Better Health and Wellbeing with Assistive Living Technology

A Joint Strategy for Nottingham City
CONTENTS

Foreword 4
Introduction 5
Definitions 5
Vision 5
Background 6
  Current Services
  National Context
  Priorities for health and care in Nottingham
The case for assistive technology 7
Service users’ views 9
Population needs and demand for Services 10
Positioning assistive technology 12
Strategy 14
  Key Objectives
  Implementation
Implementation priorities 16
Organisation of the integrated service 18
LIST OF ABBREVIATIONS USED

AT: Assistive technology
A&E Services: Accident and Emergency Services
CIC: Community Interest Company (A social enterprise that uses its assets and profits for the public good)
COPD: Chronic Obstructive Pulmonary Disease (Lung disease - bronchitis and emphysema)
FACS: Fair Access to Care (The Government’s framework for assessing and charging citizens for social care)
HF: Heart Failure
HIEC: Health Innovation and Education Cluster
LTC: Long term condition (e.g., diabetes)

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1.0 Foreword

The development of assistive technology in Nottingham City has been a story of growing success since its beginnings in 2007. People who use the services and carers have been consistently positive in their appreciation of the service, and the many ways that it can help to sustain independent living and improve the quality of life.

The City Council and NHS Nottingham City have also recognised the importance of the service to the community, and have committed resources over time to innovate and extend the service. More practitioners are now able to plan personal support for citizens in ways that combine traditional good quality care with the added benefits of smart communication technology to improve safety and reduce anxieties at difficult times.

Well over 2500 people now benefit from the telecare service, and the introduction of telehealth equipment for people with serious health conditions is now helping patients in the community to manage their health better, sometimes avoiding serious crises that would otherwise require hospitalisation.

There is strong consensus that this is a good time to think creatively: there is much to do to re-shape services to meet people’s needs more effectively, pool resources, and to develop a shared vision about the ways we will use technology in the future to improve the quality and economy of our services.

We are already tackling this with action to integrate community based services. Assistive technology will help us to do this – it is not an end in itself, but a vehicle that will help us on the way towards the aspirations we have for better outcomes and quality.

We are grateful to all those who have helped us in researching the evidence we need as a basis for moving ahead, and in contributing to the vision and ideas expressed in this joint strategy. The technologies are developing rapidly, and will have even much more to offer in the next few years, making it easier for people to keep in contact and manage at home. We need to be able to take full advantage of this, and the skills of our combined workforce will be critically important.

We also need to be aware of healthy doubts and concerns expressed – telehealthcare technologies will never replace face to face contact and high quality care. But used appropriately by well trained people, they will help many people to face the challenges of failing health or frailty, with more confidence and easier contact with family and carers.

The general endorsement by so many contributors for wider, embedded use of assistive living services to improve outcomes and costs has given us real confidence that this is the right moment to take the next bold step.

Jo Williams, Head of Joint Commissioning Adult Services, NHS Nottingham City CCG

Dave Miles, Assistive Technology Manager, Nottingham City Council
2.0 Introduction

This document sets out a joint strategy for the improvement and expansion of assistive technology (AT) in Nottingham City, to support better health and well being. This joint strategy is needed to highlight the role AT can play within the delivery of health, social care and housing services. This is in recognition that a strategy has not been developed before despite the presence of social care and health AT services operating for the past 5 years. The strategy is not intended to be a stand alone document but one which compliments and supports existing strategies and priorities.

The ideas and proposals in the strategy have been built up over the last two years. They are now firmly supported by the Government’s health and care policies and by a good range of local evidence.

It is well established that health and social care organisations are facing extraordinary challenges in meeting the needs of a rapidly growing older population who have increasingly complex needs. Economic pressures are also driving changes to the way resources are used to achieve greater benefits to health.

These pressures are prompting health and care services commissioners to help more people look after their health and wellbeing more effectively. This includes focusing on prevention, acting to prevent the crises that cause avoidable admissions to hospitals and care homes. Assistive technology has an important part to play in supporting these changes.

The author of the Yorkshire and Humber HIEC Telehealth Toolkit Dr Paul Rice says in his introduction:

“Technology has transformed other parts of our lives; not by substituting for human contact but by enhancing it, and making key information available to the people I choose, when I choose and for the purposes that I choose. Redesigning care processes to make the best use of telehealth technologies is a quality and economic imperative”.

3.0 Definitions

Telecare - 'Telecare is the continuous, automatic and remote monitoring of real time emergencies and lifestyle changes over time in order to manage the risks associated with independent living.'

Telehealth - 'Telehealth monitoring is the remote exchange of physiological data between a patient at home and clinicians to assist in diagnosis and monitoring'

Included within the bracket of Telehealth are terms such as telemonitoring and telemedicine.

Telemedicine - 'Telemedicine is the practice of medical care using interactive audio visual and data communications. This includes the delivery of medical care, diagnosis, consultation and treatment, as well as health education and the transfer of medical data.'
4.0 Vision

Our vision is for a modern, effective service with a range of technology and services that contribute to better health and well being for people who use our services and carers.

Assisted living technology will help more people to take early action to protect their health, to sustain independent living, and reduce carers’ anxieties. It will become a part of everyday practice for health and social care practitioners in achieving priorities for NHS Nottingham City, the City Council and their partner organisations.

