EPICC

Enhancing Practice and Innovation Centre for Care

School of Health & Social Care

DARLINGTON CARE HOMES HEALTH MONITORING PROJECT

FINAL REPORT
March 2011

North East Improvement and Efficiency Partnership

PAT WATSON
TERRY BEARPARK
WADE TOVEY

Table of Contents

Introduction 1

Rationale 2

Process 3

Collecting the health monitoring data 3

Exploring the perspective of staff, service users/carers, GPs 5

Ethical Issues 5

Limitations to this evaluation 5

Findings 7

Project Management 7

Baseline Data 8

Cost Saving 13

Technical issues 15

GP engagement 18

Perspectives of Health Monitoring 21
Residents 21
Relatives 22

Staff experience 24

Success Stories 27

Benefits of the Scheme 28
To the manufacturer 28
For the homes 28
For the care home staff 29
For the GPs and clinical staff 30
For the residents 30
For the commissioners 31

Discussion 33

Future Considerations 35

Appendix 1

Introduction

Two residential care homes in Darlington in collaboration with the School of Health and Social Care at Teesside University submitted a bid to the North East Improvement and Efficiency Partnership Adult Social Care Programme through their Provider Development Innovation Fund (PDIF) for funding to pilot a health monitoring project in two homes.

The two care homes are both well respected with a reputation for providing good quality care for their residents and a commitment to staff development. The initial idea for the project came from the Proprietor of one these care homes, and the second care home joined the scheme as an interested party based on already established links within the Darlington Care Home network.

The aims of the Health Monitoring Project are:

- To manage the health and care of residents with increasingly complex health needs more proactively to improve physical outcomes
- To identify early warning signs of impending illness
- To identify any complications arising due to existing long term conditions
- To make better use of NHS resources
    - Reduce unnecessary GP and community nurse visits
    - Reduce emergency hospital admissions[1]

This report will include a rational for the project and the process established to implement it. A short research methods section will be also included. The findings section will include:

- Project Management
- Baseline data
- Cost Savings
- Technical Issues
- GP Engagement
- Perspectives of health monitoring
- Success Stories
- Benefits of the project

An overview of findings will be discussed and issues for consideration in any future roll out identified.

---

[1] Project Proposal to RIEP

Rationale

Staff in residential care homes are increasingly expected to provide care for residents with complex health and needs which they are not trained to deal with. As a result, care homes have to make an increasing number of emergency calls to GPs and community nursing, with rising paramedic involvement and hospital admissions.

NHS Darlington and the Darlington Practice Based Commissioning Group reported a high incidence of inappropriate or unnecessary emergency calls to GPs from care homes in their area.

Use of telehealth monitoring for patients with long term conditions living independently in their own homes who are high users of health care is becoming widely accepted as a method of early detection of deterioration of condition or exacerbations and prevention of costly hospital admissions thereby saving costs. This in turn is presumed to improve quality of life for the service user, reducing the distress of hospital admissions and acute care.

This project arose from the observation by the two care homes that many of their residents were presenting with complex needs, some of whom, it could be argued, really required nursing care, and others who whilst not requiring full nursing care, did need additional care due to a range of long term conditions.

The project explored the potential of using tele monitoring of biometric and other data for residents in care homes as a pre-emptive measure to reduce emergency GP and community nursing call outs and hospitalisation of the residents.

This process could also assist Day Care service users to monitor their own general health and manage existing long – term conditions much more effectively, reducing the number of social and health carer visits required for service users in their own homes.

The monitoring consists of regular measurements of parameters such as blood pressure, weight, urine dips and oxygen levels, and a series of health and wellbeing questions individualised to the resident concerned. Results were recorded using a “telehealth” modem to alert the care homes and residents’ GPs if any cause for concern was highlighted. This is the first time such tele monitoring has been used in a care home setting with multiple users as far as we know. Telehealth monitoring has been established for some time but only for individuals in their own homes.

The expectations of this project were to see if the monitoring process could be used in care homes and show potential for roll out to other care homes in the area.

Process

To establish the past pattern of emergency call outs to GPs, community nursing and ambulance services and emergency hospitalisation, and thus the potential for cash savings, the history of emergency calls to health care services for the previous twelve months was investigated.

Patient health data is not routinely collected in detail in the homes, so data available is incomplete and indicative only. The homes do not have details of hospital admissions, nor access to patient medical records for reasons for admission, length of stay or action taken. Therefore this data was not included in this investigation. Full analysis would require access to clinical records and this was not sought at this time.

Such data as were available were collated by the care home staff and was slightly different in the two homes. The data collected included:

- Date of event
- Reason for emergency call out
- Who attended
- How long the practitioner attended for
- Action taken

Data was for emergency attendance only - routine nursing visits for insulin injections for example were not included in the data set.

The data were analysed for themes and trends and to look at what might have been prevented by pre-emptive monitoring, and to attempt to allocate notional costs for emergency call outs. Data about length of time involved were discounted as they are not relevant to the costing model.

Collecting the health monitoring data

The health monitoring consisted of regular measurements recorded using a data collection hub from Docobo® Ltd. Docobo was chosen as Darlington Borough Council had an existing relationship with the company. At the start of the project it was understood that this was the only hub available that could upload data from more than one patient, although 'kiosk' systems where patients use a swipe card to log personal details are also in use elsewhere. Other providers are now developing multiuse hubs, but unrelated to this project.

The HealthHUB is a small compact handheld telehealth monitor designed for easy use in any location at any time. It was primarily designed for use by patients of any age with long term conditions in their own homes. Data is collected and uploaded to the doc@HOME service via a secure web access. The web based data provides a vital link with GPs and District Nurses who could access the data on line, and view changes in patient health data trends.

It was anticipated that each HealthHUB would monitor up to 20 residents, maximising cost effectiveness. However, some delays were encountered in getting the equipment into the care homes which has essentially reduced the length of the pilot study. Monitoring in each of the care homes actually started in July 2010. This will be explored further later in the report.

Staff in the care homes were trained to carry out the tests, record the answers to the questions and upload the data to the doc@HOME system.

Each participating resident's personal information is uploaded onto the system, allowing results of any testing to be assigned to them correctly. An appropriate set of biometric measurements and health and wellbeing questions were established for each patient and these could be tailored to the individual needs of the patients under advice from the GPs.

It was also important to establish individual norms and questions being recorded for each resident involved, so that alerts could be raised when something outside their norm was detected.

Initially the GPs were expected to take a lead role in both determining the data set for their own patients and agreeing the exception parameters for the data once the baseline had been established, in discussion with the care home staff. However, to date parameters have been set by care home staff with some clinical guidance from Docobo which were later agreed by the GP.

This process has only recently been completed in one care home (October 2010). It is expected that the other care home will complete this process in the near future. Although monitoring was implemented from July, no normal baseline for measurements had been agreed, so whilst the information gathered has been useful, the system has not been used to its full potential.

Initially, the understanding was that the participating GPs would access the online data system on a weekly basis, to assess the monitoring results for their patients and to organise any required medication or visits through the care homes. However, as the project has developed, concerns have arisen as to the feasibility of GPs accessing the system sufficiently often, or whether this could be delegated to a member of Practice staff who would pass on any alerts.

One of the key benefits of the system was seen as its ability to virtually link the resident, the caregiver (in this case the home) and the GP. To achieve this, the care home staff must commit to the testing and inputting of the data and the GP to access and assess the data.

