

YOUR HEALTH, YOUR CARE AT HOME
A TELE-MONITORING PILOT PROJECT
EVALUATION
COMMERCIAL IN CONFIDENCE



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EUROPEAN CENTRE FOR CONNECTED HEALTH

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EVALUATION

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1. INTRODUCTION AND BACKGROUND

1.1 Introduction

The Department of Health, Social Services and Public Safety's (DHSSPS) European Centre for Connected Health (ECCH) has commissioned BDO Stoy Hayward to evaluate eight tele-monitoring Service Pilot Projects, which were established in 2007/08 with an initial two year funding provision from the DHSSPS in Northern Ireland.

This report presents the evaluation of a Northern Health and Social Care Trust ('NHSCT') tele-monitoring service pilot project entitled 'Your Health, Your Care at Home'.

1.2 Policy and Operational Context

The demographics of Western Europe, and Northern Ireland, show an almost exponential increase in the elderly population over the course of the next 20 years. Growing longevity will lead to a significant increase in chronic diseases, which in turn is expected to place additional pressures on health and social care systems across Europe. Indeed, Northern Ireland's predicted population increase of the over 75s and 85s is steeper than that predicted for the rest of the United Kingdom, adding to cost pressures on the local health economy.

In light of this increasing demand, existing approaches to patient care are unlikely to meet public expectations in relation to the quality and accessibility of the care people will require. Therefore, in order to provide high quality care in a sustainable manner within an environment of significantly increasing demand and constrained resources, a new system will be necessary to monitor chronic illnesses, as well as providing better care to patients and reducing both hospital and nursing home admissions.

The introduction of healthcare technology to effectively manage issues associated with this changing demographic profile and increasing chronic disease, has the potential to greatly improve the quality, sustainability and cost efficiency of service provision.

The overall aim of the DHSSPS is to improve the health and wellbeing of the people of Northern Ireland. In pursuing this aim through the health and social care (HSC) system, the key objective of the Department is to improve the health and well-being outcomes through a reduction in preventable disease and ill-health through the provision of effective and high quality services, equitably and efficiently, to the whole population.

To this end, DHSSPS' Regional Strategy 'A Healthier Future- A Twenty Year Vision for Health and Wellbeing in Northern Ireland 2005-2025' provides a vision of how the health and social services will develop and function over the twenty-year period. It recognises the need for health and social services to change to reflect the changing needs of the population, particularly in terms of the increasing aging population. It recognises that the range and nature of healthcare service provision will also change to reflect new ways of working, new technologies and the development of new treatments.

Whilst it is recognised the population living longer is a positive development, an increase in age-related chronic diseases is also likely to occur, which may be further exacerbated by changing behaviours. Chronic diseases and conditions such as diabetes, cancers, heart disease, respiratory diseases and arthritis look set to grow in prevalence, although it is noted that a key aim of this new Regional Strategy was the reversal of such trends in relations to these conditions.

The use of technology will be key to meeting the needs of the increasing aging population in the future, particularly in relation to chronic disease management. Associated rapid advances in technology will impact on health and social care services in terms of the provision of (potentially

costly) new forms of treatment and care. Such technologies are expected to allow some terminal illnesses to be treated as chronic conditions and also to provide cures for some chronic conditions. Furthermore, new information technologies will support service users by providing ready access to information on conditions and treatment, whilst also supporting more effective and integrated working across the health and social services.

The next twenty years are therefore likely to see a greater provision of, and emphasis on, more holistic ‘generalist’ services provided in communities or on a day patient or outpatient basis than is the case at present. These will include primary care services, chronic disease management, as well as social services maintaining and enhancing independence.

DHSSPS’ Regional Strategy indicates that the Department’s focus going forward will be on tackling chronic diseases, as well as the social and economic disadvantage that gives rise to poor health. The majority of this will be managed within a community setting in partnership with service users. Therefore, services will be focused on supporting, protecting and promoting the quality of life of those least able to protect themselves, which will include: looked after children, vulnerable older people and people with disabilities or any other form of potential barrier to living a full life.

Within the Strategy’s objectives for the development of responsive integrated services, the following objective was set out:

Objective for Developing Responsive Integrated Services		
Objective	Community-Led Services	Contribution to Vision
By 2008,	promote independence for people who require care by facilitating independent living.	Improve the quality of life and independence of people in need so that 40 per cent of all people who received care managed community services and at least 88 per cent of people aged 75 years or older are supported, as necessary, in their own homes. This will also be supported by the use of Direct Payments for social care. This objective will also be supported by a focus on telecare provided in people’s homes.

DHSSPS’ **Primary Care Strategy**¹ recognises that the provision of a high quality primary care service has been, and will continue to be, subject to significant pressure, as the demands placed upon NI’s health service continue to grow. With this in mind, there is widespread recognition of the need to consider new ways of working, which will help meet both current and future needs.

Furthermore, the Strategy also recognises that over reliance is placed upon the hospital/acute sector. Therefore, a more responsive and dynamic primary care sector should be implemented which would provide the necessary care close to the homes of patients.

Like the Regional Strategy (as discussed previously), the Primary Care Strategy highlights the increasing growth in the elderly population as a considerable challenge. The over 85 population is expected to almost double over the next twenty years, meaning that major change will also be required in primary care provision in order to respond adequately to the needs of this group alone (as well as other’s suffering from chronic diseases), in seeking to maximise independent living and reduce the reliance on hospital and residential care.

As part of this, there will be a requirement for a much wider development of community-based alternatives to hospital admission, the establishment of flexible and innovative 24-hour crisis response services, more supported living opportunities and access to appropriately skilled and resourced community-based rehabilitation teams. This will also require an even greater emphasis on health promotion, enhanced social wellbeing and disease prevention.

¹ Caring for People Beyond Tomorrow: A Strategic Framework for the Development of Primary Health and Social Care for Individuals, Families and Communities in Northern Ireland

This would provide support to people in making and sustaining lifestyle changes, helping to reduce future levels of chronic illness and where necessary, supporting people to manage their own condition, again with less reliance on the hospital sector and practitioners generally. In this regard, multi-disciplinary care teams will need to be in place with greater specialisation in areas such as diabetes, respiratory illness and heart disease.

Both the Primary Care Strategy and the Regional Strategy recognise the demographic and global challenges, and the resultant need for the development of new approaches to care delivery with a focus on:

- Increased health promotion, disease prevention and early intervention to better manage demand; *and*
- Shifting the balance of care towards the community and promoting the alternatives to hospital admission.

The harnessing of new technologies to enhance health monitoring and empower patients is highlighted in both the Regional and Primary Care Strategies. Remote Monitoring therefore has the potential to play an important role in delivering services locally and facilitating care at home, as appropriate, and in the implementation of these strategies. Furthermore, specific service frameworks including Cardio Vascular and Respiratory Frameworks are currently being developed.

Remote Tele-Monitoring will contribute to ensuring that higher standards of care are made available to people with long-term conditions and should link into and be reflected in these and other service frameworks for Northern Ireland.

For 2008-09 and beyond, the Minister for Health, Social Care and Public Safety indicated an expectation that NI will see continuing and substantial improvement to services in ten priority areas (e.g. ensuring fully integrated care and support in the community; improving health and well-being; and modernising the infrastructure), with resultant progress towards the objectives and targets set out in the Programme for Government 2008-2011 and associated Public Service Agreements (PSAs).

The introduction of remote monitoring also has the potential to make a direct contribution to the achievement of the Department's Public Service Agreement/ Priorities for Action targets as follows:

<p>Priority 4: Ensuring Fully Integrated Care and Support in the Community (specifically under PSA 4.3):</p> <p>By March 2009:</p> <ul style="list-style-type: none"> – Identify at least 1,000 people who had unplanned admission to hospital on two or more occasions during 2007-08, due to a severe or complex chronic condition. – Establish, in collaboration with the European Centre for Connected Health, these patients on a case management programme; – Identify the anticipated onflow during this period; – Reduce the unplanned admissions of these case-managed patients by 10%. <p>By 2011:</p> <ul style="list-style-type: none"> – Secure a 50% reduction in unplanned hospital admissions for some 5,000 case-managed patients with severe chronic diseases (e.g. heart disease and respiratory conditions), these being the top 4% of patients who had unplanned admissions on two or more occasions in the year before they were case managed.
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1.3 European Centre for Connected Health

In January 2008 the Minister for Health, Social Care and Public Safety announced his intention to establish the European Centre for Connected Health (ECCH) within the DHSSPS, to promote improvements in patient care through the use of proven technology and to fast track new products and innovation in the health and social care system in Northern Ireland.

The primary purpose of the ECCH is to improve the patient and client experience, providing for better quality and more effective care. By supporting the more efficient delivery of health and care services, it will also enable the care system to better respond to the future needs of the population. In addition to this, the ECCH aims to work to secure economic gains through the growth of knowledge-based high-value added businesses in Northern Ireland serving European markets.

Furthermore, the DHSSPS recognised that the application of new technology in the health and social care system has a significant role to play in the modernisation of services. Benefits which technological solutions can provide include:

- Improved patient experience through remote monitoring of vital signs;
- Improved service responses;
- Better communication across and between multidisciplinary care teams;
- Improved patient and client access to the information that they require to manage their conditions; *and*
- Better use of resources.

New technology is also playing an increasing role in the improvement of diagnostics and treatment within the secondary care setting. Furthermore, it is increasingly recognised that getting the right information to the right people in a timely manner, can also make a significant contribution to the improvement of patient safety.

1.4 **Background to the Tele-Monitoring Service Pilots**

There had been a growing volume of evidence for the use of technology in the provision of health and social care services. In particular, Home/Remote Tele-Monitoring is regarded as having the potential to offer significant benefits in the management of increasing numbers of the population with a chronic disease in the population.

Remote Tele-Monitoring is a clinical practice that involves remotely monitoring patients who are not at the same location as the healthcare provider. In general, a patient will have a number of monitoring devices at home, and these devices will transmit information on their vital signs via the telephone to the remote monitoring service provider and if necessary, to their healthcare provider. Portable devices are a further development of this type of technology. Remote Tele-Monitoring can be used for several clinical conditions which may require the recording of clinical parameters such as: Heart Failure; Constructive Pulmonary Obstructive Disease (COPD); Diabetes; High Risk Pregnancy; Mental Health Chronic Disease Management; Palliative Care; Asthma; and Hypertension.

The initial focus for the recently established ECCH in Northern Ireland was the development and implementation of a Remote Tele-Monitoring Service for Northern Ireland.

Furthermore, a Government target has been set to provide 5,000 people with access to Remote Tele-Monitoring Service by 2011².

In advance of this large scale application, Minister Paul Goggins announced (on 5th December 2006) the creation of a £1m pump-priming fund for the development of Telehealth in NI. Specifically, the Minister said that the fund will be used to promote telehealth and telemedicine initiatives across the HPSS, to stimulate new thinking about how technology can be used to further the reform and modernisation of acute and community services.

² The Terms of Reference for this evaluation indicated that the procurement exercise to secure the main provider for this service commenced in August 2008.

The pilot projects were intended to demonstrate how remote monitoring could improve patient care. In addition, the intention was to develop the experience of patients, clinicians and managers in the use of technology for the effective management of older people and those with chronic conditions.

1.5 Terms of Reference

The purpose of this project is to independently evaluate the main 8 of the 16 tele-monitoring pilots which were established in 2007/08 with an initial two year funding provision from the DHSSPS in Northern Ireland. Preliminary evaluation of these pilot projects will inform the development of a large-scale tele-monitoring service which is currently being procured.

The purpose of the evaluation project is to:

- Evaluate the impact on patient care in terms of quality, safety, patient experience and utilisation of resources of the investment to date;
- A number of potential benefits associated with the application of new technologies in health and social care provision have been identified. The evaluation should therefore test the extent to which the following benefits are being realised in the pilots and identify any issues or concerns:

- Improvements in the quality of care patients receive and in the quality of their life;
- Inform patient centred case management, intermediate care schemes and medicines compliance, such that patients receive more care at home rather than in a hospital, optimising the potential for independent living and enabling reductions in inpatient admissions to hospital;
- Patients receive more and better targeted proactive support, enabling them to take greater control in the management of their own disease;
- Optimal use of staffing resources; *and*
- Improved quality assurance through auditable improvements in the flow of quality and timely information.

- Identify schemes which are working well and should continue to attract funding and those which are not;
- Provide recommendations to ensure that lessons learned are transferred into the main tele-monitoring project.
- Provide a strategic overview assessment of the impact and benefits of all eight schemes; *and*
- Provide a more detailed assessment of each individual scheme to encompass the analysis of qualitative and quantitative held by Trusts and the assessment of the views and perspectives of clinicians, Trust and Board managers and service users.

In relation to data availability, the Terms of Reference indicated that Boards and Trusts would provide all relevant data to the evaluation team, to include:

- Number of patients on the scheme;
- Conditions being treated;
- Funding allocation and expenditure;
- Details on staff involved; *and*
- Patient feedback.

1.6 Key Issues Impacting Upon Terms of Reference

Following the commencement of the assignment, a number of key issues were identified that impacted upon the evaluation, namely:

- The rates of hospital admissions/GP visits, hospital avoidance etc are either not recorded or recorded in a limited fashion;

- The Trust has experienced substantial changes in related service provision during the period of the Tele-monitoring pilot project. The pilot have been operating within dynamic and evolving environments, with patient numbers referred to the tele-monitoring pilots increasing significantly during the pilot period; and
- There are some issues around data collection and interpretation (within and between projects).

1.7 Methodology

An overview of the approach undertaken to address the key aims and objectives of the evaluation is outlined below, with further detail provided in the following subsections.

- **Background research** - Before undertaking the main primary research activities, a variety of background research activities were undertaken, including establishing the logical and operational fit of the Project with DHSSPS’ strategy and the context within which it operates. A detailed analysis was also undertaken of all available data relating to the Project’s activity and performance for the period under review.
- **Primary Research** – As part of the main primary research activities the evaluation team undertook:
 - A telephone survey with participating clinicians (n=12);
 - A telephone survey with participating patients (n=19);
 - A focus group session with participating clinicians;
 - A face-to-face consultation with the NHSCT’s Tele-monitoring co-ordinator;
 - A face-to-face consultation with the Service Provider).

1.8 Structure of report

The remainder of this report is structured as follows:

Section	Content
2. Project Overview & Activity	Overview of the tele-monitoring pilot, aims and objectives, budget, participation levels.
3. HSC Internal Evaluation	Feedback from patients, clinicians and carers from HSC Internal Evaluations
4. Operation of Pilot	Clinicians’ and patients’ views on the operation of the remote tele-monitoring pilot.
5. Perceived Impact on Organisation and Resource Utilisation	The perceived impact that the tele-monitoring pilot has had on the Trust and Resource utilisation.
6. Perceived Impact on Health and Wellbeing	The perceived impact that the tele-monitoring pilot has had on patients’ health and Wellbeing.
7. Conclusions & Recommendations	Identification of the key conclusions arising from the evaluation, and recommendations for the way forward.

2. PROJECT OVERVIEW & ACTIVITY

This section presents an overview of the remote tele-monitoring projects as evaluated by BDO Stoy Hayward.

2.1 Background

The NHSCT's 'Your Health, Your Care at Home' tele-monitoring service pilot project was developed in early 2007 in response to a call from DHSSPS for applications for funding under its Telehealth Development Scheme. Funding was to be used to introduce Pilot Projects focused on the innovative use of tele-monitoring.

Your Health, Your Care at Home focuses on chronic disease management for patients with chronic heart failure or COPD or co-morbidity, such as diabetes. The pilot intended to support the more effective targeting of resources and the promotion of independent living for patients with chronic diseases living in their own homes. It also aimed to prevent unnecessary hospital admissions of patients with long term/chronic conditions.

Key aspects of the project were to include:

- Real time data exchange to treat and manage long term chronic conditions;
- Remote monitoring of physiological measurements;
- Enabling health professionals to assess and monitor many more patients than they otherwise could;
- Enabling clinicians to consult, mentor and support both patients and fellow professionals from a distance; and
- Maximising the use of professionals' time and professionals' response to patient needs.

Innovative qualities of the project/new ways of working were to include:

- New service in Northern Ireland;
- Enhanced chronic disease management to support integrated care pathways;
- Puts patient in control of their condition;
- Improve patient care by ensuring services respond to patient need and clinical and social care environment;
- Respond to the needs of patients who do not require care outside their place of residence;
- Reduces pressures on secondary care by maintaining people in their own home appropriately;
- Increased clinical integration between primary and community care;
- Links with other Investing for Health initiatives; and
- Delivers against PfA targets.

It was anticipated that:

- Historic trend analysis would show exacerbation of chronic conditions over time, allowing early intervention to prevent hospital admission;
- Reports on patients could be downloaded by remote consultants, as required, for clinical opinion prior to either outpatient appointment or admission
- The project would promote self management by supporting people to participate in the management of their own condition at home. The system would inform patient of vital signs and any changes. This, in turn, would educate patient on cause and effect of exacerbation of condition and could lead to patient choice to adjust lifestyle accordingly. The system would give patient confidence in their care and remote support from health professionals would give reassurance that may prevent exacerbation of condition and inappropriate use of health resources through unnecessary appointment or emergency intervention.

2.2 Project Funding

- Revenue I – This represents the initial award of funding made in 2007;
- Revenue II – This represents an additional award of funding made in June 2008 to allow an additional 59 patients to participate on the initiative by December 2008. AT that time, there was 28 patients on the initiative;
- Revenue III – This represents an additional award of funding made in September 2008 to sustain the additional 59 patients to participate on the initiative to March 2009 and also increase activity by a further additional 24 patients;
- This combines to give a target of 125 patients by March 2009 (Please note, that the additional Patients were funded directly by the Board).

Cost are further illustrated below:

Full Year Revenue Costs	1st Year Effect						2nd Year Effect
	WTE	Total Staff Cost/wte £	Travel Cost £	Training Cost £	Other £	Total Costs £	Total Costs £
Telehealth coordinator (Band 6)	1	35,904	3,000	1,000		39,904	39,904
If regional administration role assumed additional							
Project Support Officer (Band 3)	1	20,544	2,000	500		23,044	23,044
Level 1 telehealth packages to support non-complex patients					20,000	20,000	20,000
Level 2 telehealth packages to support complex patients					30,000	30,000	30,000
Level 1 telecare packages to support non-complex patients					5,000	5,000	5,000
Level 2 telecare packages to support complex patients					5,000	5,000	5,000
Subscription to Met Office Health forecasting for COPD initiative					10,000	10,000	10,000
Full Year Capital Costs						132,948	132,948
ICT & Data communications					50,000	50,000	

2.3 Project Aims, Objectives and Outcomes

Aim

The overall aim of the project is *“To manage patients with long term conditions at home to avoid unnecessary hospital admissions and facilitate early discharge”*.

Objectives

This project objectives are:

- To support people in the management of their own conditions at home.
- To develop a network of support between secondary and primary care and voluntary services.
- To support projects across a range of conditions including respiratory, diabetes and respiratory disease;
- To maintain and/or increase independence levels for patients through the use of combined telehealth and telecare technologies combined with existing services.

Outcomes

- Increase in number of people remaining in the management of their own conditions at home due to the presence of technology support services;
- To develop a network of support between secondary and primary care and voluntary services;
- To support projects across a range of conditions including respiratory, diabetes and respiratory disease;
- To maintain and/or increase independence levels for patients through the use of combined telehealth and telecare technologies combined with existing services.

2.4 Project Implementation

The project worked with general practices and 4 nurse (Continuing Care and Disease management nurses) specialist teams for the following chronic diseases:

- Diabetes
- COPD
- Chronic Heart Failure
- Asthma

The Trust appointed the Service Provider to facilitate the provision of tele-monitoring services for patients of the Trust. The Service Provider contract was for a 16-month period (1 December 2007 to 31 March 2009), and the service and budget agreement included all labour, transport and other supporting services necessary for the Service Provider to meet the terms of the agreement.

Key elements of the ‘Your Health, Your Care at Home’ project included:

Training of Health Professionals

- Health professionals were trained on use of the Service Provider’s service;
- Health professionals were given access to the Service Provider’s system server which contains the relevant patient information (client contact details, summary of condition, medications and vital signs).

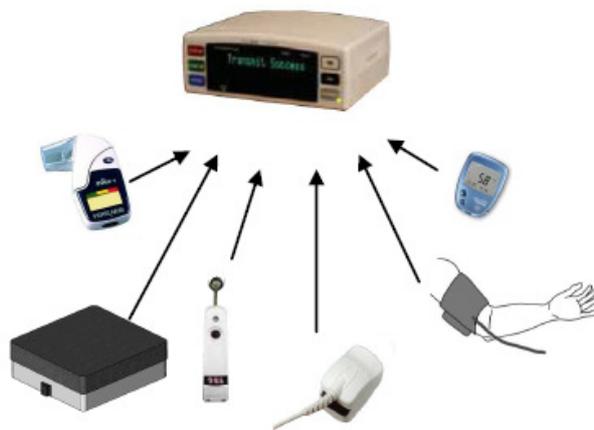
Patient Selection

- To establish if a patient would benefit from tele-monitoring a specialist assessment was completed as part of their care;

- Participant patients were advised that tele-monitoring support would be provided on a time limited basis;
- Once the patient had agreed, and signed a consent form, a referral form was sent to the Service Provider.
- Agreement between GPs and Trust which equipment was to be installed.
- GP practices and Trust agreed roles and responsibilities of Primary Care and Community Care teams, including protocols for alarm response, preventative action, on call both in hours and out of hours, malfunction of equipment.