5.0 Target audience

Assistive Technology has a role to play in supporting citizens and patients from a variety of backgrounds and with a variety of needs and conditions. Organisations will have their eligibility criteria and priority needs. However it is not considered appropriate to specify who might benefit from AT within this strategy. The Implementation Plan, which will be developed once the strategy has been formally endorsed, will set out how AT can support different groups. This will either be through providing equipment to those who are eligible, providing advice on equipment use for self management, signposting to equipment suppliers or directly selling equipment to those willing to pay.

6.0 Background

6.1 Current Services

Telecare is the most common form of assistive technology in use, and currently helps around 2,400 people in the City to maintain the quality of life and sustain independent living. There is clear, independent evidence from recent evaluation that it helps create the right outcomes for citizens and contributes to the efficiency of services.

Telehealth is also used by health service professionals looking after about 80 people in the community. There is evidence from recent evaluation that patients and professionals are able to improve the quality of care, reduce risks, and reduce crises that lead to hospitalisation.

These are considerable achievements. Nottingham health and social care services have been at the forefront of improvements in the last 5 years and are well positioned in their partnership to take the next steps.

6.2 National Context

Government is clearer now about AT policy for the future. It wants local commissioners to expand their use of the technology as part of wider changes to improve prevention, raise service quality and extend personalised care. Performance towards the wider use of AT will be monitored. The Government believes that 3 million people in England who have long term conditions or social care needs should benefit from telehealth or telecare. There is more about this in Annex 3.
Priorities for Health, Care and Housing

Prevention is already a clear priority for health and care services in Nottingham, and this is reflected in many current programmes and initiatives aimed at healthy lifestyles, better self-care and more flexible support. For example within adult social care Assistive Technology is seen as the first intervention and core offer for a citizen, after which any remaining needs can be addressed.

At the level of primary prevention, the strategy will play a growing part in the future as better and more affordable technology allows more people to monitor their own health or that of loved ones, keep in touch and support family or friends at a distance, or get skilled advice more easily.

Many people do this now, and do not necessarily use the NHS or adult care services. They may not qualify for financial support for care services from the council, due to the application of the government’s framework of eligibility criteria. To achieve greater prevention the partners will work together to make it easier for citizens and patients to monitor and manage their health and care. The city council has already committed to making telecare available to many people, recognising the value of prevention for all.

In health commissioning, the immediate 3-5 years ahead will focus on the rapid growth of long term conditions and how technology can help with their management, and improve the quality of life. The priorities are in:

- Using data to identify the high risk populations
- Expanding case management for people with high levels of need
- Integrating health and social care services.

In care commissioning key priorities are set out in the Vulnerable Adults Plan and the Children and Families Plan.

A key housing priority is to enable people to remain in their homes. Existing and developing housing strategies highlight the role Telecare and Assistive Technology can play in this. Nottingham City Homes is a key partner in this strategy and they are committed to utilizing assistive technology as part of its commitment to work with partners to ensure effective, joined up services for the most vulnerable citizens – especially the frail, elderly and care leavers.

The Case for Assistive Technology

There is now a good body of evidence, nationally and locally for Nottingham, that careful use of AT helps many people to manage their own health and independence. It improves safety at home, with the potential to support many more people: it reduces the number of events that lead to hospital and care home admissions, and gives reassurance to carers. In this way, it also helps citizens and the services to save money and to make best use of their resources.
7.1 Telecare

Looking first at the local evidence, an independent local evaluation in 2011 of a sample of 90 telecare users was shown to have been successful in better outcomes and in saving adult social care costs of around £1.1m per year. This was achieved where the escalation of needs or a crisis was prevented. In the sample reviewed:

- 20% (9) avoided or deferred an increase in Home Care
- 44% (20) avoided or deferred a Hospital Admission
- 37% (17) avoided or deferred a Residential Home Placement
- 4% (2) reduced the need for Respite Care
- 2% (1) avoided or deferred the need for Supported Living Services

7.2 Telehealth

An independent evaluation of telehealth services was carried out in February 2012. Of a total of 69 active users, 55 cases were reviewed. Although the scale of telehealth use remains relatively small when compared to telecare, the evaluation showed promising results in helping people to avoid a health crisis, and in benefiting from rapid and convenient support. For the health professionals involved, the advantage of having daily health data helped them to assess risks more easily. In the sample reviewed:

- 2 people (4%) avoided 3 A&E admissions
- 6 people (11%) avoided the need for an Emergency Ambulance
- 1 person (2%) avoided the need for emergency visit by COPD team
- 41 people (75%) avoided 141 GP appointments or visits
- 8 people (15%) avoided non elective admissions (37 bed days)
- 2 people (4%) avoided outpatient appointments

The services avoided represent a cost to the NHS, and table 1 below shows the estimated cost saving achieved through the use of telehealth as described above.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>NHS Savings Lower Range</th>
<th>NHS Savings Higher Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Telehealth Users</td>
<td>£105,802</td>
<td>£117,558</td>
</tr>
<tr>
<td>COPD</td>
<td>£94,082</td>
<td>£104,536</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>£9,630</td>
<td>£10,700</td>
</tr>
<tr>
<td>Unknown</td>
<td>£2,089</td>
<td>£2,322</td>
</tr>
</tbody>
</table>