Appendix 1 – flow chart for refined process and understanding – see caveats for actual process and non achievement

Exploring the perspective of staff, service users/carers, GPs

Interviews with care home staff have been ongoing throughout this project as a way of monitoring progress, identifying what has gone well and any problems/issues occurring. Interviews have taken a semi structured approach based on emerging themes as the evaluation has progressed. These interviews were designed to provide the service provider perspective of implementing this project.

A small number of residents across the two care homes (n=8) were also interviewed. Again interviews were semi structured and focused on why residents had consented to be part of this project, their expectations, perceptions of the monitoring, problems and impacts.

A number of relatives of residents (n=6) were also interviewed, either in person or on the telephone, as a way of obtaining their perspective of the project. Some of the people involved were relatives of residents interviewed, others were relatives of residents who were unable to provide informed consent (due to their health state) so were not included in the resident interviews.

Two local GPs have been involved with the development of this project from the start and both were invited to participate in the evaluation. A semi structured interviews was carried out with one GP in order to identify the practicalities of GP involvement in a project of this nature, their levels of involvement, expectations and impacts to date.

Ethical Issues

Full ethical approval was granted by the School of Health & Social Care Research Ethics and Governance Committee at Teesside University to evaluate the health monitoring project.

The care homes involved were responsible for gaining consent from residents and their relatives for their participation in the health monitoring project.

Limitations to this evaluation

The health monitoring project is a pilot project and as such can be described as a developmental project. It is also limited to two care homes in the first instance and therefore the numbers of residents is low (a maximum of 60).

The lack of robust historic data means it is difficult to measure any reduction in emergency call outs as a direct result of the health monitoring, or any cost saving from reductions in call outs or hospitalisations. The low number of participants overall also means that it is not possible to estimate cost savings which may be more apparent using a bigger sample – one episode of ill health could skew the figures out of proportion to the event monitored.

Only a small number of interviews with care home residents and relatives were carried out with the aim of providing a service user and relative perspective of the project. For such a small scale evaluation, it is not possible to generalise findings across a wider population.

Findings

Project Management

The original funding proposal came from a care home manager following discussions with Teesside University. The proposal was probably overly ambitious, bearing in mind the time constraints, the size of the project and the lack of robust baseline data. A robust project plan was not developed for the project at the outset, and a more ad-hoc approach to project management has been adopted as the project progressed.

Overall project management has primarily been established through steering group meetings involving care home staff, GPs, Docobo and Teesside University representatives. Not all meetings were fully recorded and details of some discussions are therefore not available.

Whilst planning time was timetabled into the original bid, the lack of a well-defined project manager has meant that much of the planning period was expanded and the delivery phase started almost 3 months late.

The fact that no one person had overall responsibility for ensuing progress or making decisions seems to have created some confusion as to who was responsible for dealing with problems as they arose and for ensuring tasks are completed. This lack of accountability has contributed to further delays throughout the implementation phase.

The project aims for reducing hospital admissions, district nurse visits and GP referrals, could not be effectively measured without robust baseline data thus raising the question as to whether the activities of this project could effectively achieve its aims.

The funding provided by the RIEP was used to cover care home time and effort to implement the scheme, provision of the hubs and website, and troubleshooting this, by Docobo and the formal evaluation undertaken by the University.

No formal agreements about roles and responsibilities were drawn up. Some time lines were drawn up between all parties involved in this project but not adhered to and the lack of a clear project management structure is something that needs to be addressed in any future roll out.

The use of equipment was agreed without any formal contract for provision or maintenance in place and, whilst maintenance has been sustained, there have been a number of time lapses that may have been avoided if a formal maintenance and support contract had been in place.

Similarly, there was no formal contract between the care homes and Teesside University. Whilst the need for a formal contract in a pilot project of this nature could be questioned, a Memorandum of Agreement would have made clear what responsibilities each partner had.

Baseline Data

Staff in the two care homes collected the available baseline data but this was incomplete and inconsistent and could not give full details of emergency call outs, and the data available from each home were slightly different. In a larger research based study, it would be possible to collect more detailed and accurate data from individual residents' clinical records, but this was not undertaken in this small pilot.

The data available was collated for the nature of the call outs, the clinician who attended, and the action taken.

From the larger of the two homes participating in this study, some details of 196 episodes where a clinician had been called, involving 52 patients over a 12 month period were provided (residents were not necessarily at the home for the whole 12 month period, but their inclusion is valid in looking for the nature of the health problems for which an emergency call is made).

Many of these 196 episodes involved interaction with more than one clinician, and overall 233 attendances were recorded against these episodes. The attending clinicians were:

Attending clinician	No. Visits
District Nurse	260
GP	194
OoH Doctor	53
Paramedic/ambulance	64
Hospital attendance	81

Grouping these episodes according to the reason for the call out:

Reason	Total	Comment
Allergic reaction	1	To antibiotics
Annual review	3	
Back pain	2	
Bleeding	2	
Breathing difficulty/chesty	41	Recorded under different terms with or without other symptoms'
Remove cannula	1	
Catheter	18	Usually a catheter becoming displaced
Cellulitis	4	
Check up	4	For various reasons such as swollen legs, cancer, frailty
Confusion & pain	3	
Depression/low mood/anxiety	9	With or without other symptoms

Diabetic hypo	1	
Fall	18	One patient also had a fit which may have caused the fall
Growths/lumps	5	Breast and others
Frail	10	
Hernia	4	Including incisional hernia
High/low BP	5	
Infection	8	General or specific to an area such as leg
Irreg blood results/worse	3	
Pain	8	Either general or some specific such as in leg, hip, groin
Pain relief review	1	
Possible stroke	4	
Pressure sore	1	
Rashes	2	
Rectal prolapsed	1	
Swelling	12	Mostly legs and ankles
Ulcerated mouth	1	
Unresponsive	2	
Vomiting blood	1	
Weight loss	1	
Wounds	2	
X-ray results	1	

It is clear from this list, that, although the clinician attended at the behest of the home, this may not have been for an emergency, but more routine or failing health. There is no time scale to the start of symptoms that resulted in the call and the call to clinical support being made to assess urgency even by proxy. It would be worthwhile asking the doctors to review the data set to see which of the calls they felt were emergency calls and which of those could potentially have been influenced or prevented by the monitoring put in place.

Out of Hours services in particular should only have been contacted in emergency, and the reasons for calling the Out of Hours services included:

Reason for call	**Action taken**
High BP, temperature, nausea	admitted re arterial fibrillation
Swollen painful leg	admitted re DVT
Back pain	admitted to hospital
Catheter	admitted to hospital
Rectal prolapse	admitted to hospital
Vomiting blood	admitted to hospital
High BP	advised to see own GP
Allergic reaction	antibiotics changed
Bleeding	antibiotics prescribed
Cellulitis	antibiotics prescribed

Chesty	antibiotics prescribed
Chesty	antibiotics prescribed
Chesty, vomiting	antibiotics prescribed
Hernia	antibiotics prescribed
Infection	antibiotics prescribed
Low BP	medication, bloods tba
Back pain	pain relief increased
Hip pain	pain relief prescribed
Pain	pain relief prescribed
Pain	pain relief prescribed
Rash blisters	shingles treatment
Breathless not eating	TLC on oxygen

Reviewing these episodes may indicate that cost savings could have been made if the call out had not been out of hours. This again depends on when the symptom presented and how long it persisted before the call to the Out of Hours service was made.

