

# HSJ TELEHEALTH

AN HSJ SUPPLEMENT/1 MARCH 2012



## MISSING PIECE?

**HOW TELEHEALTH CAN HELP  
COMPLETE THE CARE PUZZLE**

# A PICTURE OF HEALTH

**New multi-media technology means GPs, patients and consultants can meet, look at scans and case notes and talk through treatment. All without having to be in the same room. Or even the same city.**

The GP shows the patient to their seat and switches on a screen. So far so normal. But moments later a consultant appears on it - followed by the patient's scans, x-rays, case notes or test results. Then the three talk through the options for treatment, going through all the information in real time as easily as if they were in the room together. The equipment runs on a standard PC and broadband connection, yet the information is secure enough to protect the privacy of the consulting room.

The patient's been spared a possibly lengthy journey to hospital. The only travelling they'll have to do is for treatment itself. And the clinicians have saved time too. They've been able to look over the data together and swap opinions securely without having to leave their offices. What used to be a time-consuming process can be over in minutes.

And the best part? It's convenient, affordable and available now. It's called Side by Side.

## From exceptional to mainstream

Side by Side has had an extensive trial in the Western Isles, where the benefits are especially welcome. For people living there, seeing specialists means a flight or a ferry crossing to the mainland. And the trips are often cancelled because of bad weather, piling on more inconvenience for the patient and more expense for the NHS trust.

Western Isles Medical Director James Ward said: 'The opportunity Side by Side offers is very significant. We have technology that patients and doctors are familiar with - computers - combined with an application that opens up the video technology we use only in certain circumstances. It promises to make the video consultation mainstream, as opposed to exceptional.'



## More time to work

Ward adds: 'Also, it lets consultants spend more time doing what they're best at. All our consultants see the benefits to their day-to-day work and the potential benefits to patients, and they're hungry to get involved.'

Dr David Rigby, Western Isles NHS Lead Clinician for CHD and Stroke, is impressed: 'It's very easy and intuitive to work with. The system rings like a normal phone and when I answer it the screen turns on and brings up a video image. As long as the computer's linked up to my software systems, it'll be able to link into case notes as well as the intranet and internet, and I can share all those images at the touch of a button while still seeing the video image and hearing the person at the other end.'

It's not just patients and clinicians in remote areas who'll benefit. 'Even in cities, consultants travel between 20 and 40 minutes for face-to-face meetings with colleagues - meetings that could now happen without them leaving their desk', comments Keith Nurcombe, Managing Director, O2 Health.



## Results from the trial in the Western Isles

As a result of using Side by Side and working differently, service capacity improved over the trial period. Primarily driven by consultants' increased ability to diagnose in a timely fashion using Side by Side, reduction in cancelled appointments, and the tool enabling changes to the care delivery model on clinical pathways involved in the trial.

Of the clinicians that used Side by Side during the trial:

- 67% said that their ability to diagnose had increased
- 64% said future capacity would be better or much better, using the solution
- 80% of users said their ability to see patients sooner had increased

It was also acknowledged that Side by Side could allow service development to address unmet need in areas such as access to specialist advice dealing with challenging Palliative Care scenarios, delivery of psychological therapies, specialist advice to patients with Multiple Sclerosis, and supporting GPs to deliver anticipatory care for patients with COPD (Chronic Obstructive Pulmonary Disease).

# CONTENTS

## 2 WHOLE SYSTEM DEMONSTRATOR



There is scepticism in the industry regarding telehealth. But a case study of patient Haris Patel shows how valuable it can be.

## 6 INTEGRATION

Savings can be made if clinicians open up to new ways of working. But it has to be a team effort.



## 10 TELEMEDICINE



Adopting portable ECG devices with results interpreted by specialists at a cardiac centre could prove a vital tool for GPs.

## COMMENT

In association with



# Time to take up a simple solution

Whether you consider it a leap of faith or a sound investment in delivering better and cost effective care, the case for implementing telehealth has never been stronger. It's to everyone's benefit, says Roberta Carter



At a recent family dinner I described the findings of the Department of Health's Whole System Demonstrator study to a relative with diabetes. He was astounded that simple solutions, proven to work so well, were not available to him. He then asked why telehealth was not more widely used in light of positive results and growing demand. A good question.

The 3millionlives campaign has the lofty aim of improving patient care and the lives of those with long term conditions while saving the system up to £1.5bn. But for many, implementation is still a leap of faith.

It is important to acknowledge that some hesitation is created by false assumptions. For example, community nurses may fear that telehealth will distance them from their patients. In fact, telehealth is an effective tool for managing their growing caseload – letting them know who specifically needs help today without the need for unnecessary travel. Some estimate it can improve productivity by up to 100 per cent.

Telehealth is significantly more effective when working across health and social care. It is perhaps too easy to assume that GPs should be the key drivers, expecting them to "prescribe" telehealth but they don't need to be – the remote monitoring and support of patients can be facilitated by community care provision, involving GPs only when specific interventions are required.

Another perceived obstacle is upfront investment but many suppliers now recognise this and are developing new

commercial models, such as contingency payments or weekly cost per head pricing. By taking a closer look at these obstacles, the roadmap to implementation appears clearer and more manageable.

The key is to focus on the delivery of care, rather than the technology itself – which means changing the way people work, moving toward more integrated models and redesigning care pathways. Telehealth is a proven enabler of care but it is important to understand the impact on patients, carers and clinicians, and to communicate continuously.

The real question is not how, but who? It is hard to define a leader given the cross-

**'The key is to focus on the delivery of care rather than the technology itself – which means changing the way people work'**

boundary benefits in a complex landscape. Simply put, the answer is "everyone". The government alongside commissioners, suppliers and providers of care will play an important role in stimulating the market and patients must be informed and encouraged to consider the options.

We will only realise the potential benefits of telehealth if we can cut through the complexity to deliver what will eventually seem to be a practical, simple solution. ●

*Roberta Carter is a partner at KPMG and provided programme management support to the WSD study for three years. [www.kpmg.com](http://www.kpmg.com)*

**Supplement editor**  
Rebecca Creamer  
**Sub editor**  
Cecilia Thom



**“** Spend days in a hospital bed or be at home with family and friends? When offered the choice most people would take the latter option. People who live with long term conditions are no different, so why are we still persisting with a model of care that is based on the need for admissions to hospital?

Around 77 per cent of inpatient bed days are occupied by people with long term conditions – many of those are the result of unplanned and unnecessary admissions. This does not stack up; if people are to be in control of their lives, the NHS needs to provide care where people want it. The real issue is making it safe and accessible.

New technology such as telehealth can transform the way people with long term conditions live their lives. This enables vital life signs to be taken by the person at home and sent quickly and accurately to a health professional. Carers are provided with peace of mind, patients self manage and health professionals receive accurate information to support good care.

Yet if it is such a good idea, why isn't everyone doing it? The big barriers are getting

## **‘Our joint ambition is to see the use of telehealth increase over the next five years to improve three million lives’**

the evidence that it works and finding the money to install the technology. Both of these have now been overcome as a result of work led by the Department of Health. Evidence from the Whole System Demonstrator programme has shown that appropriate use of telehealth and telecare can lead to a 45 per cent reduction in mortality and a 20 per cent reduction in emergency admissions.