Installation Procedure

- The Service Provider arranged an appointment with patient and/or carer to install a tele-monitoring unit in their home;
- The Service Provider informed the clinician team of the intended date and time of installation;
- The Service Provider Support Officer installed the equipment, carry out patient training, transmit a set of readings and pre set questions;
- As noted, each participant patient received a tele-monitoring unit (the unit provided to COPD/CHF patients is featured below). For COPD/CHT patients, the tele-monitoring unit was required to be close to both an electric point and an outgoing telephone point/line within the Patient’s home;



- For diabetes only patients, a separate portable tele-monitoring device (featured below) was provided which download the patient’s blood glucose readings to a secure IT system. These patients were able to take their unit anywhere and insert the connection into any telephone socket to download the readings.

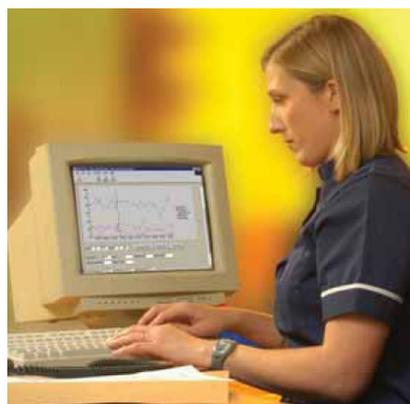


- The clinician (i.e. nurse/health professional) decided which readings an individual patient would need to take and how often they would have to take them;

- The clinician developed specific high/low alert limits appropriate for each individual patient’s current condition.
- The unit could take weight, blood pressure, blood sugar, peak flow, temperature, oxygen saturation and heart rate readings;
- The tele-monitoring unit had a free phone number so the patient did not incur any phone call charges. Furthermore, to ensure that the Patient was not unduly inconvenienced or had to incur significant costs, the units provided were designed to draw on only minimal electricity as it switched off when the patient was done with their daily health check;

Monitoring Of Vital Signs

- The tele-monitoring unit switched on at a programmed time and asked the patient to take their readings;
- Furthermore, the unit had a ‘voice’ which asked the patient some questions relating to their illness, to which the patient had to press a yes or no button on the unit to answer;
- If the patient missed their allotted time to take their readings, they received a call from an advisor from the Service Provider who was responsible for checking the readings. This advisor was there to help and support the patient if they were having any difficulties taking their readings;
- The tele-monitoring unit sends the readings down the telephone line to the computer/central point in the Service Provider advisor’s offices and also to the patient’s clinician’s computer.



- The Service Provider’s advisor then carried out a non-clinical triage of each patient, through a review of the patient’s readings (a sample screen shot is provided below);

Status	Type	Patient	Phone	Systolic / Diastolic	Weight	SpO2	Blood glucose	Last contact	Trend	Note
<input type="checkbox"/>	E14 Diabetes Mellitus									
<input type="checkbox"/>		helen Smith		118/ 84	62.2	99.0	4.4			
<input type="checkbox"/>		Herman Pickle	12345678	110/ 82	85.3	99.0				
<input type="checkbox"/>		stephanie stanforth		133/ 102	81.6	98.0				
<input type="checkbox"/>	I50 Heartfailure									
<input type="checkbox"/>		Barbara Trent		156/ 110	86.7	98.0	5.6			
<input type="checkbox"/>		Matt Walsh		152/ 86	85.4	97.0				
<input type="checkbox"/>	J44 COPD									
<input type="checkbox"/>		Mike Worden	555666	118/ 77		98.0	6.3			

- If an alert status was assigned to the individual patient’s transmitted data, as determined by the patient’s alert limits and other parameters, they notified the patient’s nurse/doctor. Their health professional then determined if any changes to the patient’s medical care were necessary;
- It should be noted that alert status of the data is not a clinical assessment of the patient’s medical condition. It was the responsibility of the health professional to review ‘red alert’ data and make a clinical judgement of the patient’s condition and respond accordingly;
- Throughout the period of time that the patient used the tele-monitoring unit, they were advised to attend any planned hospital or GP appointments as normal. The patient was advised that the tele-monitoring unit was not an emergency service, and that they should tell their nurse or doctor if they felt unwell (e.g. experiencing chest pain, difficulty breathing, or any other urgent symptom);
- If the patient experienced any problems with the tele-monitoring unit, they were advised to call the Service Provider, whose number was manned 24 hours/7 days a week;
- Staffing structure/ratios – The Service Provider contract with the Trust established that it had to ensure that it had appropriate staffing levels at all times in order to meet to meet its contractual commitment.

Skills Input

- A Tele-Monitoring coordinator was appointed, who assumed day-to-day management of the project.

2.5 Project Activity

2.5.1 Patients Receiving Tele-Monitoring by Chronic Condition

Patients receiving Telehealth Monitoring	
Condition	As at March 27th 2009
COPD	62
CHF	24
Diabetes	7
Condition not recorded	1
Total receiving monitoring	94
Other Activity	
	As at March 27th 2009
Tele-monitoring uplifted from Patients	6
Tele-monitoring refused by Patients	16
Patients deceased	12

3. HSC INTERNAL EVALUATION

This section presents details of the findings of the internal evaluation conducted by HSC.

3.1 Patient Questionnaire

31 patients returned questionnaires to Trust staff, of which 25 (68%) were COPD patients and 10 (27%) were CHF patients and 2 (5%) were Diabetes patients. Their responses to the questionnaires are detailed below:

Patient Benefits	Strongly Agree	Agree	Disagree	Strongly Disagree	N=
The monitoring system assisted me in managing my health on a day to day basis	39%	52%	6%	3%	31
The remote monitoring system has reduced the number of visits I made to my GP	47%	30%	20%	3%	30
I believe my own monitoring of my condition has reduced the number of nurse/ community team/health professional visits	39%	29%	29%	3%	31
I believe that during the monitoring period, the remote monitoring system prevented my admission to hospital or need to attend A&E Services (and/or GP Out of Hours)	30%	37%	27%	7%	30
The remote monitoring system has enabled me to better manage my own condition and become more involved in my health care	42%	45%	10%	3%	31
Equipment	Strongly Agree	Agree	Disagree	Strongly Disagree	N=
The monitoring system was easy for me to use	52%	42%	3%	3%	31
I consider the installation was prompt, efficient and tidy	48%	39%	10%	3%	31
I believe the monitoring questions encouraged me to think about my symptoms	44%	44%	12%	-	25

The table indicate that the majority of patients that responded to the ECCH questionnaire were positive about the tele-monitoring pilot, with:

- 91% of patients strongly agree or agree that the monitoring system assisted them in managing their health on a day-to-day basis;
- Three quarters of patients agree that the remote monitoring system had reduced the number of visits they had made to their GP (77%) and two-thirds agreeing that it had prevented their admission to hospital or need to attend A&E Services (and/or GP Out of Hours) (67%);
- Two-thirds (68%) agree that they believed that monitoring their own condition had reduced the number of nurse/ community team/health professional visits to them;
- 87% agree that the remote monitoring system had enabled them to better manage their own condition and become more involved in their own healthcare. Furthermore, over four fifths (88%) believed that the monitoring questions encouraged them to think about their symptoms;
- Almost all (94%) of patients considered that the monitoring system was easy for them to use; and
- 87% considered the installation to be prompt, efficient and tidy.

Those patients who disagreed with the statements above offered the following reasons:

- Problems with the system e.g. not recording, not working, delays in getting faults repaired.

- The system caused one patient stress by asking him to take readings on days that he was not scheduled to; and
- Due to the impact of co-morbidities, it has been necessary for regular nursing visits for support and other care.

3.1.1 *More than one Reading*

Almost all of the 37 patients had to take more than one reading. Their reasons are summarised below:

Reasons for taking more than one reading	No.	%
Asked to do so	25	69%
Reassurance	9	25%
Other reason	2	1%
Total	36	100%

‘Other’ reasons offered included:

- The machine was faulty; and
- To recheck a reading that the patient was concerned about.

3.1.2 *Number of times admitted to Hospital*

The patients were asked to identify how many times they had been admitted to hospital as a result of their condition since they had been on remote monitoring. Their responses are detailed below:

No. of times admitted to hospital	No.	%
No times	16	55%
Once	6	21%
Twice	3	10%
Three times	2	7%
Four times		-
Five or more times	2	7%
Total	29	100%

The results indicate that over half (55%) of patients had not been admitted to hospital as a result of their condition since they had been on remote monitoring.

3.2 **Carer Questionnaire**

15 carer questionnaires were returned. This stakeholder group was also very positive about the tele-monitoring pilot.

Patient Benefits	Strongly Agree	Agree	Disagree	Strongly Disagree	N=
I consider remote monitoring has improved the level of care given to the person I care for.	80%	20%			15
I consider remote monitoring has helped prevent the person I care for being admitted to hospital.	80%	20%			15
When assisting the person to operate the remote monitoring equipment, I found it easy to use.	86%	14%			14

A typical carer comment was “it gives confidence and reassurance knowing the system is in the house.”

3.3 Professional Worker Questionnaire

Patient Benefits	Strongly Agree	Agree	Disagree	Strongly Disagree	N=
Introduction of remote monitoring has decreased the number of hospital admissions relating to the patient’s chronic condition	38%	38%	15%	8%	26
Introduction of remote monitoring has decreased the number of GP visits relating to the patient’s chronic condition	30%	44%	19%	7%	27
Introduction of remote monitoring has decreased the number of nurse visits relating to the patient’s chronic condition	19%	33%	44%	4%	27

The professional worker responses to the ECCH elicited some mixed responses in the SHSCT area compared to the patient and carer responses. For example, Two-thirds (68%) of patients agreed that they believed that monitoring their own condition had reduced the number of nurse/ community team/health professional visits to them, whereas only half (52%) of the professional workers agreed.

Three quarters of professional workers agreed that the remote monitoring system had prevented the patient’s admission to hospital (76%) and two-thirds (64%) suggested that the introduction of remote monitoring has decreased the number of GP visits relating to the patient’s chronic condition

3.4 Conclusions:

In conclusion the remote monitoring system is considered beneficial:

- 91% of patients agreeing strongly agree or agree that the monitoring system assisted them in managing their health on a day-to-day basis;
- Three quarters of patients agree that the remote monitoring system had reduced the number of visits they had made to their GP (77%) and two-thirds agreeing that it had prevented their admission to hospital or need to attend A&E Services (and/or GP Out of Hours) (67%);
- The feedback from the professional workers was that they agreed that the scheme has decreased hospital admissions and 70% agreed that the number of GP visits had been reduced.
- Overall Carers and patients agreed that the scheme was of benefit to healthcare, with 100% of carers considering that it had improved the quality of care they provided and 80% of patients saying that it had assisted them in managing their day to day health.

4. OPERATION OF PILOT

Section 4 considers clinicians’ and patients’ views on the operation of the tele-monitoring pilot, including the patient selection and recruitment processes, the criteria that were utilised during the pilot projects, the ease of use of the equipment, and the level of support from the Service Provider.

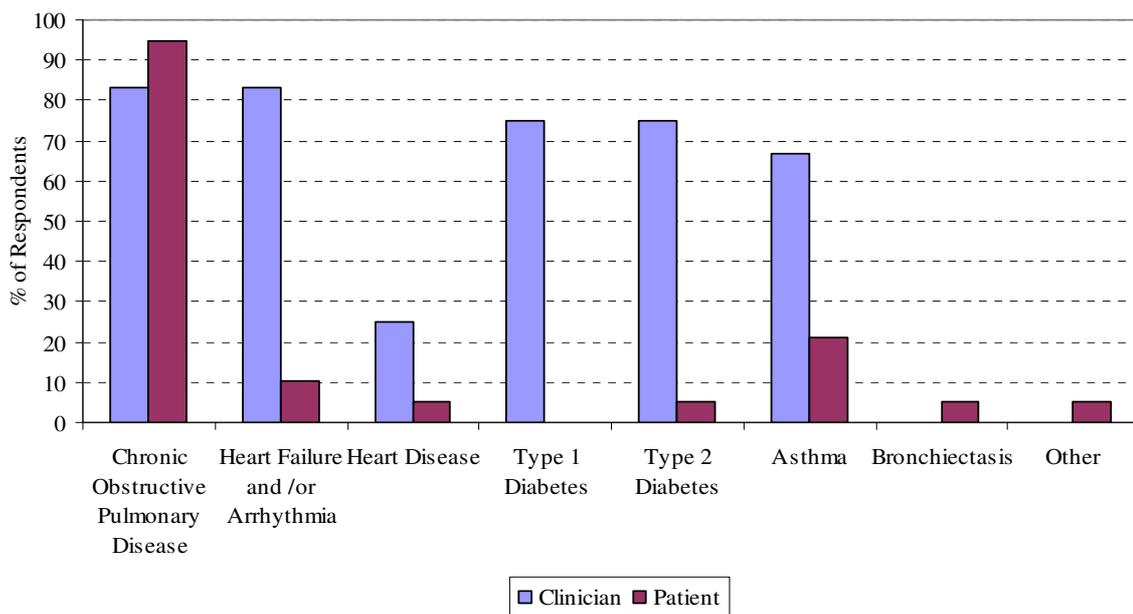
The findings below are taken from the individual consultations with patients and clinicians. Detailed questions and findings are included in Appendix 1 (Clinical Questionnaire Statistical Analysis) and Appendix 2 (Patient Questionnaire Statistical Analysis). The relevant question from each of the Appendices is referenced in the figures below.

4.1 Profile of Respondents

Of the 12 clinicians that responded to the survey, four fifths (83%, N=12) stated that they were responsible for COPD and for ‘Heart Failure and /or Arrhythmia’; three quarters (75%, N=12) stated that they were responsible for ‘Type 1 and/or ‘Type 2 Diabetes’.

Almost all (95%, N=19) the patient respondents stated that they used the tele-monitoring equipment to monitor COPD, whilst just over one fifth (21%, N=19) use the equipment to monitor asthma.

Figure 4.1: Illnesses Responsible for (Q1 – Patient / Q1- Clinician)



The length of time that the patients indicated that they had been using the tele-monitoring equipment is illustrated in the table below: (Q2 – Patient)

	%
Less than one month	-
1 to 2 months	6%
3-4 months	17%
5-6 months	6%
7-8 months	17%
9-10 months	10%
11 months to 1 year	44%
More than 1 year	-
N =	18

4.2 Responsibility for Patient Selection

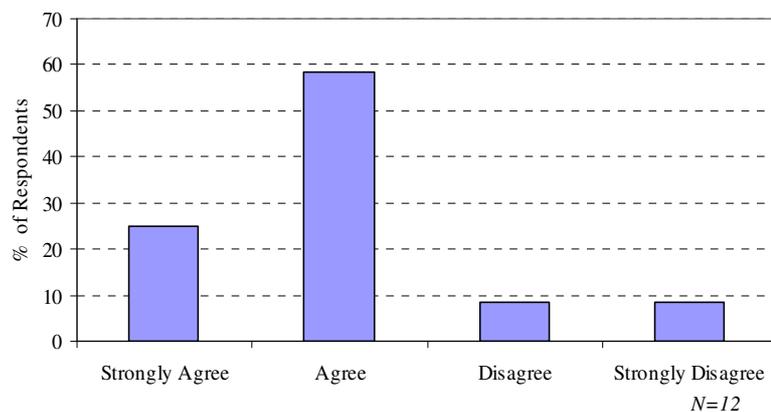
Three-fifths (58%, N=12) of clinician respondents stated that nurses/clinicians had been responsible for selecting and/or recruiting patients to participate in the Pilot. A number (17%, N=12) also stated that the ‘Case Management’ system was responsible for selecting patients for participation on the project.

A number of clinicians reported that they had used a hospital system, where the hospital passed on names that it considered were appropriate, with the nurses then selecting the final patients.

4.3 Appropriateness of Patients Selected

Four fifths (82%, N=12) of clinicians ‘strongly agreed’ or ‘agreed’ that the patients that were selected or recruited to participate in the Pilot were appropriate to participate.

Figure 4.2: Appropriate Patient Recruitment/Selection (Q2b – Clinician)



However, almost one fifth (18%, N=12) of clinicians ‘disagreed’ or ‘strongly disagreed’ that the patients that were selected or recruited to participate in the Pilot were appropriate to participate. Clinicians stated a number of patients had to be taken off the project as they were no longer considered suitable.

“We selected candidates who were over the age of 65, however younger patients could also have received the benefits of the project.”

Clinician Respondents

Suggestions related to improving patient selection processes included selecting younger patients and ensuring only patients who benefit from the equipment are selected.

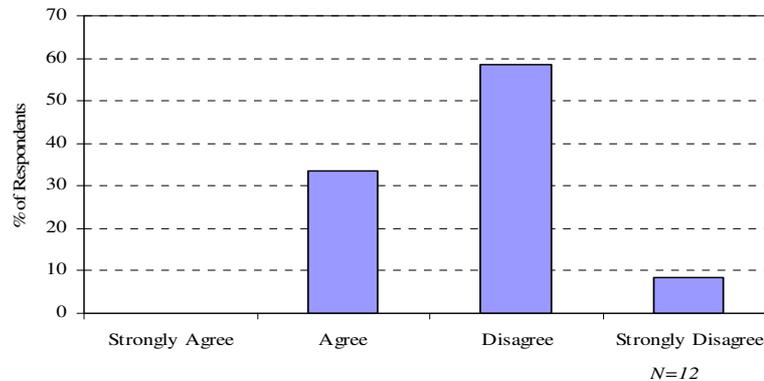
4.4 Appropriateness of Tele-Monitoring

The majority (67%, N=12) of clinicians disagree that tele-monitoring is appropriate for all patients with the primary condition that they have responsibility for. Clinicians reported that the appropriateness of the tele-monitoring treatment will depend on the severity of the patient conditions and individual patient’s attitude. It was suggested that some patients would find using the equipment too stressful and it would be a constant reminder of their illness.

“The equipment is not appropriate for all patients with these conditions, and depends on their needs and severity.”

Clinician Respondents

Figure 4.3: Appropriate for Primary Condition (Q3a – Clinician)



The clinician respondents provided some characteristics of patients that tele-monitoring is appropriate for or not appropriate for:

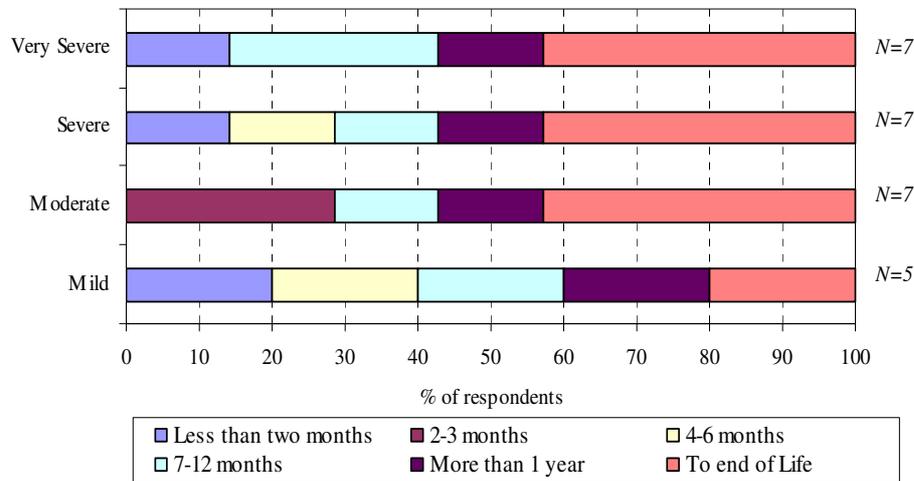
Characteristics	Appropriate For and why?	Not Appropriate For and why?
Age	<ul style="list-style-type: none"> • Younger People 	<ul style="list-style-type: none"> • Elderly people – unable to use the equipment
Comorbidity	<ul style="list-style-type: none"> • People who can differentiate their illness 	<ul style="list-style-type: none"> • Dementia • Renal Failure • Severe Parkinson’s • MS
Disease status/severity <i>e.g. COPD (Mild, Moderate, Severe, Very Severe)</i>	<ul style="list-style-type: none"> • Patients with mild conditions • Level 1 	<ul style="list-style-type: none"> • End stage disease patients – less able to use equipment
Patient Agility	<ul style="list-style-type: none"> • Patients that have agility to use equipment • Patients who are able to walk and check their own measurements • Post or Pre Opt patients 	
Other –Patient Personality	<ul style="list-style-type: none"> • Depends of patient’s personality 	<ul style="list-style-type: none"> • Depends of patient’s personality

4.5 Appropriate Timescale for Patients’ use of Tele-Monitoring

The clinician respondents provided the following feedback on their views as to the most appropriate timescale for different types of patients to use tele-monitoring equipment:

4.5.1 COPD

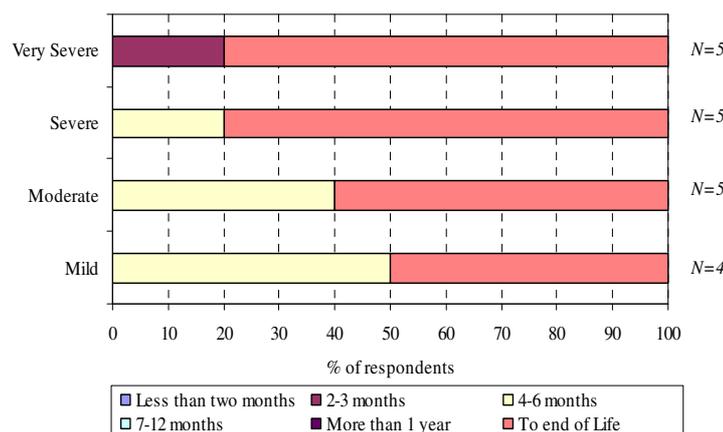
Figure 4.4: Timescale of tele-monitoring use for varying levels of COPD Severity (Q6a – Clinician)



- Clinicians views related to the use of tele-monitoring for patients with ‘mild’ COPD were very mixed;
- However, over two fifths (43%, N=7) of clinicians stated that patients with ‘moderate’, ‘severe’ or ‘very severe’ COPD should use the tele-monitoring equipment ‘to end of life’.

