

# Telehealth

What can the NHS learn  
from experience at the US Veterans  
Health Administration?

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January 2012



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## About this publication

In November 2010 we brought out our report “Healthcare without Walls: A framework for delivering telehealth at scale”. It was welcomed as both timely and practical, and we know it has been a useful aid to policy makers’ thinking about the key role telehealth has to play in transforming the care of people with long term conditions.

This report looks in more detail at what we can learn from the largest implementation of telehealth anywhere in the world: The Veterans Health Administration in the USA. With the Government’s recent announcements of the positive results of the Whole System Demonstrators and the launch of the 3 Million Lives Programme, this report is timely as stakeholders plan how best to address telehealth at scale and deliver the significant potential benefits.

During the course of this work we benefited from interviews and discussions with many of those working at the VA. We would like to thank all those who contributed to this piece of work and informed our thinking. In particular, we wish to thank Dr Simon Brownsell and Katherine Easton from the University of Sheffield for their preliminary work in this area and for commenting on drafts of this report. We also wish to thank Stuart Carroll, a senior health economist specialising in health policy, for his assistance with the analysis on financial outcomes.

This report was funded by an unrestricted educational grant giving us the freedom to draw our own conclusions. We are indebted to all our sponsors. As well as driving our on-going work, involving frontline professionals in policy development, sponsorship enables us to communicate with and engage officials and policymakers in the work that we do. Involvement in the work of 2020health.org is never conditional on being a sponsor.

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January 2012

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## Executive summary

This 2020 health White Paper builds on our recent report “HealthCare without Walls: A Framework for delivering telehealth at scale” to explore lessons learnt at the world’s largest user of telehealth services: the US Veterans Health Administration (VHA).

As a large publicly funded system delivering comprehensive services to a veteran population of 23m and with an annual budget of over £30bn, the VHA has many parallels with the NHS. Extensive studies show that the VHA consistently provides a better quality of care than other health systems in the US, and at a lower cost.

Central to its strategy of ‘keeping patients healthy’, the VHA aims to support patients with long term conditions through care ‘at a distance’ and the promotion of self-management skills. This strategy has led to the significant reduction in acute care facilities and the commensurate expansion of outpatient clinics. In this regard, the NHS can learn many lessons from the VHA’s overall strategy to integrate care and its use of telehealth technologies.

Over the last decade, the VHA has implemented and assessed a major Home Telehealth programme to enhance access to care nationwide. It has undertaken to improve the health of designated individuals and populations, with the specific intent of providing ‘the right care in the right place at the right time.’ In 2011, some 50,000 VHA patients received telehealth services, and substantial growth is projected.

While the initial focus of the programme was around the active management of chronic conditions and post-traumatic stress disorder, this is now being extended to primary prevention of these conditions through programmes such as obesity management. The model for telehealth provision is defined nationally, with teams of local care coordinators managing the telehealth patients in each of twenty-one designated regions.

### Overall Learning Points from the VHA

- As part of an overall redesign of care, telehealth represents a vital element in the shift towards more home-based care, reducing the imbalance between hospital and primary care spend and making better use of scarce clinical resources.
- Creating a telehealth-enabled service needs senior leadership commitment to ‘care at a distance’, considerable investment and time, and substantial change to the organisational infrastructure and performance management system.
- As well as benefiting patients with common core long term conditions, telehealth-enabled care coordination services can also be cost effectively applied to broader populations for prevention and ‘wellness’ programmes.
- Development of an integrated patient record greatly facilitates collaboration between different clinicians involved in patient care, with telehealth data available to community-wide electronic health records.
- Training is vital to ensure an effective, stable and consistent level of service. Appropriate audit data will inform service delivery and decision making.

### Key Recommendations for the NHS

- To achieve the staffing and logistical efficiencies seen in the VHA, the NHS needs to find ways to deliver a step-change increase in the scale of telehealth implementation.
- Those who manage the delivery of telehealth need not be local to the patient but do need to interact closely with the responsible clinician in primary care / community care.
- Telehealth should be established as a centralised care coordination service on a local/regional basis rather than something additive to existing Community Matron, District or Practice Nurse workloads.
- Care pathways incorporating telehealth would benefit from design at a national level – e.g. by the National Institute of Health and Clinical Excellence.
- National oversight of telehealth is essential in terms of commissioning, procurement and best practice adoption.
- To provide the confidence needed for referrals into a telehealth service, clinician engagement is essential, based around clear evidence of benefit to specific patient and disease groups.
- Funding needs addressing through sustainable reimbursement policies, in particular revisions to tariff.
- Targeted patient selection is essential, based on strict criteria of who benefits.