The care of people with long term conditions accounts for around 70 per cent of the health and social care budget – that is £70bn. It is indefensible to suggest we cannot find a way to better use that money to deliver improved outcomes. That is why the DH signed a concordat with telehealth and telecare industry leaders agreeing to a unique collaboration to spread the benefits at scale and pace – new business models that rely on lease or maintenance agreements rather than high cost per unit.

Our joint ambition is to see the use of telehealth increase over the next five years to improve 3 million lives. The Whole System Demonstrator programme will lead to people spending more time with family, living their lives as they want and knowing that hospital admissions are not the only care option on offer.

It is a bold ambition but one that, together, we can achieve.

*Stephen Johnson is deputy director, head of long term conditions, Department of Health. [www.3millionlives.co.uk](http://www.3millionlives.co.uk)*



## **WHOLE SYSTEM DEMONSTRATOR**

# **JOINED UP THINKING**

Dealing with growing numbers of people with long term conditions is proving a massive challenge. But, writes Daloni Carlisle, innovative solutions are on the horizon

If you are one of the telehealth sceptics, there is someone you should meet. Haris Patel, 54, has a heart condition, Parkinson's disease and hypertension. He has had several strokes and is a wheelchair user.

Haris used to spend an average of 8-10 months a year in hospital. Then he had an assistive technology package designed around his needs. He had monitors installed so he could take his own blood pressure and other readings and send them electronically to a community matron.

He and his family learned about his condition and he received regular visits, or contact by phone as appropriate, from the community matron when his readings went outside the agreed parameters. No more days waiting for the GP to take his blood pressure, no more pointless routine trips to outpatient clinics.

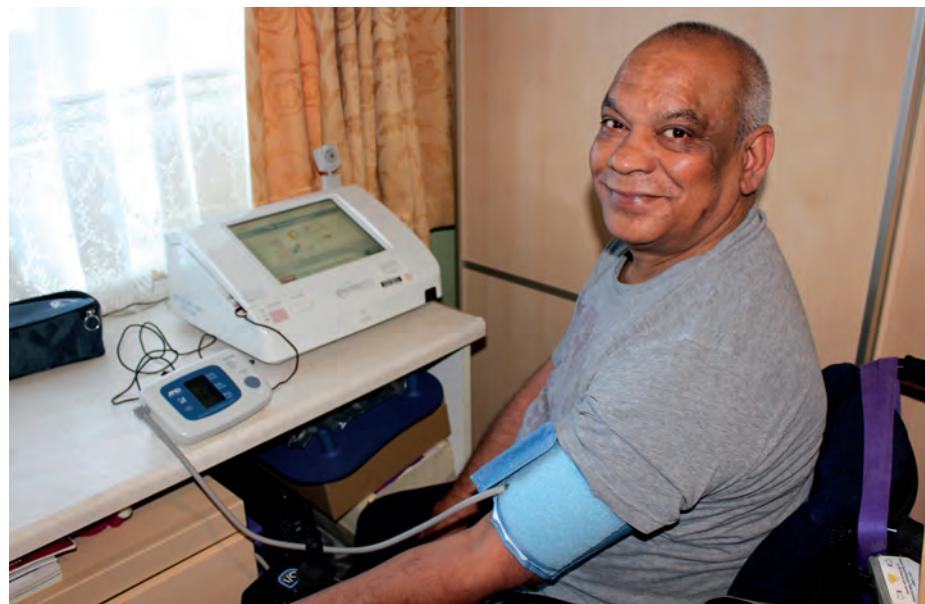
In the five and a half years since he went on to telehealth, he has spent three weeks

in hospital. As he says: “Telehealth has transformed my life.”

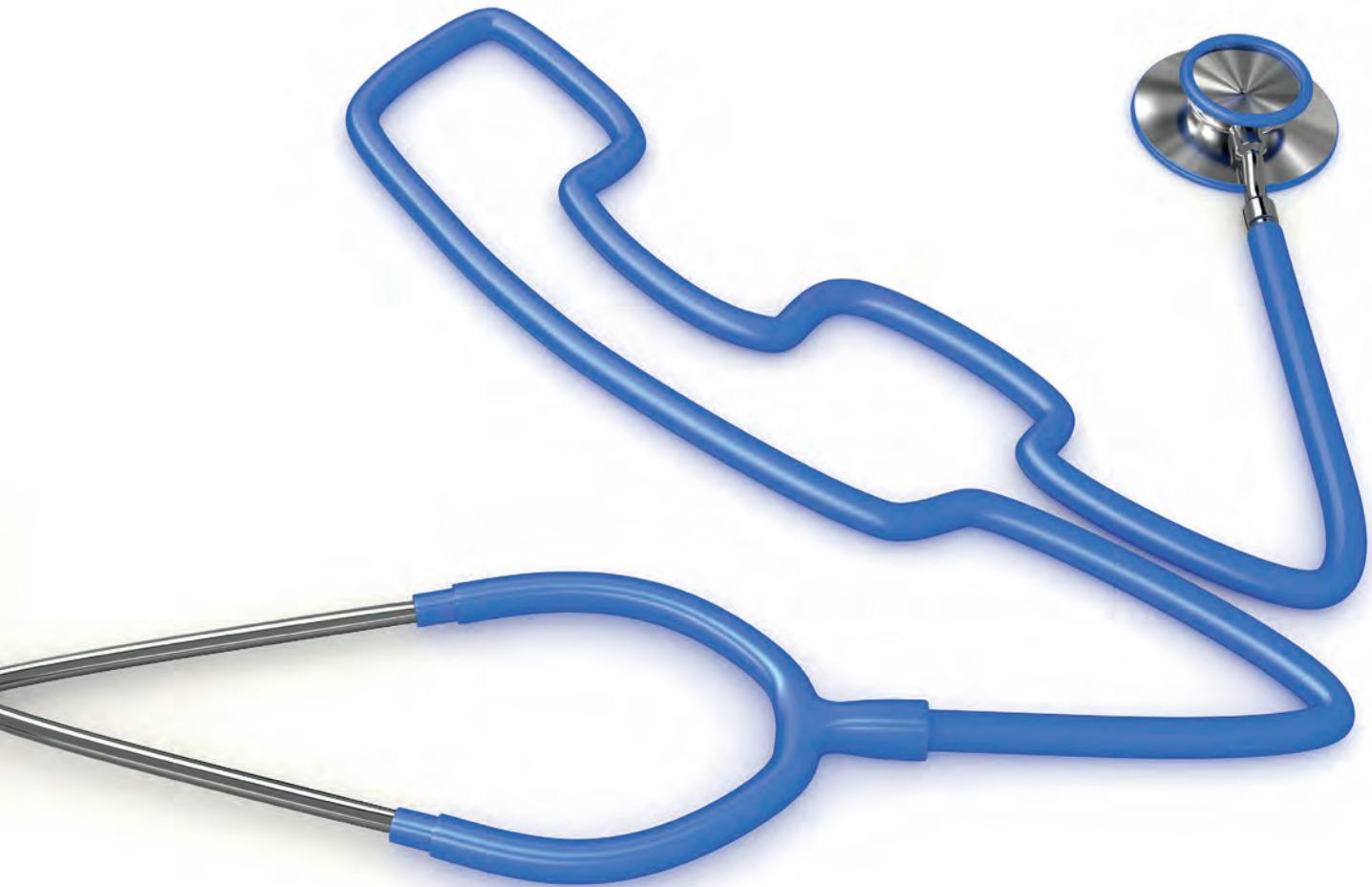
In January 2012, he had enough control over his life and his health to attend the launch of 3millionlives, a programme that sets the NHS a goal to extend telehealth to three million of the 15 million people with long term conditions over the next five years.

