaluation of services delivered by Renfrewshire Community Partnership to clients with dementia who are using, or have used, their Telecare Service. Renfrewshire was chosen because 325 clients, over 30% of their telecare clients, were identified as having dementia. Moreover, consistent data were available for the five year period 2007 to 2012.

2. METHODOLOGIES

Quantitative and qualitative analyses were undertaken. The quantitative analyses used the same self-reported outcomes adopted in two earlier national evaluations. Mean lengths of stay in hospital and care home were adjusted to be representative of the resources used by clients identified with dementia in the Renfrewshire Community Health Partnership (CHP).

In addition, the analyses planned to use national data on hospital admissions and length of stay for people with a diagnosis of dementia in the Renfrewshire CHP. However, these data were confounded because of the impact of the national 'HEAT' standard for improving case-finding of patients with dementia. Nationally, from a baseline of 29,761 in 2006/07 the number of people with a diagnosis of dementia rose to 41,525 at July 2012, a 40% increase. This step change in the number of people with a diagnosis of dementia using healthcare resources makes it impossible to assess the importance of other causal factors in affecting use of services by this group.

The qualitative analyses assessed the Telecare Service for each of the following:

- Safety;
- Effectiveness;
- Accessibility;
- Acceptability;
- Satisfaction.

These aspects were explored in face-to-face meetings between one of the researchers and several managers and service providers plus two service users during a two-day site visit.

3. QUANTITATIVE AND QUALITATIVE ANALYSES

The TDP analysis, conducted by Newhaven Research for the period April 2007 to March 2011, with the addition of data collected by Renfrewshire for the financial year 2012, was taken as the starting point for this evaluation. Three hundred and twenty users with dementia were provided with telecare in Renfrewshire in the five years to 31 March 2012, equivalent to 31% of all users of Renfrewshire telecare under this programme. Pro-rating the anticipated savings, using the self-reported outcomes and values per resource saved as advised by Renfrewshire Partnership, gave estimated gross savings of £1.65m, over the five years to 31 March 2012. This was equivalent to over £5,000 per user with dementia. Over 67% of the savings were from avoided hospital admissions or shorter lengths of stay, with a further 24% of savings from care home admissions avoided.

The TDP analysis focussed on gross savings across all users. Restricting focus to a single user group enabled costs to be estimated for:

- Annual operating and capital cost of the telecare service for dementia users;
- Additional social care support required to augment telecare in order to keep people with dementia in the community.

Annual cost of telecare per dementia user to a local authority was estimated at £1,500 minus a personal contribution of £169 (£3.25 per week), the current charge in Renfrewshire, giving a net cost of £1,331. Total cost of providing the service to 325 clients, assuming each user had the service for an average two years six months, was estimated at £3,328 per user¹, totalling £1.08m.

Two hours support a day at £17.22 per hour (total £34.44) was judged the average requirement to maintain these telecare users in the community (Personal communication, Lorna Muir Renfrewshire Care at Home Services Manager). Annual cost of this support was £12,570 per year.

Net savings, after deducting these costs were estimated at £0.38 million, equivalent to £1,150 per user.

Unit costs applied in the TDP evaluation were reviewed and in some cases adjusted to reflect the different patient group to give a new central case. The details are explained in Section 4. The major changes applied to clients with a diagnosis of dementia were:

- A median stay avoided in a care home of 606 days, not 63 days;
- A mean inpatient stay of 19.5 days, up from 11.9 days.

Applying the revised resources saved and unit costs to the self-reported outcomes provided by Renfrewshire Partnership gave estimated net savings attributable to the 325 clients with dementia, over the five-year period, of over £2.8 million, equivalent to about £8,650 per client with dementia receiving a telecare system.

¹ £1,331 times 2.5 equals £3,328.

The savings comprised:

- Eighty eight admissions to care homes avoided, saving 606 days each, at a daily saving of £48.06 (£29,124 per event), giving total savings of £2.55 million;
- One hundred and fourteen hospital admissions avoided, saving almost 20 days each, at a saving per day of £336, giving total savings of £0.75 million;
- Delayed discharges avoided, saving £0.45 million;
- Other savings from avoided sleep-overs (£110,910) and respite care (£30,060).

Under this central case, 65% of the savings were from care home admissions avoided and 31% from avoided hospital admissions or shorter length of stays.

Sensitivity Analyses

Low and high cases were adopted as sensitivity analyses relative to the central case. The low case assumed 25% of telecare clients would avoid a hospital admission, the rate reported across all TDP programmes. The central case, using the CHP's own assessment was based on 35%, itself much lower than the rate reported using ISD data. In 2010/11, there were over 28,100 admissions in Scotland for patients with a diagnosis of dementia and 40,195 people registered with this diagnosis, giving an admission rate of about 70%. The high scenario assumed an admissions avoided rate of 45% which was still lower than the actual admissions rate of 70%. Similar percentage changes were applied to the remaining variables. Net savings were estimated to range between £1.6 million and £3.8 million as shown in Table 1.

Table 1: Central case and sensitivity analyses for net savings from telecare in Renfrewshire CHP

Indicator	Low £'000	Central £'000	High £'000	TDP £'000
Avoided hospital admissions	535.2	749.3	963.3	580.0
Reduced delayed discharges	225.2	450.3	450.3	532.7
Reduced use of care homes (net)	1,824.5	2,554.3	3,284.1	204.5
Sleep-overs and respite care avoided	100.7	141.0	181.3	141.0
Gross savings	2,685.6	3,894.9	4,879.0	1458.2
Less cost of telecare	1,081.4	1,081.4	1,081.4	1,081.4
Net savings	1,604.1	2,813.5	3,797.6	£376.8

The limitations with this analysis included that some important benefits to the dementia user could not be assigned a monetary value, including feelings of reduced anxiety, greater independence, improved security and overall better quality of life. Similarly the benefit to carers from the release of their time, reduced stress and anxiety was not measured.

All of the costs to support telecare clients to live independently may not have been captured, for example, provision of day care activities and meals on wheels. Similarly, early discharge comprises a package of activities such as re-enablement services and intermediate care, in addition to telecare which have not been costed. This aspect could be remedied by further work with staff in social and acute care to establish the nature of such support.

The evidence base for the benefits was assessed using professional judgement and it has not been possible to validate these using national datasets for the CHP because of the confounding aspect of higher coding of the diagnosis. This was unavoidable given the concurrent nature of the two projects.

The benefits may seem more notional than real in that it is difficult to identify bed closures or reduction in care home places that are a direct consequence of telecare. However, in the longer term if the benefits in reduced length of stays are sustained NHS Boards can de-commission beds. Similarly, reduced waiting lists for long term care enables resources to be moved from care homes into the community.

4. QUALITATIVE ANALYSES

In 2006 the Renfrewshire Community Alarm Service was the first Local Authority response service provider to achieve accreditation to the Telecare Services Association's (TSA) Code of Practice. Achieving accreditation requires the service to demonstrate it has robust policies and procedures in place. These, together with a well-motivated staff, are the essential building blocks of providing a quality service. During April 2012 the service also achieved Platinum Member Status in all elements of service provided including referral, service user profiling, installation and response. Thus it is not surprising that the findings from the qualitative analysis were very positive.

Turning to the pre-specified criteria, and taking user safety first, the initial assessment, installation, response and follow-up services seemed robust. There were also good links with other agencies particularly the Police. Where safety could not be enhanced using the standard door contact for people with Sundowner Syndrome the Service has explored the possibility of introducing alternative technologies, such as a 'Buddy' GPS tracking system.

There are also robust procedures in place to provide security for staff, including joint working after 8pm, fleet vehicles dedicated to the service as well as pick up and drop off facilities at each shift changeover and accounting for all staff at the end of a shift. Vehicles to safely transport staff are made available, Fleet vehicles are also equipped with aids to manage clients, including lifting devices.

The effectiveness of the Service was considered from two perspectives – the telecare equipment and the overall Telecare Service. The appropriateness and effectiveness of equipment is agreed after a robust initial assessment and reviewed at the six-monthly equipment check. Moreover, detailed information of every alert is held by the Call Centre and the responders suggested inappropriate equipment should be identified early through this log. In view of the environmental risks to a person with dementia living at home, many such clients have enhanced packages, including door and other monitors.

The overall effectiveness of Renfrewshire Council's Telecare Service was demonstrated by the examples provided of clients who have been enabled to remain living safely in their own home despite their dementia, often for several years. Telecare has prevented, or at least delayed, admission to residential care for many people. It has also provided carers with reassurance, support and peace-of-mind to continue in this capacity.

Accessibility was judged in respect of:

- The client's ability to benefit from telecare. The major concern was that clients were often not referred until their dementia had progressed to a stage that made it very hard for them to benefit from telecare and thence to remain living in their own home. Telecare has become a key part of mainstream services. Suggestions for further enhancements included telecare being part of all community care assessments and included in all hospital discharge planning;

- The suitability of accommodation for using telecare. The interviews revealed some shortcomings in that people with dementia living in certain types of accommodation (mainly those managed by Housing Associations which provide their own alarm and response systems) could not access telecare. In contrast, Renfrewshire Council has adopted innovative approaches to provide well-designed flats 'in extra care housing complexes' for people with dementia, with some meals and stimulating activities provided;
- Cost, with some users finding the quarterly charge of about £42.25 (£3.25 a week) may be a potential deterrent.

Acceptability of the telecare technology to service users and carers and to third parties was high. Survey results reported that most clients welcomed telecare as part of a package of services that helped them remain living in the community. Carers appreciated the reduced caring duties, especially at night. Other Council services and the Police also supported the Service.

Staff with the Telecare Service felt they have very good working relationships with staff at the Royal Alexandra Hospital (the local Day Hospital) and also with community-based staff. They were concerned that many referrals from acute services were made when the dementia has progressed too far for telecare to be introduced effectively. Their preference would be for telecare assessment to be embedded into all community care assessments and into the hospital discharge process.

Some Housing Associations were reluctant to introduce up-to-date telecare technology in their accommodation complexes, usually because the equipment was not compatible with their own systems.

Satisfaction with the telecare service can be considered from two perspectives – the users/carers and the staff.

Findings from satisfaction surveys showed users and carers were generally 'very satisfied' or 'satisfied' with their telecare and Community Alarm services. Staff satisfaction was observed rather than formally measured. Senior managers had a high job satisfaction from developing the service from a pilot to a mainstream service. The emphasis on quality and innovation in developing services was also valued by staff working with dementia sufferers on a day-to-day basis.

The importance of networking with other telecare service managers and providing regular updates to service partners, including NHS staff were also judged important.

6 CONCLUSIONS

The evaluation demonstrates telecare can be used to support a significant proportion of dementia sufferers to live in the community; they, and their carers, are generally satisfied or highly satisfied with the service. Staff and the Police see major advantages; NHS staff seem increasingly accepting of it. It has also shown the key resource saving is likely to be care home admissions avoided.

Adopting the methodology of previous national evaluations and deducting capital and operating costs suggests using telecare is cost saving for users with dementia. Estimated net savings were about £0.38 million over the five years. Two thirds of the estimated benefit was from reducing admissions and lengths of stay in hospital

Adjusting the avoided length of stay in hospitals and care homes to durations relevant to people with dementia and applying unit costs relevant to these settings increased the

potential net savings to £2.8 million. The major contributing factor is avoided care home admissions.

Sensitivity analyses were used to measure the impact on the results of the uncertainty about the number of admissions to hospitals and care homes avoided using telecare. The estimated savings ranged from a low value of £1.6 million to a high of £3.8 million.

ISD data on the reasons why people with dementia are admitted to hospital from the community and from care homes would be helpful. Hypotheses could then be developed on the likely impact of telecare on each main cause and used to predict changes in admission and discharge rates. Having a stronger model of telecare's possible benefit would aid future evaluation.

Key service enhancements identified were:

- a)** Embedding telecare as part of all care assessments;
- b)** Embedding telecare as part of discharge planning;
- c)** Identifying patients with dementia at an earlier stage to use telecare.

Achieving these will require greater emphasis on education and training for new and existing health and social care staff to ensure they are aware of telecare's potential benefits and of developments in the technology. Close working between NHS and social staff at the programme's beginning was a major benefit of the TDP but fragmentation is now an issue so achieving these enhancements may not be easy.

The last aspect could reduce turnover rate and enable the Service to better meet its Mission Statement of enabling a wide range of people to remain in their own home.

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Thanks are also due to Tony O'Sullivan of Newhaven Research who provided data used to compile a final report that presented data on the growth of telecare over the period 2006 to 2011.

Finally, we wish to acknowledge the encouragement of Doreen Watson, Joint Improvement Team with oversight of the national Telecare Development Programme. Doreen was familiar with the Renfrewshire project being a member of the Partnership for most of its duration.

Section 1: Overview of the Evaluation

1.1 AIM OF THE EVALUATION

The Scottish Government has funded several initiatives including the Telecare Development Programme (TDP) to drive the adoption of telecare by health and social care services for the benefit of clients and carers. These have shown how telecare can contribute to the support, security and quality of life of older people, enabling people to live at home longer⁽¹⁾. The telecare services were also evaluated to be cost-saving⁽²⁻³⁾.

Almost 85% of the people receiving telecare were aged 65 years or older but less than 10% had a diagnosis of dementia⁽³⁾. This may understate the proportion of telecare beneficiaries who had dementia because of the under-diagnosis of the condition.

Telecare offers opportunities to enable people with dementia to remain at home longer if this is their preference whilst supporting the person and their main carer⁽¹⁾. Given over 60% of people with dementia live in the community this is an important goal⁽⁴⁾.

Recently, a structured literature search conducted for the Scottish Government Health and Social Care Directorates (SGH SCD)⁽⁵⁾ identified that there is no good evidence on the cost-effectiveness of home telecare for older people with dementia. The absence of such evidence is a concern to policy makers and practitioners, who seek to understand the workability and cost-effectiveness of telecare to inform policy decisions and to adopt within business cases.

To address the gap, the Joint Improvement Team and Scottish Centre for Telehealth and Telecare commissioned this evaluation of the telecare services delivered by Renfrewshire Community Partnership to clients with dementia who are using, or have used, their Telecare Service. Renfrewshire was chosen because over 30% of their telecare clients had dementia and these represented about 40% of those with dementia living in the community in Renfrewshire. Moreover, the Partnership had continued collecting data so data were available for the five years from 1 April 2007 to 31 March 2012.

The quantitative aspect of the evaluation adopted the framework published by the Joint Improvement Team (JIT) for undertaking evaluation of telehealth⁽⁶⁾ and draws heavily on the self-reported outcomes used by the previous national evaluations⁽²⁻³⁾, using the same efficiency measures and updating the resources and costs to be relevant to a population with a diagnosis of dementia. The project plan included a comparison of self-reported trends with the national data on admissions and lengths of stay for the Renfrewshire Community Health Partnership (CHP), to establish if the two datasets show consistent trends. The qualitative section uses data from subsequent surveys and interviews.