## Introduction: telehealth and the NHS

The current NHS approach to the delivery of care to people with long term conditions is widely recognised as unsustainable both in terms of cost and quality of care. The NHS already spends 70% of its budget on the 15m people who have one or more of these conditions. With our ageing population, patient numbers are expected to grow by 23% over the next 20 years.

2020health’s 2010 report “HealthCare without walls: a framework for delivering telehealth at scale”<sup>1</sup> described the potential cost and quality impact of telehealth-enabled services in the NHS and set out a series of recommendations to drive deployment. There are over 100 telehealth pilots taking place within the NHS, but many of these are small-scale and not well integrated into healthcare systems.

Our earlier report highlighted how telehealth can and does transform people’s lives, allowing patients to take more control of their own health through personalised health education and information. The stability of the patients’ condition and their behavioural responses can be monitored remotely, enabling proactive interventions to prevent unnecessary emergency hospital admissions, to optimise clinicians’ caseloads and hence to scale back secondary care capacity.

In drawing up recommendations for action, the report sourced international experience where telehealth and related technologies are being used at scale to support patient self-management skills and care ‘at a distance’.

This White Paper builds on our earlier report to explore in more detail lessons learnt at the world’s No.1 provider of telehealth at scale: the US VHA. It draws on recent interviews with key VHA clinical and executive leaders (past and present) and published research, and aims to interpret this experience into an NHS context to inform NHS policy makers and leaders.

As a fully integrated, national health care system that is both funded and operated by the federal government, the VHA has many parallels with the NHS. 2020health believes the NHS can learn many lessons from the VHA’s overall strategy to integrated care and its use of telehealth technologies.

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1. Cruickshank et al. (2010): “Healthcare without walls: A framework for delivering telehealth at scale”, 2020health.

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## Transformation of the Veterans Health Administration

The VHA forms a major part of the Department of Veterans Affairs which provides patient care and federal benefits to veterans. As a large integrated healthcare system, the VHA provides healthcare services for a population of about 23 million eligible veterans, with 225,000 employees operating from 153 hospitals and many other centres (2009 figures). Its 2010 annual medical care budget was \$48bn (£30bn), roughly a quarter of the NHS's.

In the debate around the current Obama reforms for US healthcare, the VHA has been cited as providing the best quality of care of any US healthcare system. It has been extolled as a role model for open access and financially sustainable care. The VHA's journey from the early 1990s, when prominent US commentators described it as "the worst example of socialised medicine" (with poor access, long waiting times, fragmented care and unpredictable quality), to now a world class organisation was charted by journalist Philip Longman in his book "Best Care Anywhere".<sup>2</sup>

Longman's fascinating and readable story provides much for the NHS to learn from. His cited publications included a 2003 New England Journal of Medicine study<sup>3</sup>, which demonstrated through an eleven-measure assessment that VHA care was of significantly higher quality than the fee-for-service Medicare (the federal health programme for people over the age of 65). In 2004, a RAND corporation study concluded that the VHA outperformed all other sectors of American healthcare in 294 measures of quality.<sup>4</sup> In 2007, the British Medical Journal noted "the VHA has recently emerged as a widely recognised leader in quality improvement and information technology. At present, the VHA offers more equitable care, of higher quality at comparable or lower cost than private sector alternatives".<sup>5</sup>

Given the long term, life-long nature of the relationships with its patient population, the VHA's whole mission and incentives are 'to keep patients healthy'. Its transformation in the late 1990s was led by Dr Kenneth W. Kizer who, after appointment by President Clinton as the VHA's Under Secretary for Health, reoriented the system away from an emphasis on hospital-based care. Aiming for consistent and predictable high quality, patient-centred care, he developed a model with much greater emphasis on health promotion and disease prevention – albeit often in secondary or tertiary facilities – and the management of long term conditions. Central to this was the concept of 'best value care', a shift to systematic measurement and improvement of outcomes, and routine public reporting of all medical errors and omissions of care.