<p>| Table: Total Savings for Evaluation period |</p>
<table>
<thead>
<tr>
<th>Cohort</th>
<th>NHS Savings Lower Range</th>
<th>NHS Savings Higher Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Telehealth Users</td>
<td>£509</td>
<td>£565</td>
</tr>
<tr>
<td>COPD</td>
<td>£865</td>
<td>£962</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>£192</td>
<td>£213</td>
</tr>
<tr>
<td>Unknown condition</td>
<td>£50</td>
<td>£56</td>
</tr>
</tbody>
</table>

Table 1: Average annual savings per person

Not all patients benefited in the same way. Eight people had not avoided services, and 2 people did not use the equipment at all. With the evidence available, it was not possible to evaluate whether there was a reduction in hospital admissions and GP visits as a result of the introduction of telehealth.

At national level however, evidence from the UK’s major research initiative, covering over 6000 people in 3 areas between 2008 and 2010 showed that well managed telehealth can lead to:

- 15% reduction in A&E visits;
- 20% reduction in emergency admissions;
- 14% reduction in elective admissions;
- 14% reduction in bed days;
- 8% reduction in tariff costs;
- 45% reduction in mortality rates.

**Telemedicine - Better communication and consultation**

As part of the strategy, commissioners will also work with service providers to stimulate the wider use of other kinds of telehealth such as telemedicine. For example:

Geriatricians or community matrons who work with people in the community can extend their consultation contact with patients by the use of tele-consultations. These can be used in the same way that telephone contacts are currently used, but with the benefit of recent records of telehealth monitoring data and the added visual contact to help judge the person’s health and well being and pick up risks at an earlier stage than might otherwise be possible.

Tele-consultation offers the opportunity for people who use services and practitioners to keep in touch more easily using video links (either at home, or in the GP’s surgery) and some of the benefits of convenience and time saved are summarised in the diagram below produced by the Yorkshire and Humber NHS HIEC Telehealth Toolkit.
8.0 Service Users' Views

There is convincing local and national evidence to show that the experience of people who use services is mostly positive. At a Whole System Demonstrator Site event in 2009, the evidence from the 3 main research sites showed that 96% of service users thought that telecare and/or telehealth had had a positive or very positive impact on the quality of life. This is illustrated in figure 1 below.

Figure 1.
There are many quoted examples of feedback from people who use telecare services and carers, most of which are also highly positive.

Nottingham’s Service users: typical comments:

“Without it I would probably have to live with my family. I feel safe knowing that I can use this in an emergency and my family no longer have to worry”

“Feeling now of not being alone, which is all to the good”.

Carers:

“Only to say this equipment is brilliant in helping people stay in their own home with reassurance and safety”.

“I am comforted in the knowledge my father has the independent means of communication if needed”.

More examples are at Annex 2, together with useful feedback from GPs and other practitioners in other areas.

9.0 Population Needs and Demand for Services

It is now well understood that the demand for care and support will rise rapidly in the next 15-20 years, and that services in their current form will not be able to sustain so many people using current models and patterns of care. By 2025, it is expected that up to 50% of the population will have a long term condition: this calls for new models of service, further active work on primary prevention (for example healthier lifestyle changes, reducing the number of falls), and a greatly increased number of people who can monitor and manage their own health to achieve the secondary prevention that reduces avoidable admissions to hospitals and care homes, and checks the escalation of needs.

The research shows that AT is of little use on its own: it can only succeed within a framework of new approaches to health and care, some of which are already planned or are being implemented.

Over the period 2011-2015, the growth of people who are likely to have needs that may require health service and or social care support is indicated in table 2 below. They underline the need for active prevention and for different approaches that will be sustainable within forecast budgets.

<table>
<thead>
<tr>
<th>People over 65 with</th>
<th>2011</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limiting Long Term Illness</td>
<td>17,898</td>
<td>18,354</td>
</tr>
<tr>
<td>Living alone</td>
<td>5,370</td>
<td>5,351</td>
</tr>
</tbody>
</table>
Dementia 2,546 2,616
Health condition caused by a heart attack 1,671 1,728
Health condition caused by a stroke 787 814
Health condition caused by bronchitis and emphysema 569 591
Diabetes 4,197 4,357
Moderate or severe Learning Disability 94 98

People under 65 with

Early onset Dementia 57 59
Health condition caused by a Stroke 454 477
Diabetes 5,317 5,560
Severe Learning Disability 346 360
Serious Physical Disability 3,690 3,822
Serious Personal Care Disability 1,497 1,562
Psychotic Disorder 873 908

Table 2. POPPI and PANSI data.

10.0 Positioning Telehealth and Telecare

The range of current and potential beneficiaries is very wide. In Nottingham, as elsewhere, one of the main challenges is to find the right balance between care at home for those who have major and / or complex needs and those who would benefit from early intervention or preventative support and care.

The first diagram overleaf (figure 2), taken from a Department of Health presentation\(^1\), shows how an integrated service can respond to people with the highest needs, but highlights the risks of inappropriate use when an illness or disability presents too many challenges.