Reduced emergency admissions to hospital have been widely cited as the area most likely to save the most money. In this study, 33 admissions to hospital were recorded, with the referring clinician and the reason they were called to attend the patient shown below:

	Attending clinician			
Reason for call out	**GP**	**OoH**	**Paramedic**	**Total**
Back pain		1		1
Breathing difficulty			1	1
Breathless			3	3
Catheter		1		1
Chest pain			3	3
Chesty	1			1
Chesty vomiting Frail			1	1
Confusion & Sleepy		1		1
Fall			6	6
Fall & fit			1	1
Frail breathless	1			1
High BP temp Nausea		1		1
Incisional hernia	1			1
Pain in leg			1	1
Rectal prolapse		1		1
Stroke signs			2	2
Swollen painful leg		1		1

Unresponsive			1	1
Vomiting blood		1		1
X-ray results	1			1
Total	**4**	**7**	**19**	**30**

For three admissions, there was no record of who attended the patient. Again it might be worth reviewing with the doctor the appropriateness of each of these admissions and whether and how monitoring may have managed the patient better.

The data set for the second home covered a longer time period and it is acknowledged that the health status of the residents is lower than in the first home.

In this case data was available for 35 residents (not all necessarily all resident for the whole period) over 30 months, covering 274 episodes and 287 clinician contacts. The attending clinicians were:

Attending clinician	No. Visits
District Nurse	113
GP visit/phone advice	153
OoH Doctor	2
Paramedic/ambulance	9
Hospital attendance	10

The data set in this case included some routine attendances from District Nurses such as insulin injections and Clexane injections. None of the data have been excluded from the data set as it is not possible to know what, if any, other visits were also routine/regular, but the obvious cases have been moved to the end of the table. In three cases no reason for the call out was recorded.

Grouping these episodes according to the reason for the call out:

Reason for call out	Total	Comments
Allergy	1	
Anaemic	2	
Arm infection	2	
Back pain	4	
Bloods issues	9	In urine, BP, blood results
Bloods taken	27	No reason available
Broken skin	3	
Cancer problems	2	
Changed medication	16	
Chest infection/fluids/breathing problems	38	

Choking	1	
Constipation	14	
Fall	8	
Heart failure	2	
Cholesterol	1	
Insomnia	6	
Infection	7	Leg, fungal, mouth, toe, oral thrush
Leg problem	5	
Mental health	5	
Neck problem	2	
Pain in arm	2	
Parkinson's discussion	1	
Pressure sores/sores	37	
Scrotum check	2	
Shoulder problem	1	
Sickness	2	
Sinus	4	
Skin problem	1	
Sore	2	
Sore eye	3	
Stoma bag	1	
Swine flu /flu injection	5	
Urine tract infection	57	
Verbally aggressive	2	
No reason given	3	
Clexane injection	2	
End of Life pathway	4	
Daily insulin	4	

As with the first home, it is clear that not all the call outs were actually due to an emergency, but rather to normal ongoing care for a frail and ill population. As before, it might be worth reviewing the data with the doctors for what could be influenced by monitoring.

It is worth noting here that no information was shared as to the nature of any long term illness from which residents were suffering and which would influence the nature of calls to emergency or routine home visit services.

In this instance, only 2 calls to Out of Hours services were within the data set, one for a urinary infection and one for blood in the urine.

In this second home, only 11 admissions to hospital were recorded in the data:

Reason	GP	Paramedic
Cancer problems		1
Heart failure		1
Heavy breathing		2
Fall		3
Urine infection		1
Back pain	1	
No reason		1

The pattern of call outs by both homes could be further investigated to explore the use of emergency call outs by the different homes, and any best practice or learning needs that could be shared between them to reduce the number of call outs.

A more in depth and complete data collection would be needed to identify where the homes could influence the health of their patients pre-emptively, and where monitoring would also give early warning or allow early intervention. This would include looking at all clinician attendances, routine and emergency, and see what could be reduced by the care monitoring system.

Cost Saving

A key component of the North RIEP funding is to produce cost savings making a project sustainable. In the early design of this project, cost saving to the NHS by preventative monitoring was highlighted as a key component of the strategy. The original funding proposal states that the project could:

> *" . . . potentially result in huge savings for the Local Authority and Primary Care Trust."*

In practice, the project raises a number of questions as to whether such savings are actually achievable and highlighted that the projected cost savings in the original proposal were very ambitious.

There is little argument that such a scheme could mean that some patients with nursing needs could continue to be cared for in residential homes which is a cheaper tariff than a nursing home and thus saving money for PCTs, local authorities, and independent customer. However, such savings would be difficult to quantify in a small pilot.

Due to the costing models of GP and community services, it is not possible to put a real financial cost against a home visit, emergency or routine. For ambulance services, even an average cost of attendance is impossible to define due to the complex nature of what sort of team and vehicle may have attended, which in part will have been defined by apparent need, and in part by availability.

A basic cost for an out of hours visit (presuming this to be the emergency doctor service) is possible, but the costs were not available for this study.

Using notional costs based on the data received, the total cost for all call outs recorded in these data suggest a value of up to about £30,000. Some of this may be saved by pre-emptive monitoring of patients and prompt action, but it seems unlikely, given the nature of the call outs that substantial savings could be made.

The data analysed did not really look at GP and District Nurse routine visits the homes for residents with long term conditions, and this may also be an area where monitoring health parameters may reduce the need for visits. The data around hospital attendance was very fragmented, and it was not clear that all patients admitted in the data period have been recorded in this data set. Where the data indicates the patient went to hospital, they do not indicate if this was for treatment and immediate discharge or whether the patient was admitted. Where the patient was admitted the data does not record the reason for the admission, the length of stay or the treatment received by the patient so no costings of any admission are possible at this time.

Since a member of the care home staff routinely attends hospital with a resident, any cost associated with the care must include the cost of the staff time and transport must be added into the overall picture.

On the basis of the data to hand, it is not clear that large cost savings could be made due to the health monitoring, but this data set is very small, and the time for which data were collected within the project is very short. With more detailed and in depth data, it would be possible to cost, for example, hospital stays, and this is the main area for potential cost reduction.

Due to of the number of providers of emergency care, any savings would also be fragmented, reducing further any perceived benefit in terms of cash savings and it is likely that any capacity released would immediately be taken up with currently unmet demand and therefore not be realisable in cash terms.

Savings could, perhaps, be achieved in the future, on a larger scale such as across a PCT or GPCC area, but with the number of residents/patients currently involved, the scale is too small to show this clearly. Even so, the fragmented savings means that any reduction in the number of call outs and admissions is unlikely to have any commissioning/ contractual implications except at health community level.

Whilst there are notional or optimistically significant resource savings to be made by the health service providers, the care homes bear the costs of providing the monitoring serviced on which these resource savings are based.

Providing the monitoring service is a cost to the homes in terms of staff time and potentially in terms of responsibility for the data collection hub and its maintenance, and to the website where the data is stored. Access to the data

is also a potential cost to the GPs who may also need to access it, at least to receive email alerts when appropriate.

At the moment it would appear that care homes are providing the resources to fulfil this project with RIEP funding and accepting this as a way of improving their service. Any cash savings to the health service due to monitoring are not likely to be passed on to the homes which resource it.

Any potential financial benefit for care homes appears to be dependent on their ability to market the health monitoring as providing higher quality of care and thus recruiting residents. This is likely to have little impact on the two care homes which took part in this study, as they tend to run to capacity. There would appear to be some potential to further enhance the reputation of these care homes as this project aligns well with CQC outcomes.

At this time, it is not clear who should be responsible for the system and infrastructure costs, and how any benefits may be shared amongst the organisations participating in the scheme. This may need clarifying for any future expansion of the scheme.