“Without telehealth Mr Patel would not be here today,” health minister Paul Burstow told *HSJ* at the launch. “He would be dead.” In his view assistive technologies such as telecare, telehealth and telemedicine make a real difference to people’s lives.

“Implemented well, the programme can help deliver the more personalised NHS and has the potential to save between £1.2bn and £1.5bn over the next five years,” says Mr Burstow.



**Haris Patel, alongside some of his telehealth kit. He has benefited from a personal assistive technology package**



## Making it affordable

For the last few months, the Department of Health has been working to turn the 3millionlives ambition into reality. This includes publishing the evidence, developing the policy drivers, launching the programme, working with industry on how to make it affordable, and developing the commissioning and implementation guidance the NHS will need.

Miles Ayling, director of innovation and service improvement at the DH, says: "We have a growing elderly population. We have a growing number of people with long term conditions and we have growing numbers with multiple long term conditions. That is putting an increasing strain on NHS resources."

But, the challenge of providing high quality care for people living with long term conditions is not unique to the NHS – it's global. Health systems across the developed world are increasingly considering assistive technologies to be the answer.

"One of the reasons why the use of assistive technologies is not more commonplace is the lack of evidence on cost and clinical impact," says Mr Ayling. "Which is why we funded the Whole System Demonstrator programme."

## 'We need a different relationship with industry, one based on trust not transaction, outcomes not investment'

This was the largest randomised control trial of telehealth and telecare to take place anywhere in the world. It involved 6,000 people and took three years. Recently published headline data shows remarkable results. When targeted and used correctly, telehealth can not only deliver a 45 per cent reduction in mortality but also:

- 15 per cent fewer accident and emergency visits;
- 20 per cent fewer emergency admissions;
- 14 per cent fewer elective admissions;
- 14 per cent fewer bed days;
- an 8 per cent reduction in tariff costs.

"These figures are potentially game changing. But, just as importantly, levels of patient satisfaction with assistive technology are very high," says Mr Ayling. "We now have clear academic and scientific evidence that this technology can not only drive

improvements in quality and value in the NHS, but also dramatically improve patient satisfaction and outcomes, save lives, and allow people to live more independently."

There is more detailed data to come, including that about the very high patient satisfaction achieved. Mr Patel, it seems, is not alone. Backed by this evidence, the DH will make the rollout of assistive technology a priority for the NHS. It is already included in the operating framework for 2012-13 and the chief executive's report *Innovation, Health and Wealth*. In future it will be linked to a Commissioning for Quality and Innovation payment and work is underway on a new tariff for to support the delivery of assistive technology.

And now we have the 3millionlives campaign. "Traditionally, there would have been a national project to buy the kit and roll it out to the NHS locally," says Mr Ayling. In the current financial climate that's a non-starter. Nor is there money available at a local level to fund this sort of rollout.

## Different relationship

"We have to do something different," says Mr Burstow. "We need a different relationship with industry, one based on trust not transaction, and one based on

outcomes not capital investment. Innovative people and organisations are starting to develop risk sharing models with the private sector. That will often see industry waive upfront capital costs and, instead, take their income from downstream revenue savings. If they don't deliver, then industry shares the risk. We need this to become the norm not the exception."

In January 2012, the DH and the telehealth and telecare industry collectively signed a concordat to demonstrate a commitment from both sides to work together to accelerate change. Angela Single, clinical director of BT Health and elected chair of the 3millionlives industry working group, says: "Across the board, industry is committed to this."

Over the next few months, the companies involved in selling telehealth services – be that software, hardware or providing support staff – will be developing new funding models.

"That might include pay as you go models or different sorts of risk sharing," says Ms

## 'We have the potential to create the best health system in the world. This will need urgent action from all of us'

Single. "It's an emerging market. Industry needs to look at lower cost commercial models and at innovative solutions."

This is just the beginning of the journey. There is already a great deal of learning, some of which is being collated on the 3millionlives website. Together with industry, the DH plans to make available "how to" guides, develop advocacy campaigns to build patient support and win over sceptical clinicians and managers. As Mr Ayling says: "There is a big job to be done to get people on board."

And in all this there is a huge challenge to health service managers. A clue is tucked

away in the very careful caveat to the evidence: done well, telehealth can deliver.

"The point I often stress is that this is not just a technology rollout," says Mr Ayling. "You have to redesign services and care pathways alongside the technology, one without the other simply won't work. That can be a challenge for already stretched services. That's why we have asked the NHS Institute [for Innovation and Improvement] to develop an implementation support programme for the NHS."

So what next for the NHS? As Sir David Nicholson said in *Innovation, Health and Wealth*: "We have the potential to create the best health system in the world, enhancing the quality of life for people living with long term conditions. This will need urgent and immediate action from all of us."

It is the NHS that will lead this change. It will make an immediate start by building on the actions set out in that report into planning processes for 2012-13, including delivering 3millionlives and other high impact innovations. ●

## CASE STUDIES

### Newham, London

Yvonne Fenn is community manager for primary care services in Newham, London, where she has worked on the Whole System Demonstrator programme since 2008. She is also a district nurse and community matron.

"From my perspective telehealth is all about making better use of scarce resources. This is a deprived borough and we have high levels of diabetes and chronic obstructive pulmonary disease. We need to be able to manage these patients. At the same time, we do not have any more money. We will need to rethink how we deliver services."

"When we started with telehealth, the service was set up with high-level banded nurses reviewing the patients' readings but we found that you do not need them. Now we use trained healthcare assistants.

"We have 250 patients who are in their own homes with various pieces of kit. They might be measuring their blood oxygen levels or their blood pressure, for example. The devices are all bluetooth and linked wirelessly to a small digibox. The patients send readings to a healthcare assistant's team, based in my office, and they feed back to the primary care teams.

"If the readings are normal, [the HCAs] do nothing but if they are even slightly out, they feed back to the district nurse or community matron who will proactively respond. So it's HCAs doing the reviews but the highly qualified nurses making decisions."



"The other thing we learned is that patients do not need to be on telehealth permanently. In the past we would have given patients a leaflet and had a chat about lifestyle changes and hope that things would improve. With telehealth, we have new ways of educating patients and carers. They can do weekly lifestyle surveys and watch videos. They can see their readings and how they change and link that to what they have been doing that day or that week. I would say patients benefit from having telehealth for six months to help them educate themselves."

"We are still quite limited in terms of referral tools. We identify patients who are at high risk of an emergency admission and are looking at how we admit patients who come in and out of our virtual ward to prevent that

'revolving door syndrome' and start to educate them and the people around them."

"Now we are working with Newham Primary Care Trust [part of the NHS East London and the City cluster] to try to develop the business case for going forward. It's all looking very positive. We need to plan telehealth into a future design of community services."

"I think clinical commissioning groups will be attracted by the fact that we can manage more patients than traditional services. They think it is going to cost more but I think that is short sighted. If you can manage someone's diabetes better now you may not have to treat their leg ulcer later. This is an investment. I really cannot imagine a future without telehealth. It's the way forward for an ageing population."