Given the need to care for patients across the nation, and with more than 40 per cent of veterans in rural areas with access difficulties, delivering virtual healthcare was an important element of the strategy, introduced as part of a major 'care coordination' initiative. After a period of trialling, the service was augmented with telehealth to form the Care Coordination/Home Telehealth (CCHT) programme. This is now called 'Home Telehealth' and is the biggest single telehealth programme in existence worldwide, providing care to 50,000 patients in 2011.

The programme embraces "the use of health informatics, disease management/care coordination, and home telehealth technologies to enhance access to care and improve the health of designated individuals and populations – with the specific intent of providing the right care in the right place at the right time."

In practice the service to a specific patient is coordinated by a Care Coordinator (CC), usually a registered nurse or social worker. CCs provide on-going monitoring and coaching to patients based on the agreed care pathway, and coordinate with other VHA clinicians to arrange appropriate treatment or a change in medication.<sup>6</sup>

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2. Longman (2010) "Best Care Anywhere – why VA Healthcare is better than yours", Polipoint press

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4. RAND Corporation (2004) "Comparison of care for patients in the VA and patients in a national sample", Annals of Internal Medicine

5. Oliver A (2007) "The VA – an American Success Story?", British Medical Journal

6. Easton K, Brownsell S, Hawley M, Mawson S (2011): The translation of the VA telehealth model to the English context. WP1 (a) Service Model Determinants, Analysis of the Veteran's Association literature. University of Sheffield (Version 1.1)

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## Learning from the VHA

While both are large, publicly funded systems, there are some important differences between the health systems of the VHA and the UK. The VHA is a closed health system, with its nationwide provider hospitals and clinics funded through a single payer, albeit regionalised across 21 service delivery areas. Patients, once enrolled, will usually remain with the VHA for the rest of their lives, allowing the VHA to plan for long-term costs while capturing all of the savings garnered by the programme.

While at best the NHS delivers world class integrated care, frequently patients receive fragmented care from across different parts of the ‘federated’ NHS. For example, a single care pathway may be split between many providers, so the costs and benefits of telehealth provision would fall to different organisations. This may be improved with the current health reforms, for example with:

- The NHS Commissioning Board working to develop tariffs for integrated pathways of care.
- Clinical commissioning groups having a duty to promote integrated health and social care around the needs of users.
- Health and wellbeing boards charged with promoting joint commissioning and integrated provision.<sup>7</sup>

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7. DH(2011) : Government changes in response to the NHS Future Forum. 14th June 2011

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## Outcomes

**Table 1:** Scale and costs for key disease groups across NHS and potential impact from introducing telehealth

Condition	Approximate Prevalence	Approximate annual direct cost in England	Potential utilisation decrease from telehealth based on VHA experience
Diabetes	2.2 million <sup>a</sup>	£9 billion <sup>f</sup>	20.4% <sup>k</sup>
Hypertension	10 million <sup>b</sup>	£7 billion <sup>g</sup>	30.3% <sup>k</sup>
Congestive heart failure (CHF)	0.75 million <sup>c</sup>	£625 million <sup>h</sup>	25.9% <sup>k</sup>
Chronic Obstructive Pulmonary Disease (COPD)	0.9 million <sup>d</sup>	£492 million <sup>i</sup>	20.7% <sup>k</sup>
Depression	12.75 million <sup>e</sup>	£37 million <sup>j</sup>	56.4% <sup>k</sup>

### Sources

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- e 1 in 4 people estimated to experience depression in the UK. <http://www.mind.org.uk>, accessed October 2011. (1/4 of England's population (51 million) = 12.75 million).
- f Department of Health (2006). Turning the corner improving diabetes care, [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationPolicyAndGuidance/DH\\_4136141](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationPolicyAndGuidance/DH_4136141), accessed October 2011.
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- j Thomas C, Morris S. Cost of depression among adults in England in 2000. *British Journal of Psychiatry* 2003; 183: 514–519
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## Outcomes

As shown in Table 1, based on a major evaluation paper published on the VHA Home Telehealth Programme by Darkins et al in 2008, the Home Telehealth programme has delivered significant reductions in patient resource utilisation that would otherwise be absorbed by the VHA healthcare system.

In their analysis, the authors looked at the impact of telehealth on a selection of disease areas across a population group of 17,000 patients. Applying the cited figures for reductions in resource utilisation, it is possible to perform a crude extrapolation to consider the approximate potential savings that telehealth could deliver for the English NHS (see Table 1). These savings would apply to the ‘high intensive’ populations of respective disease groups.