4.5.2 Congestive Heart Failure (CHF)

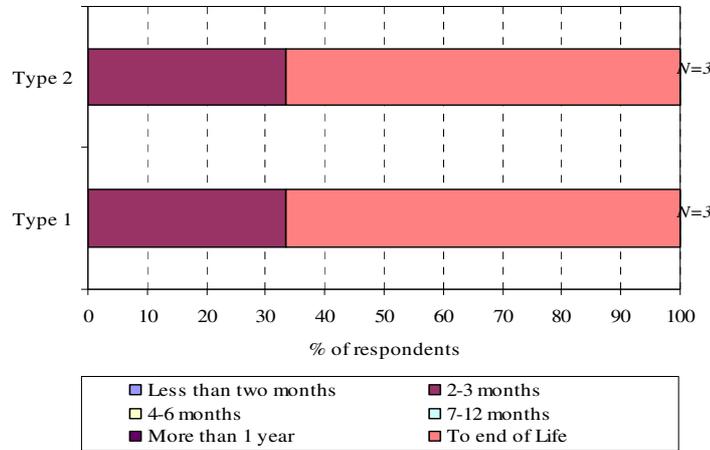
Figure 4.5: Timescale of tele-monitoring use for varying levels of CHF Severity (Q6b – Clinician)



- At least half (50% +) of clinicians stated that patients suffering from ‘mild’, ‘moderate’, or ‘severe’ CHF should use the equipment ‘to end of life’.
- Four-Fifths of clinicians (80%, N=5) stated that patients with ‘very severe’ CHF should use the tele-monitoring equipment to ‘End of Life’, whilst one clinician (20%, N=5) stated that patients with ‘very severe’ CHF should use the equipment for ‘2-3 months’.

4.5.3 *Diabetes*

Figure 4.6: Timescale of tele-monitoring use for varying levels of Diabetes Severity (Q6c – Clinician)



Two thirds (67%, N=3) of clinicians stated that patients with ‘Type 1’ or ‘Type 2’ Diabetes should use the tele-monitoring equipment ‘to end of life’, whilst the remaining third (33%, N=3) suggested that these patients with should use the tele-monitoring equipment for ‘2-3 months’.

4.6 **Improvements to Patient Selection**

Clinicians recommended the following improvements that could be made to the patient selection process:

- Target younger patients;
- Involve clinician/GP in the selection process;
- Avoid selecting end-stage/very severe patients i.e. very severe; and
- Treat selection of patients on a case-by-case basis.

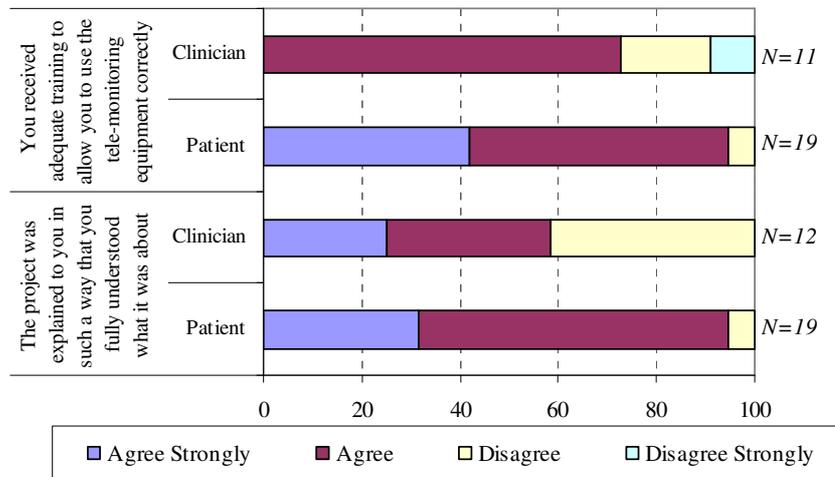
4.7 **Satisfaction with Project Implementation**

4.7.1 *Information and Training*

Whilst most clinicians (58%, N=12) and patients (95%, N=19) ‘strongly agreed’ or ‘agreed’ that the pilot project was explained to them in such a way that they fully understood what it was about, two-fifths (42%, N=12) of clinicians disagreed. These clinicians stated there was little explanation provided regarding the project before their participation.

However, the results indicate that patients (95%, N= 19) and clinicians (73%, N=11) were broadly in agreement that they had received adequate training to allow them to use the equipment correctly. The remaining clinicians suggested that the timing of the training was too late.

Figure 4.7: Implementation of the tele-monitoring project (Q3a – Patient / Q7a – Clinician)



“Very happy with the training and education of the equipment”

“It wasn’t fully explained at the start. I had some problems with using the equipment. However, the installation was straightforward.”
Patient Respondents

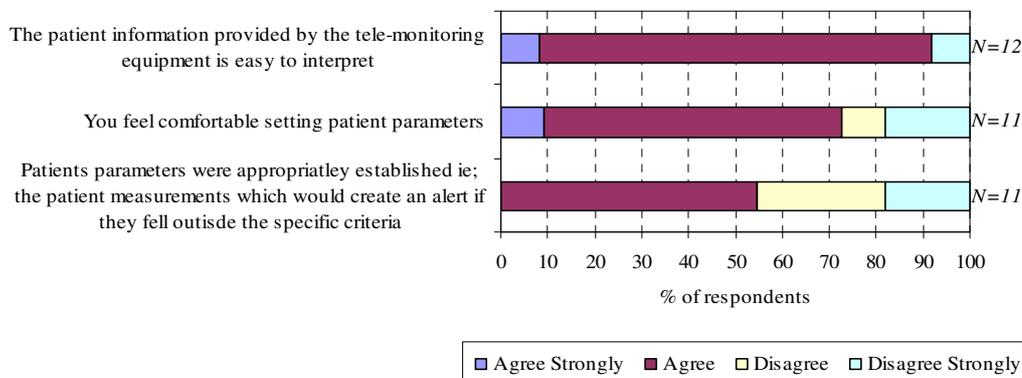
“We were told we were doing the scheme with no explanation. Only had one training session and then we had to teach others how to use the equipment. Ordering and placement was not straightforward. There was poor communication with patients regarding changes of installation”.
Clinician Respondents

4.7.2 Processes relating to Ordering Equipment and its use in the home

Over four fifths (82%, N=11) of clinicians ‘agreed’ that the way in which tele-monitors were ordered for placement was straightforward and efficient. (Q7a – Clinician)

4.7.3 Issues around Patient Parameters

Figure 4.8: Issues around Patient Parameters (Q7a – Clinician)



Generally, clinicians were positive about aspects of the Project that related to patients’ parameters. Key points to note include:

- Three-quarters (73%, N=11) ‘strongly agreed’ or ‘agreed’ that they feel comfortable setting patients’ parameters. However, the remaining clinicians (27%, N=11) would have preferred more involvement from the patients’ GPs;
- Just over half of clinicians (55%, N=11) ‘agreed’ that the patients parameters were appropriately established i.e. the patient measurements which would create an alert if they fell outside the specific criteria; although it is notable that over two-fifths (45%, N=11) of clinicians disagreed that this was the case. Some of these clinicians suggested that the parameters established were not within health guidelines;
- Four-fifths clinicians (84%, N=12) were in agreement that the patient information provided by the tele-monitoring equipment is easy to interpret. However, a third (33%, N=15) disagreed.

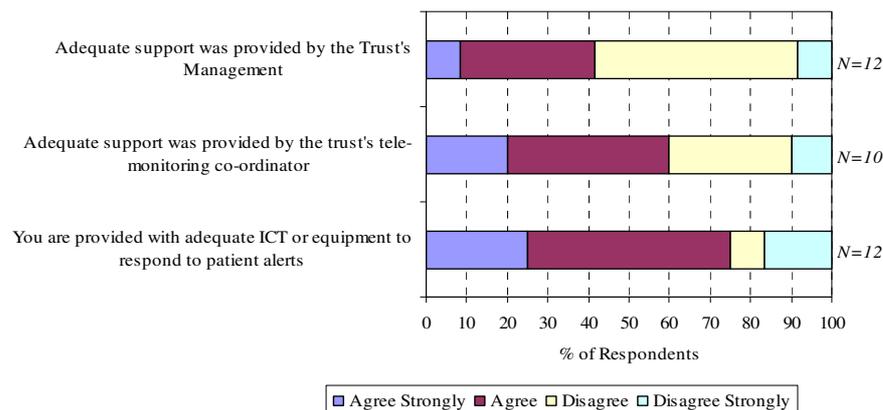
“Patients parameters were set, however I was not happy with this as these were not set within health guidelines. It is not acceptable that nurses are setting parameters. GPs do not take responsibility for this project.”

“The GPs set our parameters and then advised us.”

Clinician Respondents

4.7.4 Level of Support Offered

Figure 4.9: Implementation of the tele-monitoring project (Q7a – Clinician)



Clinicians’ views were about the level of support that was provided to them during the implementation of the tele-monitoring project were very mixed:

- Whilst three fifths (60%, N=10) of clinicians were in agreement that adequate support was provided by the Trust's Tele-Monitoring Co-ordinator, almost three fifths (58%, N=12) disagreed that adequate support had been provided by the Trust’s management. These clinicians generally felt the Trust’s Management had little knowledge or understanding of the project. It was also noted that the Tele-Monitoring Co-ordinator could have been in post earlier;

“The Trust’s Management do not fully understand the situation of the project, they encourage unreasonable targets to be reached.”

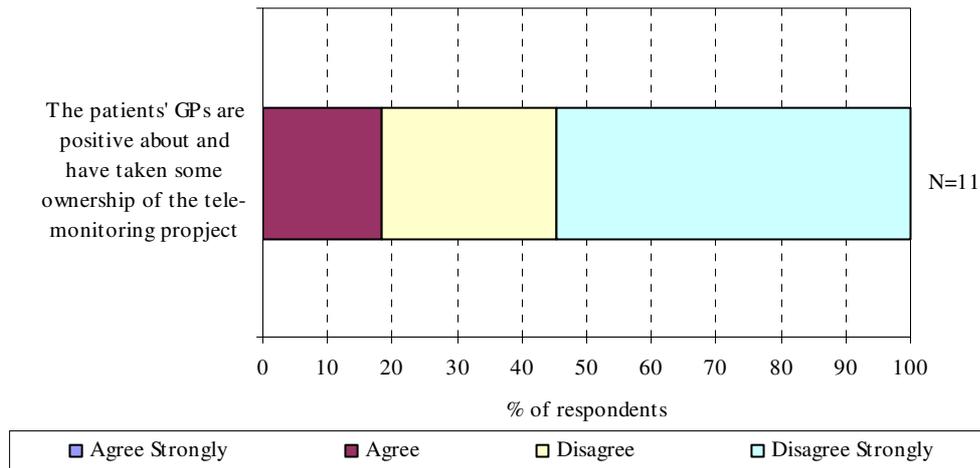
Clinician Respondents

- The majority (75%, N=12) of clinicians agreed that they were provided with adequate ICT or equipment to respond to patient alerts. However, one quarter (25%, N=12) disagreed with this statement.

4.7.5 *Degree of GP Ownership*

Over one third of clinicians felt that GP’s did not take ownership of the tele-monitoring project. Most clinicians (82%, N=6) disagree that patients' GPs are positive about and have taken some ownership of the tele-monitoring project. These clinicians reported that GPs are generally sceptical about the merits/benefits of the Project.

Figure 4.10: GP Ownership of the Tele-Monitoring Project (Q7a – Clinician)



“The GPs do not take responsibility with this project”

“GPs are not interested in the project, and have never got on board”

Clinician Respondents

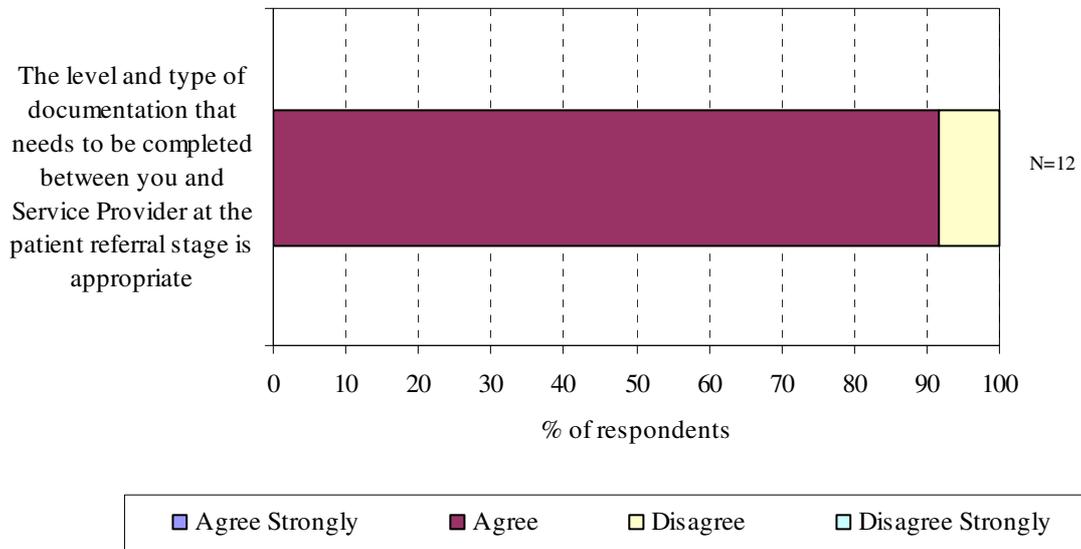
4.8 **Satisfaction with the Service provided by the Service Provider**

As Part of the of the remote Tele Monitoring service a contract was awarded to a Service Provider who provided a triage service.

4.8.1 *Documentation at Patient Referral Stage*

Almost all (92%, N=12) agreed that the level and type of documentation that needs to be completed between them and the Service Provider at the patient referral stage is appropriate. Only one clinician (8%, N=12) disagreed with this statement.

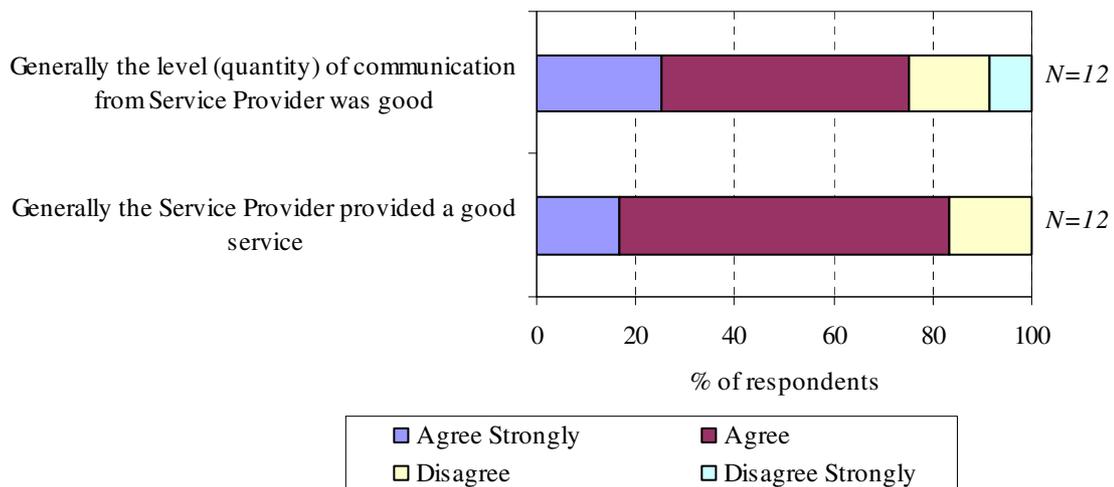
Figure 4.11: Clinicians’ views on the level and type of documentation at the patient referral stage (Q8a – Clinician)



4.8.2 The Support provided by the Service Provider

The survey results indicate that clinicians’ views on the support provided by the Service Provider are quite positive. That is, three quarters (75%, N=12) of clinicians ‘agreed’ that the level (quantity) of communication from the Service Provider was good, and four-fifths (83%, N=12) agree that in general ‘the Service Provider provided a good service’.

Figure 4.12: Clinicians’ views on the Service Provider service and communication (Q8a – Clinician)

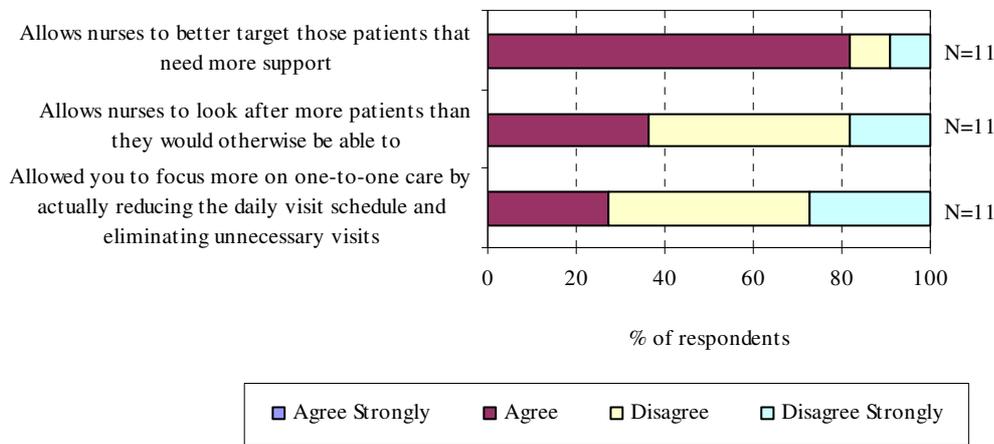


Those clinicians (25%, N=12) who disagreed that the level (quantity) of communication from the Service Provider was good suggested that they received a lot of unnecessary calls, due to patients taking readings on a daily basis.

4.8.3 Mode & Timeliness of Patient Alerts

Generally, clinicians were positive about the timeliness of patient alerts, but had some concerns about how they received them.

Figure 4.13: Clinicians’ views on the mode and timeliness of patient alerts (Q8a – Clinician)

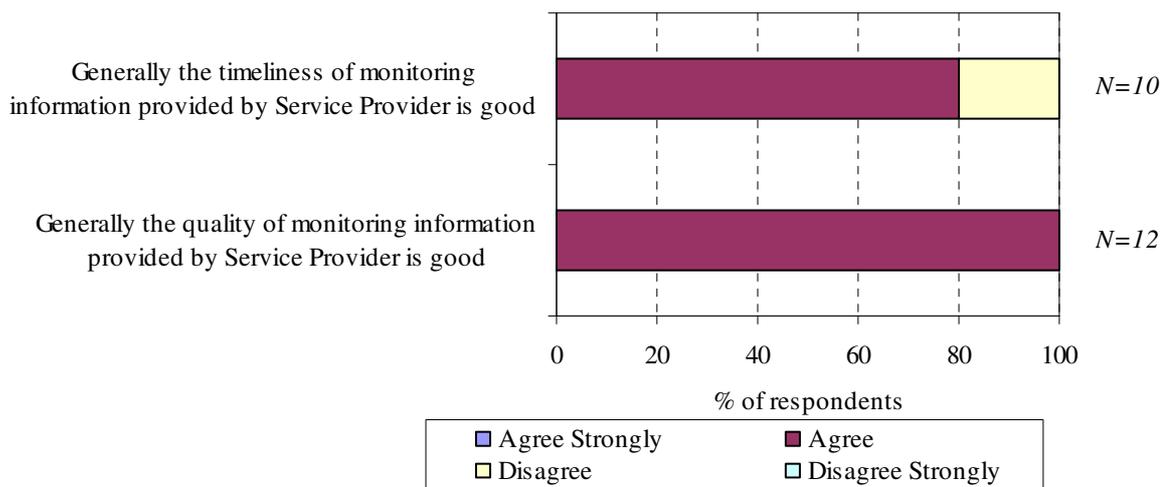


All clinicians (100%, N=9) ‘agreed’ that the timeliness of receipt of patient alerts from the Service Provider was good. Furthermore, Just over half of clinicians (55%, N=11) ‘agreed’ that the mode (e.g. telephone call, text, email) of patient alerts received from the Service Provider was appropriate. However, two-fifths of clinicians (45%, N=11) ‘disagreed’ that the appropriate mode was used.