This will be the first evaluation of a single Partnership contributing to the TDP and of a single client group, those with dementia. The other evaluations aggregated all projects and took a national perspective.

1.2 THE METHODOLOGY

The evaluation comprises quantitative and qualitative elements.

i) Quantitative Analysis

The quantitative component draws on data from the progressive evaluation of the national TDP, which was initially conducted by YHEC⁽²⁾ and later by Newhaven Research⁽³⁾. The quarterly data returns, which Renfrewshire Care 24 is continuing to complete, include estimates of:

- Number of hospital bed days saved due to the reduction in delayed discharges;
- Number of hospital bed days saved through the reduction in unplanned admissions;
- Reduction in Care Home weeks purchased by Partnerships;
- Number of people who are able to maintain themselves by installation of telecare equipment (with support);
- Change in number of nights of sleepover care purchased by the Partnership.

Renfrewshire Care 24 does not specifically collect data for people with a diagnosis of dementia but does count the number of clients to whom they issue telecare equipment (e.g. door monitors, not just a standard Community Alarm package) because of behaviours consistent with having dementia.

Renfrewshire Care 24 also provided YHEC with activity data from the local monitoring centres and some cost data of providing the service. These data, together with information from other sources, have enabled unit costs to be calculated for various elements of the Renfrewshire telecare service.

The main objective, however, of the evaluation is to provide a cost consequence analysis which identifies the initial capital costs of setting up telecare for a typical user with dementia and the on-going support costs. The benefits from fewer delayed discharges, reduced unplanned admissions, reduced home care placements, reduced nights of sleepover care, and prevented (saved) home check visits have been estimated using data from the service. These benefits have been valued using unit rates per resource saved appropriate to the Renfrewshire Council and also using national rates. The difference between the costs and the savings identify the financial value of telecare to this client group.

ii) **Qualitative Analysis**

A robust evaluation of telecare should also include some qualitative analysis of key factors for consideration when implementing and operating telecare. Several qualitative criteria were identified from the JIT guidance⁽⁶⁾, although it was recognised that some elements (e.g. clinical efficacy/effectiveness) were not as relevant in the telecare context.

The essential criteria for assessing telecare were identified as:

- Safety;
- Effectiveness;
- Accessibility;
- Acceptability;
- Satisfaction.

These aspects were explored in face-to-face meetings of one of the researchers with several managers and service providers and two service users during a two-day site visit to Renfrewshire.

1.3 REPORT STRUCTURE

The Report comprises the following sections:

- Section 2: Development of Telecare in Scotland;
- Section 3: The Renfrewshire Telecare Service;
- Section 4: Quantitative Evaluation of Telecare for Users with Dementia;
- Section 5: Qualitative Analysis;
- Section 6: Satisfaction Surveys;
- Section 7: Discussion of Qualitative Aspects.

Section 2: Development of Telecare in Scotland

2.1 POLICY BACKGROUND AND RELATED EVIDENCE ON TELECARE

Since 2006, the Scottish Government has prioritised '*shifting the balance of care*' by providing healthcare and social services in people's own homes and local communities thereby reducing admissions to care homes and hospitals and enabling earlier discharge for those admitted.

Telecare, the delivery of care services to people in their own homes, using sensors and alerts, which provide remote monitoring of care needs and emergencies and trigger human responses to prevent hazards, is a key aspect of the wider Healthcare Quality Strategy. The Strategy's⁽¹⁾ measures to support the efficiency/quality framework includes:

'Investment in telecare/telehealth to support more people at home achieving better outcomes at less cost'.

This endorsement of such investment was consistent with evidence provided by two independent evaluations⁽²⁻³⁾ of the projects funded by the Telecare Development Programme (TDP). The initial evaluation⁽²⁾ of 51 telecare projects operated by 32 Partnerships across Scotland in the period 2006 to 2008 identified:

- Almost 8,000 people received telecare packages of whom 8% had a diagnosis of dementia. In practice the numbers of dementia sufferers assisted are likely to have been much higher due to the level of undiagnosed dementia in the older population;
- Estimated savings of over £11m, mainly from fewer hospital bed-days required saving £5.1m (46%) and reduced care home admissions saving £3.4m, (31%); at a cost of £6.8m from Joint Improvement Team (JIT) central funding. Local funding was also required but not costed⁽¹⁾;
- The majority of users (61%) of the services benefited from an improved quality of life, with almost all feeling safer (93%), more independent (70%) and less anxious (82%);
- Telecare was reported to have been particularly successful at preventing (or possibly just delaying) admission to a care home for people with dementia.

The five year evaluation⁽³⁾ of April 2006 to March 2011 reported the total cost of the projects at £19.5m of which TDP funding was £13.6m, with another £5.9m being matched funding. The number of users had risen to almost 44,000 people (9% with dementia) but around 13,000 subsequently stopped the service. The estimated savings were over £78m with £38m (48%) from reduced care home admissions and £34m (44%) from fewer hospital bed-days required. Improved quality of life was described using case studies.

Several limitations were noted within these evaluations including:

- The potential savings from avoided admissions to care homes and hospitals and earlier discharge from hospitals were self-reported by the Partnerships. Neither evaluation attempted to use Information Services Division (ISD) data on hospital admissions to verify the reported data;
- Achieving the potential benefits also required other community-based services to be available to support users and carers whilst at home and these costs have been omitted. Other omissions include the management and staff time devoted to integrate telecare into community and secondary care services and additional demands on the call centre teams from new users;
- Finally the savings will not be realised unless the efficiency gains result in actual care home bed reductions and reduced bed provision in hospitals.

Both evaluations concluded that providing telecare equipment offered considerable potential to reduce the need for hospital beds and care home admissions, whilst providing a safe home environment which promoted independence and improved quality of life for users and carers.

The technology therefore has an important role in continuing efforts to shift the balance of care, particularly for people with dementia. This is reflected in not only the Healthcare Quality Strategy⁽⁷⁾ but also in Scotland's National Dementia Strategy⁽⁸⁾ which noted the need to reshape dementia care using telecare.

2.2 NATIONAL DEMENTIA STRATEGY

Fundamental to Scotland's National Dementia Strategy⁽⁸⁾ is to continue to increase the number of people with dementia who have a diagnosis to enable them to have better access to information and support. Also relevant to this evaluation is a commitment to improving the response to dementia, including through alternatives to admission and better planning for discharge in the general hospital setting.

Having a focus on increasing diagnoses has led to the numbers diagnosed increasing to 41,525 in 2011/12 from a base line of 29,761 in 2006/07, a 40% increase (<http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance/DementiaStandard>). The higher numbers of people with the diagnosis has led to an increase in reported healthcare activity for this patient group. For example, the number of patients with a diagnosis of dementia attending a GP has increased from 15,700 in 2006/07 to 20,150 in 2011/12, a 28% increase (<http://www.isdscotland.org/Health-Topics/General-Practice/PTI-Statistics/>). It is unclear how the target to measure reduced admissions can be measured given this increase in the reported prevalence of the disease; a problem shared by this evaluation.

2.3 USING TELECARE EFFECTIVELY AND APPROPRIATELY

The Joint Improvement Team has worked closely with the Development Services Development Centre at the University of Stirling to produce guidance on using telecare effectively in the support of people with dementia. For example, they published a useful book in 2010 – *Telecare and Dementia*⁽¹⁾ which explores how telecare can contribute to the support, protection and quality of life of people with dementia and provide support and reassurance to carers. The book provides important information about the development of telecare technology and its appropriate use by people with dementia. It stresses that telecare should be part of a personalised service; telecare is not just about the installation and use of various pieces of equipment:

“Telecare should not be seen as the solution, a single one-dimensional response to needs or risk. It is not an alternative to direct care by carers, although it can reduce the need for check visits, ‘supervision’, or visits to clinics [...]. Telecare is effective when it forms part of a personalised programme or package of care and support, and is accepted as such by the service user, their informal carers and other staff/services.

To be effective telecare requires:

- *Informed, skilled and personalised outcomes-focused assessment of needs and risk;*
- *Resolution of ethical dilemmas around capacity, informed consent and choice (each individual for each situation);*
- *Training and education for the service user, carers, personal care and support staff in how the equipment can be used or misused and how it should be tested and maintained (for example, battery replacement).”*

Using telecare as part of a package of initiatives to enable people with dementia to continue living in their own homes in the community raises a number of ethical and legal concerns, especially around aspects such as capacity and consent. Risks will also need to be assessed, and different attitudes to acceptable levels of risk addressed. The book suggests the following practice guidance for practitioners:

- *“Be aware of your own personal and professional value systems – and how these might conflict with the person you are working with and their carers;*
- *Be aware of the procedures of your agency, particularly those which are designed to protect the person’s right to choose, to dignity, to privacy and to confidentiality;*
- *Ascertain as fully as possible the views of the person, their carers and other staff working with them. Do you understand what they are saying to you?*
- *Are there issues of capacity to consent? If so, what are the legal issues around overriding their right to choice and consent?*
- *In what ways might the telecare solution limit this person’s freedoms and rights? Is there an alternative which does not challenge their right to choose?*
- *How are the decisions to be made recorded? Has a record been provided to everyone who should have one? When is the decision to be reviewed?”*

Section 3: The Renfrewshire Telecare Service

3.1 OVERVIEW

For many years Renfrewshire Council has provided a Community Alarm Service (see Appendix A for further details) to help people live as independently as possible in their own homes. An alarm is installed in service users' homes, and they are also issued with a pendant to wear which can activate the alarm. Since 2006/07, Renfrewshire Council has also provided a Telecare Service with enhanced equipment to enable a wider range of people, with more complex requirements, to live independently at home. Since its introduction in 2006/07, over 1,000 packages of care have been installed, with about 300 live at any time.

Telecare has been defined as the continuous, automatic and remote monitoring of real time emergencies and lifestyle changes over time in order to manage the risks associated with independent living. Many clients with dementia have been issued with door contacts in response to evidence of someone going out at inappropriate times. Other pieces of telecare equipment that may be useful for people with dementia include pressure mats and bed monitors, pill dispensers, detectors for smoke; extreme heat, heat and carbon monoxide, especially if they are cooking for themselves whilst living alone. Passive infra-red sensors to detect lack of movement and fall monitors are not generally provided for people with dementia. Further information about the sensors that are available in Renfrewshire is provided in Section 3.3.

The Telecare Service is available to any vulnerable person, including those with dementia, in Renfrewshire who has been assessed at risk due to age, disability or social circumstances.

All telecare installations are connected to a 24-hour Calls Handling Service for Renfrewshire Care 24 (hereafter referred to as the Call Centre, or the Hanover Call Centre), which is operated by Hanover Telecare in Edinburgh. Activation of sensors will normally result in a response from the Community Alarm Service Responder Team.

3.2 DEVELOPMENT OF TELECARE IN RENFREWSHIRE

In 2006, Renfrewshire Community Partnership received approval from the Scottish Executive Telecare Development Fund (TDP) for a telecare project costing £241,000. The aims of the service included to help vulnerable people in the community remain safely in their own home and to increase their independence through the provision of flexible responsive and personalised care. Specific services were developed for people who have dementia including a specific dementia pathway⁽⁹⁾.

Renfrewshire Council already had a Community Alarm Service thus the national funding was used to introduce a local Telecare Service that was integrated into the Community Alarm Service. Progress reporting was to the JIT (as the funders) rather than to Renfrewshire Council, enabling local service managers to spend their ring-fenced funding innovatively and with minimal local interference. They were able to develop the Telecare Service at their own speed, but with interest and support from the local Council, who subsequently agreed to mainstream the service when the TDP funding ceased. By this time telecare had become embedded into the local health and social care culture.

In January 2008, the local Community Alarm and Telecare Services became part of a new service – Renfrewshire Care 24. This service provides care and support services to vulnerable people to allow them to live at home as long as possible (see Appendix B). It works in partnership with NHS, housing and independent services, and the close working relationships that have been developed with various other local agencies (especially the NHS) have been an important element in the development of Telecare Services in Renfrewshire. Renfrewshire Council's 'Care Pathway Dementia' has been developed by Renfrewshire Care 24 to provide clear and consistent guidance about local services for people with dementia⁽⁹⁾.

In 2006 the Renfrewshire Community Alarm Service was the first Local Authority response service provider to achieve accreditation to the Telecare Services Association's (TSA) Code of Practice. The TSA, the industry body for telecare and telehealth, has developed the Telecare Code of Practice that sets national quality standards for service delivery. Gaining accreditation necessitates meeting rigorous and challenging requirements. Achieving accreditation requires the service to demonstrate it has robust policies and procedures in place. During April 2012, the service also achieved Platinum Member Status in all elements of service provided including referral, service user profiling, installation and response.

The Telecare Service currently costs users £3.25 per week, which is a contribution towards running the responder service. Weekly costs vary across the Scotland, and some Councils (including those providing a responder service) do not levy any charge on their telecare users.

3.3 TELECARE TECHNOLOGY

Telecare technology is continuously developing; usually through improvements to existing equipment rather than the development of new items. The following sensors are available in Renfrewshire to meet identified needs:

- Triggers – personal radio triggers supplied with a standard alarm installation;
- Door Contacts – for use when there is evidence of someone going out at inappropriate times (e.g. during the night);
- Smoke Detector – for use when someone is at risk from fire, from cooking issues or smoking;

- Heat Extreme Detector – for use when someone is at risk from temperature extremes (this sensor is for high/low temperatures);
- Flood Detector – used to detect water spillage (e.g. forgetting to turn taps off);
- Natural Gas Sensor – provides an immediate alert to the danger of unlit gas being left on;
- Carbon Monoxide Detector – used to detect a risk from a faulty gas boiler;
- Fall Detector – used for people with epilepsy or with mobility problems (not always appropriate for people with dementia);
- Pressure Mat – used for people with dementia who may be at risk when they get out of bed during the night – can be used for carers to identify if a partner is awake and moving around the home;
- Bed Monitor – detects when a user gets out of bed and fails to return after a specified period of time has elapsed – it can also be set to switch on lamps to minimise the risk of falling in the night;
- Pill Dispenser – supports medication compliance by automatically dispensing medication and providing audible and visual alerts each time medication should be taken;
- PIR Detectors – Passive Infra-Red detectors to monitor ‘inactivity’⁽¹⁰⁾.

It may not be possible to place a door contact on the main entrance door to multi-tenanted building because other tenants could also trigger it. However, it is possible to use a GPS tracking system to ensure the safety of a tenant with a tendency to wander who lives in such a facility. This is known as a ‘Buddy’ system, and can alert the service if the person strays beyond pre-determined, familiar boundaries.

Much of the equipment used in Renfrewshire is provided by Tynetec. A close working relationship means that it is sometimes possible to design a bespoke piece of equipment for a Telecare Service client with a specific need, though this is more likely to be appropriate someone with a particular physical limitation than for a person with dementia.