## Cornwall



Dave Tyas is telehealth and service improvement manager at Peninsula Community Health in Cornwall. Cornwall's telehealth service began as a pilot and in March 2010 became mainstream.

"We run telehealth as a central service with a dedicated team whereas most other organisations are trying to embed it into community nursing or GP practices. Some are using a supplier to do part of the triage and alerting clinicians to the high level issues. We have one team of clinical staff doing the monitoring from a service centre day to day. We have support and administrative staff to look after the bookings and provide a telephone helpline for patients. We have a field team who install the equipment, clean it and calibrate it.

"The service itself puts the emphasis back on patients. The whole time we are doing self care and patient education. So if a patient has readings outside the norm, we contact them and give them guidance about what they can do. That might be advising them to visit their GP or call their community nurse or the acute care consultant.

"We also talk to the clinicians, so they know if one of their patients has an issue we will tell them. They can then decide whether a further intervention is necessary. We can act as a bridging point between different services.



"We feel it works really well. We are completely self-contained and in control of all aspects. It gives us economies of scale and has allowed us to build up expertise among the staff too. Working this way is a skill and needs a certain number of staff. If every single practice had to monitor all its patients daily, each one would need the skills and the staff to do it.

"We see this as an additional service that feeds into what practices and acute services are doing and one that supports community nursing.

"Telehealth does require community services to reorganise. They need to understand it and embed it in patient pathways. It is really for GPs, nurses and consultants to understand when it is appropriate to refer someone.

"Currently the service is funded by the primary care trust but in future it will be commissioned by clinical commissioning groups. We are having discussions about that now. We have the national drivers with the operating framework and now 3millionlives. It is in our strategic long term conditions commissioning plan, which is looking to see 30,000 people in Cornwall on telehealth in the next three years.

"The evidence base is now there to say this works. The biggest hurdle we face is the challenge of embedding this in patient pathways and ensuring that clinicians have a good understanding of the benefits."

**'The service itself puts the emphasis back on patients. The whole time we are doing self care and education'**

## Kent



Sharon Lee is currently national coach for Quality, Innovation, Productivity and Prevention's long term conditions workstream in the south east. She is a nurse and has been involved in telehealth projects in Kent since 2006, including the Kent Whole System Demonstrator programme.

"Telehealth is reviewed by clinicians – that might be the community nurse, GP or consultant depending on who wants to take the lead. The crucial thing is that someone must take that lead.

"We see it as a tool. It's like having a stethoscope – an extra way for clinicians to manage their patients. It's part of their work, not an add on. It is not about the technology but about the system you wrap around it. In my view, when you set up a call centre and have different clinicians looking at the data, that's when it becomes an add on.

"I think clinicians are waking up to what telehealth can do and how it can empower patients but there is a real management job in setting up services. For a start, you cannot just give the technology to existing teams without having a look at how they work and what they need it to do for their patients.

"It really does not matter what the kit is as long as it meets their patients' needs. It could be a simple app on a mobile phone or a more complex set of equipment. We need innovative managers to give clinicians the tools to do the job. You also need the right clinical guidance behind it and the right skills in the staff. You need operating and monitoring standards, patient safety guidance, information governance and

clinical risk assessments. You need to develop competencies for staff, for example around audit. All this needs to be considered. You also need a business continuity plan. If you have set up services and the IT system goes down, what are you going to do? You need to have a standardised approach.

"I think we also need to consider very carefully what eligibility criteria we use. Some people are using risk stratification to identify high risk patients. But is there an argument for using it as an enabler for better self-management in newly diagnosed patients? That's the point at which we need to slow down the acceleration of the disease process.

"The evidence base is now substantial for the benefits. In our early pilots in Kent we showed savings of over £1,800 per patient. Now the Whole System Demonstrator data is starting to filter through and although, yes, there is a cost initially, it is worth it in terms of the long term benefits you can realise.

"Personally, I think it is the best thing since sliced bread. When I go back to my clinical practice [Ms Lee is seconded from Kent Community Health Trust] I would hate to be told I could not use it."

**“**Throughout NHS history significant advances in medicine have depended on brave innovation. From the discovery and first use of antibiotics to the first immunisation or the first organ transplant, innovators have taken risks and challenged orthodoxy. Clinical and managerial conservatism combined with organisational bureaucracy often retards rapid implementation of proven new treatments.

Telehealth is an example of an innovative treatment that has been slow to be adopted despite a wealth of published evidence from the UK and abroad demonstrating its power to improve clinical outcomes while simultaneously reducing the use of healthcare systems for chronic obstructive pulmonary disease, diabetes, heart failure, depression and post traumatic stress disorder.

In December 2011 the government published evidence from its Whole System Demonstrator programme that confirmed the power of telehealth to deliver four major wins: improved clinical outcomes; increased speed of delivery of clinical care; significantly reduced unscheduled and elective care; and reduced total NHS expenditure.

The government believes 3 million patients with long term conditions may benefit from telehealth and plans to encourage the adoption of large scale telehealth programmes through its 3millionlives campaign.

## **‘Bodies in the UK need to be persuaded that for a modest investment there are significant savings’**

For the government to succeed in delivering its telehealth aims and for large numbers of patients to benefit from telehealth three things need to happen. NHS commissioning bodies throughout the UK need to be persuaded that for a modest investment in telehealth there are significant short to medium term savings to be made. This will require leadership from clinicians who may be initially sceptical and an understanding from financial controllers that telehealth provides one of the most powerful tools to achieve cost efficiencies.

Second, clinicians in primary care must be reassured that, although telehealth will require some redesign of delivery systems, it should always complement rather than undermine current systems for delivering managed care to their growing number of patients with long term conditions.

Finally, local health economies need to be provided with real working examples of how telehealth can deliver cost effective care that fully integrates primary and secondary care. *Dr Julian Neal is a senior GP partner at Portsdown Group Practice in Portsmouth and medical adviser to Telehealth Solutions. www.thsl.co.uk*

## **INTEGRATION**

# **THE LAST PIECE**

Rather than being afraid of new technologies clinicians and leaders should fit them into their skill set, writes Helen Mooney

“There are enormous savings to be made from the implementation of telehealth that could be reinvested in patient care,” says chief executive of Telehealth Solutions John Dyson. “We estimate that these savings could be more than £1bn per year which, combined with the improvement in clinical outcomes demonstrated in the Whole System Demonstrator programme results, makes the adoption of this approach a real and pressing necessity.”

The key message to the NHS to make telehealth work for both patients and NHS professionals is that there is a need for real integration and joined up thinking. Julian Neal, a senior GP partner at Portsdown Group Practice in Portsmouth and medical adviser to Telehealth Solutions, is a keen advocate of technology and telemedicine in healthcare. He says integration between secondary and primary care and within the community in local health economies in its broadest sense will be the catalyst the government is hoping for in order to make its 3millionlives campaign a reality.

“For telehealth to be successful it has to complement what the NHS already does, and create more capacity, and not burden the NHS with more work. I believe that telehealth can significantly decrease the workload of clinicians and nurses.”

### **Financial pressure**

The problem is that the integration of primary and secondary care has so far not been emphasised sufficiently.

“There are 22 private finance initiative hospitals in England which are under huge financial pressure and have to sweat their assets and their bricks and mortar so it’s better to take out clinical work that can be done elsewhere and put something in that is profitable. Forward thinking finance directors of hospitals will be persuaded to take out the non-profitable stuff,” he says.