4.8.4 Monitoring Information

All clinicians (100%, N=12) were in agreement that the quality and timeliness of monitoring information provided by the Service Provider was good.

Figure 4.14: Clinicians’ views on the quality and timeliness of monitoring information (Q8a – Clinician)



Four-fifths (80%, N=10) of clinicians ‘agreed’ that the timeliness of monitoring information provided by the Service Provider is good. Those who disagreed (20%, N=10) suggested that on occasion, the Service Provider was slow to update changes on the system.

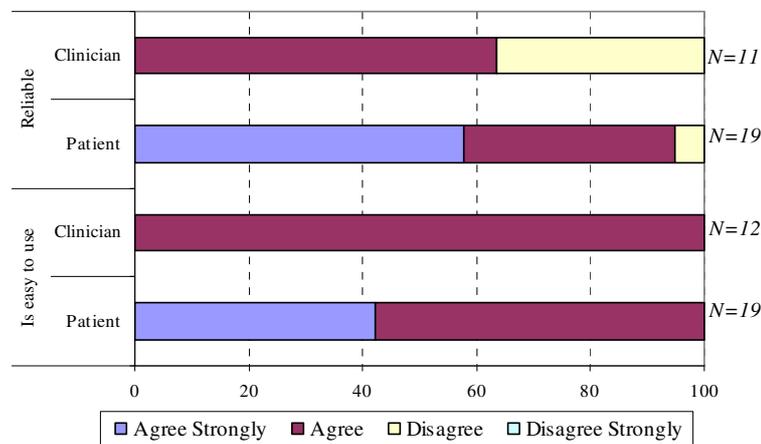
4.9 Satisfaction with the Tele-Monitoring Equipment and/or Software

4.9.1 Reliability and Ease of Use

All patients (100%, N=19) and clinicians (N=12) were in agreement that the tele-monitoring equipment was easy for patients to use correctly. Furthermore, there was general agreement in opinion relating to the reliability of the equipment, with two thirds (64%, N=11) of clinicians and 95% (N=19) of patients ‘agreeing’ that the equipment was reliable (i.e. rarely has technical problems).

Those clinicians (36%, N=11) who suggested that the equipment was not reliable cited problems with inaccurate readings, broken scales, cuffs not fitting patients and errors on the machines.

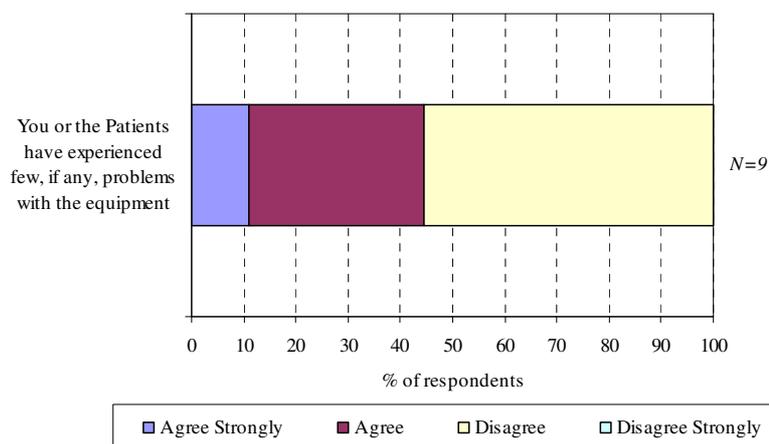
Figure 4.15: Implementation of the tele-monitoring project (Q4a – Patient / Q9a – Clinician)



“The machine has been easy to use, however I suffer from arthritis and so sometimes I need help”
Patient Respondents

Furthermore, over half (56%, N=9) of clinicians ‘disagreed’ that they or the patients have experienced few, if any, problems with the equipment.

Figure 4.16: Clinicians’ views on aspects the tele-monitoring equipment – 2 (Q9a – Clinician)

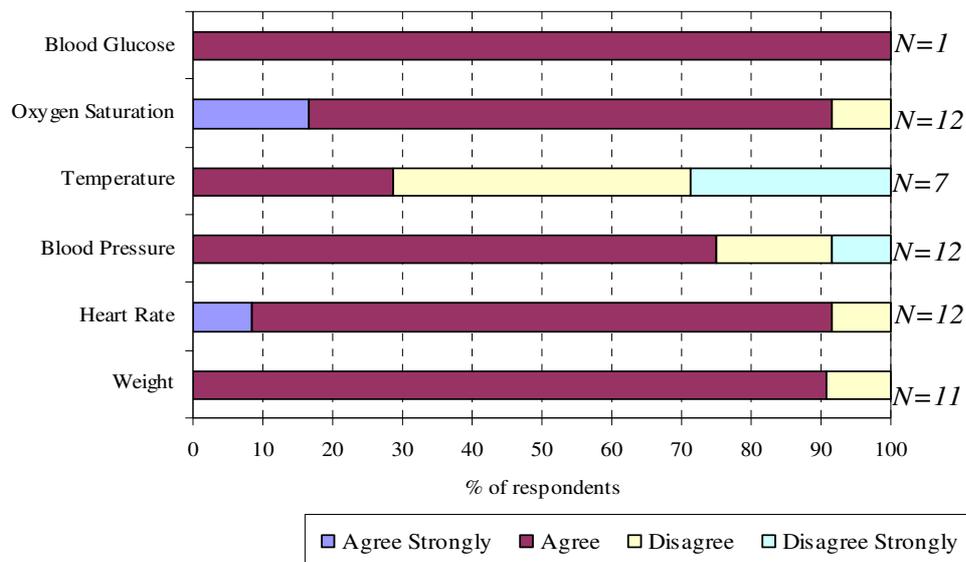


Difficulties include errors in readings and incompatibility with mobile phones.

4.9.2 *Accuracy of Readings*

Generally, both patients (100%, n=18) (**Q4a – Patient**) and clinicians were confident that the tele-monitoring equipment used provided accurate readings. The specific responses provided by clinicians relating to different readings are illustrated below:

Figure 4.17: Clinicians’ views on accuracy of tele-monitoring equipment readings (Q9c – Clinician)

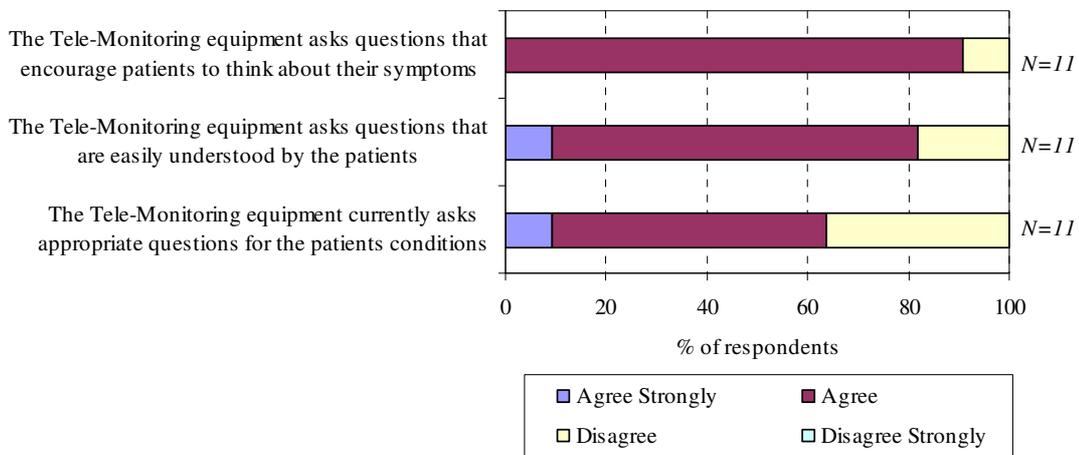


The diagram illustrates, however, that there may be cause to consider the accuracy of readings provided by the equipment relating to temperature and blood pressure. The clinicians suggested that the accuracy of the equipment depends on the patients and if they can use the machine correctly.

4.9.3 *Equipment – Clinicians’ Views on Questions Asked*

Generally, the clinicians were positive about the questions asked to patients whilst they used the tele-monitoring equipment.

Figure 4.18: Clinicians’ views on Questions Asked (Q9a – Clinician)



- 82% (N=11) of clinicians ‘agreed’ that the equipment asks questions that are easily understood by the patients;
- Whilst two thirds (64%, N=11) of clinicians ‘strongly agreed’ or ‘agreed’ that the tele-monitoring equipment currently asks appropriate questions for the patients’ conditions; just over one third (36%, N=11) ‘disagreed’.

“Patients are a little apprehensive at the beginning. Questions are not always appropriate. Patients are generally educated about their condition and do not need further education on it.”
 Clinician Respondents

- Encouragingly, 91% (N=11) ‘agreed’ that the questions asked encourage patients to think about their symptoms.

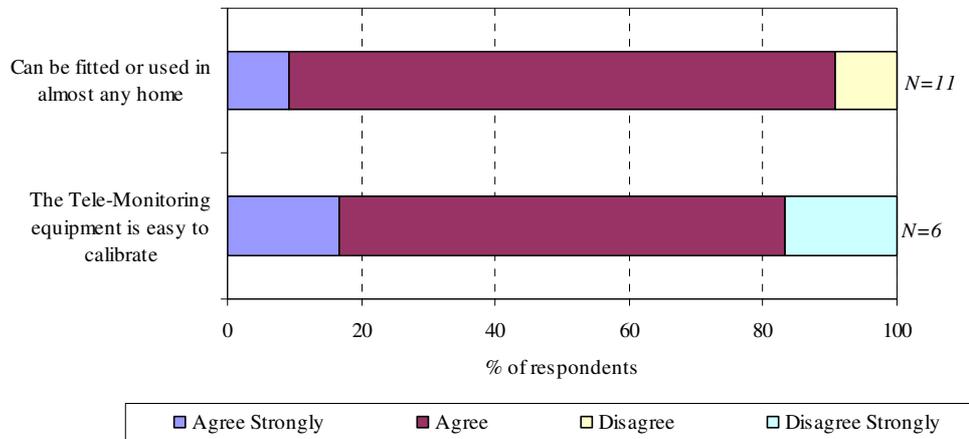
4.9.4 Other aspects of Equipment – Clinicians’ Views

Other clinician feedback relating to the tele-monitoring equipment included:

Clinicians’ views vary on aspects the tele-monitoring equipment:

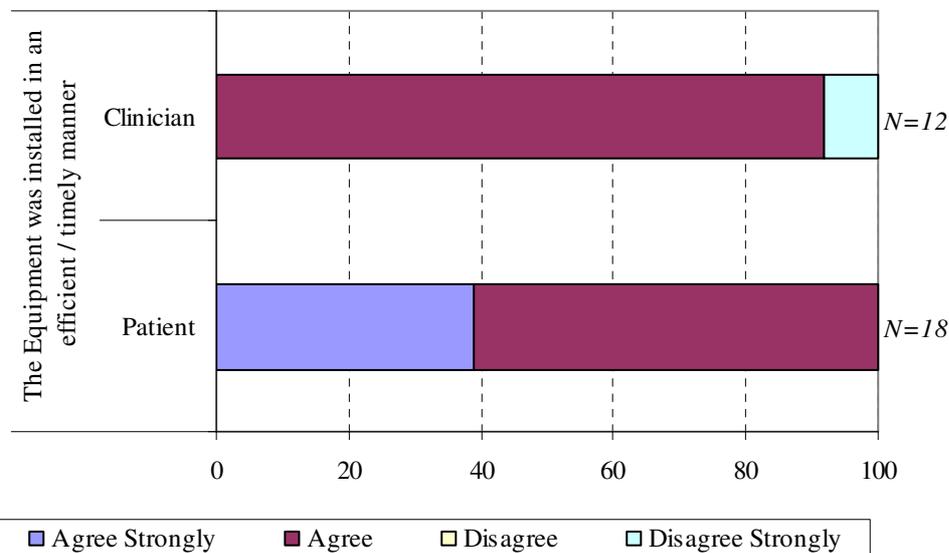
- 91% (N=11) of clinicians ‘agreed’ that the equipment can be fitted or used in almost any home;
- Over four fifths (83%, N=6) were in agreement that the equipment is easy to calibrate.

Figure 4.19: Clinicians’ views on aspects the tele-monitoring equipment (Q9a – Clinician)



Furthermore, nearly all (92%, N=12) clinicians ‘agreed’ that the tele-monitoring equipment was fitted in a timely manner for patients.

Figure 4.20: Installation of the tele-monitoring equipment (Q3a – Patient / Q9a – Clinician)

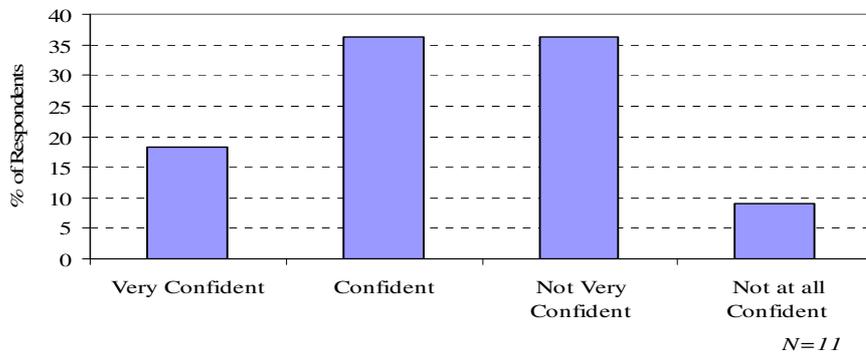


All patients (100%, N=19) stated the equipment was installed in their house in an efficient manner.

4.10 Views relating to Clinical Triage

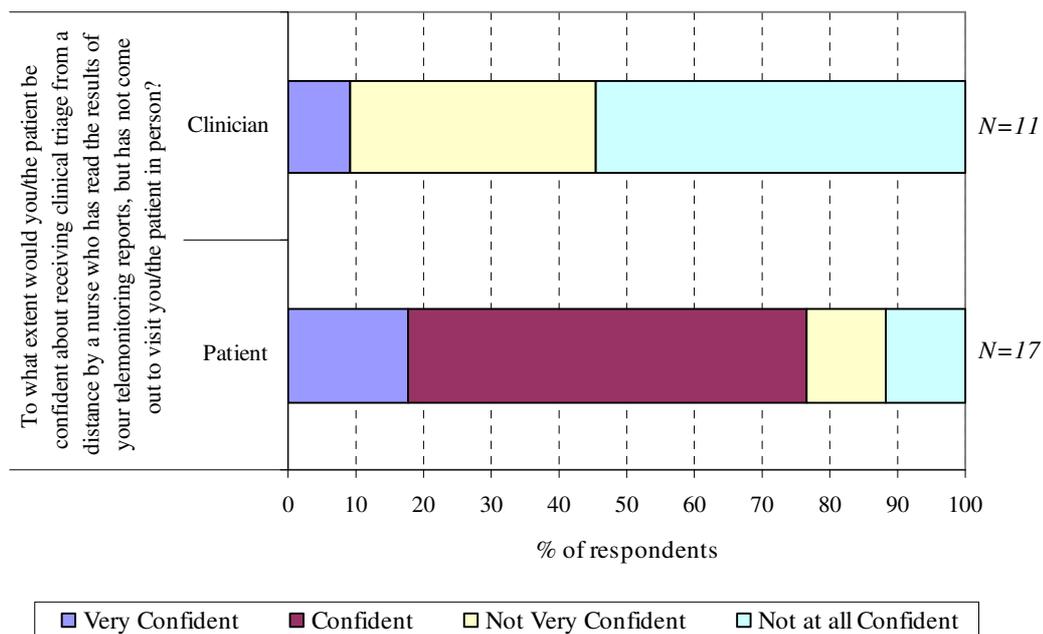
Generally, clinicians had mixed opinions as to whether tele-monitoring allows the provision of clinical triage to a patient from a distance, with 54% (N=11) ‘very confident’ or ‘confident’ that it does and 46% (N=11) ‘not very confident’ or ‘not at all confident’ that it does. These clinicians suggested that they needed to see the patient to assess their condition and give them full medical advice.

Figure 4.21: Provision of clinical triage from a distance (Q18a – Clinician)



Interestingly, patients and clinicians views vary greatly relating to their levels of confidence as to whether tele-monitoring allows the provision of clinical triage from a nurse that has not met a patient in person.

Figure 4.22: Confidence in receiving clinical advice from a Nurse that patients have not visited in person (Q11a – Patient / Q18a – Clinician)



Nearly all clinicians (91%, N=11) do not have confidence that tele-monitoring allows the provision of clinical triage to a patient from a distance by a nurse who has not met a Patient in person. However, just over three quarters (76%, N=17) of patients stated that as a result of the project they were ‘very confident’ or ‘confident’ about receiving clinical advice from a nurse who has read the results of their tele-monitoring reports, but has not come out to visit them in person.

The clinicians felt that they needed to see the patient, in order to assess their condition and give them full medical advice.

“Tele-monitoring gives guidance but nurses need to see the patient face to face and give them a full medical.”

Clinician Respondent

“Willing to take any advice”

“I am happy with the advice however I prefer my own nurse”

Patient Respondents

Clinicians were asked to indicate the types of clinical triage that would be appropriate for a nurse who has not met a Patient in person to provide over the phone and the types that would not be appropriate. Their responses included:

Clinical triage over the Phone	
Appropriate for	Not appropriate for
<ul style="list-style-type: none"> Checking on alerts; General queries (where there is no danger to patient health). 	<ul style="list-style-type: none"> Advice and further investigation; and When dealing with elderly / anxious patients.

4.11 Factors liked Most & Least

Clinicians and patients were asked to identify what they like MOST about the Tele-monitoring project. Their responses included:

Clinicians	Patients
<ul style="list-style-type: none"> Ability to monitor patients; Advantage to patients in that they can manage their condition; Reassures patients and gives them more confidence; and Can see trends over a period of time. 	<ul style="list-style-type: none"> Contact with health sector personnel if there are any problems; Easy to use and accessible; Provides reassurance and a ‘peace of mind’; and Provides continuous monitoring of conditions.

Clinicians and patients were asked to identify what they like LEAST about the Tele-monitoring project. Their responses included:

Clinicians	Patients
<ul style="list-style-type: none"> Extra burden on an already very busy team; Patient selection – some patients do not need the equipment; Reduction in personal contact; and Alerts when not required. 	<ul style="list-style-type: none"> Hindrance of taking readings at the same time.

4.12 Clinicians’ & Patients’ Recommendations

The clinicians and patients were asked to provide recommendations to improve how the tele-monitoring pilot is delivered and on its content. Their responses included:

Clinicians	Patients
<ul style="list-style-type: none"> Better/stricter patient selection criteria; More training about chronic diseases; More training on the equipment; More access to computers; More staff; Better communication between the clinicians and the Trust. 	<ul style="list-style-type: none"> Update machines.

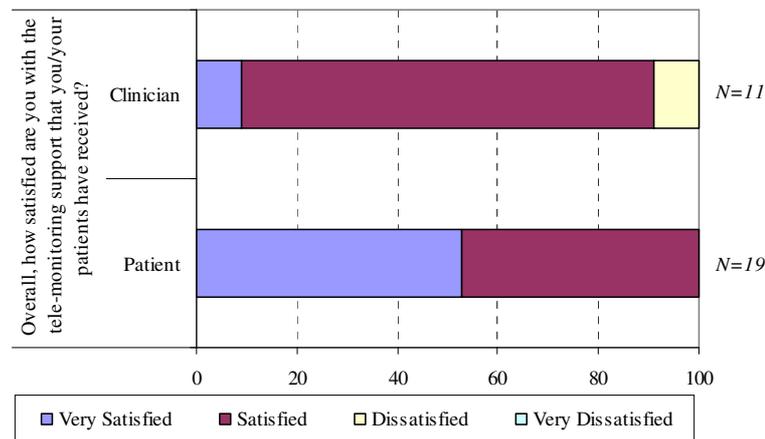
4.13 Overall Satisfaction

Overall, all patients (100%, N=19) and most clinicians (91%, N=11) stated that they were ‘very satisfied’ or ‘satisfied’ with the tele-monitoring support that they received. However, only half (53%,

N=15) of the clinicians stated that they were ‘satisfied’ with the tele-monitoring support that patients received.

Most patients reported their satisfaction with the equipment and the health sector personnel involved with the project.