Currently the cost of equipment is covered by the project funding, but, this is ended in February 2011. In effect, if the project is to continue post February 2011, the care homes would then be expected to carry the burden of cost for hire of equipment and resources (staff time, phone line) for implementation of the project, or the costs must be added to tariffs. However, it does appear that Darlington Adult Services are keen to see the pilot continue and are looking to continue funding although figures and objectives have yet to be agreed.

Technical issues

The use of suitable technology was pivotal to the success of this project. The idea that the care homes would provide the practice and the technology would “do the rest” was one of the key things that energised the care homes to take an active part. In essence there was a view that the care homes were already implementing some of the monitoring with their residents and that the use of technology would help them improve their practice and at the same time equip them with more robust evidence of changes in the conditions of the residents for the GPs.[2]

The Docobo hub had been extensively tested across the UK and abroad for use by individuals in the home as a tool to support independent living and is a recognised preventative tool. As a result the machines themselves are designed for ease of use. However, no robust testing had yet been completed utilising the machines for additional (multi) users.

---

[2] Care home staff interview

The idea is that each patient has an "electronic plan of care". This includes monitoring the patients' blood pressure, pulse, temperature, oxygen saturation and weight alongside health questions that will illustrate any forthcoming exacerbations. Following monitoring, data is encrypted and uploaded to a server in Docobo head office. When the resident shows some variance to the agreed norms, the system would alert professionals using a traffic light approach.

This project was developmental for Docobo as much as it was explorative of process by the homes. It is acknowledged that this project provided an opportunity to test out the equipment specifications within a care home setting and development to the equipment and software have been ongoing throughout.

As a consequence there have been some problems with the HealthHUBs to date. Delays were experienced in the first instance with the installation and further delays have been encountered by both homes because of technical breakdowns of the machines and connection to the website as the pilot progressed. The primary problem has been in the uploading of the monitoring data to the web as opposed to the practical aspect of testing residents, and the ability of each hub to handle data from up to 20 residents has been queried, given that the initial design of the machine was for individual use. Although the specifications of the machines indicate suitability for wider use, in practice, this has not appeared to be the case.

Many attempts have been made to sort the problems, but contact with technical support has been reported as "slow". This has created high levels of frustration as time has been spent carrying out the monitoring, but the facility to upload the data has not been there[3], and as a consequence of the continuing equipment problems, data collected to date has been reduced.

Failings in the technology have resulted in some major delays in being able to implement this pilot. In one care home with 40 residents, testing began in July and went on into August. Problems encountered with the hubs meant that no further data collection was carried out until November.[4] Since then, persistent problems with uploading data has meant that only one of the two hubs required to handle all 40 patients has successfully uploaded for a number of months.

It has recently been suggested by Docobo that a dedicated phone line would be needed in order to ease some of these equipment issues. This would mean additional expense for the care home and could in itself become an issue in terms of any roll out or sustainability of the project, especially to large establishments with high numbers of residents. There has understandably been some reluctance on the part of the owners of the care home involved to install an extra telephone line due to cost implications and doubts about its

---

[3] Care home staff interviews
[4] ibid

value for money. As a result of these issues, the home has taken the decision to reduce the number of residents being monitored from forty to eleven of the most needy patients.

The reduction and more targeted approach to only monitoring residents with long term conditions is a move away from the original plan for the project and has been driven by the problems with the technology. However, as the project continues it will provide information on an alternative model of health monitoring in care homes and is likely to inform any further roll out of the project.

In response to these problems, Docobo has provided a new GPS system to one of the care homes. The GPS system was not operational at the time of writing, so we are unable to report on its suitability. The poor GPS signal in the second home means that this is not a suitable option.

The inability of the technology to meet the expectations of the project is reported as a constant frustration for care home staff. Enthusiasm for the project was very high at the beginning of the project and the care homes reported high expectations.

The time lapse between confirmation of funding and installation made it difficult to keep the initial momentum going. This was particularly an issue for residents and relatives, who were keen to consent to involvement at the outset, but were less enthusiastic by the time the monitoring actually started.[5] One staff member stated:

> *"We had no problem at all getting consent forms from residents and their families. They were very interested and excited . . . then it dwindled off and we had to go through the whole thing again reminding them of what we were doing."*

The early delays in installation followed by the technical problems also meant that the period of data collection on which baselines and parameters for individuals could be agreed had to be extended.

The parameters are an essential element from which alerts are raised. Notwithstanding some initial confusion as to the level of input from GPs, it could be argued that it has not been possible to date to use the technology to its full potential, particularly in terms of emailing alerts to the care homes and the GPs. Indeed, up to this point, alerts are not yet sent to either the care homes or GPs. The traffic light system is visible on the online system and alerts are currently picked up by care home staff who log into the system.

Staff reported that the technology was very useful in keeping track of the individualised testing and wellbeing questions. It has also helped staff keep to a stricter programme of testing as they have dedicated time for uploading.

---

[5] Care Home Staff Interviews

This was reported as a key strength of the technology. On member of staff stated:

> *"Taking part in this project has meant that we test at a set time and on set days. The testing has become part of our routine. It has meant that we never think about putting it off until next week."*

Care home staff have differing views as to the added value of the technology in a project of this nature. Whilst both homes are united in the view that the technology provides them with a testing structure and avoids slippage, one member of staff stated:

> "*You don't need technology to deliver good care, that is what we do."*

GP engagement

Care homes generally deal with a number of GPs and practices. Two GPs who have patients in both of the care homes were involved in the development of this project.

The GPs were not involved in the funding application. There appears to be some confusion as to the level of GP engagement a project of this nature would require.

Originally it was anticipated that GPs would be instrumental in agreeing the parameters for individual patients and would also be responsible for accessing the server to receive results and any alerts on a regular basis. However, in reality, involvement to such as extent was not regarded as "feasible".

It was also anticipated that GPs would be involved in determining how often individual residents be tested based on existing results and identified needs of the residents. This has yet to be fully achieved. Such decisions are likely to impact on the time needed by care home staff carrying out the testing and inputting.

A primary role for the GPs was to keep the Practice Based Commissioning Group informed of progress of the project whose aim it is to rationalise pathways and to prevent hospital admissions.

One GP reported that:

> *"In hindsight, communication about the project could have been better. From the outset we should have circulated sufficiently robust information. We did verbal feedback, but it was not as effective as we would have liked."*[6]

---

[6] GP Interview

Although other GPs in the area have some awareness of the project, they had no active involvement. Similarly, although the two GPs involved in the scheme had made their partners aware of the scheme, there was little active involvement from any other GPs either in their practices in the wider GP community. Delays in the project also made it difficult to keep up the momentum within practices.

The GP role of informing the Practice Based Commissioning Group was supplemented by the Care Home Managers who also carried out some awareness raising in other practices involved with the care homes. It has been acknowledged that this is something that would need to be improved in future roll out.

At the very least GPs need to be aware of the health monitoring and be willing to accept and trust the results and use them to inform decisions on diagnosis, need for visit, etc.

It appears that GPs had few expectations of the pilot health monitoring project and did not envisage any major cost savings. However, they did acknowledge that while numbers in the pilot were small, large numbers are not needed to make a big difference to the economies. One GP stated:

> *"Generally if an elderly patient goes in [to hospital], they are frail and it might be something minor but they will be in for an extra number of days simply because of their co-morbidity . . . They tend to block beds and its sometimes like a revolving door."*

This view reiterates the potential for cost savings as the project progresses and in any future roll out. However, without a major roll out, such savings are unlikely to achieve any statistical significance in overall budgets.