For example, in the case of diabetes, current estimates put the direct healthcare cost burden at roughly £9 billion per year for the English population. If the ‘high intensive’ population of the diabetic disease group was conservatively estimated at 5%, a £90m annual cost reduction in diabetes care could be deduced.

While many caveats apply to these figures and assumptions, in particular whether such a saving could practically be achieved, they show the potential of telehealth as a mechanism for reducing costs and improving the overall delivery of NHS care, providing deployment is handled at scale as per the VHA.

### Learning for the NHS:

- **To achieve the staffing and logistical efficiencies seen in the VHA (between 20–56% reductions in patient utilisation, depending on disease group), the NHS needs to find ways to deliver a step-change increase in the scale of telehealth implementation.**

## The development of care coordination and telehealth in the VHA

The use of telehealth in the VHA developed from pre-existing domiciliary care services. Pilot projects were carried out from 1999 onwards and found considerable cost savings. The learning from these pilots was developed into a national implementation programme, launched in 2003–4. Each of the 21 regional service delivery areas of the VHA was allocated \$1m for equipment to start the telehealth programme and was asked to provide telehealth for the five core conditions listed in the section below.

The model for telehealth provision was defined nationally and involved a team of care coordinators in each locality who managed the telehealth patients in that region. National vendor contracts allowed for the use of a limited choice of equipment, and care pathways and care management models were all defined at a national level.

As Dr Kizer has commented, “telehealth has helped VHA to be both vertically and virtually integrated”. (By this it is meant that the patient is treated in an integrated fashion by the appropriate VHA care organisation or non-VHA provider through use of care agreements; these providers being able to integrate and share information via the patient’s Electronic Health Record, irrespective of location.)

### Learning for the NHS:

- As part of an overall redesign of care, telehealth represents a vital element in the shift towards more preventive care, reducing the imbalance between hospital and primary care spend and making better use of scarce clinical resources.
- Success depends on senior leadership commitment to ‘care at a distance’ as a direction of travel.
- A telehealth-enabled service needs considerable investment and time to generate results. It also needs substantial change to the organisational infrastructure (training and core competencies) and performance management system.
- National oversight of telehealth is essential in terms of commissioning, procurement and best practice adoption.
- Care pathways incorporating telehealth would benefit from design at a national level – e.g. by the National Institute of Health and Clinical Excellence.

## Patient profiles

When the national Home Telehealth programme was first initiated in 2004, telehealth was intended for non-institutional care patients (who have deficits in three or more activities of daily living and are at risk for nursing home placement) and patients requiring chronic case management. Within these groups, specific telehealth pathways were designed for five conditions: CHF, COPD, hypertension, diabetes mellitus, and post-traumatic stress disorder. These conditions were chosen as these patients are those who consume the largest proportion of the healthcare resource.

Telehealth moves care out to where the patient is. It is used to facilitate coordination and continuity of patient care, preventing clinic visits and hospital admissions and ultimately reducing the costs of chronic condition management and improving the outcomes. It promotes the concept of an ‘expert patient’, fundamentally changing the relationship between patient and the healthcare system as the patient takes more control over their own health.

As the Home Telehealth service has matured, the five initial chronic conditions remain the core conditions targeted, although the use of telehealth has expanded to other areas. Common care pathways are defined centrally through careful evaluation of best practice and are required to be adopted locally. These pathways include not only single conditions but also common bi-morbid and tri-morbid conditions such as CHF and Diabetes or CHF and Diabetes and COPD, so that single conditions are not treated in isolation but the patient is addressed in a more holistic manner.

Patients with chronic medical conditions like diabetes and hypertension are often on Home Telehealth for long periods of time. Conversely, patients on the palliative care, acute heart disease and dementia programmes are typically on Home Telehealth for much shorter periods.

Due to the substantive impact on patients’ quality of life, there is also growth in the use of specialised telehealth programmes to manage depression, other mental health conditions, palliative support and preventive medicine. There are some additional groups who are not yet offered telehealth but may benefit from this in the future, including those under hospice support and care-giver support.

## Patient profiles

The initial identification of telehealth patients was done on a risk stratification basis. Patients who had health costs of \$100,000 or more the previous year and/or had multiple or extended usage of care were the first to be targeted for telehealth. Now, new telehealth patients mostly come from referrals from physicians, although some patients refer themselves, or are even referred by other patients.