Figure 4.23: Overall satisfaction with support received (Q15a – Patient / Q24a - Clinician)



“I couldn’t live without the equipment!”

“Brilliant support”

Patient Respondents

4.14 Conclusion and Operation of Pilots

In conclusion, clinicians and patients are, generally, satisfied with the way tele-monitoring operates in practice.

Over 80% of clinicians are satisfied with the way that tele-monitoring operates in practice – the quality of information is perceived as being good, the timeliness of alerts is good and clinicians generally feel comfortable in setting clinical parameters. Initial teething problems have largely been addressed, with clinicians also reporting the support received from the Trust tele-monitoring Co-ordinator.

Whilst some improvements were suggested relating to the flexibility and adaptability of equipment, clinicians were generally content with the accuracy of the readings and ease of use of the equipment.

With regards to the support received from each of the Service Provider of the triage service, clinicians were generally positive. Over 80% of clinicians agreed agree that the Service Provider provide a good service. However, there are differences in perception between clinicians and patients in respect of the use of clinical triage – over 90% of clinicians are not confident that clinical triage is suitable for monitoring patients from a distance where the nurse has not met the patient in person. This compares to 76% of patients who are satisfied with clinical triage.

Clinicians noted the need to have a structured patient selection process and that tele-monitoring should be directed at those with the highest capacity to benefit. The patient selection process is all important, with clinicians confirming that tele-monitoring is not appropriate for all patients and that patient selection should be dependent on the severity of the disease as well as issues relating to patient dexterity etc.

Clinicians also noted that negative aspect of operating the scheme in the absence of GP buy in to the service, with many feeling that GPs should play a role in setting clinical parameters. Whilst 55% of clinicians were of the view that patient parameters are appropriately set, it was acknowledged that in the absence of GP involvement, and, in particular, for new clinicians joining the scheme, there can be a tendency to set narrow parameters, with resultant increased alerts.

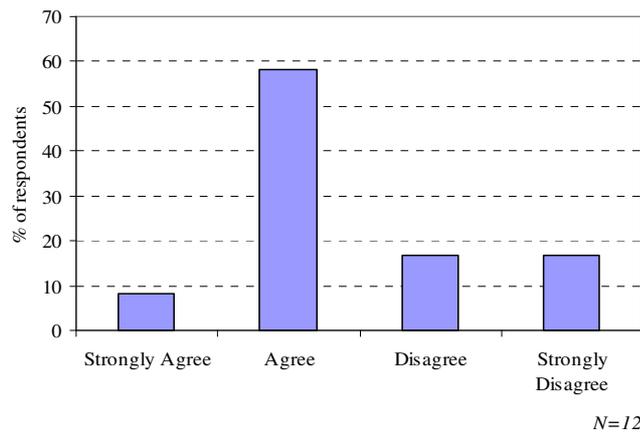
5. PERCEIVED IMPACT ON ORGANISATION AND RESOURCE UTILISATION

Section 5 considers the perceived impact of the tele-monitoring pilots on the Trust itself, i.e. the Organisation and the Resource Utilisation.

5.1 Patient-Centred

Most clinicians (67%, N=12) feel that the tele-monitoring pilot project was a patient centred service.

Figure 5.1: Tele-monitoring pilot project a patient centred service? (Q16a – Clinician)



Clinicians suggested that the project empowers patients to better manage their illness.

5.2 Perceptions on Admission to Hospital

Patients and clinicians are largely positive about the impact that the tele-monitoring project has made on the number of times that the patients has been admitted (or readmitted) to hospital, but both agree it has not reduced the length of stay hospital visit.

Figure 5.2: Perceived Impact on visits that patients have made to or received from health sector personnel – Admittance (re-admittance) to Hospital (Q5a – Patient / Q10a – Clinician)

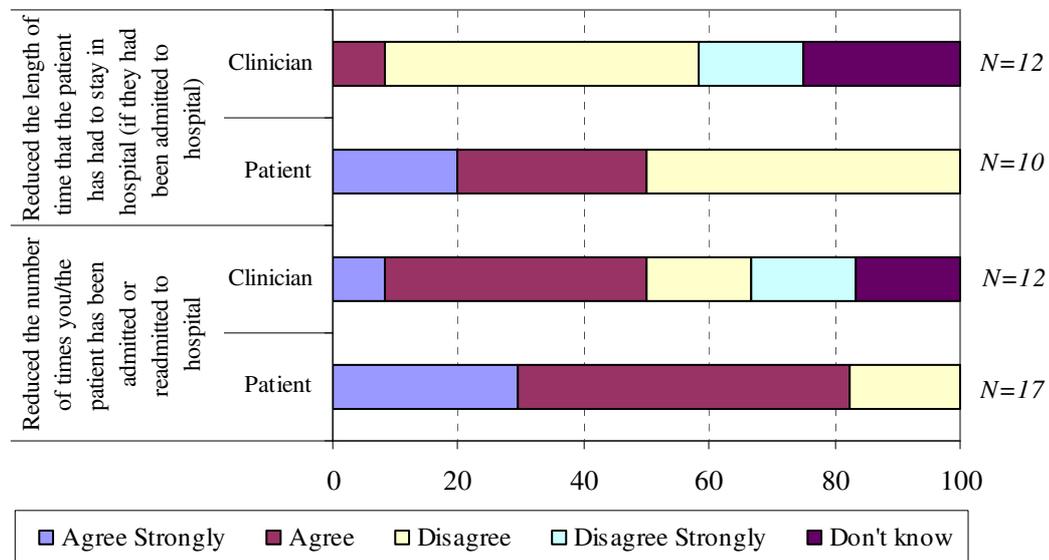


Figure 5.2 demonstrates that:

- Half of clinicians (50%, N=12) and most patients (82%, N=17) were in agreement that the tele-monitoring project has reduced the number of times that the patient has been admitted (or readmitted) to hospital;
- However, only 8% (N=12) of clinicians and half (50%, N=10) of patients ‘agreed’ that tele-monitoring has reduced the length of time that participant patients have had to stay in hospital. Two-thirds (67%, N=12)of clinicians disagreed whilst 25% did not know.

“It has cut down on overnight stays in hospital. Patients can deal with their condition better and only require hospital when necessary.”

“My two participant patients do not require hospital action, as they have more control over their condition.”

Clinician Respondents

“I have not been in hospital since I got the equipment and this has reduced the number of times the GP and nurse have been required.”

“The number of times I have attended hospital has been reduced. However, I still visit the GP as often and still receive a visit from the nurse every two weeks.”

Patient Respondents

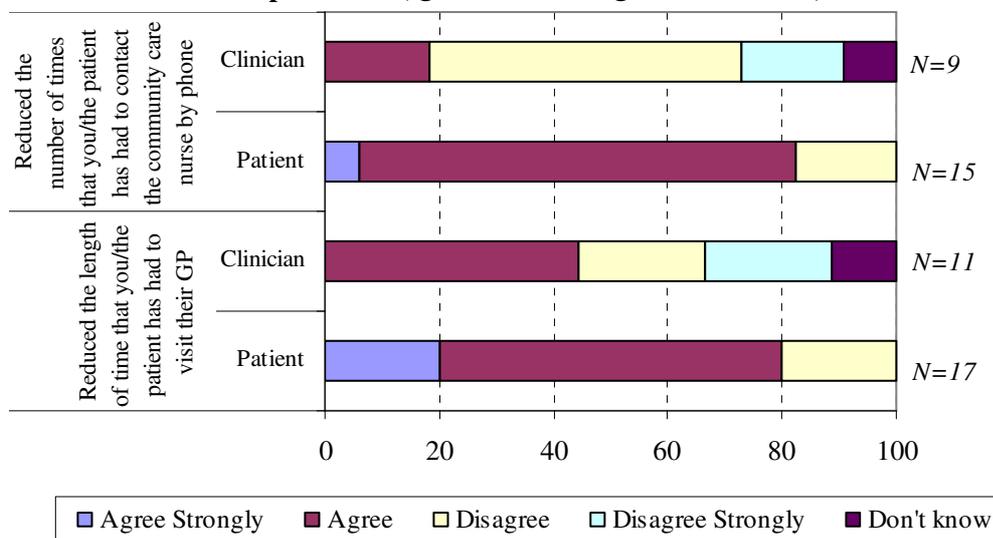
5.3 Perception on Referral to A&E

Opinion amongst clinicians in mixed as to whether the introduction of tele-monitoring has reduced the number of times that the participant patients have self-referred themselves to A&E, with four-fifths (42%, N=12) agreeing that it has, and half four-fifths (42%, N=12) disagreeing; 16% did not know. (Q10a – Clinician)

5.4 Perception on GP visits and Community Care Nurse Contact

Clinicians’ and patients’ opinions differ as to whether tele-monitoring has reduced the number of times that participant patients have had to visit their GP or have had to contact their community care nurse by phone.

Figure 5.3: Perceived Impact on visits that patients have made to or received from health sector personnel (Q5a – Patient / Q10a – Clinician)

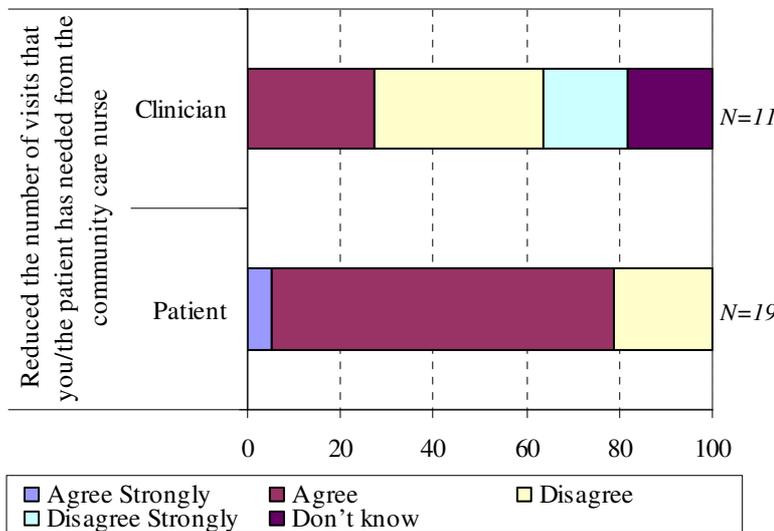


- Whilst 80% of patients (N=15) ‘agreed’ that tele-monitoring has reduced the number of times that participant patients have had to visit their GP, only 44% (N=9) of clinicians felt that this was the case;
- Furthermore, whilst four fifths (82%, N=17) of patients were in agreement that the use of tele-monitoring has reduced the number of times they have needed to contact the Community Care Nurse by phone, only one-fifth (18%, N=11) of clinicians ‘agreed’ with this.

“Oxygen levels can now be monitored at home. The GP will contact me, I don’t need to contact the nurse.”
Patient Respondent

- In addition, 55% (N=11) of clinicians disagreed that tele-monitoring has reduced the number of visits that participant patients have needed from their community care nurse; whereas four-fifths (79%, N=19) of patients consider that tele-monitoring has reduced the number of visits that they have needed from the Community Care Nurse.

Figure 5.4: Perceived Impact on visits that patients have made to or received from health sector personnel – Reduction in number of visits from community care nurse (Q5a – Patient / Q10a – Clinician)

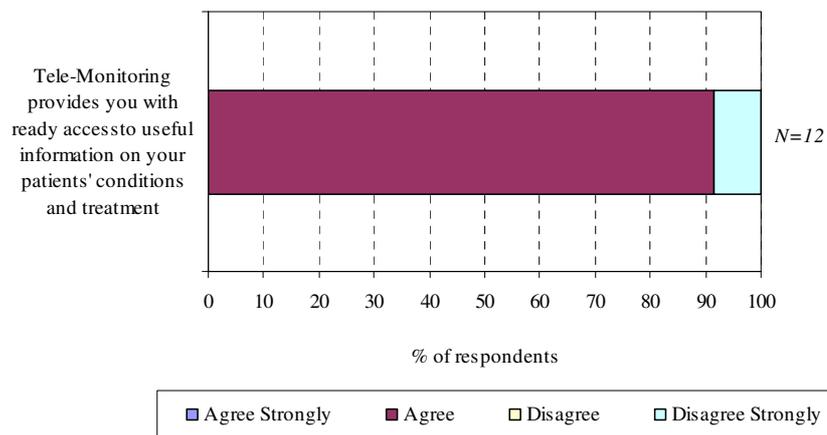


5.5 Impact on the Trust

5.5.1 Access to Information

The majority (92%, N=12) of clinicians agree that tele-monitoring project provides them with ready access to useful information on their patients' conditions and treatment.

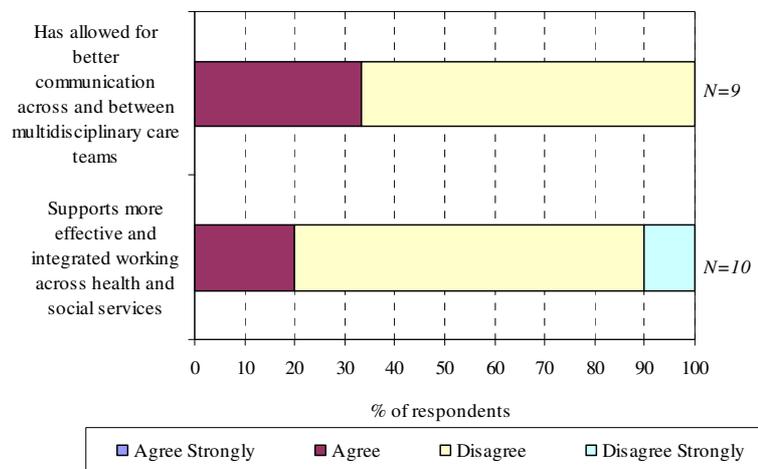
Figure 5.5: Impact tele-monitoring has had on clinician's Trust - Access to Useful Information (Q17a – Clinician)



5.5.2 Promotion of Effective and Integrated Working or Better Communication

Disappointingly, the majority of clinicians disagree that the project supports more effective and integrated working across health and social services (80%, N=10) or has allowed for better communication across and between multidisciplinary care teams (67%, N=9).

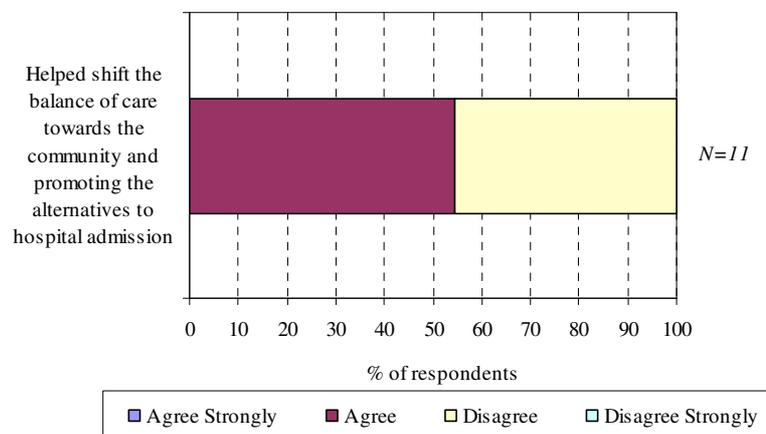
Figure 5.6: Perceived Impact tele-monitoring has had on Clinicians’ Trust (Q17a – Clinician)



5.5.3 *Promotion of Alternative to Hospital Admission*

Clinicians were divided as to whether the project has helped shift the balance of care towards the community and promoting the alternatives to hospital admission with just over half (55%, N=11) disagreeing and the remainder (45%, N=11) agreeing with this statement.

Figure 5.7: Perceived Impact tele-monitoring has had on clinician’s Trust (Q17a – Clinician)



“The patients are more aware of their condition which has helped shift the balance of care towards the community.”
Clinician Respondent

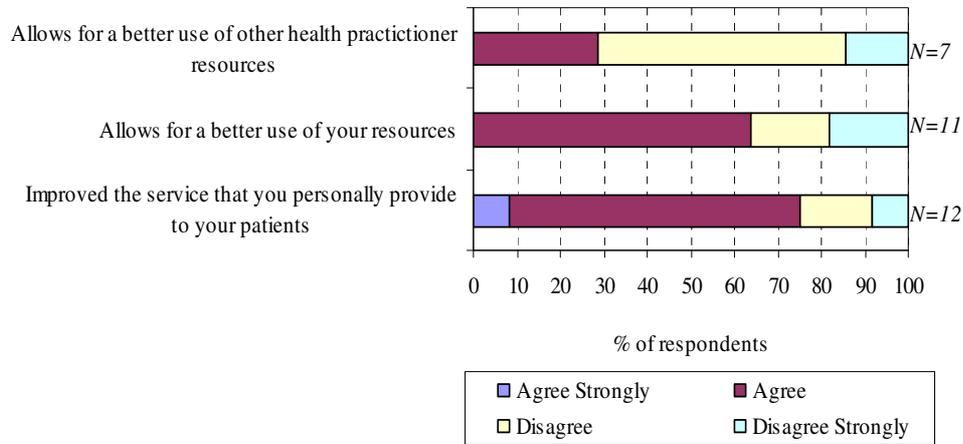
5.5.4 *Perceived impact on Resources and Service Provision*

The majority of clinicians agree that the project:

- Allows for a better use of their own resources (64%, N=11); and
- Improves the service that they personally provide to their patients (75%, N=12).

However, less than a third (29%, N=7) of clinicians ‘agreed’ that the tele-monitoring allows for better use of other health practitioner resources.

Figure 5.8: Perceived Impact tele-monitoring has had on clinician’s Trust – Allows for a better use of your resources (Q17a – Clinician)

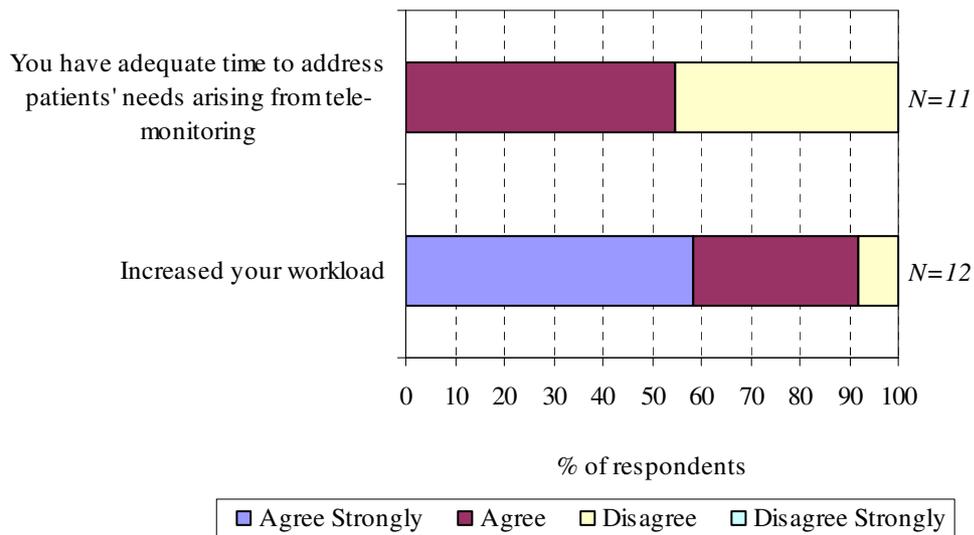


“It does not give us more time to care for our patients. It gives us more time, but this is then spent caring for other patients.”
 Clinician Respondent

5.5.5 Perceived impact on Clinicians’ Workload

Almost all (92%, N=12) clinicians were in agreement that the project had increased their workload; whilst almost half (45%, N=11) ‘disagreed’ or ‘strongly disagreed’ that they had adequate time to address patients' needs arising from tele-monitoring.

Figure 5.9: Perceived Impact tele-monitoring has had on Clinicians’ Trust (Q17a – Clinician)

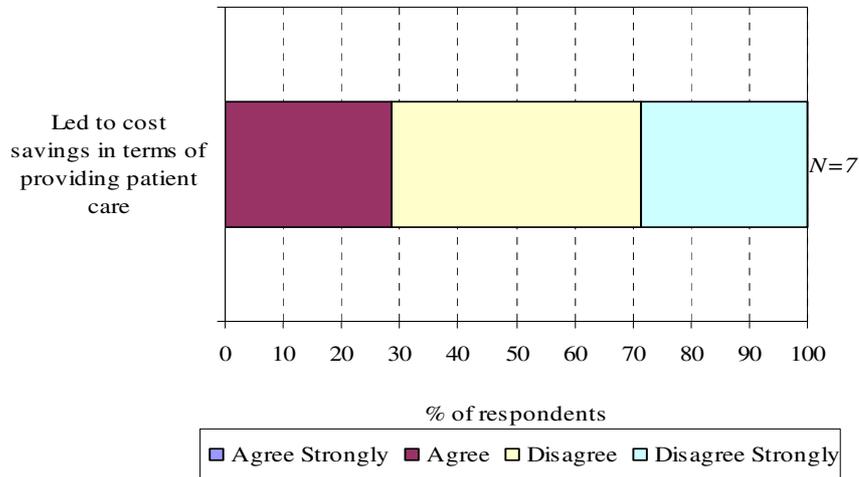


“Workloads have actually increased as there are now more phone calls. Unnecessary visits have not been eliminated. As there are now more calls and some anxious patients, there are more visits.”
 Clinician Respondent

5.5.6 *Perceived Impact on Costs*

The majority (71%, N=7) of clinicians disagree that the project has led to cost savings in relation to the provision of patient care.