From a GP perspective, one of the key benefits of the health monitoring project was the opportunity to test whether it was in fact feasible for care home staff to provide the monitoring and respond effectively to early indications of ill health. It would seem that the care home staff have proven to be highly proficient in implementing the monitoring and also ensuring results are passed on to GPs for further action if necessary.

Following on from that, there was also a view that a project of this nature could open up some real opportunities in terms of improving the quality of care to the wider care home community as:

> "*It would mean there is a system in place to review people on a regular basis that is documented so that GPs can reflect on it . . . hopefully see a pattern of some sort.*"[7]

---

[7] ibid

The availability of good information is a key benefit as this could result in them dealing with calls from the care home more proficiently based on robust information on which they could base a diagnosis. There was a view that:

> *"Because of a lot of the ailments are ongoing, it would be easier to do that with some objective evaluation of a patient on an ongoing basis."*

GPs report good longstanding relationships with the care homes involved. Both care home staff and GPs have a good understanding of what is expected, the responsibilities of each and an understanding of capacity. For this reason there appears little evidence of any real improvement as a result of the health monitoring project from a GP perspective. However, one GP stated:

> *"If there was a situation where such a relationship did not exist, it is likely that you would perceive a much better improvement as a result of the health monitoring project."*

Responsibility for accessing the alert system currently lies with care home staff. GPs report being unable to commit to accessing the system on a regular basis. One GP reported that the email link to alert GP's of measured outside the agreed parameters was essential as they did not have the time to regularly log into the system. However, this alert system has failed to materialise in practice. The current model of care home staff raising the alert with the GP is working well. However, this does further increase the care home time commitment and potentially their responsibility towards their residents.

While there is a view that the health monitoring has shown some level of success, they have little evidence of any real impact in terms of meeting its objectives of reducing GP visits, district nurse intervention and hospital admission. One GP stated:

> "*I can't think of any individual whose care has changed as a result of us now having the information."*

However, the fact that the information is gathered in a systematic way and that information is stored on a system which can be accessed is valuable to a GP. From the GP perspective it is not possible at this stage to physically identify instances whereby patients have not been admitted to hospital as a direct result of the monitoring, although they do acknowledge that earlier identification of symptoms has meant earlier intervention and treatment.

Perspectives of Health Monitoring

Residents

Although all residents interviewed had consented to be part of the monitoring project, the majority of participants felt that the monitoring was part of the everyday care home package. They had little knowledge of the aims and objectives of the project, and that it was in fact a pilot project.

Overall, residents involved in the health monitoring in both care homes reported that the monitoring was a worthwhile experience. Only one resident interviewed questioned the added value of the monitoring who stated:

> *"I am not sure it [the monitoring] is absolutely necessary. It doesn't make me feel any better but I suppose it is nice to know that I am being cared for well"*[8]

Other residents interviewed reported the view that the monitoring was "a brilliant idea". They particularly enjoyed the time spent with the staff discussing how they are feeling. Residents commented that "this was a special time", "gave them the opportunity to tell staff about their worries" and, for most, "to ask questions". All of these appeared to be of real importance to the residents interviewed. One resident stated:

> *"I do like the time with the staff, I enjoy the chat and I do feel it [the monitoring] is worthwhile in terms of keeping a close eye on me."*[9]

Many of the residents' interviews commented that:

> "*Prevention was better than a cure"*

Residents were very aware of their own health issues and that the monitoring is unlikely to have any major impact on their conditions. However, one resident commented:

> *"I am in a state that not much can be done for me, but I still think any help is good. Preventing the little things is a good thing to do even if it won't affect the overall problem."*[10]

Residents appear to understand the monitoring as "a warning system", that it will identify certain things at an earlier stage. Expectations of what it is capable of identifying varied, but included flu, heart attack, UTI, IBS, cancer.

However, none of this seemed to be a problem for participants as they felt it was a positive element of their care. Most of those residents interviewed had long term conditions requiring some form of treatment. The common thread

---

[8] Resident Interview 2
[9] Resident Interview 3
[10] Resident Interview 5

from all interviews was that the residents liked the idea that they were receiving better care and attention. Even those who see their GP regularly or are under a consultant at the hospital, felt that this was another check, it was not something that took a lot of time or needed a lot of energy from them so they could see no real negatives.

Most did not feel that the testing process made them feel better, or that the tests had revealed some hidden problems to date. One resident reported that when she was living at home she was regularly admitted to hospital with COPD related illnesses and that since coming into the home and being regularly monitored she had not been in hospital. She stated:

> *I think it [the health monitoring] has meant that I haven't had to go into hospital because it detects the problems earlier and that means I start on the medicines more quickly."*[11]

For her, this was a major benefit as she found that being in hospital was very stressful. Whilst there is no way of quantifying the cost saving in terms of finance, there is little doubt that for this person in particular that the monitoring has served to reduce stress levels, provide prompter action ultimately improving her quality of life and ability to remain in the care home as opposed to being admitted to hospital.

Relatives

The relatives interviewed had a good understanding of the health monitoring project. They had been provided with information and asked to consent for their relatives to take part. Relatives interviewed included some whose relatives who were also interviewed, two whose parent was unable to provide informed consent to participate, and one who lives a long distance away and so is unable to visit regularly.

Parents viewed the health monitoring project as a very positive aspect of the care their loved ones receive in the care home. There were no great expectations of the project, only that it would provide another layer of care. When asked about their reasons for giving consent one, relative stated:

> "*I could see no negative in what was proposed. It seemed like a win, win situation to me. After all, all they were doing was taking better care of my mother."*[12]

This viewpoint was reiterated by other relatives who were interviewed. Another relative went on to say:

> *"I felt it was a bit of a no-brainer - there was absolutely nothing to lose."*[13]

---

[11] Resident Interview 6
[12] Relative Interview 1
[13] Relative Interview 5

The main impact of the health monitoring on the relatives interviewed is that it provides “peace of mind”. All felt that residents were receiving a good care service from the staff prior to the health monitoring. However, as with the residents, it is viewed as a safety net, taking precautionary measures to ensure a rapid response to any signs of deterioration.
Although relatives were clear that residents received a high standard of care there was also a view that the health monitoring has improved the quality of care even more. Comments included:

> *“Staff seem to be even more on the alert now and this makes me feel even more relaxed.”*
>
> *“I think it actually gives the home credibility.”*
>
> *“Staff are certainly more aware of the danger signs.”*
>
> *“It shows the home is going an extra mile for its residents.”*

Like the residents themselves, their relatives were very keen on the idea of prevention and see the monitoring as a quick and easy way of achieving this. For some relatives, they have had some difficulty adjusting to their loved ones being in a care home and there was a view that the fact staff had opted to undertake the monitoring has played some role in helping relatives readjust. One relative stated:

> *“My husband is getting very well looked after . . . the staff are really on the ball and I am now much happier about him being in the home.”*[14]

Relatives do not appear to have high expectations of the scheme. The idea of prevention was the key benefit in their view by providing early indicators which could potentially reduce critical incidents. One relative felt it was just “a bonus”.

It is also noted that although relationships between relatives and staff prior to the monitoring were reported as good, that this relationship has been further improved as a result of the monitoring process. Relatives reported that dialogue between themselves and staff was better and that information sharing had improved considerably. Most relatives were kept informed of any results, particularly if there was some level of variance highlighted in the results.