The choice of patients is very important in determining whether telehealth will be successful. Eligible patients in the VHA are offered the choice to receive Home Telehealth-based care or other care services. Not all patients will be right for telehealth and self-selection can improve adherence and acceptance of the service.

Home Telehealth can also be highly effective in post-discharge situations for low level, non-intrusive monitoring to assist in the patient's recovery from a hospital stay, rather than using a skilled community care worker in this way.

A newly introduced health promotion/disease prevention telehealth module is working with people on issues such as smoking cessation, weight loss and increasing their activity levels. These patients will generally have an underlying health condition, but of a less serious nature than those on traditional telehealth packages. The aim is to intervene early and promote better lifestyle choices, hence preventing progression of the disease.

One new area of preventive telehealth which has emerged recently is the management of obesity. The TeleMOVE! programme uses telehealth equipment to support and manage those patients who are obese, or those with another chronic condition who are also overweight. This programme is growing rapidly. Patients sign up for an initial 90-day programme on TeleMOVE! but many patients attend for a second 90-day plan and further programmes can be accessed if necessary.

### Learning for the NHS:

- Although core long term conditions found to benefit from telehealth are CHF, COPD, hypertension, diabetes mellitus and post-traumatic stress disorder, telehealth can also be applied to broader populations for prevention and 'wellness' programmes.
- Best practice patient selection methodologies are critical to the success of any telehealth programme. Risk stratification can be used to identify the patients most in need of telehealth support, although not all patients will be right for telehealth.
- Standardised telehealth protocols can be designed for each condition or for co-morbidities, based on national clinical guidelines, which can then be customised by each vendor for use on their own equipment.
- Patient self-selection improves adherence and acceptance of the service.

## The Home Telehealth team

The Home Telehealth team consists of CCs (Care Coordinators) and programme support workers. CCs are healthcare professionals, often nurses but sometimes dietitians or social workers, who coordinate all care needs for the patient. This role is similar to that of community matrons in the NHS, except that, in home telehealth, the CC works independently of – but collaboratively with – mainstream primary care.

The CC aims to manage as much as possible of the care remotely. If a physical meeting is necessary between the patient and CC, the patient may come into the medical centre. Many patients live very remotely and will go to a local community-based outpatient clinic for their care, so may never visit the centre providing the telehealth service. When they do attend, telehealth information is available, including vital sign trends, symptoms and recent self-care behaviour, enabling clinical resources to be used more effectively.

The CC assesses each patient upon enrolment in the programme, selects the appropriate technology, trains the patient and caregiver, reviews telehealth monitoring data (both vital signs and subjective data in response to patient questionnaires) as it comes in, and provides active care or case management (including communication with the patient's physician). Each CC is expected to manage a panel of at least 100–150 patients.

The CC interacts with all members of the treatment planning team through the national electronic health record. The CC sends reports to the patient's primary physician at least every 30 days with a summary of the telehealth data, and more often when this is requested by the physician or required due to the need for urgent assessment or a change in condition.

Programme support workers carry out technical triage for the patients. They call to follow up on missed/erroneous readings, checking up on those patients who have not used the telehealth service for 3 or more days. They send out information requested and provide assistance if the home telehealth equipment is not working. The VHA's experience is that for a CC to manage 150 patients, one programme support worker is needed for every three CCs.

It is important to emphasise that the CC is not simply monitoring the information provided by the telehealth programme, but using it as a tool, to manage and increase patient self-care. The data is used to set goals with the patient for a 90-day period, and build a detailed treatment plan based on those goals. Together with the provision of information on their condition and beneficial lifestyle adjustments, this helps to make the patient more responsible for self-care.

### Learning for the NHS:

- **Telehealth should be established as a centralised care coordination service on a local/regional basis rather than something additive to existing Community Matron, District or Practice Nurse workloads.**
- **System capacity can be provided through a staffing model of care coordinators and programme support workers.**
- **The care coordinator position works best as a dedicated role, with a caseload of 100–150 patients if full time.**
- **Programme support workers can provide invaluable first-level support for technical triage.**

## Changing the culture

The introduction of a new way of working, such as providing care management using telehealth, requires the acceptance of all stakeholders. Those most involved in the VHA's Home Telehealth programme fall into 3 groups: the care coordinators, other healthcare clinicians and patients.