\(^1\) Department of Health 2009
In the second illustration (figure 3) below, the focus is on the wider group of people who may fall outside the social care eligibility criteria, and /or who may receive a health care service at home, typically due to a long term condition.
The challenge for the commissioning partners is to balance the use of AT resources both to deal appropriately with severe and complex needs, whilst building up the use of resources for preventative purposes in the longer term.

The diagram below (figure 4) shows the contrast between evidence for successful AT use and the volume of typical activity. It provides some confirmation that current and planned targets for AT use with groups of people who have particular needs in Nottingham is well supported by the evidence of likely success.

**Figure 4.**

In care homes, the wider use of telecare and telehealth equipment can be used to provide more rapid alerts – for example in the event of an older person falling in a bedroom, so bringing help more quickly and reducing risks.

For people with learning disabilities, more freedom with safety will become possible for some people who have been accommodated in care homes, but could enjoy a more independent lifestyle in supported accommodation with modern communications and other assistive technology.

### 11.0 Strategy

#### 11.1 Key Objectives

The overall aim is to achieve better outcomes and improve the part that technology contributes in most of our services. The key objectives are:

**11.1.1 Improve prevention / early intervention**

To reduce the proportion of people who reach a point of crisis that requires emergency admission to hospital, admission to a care home, or GP call out, by increasing the ability to
respond quickly to an emergency or react to deterioration in health at home. This means more extensive but selective use of telehealth and telecare, sometimes used together.

To work with partners to improve access to advice and information, and open up opportunities for self-purchase by people who have concerns and want to take early action to monitor changes or protect their independence. These are people who may not qualify for financially supported services from the council. This recognises that there are different rules which apply in relation to charging for equipment between health and social care. See Annex 4.

11.1.2 Sustain Independent Living

To increase the number of people with long term condition or who are very frail who can safely maintain independent living without isolation, using better AT support. In the future this will include specialised social networking that helps family and friends stay in touch more easily and monitor events, as well as professional services and responses to emergencies.

In a phased approach, embed more frequent use of technology into everyday practice as an integral part of good care. This will further prevent or delay the escalation of support needs, especially admissions to care homes.

11.1.3 Facilitate safe return home from hospital or other residential service

To extend the use of telecare and telehealth to more people who are recovering in hospital and can be helped to return home safely, as part of the re-ablement and intermediate care processes. This will include rapid installation of equipment to allow remote monitoring to be set up quickly.

To review the needs of selected people in care homes, including people with complex needs, who may be able to transfer to more independent accommodation with AT as part of their support. This includes people with learning disabilities and mental health service users.

11.1.4 Improve value for money

To improve value for money and efficiency in supporting independent living, by using telecare more widely as part of a support package, including those arranged through a personal care and / or health budget.

11.1.5 Improve service quality and efficiency of service providers

To carry out a detailed review of the use of telemedicine in order to target its future use to increase face to face time between practitioners and patients. This includes the use of connections between hospitals, patients’ homes and GP surgeries.

To keep under review the service specifications for care home and home care services: advising and encouraging the use of AT to improve care quality and the range of services.
11.2 **Achieving the objectives – Implementation**

To achieve these objectives, it will be necessary to make further changes in the way we organise support, and in the way we deliver services.

11.2.1 Integrated Adult Care

AT implementation will be part of a programme of work delivering the proposal on integrated adult care which proposes a significant shift towards more prevention and anticipatory care; optimising the health of people with long term conditions and frail older people so that they achieve the best possible quality of life.

The proposal is to reshape services so that they are patient focused, Primary care led and deliver joined up care. The emphasis will be on a more generic model of care rather than single disease specific care programmes.

11.2.2 Joint commissioning for an integrated service

At the moment, both health and care services use similar kinds of assistive technology to improve safety, health and well being in people’s own homes: but these services are run and paid for separately by health and social care.

It is complicated for citizens to understand how to access the services, and work out the best package of care and technology that will help support them at home. It is even harder for them to make independent arrangements.

There is overlap and duplication in the way that services are procured, purchased, installed and maintained. Money spent on these aspects could be better used to get more services to people directly.

The proposal is to **commission jointly an integrated service**, so that more people who use services can take advantage of a wider range of technology and the service can be run more efficiently.

11.2.3 Embedding AT

Working together, the strategy will **target the expansion of AT services by embedding them more firmly within existing service pathway improvement strategies, and not as a separate service**. Although it is clearly necessary to lead AT improvements with a plan for integration and expansion, the most important effects will be in the delivery of the service themselves – for people with dementia for example, or with diabetes, or who have heart failure or are prone to falling.

This means that a number of **existing commissioning intentions will need to be updated** as part of a rolling programme, to build in more systematically planned use of AT. Commissioning staff will work with service specialists to ensure that future change plans for most service user groups contain clear statements about the ways in which AT will be used to
implement changes in the approach to care, improve care quality, and/or encourage better self-care.

11.2.4 Pooled Resources

NHS Nottingham and the City Council will combine their resources to commission AT to support and deliver agreed priorities for better outcomes and quality in health and social care.

11.2.5 Effective Procurement

The commissioners will move ahead in discussions with neighbouring organisations to take advantage of larger scale joint commissioning (for example, achieving better value for money in the purchase of equipment and services.