The relative living in the south was very keen for the monitoring to continue. For him, the distance was a huge barrier in terms of visiting and he received regular updates which includes the results of the monitoring. He stated that:

---

[14] Relative Interview 4

"As I am not around I do not see any difference in the quality of care my father is getting, but I am convinced that the staff really do care about my dad. I feel that the care home staff are much clearer about the severity of my dad's condition and am now sure they would not request me to visit unless it was absolutely necessary."[15]

Relatives who are regular visitors to the care homes also report improved relationships with staff. The monitoring has also reiterated to them the fact that residents receive good quality, individualised care.

Relatives of residents unable to communicate reported that the monitoring is an essential element of the care. For those residents unable to express feelings of ill health or the sudden onset of symptoms, there is a view that the monitoring is the tool to identify these. One relative stated:

"My mother can't physically tell staff if she is feeling unwell so prevention is an absolute must to make sure she is not in any discomfort."[16]

He went on to say:

"This monitoring offers me a safety net which I am very grateful for. I think it should be expanded because it makes it easier for any relative with people in a care home. It's not the be all and end all but it is something and it helps. It is a great backup system."[17]

There is no evidence to suggest that the monitoring has improved the health of those being monitored. Relatives generally feel that this would have been impossible given some of the long term conditions suffered by many of the residents. However, from a relatives' perspective, the focus on prevention is a positive aspect, the improved relationships with care home staff are a direct result of the monitoring project and that it provides them with peace of mind.

Staff experience

Care home staff report that residents and their families are happy to engage with the project, and that residents enjoy what they often term as the "special" treatment they currently get on a weekly basis. Indeed, residents not enrolled into the scheme are eager to join.

Staff have shown to be very enthusiastic about moving this programme of work along and report it as a key opportunity in improving the care of their residents. Both care homes involved in the project were already carrying out some health checks on residents. The health monitoring project has helped them to standardise their tests and provided a structure which ensures the monitoring is prioritised within the home.

---

[15] Relative Interview 6
[16] Relative Interview 5
[17] ibid

While time was an issue for care homes, particularly as the numbers of residents involved in the monitoring increased, care home staff quickly established a system for the monitoring and it quickly became part of the overall care provided within the care home.

The experiences of the care homes with the technology have been different. In one home staff, have become increasingly frustrated with the difficulties encountered with the technology. They report having put a lot of time into the monitoring and feeling let down by the inability of the technology to cope with the data.

One staff member reported:

> *"We have put a lot of time into this, but in reality I think we will be lucky if we have a couple of month's worth of decent information in the whole time we have been doing it. I wouldn't say it has been a waste of time because we have continued to do the monitoring, but it has been incredibly frustrating for us."* [18]

The technical issues have been discussed earlier in this report so will not be covered again, but the experience of staff in one home has been tainted as a result of these difficulties and it has proven difficult to retain enthusiasm and maintain the momentum of the monitoring.

The considerable delays in agreeing parameters have also been an issue for care home staff. One care home appears to have adopted a more generic approach to parameters and further work is necessary to ensure these are suitable in meeting the needs of the individuals although this has yet to be fully completed. The other care home has adopted a more individualised parameter model and staff feel this is working well at this time. It must be stated that the individual parameters were set by the care home staff themselves in consultation with Docobo and later agreed with GPs. The time lapses in setting and agreeing parameters has been reported as another source of frustration for care home staff.

Although care homes received a proportion of the funding to implement this project, it is felt that this was insufficient to cover the amount of time and effort that has been given to it. However, apart from the issues with the technology, staff hold a view that the experience" has been extremely beneficial" for both residents and staff.[19]

Staff spend approximately 10-15 minutes with each resident to perform the monitoring. Testing is currently taking place on a weekly basis. This has raised some questions as to whether all residents require weekly monitoring and this is an issue that requires additional input from the GPs involved. Until very recently the care homes were monitoring all of their residents. As a

---

[18] Care Home staff interview
[19] Care Home staff interview

result of the issues with the technology one care home has substantially reduced its numbers to include only those with existing long term conditions.

Such a move changes the direction of travel of this project from identifying early symptoms of illness in residents who were generally fit and well to identifying changes and signs of an episode pertaining to their existing health conditions. Care home staff report that the monitoring has a place and role to play in both models. However, it does raise the question as to whether the project aims to provide a less individualised approach providing general monitoring for healthy residents or a more intensive testing to residents who have identified long term conditions on a more regular basis.

The emergence of the two models was highlighted very late in the project so it is not possible at this stage to offer any evaluation findings. However, this is an issue requiring further evaluation in any roll out.

No specific training relating to the health problems of clients was undertaken by these staff as part of the project, but staff report feeling more knowledgeable about the signs of impending illness and being much more alert to symptoms. This includes the aetiology of the long term conditions from which their residents are suffering as well as the purpose and importance of the tests and the results. They are portraying increased confidence both in the monitoring and dealing with questions from residents and raising alerts with the GPs.

One member of staff reported:

> "*I am much more aware of the signs, I feel more confident that I know what to look for.*"[20]

It has also been formative for the staff in terms of developing closer relationships with the residents and improved their empathic and interpersonal skills in subtle ways as the relationships became closer.

These staff are now looking at consolidating their new knowledge and skills and the possibility of gaining relevant certificated qualifications. It also has much wider application to staff in other establishments in terms of career development and opening up other opportunities, whether they use health monitoring or not.

Care home staff hold the view that the monitoring has gone some way in further improving the quality of care for residents. Although both homes felt they have always provided a good quality of care to their residents, the health monitoring offers them another tool and there is a strong belief that the earlier identification of issues is of major benefit both to the resident and care home staff.

---

[20] Care Home staff interview

Examples are already emerging of early identification of symptoms resulting in a resident escaping admission to hospital as a result of receiving medication earlier. It is anticipated that as the project progresses these examples will expand.

For the care homes there is also potential for such a project to enhance their reputation as providing high quality care to the reassurance of residents and their families, and as investors in their staff, particularly in terms of personal and professional development.

Success Stories

The lack of consistent baseline data makes it difficult to quantify and reductions to GP visits, district nurse visits or hospital admissions. However, there is anecdotal evidence from the care homes that in some cases early intervention has meant residents are more responsive to treatment thus preventing a worsening and ultimately admission to hospital.

Although based on purely anecdotal evidence we feel the following examples illustrate the potential the health monitoring project can offer. These examples are purely based on care home staff perceptions of these residents based on their knowledge of the patient and how symptoms have exacerbated in the past to result in hospital admissions.

Example 1 The health monitoring highlighted that one lady had extremely high blood pressure which is an indicator for a potential stroke. Following a telephone discussion with the doctor her medication was changed and the blood pressure levels began to reduce. No GP visit was necessary. Staff are now monitoring this on a more regular basis.

Example 2 The pulse rate on a lady was very high, which is an indicator for a UTI. This was followed up by a urine dip test which showed that there was an infection. The doctor prescribed antibiotics over the phone so treatment was started immediately as opposed to waiting for the results of the urine test from the hospital (2 days). Prompt treatment saved this lady from a lot of discomfort.

Example 3 One resident with a history of COPD was regularly admitted to hospital when she was living at home. Picking up symptoms and signs of infection earlier has meant that she has not had to be admitted to hospital since participation in the health monitoring. This view is supported by the Community Matron who is also involved in her care.

The above examples portray some level of effectiveness of the health monitoring project. It shows a potential that additional residents can benefit from the project. However, it is noted that at this time there is no quantifiable evidence to substantiate such claims.

These examples also illustrate that the systems put into place during the monitoring and the GPs trusting in the staff and are willing to act on the monitoring results are working well. Care home staff have robust information on which GPs are able to make an informed decision. However, as mentioned earlier the communication of the project to the wider GP community has not been as effectively as originally hoped and this has meant that not all GPs are willing to take the results on trust.