### Care coordinators

Those working as CCs were generally quickly converted to the advantages of telehealth through observing the beneficial impact on their patients. On the whole, CCs report high levels of satisfaction with their role, which is more dynamic than simply monitoring data and involves the active teaching and coaching of patients. Unlike many working with telehealth initiatives in the UK, the VHA CCs have the remote management of patient care as a dedicated role.

### Other clinicians

Once the initial telehealth service is provided, physicians are encouraged to refer patients into the programme. This has been achieved mainly through clinical champions, who provide leadership locally and encourage others to use the service. These champions must already be convinced of the benefits of telehealth and be happy to share their positive experience and promote the use of telehealth to their peers. Telehealth leaders in each locality also strive to raise awareness among clinicians to encourage use of the service.

Acceptance among physicians depends on the evidence of benefit to patients and the role they have in shaping the service. Since the physicians in the VHA are not themselves directly responsible for the cost of the service, they are generally willing to refer into it, provided that they can see a benefit to their patients. As the evidence base has built up, showing that telehealth patients achieve consistently better health measures and lower usage of health services than those not on the programme, most physicians have accepted the use of telehealth. This is more the case in rural than urban regions, due to access and transport issues associated with delivering face-to-face care.

In some regions, a financial incentive was used initially to encourage physicians to refer into telehealth, in the form of a bonus relating to the number of patients referred into the telehealth programmes.

### Patients

Patient acceptance of the technology and commitment to the programme is essential. Patients have to agree to participate, to take their readings and respond every day to dialogue questions, and to send in their data. The patient needs to be available when the CC calls them, which sometimes causes difficulty if the patient goes on holiday without informing their CC in advance. Patients are generally happy with the programme as it reduces hospital admissions and length of stay while improving quality of life.

### Learning for the NHS:

- Each locality needs a clinician to champion telehealth and share success stories with other clinicians.
- There is a need to demonstrate the positive outcomes to patients and clinicians.
- Incentives may be needed for early adopter clinicians before clear performance norms are available to manage sustainable delivery at scale.

## Training

In order to support those working in Home Telehealth, the VHA has a national training centre, the Sunshine Telehealth Training Centre in Florida, which provides national support for Home Telehealth programmes.

New CCs have hands-on training at the local site, working with an experienced CC who acts as their mentor, and also receive online education delivered by the Centre. The basic curriculum consists of 2–4 weeks of hands-on training locally and 12 hours training online. Nurses with previous experience in home care have been found to be most suited to the CC role.

In addition there is compulsory annual training for all those working in telehealth, conducted via online live meetings. The Centre works together with vendors to deliver training on new devices and annual updates on older systems. It also provides case management training, covering motivational interviewing and coaching of patients, assessment and reassessment, and the development and review of treatment plans. The training centre provides on-going mentoring, consultation and performance support to help with organisational change.<sup>8</sup>

### **Physician training**

There are optional courses in telehealth provided for physicians but little formal training. However, telehealth leaders in each locality often convene meetings to train physicians, arranging group sessions where physicians can see the equipment, understand how it works, and recognise the benefits that can be achieved for patients. Once physicians are using the telehealth system, there is good communication between the CC and the physician responsible for each patient.

Whilst most of the training is done virtually, the Office of Telehealth Services arranges a national conference every 2–3 years to enable all those working in VHA telehealth to meet up and develop evolving practice.

### **Learning for the NHS:**

- **Training is vital to ensure an effective, stable and consistent level of service.**
- **National or common training support and access to online training facilities are important prerequisites.**

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8. Darkins et al (2008) op. cit.

## Integration into the electronic health record

According to Dr Darkins, “The computerized patient record is a fundamental prerequisite to establishing a viable CCHT program at an enterprise level.”<sup>9</sup> The VHA’s information system is built around an electronic patient record system known as VistA (Veterans health information systems and technology Architecture). VistA is made up of approximately 100 integrated software modules, including the Computerised Patient Record System (CPRS) which is the electronic health record (EHR) user interface for clinicians. The CPRS can be used to review and update patients’ medical records, place orders for medication and procedures, make referrals, change life style recommendations and provide self-care advice.

The telehealth data from individual patients is collected behind the VHA firewall and integrated into the EHR using international messaging standards (HL7). This allows all validated telehealth data to be accessed through the patient record. Whilst this is a large amount of data, physicians find the information immediate and useful for determining patient treatment.