# IN THE JIGSAW?



Although Dr Neal admits integrating telehealth within existing health economies risks being more complex, telehealth need not be seen as yet another layer that will cost more money, if it is integrated.

“Telehealth can be integrated with central triaging systems so that one specialist nurse can look after at least 100 patients every day, whereas if she had to see them every day this would not be possible. The model we have means if a modern matron is already doing some monitoring or if practices wish to be more involved in monitoring with telehealth they can be – they can build up confidence in the system and then move to a central triaging structure which frees staff up to do other things.”

## More capacity

One of the NHS' biggest problems for the future is how to create more capacity; proponents of the telehealth model say technology is the answer. Centralised triaging systems can help medical professionals access and provide services to many more patients on a day to day basis than they would be possible otherwise.

To date Telehealth Solutions' biggest success has been the rollout of its medical HomePods in some parts of Scotland (see Argyll and Bute case study). The devices are installed in the homes of patients with long term conditions and allow clinicians to monitor and decide if and when hospital admission is required.

The system is designed to save the NHS money in three ways: cost savings arising from reductions in the number of hospital admissions, reductions in the number of home visits by the GP, and reductions in the number of appointments at the GP surgery. There is also the additional benefit of a reduced carbon footprint. The company estimates the HomePod could save the UK more than £70m in two years from the cost of care for patients with chronic obstructive pulmonary disease.

Mr Dyson says transforming the way the NHS delivers healthcare services is about working with clinicians to support them in “understanding and embracing these new technologies”. Dr Neal agrees. He says one of the challenges in embedding the use of new technology in the NHS is that health

**‘Telehealth may well slow down recruitment in future but it will not make people redundant in the here and now’**

professionals “feel threatened that it will make them redundant, but I have never seen technology make people redundant”.

He adds: “What it means is that in the same amount of time professionals can manage more patients, we can upskill some people in terms of triaging and we can deliver a much better level of chronic disease management.

“Telehealth may well mean the slowdown of recruitment of professionals in future but it will not make people redundant in the here and now. It is complementing what we are doing and tailoring long term conditions management, but some patients will always still be a need to see health professionals.”

Telehealth Solutions commercial director Mike Evans says there is great potential for the expansion of telehealth technology so patients will be able to use video conferencing to consult with doctors and nurses either on their HomePods or by linking them to their television screens in the comfort of their own home. He says the company is also looking at working with GPs and hospitals to work on “virtual wards” so people can stay at home when they normally would have gone to hospital.

One of the great challenges for the telehealth community is to convince those holding the purse strings that investing in this technology is not an extra expense but has the potential to save significant amounts.

Dr Neal also believes telehealth is a powerful tool to deliver the Quality, Innovation, Productivity and Prevention agenda. “Telehealth is perhaps the most powerful innovative game changer around and the NHS would be well advised to embrace it. If all we do is just try to keep people out of hospital [because of QIPP] the patient will do badly, but if we create more capacity that has to be better and more cost effective,” he says. ●

## CASE STUDIES

### Argyll and Bute

On the islands of Argyll and Bute off the west coast of Scotland patients with chronic obstructive pulmonary disease are using HomePods to avoid being admitted to hospital. The devices were initially rolled out to 16 patients across the two islands in March 2009 to allow clinicians to remotely monitor health and decide when hospital admission is required.

The HomePod trial, which is being funded by NHS Highland and Argyll & Bute Council, initially started as a pilot for patients with lung disease, but the devices can be used to monitor a variety of common conditions including heart disease and hypertension.

The telehealth system assesses:

- General health status;
- Coughing, sputum production, colour and consistency;
- Whether the patient's ankles are swollen;
- Oxygen saturation and blood pressure through peripheral equipment.

Using the kit, patients can monitor their vital signs on a daily basis, checking things like lung function and blood pressure. Once the information is processed, it is sent on to the patient's GP or community district nurse to be analysed. Changes in a patient's condition can be detected and acted on very quickly.

Each device costs £1,300 to install in a patient's home but according to long term conditions manager for Argyll & Bute Community Health Partnership Maggie Clark they are already paying for themselves. She is so convinced telehealth

### COST SAVINGS

Savings from the HomePod are generated by reductions in the number of hospital admissions, home visits by the GP, and appointments at the GP surgery. The average cost of a single hospitalisation is £2,426, whereas the average cost of the HomePod is £1,300 in the first year and £200 per year after that.

According to Telehealth Solutions' figures, assuming that HomePods are given to patients who are expected to have two or more hospital admissions a year, the devices can deliver an approximate net saving of £3,552 per HomePod user in the first year and £4,600 in subsequent years.

The company says the net saving for the most unstable patients who have chronic obstructive pulmonary disease could be scaled up by 10,680 – the number of frequent hospital attendees – delivering additional savings of £30m in the first year and more than £70m for the first two years.



HomePods such as this have allowed patients to monitor their own vital signs

**'We thought there must be a better way to do this and with telehealth coming in we looked for a new solution'**



systems like these are the way of the future that a further 60 patients are set to receive them in the coming months.

"COPD is one of the diseases with the highest admission rates to hospital and we have a lot of revolving door admissions from patients with COPD who were in and out all the time because they did not have access to specialist respiratory services, particularly on the island of Bute," Ms Clark explains.

"We thought there must be a better way to do this and with telehealth coming in we looked for a new solution," she adds.

She says the touchscreen device, which is very similar to a tablet PC, asks patients a series of questions. According to their responses it prompts them to act in ways that will improve their condition and educate them at the same time – which Ms Clark says is "probably the biggest bonus".

"The device also checks their oxygen saturation levels every day and their blood pressure and weight weekly. A community nurse will check these results every day and contact patients by phone or home visit or ask them to come in to see their GP depending on the results."

Telehealth Solutions commercial director Mike Evans says using the device offers patients an "unprecedented sense of freedom and also peace of mind that they are taking charge of their own health".

"Crucially, it also removes the temptation for self diagnosis, either through books and magazines or on the internet, which is all too common but which can also be very dangerous."

"For today's NHS professionals, many bound by budget constraints, offering patients the chance to take charge of their own health where appropriate – and with remote medical guidance – is a fantastic step forward," he adds.

However, Ms Clark does admit to initial scepticism and suspicion among parts of the medical profession at the introduction of the telehealth system.

"Fortunately we had one nurse who could see the benefits of it from the start and become a community champion for it... and most GPs came on board when they saw that any increased workload that it generated was appropriate and not down to having to use the technology," she says.

Despite the evidence that it works well, however, she says the team is still having to do a lot of work to break down the barriers in the medical profession and convince clinicians of the benefits that telehealth can bring.

## Bournemouth, Poole and Dorset

Just over two years ago NHS Dorset and NHS Bournemouth and Poole managed to secure some regional innovation funding from the government to help kick start its telehealth service across the county in order to help patients self manage their long-term condition with particular attention on those patients with COPD and chronic heart failure.

The PCTs are aiming to roll out a telehealth service to 300 patients this summer with each patient assigned a “key” healthcare worker in the form of a community matron, district, or practice nurse who will work with the patient to gain a greater understanding of their condition using telehealth to reach a “personalised goal”, along with self management of their condition.