Figure 5.10: Perceived Impact tele-monitoring has had on Clinicians' Trust (Q17a – Clinician)



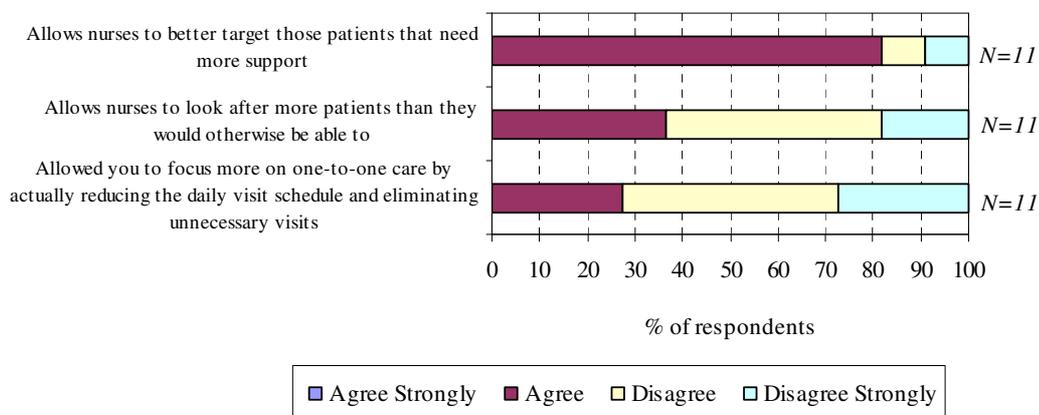
5.5.7 *Perceived impact on Nursing Care*

Generally, the majority of clinicians ‘disagreed’ or ‘strongly disagreed’ that the project allowed:

- Them to focus more on one-to-one care by actually reducing their daily visit schedule and eliminating unnecessary visits (72%, N=11); and
- Nurses to look after more patients than they would otherwise be able to (64%, N=11).

However, over four fifths (82%, N=11) of clinicians ‘agreed’ that the tele-monitoring allows nurses to better target those patients that need more support

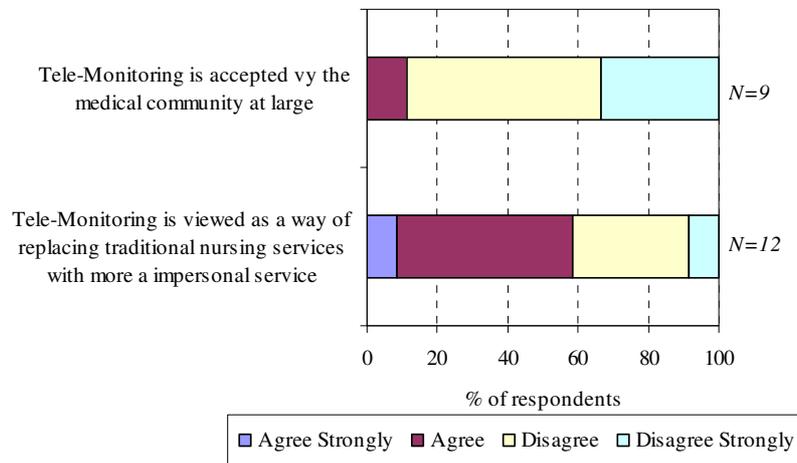
Figure 5.11: Perceived Impact tele-monitoring has had on Clinicians' Trust (Q17a – Clinician)



5.5.8 *Degree to which Tele-Monitoring is Accepted*

Disappointingly, the majority of clinicians agree that tele-monitoring is viewed as a way of replacing traditional nursing services with a more impersonal service (58%, N=12) and do not consider that it is accepted by the medical community at large (89%, N=9).

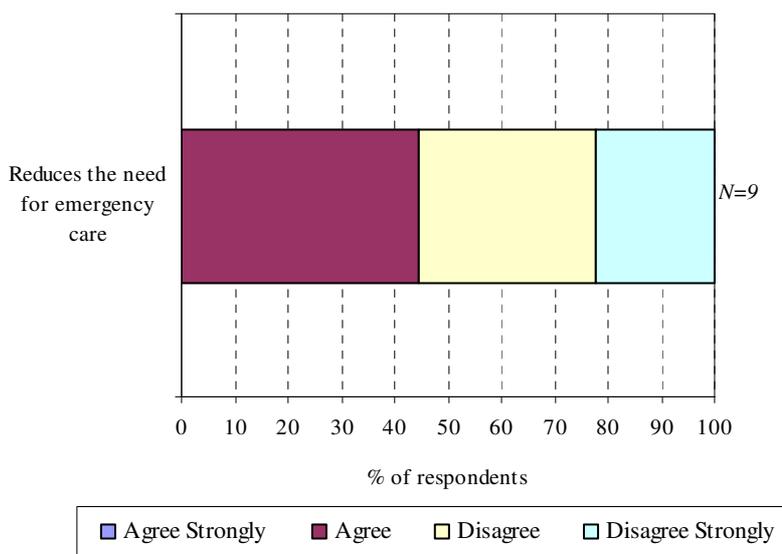
Figure 5.12: Perceived Impact tele-monitoring has had on clinician’s Trust (Q17a – Clinician)



5.5.9 *Perceived impact on Need for Emergency Care*

Most (56%, N=9) of clinicians ‘disagreed’ or ‘strongly disagreed’ that the project ‘reduces the need for emergency care’.

Figure 5.13: Perceived Impact tele-monitoring has had on Clinicians’ Trust (Q17a – Clinician)

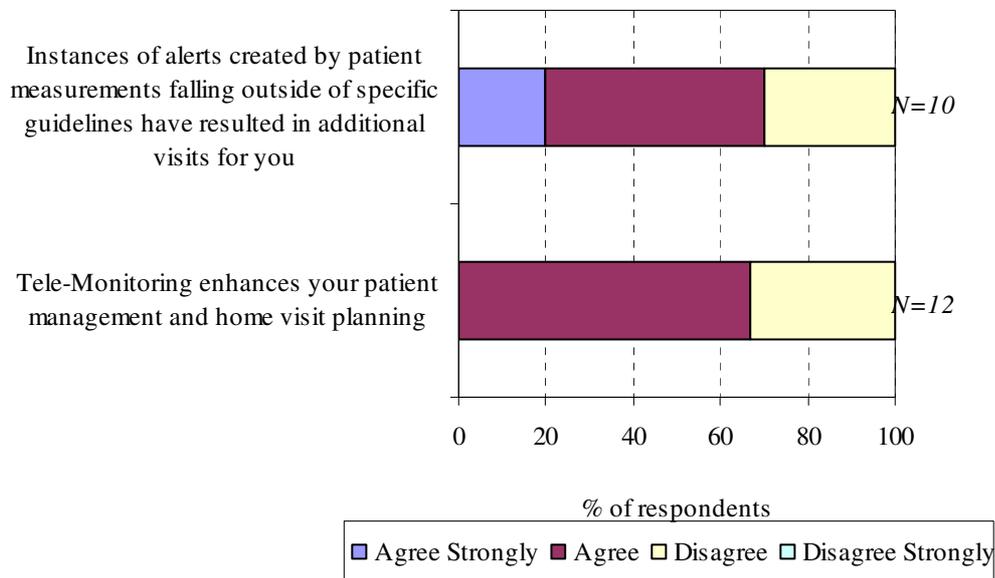


5.5.10 *Perceived impact on Patient Management Visits*

Whilst two-thirds (67%, N=12) of clinicians of clinicians ‘agreed’ that the project enhances their patient management and home visit planning, nearly three quarters (70%, N=10) ‘agreed’ that

instances of alerts created by patient measurements falling outside of specific guidelines have resulted in them having to make additional visits to patients.

Figure 5.14: Perceived Impact tele-monitoring has had on Clinicians' Trust (Q17a – Clinician)



5.6 Conclusion on Organisation and Resource Utilisation

In general, there were differences in perceptions amongst clinicians and patients as to the impact of remote tele- monitoring on the Trust and on resource utilisation, with circa 40% of the clinicians reporting a positive impact, as compared to the 80% of patients.

Around 40% of clinicians felt that remote tele-monitoring had a positive impact on organization effectiveness. In particular, about over 40% of clinicians were of the view that remote tele-monitoring had reduced visits to GPs and self referrals to A&E. 50% of clinicians stated that they perceived it had reduced number of admittances to hospital. This compares to the patient feedback, with circa 80% of patients reporting that the pilots have had a positive impact on utilization of Trust resources. There are similar differences in perception as to the impact on the length of time in hospital – 50% of patients are of the view that tele-monitoring has reduced the length of time that they have had to stay in hospital, as compared to 8% of clinicians.

The majority of clinicians did agree that the projects had a positive impact on further developing a patient-centred case management approach, with 66% of clinicians reporting remote tele-monitoring pilot project to be a patient centred service. Generally clinicians reported that patients continued to get the same, high, level of care regardless of the remote tele-monitoring scheme. However 75% of the clinicians did report that remote tele-monitoring had led to an improvement in the service that they personally provided to the patient and that it allows nurses to better target those patients that need more support.

Over almost 90% clinicians were of the view that remote tele-monitoring increased their workloads, with this being a particular concern of those clinicians who were still relatively new to the scheme.

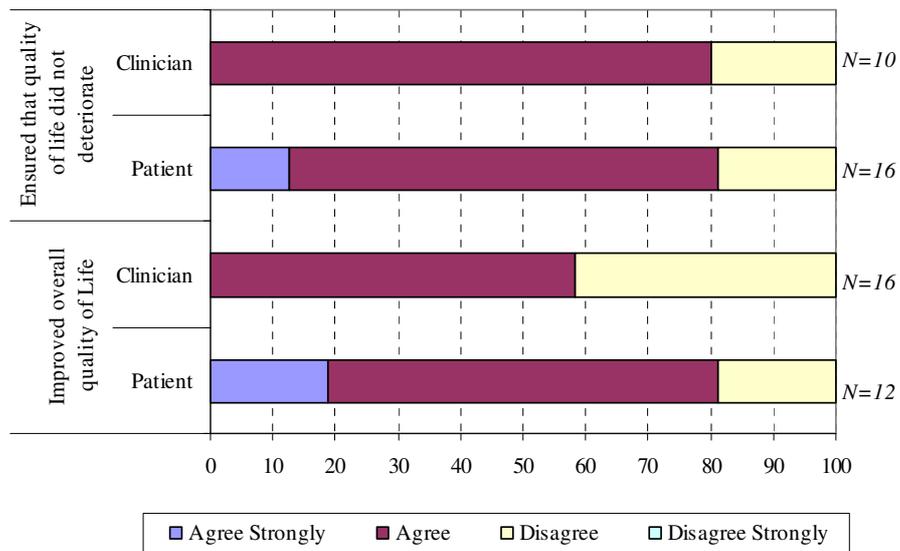
6. PERCEIVED IMPACT ON HEALTH AND WELLBEING

Section 6 considers the perceived impact that the tele-monitoring project has had on patients’ health and wellbeing.

6.1 Perceived impact on Quality of Life

Encouragingly, patients and clinicians generally consider that tele-monitoring has had a positive impact on patients’ quality of life:

Figure 6.1: Perceived impact on life and wellbeing (Q6a – Patient / Q11a – Clinician)



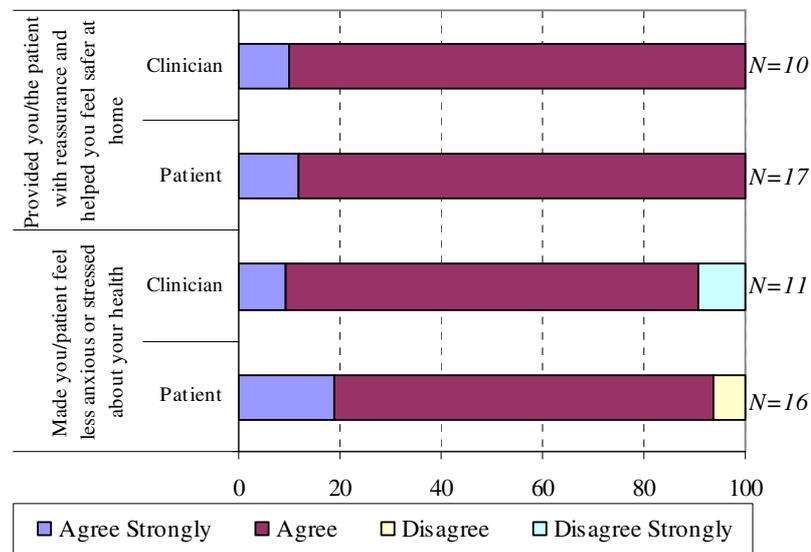
- Just under three fifths (58%, N=12) of clinicians and 80% of patients ‘agreed’ that the tele-monitoring had improved patients’/their overall quality of life.
- Furthermore, four fifths of clinicians (80%, N=10) and patients (81%, n=16) consider that tele-monitoring has ensured that Patients’ Quality of life did not deteriorate.

6.2 Perceived impact on Levels of Stress and Anxiety

Encouragingly, both clinicians (91%, N=11) and patients (94%, N=16) were generally in agreement that the tele-monitoring project had made patients feel less anxious or stressed about their health. Clinicians noted that patients now felt that they had more control over their condition as they were able to take readings, and in doing so this had reduced their anxiety.

This is supported by the finding that all clinicians (100%, N=10) and patients (100%, N=17) agreed that the project had provided patients with reassurance and helped them feel safer at home.

Figure 6.2: Perceived impact on life and wellbeing (Q6a – Patient / Q11a – Clinician)



“I now have peace of mind, and it is also reassuring to know nurses are checking the readings. As I can take manual readings I feel reassured and am now able to travel on short journeys”

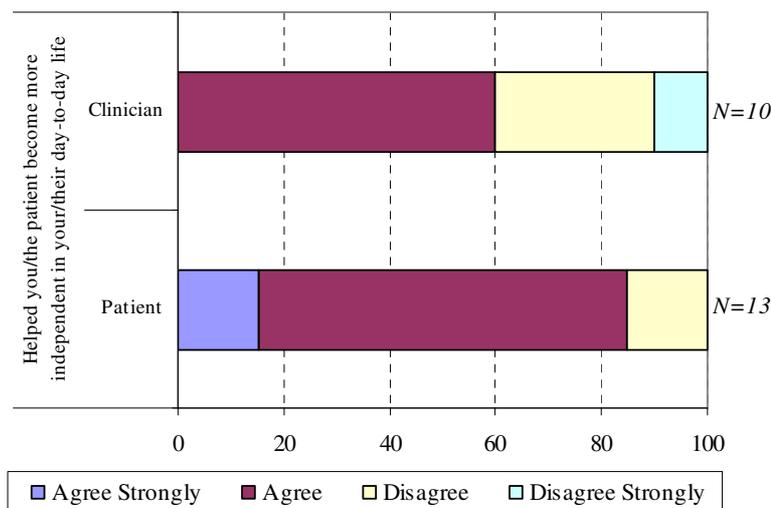
“I have definitely noticed the benefit. I am much less stressed, have more peace of mind, and am more relaxed. This has enabled me to get on with my life better.”

Patient Respondents

6.3 Perceived impact on Patients’ Independence

Patients and clinicians differ in their views on the impact that the project has had on patients’ levels of independence.

Figure 6.3: Perceived impact on life and wellbeing (Q6a – Patient / Q11a – Clinician)



Whilst the majority (85%, N=13) of patients were in agreement that the tele-monitoring project helped them become more independent in their day-to-day life, clinicians’ opinions varied considered with three-fifths (60%, N=10) agreeing and the remainder (40%, N=10) disagreeing with this statement. Patients reported they were more independent as they were more aware of their

condition. Patients also stated they equipment made them less stressed which in turn led to a better quality of life.

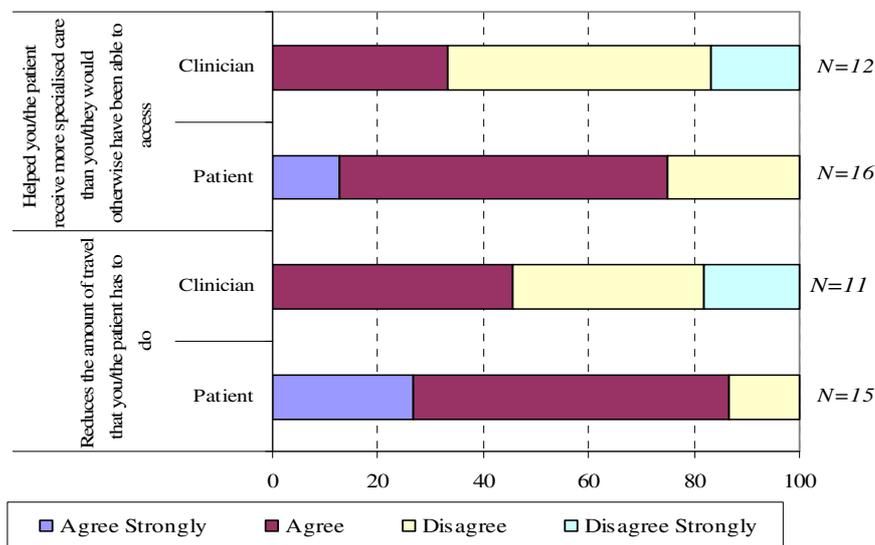
“Patients are much more relaxed as they have access to readings to their condition. They are less stressed and feel safer, but not independent in their day to day life.”

Clinician Respondent

6.4 Perceived impact on Specialist Care and Travel

Opinions again differ in relation to the impact that the project has had on the level of specialised care that patients receive as a result of the project. Three quarters (75%, N=16) of patients ‘strongly agreed’ or ‘agreed’ that the project helps patients receive more specialised care then they would otherwise have been able to access, whilst two-thirds (67%, n=12) of clinicians do not consider that this is true.

Figure 6.4: Perceived impact on life and wellbeing (Q9a – Patient / Q14a – Clinician)



The previous finding is mirrored in relation to clinicians’ and patients’ views that the project has had on the amount of travel that patients have to do to visit health professionals relating to their chronic conditions. Patients are again more positive with four fifths (87%, N=15) agreeing that the project reduces the amount of travel that they have to do. Only 55% (N=11) of the clinicians consider that this is the case. Patients reported that the equipment saves them time as it reduces the number of times they need to travel to their GP.

“It has not had a great impact on travel. If they have to go into hospital this cannot be prevented.”

Clinician Respondent

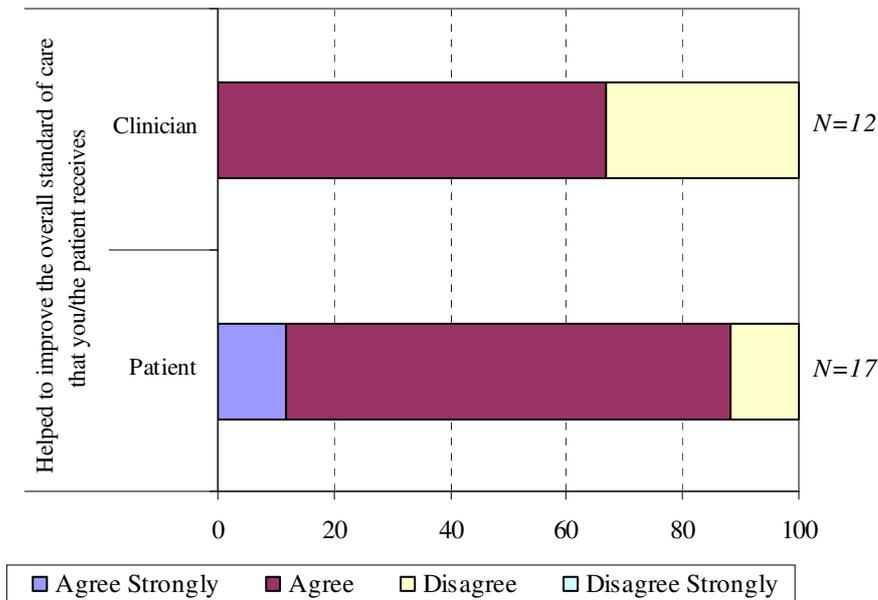
I do not have to travel to hospital as much. It has not improved my health; however, it has helped me monitor it.”

Patient Respondent

6.5 Perceived impact on Overall Care Received

Encouragingly, two-thirds (67%, N=12) of clinicians and 88% (N=17) of patients consider that the tele-monitoring project has helped to improve the overall standard of care that patients receive.