Example 4 A resident displayed signs of a UTI. Urine dips showed a number of different infections. The GP was not aware of the project and as a result was unwilling to prescribe medication without the results of the tests from the hospital. UTI's often result in confusion and dementia symptoms in the elderly and the resident became confused, got out of bed by herself to go to the bathroom and fell and broke a hip. This resulted in a lengthy hospital stay, pain and reduced mobility for the resident.

Benefits of the Scheme

Whilst this pilot has not achieved all of the outcomes anticipated for a variety of reasons, the benefits arising from it are extensive.

To the manufacturer

This project has been developmental for both Docobo, for the development of the multi-hub and technical issues associated with it, and the care homes have been most persistent in sorting out the problems along the way to establish an effective tool and process. How to best use the tool and minor trouble shooting are now established and will make any further use of the technology smoother for the homes and their care. It is understood that Docobo are already using the kit and processes defined in this project in other areas of the country.

Whilst there has been some discussion and misunderstanding about who was responsible for what during this development process, this has in itself been developmental for the staff involved as their knowledge and skills base has inevitably grown re both the care of their residents and the use of the IT.

For the homes

By undertaking the pilot with a few residents in the first instance and later with wider inclusion of residents, the process of the monitoring and the benefits accruing have been well defined and a robust process is now available to roll

out on a wider scale, although there are several issues to consider in its wider applicability (see later).

Both homes were already rated as ‘good’ by the Care Quality Commission (CQC) and the quality of care delivered to residents was already of a good standard.

The wide perception of raising the quality of care amongst the client group, both residents and their carers/relatives, by the monitoring is well justified. One care home manager stated “*we have raised our game (as a consequence of this scheme*)”. Despite the costs to the homes of doing the monitoring in terms of staff time, both the participating homes intend to continue the monitoring regime even if funding is not continued for the technical aspects.

In care terms, the monitoring helps the homes cope with and manage the increasingly complex health needs and rising dependency of their residents and this may in turn reduce the costs associated with individual care (time, resources) for the most needy patients.

All registered homes have to demonstrate compliance with QIPP and CQC performance indicators, public health targets, and the monitoring process will enhance the homes’ ability to do so, and by proxy support good business process as well.

The perception of care by residents and carers and relatives will enhance the reputation of the homes locally and wider, potentially increasing local standing and ensuring that beds remain full.

For the care home staff

Implementing the data collection process has proved a rewarding experience for the staff involved.

The time spent with the residents to undertake the monitoring has led to closer personal relationships which has also enhanced the monitoring process as staff are now more attuned to the individual resident and can detect earlier when they are ‘a little off colour’.

Participation in monitoring is not undertaken by most staff, but there is the potential to widen the pool of staff engaged as a developmental tool.

Those doing the monitoring find it is giving them enhanced job satisfaction and incidentally increasing their knowledge and understanding of the health needs of their clients and the clinical conditions from which they suffer.

This is being explored on a wider basis to see what, if any, more formal training, or certificated learning/qualification is open to support the staff in formalising and consolidating this experiential learning around the long term conditions of residents.

Enhanced knowledge and understanding gives the staff more confidence and will enhance employment and career progression in the longer term.

For the GPs and clinical staff

The monitoring process should pick up issues relating to long term illness/conditions of registered patients in a timely fashion, reducing the need for emergency call outs and lower intensity input for problems. This could, over time, also reduce the need for routine monitoring visits and could offer an opportunity to ensure good lifestyle practice (re diet and exercise, according to patient capability, etc.) and behaviour change in care management.

One of the benefits of this scheme is that, unlike some telehealth schemes based on a 'call centre' approach, it retains the full clinical autonomy of the GP in looking after their own patients – they can define the data set based on the needs of the individual, set the exclusion parameters, and be advised of any changes that need attention.

Although there had been an expectation in some quarters that the GPs or a member of their Practices would routinely monitor the data via the website, this has proved unnecessary.

The system is now set up so that in future if the data uploaded exceeds preset limits, an email warning the GP is sent automatically with a copy to the home for confirmation. In practice this has not yet been achieved. However, the homes monitoring the data are immediately aware if the data exceeds the limits and phone the GP directly anyway. This means that the GP can be a passive recipient of alerts instead of having to be proactive within a busy working day.

As an added benefit, the data monitoring provides a more complete health record for frail patients demonstrating trends in biometrics and health (and deterioration) which may well inform future management of these patients. This data easily accessed via the secure website although it does not integrate into the patients GP record.

One of the spin off benefits has been the better understanding and dialogue between the doctors and the care homes and has potential for wider interprofessional dialogue with other clinical professionals if and when they are drawn into the scheme and, for example, given access to the website for their patients to monitor conditions for themselves.

For the residents

Although this project was based in residential care homes, not nursing homes, the health needs of several of the residents mean that they could justifiably be moved onto nursing care. It is the decision of the homes to maintain their residents in what has become their 'home' for as long as possible, and to cope with increasing need. This situation is likely to expand as the demands for care increase but costs and availability of care become less manageable.

This monitoring process demonstrates a clear way for residential homes to manage this increased responsibility to the benefit of their residents, their staff, and the overall quality of care their home is seen to provide.

Residents taking part in the pilot enjoyed their participation. They were inquisitive and interested in the process and enjoyed the interaction with the staff and follow their own progress. Those not originally enrolled on the pilot and their carers were very keen to join the scheme, as it provides good peace of mind and the closer interpersonal relationships with care staff which are valued by the residents too.

Due to their age and the state of their health, the actual health status of the residents was not necessarily affected by the monitoring, but their perception of well being did seem to increase as they were reassured about their health and the view that their needs would be met.

Where monitoring allows early intervention, better health maintenance and outcomes might be expected, with fewer health crises and those being less intense. The clinical data available is too fragmented to prove this in this pilot study.

For the commissioners

Looking at the bigger picture, the pressures on care commissioners to provide increasing residential and nursing care for the growing elderly population, and, at the same time, ease pressure on resources as well as improve the health and wellbeing of the resident/patient are becoming more acute.

Allied to this are the responsibilities for monitoring care provision and contractual compliance and demonstrate compliance with, for example, CQC, QIPP and CQIN.

It has not proved possible to demonstrate large cash savings in this small pilot, and with the data available. This could however be revisited for specific patients where full clinical records over time would show any decrease in hospitalisations and call outs and/or improved health status of residents as a consequence of the monitoring process.

Currently, any savings are fragmented across different providers, and may not be realisable in cash terms for reinvestment by commissioning. Any practitioner time saved from reduced call outs would be swallowed up in unmet need.

This project has demonstrated clearly that the quality of care given to elderly infirm residents can be increased at a relatively small cost, even if major cash savings are not realised from changes to care.

Most telemonitoring schemes use some sort of central facility to which the monitoring data goes and where decisions about care needs are made. As this requires a staffing of clinical professionals and a strong IT infrastructure, it

is an expensive model and one reason why cost benefit analyses of such schemes are difficult. Many of the concerns about this model are based on the possibility for social isolation (not even the nurse calls now!), poor compliance and lack of understanding, and concern about the intrusiveness of the technology.

The model in this pilot study used facilitated telemonitoring where the care home staff and the website together work as the ‘call centre’ to raise an alert when something goes wrong and to follow up the patient with the problem. This seems to be a particularly beneficial model for the frail elderly as it provides all the support they need whilst ensuring good care and as such is likely to be a favourable model for commissioners in future.