In addition to the raw data, the telehealth nurses write summary notes of the data (usually every 30 days) following a standardised template, which are then added to the EHR.

VistA is currently being updated to allow patients to access their own medical records online and forward them to other organisations. This product is known as HealthVet<sup>10</sup> and will include patients’ telehealth data.

### Learning for the NHS:

- Telehealth can best be integrated with other forms of healthcare delivery through the use of a shared health record, as exists in the VHA.

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9. Darkins et al (2008) op. cit.

10. <http://www.myhealth.va.gov/>

## Monitoring and evaluation

The telehealth programme was designed to incorporate monitoring and evaluation through the standard VHA health information systems. All technology contracts include specific data and technical requirements (e.g. adherence to HL7 standards), enabling Home Telehealth data from vendor systems to be linked into VistA. This allows the capture of telehealth workloads and provision of cost data, as well as a means for reporting on clinical outcomes and programme management metrics to measure improvements in efficiency.

Upon enrolment in the telehealth programme, patient baseline data is collected on:

- Demographic and socio-demographic data
- Functional status – pain levels, condition specific measures, cognitive functioning
- Psychological well-being – short form geriatric depression scale, mood scale
- Quality of life

Data is also collected on the use of health services, 12 months pre-enrolment and 6, 12, 24 months after, including:

- Emergency visits
- All-cause hospitalisation and disease-specific hospitalisations
- In-patient bed days
- Out-patient clinic appointments
- Nursing home admissions
- Nursing home bed days<sup>11</sup>

Data on patient satisfaction with the care provided is collected every 3 months.<sup>12</sup>

Telehealth programme evaluation is done through the EHR. A programme is used (ProClarity) to survey all the information in the EHR and provide outcome reports. This information is used on a national, regional and local level. Every year, outcome and cost targets are set and individual localities can monitor their own levels of performance.

### Learning for the NHS:

- **The use of a standardised patient record delivering appropriate clinical performance information can greatly facilitate monitoring and evaluation of patient outcomes.**

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11. Easton K et al.(2011), op. Cit.

12. Darkins et al (2008) op. cit.

## Funding and reimbursement

As a federal body, the VHA receives central funds which it then allocates to each network depending upon the number and type of patients catered for. Funding through each network is on a much larger scale than the localised funding model of the NHS, where primary care trusts (PCTs) and soon clinical commissioning groups (CCGs) will be responsible for the healthcare needs and costs of their local population. In the VHA, the business case for telehealth did not have to be made separately in each locality; rather once the business case had been determined at scale, the telehealth programme was made mandatory.

Despite the centralised planning of the VHA telehealth programme, additional funding for CCs was not provided nationally. Each network had to make the business case for staff resources in support of their local implementation.<sup>13</sup> In the NHS the national aspects of some of the commissioning requirements, in particular primary care commissioning through the National Commissioning Board, opens the potential for funding elements of a nationwide telehealth programme. Additionally, the development of an NHS tariff for telehealth-enabled services would represent a major step towards a sustainable reimbursement regime.

### Learning for the NHS:

- **Technology is best acquired centrally where effective integration and efficiencies of scale can be realised, while services are best implemented locally where decisions on staffing and resource provide a commitment to performance.**
- **Funding needs addressing through sustainable reimbursement policies.**

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13. Darkins et al (2008) op. cit.

## Equipment choice, procurement and supply

All the equipment used within the CCHT programme is under national contract. This is necessary to guarantee sufficient scale to the supplier and to incentivise private sector investment. The equipment is purchased from the supplier and in addition there is a service fee per patient.

There are currently six different telehealth vendors contracted for use in the VHA. This provides a limited degree of choice of equipment to the local telehealth programmes. Different vendors concentrate on different aspects of telehealth, such as easy measurement of vital signs or better educational information, and on different conditions, allowing the appropriate equipment to be chosen for each patient. It is useful to have a variety of equipment as not all patients respond well to the same patient user interfaces and programme options; so too some back-up choice of equipment in the event of product failure.

The choice of equipment for each patient is made during the initial patient assessment. This is usually a cooperative decision, based on an assessment of patient need, made by the nurse care coordinator and lead telehealth coordinator, and based on an algorithm provided by Sunshine Training Centre. The selected equipment is ordered centrally and is delivered to the hospital where it is checked; additional information is added and it is then sent to the patient by courier. The patient receives a phone call to talk them through how to set up the equipment. If the patient cannot manage this, it is possible to ask one of the local community nurses to help them. When the patient has finished with the telehealth equipment, they are sent a box and a label to send it back to be cleaned and reused.