3.4 REFERRAL, ASSESSMENT AND INSTALLATION

Referrals for the Telecare Service are received from a variety of sources, including:

- Social Work Area Team;
- Housing and Housing Associations;
- Health;
- NHS;
- Single Point of Access (see Appendix B for details).

The Renfrewshire Care 24 Telecare Service Co-ordinator arranges a joint visit in the service user's home of:

- Telecare Service Co-ordinator;
- Case Manager/Referrer;
- Service user;
- Family member/Representative.

If the service user is not already in receipt of a Community Alarm, the Case Manager will complete a Community Alarm Assessment Form and give this to the Telecare Service Co-ordinator prior to the joint visit. At the joint visit the Telecare Service Co-ordinator discusses the available options to provide a tailor-made package of Telecare equipment and explains the installation process. If the person chooses to have telecare installed this will be undertaken by qualified engineers. The equipment is routinely checked every six months by a Community Alarm Responder. In addition, all users of the Telecare Service with dementia have a standardized Key Safe to ensure that Responders have access to keys to enter a property in a potential emergency.

Renfrewshire Council can also use a system called 'Just Checking' to assist with their assessment of potential telecare clients. It uses small wireless sensors to monitor the movement of a person in their home and generate a chart of their activity on-line, which can then be accessed by families and professionals. This system can help to persuade a vulnerable person with memory loss that their actions (such as leaving the house during the night) are placing them at risk, as they often have no recollection of such events. They may therefore accept having telecare sensors installed in their home for their own safety.

3.5 THE RESPONDER SERVICE

The Responder Service is a key part of the Renfrewshire Telecare Service. The telecare technology alerts the Telecare Service when problems occur, but it is the staff at the Hanover Call Centre in Edinburgh and the Renfrewshire responders who react to and deal with any problems that arise. The responses to 'red button' alerts and to alerts via the smoke, heat, flood and carbon monoxide detectors are the same for all users of the Community Alarms and Telecare Services. However, it is the use of door contacts that is especially appropriate for some (though not all) people with dementia, as these enable the responders to be alerted when a client leaves their home (or even just opens an external door) after the contacts have been activated for the night. Door contacts are not on for 24 hours a day, as this would be too restrictive for the client and compromise their independence. Instead they are switched on at an agreed time each evening by a responder, professional home carer or informal carer, and then switched off at an agreed time the following morning. This technology gives carers peace of mind overnight.

If the contact is broken when alarmed, the Call Centre is alerted and a Responder is contacted. The Responder will visit the client, to check if they are still safely in their home. If the client has left the house (often leaving the door open and the property vulnerable to theft or undesired entry), the Responder will spend 15 minutes looking for the client. All cars used by the Responders contain details about the habits and likely behavior of each client with dementia, and a recent photograph. This information might include details of where they used to live or 'familiar' places they might have gone to. If the Responder has not found the client after 15 minutes, the local Police are contacted who take over the search. People with dementia can travel quite far in the 15-30 minutes since the door contact was activated, especially if they get on a bus. Although not a routine reaction, the Police have scrambled a helicopter when a client disappeared in open country. During such activity, the Responder provides regular updates to the Call Centre.

All of the activity undertaken in the Call Centre is logged on a computer system using a call monitoring and management system². As well as recording details of all interactions between clients and the Call Centre, it also notes communications between the Responders and the Call Centre. In addition, the Responders also keep detailed written records of all of their contacts with clients.

3.6 TELECARE LIMITATIONS

This Section has focused mainly on the factual (or objective) aspects of the Telecare Service in Renfrewshire. The more subjective assessment of its performance against key criteria is presented in Section 5. However, this section finishes by highlighting some of the limitations of the technology which were mentioned during the fieldwork visit. The two main limitations relate to the stage in the dementia development when the technology is introduced and difficulties of using door sensors in some types of accommodation.

i) When to Introduce Telecare

It is important that people with dementia are introduced to the telecare equipment and Response Service before their dementia becomes too advanced. This enables them to become familiar with the equipment and how it works whilst they are still able to understand it and learn how to use it. As their dementia progresses it may be necessary to make some modifications to the responses to alerts. For example, a person may become frightened if they hear a voice from the alarm box but cannot see an actual person, so a Responder may always need to be sent to check the visit the client in person if the Call Centre is alerted. However, if the potential client's dementia is too far advanced for them to accept the equipment (for example, they may keep throwing a flood detector away because they think it is a used air freshener), they will not benefit from its installation. Many older people are unfamiliar with such technology (though this will reduce over time), and are only able to learn to use it appropriately when their dementia is in the early stages. As with learning about

² The Hanover Call Centre in Edinburgh currently uses Tunstall's PNC6 system.

anything new, it can take them some time to be able use the equipment effectively and safely and with confidence.

The 'Just Checking' technology described earlier can be useful here, as it can be installed for a few days and used to show the client that they are indeed starting to wander during the night (or leave the cooker gas on, etc.) and convince them of their need for appropriate telecare sensors.

ii) Suitability in Certain Types of Accommodation

Door contacts are often only appropriate if the property has a front door that opens directly onto the street. They have significant limitations for people living in some types of sheltered housing, very sheltered housing and extra care housing. Many of these tenants access communal facilities within the accommodation, such as lounges, 24 hours a day, which means that a door contact on their own front door may not be appropriate. However, it is not feasible (or appropriate) to place a door contact on the main front door to the facility, as it will be used by many different people, including other tenants, guests and members of staff. A communal front door may also make it impossible for the Responder Service to access a client's flat in the case of an (night-time) emergency. These tenants may, however, be suitable for other items of telecare equipment.

There have recently been some interesting possible developments for use with clients with Sundowner Syndrome that is at risk of leaving a facility at an unsuitable time, using a GPS 'Buddy' system. The GPS system can also be programmed to alert the service if a person wanders away from their familiar areas when they go out on their own. The appropriateness of door contacts linked to Renfrewshire's Telecare Service in such accommodation will also depend upon the arrangements for emergency response operated by the facility owner/manager. Some operators of sheltered and supported housing (e.g. some Housing Associations) choose to operate their own alarm and response service rather than use the one provided by Renfrewshire Council. Although they may use the Renfrewshire emergency response service out-of-hours (especially as Resident wardens in such facilities have been phased out), it is usually much harder to use door contacts for residents under such arrangements.

Section 4: Quantitative Evaluation of Telecare for Users with Dementia

4.1 METHODOLOGIES

The Joint Improvement Team Evaluation Methodology Guide⁽⁶⁾ recommended the benefits and costs of specific telehealth applications should be compared with those of current practice or reasonable alternatives. Previous national evaluations have adopted a 'pragmatic'⁽²⁾ approach to capturing current practice. The evaluators asked partnerships to use their professional judgement to assess what would otherwise have happened to the client at, and subsequent to, the issue of telecare equipment. This evaluation used these responses and updated them for the client group with dementia.

ISD also provided data on admissions for patients with a diagnosis of dementia in each community health partnership (CHP) for the period 2007/08 to 2010/11. These data were used to establish if trends were evident in national healthcare statistics. The two methods are now described.

4.1.1 Adopting Estimated Benefits Self-Reported By Renfrewshire Partnership

Previous national evaluations have used self-reported data from each Partnership supplied quarterly for the period between April 2007 and 31 March 2011. Renfrewshire also collected data for the financial year to 31 March 2012. Key quantitative measures adopted were consistent with the objectives of the TDP, being:

- Reducing the number of avoidable emergency hospital admissions and readmissions;
- Increasing speed of discharge from hospital once clinical need is met;
- Reducing use of care homes;
- Improving quality of life for users of telecare;
- Reducing pressure on (informal) carers.

Values submitted by the Renfrewshire Partnership for each measure were adopted in the national evaluation and have been used as the main data source for this evaluation. The proportion of events saved attributed to clients with dementia was estimated using appropriate attribution rules. Associated resources and costs 'saved' by the avoided events were estimated specifically for patients with dementia and summed to give a cumulative valuation of benefits.

Costs of telecare to Renfrewshire local authority were estimated using information from two other Scottish local authorities⁽¹¹⁾. The difference between the cumulative savings and total costs over the five years gave some measure of the contribution telecare can make to improving efficiency at a local level.

4.1.2 ISD Data to Identify Trends in Admission Rates for Patients with Dementia

The second approach applied ISD data on trends in the rate and absolute number of emergency admissions for patients with dementia across all CHPs. The intention was to monitor changes in emergency hospital admission rates and associated length of stay for Renfrewshire, over time and relative to other CHPs. The aim being to provide some context for values estimated by the Partnership in the evaluation returns.

4.2 ESTIMATED SAVINGS USING TDP ANALYSES

This Section reviews Renfrewshire Partnership's provided assumptions for each key outcome measure. If an alternative measure of benefit was judged more appropriate for people with dementia, this is provided together with an explanation.

Using data from the national evaluations, it was judged appropriate to pro-rate the Renfrewshire Partnership's estimated resources saved in accordance with the proportion of clients with dementia (31%).

4.2.1 Clients Receiving Telecare Equipment

Between April 2007 and March 2012, Renfrewshire Partnership delivered telecare packages to 1,045 users, with 325 (31%) diagnosed with dementia. The actual number of users with dementia will have been higher owing to the extent of undiagnosed dementia in the population. The rate of take-up was relatively stable over time, with no trend detected of a change in the rate of new users with dementia over the period. This rate (31%) was much higher than that nationally; fewer than 10% of clients receiving a telecare package funded by the TDP had a dementia diagnosis⁽³⁾.

In Renfrewshire 66% of users received an enhanced telecare package³ compared to 45% nationally. This higher rate may be a consequence of the different user mix.

Limited turnover rate information was available (defined as the number of people discontinuing use of a TDP funded telecare service within a year as a proportion of the gross number of new users within that year). Renfrewshire's rate was 37%, consistent with the majority of the Partnerships, with a minority having a higher turnover.

Client level data was available for the 80 users who left the Renfrewshire service in 2011/12. Of these 38, (48%) moved to residential care; 39% no longer required the service and 14% had died at home. No information was available to assess whether telecare increased the likelihood of a user being allowed/able to die at home. The high proportion leaving the service because of a move to residential care is unsurprising; the telecare service had delayed the need for long term care for a time but not avoided it.

³ A basic service was defined as a telecare hub unit together with a pendant and an integrated smoke alarm. An enhanced package was defined as one that goes beyond the basic configuration and included any other sensors or monitoring equipment.

4.2.2 Reduced Number of Avoidable Admissions to Hospital

The Renfrewshire Partnership reported avoiding 367 unplanned hospital admissions over the five year period. This represents 35% (367/1,045) of all users; thus for 1 in 3 users hospital admission was judged the alternative to telecare. The Partnership estimated mean bed-days saved per avoided admission were 11.9 days, giving a total saving of 4,367 inpatient days.

The 11.9 days is 27% higher than the mean days saved of 9.4 days reported for all TDP projects. However, it is considerably less than the mean length of stay for a patient admitted with a diagnosis of dementia in any position. This aspect is explored in Section 4.3.2.

4.2.3 Cost per Bed-Day

Cost per bed-day of £428 adopted by the Renfrewshire Partnership is virtually the same as the mean cost per bed-day for all specialties (excluding long stay patients) at the Royal Alexandra Hospital Paisley, namely £437 in 2010/11⁽¹²⁾. However, some specialties have a materially lower cost than others. For example, costs per bed-day for patients in general medicine and respiratory wards were £319 and £331 respectively⁽¹³⁾. These are judged typical of the wards which would otherwise have received patients with dementia. Adjusting for intervening inflation and using an average of these two costs provided a cost per bed-day of £336. This was adopted in this evaluation for all inpatient bed-days saved.

4.2.4 Reduced Number of Delayed Discharges

Delayed discharges occur when a hospital patient is clinically ready to move to the next care setting but cannot. Reasons for delay include awaiting care home placement, shortage of social care facilities or services and carer/family issues.

Renfrewshire Partnership reported that over the five year period, the telecare interventions funded by TDP reduced delayed discharges by 377 implying 36% (377/1,045) of clients benefitted from avoiding a delayed discharge as a result of telecare. Mean savings were 10.6 days per delayed discharge avoided, giving total savings of almost 4,000 bed-days. Estimated mean bed-days saved across all partnerships for the TDP reporting period was 11 days⁽³⁾, consistent with the Renfrewshire Partnership estimate.

ISD provided data on delayed discharges and mean length of stay for patients with a diagnosis of dementia in any position for NHS Scotland for the period 2006/07 to 2010/11⁽¹⁴⁾ by CHP. At Scotland level, there was a significant drop in such events from about 105 patients delayed by an average of 70 days each in 2006/07 and 2007/08 to 12 and 13 patients delayed for an average of 81 days each in 2009/10 and 2010/11. This reduction is in line with the results observed for all delayed discharges, following implementation of a target that no patient should wait more than 6 weeks after being clinically ready for discharge. The most recent Delayed Discharge Census data to January 2012 reported 571 delayed discharges in total of which about 170 were delayed by less than 14 days⁽¹³⁾. None of the reported delayed discharges were in Renfrewshire CHP.

4.2.5 Reduced Use of Care Homes

Renfrewshire Partnership reported that over the five year period, the telecare interventions funded by TDP reduced admissions to care homes by 282, (27% of all users), saving an average of 63 days per admission, 17,716 days saved in total. Each day saved was valued at £71.57, giving total savings of £1.28m.

The Newhaven evaluation⁽³⁾ over the five year period reported mean days saved from avoided admissions at 62 days, giving support to the 63 days adopted by the Renfrewshire Partnership. In comparison the mean and median length of stay for older people in care homes in Scotland was 2.5 years and 1.6 years respectively, with Renfrewshire having a slightly lower mean of 2.3 years and similar median of 1.66 years (606 days)⁽¹⁵⁾.

4.2.6 Nights of Sleep – Over Avoided

Renfrewshire Partnership reported that over the five year period, the telecare interventions funded by TDP reduced the need to provide 7,133 nights of sleep-over, with each night saving £50, giving total savings of £356,625. Of these savings £110,912 (31%) were attributed to clients with a diagnosis of dementia.

4.2.7 Respite Care

Telecare services were judged to reduce the need for respite care in 22 instances. These were attributed a monetary value in the TDP evaluation⁽³⁾.

This evaluation assumes a daily cost of respite care of £314⁽¹¹⁾, equivalent to £4,393 for two weeks of care. Total savings were estimated at £96,645, of which £30,057 was attributed to clients with dementia.

4.2.8 Summary of Gross Savings from Providing Telecare to Clients with Dementia

Table 4.1 summarises savings estimated by using the Renfrewshire Partnership data directly over the five year April 2007 to March 2012 and assuming 31% of the reported savings were attributable to clients with dementia.