According to Julia Marston, telehealth project manager at NHS Dorset, the primary care trusts have benefitted from some “fantastic engagement” with health professionals who have “helped shape the project from the bottom up”.

She says that the PCTs believe that telehealth can offer “real benefits to both local patients and the wider health community”.

**‘We can develop a service that meets the needs of local people and helps to successfully manage long-term conditions’**

“We are really excited to be involved with such a positive project. By understanding the experiences of patients, GPs, nurses and other professionals we can develop a service that truly meets the needs of local people and helps to successfully manage long-term conditions in Dorset”.

The PCTs ultimately hope that by using telehealth they can reduce emergency admissions to hospital because of a reduction in the number of patients whose long-term condition has become “unmanageable”.

Both organisations are also keen to test whether the equipment can be rolled out to other long-term conditions patients in future and wants to find “more innovative ways to enhance patient care and patient self management”.



## Portsmouth

In Portsmouth a partnership between a group of GPs at the Portsdown Group Practice and Telehealth Solutions has been set up to develop a range of telehealth products that are “clinically led and financially driven”.

Drawing on the practice’s 30,000 registered patients and with the help of health economists, the practice plans to gather robust clinical and economic data to convince other medical professionals that telehealth works, and contribute towards delivering the government’s ambitious telehealth agenda.

Senior partner Julian Neal says the practice has experienced “the power of telehealth to increase the ability of its chronic disease management teams to care for thousands of its registered patients with long term conditions by utilising central triaging systems”.

“This has reduced the burden on overstretched staff. It’s a remarkable win-win situation for both patient and practice,” he adds.

The practice has already rolled out telehealth devices to some of its patients

with chronic obstructive pulmonary disease and from March that will be extended to a cohort of patients with diabetes.

Local hospital consultants have been keen to get involved with the work. Partha Kar, consultant diabetologist at Portsmouth Hospitals Trust, thinks the power of telehealth’s clinical algorithms will increase integration between secondary and primary care and reduce lengths of hospital stay.

According to Dr Kar most patients with diabetes do not come to hospital. “Unless it’s super specialist stuff like patients who need dialysis or are pregnant with diabetes, patients with diabetes do not need to come in,” he says.

He goes on to say he is a “big, big fan of technology” and thinks using clinical algorithms to ask patients a series of questions about their health and their condition would make it much more likely for them to manage their conditions better and stay out of hospital.

“This will save money because it will pick up the ‘frequent flyers’ who come into hospital regularly and cost the trust and the health economy a lot of money,” Dr Kar says.

**‘This will save money – it will pick up the “frequent flyers” who come into hospital regularly and cost the trust a lot of money’**





In association with

**BROOMWELL**  
**HealthWatch**   
TeleMedical Monitoring Services™

**“** Around 2 per cent of the patient population experience cardiac symptoms, which require an electrocardiogram – the basic cardiac diagnostic tool. ECGs are easy to record but quite complex to interpret and therefore require expert analysis and interpretation.

As the majority of GPs do not specialise in this field (GPs already are, in effect, all-round specialists) and because reliance on computer interpretation is generally considered to be clinically unsafe, patients are often referred to outpatients or diagnostic centres.

Broomwell Healthwatch offers a service that enables ECGs to be recorded and interpreted within surgeries, within minutes, at a fraction of both the time and cost of comparable provision.

ECGs are recorded and transmitted down the telephone line or via the internet to the cardiac centre, where expert cardiac clinicians give an immediate analysis, then send full written reports, which are filed in the surgeries' electronic patient records.

The service results in huge reductions in referrals, a greatly enhanced patient experience in terms of immediacy and convenience, GPs being able to make immediate and better informed diagnoses, and significant financial savings for surgeries and commissioners. Those who use the service – which is now in use in some 40 primary care trusts – are very enthusiastic. It's one of those rare projects that is great for patients, great for GPs and great for the NHS.

The service has been in operation for around seven years, has been through rigorous NHS pilots and has won numerous national awards. Yet, dissemination and adoption of it is not easy. In some areas, dynamic and visionary leadership within the cardiac network, PCT or clinical commissioning groups has led to its hugely successful implementation whereas, in others, there appears to be a resistance to change and new ideas.

The result is there is often a vast anomaly in service provision – while surgeries on one side of a road carry out ECGs for patients in the surgeries and within minutes, surgeries across the road, in another PCT or CCG, still dispatch patients to hospital or diagnostic centres.

For the Department of Health and NHS to allow such disparity in the provision of a basic service like this is incredible. It is time for a major paradigm shift. No one would tolerate referrals for a stethoscope so why is it tolerated for ECGs when there is such a simple and practical alternative? Perhaps, the DH and NHS should mandate that such a service becomes the norm and every non-provider be forced to explain why they are not using this pathway and why they are still in the steam age.

*Joshua Rowe is chief executive of Broomwell Healthwatch.*  
[www.broomwellhealthwatch.com](http://www.broomwellhealthwatch.com)

## ECG AND ARRHYTHMIC SERVICES



# THE HEART OF DIAGNOSTICS

Accurate, quick and cost effective analysis of ECG data could bring about a revolution in how GPs treat patients with chest symptoms, writes Helen Mooney

In 2008 Labour prime minister Gordon Brown promised that electrocardiograms, blood tests and ultrasounds would become a feature of every GP surgery “when patients want and need them”. His aim was to focus on prevention rather than cure for some of the conditions that put the biggest strain on NHS resources.

Fast forward four years and the coalition government is also focusing its attention on prevention and pinning some of its efforts on telehealth and telemedicine in the hope that such technology will help prevent people from being admitted to hospital.

The government believes telemedicine can help patients become empowered to

take control of their health and manage their conditions but it also hopes that in the long run this new technology will save the NHS much needed cash.

### Good examples

It is common knowledge that preventive diagnosis and screening programmes can do just that – improve patient care and save the NHS money – and there are now some good examples of how telemedicine is working to improve care both at home and in the community, including in GP surgeries.

One specialism in which this has already started to happen is with ECGs. At present few GPs across England have access to their own in-surgery ECG machine, and those that do often do not have skilled interpreters available to analyse the results. More often than not this means patients are sent to their local hospital for diagnostic tests.

However, across the country around 800 GP surgeries are now using an ECG device that can provide the immediate interpretation of ECGs. Developed and operated by Manchester based company Broomwell Healthwatch the technology was also championed by the government when it announced it would allow any qualified



ECG results can be interpreted quickly at a clinical cardiology centre



## 'The technology is invaluable in saving patients an unnecessary and worrying trip to the hospital'

provider to tender for and provide NHS services. Broomwell Healthwatch has set up a service that helps GPs expertly interpret ECG tests, which are often performed at GP surgeries. It also means patients can avoid unnecessary visits to hospital and anxious waits for test results.

Heart disease is one of the UK's biggest killers so it is unsurprising that the cost of diagnosing, treating and caring for patients with cardiac related problems such as coronary heart disease represents the single heaviest financial burden on the NHS every year – an estimated £34bn is spent on cardiac care annually. The advantage of this type of telemedicine is that it has the potential to cut down much of this cost.

### Bread and butter

Chief executive of Broomwell Healthwatch Joshua Rowe says an ECG is a "bread and butter" diagnosis that most doctors don't know how to interpret.

"Most GPs are not cardiac specialists so in about 85 per cent of cases, if a fellow walks into a GP surgery with chest symptoms, the first thing the GP will do is ship him to the outpatients department of an acute hospital for an ECG. At tariff this costs about £250."