11.2.6 Change Management

Wider use of AT will take place on a phased basis and will require commitment to change management. In particular:

- Modifications to assessment and care planning processes to ensure that AT is always considered carefully as an option or in combination with other services

- Increased levels of training and development will be needed, to ensure that many more practitioners are confident in their assessments, advice on the use of equipment, and appropriately skilled in their responses to the information delivered by telehealth and telecare

- Changes to health and social care supervision and management practices

- Changes to information collection and other IT aspects, including shared information

It is not the aim that the AT services should become a separated or parallel branch of the health and social care services: or that they should replace the vital face to face contact that is so essential to good care.

12.0 Implementation priorities

As the chart above and local evidence indicate, there is a good case that current and planned use of AT is appropriate and effective. The experienced practitioners who contributed to this strategy mainly agreed that many people can take advantage of AT: success is more often indicated by the will to manage one’s own health condition than by the nature of the condition itself.

Old age is not a universal indicator of limitation in the use of AT: even where cognitive functions are impaired, telecare can still be used successfully to monitor movements and whereabouts, and to create alerts and summon help in the event of becoming lost or wandering.
Whilst the preferred strategy is to phase in changes that will allow practitioners to demonstrate success, pass on learning from experience and build commitment amongst the workforce this opportunity to implement the changes the strategy implies should not be lost. The case for AT has been made, senior organisational support is in place, momentum should be maintained. Unhelpful and artificial distinctions between the roles of telecare and telehealth in the NHS and Social Care services will need to be removed by the integrated approach; instead, the full range of technologies will be considered on their merits and potential to achieve effective, good value care.

An implementation plan will be developed prioritising pathways using both local and national evidence.

13.0 Integrated Service

A key part of the strategy is that telehealth and telecare services will be integrated into a single service that is capable of supporting people who qualify for social care and health services and all practitioners. A detailed review, consultation and procurement exercise will be carried out to determine the longer term organisation(s) that will provide an integrated service for the future. Detailed planning for this will take place once the strategy has gained approval.

Governance arrangements will need to bring together representatives from both the council and the NHS. There are wider options for the delivery of the services themselves, including:

- Management within the existing City Council framework
- Management within the Nottingham CityCare Partnership CIC – the community enterprise scheme providing community health services
- New, or existing not-for-profit independent organisations such as social enterprises who can provide some or all of the services
- Larger organisations, including manufacturers of assistive technology equipment, who can supply the equipment directly and also run the installation, maintenance and response services

Assessing progress and monitoring risks

A framework to evaluate the successes and monitor risks will be put in place so that the impact of expanded use of AT can be understood and the programme adjusted where needed. Targets will be used sparingly, mainly to assess the pace of rollout, to monitor the experience of people who use services and carers, and the quality of care.

The Yorkshire and Humber NHS HIEC Telehealth Toolkit says: “The challenge that service models incorporating assistive technology face is to increasingly meet the challenges of the lived experience of those requiring support, independence and control.”
It may prove difficult to create objective measures of the success of telehealthcare as a single variable in practice, but the reported experience of people who use services and carers will be the most valuable evidence.
Annex 1: Summary of telecare and telehealth evaluation evidence of effectiveness and efficiency

A: Telecare

i) An independent evaluation of telecare in Nottingham was carried out as part of a regional assessment in 2011. The key results were as follows:

Is telecare effective?

Telecare was effective in providing support or managing risk for all telecare users, with 51% of people receiving telecare to avoid or defer additional Social Care or NHS services. For 17 people telecare was considered to have avoided or delayed residential care.

In reviewing the outcomes associated with telecare use, the evaluation found that 19% of installations were provided purely for preventative purposes to people who would have received no community care services. For a further 30% of people who received telecare as an addition to an existing care package, it was judged that there would have been no alternative service if telecare had not been provided.

Telecare provided to the remaining 51% of the sample (46 people) was instrumental in avoiding or deferring the escalation of support requirements as follows:

- 20% (9) avoided or deferred an increase in Home Care
- 44% (20) avoided or deferred a Hospital Admission
- 37% (17) avoided or deferred a Residential Home Placement
- 4% (2) reduced the need for Respite Care
- 2% (1) avoided or deferred the need for Supported Living Services

Seventeen service users were helped to remain at home through the use of telecare. It was considered that if these service users had not had telecare support, their needs would have escalated to the point where a care home placement would have been necessary.

It is not clear from the evaluation whether telecare is being used to step down care and if all care managers are actively considering assistive technology as part of support planning.

Impact of Timing of Intervention with Telecare

There is no evidence to suggest that telecare is being considered inappropriately or too late: 71% of service users in the sample had had telecare for longer than 9 months; 67% had had telecare for longer than one year. However, 49% of these service users had telecare for preventative or reassurance purposes. Improving awareness and early assessment of telecare potential to prolong independence will be helpful.

What happened to users at the end of the evaluation period was examined and of the 90 people included in the evaluation 56 were still using telecare, of which 28 also had other community support services. Of the remaining 34 users:
- 1 was receiving Continuing Health Care
- 12 had died
- 1 went into Nursing Care
- 6 went into Residential Care
- 14 had their telecare services taken out

Of the people who were admitted into residential care, all were supported for less than six months before going into residential care.