Total savings are £1.65 million, over £5,000 per client with dementia (325 clients) receiving a telecare system. Savings from hospital related events accounted for 67% of the savings with avoided care home admissions providing 24%, avoided sleep-overs 7% and respite care the balance of 2%.

Table 4.1: Estimated gross savings from providing telecare to clients with dementia (Renfrewshire Partnership unadjusted data) April 2007 to March 2012

Indicator	Number avoiding event and as % of the 325 with dementia	Duration of event avoided	Unit cost per day	Total savings £'000
Avoided hospital admissions	114 (35%)	11.9 days	£428.00	580.0
Reduced delayed discharges	117 (36%)	10.6 days	£428.00	532.7
Reduced use of care homes	88 (27%)	62.8 days	£71.57	394.2
Sleep-overs avoided	2,211	1 night	£50.00	110.9
Respite care avoided	6.8	14 days	£314	30.1
TOTAL				1,647.9

4.2.9 Costs of Telecare

Two cost categories, incurred by local authorities, were deducted from gross savings to provide an estimate of net savings. These were the cost of additional support in the community for those who might otherwise be admitted to a care home and cost of the telecare service.

4.2.9.1 Support in the community

People managed in the community via telecare usually require additional support from social services. Using an estimate of 2 hours support a day at a cost of £17.22 per hour (Personal communication, Lorna Muir Renfrewshire Care at Home Services Manager) the annual cost of this support is £12,570 per year per person.

4.2.9.2 Cost of telecare

Previous evaluations have deducted the funding provided by the TDP and any matched funding from local care Partnerships. For example, the final evaluation⁽³⁾ noted that by March 2011, £13.6m of TDP funding was spent by local Partnerships, with another £5.9m provided as matched funding, giving a total spend of £19.5m.

The JIT Evaluation Framework advised that evaluations of telecare should identify the *direct costs* and *indirect costs* of telemedicine applications. Direct costs were defined as including capital equipment, facilities, communications, and maintenance; with indirect costs including time lost from work and decreased productivity for clients⁽⁶⁾. A recent review of the cost of dementia found lost productivity costs were negligible⁽¹⁷⁾ reflecting the mean age of clients with dementia. Thus, these are assumed to be zero.

TDP funding was essentially to fund the capital equipment and installation costs, direct staff costs and training, IT costs, plus initial set-up (marketing and awareness-raising to relevant clinical, wider social and other groups). Other costs of operating the new telecare services such as the initial client assessment, call centre and the responses service were often a cost to the local service rather than recovered from the TDP charges.

Two relevant sources were used to estimate these costs. Firstly, Newhaven Research⁽¹¹⁾ identified the costs of providing care packages that include a telecare component, informed by actual costs in Falkirk & Forth Valley and West Dunbartonshire local authorities. The Kings Fund has also published costs for telecare using data from Nottingham⁽¹⁶⁾. Relevant cost information is shown in Table 4.2.

Table 4.2: Cost of telecare equipment and related services

Service Element	Measurement	Unit (2010 prices)
Falkirk and Forth Valley		
Smoke detector	1	£40
Gas Detector	1	£98
Door open alert	1	£40
Internal alert system	1	£846
Telecare equipment maintenance installation and removal	Annual	£700
Community alarm service (includes telecare responder service)	Annual	£195
Annual needs assessment review and updates	Annual	£690
West Dunbartonshire		
Telecare equipment package	1	£334
Community alarm/telecare service	Annual	£222
Needs assessment + updates (social worker)	Hour	£145
Kings Fund data from Nottingham		
Telecare equipment installation and service costs	First	£450
Call centre monitoring, maintenance and response	Annual	£150

Cost of the communication service, including responses, for Renfrewshire was estimated at £4.55 per week, £237 a year (personal communication Lorna Muir, Renfrewshire Care at Home Services Manager). This is similar to reported costs for West Dunbartonshire but slightly higher than costs from Nottingham.

Reported annual system costs show significant variation from £556 to £600 per package in West Dunbartonshire and Nottingham respectively for equipment, call connection and response to £895 in Falkirk & Forth Valley. Dementia users have a greater likelihood of requiring an enhanced package than others and, at stages during their disease progression, may place greater demands on the responder service, because of nocturnal wanderings. These factors suggest adopting a slightly higher annual cost for these users; £1,000 per client is used in the evaluation. In addition, an annual assessment with reviews will be required but only a proportion of the cost will pertain to telecare. Thus £500, rather than the £690 costed for the service in Falkirk & Forth Valley is used, to give a total annual cost per dementia user of £1,500.

Renfrewshire CHP levies a user charge of £3.25 per week, £169 per year which offsets some costs. These costs will change over time as:

- Charges are introduced/increased;
- The mix between new and existing users having additional equipment changes, with more falling into the latter category;
- Higher levels of equipment recycling is achieved;
- The cost of the equipment and services themselves change.

Net annual cost per dementia user to the local authority was thus estimated from a gross cost of £1,500 minus the £169 contribution, at £1,330. Each user was assumed to have the service for a period of 2.5 years, giving a cost per user of £3,328. Total cost of providing the 325 clients with the service over the five years was estimated at about £1.08m.

Estimated net savings using the TDP approach for clients with dementia receiving telecare in Renfrewshire was £377,000, equivalent to about £1,160 per user (see Table 4.3).

Table 4.3: Estimated net savings from providing telecare to clients with dementia (Revised assumptions)

Indicator	Numbers avoiding event and as % of the 325 with dementia	Duration of event avoided	Unit cost (day/year)	Total savings £'000
Avoided hospital admissions	114 (35%)	11.9 days	£428.00	580.0
Reduced delayed discharges	117 (36%)	10.6 days	£428.00	532.7
Reduced use of care homes	88 (27%)	62.8 days	£37.13	204.5
Sleep-overs and respite care avoided	2,211	1 night	£50.00	141.0
Revised gross savings				1458.2
Less cost of telecare	325 (100%)	2.5 years	£1,331	1,081.4
Net savings				£376.8

4.3 UNCERTAINTIES

The two major uncertainties are the hospital-related savings and care home dwell times. These are explored using national statistics.

4.3.1 ISD Data on Hospital Admissions and Length of Stay

ISD collects national data for all admissions other than geriatric long stay. There are two main record sets, one for admissions from non-obstetric and non-psychiatric hospitals (SMR01) and one for admissions from psychiatric specialties (SMR04).

ISD has provided data from SMR01 for the years ending 31 March 2007 to 2011 for each CHP showing:

- Emergency admissions and a dementia code in any diagnosis position;
- Admissions with a dementia code in any diagnosis position of the first episode;
- Admissions with a dementia code in the main diagnosis position of the first episode;
- Admissions with a delayed discharge and dementia code;
- Admissions where volume depletion was main diagnosis and a dementia code was one of the possible six diagnostic codes;
- Admissions where a falls or fractures code and a dementia code were present in one of the possible six diagnostic codes.

Data from the first three selections are presented in this Section, with summary findings from the others presented in Appendix C.

Data from SMR04 were for the same period and at CHP level for psychiatric hospital discharges with a main diagnosis of dementia. These are presented for completeness. It is not anticipated that telecare will necessarily prevent such admissions.

4.3.2 Hospital Admissions and Length of Stay

Table 4.4 shows admission and length of stay (LoS) data for patients admitted as an emergency and with a diagnosis of dementia in any position for Renfrewshire CHP and Scotland.

Table 4.4: Admission and length of stay data for patients admitted as an emergency and with a diagnosis of dementia in any position

CHP	2007/08			2008/09			2009/10			2010/11		
	Number of admissions	Admission rate per 100,000	Mean LOS	Number of admissions	Admission rate per 100 000	Mean LOS	Number of admissions	Admission rate per 100 000	Mean LOS	Number of admissions	Admission rate per 100,000	Mean LOS
Renfrew	399	235.3	22.9	417	245.6	19.0	394	231.9	17.4	500	293.7	18.8
Scotland	11,304	219.7	22.0	12,082	233.8	20.8	12,149	233.9	20.9	13,515	258.8	20.0

Over the period 2007/08 to 2009/10, admissions in Renfrewshire CHP area fluctuated around 400 but jumped to 500 in 2010/11, a year-on-year increase of 27%. A similar trend is repeated in the national data, with admissions being around 12,100 for 2008/09 and 2009/10 before increasing to 13,515 in 2010/11, an annual increase of 11%. In 2010/11 Renfrewshire CHP had an admissions rate per 100,000 population about 13% higher than the national average compared to a 4% higher rate in 2007/08.

The key driver explaining these trends and absolute levels is judged to be introduction of the national HEAT⁴ target to increase the number of people with a diagnosis of dementia. In 2007 national policy was set to raise the numbers diagnosed with dementia but fresh impetus was provided as a result of making it a HEAT standard. Now NHS Greater Glasgow and Clyde (NHS GG&C) has achieved the highest rate of numbers of patient diagnosed compared to estimated prevalence across Scotland at 67%. This compares to a Scottish average of 59%⁵. Renfrewshire CHP manages about 15% of the patients in NHS GG&C and is likely to have achieved a higher rate of diagnosis than that for Scotland. This relatively higher rate of diagnosis may be presumed a root cause of the observed relative increase in admissions rates.

Table 4.5 provides admissions and length of stay for patients admitted electively and Table 4.7 provides the same information for all patients admitted (sum of elective plus emergency).

⁴ HEAT is an acronym of Health Improvement, Efficiency, Access and Treatment.

⁵ http://www.alzheimers.org.uk/site/scripts/download_info.php?downloadID=554.

Table 4.5: Admission and length of stay data for patients admitted electively with dementia in any diagnosis position

CHP	2007/08		2008/09		2009/10		2010/11	
	Number of admissions	Mean LOS						
Renfrew	428	22.6	453	18.8	434	18.5	531	18.4
Scotland	12,253	22.4	13,110	21	13,182	21.1	14,596	19.8

Table 4.6: Admission and length of stay data for all patients admitted with dementia in any diagnosis position

CHP	2007/08		2008/09		2009/10		2010/11	
	Number of admissions	Mean LOS						
Renfrew	827	22.7	870	18.9	828	18.0	1,031	18.6
Scotland	23,557	22.2	25,192	20.9	25,331	21.0	28,111	19.9

A similar trend was seen in elective admissions. These were reasonably stable in 2007/08 to 2009/10, with a year on year increase in 2010/11 of 22% in Renfrewshire CHP and 11% nationally. The increase in total admissions in 2010/11 compared to 2009/10 was 25% in Renfrewshire CHP and 11% nationally.

Over the four years, only about 5% of the patients admitted electively had dementia as the main cause of admission. This showed a declining trend so that by 2010/11 only 2.5% of all patients with dementia admitted from Renfrewshire CHP had dementia as the principal cause of the admission, see Table 4.7.

Table 4.7: Admission and length of stay data for patients admitted electively with dementia in main diagnosis position

CHP	2007/08		2008/09		2009/10		2010/11	
	Number of admissions	Mean LOS						
Renfrew	58	25.9	66	27.3	45	28.9	26	23.2
Scotland	1,009	42.0	1,039	38.6	905	38.1	1,124	32.4

In 2007/08 all patients admitted from Renfrewshire CHP had a slightly higher mean length of stay than the Scottish average (22.7 days compared to 22.2 days from Table 4.6). By 2010/11 patients from Renfrewshire CHP were discharged in 18.6 days, a reduction of over 4 days from 2007/08, compared to a national average of 19.9 days, a reduction of 2.3 days over the same period. Reducing length of stay has been a matter of national focus and generic measures to reduce length of stay may have driven the national reduction of two days. Renfrewshire's additional benefit may reflect the provision of rapid response social care services including telecare aimed at enabling early discharge. The annual value of this benefit is about £450,340 (1.3 days at £336 per day and 1,031 people discharged earlier).

Overall, these figures do not provide useful evidence on the impact of increased use of telecare on hospital admissions in the Renfrewshire Partnership. A key confounding factor is the improved rate of diagnosis of dementia achieved in NHS GG&C and at a faster rate than elsewhere in Scotland. Other influencers could be the introduction of integrated care pathways to ensure people with dementia receive an intervention matched to their needs which may have impacted on admissions in Renfrewshire. Finally the effect of telecare may just be too small to capture in the datasets.

To test this, data from Alzheimer Scotland were used⁽⁴⁾. These estimate about 84,000 people have dementia in Scotland in 2012 of whom 2,640 live in Renfrewshire. However, as at July 2012, only 41,525 patients were diagnosed nationally⁶, of whom 9,266 were in NHS GG&C. Renfrewshire CHP accounts for about 15% of the Health Board's population suggesting about 1,390 people living in Renfrewshire have a confirmed diagnosis of dementia. Of these over 60% could be living in the community (840). A programme targeting 325 dementia sufferers has reached almost 40% of people with dementia in the community. Hence its effect should have been visible on the admissions data. However, this effect has been masked by the higher rate of diagnosis. Achieving this rate of uptake of telecare in the population with dementia is a considerable achievement and may reflect the benefits from the integration of the telecare service with mental health and other services in the first few years of the TDP funding.

In 2010/11, with over 28,100 admissions in Scotland for patients with a diagnosis of dementia (Table 4.6) and 40,195 people registered with this diagnosis, the admission rate was about 70%. The number of patients admitted is not known because some will be re-admitted within the year. This rate lends credibility to the professional judgment of those who assessed that telecare may avoid hospital admission for about 35% of all people receiving telecare.

The evidence from the national statistics also suggests Renfrewshire CHP has been able to reduce length of stay at a faster rate than the norm for Scotland; some of this benefit may be attributable to telecare and related services.

⁶ ISD. Scotland Performs: Data used for monitoring HEAT Dementia Standard (numbers of patients with Dementia) www.isdscotland.org/qof

4.3.3 Care Home Mean and Median Length of Stay

Renfrewshire Partnership advised that average length of stay avoided in a care home was 62.8 days. This value's validity was tested by comparing it to data collected as part of the Scottish Care Home Census, March 2003 - March 2011⁽¹⁵⁾. This report provides national statistics and by local authority area on adult residents in care homes in Scotland. Sixty-three per cent of care home residents in Renfrewshire at 31 March 2011 were reported to have dementia. Median length of stay was 1.7 years at 31 March 2011 for all residents, with an average of 1.66 years (606 days) for the four years from 31 March 2008 to March 2011. Thus, 606 days was used in the sensitivity analysis to address the uncertainty on dwell times. This can be considered equivalent to delaying admission for this period although for some people the service can prevent admission.

The Care Home Census⁽¹⁵⁾ provided data on the mean cost of care per week. In the year to 31 March 2011 the mean cost of a care home place was £558 per week. Adjusting for inflation of 3.5% gives a cost per day of £82.50, some 15% higher than that used by Renfrewshire Partnership (£71.57). This higher value is adopted in this evaluation.

From this daily rate £34.44 was deducted for the cost of support services in the community (Section 4.2.9.1) giving a net saving of £48.06 per day.