The VHA is further integrating and mainstreaming procurement through the transfer of procurement and purchasing to the Denver Acquisitions Center.<sup>14</sup>

## Conclusion and recommendations

To address the huge challenge of effectively caring for the millions of patients with long term conditions, the VHA serves as an excellent role model for the NHS in terms of scaling up new care management services involving telehealth. Reflecting on the key lessons learnt from the VHA, we have listed our ten-point plan for rapid telehealth impact in the NHS:

**Table 2:** *Ten-point plan for introducing telehealth across the English NHS*

### Transformational development

1. Success depends on senior leadership commitment to 'care at a distance' as a direction of travel, reducing the imbalance between hospital and primary care spend and making better use of scarce clinical resources.
2. A telehealth-enabled service needs considerable investment and time to generate results. It also needs substantial change to the organisational infrastructure (training and core competencies) and performance management system.
3. Care pathways incorporating telehealth would benefit from design and accreditation at a national level – e.g. by the National Institute of Health and Clinical Excellence.

### Outcomes from telehealth programme

4. To achieve the staffing and logistical efficiencies seen in the VHA (between 20–56% reductions in patient utilisation, depending on disease group), the NHS needs to find ways to deliver a step-change increase in the scale of telehealth implementation.

### Patient profiles

5. Best practice patient selection methodologies are critical to the success of any telehealth programme. Risk stratification must be used to identify the patients most in need of telehealth support, although not all patients will be suitable for telehealth.

### Care coordination and telehealth

6. Those who manage the delivery of telehealth need not be local to the patient but do need to interact closely with the responsible clinician in primary care / community care. In particular, telehealth needs establishing as a centralised service of 'care coordinators' on a local/regional basis, rather than something additiive to existing Community Matron, District or Practice Nurse workloads.

### Changing the culture

7. To provide the confidence needed for referrals into a telehealth service, clinician engagement is essential – based around clear evidence of benefit to specific patient and disease groups.

### Training

8. Training is vital to get an effective, stable and consistent level of service – with appropriate audit data to inform service delivery and decision making.

### Integration with Electronic Health Record

9. In the absence of a common patient record (as generally the case in the NHS), there needs to be integration and sharing of data between those working in telehealth and those in primary care, using industry standard interface definitions.

### Funding and reimbursement

10. Funding needs addressing through sustainable reimbursement policies, in particular revisions to tariff.

“The greatest challenge facing the NHS is how to deliver better outcomes to the rising population who live with long term conditions, while health spending remains curtailed. I welcome this report because it describes a significant way in which efficiency savings can be made while improving quality of care through much smarter use of telehealth technology, based on the experience of the VHA.

As the Programme gets underway to improve the lives of 3 million people with long term conditions through telehealth-enabled services, the NHS would do well to study these lessons and adopt best practices.”

**Rt Hon Stephen Dorrell MP, Chair of the Health Select Committee**

“I welcome this latest report from 2020health which once again underlines the great potential of telehealth technology. The experience of the Veterans Agency, which in terms of its structure bears many similarities with the NHS, highlights the benefits that the NHS could realise if telehealth technology is rolled out nationwide.

The Telehealth All Party Parliamentary Group will continue to raise this subject with Ministers and others to ensure that patients have the opportunity to benefit from telehealth technology across the country. “

**Mark Garnier MP, Chair of the All Party Parliamentary Group on Telehealth**

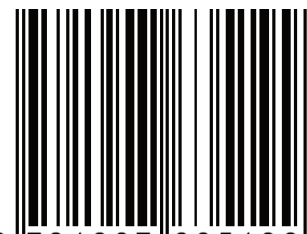
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“I welcome the 2020health report’s highlighting of the key role of telehealth in ill-health prevention and self-management, the provision of improved outcomes and independence for service users, and efficiency savings for the taxpayer.

The ten point plan they propose makes perfect sense, in that as part of an overall redesign of care, telehealth represents a vital element in the shift towards more preventive care, reducing the imbalance between hospital and primary care spend and making better use of scarce clinical resources.”

**Baroness Greengross, Chief Executive,  
International Longevity Centre UK**