Mr Rowe says in some cases non specialist GPs are still carrying out their own ECG interpretations if they have the ECG equipment in their surgery or are using generic computer interpretation – both of which he warns are dangerous, with an error rate of up to 47 per cent.

"What we offer GPs is a device the size of an electric shaver which can be used to

transmit the ECG results to our clinical cardiology centre acoustically by phone. It comes through to us as an image and a specialist cardiology nurse or registrar will interpret the results and feed them back to the GPs immediately".

### Immediate response

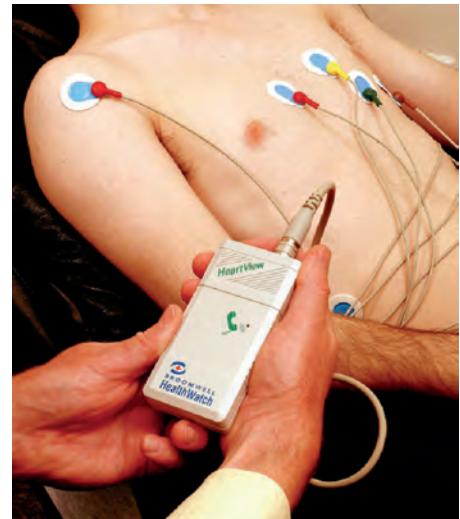
Cheryl Tomkinson, a senior clinical cardiac nurse, has spent much of her career in the NHS and now works in Broomwell Healthwatch's clinical cardiac centre. She believes the technology is invaluable in saving patients an often "unnecessary and worrying" trip to hospital and a long wait for their ECG test results.

"This technology means GPs and practice nurses can get the expert interpretation they need straight away," she says.

Since introducing the service Broomwell Healthwatch has interpreted over 200,000 ECGs – approximately 1,600 a week.

"Where a hospital charges around £120 for an ECG test alone and the patient gets their results in two or three weeks, we charge £21 and can give the results in five minutes. The equipment costs £250 so if a GP surgery does 100 ECGs a year it costs £2 an ECG – the average GP surgery does around 120 a year so it's even cheaper than that," Mr Rowe explains.

Despite steady take up he admits he is puzzled why, when the NHS is trying to save more money than ever before, organisations are not making more use of telemedical equipment. Analysis of the company's own data has shown that of 10,000 ECG transmissions done in the past 20 months,



Transmission of ECG results is achieved through a portable handset

85 per cent of patients who were tested did not need to be referred to hospital at all. Without the test 57 per cent of the patients would have been referred to hospital. According to the results, if the ECG service was rolled out across all surgeries in England it would equate to a reduction of more than 400,000 hospital referrals per year nationally with huge associated cost savings.

For the NHS, dealing with health issues in a primary care setting or in a patient's home, without having to call on emergency services or secondary care providers, can mean significant cost and resource savings and a reduction in the burden on government health resources.

The benefits of cardiac telemedicine in GP surgeries are evident. It not only cuts waiting lists, but also gives patients easier, faster access to diagnoses for worrying symptoms of chest pain, thereby reducing anxiety and inconvenience. However, it remains to be seen whether in future more patients will have access to this kind of treatment – only time will tell. ●

## CASE STUDIES

### Greater Manchester and Cheshire Cardiac and Stroke Network

According to Joe Rafferty, director of commissioning and performance at NHS North West, the deployment of Broomwell's service across Greater Manchester proved to be "extremely successful".

"Using telemedicine to bring essential health services closer to patients in a primary care setting is beneficial to both patients and the NHS, and I think a service such as this has the potential to make a great deal of difference to health services across the UK. It is now timely for commissioners to be embracing these services to meet the future demands of healthcare provision," he says.

In 2008 the Greater Manchester and Cheshire Cardiac and Stroke Network piloted Broomwell's electrocardiogram telemedicine technology. Over a 12 month period in 38 surgeries across four primary care trusts, GPs used it on 3,406 patients. Doctors using the equipment reported that without the service they would have referred 58 per cent of these patients to hospital for an ECG.

According to Karen Gibbons, the cardiac network's service improvement manager, the pilot was prompted by an audit across Greater Manchester that showed "a lot of inappropriate referrals to hospital".

"We looked at ECG recording as a

### 'In practices that are using the service, patients no longer have to wait several weeks to receive their ECG test results'

possible way to reduce these referrals," she explains. Ms Gibbons admits it was "hard work" getting PCTs on board to roll out the pilot to their general practices because of fears the technology would deskill those who already had the skills to interpret ECG results. But, she adds, use of the telemedical technology has really benefitted patients.

"In practices that are using the service, patients no longer have to wait several weeks to receive their ECG test results. They turn up at the GP [practice] and get an instant answer which negates the need for a second GP appointment, as well as negating the need for a referral to secondary care," she explains.

Although the government is keen on this kind of telemedicine as a way of giving patients in rural areas better access to specialists, the results from Manchester

show it can be just as useful in the inner city, she adds.

"The service has great potential and has demonstrated that, if used on a national level, it could generate huge savings for the NHS every year."

Results from the two year pilot showed a direct net saving of nearly £263,000 because of reduced referrals to hospital and revealed the service could prevent approximately 63 per cent of referrals to secondary care if rolled out across the network.

The trial, which started in 2007, enabled more than 2,000 people to avoid a trip to hospital, saving the NHS thousands in care costs as well as eliminating patient delays, stress and anxiety through quicker, more convenient diagnosis.

### GREATER MANCHESTER PILOT RESULTS

PCT provider	ECGs performed	Referrals to secondary care prevented
Bury	586	352
Central Manchester	598	194
North Manchester	894	216
Stockport	1181	254

### Cumbria and Lancashire

In 2008 a six month pilot in Cumbria and Lancashire involving 15 GP practices and two NHS walk-in centres showed that 82 per cent of patients who received electrocardiograms did not need to go to hospital after having the test.

This has helped to demonstrate that the system has the potential for substantially reducing accident and emergency attendance by offering a sophisticated ECG service in primary care.

NHS North West says the system is now being used in 150 practices in 10 primary care trusts across the region. The evaluation in Lancashire demonstrated the potential to save 90,000 A&E visits and 45,000 hospital admissions each year in England, which would result in a minimum saving to the NHS of £46m a year.

The strategic health authority audited 55 patients who were treated using the system and found it saved 16 A&E attendances and

four hospital admissions. Offset against the costs, the six month pilot scheme saved £3,965.

Calculations from the pilot showed that approximately 16 per cent of potential referrals to hospital could be avoided.