4.4 ASSUMPTIONS TO INFORM SENSITIVITY ANALYSIS ON NET SAVINGS

High, central and low options were adopted for each key event saved and these are described.

4.4.1 Hospital Admissions and Avoided Discharges

National healthcare statistics reported the annual hospital admission rate for those with a diagnosis of dementia was about 70% in 2010/11. In comparison, the assessors, at the time of providing telecare for a person with dementia, judged telecare (plus other support) could avoid admissions for 35% of people. Whilst these statistics are not directly comparable they do suggest the 35% rate is reasonable and is adopted as the central case. A sensitivity analysis assumed hospital admissions avoided were at the level reported across all the TDP projects in 2010/11, being 25%⁷. This formed the low range and 45% was adopted as the high range. A length of stay of 19.5 days, the mean length of stay for all admissions over the years 2007/08 to 2010/11 and a bed rate per day of £336 (see Section 4.2.3) were applied.

⁷ Note this rate applied to all telecare users, not just those with dementia. The 25% was estimated using data from Newhaven (3); 8,408 was the number of new clients and 2,141 the reduction in the number of unplanned hospital admissions.

Estimated savings of £450,340 from avoided delayed discharges (see 4.3.2) was adopted as the central case. This was varied by minus 50% to reflect the risk that other factors, in addition to telecare, contributed to some of the reduced length of stay. No high option was adopted. The savings already attribute all the benefit from the lower than average length of stay to telecare thereby removing any potential upside.

4.4.2 Care Home Admissions and Duration of Stay

In the central case each avoided admission to a care home is assumed to save the median length of stay of 606 days for the 88 clients (27% of 325 clients) clients⁸ with dementia, who it was judged avoided a care home admission by adopting telecare. Mean savings per day of £48.06 were adopted (see Section 4.3.3).

Less than 40% of people with dementia live in care homes, which effectively provides a cap for the high rate. In the absence of information to guide high and low rates, the sensitivity analysis adopts a range of the same relative magnitude as applied to hospital admissions (being 25/35 [-29%] and 45/35 [+29%]). This gives a low and high range of 63 and 113 clients avoiding home care admissions.

4.4.3 Sleepovers and Respite Care

No information is available to inform high and low values for these events. The same ratios applied to hospital admissions have been adopted.

4.4.4 Summary of Sensitivity Analysis

A summary of the events saved, resources and unit costs and comparison with the assumptions used in the TDP evaluation is provided at Table 4.8. Savings per hospital admission avoided were estimated at £6,553 and £29,124 per care home admission avoided.

Table: 4.8: Summary of assumptions used in sensitivity analyses

Events saved	Low case	Central case	High case	TDP
Hospital admissions	81	114	146	114
Length of stay (days)	19.5	19.5	19.5	11.9
Daily cost	£336	£336	£336	£428
Delayed discharges	£225,170	£450,340	£450,340	£532,700
Care home admissions	63	88	113	88
Length of stay(days)	606	606	606	63
Savings per day	£48.06 (net)	£48.06 (net)	£48.06 (net)	£71.57 (gross) £37.13 (net)
Sleepovers and respite care	£100,700	£141,000	£181,300	£141,000

⁸ As advised by the Partnership to TDP.

4.5 RESULTS OF SENSITIVITY ANALYSIS

Table 4.9 provides central, low and high estimates of net savings from providing telecare to 325 users with a diagnosis of dementia in Renfrewshire CHP. The central case of £2.8 million suggests savings of over £8,650 per person. The major contributing factor is the 27% of clients who were judged to avoid a home care admission at a net saving of about £48 per day (£29,124 per event). Care homes events saved now contribute 66% of savings (compared to 24% with TDP evaluation), with avoided hospital admissions contributing 19% (35%), delayed discharges 11 % (32%) and sleep-over/respite care 4% (9%).

Table 4.9: Sensitivity analysis for net savings from telecare in Renfrewshire CHP

Indicator	Low £'000	Central £'000	High £'000	TDP £'000
Avoided hospital admissions	535.2	749.3	963.3	580.0
Reduced delayed discharges	225.2	450.3	450.3	532.7
Reduced use of care homes (net)	1,824.5	2,554.3	3,284.1	204.5
Sleep-overs and respite care avoided	100.7	141.0	181.3	141.0
Gross savings	2,685.6	3,894.9	4,879.0	1458.2
Less cost of telecare	1,081.4	1,081.4	1,081.4	1,081.4
Net savings	1,604.1	2,813.5	3,797.6	£376.8

4.6 SUMMARY

The Renfrewshire Partnership project provided 325 people with dementia living in the community with telecare equipment over the period 2007/08 to 2011/12. It may have reached about 40% of those diagnosed with dementia in the community. This is notably higher than other Partnerships.

This quantitative analysis for this population of people with dementia estimated net savings, after deducting the costs of providing community services, equipment and supporting call-out services, were about £2.8 million over the five years to 31 March 2012. The key assumption is that 27% of these people would otherwise have required admission to a care home and that telecare avoided or delayed admission for an average of 606 days, saving over £29,100 per event. The range of net savings is from £1.6 million to £3.8 million with the high case assuming almost 30% more events avoided per client than the central case, whilst the low assumed about 30% fewer events saved.

These savings are over seven times higher than those estimated for all client groups within the TDP programme. The major changes applied to this group with a diagnosis of dementia were:

- Median stay avoided in a care home of 606 days, not 63 days;
- Mean inpatient stay of 19.5 days, up from 11.9 days.

4.7 LIMITATIONS

There are some limitations with this analysis. Firstly, some important benefits to the dementia user cannot be assigned a monetary value, including feelings of reduced anxiety, greater independence, improved security and overall better quality of life. Similarly the benefit to carers from reduced stress and anxiety has also not been captured or valued. These qualitative factors are considered in the next Section.

A potential release of carer time could have been valued but was not captured in the analysis. Most of the cost of dementia, some 55% is estimated as met by unpaid carers⁽¹⁷⁾. If telecare could reduce this burden then savings could be considerable. The previous YHEC evaluation⁽²⁾ asked carers if telecare changed time spent caring; 73% replied there was no change, 11% that it had decreased slightly and 3% by a lot. In comparison 9% replied telecare had increased time required slightly, and 4% by a lot. These figures suggest the benefit of released time may not be substantial. Other potential benefits to carers include reduced time off work due to caring and better physical, psychological and emotional health but again these were not captured or valued in this work. There may also be some financial benefits from delaying a care home admission.

All costs to support telecare clients to live independently may not have been captured. For example, provision of day care activities and meals on wheels. Similarly, early discharge comprises a package of activities such as re-enablement services and intermediate care, in addition to telecare which have not been costed. This aspect could be remedied by further work with staff in social and acute care to establish the nature of such support.

The benefits' evidence base was assessed through professional judgement. Validation has not been possible using national datasets for the CHP because of the confounding aspect of higher coding of the diagnosis. This was unavoidable given the concurrent nature of the two projects. However, in future an evaluation will be more meaningful if good baseline data and a prediction model are developed to provide a test for the counterfactual and reduce the likelihood of over or understatement of benefits. The TDP did establish recording systems at an early stage which enabled regular and consistent assessments across all sites and which were sufficiently user-friendly that Renfrewshire sustained data recording beyond the required period.

Attributing the de-commissioning of beds or closure of care homes as a direct consequence of telecare is difficult. However, in the longer term if the benefits in reduced lengths of stay are sustained then NHS Boards could choose to de-commission beds. Moreover, reducing waiting lists for long term care enables resources to be moved from care homes into the community.

4.8 FURTHER RESEARCH

It would be useful to establish the benefit of information provided by telecare services to GPs and others making clinical and placement decisions, particularly those operating out of hours services. For example, telecare may provide additional behavioural information which could trigger a next step in the care pathway – thereby improving care but possibly in the short-term increasing the admissions rate. On the other hand, it may provide security and ‘watchful waiting’ at home, reducing the need for admissions.

Feedback from clinicians on the importance of telecare, as part of a social care package in enabling early discharge from the Royal Alexandria Hospital, could also be informative to establish the benefit of telecare in that setting.

ISD data could usefully inform on whether people in the community, with dementia and an infection or a fall are more likely to be admitted to hospital than those in nursing homes.

ISD data on the cause of admissions for people living in the community with dementia could enable some simple logic modelling to establish the likelihood of telecare preventing specific types of admissions. For example, the likelihood of telecare reducing urinary tract infections is doubtful. Indeed, it may be that people with such infections in the community have a greater propensity to be hospitalised than those in care homes, where access to nursing may reduce the rate of hospitalisation. However, telecare may reduce respiratory tract infections by preventing these clients wandering outside wearing inappropriate clothing.

It would be helpful to have a better understanding of the estimated benefit from avoiding care home admissions, including duration of benefit. Evidence from the Housing and Dementia Research Commission⁽¹⁹⁾ indicates people with dementia are able to live independently for nearly as long as those without dementia where extra care is provided. Again, it would be useful to develop a simple logic model to identify the link between telecare and avoided home care admissions and what factors affect duration of benefit.

These logical approaches could also examine the time lags between telecare installation and avoided events. The present approach assumes these are virtually simultaneous but there will be lags, particularly if telecare is installed whilst the user has mild dementia.

Information on the relationship between telecare and hospital and care home admissions using simple logic models may also benefit future programmes. The logic model tool is described on the Health Scotland website at <http://www.healthscotland.com/scotlands-health/evaluation/support/logic-models.aspx>.

4.9 CONCLUSIONS

The TDP project reached a significant proportion of dementia sufferers living in the community in Renfrewshire. This is higher than achieved elsewhere in Scotland.

Adopting the methodology of previous national evaluations, with enhancements such as including all relevant capital and operating costs suggests telecare is cost saving for users with dementia. Estimated savings from avoided emergency hospital admissions, more efficient discharge from hospital and delaying or avoiding the move to a care home generated material savings of about £2.6 million over five years of evaluating clients with dementia in Renfrewshire CHP. These are net savings after deducting the cost of installing and operating enhanced telecare systems and providing additional social work support in the community.

ISD data on why people with dementia are admitted to hospital from the community and from care homes would be helpful. Hypotheses could be developed on the likely impact of telecare on each main cause and used to predict changes in admissions rates and discharge. Having a stronger model of the possible benefit of telecare would aid evaluation and may explain some trends identified in this analysis.

Section 5: Qualitative Analysis

5.1 OVERVIEW

This section assesses the effectiveness of telecare services for people with dementia in Renfrewshire against five evaluation criteria based on guidance from NHS Scotland on evaluating telehealth⁽⁶⁾. Some adjustments have been made to the descriptions of these criteria to reflect that they are being used to assess telecare rather than telehealth. Much of the material has been drawn from interviews and meetings held in Renfrewshire with a number of staff working for the Telecare Service. Some is based on documents provided by these staff during the visit. The five criteria are:

- Safety;
- Effectiveness;
- Accessibility;
- Acceptability;
- Satisfaction.

This section concludes by covering some other qualitative aspects not covered under the above elements that were also raised during the meetings and interviews with service staff.

5.2 SAFETY

Safety is a judgment of the acceptability of the risk associated with using a technology. When considered in the context of *telehealth*, it focuses on the health risk due to complications or adverse events⁹. When safety is considered with regard to *telecare*, it needs to be assessed from two perspectives – the service user and staff from the responder service.

i) Safety of Service Users

There are several aspects relating to the safety of the service users. Although the telecare sensors are activated independently rather than directly by the client, it is important that the response to people with dementia is appropriate. Detailed information is available at the Hanover Call Centre about each client regarding their characteristics and health status and how best to respond to them. For example, some people are very disturbed by hearing a voice if they cannot see who is speaking to them, and need a home visit by a responder. Some of the possible telecare equipment is not suitable for all people with dementia (e.g.

⁹ In the context of telehealth, safety may be defined more as a function of clinical judgement (in deciding whether to use the telemedicine technology for a particular case) than with the technology itself. When safety is considered with regard to telecare, it needs to be considered from two perspectives – service users and staff from the responder service.

flood detectors may get thrown away). Some people may struggle to use pill dispensers. The detailed and comprehensive assessment prior to the installation of telecare equipment should ensure that clients are only issued with appropriate sensors to enhance their safety and security. All telecare clients now have Police-approved key safes (Supra UK) ensuring that responders can access the property quickly.

Door contacts should be used carefully so as not to disregard the user's independence. Renfrewshire Council's policy of only activating them during the late evening/overnight/early morning provides a sensible compromise between individual freedom and choice and their personal safety. The responders have a very detailed protocol for handling alerts caused by activating the door contacts, with immediate access to relevant client-specific information, including a recent photograph. Involving the Police (and informing the next of kin) if the person cannot be found after 15 minutes ensures that appropriate services are involved if necessary. Some individuals may trigger an alarm several times a night, but the response protocol remains the same, and focuses on the client's safety.

Door contacts also help to ensure the safety of the client's property and possessions, as the responder will shut and re-lock the door, to prevent other people from entering the house, before going in search of the missing client.

Because door contacts are not always appropriate for clients living in some forms of accommodation with communal facilities (such as some very sheltered housing complexes), Renfrewshire Council has explored alternative technologies (such as a 'Buddy' GPS tracking system) to enable clients to continue to live safely in the community rather than in a Care Home. This shows the Council's willingness to seek new technology-based solutions to enable people with dementia to live safely but independently in their own homes.

Responders check the functioning of the equipment every six months, when they also ensure that the client-specific information held by the Hanover Call Centre (such as contact details for carers or any new medical conditions) is accurate and up-to-date. These regular checks help to ensure the client's safety.

Responders also have to complete detailed hand-written forms for all of their call-outs, with this information subsequently being recorded on to a computer. These reports are seen regularly by their managers, who can identify any patterns, problems or gaps and react accordingly. Local managers in Renfrewshire are now able to access directly the PNC6 system used by the Hanover Call Centre to record all the telecare alerts and the subsequent responses. This state-of-the-art call monitoring and management system ensures that the quality of the service is maintained and that users' safety is paramount. There is also a 15-minute overlap between responder service shifts to ensure that staff starting a shift are fully briefed about any relevant issues.

ii) Safety of Staff from Responder Service

The Renfrewshire Council staff providing the responder service for the Telecare Service also provide the same function for the Community Alarm Service. Renfrewshire Council have an excellent set of practices to ensure that the responder service staff do not face unnecessary risks when at work. For example, staff are collected from their homes and returned there at the end of their shift and at every shift changeover all staff are accounted for. This ensures all staff return home safely at the end of their shifts. They also work in pairs from 8pm to 8am, and singly during the day.