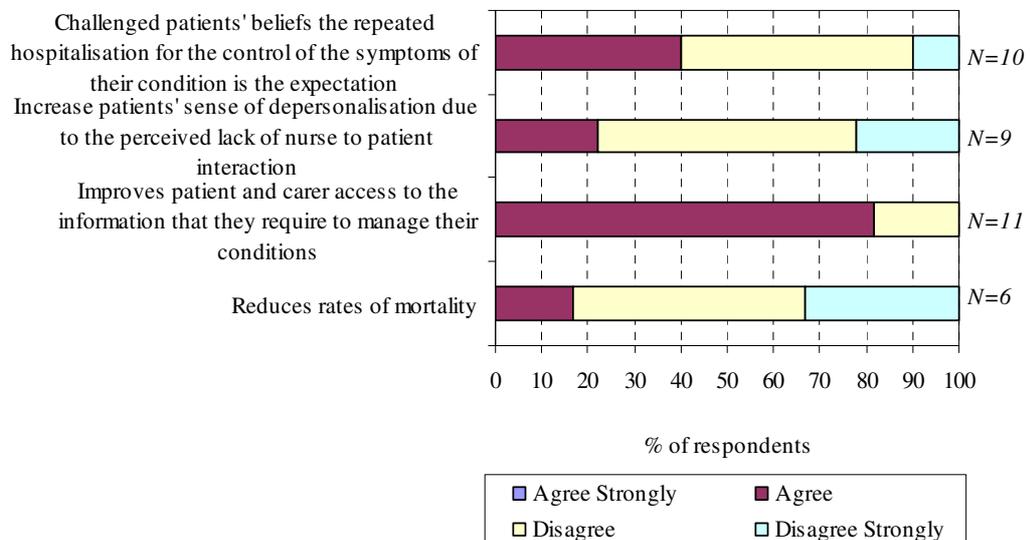
Figure 6.5: Perceived impact on life and wellbeing (Q9a – Patient / Q14a – Clinician)



6.6 Perceived impact on Patients’ Beliefs, Mindsets and Mortality

It is positive to note that the majority (78%, N=9) of clinicians do not consider that tele-monitoring has increased patients' sense of depersonalisation due to any perceived lack of nurse to patient interaction. Furthermore, nearly all clinicians (92%, N=12) ‘agree’ that tele-monitoring improves patient and/or carer access to the information that they require to manage their conditions.

Figure 6.6: Perceived impact on patient’s health relating to the Patients’ Chronic conditions (Q14a – Clinician)



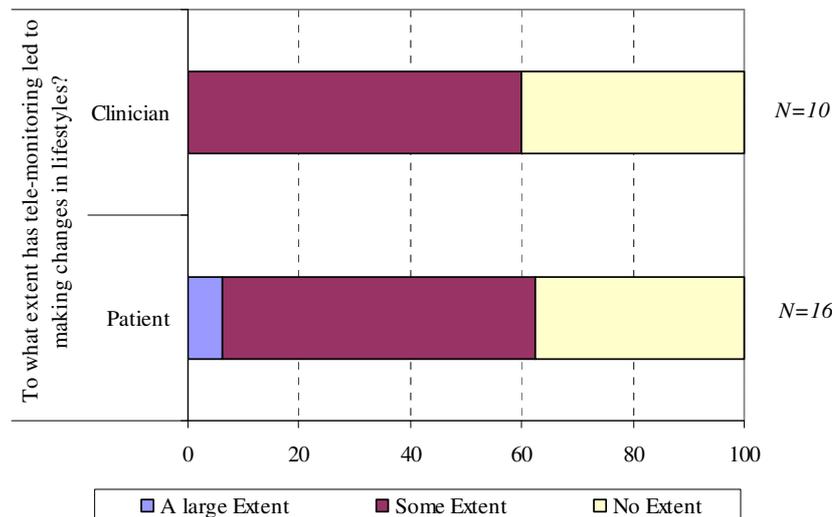
However, most clinicians were not positive about the impact of tele-monitoring on the following aspects of patients’ health:

- Three-quarters (78%, N=6) ‘disagreed’ or ‘strongly disagreed’ that the tele-monitoring project reduces rates of patient mortality. The clinicians reported that it is difficult to reduce rates of mortality given the severity of the conditions being dealt with; and
- 60% (N=10) disagreed that tele-monitoring challenged patients’ beliefs that repeated hospitalisation for the control of the symptoms of their condition is the expectation.

6.7 Perceived impact on Patients’ Lifestyles

Encouragingly, three fifths (60%, N=10) of clinicians stated that tele-monitoring has led to patients changing aspects of their lifestyles to ‘some extent’. This is mirrored by most patients (62%, N=16) who stated that tele-monitoring has led them to making changes in their lifestyle to a ‘large extent’ or to ‘some extent’.

Figure 6.7: Changes to Patient Lifestyle (Q10a – Patient / Q15a – Clinician)



Of those clinicians who stated there had been some change to patient lifestyle, 83% (N=6) stated this had been a positive change. Clinicians stated patients had become more open minded and more knowledgeable about their condition. **(Q15b – Clinician)**

“I now have more freedom. If I wake up in the morning and the results are good it gives you a good boost for the day”

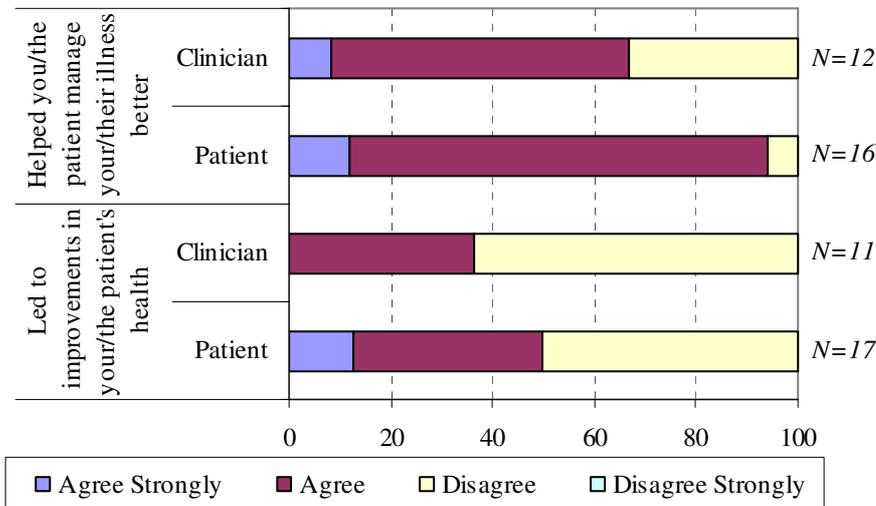
“There has been little change to my lifestyle. I was always up and about.”

Patient Respondents

6.8 Perceived impact on Patients’ Health

Whilst clinicians (64%, N=10) generally disagreed that the tele-monitoring project had led to improvements in patients’ health, patients had more mixed opinions with half (50%, N=16) reporting that the project had led to improvements in their health and half (50%, N=14) disagreeing that this was true.

Figure 6.8: Perceived impact on patient health (Q7a – Patient / Q12a – Clinician)

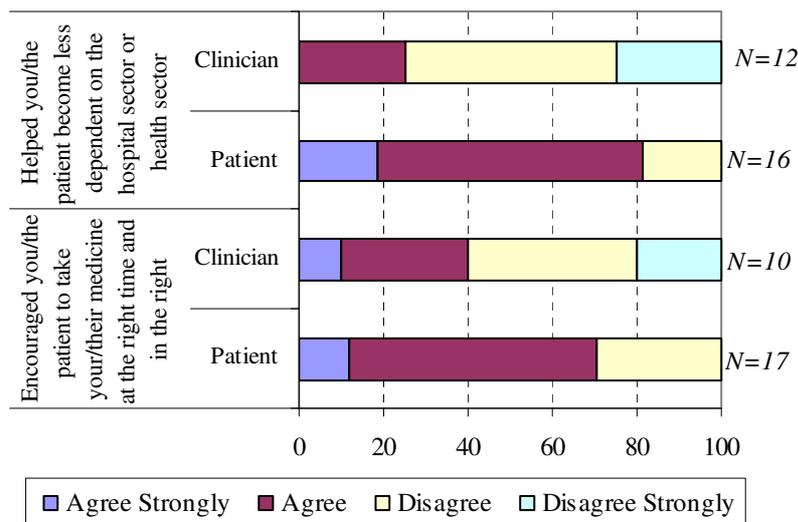


However, it is positive to note that both set of respondents (67% of clinicians and 94% of patients) generally agreed that the tele-monitoring project had helped patients manage their illness better.

6.9 Perceived impact on Patients’ Medicine Compliance and Reliance on Health Sector

Whilst most patients (71%, N=17) ‘strongly agreed’ or ‘agreed’ that the tele-monitoring project had encouraged them to take their medicine at the right times and in the right quantities, most clinicians (60%, N=17) ‘disagreed’ or ‘disagreed strongly’ that this was the case. This, however, is not as negative as might first seem to be the case, as many of the clinicians who disagreed suggested that they felt that their patients already took their medication at the right times and in the right quantity.

Figure 6.9: Perceived impact on patient health (Q7a – Patient / Q12a – Clinician)



Opinion amongst both groups of respondents was also very different in relation to whether the tele-monitoring project had helped patients become less reliant on the hospital sector or health sector practitioners in general. Three quarters (75%, N=12) of clinicians ‘disagreed’ that this was case, whilst in contrast, four-fifths (81%, N=16) of patients were in agreement that it was the case. Those

clinicians who disagreed suggested that as patients now depended on nurses to check their readings, it has not made them more reliant on the health sector

“I have definitely noticed improvements. I have been able to look after my better, it has helped me to know when to take my medication and I have been less reliant on the hospital.”

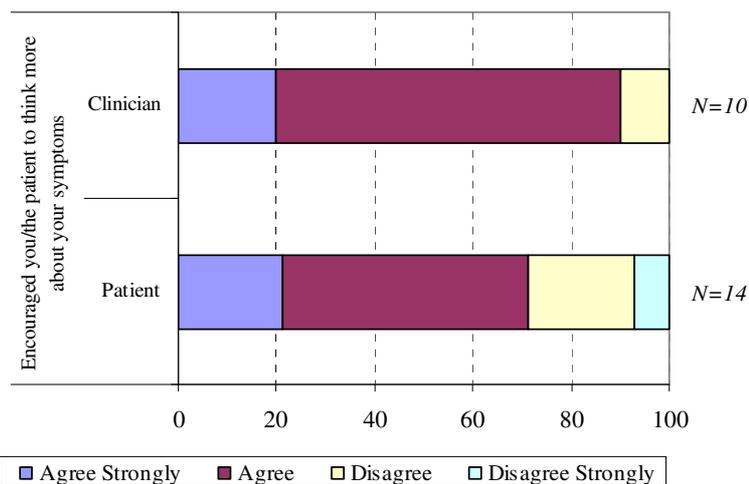
“I don’t rely on the hospital as much and it helps me to remember to take my medication at the right time”
Patient Respondents

“The tele-monitoring can actually make some patients more anxious and they are still reliant on nurses. However the tele-monitoring does make patients’ think about their condition.”
Clinician Respondents

6.10 Perceived impact on Patients’ Awareness of their Symptoms

Encouragingly, both groups of respondents (90% of clinicians and 71% of patients were in agreement that they considered the project to have encouraged patients’ to think more about their symptoms. Patients also report that although the equipment has not led to any health improvements, it has made the illness more manageable for themselves and for their carers/ family.

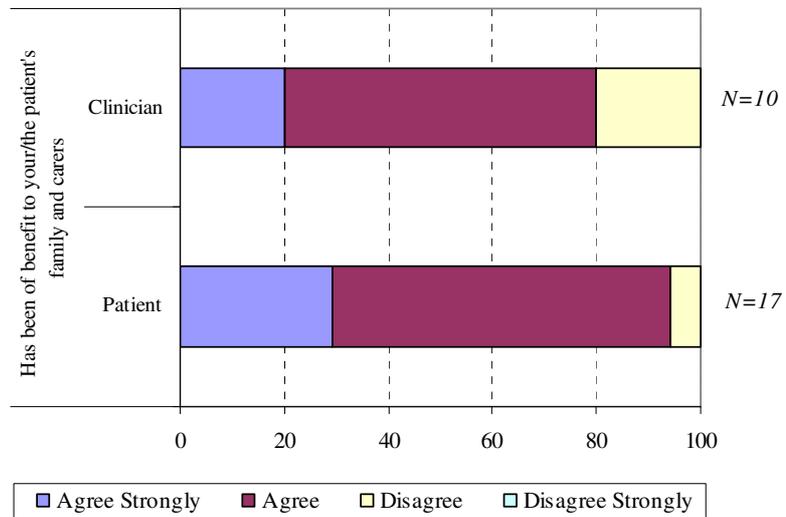
Figure 6.10: Perceived impact on patient health (Q7a – Patient / Q12a – Clinician)



6.11 Perceived impact on Patients’ Families and Carers

Both clinicians (80%, N=10) and patients (94%, N=17) were generally in agreement that the tele-monitoring project has been of benefit to patients family and carers.

Figure 6.11: Perceived impact on family and carers (Q8a – Patient / Q13a – Clinician)



Both groups suggested that the project provides reassurance to family and carers and provides them with peace of mind. Comments included:

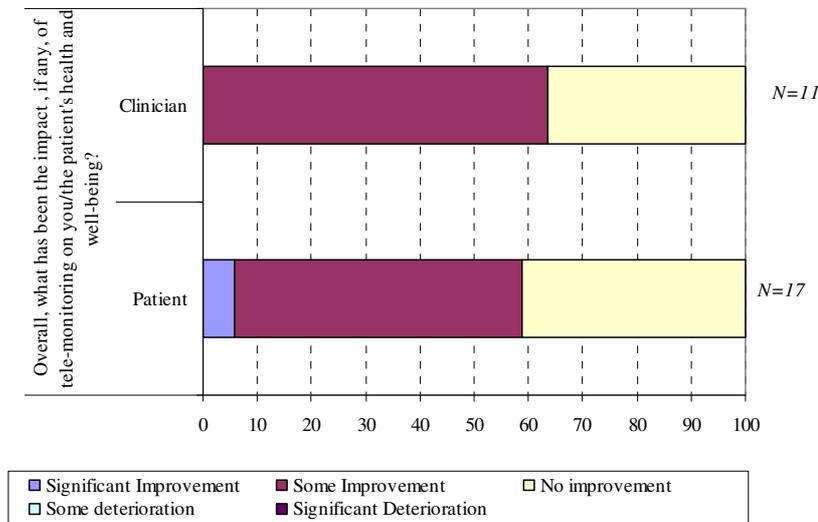
“Gives the family / carers support and it’s an indication to them when they need to call the doctor.”
 Clinician Respondents

“The equipment is great for my family as it gives them peace of mind”
 Patient Respondents

6.12 Overall Impact on Patient Health and Wellbeing

Overall, the majority of clinicians and patients report a positive impact of tele-monitoring on patients’ health and wellbeing. Two thirds (64%, N=11) of clinicians stated that tele-monitoring has led to ‘some improvement’ in their patients’ overall health and wellbeing. Three fifths (59%, N=17) of patients stated that tele-monitoring has led to a ‘significant improvement’ or ‘some improvement’ in their overall health and wellbeing.

Figure 6.12: Perceived impact of tele-monitoring on patient health and wellbeing (Q14a – Patient / Q23a – Clinician)



“I have noticed some improvement and am more reassured.”

“I now have peace of mind and am less anxious” Patient Respondents

“It gives patients’ confidence and reassurance” Clinician Respondents

6.13 Conclusion on Health and Wellbeing

Patients and clinicians are positive about the benefits that patients have derived from the Remote Tele-Monitoring’ pilot project, including impact upon quality, safety and patient experience. In terms of quality of care, 67% of clinician and over 88% of patients, consider that the scheme has helped to improve the overall standard of care that patients receive. Patients report their satisfaction with the continuous monitoring with this making them feel safer and more content. All patients and clinicians report that remote tele-monitoring has provided reassurance to them and their carers and made them feel safer at home.

Patients are positive about the benefits from the Remote Tele-Monitoring’ pilot projects, including impact upon quality of life and general health and well-being. Over 80% of patients report that remote tele-monitoring has led to an overall improvement in their quality of life and ensured that their quality of life did not deteriorate. In addition, 60% of patients and clinicians agree that the pilot has led to patients making changes to their lifestyle and to an overall improvement in patient health and well being.

7. CONCLUSIONS & RECOMMENDATIONS

7.1 Conclusions

This section sets out the Conclusions from the evaluation of the ‘Remote Monitoring’ pilot project.

In terms of the external evaluation, patients are almost overwhelmingly positive about the benefits they have derived from the Remote Tele-Monitoring’ pilot project, including impact upon their quality of life and general health and well-being. A significant majority of clinicians also consider that the pilot have had a positive impact in terms of quality of patient life. Similarly, a large majority of patient report that participating in the remote tele-monitoring pilots has enabled them to reduce their reliance on hospital and nursing staff, including through a reduction in hospital admissions. Appropriately half of the clinicians surveyed had reported a similar benefit in terms of a reduction in hospital admissions. There is, from many of the clinicians, a concern as to the impact that remote tele-monitoring has had on the clinicians’ workload. This is coupled with a concern from the clinicians that the pilot had still not achieved buy-in from GPs within the community. Finally, in terms of the actual operation of the pilot, similar trends emerged: patients are positive as to how the remote tele-monitoring pilots had worked in practice, including their confidence in the triage service provided. Clinicians, too, report positive experiences, although concern as to their comfort with triage nursing. There were also recommendations in terms of improvements in equipment adaptability and flexibility, as well as to the patient selection process.

Specific findings are set out below.

7.1.1 Impact on patient care in terms of quality, safety and patient experience

Patients and clinicians are positive about the benefits that patients have derived from the Remote Tele-Monitoring’ pilot project, including impact upon quality, safety and patient experience. In terms of quality of care, 67% of clinicians, as compared to over 85% of patients, consider that the scheme has helped to improve the overall standard of care that patients received. This difference in perception was also prevalent in the views on clinical nursing – over 90% of clinicians are not confident that clinical triage is suitable for monitoring patients from a distance where the nurse has not met the patient in person. This compares to 76% of patients who are satisfied with clinical triage. Patients report their satisfaction with the continuous monitoring with this making them feel safer and more content - 94% of patients and all clinicians report that remote tele-monitoring has provided reassurance to them and their carers and made them feel safer at home.

7.1.2 Impact on patient care in terms of utilisation of resources

About one third of clinicians were of the view that remote tele-monitoring had contributed to reduced utilization of hospital and community services, including reduced visits to GPs. This compares to the patient feedback, circa 80% of patients reporting that the pilots have had a positive impact on utilization of Trust resources. This corresponds to the overall view of patients that the pilots has led to improvements in their health and well-being.

7.1.3 Impact on Staffing Resources

Around 40% of clinicians felt that remote tele-monitoring had a positive impact on organization effectiveness, but almost all clinicians were of the view that it increased their workload. Impact on staffing resources is also impacted by the patient selection process – inappropriate patient selection, for example, of those where disease severity will continue to warrant high intensity of specialist community care, with little impact upon resources.

Clinicians have benefitted from the support of the Trust of Tele-monitoring Co-ordinator.

Clinicians also noted that negative aspect of operating the scheme in the absence of GP buy in to the service, with many feeling that GPs should play a role in setting clinical parameters. Whilst 55% of clinicians were of the view that patient parameters are appropriately set, it was acknowledged that in the absence of GP involvement, and, in particular, for new clinicians joining the scheme, there can be a tendency to set narrow parameters with resultant increased alerts.

7.1.4 Improvements in the quality of care patients receive

Generally, clinicians reported that patients continued to get the same, high, level of care regardless of the remote tele-monitoring scheme. However, 80% clinicians did report that remote tele-monitoring had led to an improvement in the service that they personally provided to the patient and that it allows nurses to better target those patients that need more support.

7.1.5 Improvements in the quality of patient life

Patients are positive about the benefits from the Remote Tele-Monitoring' pilot project, including impact upon quality of life and general health and well-being. 81% of patients report that remote tele-monitoring has led to an overall improvement in their quality of life and ensured that their quality of life did not deteriorate. In addition, circa 60% of patients and clinicians agree that the pilot has led to patients making changes to their lifestyle and to an overall improvement in patient health and well being.

7.1.6 Impact on informing patient centred case management, intermediate care schemes and medicines compliance, optimising the potential for independent living and enabling reductions in inpatient admissions to hospital

The Project has had a positive impact on further developing a patient-centred case management approach, with 67% of clinicians reporting remote tele-monitoring pilot project to be a patient centred service.

Clinicians suggested that the project empowers patients to better manage their illness. For example, the survey indicates that the project has had a positive impact on patients' medicine compliance, with 40% of the clinicians and 70% of patients reporting that remote tele-monitoring project encourages patients to take their medicine at the right times and in the right quantities. 60% of clinicians and 85% of patients report that the scheme has helped patients to become more independent in their day to day life, with this having a positive impact on their quality of life and general well- being.