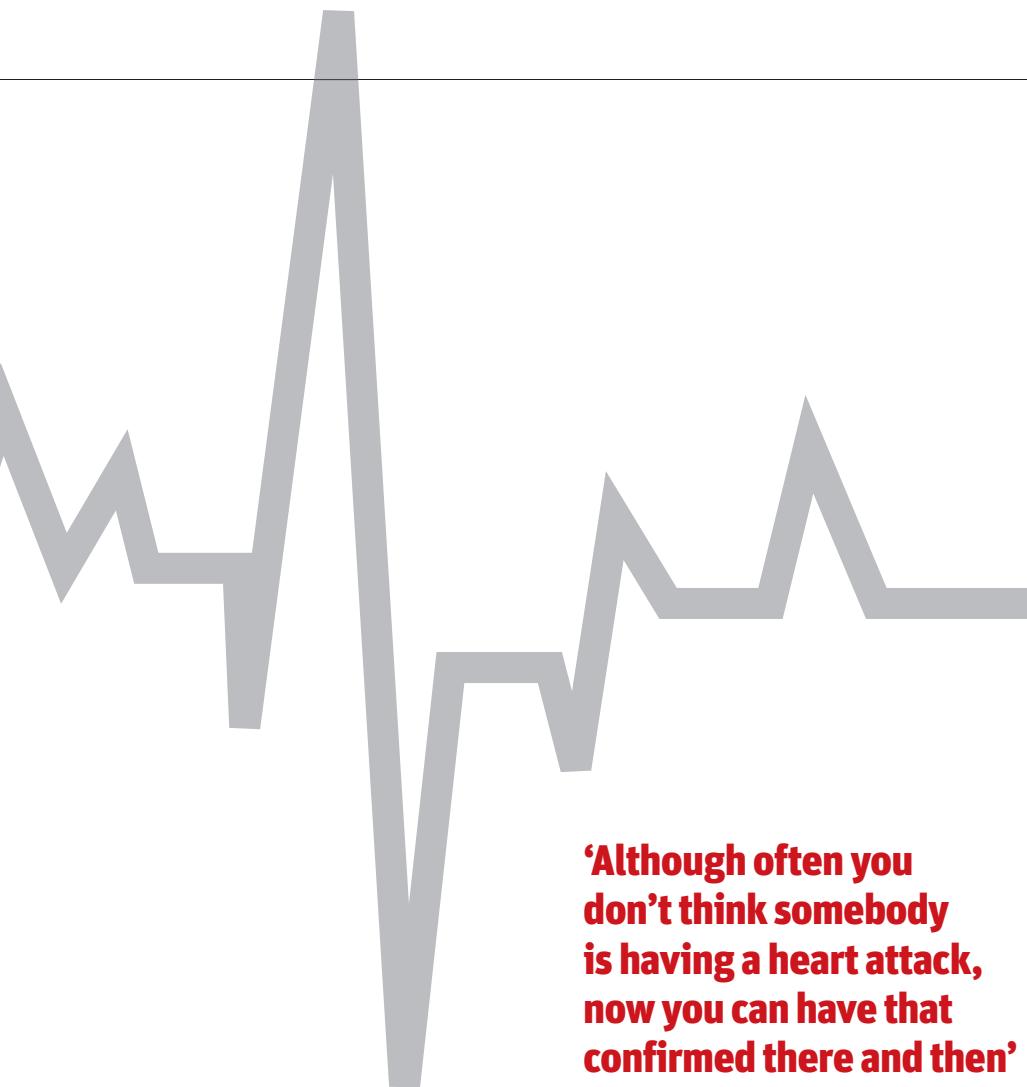
The savings a general practice could make in its first year of using the ECG service if 50 per cent of these patients would previously have been admitted are shown in the box (left).

### POTENTIAL SAVINGS

Nine (16 per cent) of 55 A&E attendances avoided Cost per attendance = £101	<b>£909</b>
Four hospital admissions for chest pain avoided Cost per spell for patients = £1164	<b>£4656</b>
Hospital attendance savings	<b>£5565</b>
<b>Capital and revenue expenditure</b>	
One ECG machine	<b>£500</b>
55 ECG readings (£20 each)	<b>£1100</b>
<b>TOTAL</b>	<b>£1600</b>
Saving for re-investment by practice over six months	<b>£3965</b>

ECG equipment is very portable and easy to use





## St Gabriels Medical Centre, Prestwich

Jonathan Lieberman, a GP at St Gabriels Medical Centre in Prestwich, has been using Broomwell's handheld electrocardiogram device in his surgery for several years. He says he sees at least one patient a week who needs an ECG.

"Before, you would have sent them to casualty where they would have had to wait for four hours," says Dr Lieberman. "Although often you don't think somebody is having a heart attack, now you can have that confirmed there and then. It means you're not having to waste time."

St Gabriels provides care for over 8,500 patients and Dr Lieberman says the practice has "greatly benefitted" from the service.

"Although we have access to a conventional 12-lead ECG machine, staff were not 100 per cent confident in interpreting the results. Introducing this service has greatly eased the pressure on staff."

He says a further benefit of the ECG devices is their portability so staff can not only use it in several different rooms within the practice but also on home visits and during out of hours calls.

He estimates that 90 per cent of patients who come in for an ECG test avoid having to be admitted to hospital.

## Bridgwater Community Hospital, Bridgwater

The minor injury unit at Bridgwater Community Hospital in Somerset is clinically managed by advanced emergency nurse practitioners and supported by staff nurses. The hospital, which is managed by Somerset Primary Care Trust, provides unscheduled urgent care for almost 20,000 patients per year.

In 2007 the organisation decided to trial the use of Broomwell's electrocardiogram service to provide expert cardiology reporting for patients attending the hospital's urgent treatment centre. Previously, patients with chest pain or known cardiac conditions were automatically referred to the neighbouring acute trust. The hospital found this was not only time consuming and often stressful for patients but that it also placed a significant workload on acute care and the ambulance service.

The service now in place is aimed at improving clinical outcomes to help reduce the pressure on medical professionals within the hospital.

According to Mike Paynter, a nurse practitioner in emergency care, having

access to fast, expert advice on sometimes complex cardiac issues is an "invaluable aid".

"Crucially it helps us to make informed clinical decisions in order to deliver optimal patient care. I would like to see this type of service rolled out to all minor injury and urgent treatment centres across the country – it brings emergency department standards of diagnostic support into the community."

Mr Paynter explains that the service is most valuable for patients who only have subtle signs and symptoms that something is wrong and believes this is when using the technology can be most effective.

He says the "key element" in using the ECG device and reporting is the ability to carry out an assessment and diagnosis of non-cardiac chest pain in a community hospital.

He believes the ECG analysis service has proved a "vital diagnostic aid" for nurse practitioners in making informed clinical decisions and improving outcomes. As he explains: "The ultimate clinical responsibility rests with the nurse practitioner managing the patient."

According to Mr Paynter, at a local level,

use of the interpretation service has resulted in more patients being managed as complete episodes in the minor injury unit, fewer referrals to acute care and fewer ambulance transfers.

He says the clear clinical benefits of using the system were clearly demonstrated during the initial trial when a patient who had fallen presented with a fractured arm. The nurse practitioner was also able to identify bradycardia (a very low heart rate that can lead to a cardiac arrest) and the subsequent ECG showed a complete heart block. The patient was immediately transferred to the acute trust's coronary care unit for treatment.

**Broomwell's ECG device**

“ I get together with the girls every Tuesday to have a natter and play some poker. Even though we’re only playing for pennies I still get a real buzz when my card comes up. I may not be as sharp as I used to be but I know a bluff when I see it!

This is *my* Freedom,  
what's yours?

Janet | Birmingham

Tunstall Healthcare is the UK's leading provider of telehealthcare solutions. Our technology and services play a key role in helping older people like Janet and those with long-term health and care needs to stay out of hospital or residential care and enjoy a better quality of life.

**Tunstall LifeCare**  
Freedom to live  
*your* life.

**Tunstall**

[tunstall.co.uk](http://tunstall.co.uk)