Six vehicles are provided by the Council for use by the responders, and are regularly maintained by the Council. When responding to a call, the responders will be in radio contact with staff at the Hanover Call Centre in Edinburgh, who will be able to react to any unforeseen problems. Each of the responder cars contains full details of the clients and the location of the key safe, as this may be in an area which is tricky to access (e.g. at the back of the property), especially in the dark or in bad weather¹⁰. The responders are also provided with inflatable lifting cushions to help responders safely lift a fallen person from the floor. Renfrewshire Council clearly takes appropriate precautions to facilitate the safety of their Telecare Service staff.

5.3 EFFECTIVENESS

The effectiveness of the service can be considered from two perspectives – the effectiveness of the various pieces of telecare equipment and the effectiveness of the overall Telecare Service.

Before being issued with telecare equipment, service users undergo a rigorous assessment and detailed information about their health status and other relevant aspects are held for each client. An informal carer (such as a family member or a friend) will also attend this assessment to ensure that the client receives equipment that is appropriate to their needs and their capabilities. The appropriateness and effectiveness of the issued equipment can be reviewed at the six-monthly equipment check (although concerns can be raised at any time by family, friends or professional carers).

Detailed information of every alert is held by the Call Centre (on the PNC6 system) and the responders also keep detailed records. This information can be interrogated by service managers. It should soon become apparent, if a particular piece of equipment is inappropriate and alternative approaches can be explored.

¹⁰ For example, in the details for one telecare client, under 'RISK' the notes state "uneven path and slabs/Patio to rear very slippery when wet. Keysafe is at back of house so care MUST be taken."

Door monitors are probably the most effective piece of telecare equipment for enabling people with dementia to remain living in their own homes. Although the monitors do not (and indeed cannot) stop people from unlocking their doors and leaving the property, they do ensure that the client is found quickly and returned to their home when necessary. Bed monitors and/or PIR (movement) sensors can also enable the client's safety and whereabouts to be monitored effectively. Other items of equipment such as smoke alarms and extreme heat sensors help to reduce the risks of independent living for clients (and possibly their neighbours).

The overall effectiveness of Renfrewshire Council's Telecare Service is demonstrated by the many examples they can provide of clients have been enabled to remain living safely in their own home despite their dementia, often for several years. Telecare has prevented, or at least delayed, admission to residential care for many people. It has also provided many carers with the reassurance, support and peace-of-mind to continue in this capacity.

5.4 ACCESSIBILITY

This criterion draws on information from the interviews with staff to consider three aspects of the accessibility of the Telecare Service to Renfrewshire residents with dementia:

- The client's ability to benefit from telecare;
- The suitability of their accommodation for using telecare;
- The service costs.

i) Ability to Benefit

Potential telecare clients have to be referred to the service for assessment (see Appendix B for further details), and interviewed staff expressed concern that some clients are not being referred until their dementia has progressed to a stage that makes it very hard (if not impossible) for them to learn about and benefit from telecare and to remain living in their own home. Considerable progress, with introducing telecare to a variety of client groups has been made locally, and telecare has become a key part of mainstream services since its introduction six years ago. However, there is still scope for it to become further embedded into local health and social care services. It was suggested, during the interviews, that a preliminary telecare assessment should be included as part of all community care assessments and included in all hospital discharge planning. This could enable telecare technology to be introduced when problems are starting to develop, and when the client is still able to adjust to their use, rather than as a reaction to a changed situation, thus increasing its accessibility to the local population.

ii) Suitability of Accommodation

There are still some restrictions on using the Community Alarm Service (which is essential to becoming a telecare client) relating to the client's type of accommodation. This relates to some people living in facilities that are part of a larger complex managed by a Housing Association, voluntary organisation or private sector provider. Some providers run their own alarm and response system for their tenants, who are unable to become clients of the Council's Community Alarm and Telecare Services. This is sometimes the case with Sheltered or Very Sheltered Housing. As discussed previously, some tenants live in complexes with shared facilities and with a communal entrance door, making door contacts non-feasible.

However, Renfrewshire also includes four excellent examples of Extra Care Housing¹¹. Some are joint ventures between a local Housing Association (which provides and maintains the facilities) and the Council (which provides the staff and manages the facility on a day-to-day basis). From observation, these are well-designed facilities, some with a specific area of flats for people with dementia designed to provide an appropriate external environment. Internally, the flats can be equipped with whatever telecare equipment is needed (including door contacts in some cases). Tenants receive two meals day in communal dining facilities, so staff are able to monitor their intake of food and liquids¹². Home care can be provided as necessary on an individual basis, and staff at the complex run activities to interest and stimulate the tenants. These include daily newspaper reading groups, showing old films, and a weekly singing group. Many tenants also attend local day hospitals or day centres on a regular basis. The flats for people with dementia in these complexes are fitted with the telecare equipment appropriate for the specific client. Council staff working at each facility provide a response service during the day, but this can be transferred to the Community Alarm Service response team overnight if necessary.

Although the interviews, revealed some shortcomings with the accessibility of telecare for people with dementia, living in certain types of accommodation, the site visits also showed that Renfrewshire Council has adopted some innovative approaches to enable people with mild-to-moderate dementia to continue to live safely in the community.

iii) Cost

Cost is another aspect of service accessibility, as it is important that potential users are not 'priced-out' by the weekly cost. The Telecare Service currently costs users £3.25 per week, which contributes towards the responder service. This does not seem to be a particularly high charge, but bills are only issued quarterly, when they amount to about £45, which can seem to be quite a large amount on receipt. The evaluation did not ask if potential clients are being deterred by these charges, nor what happens if a client fails to pay.

¹¹ Arnott Gardens, Linwood; Banktop Court, Johnstone; Clayson House, Blantyre Court, Erskine; Robertson House, Erskine.

¹² Dehydration can be a problem for people with dementia, who may forget that they need to drink (or, indeed, how to make a hot drink). Some medication can exacerbate the risk of dehydration.

5.5 ACCEPTABILITY

'Acceptability' can be interpreted in a variety of ways, and when applied to *telehealth* it is often considered in conjunction with 'satisfaction' to reflect the acceptability of the telehealth technology to physicians and clinicians. In the context of *telecare* it was been defined here as the acceptability of the telecare technology to service users and carers and to NHS staff.

i) Users and Carers

As people generally become more familiar with the types of technology that comprise telecare, and as the use of telecare equipment becomes more widespread, there is relatively little resistance to its introduction by service users or their carers. Indeed, many clients welcome it as part of a package of services that helps people with dementia remain living in the community (in either their original home or in housing with more integrated support) rather than having to move into long-term residential care. Carers also appreciate being able to share the caring duties, especially at night if the person for whom they are caring is prone to wandering when the carer would normally be asleep.

Occasionally, the Telecare Service Co-ordinator encounters some resistance (or at least reluctance) from a potential client. This is where the 'Just Checking' can be very useful. It monitors the movement of a person and generates a chart of their activity on a computer, and is often set up in a potential client's home for a few days or week to establish their usual activities. Care professionals can use the resulting information to assess and plan care. Families can use it to 'just check' that a family member is following their usual pattern of life. However, it can also be used to show somebody in the early stages of dementia that they are indeed leaving their home at inappropriate times, when they themselves have no recollection of doing so. This can convince them that they need telecare sensors for their own safety and to remain living in their own home and to retain their independence.

There seems to be very little resistance to the introduction of telecare technology by most service users and their carers in Renfrewshire.

ii) To Clinicians

There is anecdotal evidence that the acceptability of telecare to those working in the NHS varies across different professional groups. NHS Consultants in Renfrewshire were stated to be the hardest group of stakeholders to convince of the benefits of telecare initially, and some still have their reservations. There were also concerns within the NHS that telecare would result in NHS services being cut, and many NHS staff did not appreciate that telecare was intended to complement (rather than replace) other forms of care. Indeed, the installation of telecare may result in a person needing more, not less, other care. These concerns have largely been allayed, although some hospital-based staff are still not wholly supportive and do not appreciate that telecare can help many people with dementia remain living safely in the community.

Staff with the Telecare Service feel that they have very good working relationships with staff at the Royal Alexandra Hospital (the local Day Hospital) and also with community-based staff, but feel that many referrals from acute services are made when the dementia has progressed too far for telecare to be introduced effectively. They would like to see some form of telecare assessment embedded into all community care assessments and into the hospital discharge process. It may even be possible to involve the equipment suppliers in developing bespoke solutions for some clients if necessary.

It is important that the Telecare Service is able to keep staff working for the NHS (and indeed for other relevant agencies, including Social Services and Housing) informed about telecare technology and its potential to help people with dementia. Staff turnover is quite high in some services, and so staff training is an ongoing need. To this end there is a training room available at Banktop Court, but undertaking such training requires staff time, and this is often not available.

iii) Other Agencies

Telecare has now become one of Renfrewshire Council's mainstream services, indicating its acceptability to them.

The Police are very supportive of the Telecare Service, and are willing to become involved if necessary in finding a vulnerable person who may have wandered too far or to somewhere unusual. They also appreciate that the service reduces homes being left at risk of burglary if the householder has gone out and left the door open.

However, anecdotal evidence suggested that some Housing Associations are reluctant to embrace up-to-date telecare technology in their accommodation complexes. Some Housing Associations and other providers of supported housing operate their own emergency call system. However, with the demise of on-site Residential Wardens in most supported housing complexes, alternative arrangements have had to be made for providing emergency overnight cover (e.g. from Renfrewshire Council). However, many of their in-house systems are not sufficiently technologically advanced to embrace the inclusion of telecare sensors (provided either by themselves or Renfrewshire Council). Thus, some people may have less access to telecare technology when they move from their own home in the wider community into a Housing Association complex. Other Housing Associations, however, are more actively supportive of telecare technology and appreciative of its benefits.

5.6 SATISFACTION

Satisfaction with the telecare service can be considered from two perspectives – the users/carers and the staff.

i) User/Carer Satisfaction

The researchers were provided with the findings from two user/carer satisfaction surveys undertaken in 2010. Those from the Telecare Services satisfaction survey (36 responses) are presented in Section 6, where those from the Community Alarm Service satisfaction survey (439 responses) are also summarised.

Although the number of responses for the telecare service is relatively low, the replies consistently show that users and carers are generally 'very satisfied' or 'satisfied' with their service. Very few respondents selected 'neither satisfied nor dissatisfied' for any of the questions, and even fewer indicated that they were 'dissatisfied' with any aspect¹³. The 'very dissatisfied' option was not selected by any of the respondents.

The questionnaire was only completed by a relatively small number of clients, so it is unclear how representative these views are of those of all telecare services. However, the responses to the Community Alarm Satisfaction Survey, which is provided by the same team of staff, show similar results. It shows that users of this service are generally 'satisfied' or 'very satisfied' (usually about 80%-90% for most aspects).

ii) Staff Satisfaction

The assessment of staff satisfaction is based mainly on the impressions of the researcher undertaking the fieldwork. Several of the key service managers have been involved with the Renfrewshire Telecare Service from its inception, and often worked for the Community Alarm Service before that. They seem to have derived great job satisfaction from being able to develop the service from its initial pilot status (when funded by JIT) to its mainstream status with local funding from Renfrewshire Council. During this time they have appreciated being able to develop with service with support from (but not interference by) the Council. As well as being appreciated by the more senior managers, this is also valued by staff working with dementia sufferers on a day-to-basis, where they are encouraged to develop new and innovative ways of interacting with the tenants and enhancing their quality of life¹⁴. The staff in the Extra Care Housing complexes seemed committed to their work with frail older people who live there, many of whom have dementia. Telecare helps these people remain living in their own flat rather than having to move into residential care, and the staff seem to derive considerable job satisfaction from their work.

¹³ Two respondents were dissatisfied with the availability of a manager's contact details in case they wished to get in touch.

¹⁴ For example, Staff based at one of the Extra Care Housing complexes with significant numbers of tenants with dementia have recently developed a weekly 'Sing for your Heart' session. This hour-long sing-along is proving very possible with participants, some of whom only become animated and interact with others during these sessions.

The staff have also appreciated the support they have had from other complementary services, especially the Police. The responders' work can be challenging and stressful, but their pay scales are fairly basic and, some claim, do not reflect the extra pressures of their work. Although recruiting staff is not usually a problem, retention can sometimes be difficult because of these factors. Many staff are middle-aged, and some have been attracted to the work because of their personal experience of looking after a family member rather than because they have chosen a career in health and social care. All new staff seem to be given plenty of formal and informal training¹⁵, and spend time shadowing more experienced members of staff. This enables people who find that they are not suited to the work to look elsewhere for employment.

5.7 OTHER POINTS

Three other points about the quality of the Telecare Service emerged during the interviews.

The first was the important role played by applying for and being awarded TSA Accreditation as the service was developing, as this forced service managers to focus on establishing appropriate protocols and pay great attention to detail.

The second was the stresses that can be caused by using an external Call Centre, such as the Hanover Telecare Centre in Edinburgh. Although this did not necessarily cause specific problems, and generally worked efficiently, some people suggested that working relationships between the call handlers and the responders would be better if they were based in closer proximity. Responders are very reliant on their contact with the Call Centre, and a Renfrewshire base would also mean that the call handlers would be more familiar with the local geography and infrastructure. Until recently it has been hard for Telecare Service Managers to interrogate the data from the Call Centre directly; instead they had to request any specific information requirements from the Hanover staff. However, the introduction of the PNC6 system at the Call Centre should enable the Renfrewshire staff to access the data directly themselves.

The third was the importance of senior managers being able to network with other Councils and to keep up with developments and initiatives elsewhere in Scotland. Establishing and maintaining such links requires dedicated time and is facilitated by face-to-face contacts. Although teleconferencing and video links can be useful in some circumstances, time out of the office to attend meetings in other parts of Scotland tend to be more effective for sharing good practice and information about new initiatives.

¹⁵ Including two days at Reid Kerr College, the Further Education College in Paisley to learn about moving and assisting.

Section 6: Satisfaction Surveys

6.1 OVERVIEW

This section summarises the findings from Renfrewshire Council's 2010 Telecare Service Satisfaction Survey. The telecare survey was completed by (or on behalf of) 36 service users and the community alarm survey was completed by 439 clients. Given the relatively low number of responses to the telecare survey, the findings may not reflect the views of all users of the service. However, the findings reported here show very high levels of satisfaction, and the survey provided any users (or carers) with concerns about the service with an opportunity to share these concerns. The fact that no-one chose to do so suggests that satisfaction levels with the telecare service in Renfrewshire are generally very high.

6.2 QUESTIONNAIRE RESULTS

Table 6.1 shows the levels of satisfaction with various aspects of the Telecare Service. It shows that the only aspect to cause any concern is the availability of a manager's contact details, if the client needed to get in touch.