Twelve people were supported with telecare at the end of life, 3 for more than a year and 7 for less than six months.

Where telecare is used for short periods of time before admission into residential or nursing care or at the end of life this may suggest that it has been introduced inappropriately or too late.

**Does Telecare contribute to efficiency gain?**

The evaluation covered the period 6 October 2009 to 13 April 2011. During this time it is estimated that cumulative efficiency gains between £78,835 and £87,594 were associated with telecare use in Social Care and between £70,339 and £78,154 for the NHS.

Efficiency gains for the NHS resulted from avoided admissions to hospital, based on the presenting need and admission pattern of people included in the sample.

However, the savings achieved for different service user groups varied significantly. In particular, people with dementia demonstrated higher savings that need further investigation.

There was no evidence of services being reduced through the use of telecare, and it can be concluded that telecare has been effective in reducing the escalation of care in some cases and as a supplement to existing care packages in many other cases.
Average Annual Efficiency Savings

Average costs/ savings shown below are per person per year. ²

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Social Care Savings</th>
<th>NHS Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower Range</td>
<td>Higher Range</td>
</tr>
<tr>
<td>All Telecare Users</td>
<td>£576</td>
<td>£639</td>
</tr>
<tr>
<td>Reassurance</td>
<td>-£158</td>
<td>-£143</td>
</tr>
<tr>
<td>Prevention</td>
<td>-£295</td>
<td>-£268</td>
</tr>
<tr>
<td>Other Telecare Users</td>
<td>£1,288</td>
<td>£1,431</td>
</tr>
</tbody>
</table>

of which:

| Dementia                   | £3,981      | £4,424      | £230        | £255         |
| Frailty                    | £403        | £448        | £1,148      | £1,276       |
| Learning Disability        | -£816       | -£742       | £1,615      | £1,794       |
| Mental Health              | -£4,351     | -£3,956     | £0          | £0           |
| Physical Disability        | £1,575      | £1,750      | £1,416      | £1,573       |
| Sensory Impairment         | -£925       | -£841       | -£1,029     | -£936        |

Return on Investment

The return on investment was calculated by comparing the cost of supporting people with telecare and other social care services with the cost of supporting them without telecare. The table above shows the cost for supporting people without telecare for every £1 spent supporting someone with telecare.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Social Care</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Telecare Users</td>
<td>£1.12</td>
<td>£1.18</td>
</tr>
<tr>
<td>Reassurance</td>
<td>£0.97</td>
<td>£0.98</td>
</tr>
<tr>
<td>Prevention</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Other Telecare Users</td>
<td>£1.21</td>
<td>£1.29</td>
</tr>
</tbody>
</table>

of which:

| Dementia                   | £1.69       | £1.73   |
| Frailty                    | £1.11       | £1.35   |
| Learning Disability        | £0.98       | £1.03   |
| Mental Health              | £0.76       | £0.76   |
| Physical Disability        | £1.27       | £1.33   |

The return on investment for dementia demonstrates that telecare is used most effectively with this group, achieving a return of £1.69 for social care and £1.73 jointly with NHS.

² The evaluations calculated efficiency gains by comparing the cost of supporting people with telecare to the cost of supporting them without telecare. Local judgement is used to determine the anticipated services without telecare and a lower estimate adjustment of 10% is applied to the calculated efficiency gains providing a range that can be used for planning.
Extrapolating Savings to all telecare users

Based on the results of the evaluation, savings for the 878 people who had telecare during 2010-11 are estimated to be in the range of £505,316 to £561,462 for Social Care and £450,856 to £500,951 for the NHS.

The estimates are based on the annual average saving per person and include a proportion of 49% of people in receipt of telecare for prevention and reassurance purposes only. It is estimated that providing telecare to people for prevention or reassurance purposes costs between £82,272 and £90,500 per year.

Improved care manager awareness and targeting of telecare should increase the potential savings that can be achieved through the use of telecare.

ii) Internal Review of Telecare and Residential Care Admissions

An internal study was carried out in 2011 to review Telecare referrals (150 users) where the objective was to prevent residential care placement. The study found that:

Telecare avoids costs by delaying or preventing residential care placements – by £528 (net) per case;

A move into residential care is more likely without Telecare than with it - 32% of users who did not use telecare vs 24% of users who have it;

It is more likely that a service user will die more quickly at home without Telecare - 131 days without compared to 252 days with;

There were 62 (41%) people still living at home with Telecare from equipment installed in the study period (between Nov’09 and Oct’10).

B: Telehealth

i) Evaluation of Nottingham Telehealth

An independent review of 55 out of 69 current telehealth users was carried out in February 2012 by Care Performance Partners. The sample of 80% of service users focused mainly on the impact of the telehealth service for people with chronic obstructive pulmonary disease (COPD), and people with chronic heart disease (CHD).