Discussion

The process to date of the health monitoring project shows some signs of progress and also identified some issues. The ongoing collaboration between the care homes and Teesside University has been positive and contributed to the success in securing funding for the project. This collaboration has continued throughout the project.

There are indications that GPs are in favour of the project and the two GPs actively involved in the development of the project have worked closely with care home staff in establishing baselines - the role of the GP is critical for the success of a project of this nature.

In principle, the two GPs are fully behind the project, although their capacity for taking responsibility for monitoring results logged on the system has not been realised yet. The changeover of this responsibility to care home staff for making GPs aware of any potential health issues is not regarded as a problem with the homes involved, but could be an issue for rolling the process out on a wider scale. One exception could be the additional time needed to assess results and make any necessary contact. The care homes in the pilot have reported a willingness to take on this role. To date, the instigation of automatic emails to the GPs when one of the parameters is outside the set levels has not been installed.

So far, no other GPs have been recruited to the scheme for their own patients, although they have been made aware of it from the two participating GPs.

One of the biggest benefits for the doctors is the timeline data for a patient so that they can more accurately assess a situation and react to patient needs.

The project, although small scale at this point, does appear to have the potential to improve the quality of care for residents. Participation in the project is voluntary and in one care home 14 residents of a possible 20 have consented while in the other care home, 40 residents originally consented although the number currently being monitored has been reduced to 11.

Health monitoring allows for early detection and intervention for health needs so ultimately there is potential for improving the health and wellbeing of residents. Residents and their families appear very keen to be involved in the project. The impact of this involvement will be examined further in any future evaluation of the project.

The care homes commitment to providing high quality care, staff development to enable the staff to participate and a willingness to provide the resources to implement the project appear to be critical. The fact that the pilot study involves two more reputable care homes raises some questions as to whether such a project would be feasible in all care homes. If a wider roll out was to be commissioned, these are key factors for consideration.

While some cost savings could be achieved through this project, these savings would be made with agencies outside of the care home setting. Although some benefits for care homes could be in increasing numbers of residents because of the improved level of service, this will not be evidenced within the evaluation of the pilot as both care homes operate at almost full capacity.

Cost savings to the NHS - ambulance service (NEAS), GP practices, community nursing - are unlikely to be marked within this pilot. An analysis of the baseline and endline data could potentially give some indication of potential savings, but these are unlikely to be significant in overall budgets of these agencies and more detailed clinical engagement may be required to realise full financial benefits. A formal analysis using a tool like the PARR++ (Patient at Risk of Rehospitalisation) may be useful here.

It is also noted that the health monitoring has some cost implications on the home. These include:

Recruit/consent resident	• Time, materials (brochure, consent form, data storage)
HealthHubs	• Provision, maintenance, update/upgrade • Data storage, IT links, software upgrades/compatibility • Troubleshooting
Staff training and updates	• Time and trainer(s) • Theory and practice – knowledge and understanding of health issues, risk management and actions to take • Knowledge and understanding of using the kit/technology
Patient monitoring	• 'n' residents @ 20 minutes each = 'x' hours @ £'y' per hour = £'z'' , multiplied by number or monitoring episodes per time period • Approximately 20 minutes per interaction @ £6.50 per hour = £1.50 per monitoring interaction. Eg 12 residents = 4 hours per week
Consumables/other kit	• BP monitors, dip sticks, thermometer, scales, etc. (electronic/digital or manual) • Provision, maintenance, calibration, depreciation/ replacement

Issues with the data collection equipment and its connection to the website have meant that only incomplete data collection has been achieved to date. It is hoped that future collection will be less problematic. Any equipment must be robust and reliable with reliable data transfer and email alerts, and this will affect whether and how the project could be rolled out to other homes. Any

additional costs such as dedicated phone lines could also prove to be a barrier in terms of sustaining the project.

Overall, the principles behind this project appear to be sound. The commitment from the care homes is commendable and the potential for improving standards of care is visible. Commitment from GPs is clear in terms of the strategic development of the project, although this commitment needs to be enhanced on a more practical level.

Participants in the health monitoring project are reporting very positively about the experience and some success stories are already emerging. This indicates that the pilot project is developing relatively well, but issues with the equipment need to be fully resolved for the project to reach anywhere near its potential.

Funding for this project ended February 2011. At this point, little headway appears to have been made in integrating project costs with any mainstream budgets, e.g. GP practices, care homes or PCTs, especially making sure that those who face the costs are recompensed by those who make the saving, or by central commissioning. Without this, the sustainability or expansion of this project could be problematic.

While GPs may be happy to use and act on the information garnered from the monitoring, there is no commitment from them to cover any of the costs. Some care homes may be able and willing to pay the costs (although for the equipment and website these are yet to be defined in the longer term) because they believe it is worthwhile and inherently improves the quality of care for their residents, and can be used as a marketing tool.

The fact that both of the care homes taking part in this pilot have a commitment to staff development and the quality of care provided to their residents raises the query of whether such a programme could be integrated in homes less committed or working to lower standards.

Sustainability of the project both in the pilot sites and in terms of future roll out is an issue for further consideration.

Future Considerations

- Cannot rely on good will for success and quality roll out, or on assumptions about active engagement, competence and compliance
- Future roll out may also consider community nursing access to the on line record.
- Need to be clear about benefits to be realised – tangible (cash) and intangible (quality)
- Longer term costs associated with technology need to be considered
    - cost of hubs – purchase or rental, maintenance, update
    - access and maintenance of web database by homes, GPs, commissioners (subject to data confidentiality)

- Need clear explicit contracting/SLA for any extension/roll out of process
    - expectation for delivery and outcomes – all parties
    - compliance requirements and penalties for non compliance – all parties
    - who pays what to whom for what
    - inclusion and exclusion criteria for residents based on the population/purpose of monitoring
- Need clear and explicit project planning and project management (probably outside any new homes joining the scheme) for
    - inclusion of new homes into scheme
    - engagement and roll out amongst GPs
- Policy decisions/options re monitoring
    - all patients – to detect failing health, deterioration (preferred to realise benefits for client group) eg weight loss, blood pressure
    - long term condition patients – pre-emptive re exacerbations, prevent hospitalisation
    - when unwell – short term monitoring for duration of illness
- Need clear and explicit protocols
    - risk management to deal with potential technology/system failure and disaster recovery
    - information governance and sharing/access
    - consent and MCA issues
- Training issues/potential for staff is essential (and included in any contract), including
    - engagement of staff and management, not imposition of system on them from outside
    - use of hub – data collection and data transfer
    - alerts and their relevance and importance
    - data governance and confidentiality, data sharing, etc.
    - underpinning knowledge re disease conditions and import of data
- Implicit need for wider organisational development and service development which may also need support alongside monitoring – use scheme to embed change and quality improvement
- Technical Issues
    - any outstanding issues re hubs and data transfer to be resolved
    - potential need for hubs to be developed for larger capacity
    - final data upload from pilot to be completed
    - final process for data alerts to be installed and beta-tested
- Consider the issue of benefit derived by Docobo in terms of technical development and process due to engagement in the project –can any of this benefit accrue back to the commissioner
- Longer term/larger scale security of data transfer, transfer of more complex/detailed data and access – information governance, safeguarding, ethics

- Tie in with other IT systems eg NMDS, patient health record, etc.
- The potential/need to improve staff ratios to cover time needed for monitoring paid for from any savings
- There are several options for research
  - need to do in-depth research on pre-project patient call outs and post project to define any benefits in health or cash terms
  - look at staff development outcomes and potential progression in career terms

Appendix

Appendix 1 Process

Appendix 1 – Health Monitoring Flowchart