Table 6.1: Satisfaction with various aspects of Telecare Service^(a)

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
The involvement you were given by the Council in deciding if you wanted a Telecare Service	18 (50%)	13 (36%)	5 (14%)	0 (0%)	0 (0%)
The involvement you were given in deciding which type of telecare equipment best suits you	12 (36%)	16 (48%)	5 (15%)	0 (0%)	0 (0%)
The quality of information you receive when changes are being made to your service	13 (41%)	11 (34%)	8 (25%)	0 (0%)	0 (0%)
The availability of a manager's contact details, in case you wish to get in touch	12 (36%)	12 (36%)	7 (21%)	2 (6%)	0 (0%)
The quality of response you receive if you submit a comment, enquiry or complaint	12 (35%)	12 (35%)	11 (32%)	0 (0%)	0 (0%)

(a) The percentages in the tables show the number of answers given to a question as a percentage of the replies for the question, not as a percentage of the number of completed questionnaires.

Table 6.2 shows the personal circumstances which best describe the main reason for receiving the Telecare Service. The figures show that about half of the questionnaire respondents listed 'dementia' as the main reason for receiving the service; however, those selecting other main reasons may also have dementia. Furthermore, given the small size of the sample, this table may not reflect the true proportion of Telecare Service users with dementia.

Table 6.2: Main reason for receiving telecare

Main Reason	Number	%
Dementia	16	46%
Mobility	8	23%
Falls	8	23%
Support for carer	1	3%
Hospital discharge	0	0%
Reassurance	2	6%
Other	0	0%

Table 6.3 shows the extent to which respondents feel that the Telecare Service enables them to maintain their independence and reduce worries about safety.

Table 6.3: Levels of agreement and disagreement with various statements^(a)

Having a Telecare Service...	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Enables me to continue to live independently in my own home	14 (45%)	15 (48%)	2 (6%)	0 (0%)	0 (0%)
Gives me a greater feeling of safety and security	19 (54%)	15 (43%)	1 (3%)	0 (0%)	0 (0%)
Gives my family greater reassurance about my safety and wellbeing	17 (53%)	13 (41%)	2 (6%)	0 (0%)	0 (0%)

(a) The percentages in the tables show the number of answers given to a question as a percentage of the replies for the question, not as a percentage of the number of completed questionnaires.

Table 6.4 shows the items of information received when people were assessed for telecare (although it should be noted that some respondents may not have remembered receiving these items).

Table 6.4: Proportion of clients receiving items of information

Information Item	Number	%
Information on terms and conditions of the telecare equipment	21	72%
A leaflet explaining how the telecare equipment works	22	76%
An explanation of how the telecare equipment works	25	86%
The installation overall	23	79%

Table 6.5 shows how satisfied clients were with various aspects of the equipment installation.

Table 6.5: Satisfaction with equipment installation

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Engineer's arrival at agreed time	16 (48%)	14 (42%)	3 (9%)	0 (0%)	0 (0%)
Engineer's courtesy and respect to you and your home	20 (61%)	11 (33%)	2 (6%)	0 (0%)	0 (0%)
Engineer's explanation on how the equipment works	16 (52%)	12 (39%)	3 (10%)	0 (0%)	0 (0%)
The installation overall	17 (52%)	13 (39%)	3 (9%)	0 (0%)	0 (0%)

Tables 6.6a – 6.6d were only answered if a piece of telecare equipment had been activated recently (as defined by the questionnaire respondent). Respondents were asked to tick all pieces of equipment that had been activated and also about the types of assistance provided and their satisfaction with these. Table 6.6a shows that personal alarms and smoke detectors were activated most frequently, but that door contacts were also activated quite often.

Table 6.6a: The activated piece of equipment

Equipment	Number of activations
Personal alarm	14
Door contacts	6
Smoke detector	11
Bed monitor	2
Pressure mat	1
Fall detector	2
Heat extreme detector	4
Natural gas sensor	0
Flood detector	2
Carbon monoxide detector	0
PIR sensor	0

Table 6.6b shows that almost three-quarters of the activations resulted in a visit by a responder from the Community Alarms Response Team.

Table 6.6b: Provider of most assistance

Assistance Provider	Number
Assistance from a family member or friend was arranged	8
The Hanover telephone operator	7
A member of the Community Alarms Response Team	18
Other	1

Table 6.6c shows the types of assistance arranged by the Hanover telephone operator or a member of the Community Alarm Response Team if they were involved.

Table 6.6c: Type of assistance arranged

Assistance arranged	Number
Assistance from a family member or friend was arranged	11
Assistance from a nurse or doctor was arranged	1
Assistance from the Ambulance Service or other Emergency Services was arranged	7
Other	2

Table 6.6d shows how satisfied service users were with the assistance provided by the Hanover telephone operator or a member of the Community Alarm Response Team.

Table 6.6d: Satisfaction with assistance

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Speed of response	12 (55%)	8 (36%)	2 (9%)	0 (0%)	0 (0%)
Ability to communicate clearly with you	11 (52%)	7 (33%)	3 (14%)	0 (0%)	0 (0%)
Personal presentation (if applicable)	9 (53%)	7 (41%)	1 (6%)	0 (0%)	0 (0%)
Courteousness and respect shown to you	10 (50%)	9 (45%)	1 (5%)	0 (0%)	0 (0%)
Ability to provide you with the assistance you required	9 (45%)	9 (45%)	2 (10%)	0 (0%)	0 (0%)

Table 6.7 shows that almost all of the questionnaire respondents were pleased with the Telecare Service – with 94% being either ‘satisfied’ or ‘very satisfied’ and none being ‘dissatisfied’ or ‘very dissatisfied’.

Table 6.7: Overall satisfaction with Telecare Service

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Overall satisfaction	23 (64%)	11 (31%)	2 (6%)	0 (0%)	0 (0%)

The questionnaire also asked about the satisfaction of the respondent’s main carer (either a family member or friend) with various aspects of the Telecare Service. Table 6.8 shows that the only area of some concern (though only for two respondents) was the availability of contact details should they wish to get in touch. Almost all of the carers were either ‘satisfied’ or ‘very satisfied’ with the service.

Table 6.8: Carers' satisfaction with elements of Telecare Service

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
The appropriateness of the service for meeting the needs of the person you are caring for	14 (54%)	11 (42%)	1 (4%)	0 (0%)	0 (0%)
The availability of contact details, in case you wish to get in touch	12 (48%)	11 (44%)	0 (0%)	2 (8%)	0 (0%)
The Telecare Service overall	15 (58%)	10 (38%)	1 (4%)	0 (0%)	0 (0%)

Some people might consider that the Telecare Service satisfaction survey, with 36 respondents, is not representative of all Telecare Service users. It is not possible to determine whether this is true or not, but the results from the Community Alarm satisfaction survey suggest that they may be. Renfrewshire Council received 439 responses to their Community Alarm Service satisfaction survey, which used a similar format to that used for the Telecare Service. The Community Alarms survey showed that 61% (249) of users were 'very satisfied' with the service, and 36% (145) were satisfied. Only eight respondents stated that they were 'neither satisfied nor dissatisfied', and two were 'dissatisfied' and another two were 'very dissatisfied'. When asked about their satisfaction with the Community Alarm Service overall, 58% (135) carers were 'very satisfied', 40% (92) were satisfied, and two were 'neither satisfied nor dissatisfied' and three 'very dissatisfied'. Given that both services share the same responder service, it seems reasonable to assume that the results from the Telecare Service satisfaction survey are representative of the views of all service users.

Section 7: Discussion of Qualitative Aspects

7.1 OVERVIEW

Section 5 – Qualitative Analysis – considered how the Renfrewshire Telecare Service performed for clients with dementia against the five criteria identified by NHS Scotland, namely:

- Safety;
- Effectiveness;
- Accessibility;
- Acceptability;
- Satisfaction.

Overall, the Telecare Service performed very well, and was enabling many local residents with dementia to remain living independently but safely in their own homes, and delaying or even preventing them moving into long-term residential or nursing care.

It is clear that the professionalism and dedication of the Responder Service plays a very important part, and that this is supported by some excellent and experienced senior managers of the Telecare Service. The availability of appropriate supported accommodation can also be important for some people. It is clear that the Telecare Service does not reduce clients' needs for other services; indeed, some clients may need and benefit from additional care (e.g. regular check visits; day-time social activities) to enable them to remain living in the community. In the early stages of the service's development, working towards the TSA accreditation had an important influence. It ensured sound practices and procedures were developed, and enabled the Renfrewshire service to be something of a trailblazer in this respect.

Receiving the initial funding for telecare from JIT (before subsequent mainstreaming by Renfrewshire Council) enabled the local service managers to develop the Telecare Service over an appropriate time period without undue local pressures to deliver within too short a time. The on-going interest and support of the local Council was appreciated during this pilot period, when telecare gradually became embedded in and integrated into the local health and care culture. One of the reasons for its continued success is the support received by other agencies, such as the NHS and the Police.

Renfrewshire Council does not offer a standardised ‘telecare package’ to all clients, but instead the Telecare Service Co-ordinator undertakes detailed individual assessments of all potential clients (also attended by a care manager and a family member). This ensures that clients are issued with the technology that meets their specific needs and is appropriate for their cognitive abilities. Door contacts are particularly valuable for people with dementia who are prone to wander from their homes at night-time. These can also provide some much-appreciated respite for their family or other carers during the night time, as they do not need to worry about the person wandering from their home for very long. Other specialist items, such as bed monitors and PIR (passive infra-red) movement detectors can be suitable for checking on the whereabouts of some clients. Sensors such as smoke detectors, extreme heat detectors and flood alerts may also be appropriate, and can promote the safety of neighbours as well as of the client themselves.

Although the basic sensors have been available for a number of years, refinements in their design and use are being made all of the time. Equipment providers will often consider designing bespoke solutions for specific problems, and the use of GPS tracking systems to alert staff or carers when someone strays from a familiar area outside has considerable potential for helping promote a person’s safety without compromising all of their independence. Developments in the supporting telecare infrastructure, such as the development of Police-approved key safes (which are used for all clients with dementia) and switches to set door contacts internally or externally, are also improving the functioning and effectiveness of the Telecare Service.

The evaluation has not been able to consider why certain users return their equipment after a few months for reasons other than moving to a care home or mortality. This is an important limitation and arose because the scope and hence budget did not include de novo survey analysis.

The overall conclusion from the evaluation of the Telecare Service against the criteria is that the service is performing very well from a qualitative perspective, with satisfied users and carers, excellent staff and good support from many NHS elements and the Police.

7.2 ADDITIONAL SPECIFIC POINTS

The semi-structured interviews with a number of staff connected (either directly or indirectly) with the Telecare Service and meetings with three tenants of the Extra Care Housing complexes with dementia raised a number of other points. These are discussed overleaf.

i) Charging for Telecare Services

Renfrewshire Council currently charge users of the Telecare Service £3.25 per week, which goes towards running the Responder Service. This amount is determined locally, and a charge for similar services is not made by all Councils in Scotland. It is not known in Renfrewshire if this charge (which is billed quarterly) acts as a deterrent for any potential users, nor what sanctions (if any) are applied to any persistent non-payers. It may be sensible to review the reasons why potential clients have turned down the installation of telecare equipment to determine if 'cost' was a reason and to ensure that all users are able to pay the required charges.

ii) Importance of Early Involvement

Several of those interviewed stressed the importance of people with dementia being issued with telecare equipment when their dementia is in its early stages and they are still able to accept it and understand its function. This can become much harder, or even impossible, as the dementia advances.

Since its introduction, telecare equipment has become part of mainstream health and social care services in Renfrewshire, and much of the initial suspicion and mistrust has been allayed. Indeed, considerable progress has been made in this respect during the six-year period since its introduction.

However, managers of the Telecare Service would like to see the concept become even more firmly embedded in local health and social care services, for example, by being specifically considered in all home care assessments and as part of all hospital discharge plans.

iii) Influence of Type of Accommodation

The accessibility of telecare for some people with dementia depends on the type of accommodation in which they live. If they need door contacts as part of their package, they ideally need to live in a property with direct access onto the street so that the responders can easily gain entry if necessary. If they live in more sheltered accommodation with a communal front door, responders will need to be admitted to the main complex through the communal entrance before going to the client's own flat. The ending in recent years of resident wardens who are on-site at all times means that some tenants with dementia living in such accommodation are unlikely to be able to benefit from the installation of telecare sensors due to these accessibility problems. Depending on the arrangements operating in the supported accommodation facilities, some people with dementia will have better access to telecare technology if they remain in their own homes (assuming these have street access) than if they move into certain types of sheltered accommodation. There may also be scope for some of local Housing Associations to upgrade their facilities and make better use of some of the available technology, perhaps working more closely with the Council's Responder Service.

However, there has been one significant and successful recent accommodation-related development in Renfrewshire for people with dementia – the provision of four VSH/ECH complexes in the area. Parts of these have been designed to provide a safe and attractive internal and external environment for people with dementia, and they are also staffed on a 24/7 basis (or are accessible to staff from the Responder Service out-of-hours). Although each tenant has their own flat, they can also use the shared facilities, including courtyards and gardens, lounges and a dining room. External staff (e.g. Council home carers) can come in to attend to tenants needing such support (just as they do to other clients living in their own homes), and tenants can go out to a variety of activities during the day, such as day centres. Staff are also available at all times during the day in the facility, and can intervene if necessary. In particular, they can monitor people's food and fluid intake, thus reducing the risk of dehydration (which can also be exacerbated by certain medications). They can also ensure that tenants receive and take their medication (e.g. through establishing a working relationship with a local dispensing chemist, although tenants often retain their own GP). In addition, staff can provide in-house activities to stimulate the tenants and make them tired at night so that they sleep at night. They can sometimes divert someone who might be heading for an external exit, or even accompany them outside for a walk or visit to the shops to ensure their safety.

These facilities can provide a safe and pleasant home for many people with dementia, balancing maintaining their independence with a safe and protective home environment. Telecare can be incorporated into each tenant's home if necessary, including door contacts for use at night. Thus many people with dementia can continue to live in a community setting rather than move into a nursing or residential home. Such accommodation has increased in popularity in recent years, but can be costly to provide. Appendix D includes a summary of a recent study of the weekly costs of Extra Care Housing undertaken by the Personal Social Services Research Unit at the University of Kent.