Telehealth benefits: people with COPD

From existing research, the main benefits associated with telehealth for this group are:

Clinical: Overall significant reduction in exacerbations: improved self management of condition: Improved coping with symptoms reported

Economic: Reduced hospitalisations, A&E visits reduced, GP visits reduced, 999 calls reduced, reduced nurse/case manager visits
**Telehealth benefits: people with Coronary Heart Disease**

The main benefits associated with telehealth for this group are:

**Clinical:** lower one year mortality rates, lower levels of hospitalisation, shorter lengths of stay, when hospitalised, earlier detection of post cardiac surgery complications, improved clinical judgements, improved compliance with medications

**Economic:** reduced use of secondary care, reduced patient visits to surgery and shorter nurse visits, good telehealth patient acceptance,

**Additional Patient Benefits:** improved self management of condition – BP, cholesterol, medications, exercise, smoking

**Method**

Working with health practitioners to review patterns of service use before and after telehealth had been installed, each person’s case was reviewed to establish the most probable outcome or service consequence for a given period, if telehealth had not been available.

**Results**

The results showed a high probability that:

- 2 people (4%) avoided 3 A&E admissions
- 6 people (11%) avoided the need for an Emergency Ambulance
- 1 person (2%) avoided the need for emergency visit by COPD team
- 41 people (75%) avoided 141 GP appointments or visits
- 8 people (15%) avoided non elective admissions (37 bed days)
- 2 people (4%) avoided outpatient appointments

In the study, only 2 people did not use the equipment.

It was not possible to assess mortality rates in this limited local evaluation. Other results are not inconsistent with those demonstrated in the Whole System Demonstrator Site research, which showed early indications of a 45% reduction in mortality rates, and:

- 15% reduction in A&E visits
- 20% reduction in emergency admissions.
- 14% reduction in elective admissions,
- 14% reduction in bed days
Impact on NHS Costs

The services avoided represent a cost to the NHS, and the table below shows the estimated cost saving achieved through the use of telehealth as described above. The Whole System Demonstrator Site research suggested an 8% reduction in tariff costs. The impact on local costs is estimated in the table below:

<table>
<thead>
<tr>
<th>Cohort</th>
<th>NHS Savings</th>
<th>Lower Range</th>
<th>Higher Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Telehealth Users</td>
<td></td>
<td>£105,802</td>
<td>£117,558</td>
</tr>
<tr>
<td>COPD</td>
<td>£94,082</td>
<td></td>
<td>£104,536</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>£9,630</td>
<td></td>
<td>£10,700</td>
</tr>
<tr>
<td>Unknown</td>
<td>£2,089</td>
<td></td>
<td>£2,322</td>
</tr>
</tbody>
</table>

Table: Estimated total savings for evaluation period

<table>
<thead>
<tr>
<th>Cohort</th>
<th>NHS Savings</th>
<th>Lower Range</th>
<th>Higher Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Telehealth Users</td>
<td></td>
<td>£509</td>
<td>£565</td>
</tr>
<tr>
<td>COPD</td>
<td>£865</td>
<td></td>
<td>£962</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>£192</td>
<td></td>
<td>£213</td>
</tr>
<tr>
<td>Unknown condition</td>
<td>£50</td>
<td></td>
<td>£56</td>
</tr>
</tbody>
</table>

Table: Average annual savings per person

Not all patients benefited in the same way. Eight people had no avoided services, and 2 people did not use the equipment at all. With the evidence available, it was not possible to evaluate whether there was a reduction in hospital admissions and GP visits as a result of the introduction of telehealth.
Annex 2: Service users’ and practitioners’ feedback and comments

Telecare managers in Nottingham last carried out a survey of service user and carer views on the telecare service in April 2011. Telehealth services are more recent and the scale is much smaller. Informal feedback from patients and clinicians has been carried out with promising results. Systematic feedback is being considered as the service develops.

Telecare survey results have already been reported publicly, but a selection of the collated responses from 253 people who replied is as follows:

<table>
<thead>
<tr>
<th>How satisfied were you with the process of assessing your need for Telecare equipment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent = 45%</td>
</tr>
<tr>
<td>Average = 2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall, how have you found the Telecare equipment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent = 43%</td>
</tr>
<tr>
<td>Average = 2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has the installation of Telecare equipment given you more confidence/peace of mind?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 85%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has the installation of Telecare changed the amount of care and support you receive?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 25%</td>
</tr>
</tbody>
</table>

The responses to the survey questions suggest a high level of satisfaction with the service, and that for some; it has enabled them to reduce the levels of other kinds of support needed. Some problems with the equipment were reported by 13% of the service users who replied.

Amongst the comments made alongside the answers to specific questions, the following are typical.
### How satisfied were you with the process of assessing your need for Telecare equipment?

“The OT who did the original assessment was very good and clearly had medical knowledge and experience of the difficulties of old age.”

“Very well explained”.

“Very satisfactory, makes me feel safer”.

“The person who came to assess me was polite and helpful”

“It has given me peace of mind knowing I only press button and help is there”.

### Has the installation of Telecare equipment given you more confidence/peace of mind?

“Definitely, as we know of acquaintances that were in trouble without it”.

“My friends and relations are relieved that I have it”.

“Especially when I go up and down stairs and am away from the phone”.

“Takes away the stress of having to sort my meds out daily which is a great relief knowing that someone is there, at any time of the day or night.”

### Do you have any other comments about your needs?

“Feeling now of not being alone, which is all to the good”.

“After a few days of receiving the equipment I accidentally pressed the red button and received helpful and immediate response”.

“Installation was very quick and well explained and tested. Have not had to use the system yet but feel very reassured that it is there if required”.