Over 80% of patients and 50% of clinicians agree that the remote tele-monitoring pilot has reduced the number of times that the patient has been admitted (or readmitted) to hospital. Similarly over 50% of patients and circa 40% of clinicians are of the view that tele-monitoring has reduced the length of time that patients have had to stay in hospital.

7.1.7 Extent to which patients receive more and better targeted proactive support, enabling them to take greater control in the management of their own disease

Clinicians were less positive about the extent to which patients receive more and better targeted proactive support under tele-monitoring. Less than 30% of clinicians considered that tele-monitoring enables them to focus more on one-to-one care by eliminating unnecessary visits and allows them to look after more patients than would otherwise have done. Moreover, over 80% of the clinicians agree that it allows them to better target those patients who need more support.

However, over 94% of patients and over 80% of clinicians report that remote tele-monitoring has enabled patients to manage their illnesses better and encourages them to think more about their symptoms.

7.1.8 Extent to which there is improved quality assurance through auditable improvements in the flow of quality and timely information.

Clinicians are generally satisfied with the way that tele-monitoring operates in practice – the quality of information is perceived as being good, the timeliness of alerts is good and clinicians generally feel comfortable in setting clinical parameters. Initial teething problems have largely been addressed, with clinicians also reporting the support received from the Trust tele-monitoring Co-ordinator.

Whilst some improvements were suggested relating to the flexibility and adaptability of equipment, clinicians were generally content with the accuracy of the readings and ease of use of the equipment.

With regards to the support received from the Service Provider of the triage service, clinicians were generally positive. Over 80% of clinicians agreed that the Service Provider provides a good service.

7.1.9 Scheme is working well and should continue to attract funding

The tele-monitoring pilot reviewed as part of this evaluation would appear to have worked well, with positive benefits reported in terms of quality of patient life and reduced utilization of Trust resources.

Accordingly, it is the evaluator's view that the scheme should be considered for further funding.

The patient selection process is, however, all important, with clinicians confirming that tele-monitoring is not appropriate for all patients and that patient selection should be dependent on the severity of the disease as well as issues relating to patient dexterity etc.

Clinicians' concerns over increased workloads should also be addressed going forward, as should their concerns as to the lack of GP commitment to tele-monitoring.

7.2 Recommendations to ensure that lessons learned are transferred into the main tele-monitoring project

Recommendations following the evaluation of the remote tele- monitoring pilot project are:

- Appropriate Patient selection - the focus should be on identifying those patients with the best capacity to benefit from remote tele-monitoring, with the findings disseminated throughout all of the Trusts.
- Commitment and support – there is a need to ensure that GP commitment to the tele-monitoring service, and their support for clinicians in setting patient parameters etc. This should extend also to ensure that all clinicians are bought into the service.
- Resource Utilisation – there should be a baseline assessment of the resource utilization of clinicians as they are introduced into the remote tele-monitoring scheme, so as to enable a quantitative assessment of the impact of tele-monitoring on their respective workloads. There should also be a forum, facilitated by the Tele-Monitoring Coordinators by which difficulties faced by clinicians, and solutions identified, are shared across all of the clinicians within the Trusts. This increased level of communication will be critical to ensuring the clinicians are both supported and bought in to the tele-monitoring service. This will also ensure a Regional rather than a localized response to remote tele-monitoring.
- Flexibility of the product offering – the emphasis in selecting peripheral products for use in tele-monitoring should be on ensuring that these offer flexibility to meet the needs of the

wide variety of patient characteristics and illnesses and to enforce the principle that “one size does not fit all”.

Triage - the benefits of the clinical triage service should be assessed, the role and responsibilities of those charged with the clinical triage service, and their potential to support clinicians, particularly as the latter seek to manage their workloads.

**Appendix I – Your Health, Your Care at Home –
Clinician Questionnaire Statistical Analysis**

Q1. What conditions/illnesses do you have responsibility for?

(PARA 4.1)

	%	N =
Constructive Pulmonary Obstructive Disease (COPD)	83%	12
Heart Failure and/or arrhythmia	83%	12
Heart Disease	75%	12
Type 1 Diabetes	75%	12
Type 2 Diabetes	67%	12
Asthma	25%	12
Bronchiectasis	-	-
Other	-	-

Q2b. To what extent would you agree that the patients that were selected or recruited to participate in the Pilot were appropriate to participate?

(PARA 4.3)

Strongly Agree	Agree	Disagree	Strongly Disagree	N =
25%	57%	9%	9%	12

Q3a. To what extent would you agree that tele-monitoring is appropriate for all patients with the primary condition that you have responsibility for?

(PARA 4.4)

Strongly Agree	Agree	Disagree	Strongly Disagree	N =
-	33%	59%	8%	12

Q6. Approximately, what is the most appropriate timescale for the following types of patients to use tele-monitoring equipment?

(PARA 4.5.1)

6a	COPD			
	Mild	Moderate	Severe	Very Severe
Less than two month	20%	-	14%	14%
2-3 months	-	29%	-	-
4-6 months	20%	-	14%	-
7-12 months	20%	14%	14%	29%
More than 1 year	20%	14%	14%	14%
To end of life	20%	43%	43%	43%
N =	5	7	7	7

(PARA 4.5.2)

6b	Congestive Heart Failure (CHF)			
	Level I	Level II	Level III	Level IV
	Mild	Moderate	Severe	Very Severe
Less than two month	-	-	-	-
2-3 months	-	-	-	20%
4-6 months	50%	40%	20%	-
7-12 months	-	-	-	-
More than 1 year	-	-	-	-
To end of life	50%	60%	80%	80%
N =	4	5	5	5

(PARA 4.5.3)

6c	Diabetes	
	Type 1	Type 2
Less than two month	-	-
2-3 months	33%	33%
4-6 months	-	-
7-12 months	-	-
More than 1 year	-	-
To end of life	67%	67%
N =	3	3

Q7a. To what extent would you agree with the following statements about how the tele-monitoring project was implemented?

	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
The Project was explained to you in such a way that you fully understood what it was about (PARA 4.7.1)	25%	33%	42%	-	12
You received adequate training to allow you to use the tele-monitoring equipment (PARA 4.7.1)	-	73%	18%	9%	11
The way in which tele-monitors were ordered for placement was straightforward and efficient (PARA 4.7.2)	-	82%	9%	9%	11
Patients' parameters were appropriately established i.e. the patient measurements which would create an alert if they fell outside the specific criteria (PARA 4.7.3)	-	55%	27%	18%	11
You feel comfortable setting Patients' parameters (PARA 4.7.3)	9%	64%	9%	18%	11
The patient information provided by the tele-monitoring equipment is easy to interpret (PARA 4.7.3)	8%	84%	-	8%	12
You are provided with adequate ICT or equipment to respond to Patient alerts (PARA 4.7.4)	25%	50%	8%	17%	12
Adequate support was provided by the Trust's Telemonitoring Coordinator (PARA 4.7.4)	20%	40%	30%	10%	10
Adequate support was provided by the Trust's Management (PARA 4.7.4)	8%	34%	50%	8%	12
The Patients' GPs are positive about and have taken some ownership of the Telemonitoring Project (PARA 4.7.5)	-	33%	50%	17%	11

Q8a. To what extent would you agree with the following statements about the service provided by the Service Provider during the tele-monitoring project?

For Specific Pilots	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Generally the Service Provider provided a good service (PARA 4.8.2)	17%	66%	17%	-	12
Generally the level (quantity) of communication from the Service Provider was good (PARA 4.8.2)	25%	50%	17%	8%	12
Generally the mode (e.g. telephone call, text, e-mail) of Patient alerts received from the Service Provider is appropriate (PARA 4.8.3)	-	55%	45%	-	11
Generally the timeliness of receipt of Patient alerts from the Service Provider was good (PARA 4.8.3)	11%	89%	-	-	9
Generally the quality of monitoring information provided by the Service Provider is good (PARA 4.8.4)	-	100%	-	-	12
Generally the timeliness of monitoring information provided by the Service Provider is good (PARA 4.8.4)	-	80%	20%	-	10
The level and type of documentation that needs to be completed between you and the Service Provider at the Patient referral stage is appropriate (PARA 4.8.1)	-	92%	8%	-	12

Q9a. To what extent would you agree with the following statements about the tele-monitoring equipment and/or software?

The Tele-Monitoring Equipment	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Is easy to calibrate (PARA 4.9.4)	17%	67%	-	17%	6
Was fitted in a timely manner for Patients (PARA 4.9.4)	-	92%	-	8%	12
Is easy for most Patients to use correctly (PARA 4.9.1)	-	100%	-	-	12
Can be fitted or used in almost any home (PARA 4.9.4)	9%	82%	9%	-	11
Currently asks appropriate questions for the Patients' conditions (PARA 4.9.3)	9%	55%	36%	-	11
Asks questions that are easily understood by the Patients (PARA 4.9.3)	9%	73%	18%	-	11
Asks questions that encourage patients to think about their symptoms (PARA 4.9.3)	-	91%	9%	-	11
Is reliable (i.e. rarely has technical problems) (PARA 4.9.1)	-	64%	36%	-	11
You or the Patients have experienced few, if any, problems with the equipment (PARA 4.9.1)	11%	33%	56%	-	9

Q9c. To what extent would you agree with the following statements about the tele-monitoring equipment and/or software?

(PARA 4.9.2)

It Provides accurate readings for:	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Weight	-	91%	9%	-	11
Heart rate	8%	84%	8%	-	12
Blood pressure	-	75%	17%	8%	12
Temperature	-	29%	42%	29%	7
Oxygen saturation	17%	75%	8%	-	12
Blood Glucose	-	100%	-	-	1
Peak flow	-	-	-	-	-

Q10a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on the number or frequency of visits that your patients have made to or received from health sector personnel relating to the Patients' Chronic conditions ?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know	N =
Reduced the number of times that the participant patients have been admitted or readmitted to hospital (PARA 5.2)	8%	42%	17%	17%	17%	12
Reduced the number of times that the participant patients have self-referred themselves to A&E (PARA 5.3)	-	42%	25%	17%	17%	12
Reduced the length of time that participant patients have had to stay in hospital (if they have been admitted to hospital since they got the telemonitoring equipment) (PARA 5.2)	-	8%	50%	17%	25%	12
Reduced the number of times that participant patients have had to visit their GP (PARA 5.4)	-	44%	22%	22%	11%	9
Reduced the number of times that participant patients have had to contact their Community Care Nurse by phone (PARA 5.4)	-	18%	55%	18%	9%	11
Reduced the number of visits that participant patients have needed from their Community Care Nurse (PARA 5.4)	-	27%	36%	18%	18%	11

Q11a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on your patients' life and wellbeing relating to the Patients' Chronic conditions?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Improved Patients' overall Quality of Life (PARA 6.1)	-	58%	42%	-	12
Ensured that their Quality of Life did not deteriorate (PARA 6.1)	-	80%	20%	-	10
Made them feel less anxious or stressed about their health i.e. has provided them with 'peace of mind' (PARA 6.2)	9%	82%	-	9%	11
Provided them with reassurance and helped them feel safer at home (PARA 6.2)	10%	90%	-	-	10
Helped them become more independent in their day-to-day life (PARA 6.3)	-	60%	30%	10%	10

Q12a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on your patients' health relating to the Patients' Chronic conditions?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Led to improvements in their health (PARA 6.8)	-	36%	64%	-	11
Helped them manage their illness better (PARA 6.8)	10%	70%	20%	-	10
Encouraged them to take their medicine at the right times and in the right quantities (PARA 6.9)	10%	30%	40%	20%	10
Helped them become less reliant on the hospital sector or health sector practitioners in general (PARA 6.9)	-	25%	50%	25%	12
Encouraged them to think more about their symptoms (PARA 6.10)	20%	70%	10%	-	10

Q13a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on the patients' family or carers relating to the Patients' Chronic conditions?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Has been of benefit to the families and/or carers (PARA 6.11)	20%	60%	20%	-	10

Q14a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on patients relating to the Patients' Chronic conditions?

Tele-Monitoring	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Reduces the amount of travel that they have to do to visit health professional relating to their chronic conditions (PARA 6.4)	-	45%	36%	18%	11
Helps them receive more specialised care than they would otherwise have been able to access e.g. because of geography, transport issues or infirmity (PARA 6.4)	-	33%	50%	17%	12
Helps to improve the overall standard of care that they receive (PARA 6.5)	-	67%	33%	-	12
Reduces rates of mortality (PARA 6.6)	-	17%	50%	33%	6
Improves patient and carer access to the information that they require to manage their conditions. (PARA 6.6)	-	82%	18%	-	11
Will increase patients' sense of depersonalisation due to the perceived lack of nurse to patient interaction. (PARA 6.6)	-	22%	56%	22%	9
Has challenged patients' beliefs that repeated hospitalization for the control of the symptoms of their condition is the expectation. (PARA 6.6)	-	40%	50%	10%	10

Q15a. To what extent has tele-monitoring led to patients making changes in their lifestyles?

(PARA 6.7)

A large Extent	Some Extent	No Extent	N =
-	60%	40%	10

Q15b. If changes have occurred, have these been positive or negative changes?

(PARA 6.7)

Positive	Negative	N =
83%	17%	6

Q16a. To what extent would you agree that the tele-monitoring pilot project was a patient centred service?

(PARA 5.1.1)

Strongly Agree	Agree	Disagree	Strongly Disagree	N =
8%	58%	17%	17%	12

Q17a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on you or the Trust?

Tele-Monitoring	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Provides you with ready access to useful information on your patients' conditions and treatment (PARA 5.5.1)	-	92%	-	8%	12
Supports more effective and integrated working across health and social services. (PARA 5.5.2)	-	20%	70%	10%	10
Has allowed for better communication across and between multidisciplinary care teams. (PARA 5.5.2)	-	33%	67%	-	9
Has helped shift the balance of care towards the community and promoting the alternatives to hospital admission. (PARA 5.5.3)	-	55%	45%	-	11
Has improved the service that you personally provide to your patients (PARA 5.5.4)	8%	67%	17%	8%	12
Allows for a better use of your resources (PARA 5.5.4)	-	64%	18%	18%	11
Allows for a better use of other health practitioner resources (PARA 5.5.4)	-	29%	57%	14%	7
Has increased your workload (PARA 5.5.5)	58%	33%	9%	-	12
You have adequate time to address patients' needs arising from tele-monitoring (PARA 5.5.5)	-	55%	45%	-	11
Has led to cost savings in terms of providing patient care (PARA 5.5.6)	-	29%	42%	29%	7
Allowed you to focus more on one-on-one care by actually reducing the daily visit schedule and eliminating unnecessary visits. (PARA 5.5.7)	-	27%	46%	27%	11
Allows nurses to look after more Patients than they would otherwise be able to (PARA 5.5.7)	-	36%	46%	18%	11
Allows nurses to better target those Patients that need more support (PARA 5.5.7)	-	82%	9%	9%	11
Is viewed as a way of replacing traditional nursing services with more impersonal service. (PARA 5.5.8)	8%	50%	33%	9%	12
Is accepted by the medical community at large (PARA 5.5.8)	-	11%	56%	33%	9
Reduces the need for emergent care (PARA 5.5.9)	-	44%	32%	22%	9
Enhances your patient management and home visit planning (PARA 5.5.10)	-	67%	33%	-	12
Instances of alerts created by patient	20%	50%	30%	-	10

measurements falling outside of specific guidelines have resulted in additional visits for you. (PARA 5.5.10)					
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Q18a. To what extent would you be confident that tele-monitoring allows the provision of clinical triage to a patient from a distance?

(PARA 4.10)

Very Confident	Confident	Not Very Confident	Not at all Confident	N =
18%	36%	36%	10%	11

Q19a. To what extent would you be confident that tele-monitoring allows the provision of clinical triage to a patient from a distance by a nurse who has not met a Patient in person?

(PARA 4.10)

Very Confident	Confident	Not Very Confident	Not at all Confident	N =
9%	-	36%	55%	11

Q23a. Overall, what has been the impact, if any, of tele-monitoring on your patients' health and wellbeing?

(PARA 6.12)

Significant improvement	Some improvement	No improvement	N =
-	64%	36%	11

Q24a. Overall, how satisfied are you with the tele-monitoring support that your patients have received?

(PARA 4.13)

Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	N =
9%	82%	9%	-	11

**Appendix II – Your Health, Your Care at Home –
Patient Questionnaire Statistical Analysis**

Q1. What conditions/illnesses is the tele-monitoring equipment being used to monitor?

(PARA 4.1)

	%	N =
Constructive Pulmonary Obstructive Disease (COPD)	95%	19
Heart Failure and/or arrhythmia	11%	19
Heart Disease	5%	19
Type 1 Diabetes	-	19
Type 2 Diabetes	5%	19
Asthma	21%	19
Bronchiectasis	5%	19
Other	5%	19

Q2. Approximately, for how many months have you been using the tele-monitoring equipment?

(PARA 4.1)

	%
Less than one month	-
1 to 2 months	6%
3-4 months	17%
5-6 months	6%
7-8 months	17%
9-10 months	10%
11 months to 1 year	44%
More than 1 year	-
N =	18

Q3a. To what extent would you agree with the following statements about how the tele-monitoring project was implemented?

	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
The Project was explained to you in such a way that you fully understood what it was about (PARA 4.7.1)	32%	63%	5%	-	19
You received adequate training to allow you to use the tele-monitoring equipment correctly (PARA 4.7.1)	42%	53%	5%	-	19
The Equipment was installed in your house in an efficient manner (PARA 4.9.4)	39%	61%	-	-	18

Q4a. To what extent would you agree with the following statements about the tele-monitoring equipment?

The Tele-Monitoring Equipment	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Is easy to use (PARA 4.9.1)	42%	58%	-	-	19
Reliable (PARA 4.9.1)	58%	37%	5%	-	19
Provides accurate readings (PARA 4.9.2)	28%	72%	-	-	18

Q5a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on the number or frequency of visits that you have made to or received from health sector personnel?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Reduced the number of times that you have been admitted or readmitted to hospital (PARA 5.2)	29%	53%	18%	-	17
Reduced the length of time that you have had to stay in hospital (if you have been admitted to hospital since you got the tele-monitoring equipment) (PARA 5.2)	20%	30%	50%	-	10
Reduced the number of times that you have had to visit your GP (PARA 5.4)	20%	60%	20%	*	15
Reduced the number of times that you have had to contact by phone your Community Care Nurse (PARA 5.4)	6%	76%	18%	-	17
Reduced the number of visits that you have needed from your Community Care Nurse (PARA 5.4)	5%	74%	21%	-	19

Q6a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on your life and wellbeing?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Improved your overall Quality of Life (PARA 6.1)	19%	62%	19%	-	16
Ensured that your Quality of Life did not deteriorate (PARA 6.1)	13%	68%	19%	-	16
Made you feel less anxious or stressed about your health (PARA 6.2)	19%	75%	6%	-	16
Has provided you with 'peace of mind'	12%	76%	12%	-	17
Provided you with reassurance and helped you feel safer at home (PARA 6.2)	12%	88%	-	-	17
Helped you become more independent in your day-to-day life (PARA 6.3)	15%	70%	15%	-	13

Q7a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on your health?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Led to improvements in your health (PARA 6.8)	13%	37%	50%	-	16
Helped you manage your illness better (PARA 6.8)	12%	82%	6%	-	17
Encouraged you to take your medicine at the right time and in the right quantities (PARA 6.9)	12%	59%	29%	-	17
Helped you become less reliant on the hospital sector or health sector practitioners in general (PARA 6.9)	19%	62%	19%	-	16
Encouraged you to think more about your symptoms (PARA 6.10)	21%	50%	21%	8%	14

Q8a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on your family or carers?

Tele-Monitoring has.....	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Has been of benefit to your family and/or carers (PARA 6.11)	29%	65%	6%	-	17

Q9a. To what extent would you agree with the following statements about the impact that tele-monitoring has had on you?

Tele-Monitoring	Strongly Agree	Agree	Disagree	Strongly Disagree	N =
Saves you time	20%	60%	20%	-	15
Reduces the amount of travel that you have to do (PARA 6.4)	27%	60%	13%	-	15
Helped you receive more specialised care than you would otherwise have been able to access e.g. because of geography, transport issues or infirmity (PARA 6.4)	13%	63%	25%	-	16
Helped to improve the overall standard of care that you receive (PARA 6.5)	12%	76%	12%	-	17

Q10a. To what extent has telemonitoring led to making changes in your lifestyle?

(PARA 6.7)

A large Extent	Some Extent	No Extent	N =
6%	56%	38%	16

Q11a. To what extent would you be confident about receiving clinical advice from a Nurse who has read the results of your tele-monitoring reports, but has not come out to visit you in person?

(PARA 4.10)

Very Confident	Confident	Not Very Confident	Not at all Confident	N =
17%	59%	12%	12%	17

Q14a. Overall, what has been the impact, if any, of tele-monitoring on your health and wellbeing?

(PARA 6.12)

Significant improvement	Some improvement	No Change	Some Deterioration	Significant Deterioration	N =
6%	53%	41%	-	-	17

Q15a. Overall, how satisfied are you with the tele-monitoring support that you received?

(PARA 4.13)

Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	N =
53%	47%	-	-	19