Dutton *et al.*, on behalf of the Housing and Dementia Research Consortium (HDRC)⁽¹⁸⁾ published findings from the evidence about people with dementia living in extra care housing. This was based on a scoping review of the literature relating to such people who are living in extra care housing and was commissioned by the Joseph Rowntree Foundation. The review found evidence that people with dementia are generally able to have a good quality of life living in extra care, although some tenants who have dementia can be at risk of loneliness, social isolation and discrimination. It also found that one of the key goals – the promotion of independence – appears to be achievable for those with early to moderate stages of dementia. However, people living with dementia living in extra care can also be intensive in terms of staff time. The study highlighted several aspects of care, including key operational and organisational factors that have a positive impact on the well-being of people with dementia living in extra care.

iv) Location of Call Centre

Some Councils with Responder Services operate their own in-house Call Centres for handling and monitoring the incoming alerts from their Community Alarm and Telecare Services, whilst others contract-out this facility. Renfrewshire Council uses Hanover Telecare's Call Centre in Edinburgh to manage the calls from clients and liaise with the responders. Although such an arrangement has its advantages (such as benefitting from economies of scale) and means that Renfrewshire Council does not have to provide such a facility themselves, there are some disadvantages for the Responder Service. One such disadvantage that was mentioned is that the responders do not meet the call handlers on a regular basis, which was felt could help to establish stronger working relationships. Another suggested potential weakness is that the call handlers will not have the same knowledge of local geography and characteristics as someone who lives there and has first-hand knowledge of an area, which might be helpful when dispatching responders to calls. Until recently it has also been hard for the service managers in Renfrewshire to interrogate directly the data generated at the Call Centre (e.g. to answer queries, to print out activity data or to monitor service quality). Instead they have had to rely on e-mail requests to staff at the Call Centre. This particular aspect should improve, however, with the recent introduction of the Tunstall PNC6 call monitoring and managing system, which can be accessed directly by staff in Renfrewshire.

Despite some perceived limitations, the current arrangements for call handling and monitoring seem to work well enough. This is confirmed by the recent TSA accreditation having Platinum status, indicating that the service is meeting and exceeding the key performance indicators.

v) Sustainability

At present one member of staff (the Telecare Service Co-ordinator) undertakes all the telecare assessments in Renfrewshire, and has done so for several years. However, this situation does not appear to be sustainable. As the service continues to develop, client numbers increase and senior managers need to be able to undertake a more strategic role within the Council. Telecare technology continues to advance, and it is important that staff working in other areas of health and social care and in housing are aware of the potential it offers to clients (including those with dementia). Regular staff turnover in many services means that there is an on-going requirement for such training and updating. There is a well-equipped training room at Banktop Court, but the Telecare Service Co-ordinator does not have sufficient time to provide the ideal amount of training for staff and for carers of potential clients.

At present the Telecare Service Co-ordinator probably holds too much knowledge and information in her head, and ideally this should be shared across more people in Renfrewshire. One possibility is to create a second post providing assessments and training so that the load is shared across at least two people and the Telecare Service Co-ordinator would also have more time to develop the strategic element of her job.

vi) Importance of Networking

Each of the Scottish Councils has adopted slightly different approaches to the provision of telecare, and it is important that senior service managers have opportunities to network and to share their experiences. This should make the service more efficient and ensure that managers are aware of all recent developments and innovative solutions to particular issues. Such networking tends to be more effective if staff can get away from their own work environment and meet other similar managers in person. It is important that time and travel budgets are available to facilitate such activities.

vii) Potential Technology Developments

Technological developments that could help more people with dementia to live safely in the community, possibly for longer include:

- Uses of GPS technology for keeping track of people outside their home;
- Using combinations of bed monitors, PIR movement sensors and door contacts to enable better and faster checks on the safety and whereabouts of wanderers;
- Automating the daily swathing of door contacts.

It is important that the Renfrewshire service retains its high awareness of such possibilities.

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APPENDIX A

Renfrewshire's Community Alarm Service

A.1 MISSION STATEMENT

Renfrewshire Council aim is to provide a good quality Community Alarm Service to a wide range of people, to enable them to remain living in their own home. The service objectives are:

- To provide a 24 hour response service to support people in their own homes;
- To provide reassurance to service users and carers;
- To contact emergency services such as ambulance, fire or Police on behalf of the service user;
- To reduce admission to hospital, residential or nursing home care;
- To assist in the early discharge of people from hospital;
- To provide a quality, cost-effective service that meets service user needs;
- To deliver an integrated service that compliments other support being provided.

A.2 AIMS AND OBJECTIVES OF THE COMMUNITY ALARM SERVICE

- Renfrewshire Council Community Alarm Service aims to support individuals in maintaining their independent lifestyle in the community by providing a response service in emergencies;
- The service will be sensitive and responsive to the race, culture, religion, age, disability, vulnerability, gender and sexuality of the people receiving a service;
- Our aim is to deliver a high quality service which provides support and care with dignity, respect and choice of service users, carers, relatives and representatives.

Renfrewshire Council Community Alarm Service is registered with the Scottish Commission for the Regulation of Care (The Care Commission). All Renfrewshire Council employees have a duty to comply with legal obligations contained within the Health and Safety at Work Act 1974.

A.3 HOW THE SERVICE WORKS

You may need help for a variety of reasons:

- If you fall;
- If you have a medical emergency;
- If you feel afraid or insecure;
- If you feel vulnerable for any reason whatsoever – do not hesitate to use you alarm.

The alarm is activated by pressing the button on the pendant or the red button on the alarm unit. The alarm call is answered by a member of staff at control centre (which is operated by Hanover in Edinburgh). If necessary (and definitely if the client is unable to talk to the operator or cannot hear them) a responder from the Renfrewshire Community Alarm Responder Team will go to the client's home. This service operates 24 hours a day 365 days a year. The responder assesses the situation and advises the control centre operator. Depending on the circumstances, the operator takes responsibility for contacting the emergency services (ambulance, Police or Fire) if needed, or the GP, family member or next of kin. If preferred, the control centre operator can contact a client's nearest relative or a friend rather than a community alarm responder.

Routine check visits are undertaken every six months, when a responder tests the alarm and makes sure that the information held about the client by the control centre is correct. This ensures that the control centre has the contact details for the relevant contact and that the responders (and others) are aware of any newly diagnosed medical conditions.

APPENDIX B

Local Service Structure

B.1 RENFREWSHIRE 24

In January 2008 the local Community Alarm and Telecare Services became part of a new service – Renfrewshire Care 24. Renfrewshire Care 24 is a service providing a range of care and support services to vulnerable people across Renfrewshire to allow them to live at home as long as possible. It works in partnership with NHS, housing and independent services. It aims to help people stay safely in their own homes for as long as possible and to enhance the quality for the service user and their carers by giving access to responsive and accessible care at home services. Service Co-ordinators manage the range of services that form Renfrewshire Care 24 and also provide an out-of-hours management service to community alarm responders, home carers and service users. It operates 24 hours, 365 days per year and can provide any or all of the following services:

- *Community Alarm and Telecare Services;*
- *Single Point of Access* – this provides a single entry point to Intermediate Care Services in Renfrewshire;
- *Rapid Response* – this joint service between health and social care can provide personal care, domestic service and housing support for up to two weeks to help a person remain in their own home after an emergency and to prevent them going into hospital;
- *Out of Hours Homecare Management Support* – this service includes assessment of need, arranging care services, responding to enquiries or problems and supporting staff with any difficulties in delivering planned care;
- *Overnight Homecare* – this service provides personal care and support, domestic service and housing support tasks between 10pm and 6am, 365 days a year.

B.2 SINGLE POINT OF ACCESS

Single Point of Access (SPOA) provides a single entry point for access to Intermediate Care Services in Renfrewshire (available 24 hours a day, 7 days a week). It is a centralised screening process for all referrals from:

- Care Homes and Day Centres;
- Department of Medicine for the Elderly Day Hospital;
- GPs;
- District Nurses;
- Hospital Consultants;
- Psychogeriatric Day Hospital;
- Social Work Area Teams;
- Social Work at Royal Alexandria Hospital.

Calls/referrals are taken and signposted to an appropriate service, such as:

- Renfrewshire Care 24: This Social Work service links home care and access to overnight care. The system can extend social work provision to continuous support and allow access to emergency provision of community alarm/telecare services;
- Multi-Agency Team for Care at Home (MATCH) – a multi-agency care team incorporating nursing services, occupational and physiotherapy treatment; dietetics and social work. The team can provide rapid access to nursing assessment care and rehabilitation at home;
- Gerontology Nurse Specialist;
- Intensive Care Managers;
- Respiratory Nurse Specialists;
- Out of Hours Nursing Team;

- Day Hospital for Elderly;
- EMI Day Hospital;
- Older Adults Community Mental Health Team (OACMHT);
- Interface Pharmacy.

B.3 ADULT SERVICE REQUEST TEAM

The Adult Services Request Team (ASeRT) at Renfrewshire Council can be contacted for advice or assistance from social work. The Team deals with service requests for a wide range of adult services in Renfrewshire. For example, they have good links with various local health and social care services, including many community-based services for older people with dementia.

APPENDIX C

Admissions for Co-Morbidities and to Psychiatric Hospitals

C.1 ADMISSIONS FOR DEHYDRATION

The Renfrewshire project manager advised that one of the main causes for admissions in patients with dementia was de-hydration, coded as volume depletion for ISD purposes. Thus, ISD was asked to provide an analysis of admission with volume depletion as the main diagnosis and a dementia code as one of the possible six diagnostic codes. The mean number of admissions for the five year period 2006/07 to 2010/11 was 125, with each patient having a mean length of stay of 16 days. In 2010/11 in Renfrewshire only five admissions met the criteria. One potential interpretation being that if the cause of admission is actually de-hydration it is not sufficiently well recorded on the patient's notes and so not picked up at discharge; alternatively this may be a symptom of a more deep-seated problem which is recorded.

C.2 ADMISSIONS FOR A FALL

Given one of the aims of telecare is reduction of the time fallers need to wait for assistance the trend in fallers with dementia was requested from ISD. Nationally, the number of fallers admitted who also have dementia increased from about 1,640 a year in 2007/08 to 2009/10 to 1,926 in 2010/11, an increase of 17%. This is in line with the trend in admissions. Falls account for about 15% of emergency admissions in people with dementia and this rate has been stable over the last few years. The rate in Renfrewshire CHP is slightly lower at 13%.

C.3 PSYCHIATRIC HOSPITAL DISCHARGES FOR PATIENTS WITH DEMENTIA

ISD also provided data for discharges from psychiatric hospitals with a main diagnosis of dementia for years ending 31 March 2008 to 2011. These were requested to ensure no potentially useful information was omitted, but, as noted earlier, telecare was not anticipated to have a significant impact on these acutely ill patients, many of whom would be admitted from nursing home settings rather than the community. Table B1 summarises the data for 2007/08 and 2010/11. The numbers admitted have declined across Scotland but increased somewhat in Renfrewshire. Both settings reported a decline in mean length of stays but only to 240 days nationally, 12 times longer than patients admitted to general hospitals.

Table C1: Psychiatric hospital discharges for patients with dementia in any diagnostic position

Area	Discharges	Median LOS	Mean LOS	Discharges	Median LOS	Mean LOS
Renfrew	70	65	303	99	110	277
Scotland	2,598	62	289	2,271	63	240

APPENDIX D

Costs of Extra Care Housing

There is no agreed definition of extra care housing, but it aims to meet to meet the housing, care and support needs of older people, while helping them to maintain their independence in their own private self-contained accommodation. Care can be delivered flexibly, usually by a team of staff on the premises 24 hours a day. Domestic care and communal facilities (including a dining room) are available. Schemes vary in size. Extra care housing recognises the important of ‘ageing in place’ and aims to be ‘a home for life’.

Between 2004 and 2010, the Department of Health’s Extra Care Housing Fund (ECHF) provided £227m capital funding for local authority social services departments and housing associations. Extra care housing has many positive features and seems to be “*a promising type of provision*”¹⁶, but its costs may be a concern. This aspect has been addressed in an evaluation by the Personal Social Services Research Unit (PSSRU) of the development of 19 new-build extra care housing schemes located across England which had received support from the 2004-06 ECHF rounds.

Cost estimates – summarised below in Table C.1 – were made for a sample of 465 individuals, 67 in two villages and 398 in the 16 smaller schemes. The mean age was 76 years, with half of the respondents aged between 70 and 85. About two-thirds were female and the majority (77%) lived alone at the time of the interview. About two-thirds (63%) had previously been living in ordinary housing, but almost one-fifth (18%) had been living in sheltered or supported housing and 10% had been living in a care home. Activities of daily living (ADL) scores indicated that many residents were quite able¹⁷. Only a small percentage (3%) of those moving into the extra care housing suffered from moderate to severe cognitive impairment, and challenging behaviour was rare. In terms of their medical histories, more than three-quarters were assessed as having an underlying long-term condition, but only a quarter of the residents needed any nursing care.

Table D.1: Costs summary (2010/11 values)

Costs and unit estimation	2010/11 value
Capital costs: Building and land costs	£93 per resident per week
Housing management and support costs: Housing management Support costs	£55 per resident per week £10.30 per resident per week
Personal living expenses:	£86 per resident per week
Health and social service costs: Health ¹⁸ Social services ¹⁹	£67 per resident per week £107 per resident per week

Source: Bäumker and Netten, 2011.

¹⁶ Bäumker T and Netten A. *The cost of extra care housing, Unit Costs of Health and Social Care*, PSSRU, 2011.

¹⁷ The Barthel Index illustrates functional ability to perform ADLs on a scale of 0 (maximum disability) to 20 (minimum disability). 43% of those in the evaluation scored 17 or more.

¹⁸ Health service costs cover GP visit at home; GP visit at GP surgery; nurse visit at home; nurse visits at GP surgery; chiropody; health clinic visit; therapist visit at home; therapist visit at hospital; hospital accident and emergency; hospital outpatient services; and hospital inpatient stay.

¹⁹ Social care services cover daycare services; social worker/care manager visit; and personal care at home.

These estimates give the following unit costs per week:

- £158: accommodation, housing management and support costs;
- £244.30: accommodation, housing management, support and living expenses;
- £418.30 total cost.

However, these estimates should be interpreted with caution because of the complexities of costing such care. Diverse charging arrangements operated across the schemes, along with varied funding arrangements. The interplay between welfare benefits and affordability all contribute to the complexity. Caution should also be taken in drawing generalisations from these figures, especially for people with dementia in Renfrewshire, as costs and funding arrangements may be different in Scotland and very few of the people included in the English research had moderate to severe cognitive impairment, for which different costs may be appropriate. Nevertheless, these figures give a useful indication of the types of costs that need to be considered when estimating the costs of extra care (or very sheltered) housing.

Table C.2 provides more detailed information about these cost elements, including the minimum and maximum values and show the wide range of some of the cost elements.

Table C.2: Extra Care Housing Cost per Resident per Week by Component (2008/09 values)

Cost component	No. residents	Mean	Std Dev	Min	Max
Capital, including land	465	£105.67	£21.29	£50.93	£157.12
Housing management	465	£52.76	£15.90	£21.17	£77.67
Support costs	465	£9.81	£4.80	£2.41	£22.14
Activities cost*	119	£2.85	£0.81	£1.41	£3.52
Social care	465	£102.04	£111.81	£0.00	£612.00
Health care	465	£64.76	£106.55	£0.00	£634.29
Living expenses	465	£79.95	£3.38	£73.80	£81.80
Unit cost per week	465	£415.79	£179.10	£173.98	£1,241.70

* Average cost across 4 schemes with specific cost outlay for activity provision.

Source: Bäumker and Netten, 2011.

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