“Very helpful, I and my son feel more secure. Don’t know how we’d do without it.”

“Haven’t used it yet, good to know its there.”

“The installation of the equipment has done wonders for my peace-of-mind and I am very grateful. I am required to attend hospital on a 6-monthly occasion for my problems, but grateful for your kindness”.

“From the time the equipment was installed until now I cannot fault the service given to me - Thank you all”.

“A pair of new legs would do nicely. Many thanks.”
Comments of Practitioners

A GP on telehealth:

“The key to effective COPD management has been early and active intervention with patients experiencing an infective exacerbation. Like many doctors, I care for a number of patients who, despite maximal inhaler therapy, experience repeat exacerbation of their breathing.

In the past I have prescribed antibiotics to keep at home should symptoms worsen, but patients have not had access to any precise information that could identify a change in their health.

I now use Telemonitoring.

Information such as PO2, temperature and pulse is shared routinely with the patient, and I am alerted to any deteriorating trends. Patients can now rely on real time data when managing their illness; they have gained control, and the feelings of isolation and anxiety associated with their long term condition has reduced.

I have greater assurance that I am neither over nor under treating patients with antibiotics or steroids, giving me the confidence to review patients by phone when once they required a visit to the surgery or a home visit.”

Dr David Geddes North Yorkshire Primary Care Trust - Yorkshire and Humber HIEC – Telemonitoring for LTC Workbook – October 2011
Annex 3: Policy on Assistive living Technology

Three Million Lives

In January 2012, the Government announced its “3millionlives” campaign, a concordat with the telecare industry in which the four trade associations representing the telehealth and telecare industry agreed on the aim for expanded service delivery for people with long term conditions, and/or social care needs. Telehealth and telecare within health and social care services are intended to enable 3 million people to receive the significant benefits evidenced in the UK’s Whole System Demonstrator trials.

It is emphasised that telehealth and telecare can alleviate pressure on long term NHS costs and improve people's quality of life through better self-care in the home setting, when implemented effectively as part of a whole system redesign of care,

A Vision for Adult Social Care: Capable Communities and Active Citizens Nov 2010

The Government's view of AT in social care is described in this document.

“Assisted living is one of the most promising developments for ensuring the ageing population continues to be well served with high quality and affordable health and care services. Technologies such as telehealth help people with long-term conditions to better manage and understand their condition. .....Telecare enables people to live at home independently for longer by providing technologies that make their homes more safe and secure ....Robust evidence on how to target telecare and telehealth to ensure both cost-effectiveness and successful outcomes is lacking “

The document indicating how the vision should be implemented (Making it Happen) states that:

“Councils should exploit the many opportunities to improve preventative services by:

- developing community capacity and promoting active citizenship, working with community organisations and others across all council services, establishing the conditions in which the Big Society can flourish; and

- Commissioning a full range of appropriate preventative and early intervention services such as re-ablement and telecare, working in partnership with the NHS, housing authorities and others.

NHS Operating Framework 2012-13

The following extracts indicate the new level of importance attached to the wider use of AT through the NHS.

“Telehealth and telecare offer opportunities for delivering care differently but also more efficiently. Use of both of these technologies in a transformed service can lead to significant reductions in hospital admissions and lead to better outcomes for patients. Using the emerging evidence base from the Whole System Demonstrator programme7, PCT clusters
working with local authorities and the emerging CCGs should spread the benefits of innovations such as telehealth and telecare as part of their ongoing transformation of NHS services. They should also take full consideration of the use of telehealth and telecare as part of any local reconfiguration plans."

Prevention

“Risk stratification, care planning, patient involvement and supported self-care can transform the care of people with long term conditions and prevent the need for some reactive, expensive acute based care. This is particularly true where there is strong integration between the NHS and Social Care and existing resources, such as specialist community based nurses, are effectively used to meet the needs of patients with multiple long term conditions. Providing services supported by telehealth and telecare delivered at scale can maximise benefits for individual patients."

“PCT clusters will need to work together with local authorities to agree jointly on priorities, plans and outcomes for investment of the monies allocated for re-ablement in 2012/13. This could include ....current services such as telecare, community directed prevention (including falls prevention), community equipment and adaptations, and crisis response services"

Nottingham City Council

In 2011 the council’s Labour group indicated that it would “ Ensure every Nottingham care service user has access to the Telecare emergency assistance scheme”. This enables the Telecare Service to focus on the priority of eligible social care users.
Annex 4: Charging for Services

The issue of charging is a sensitive matter, and the complex legal requirements do nothing to facilitate integrated services. Charging policies are determined almost entirely by central government legislation and are in some cases legally obscure.

The strategy is that some telecare services will continue to be charged for, subject to means testing, as at present. Telehealth provided by the NHS will be free at the point of use.

The strategy will also enable people who are not eligible for community care services to purchase equipment. It will enable eligible users being able to purchase additional equipment they want beyond the level assessed to meet their need. This is legally possible under the Local Government Act 2003 which empowers authorities to charge for discretionary services. We will also explore the possibilities of facilitating private purchase or lease of telehealth equipment.

To stimulate the take up of telecare services for preventative purposes, the proposal is that equipment will be sold at a discounted price, but would produce net income that will contribute to the costs of providing the service.